REGIONAL STEWARDSHIP STORIES

Healthy Land & Water Stewardship report

Urban Water

Keeping the soil on site: Improving sediment and erosion control on construction sites.

Impacts of erosion on construction sites

South East Queensland (SEQ) urban areas are expanding rapidly to keep pace with population growth. With increased development comes increased land clearing and earth disturbance, resulting in exposed soil which is susceptible to erosion. Wind and rain erode exposed soil creating either dust which pollutes air, or dirty water run-off which pollutes waterways and aquatic environments.

Development and construction sites that do not implement measures to reduce erosion can lose 200-400 tonnes of sediment per hectare per year. Under current SEQ development rates, this equates to approximately 500,000 tonnes of sediment per year entering SEQ waterways – the equivalent of 50,000 dump trucks.

If erosion is prevented and sediment is captured on construction sites through the implementation of erosion and sediment control (ESC) measures, it is estimated that sediment loads could potentially be reduced by 85-95%. This would effectively remove approximately 425,000-475,000 tonnes of sediment pollution per year, resulting in multiple benefits for the environment, community, local governments and industry.

Sediment pollution impacts

Sediment pollution is one of the most significant threats to the health of SEQ's waterways.

Sediment can impact on waterways in many ways, including:

- Reducing water clarity and light availability.
- Smothering benthic organisms such as plants and corals.
- Damaging fauna habitat and health.
- Reducing amenity and recreational use.
- Blocking stormwater drains and reducing waterway capacity, which increases flood risk and impact.
- Affecting water resource supply, quality, and infrastructure.

This has consequences for the overall value of SEQ's waterways, which are estimated to contribute over $10 billion per year to the region's economy through tourism, recreation, fishing, and drinking water supply.

Preventing sediment run-off from construction sites using erosion and sediment controls

To reduce sediment run-off during the construction phase of urban development, ESC measures should be implemented.

ESC measures reduce sediment pollution and keep soil on site by:

- Reducing the amount of water running over the site by installing drainage controls.
- Reducing the amount of soil exposed by applying erosion controls such as soil binders and vegetation.
- Capturing sediment before it runs off the site by installing controls such as sediment basins and sediment fences.

It is a requirement under state legislation for all construction sites to implement best practice ESC measures.

Implementing erosion and sediment controls can also provide direct benefits to developers and builders by reducing:

- The amount of soil lost from construction sites.
- Damage to infrastructure caused by sediment clogging drains and roads.
- Damage to infrastructure caused by undermining.
- Amount of reprofiling and re-work required on site after rain events.

Supporting government and industry to improve ESC practices

Healthy Land & Water, through its Water by Design Program, has facilitated an ESC Community of Practice over the last ten years. The ESC Community of Practice has brought together government and industry stakeholders in SEQ to collaborate and share information and practices, resulting in improved consistency of ESC regulation across the region.

Over this time, the Water by Design program also delivered a suite of capacity building activities for government and industry throughout Queensland including:

- ESC training and workshops.
- ESC field days.
- ESC compliance officer swaps.
- ESC decision support tools.
- ESC educational materials, including factsheets, videos and decision support tools hosted on the Water by Design website.

These activities have helped to improve government and industry knowledge of ESC which has contributed to the overall improvement of ESC regulation and practices.

Government actions

As a result of improved collaboration and ESC knowledge sharing, the major urban local governments in South East Queensland have implemented best practice approaches to ESC regulation including:

- Implementing policies in planning schemes that reflect ESC best practice.

- Applying comprehensive and enforceable ESC standard conditions on development approvals.
- Insisting on high quality ESC plans, prepared by certified and suitably qualified professionals, as part of development applications.
- Employing qualified and experienced ESC compliance officers to regulate ESC on building and development sites.
- Undertaking regular proactive ESC site inspections to communicate expectations to industry and enforce ESC regulations.
- Delivering educational information and training to improve industry ESC knowledge.

These actions have resulted in improved ESC implementation on building and development sites across South East Queensland.

Images of poor ESC/sediment

Sediment impacts on waterways

Sediment impacts on drainage infrastructure

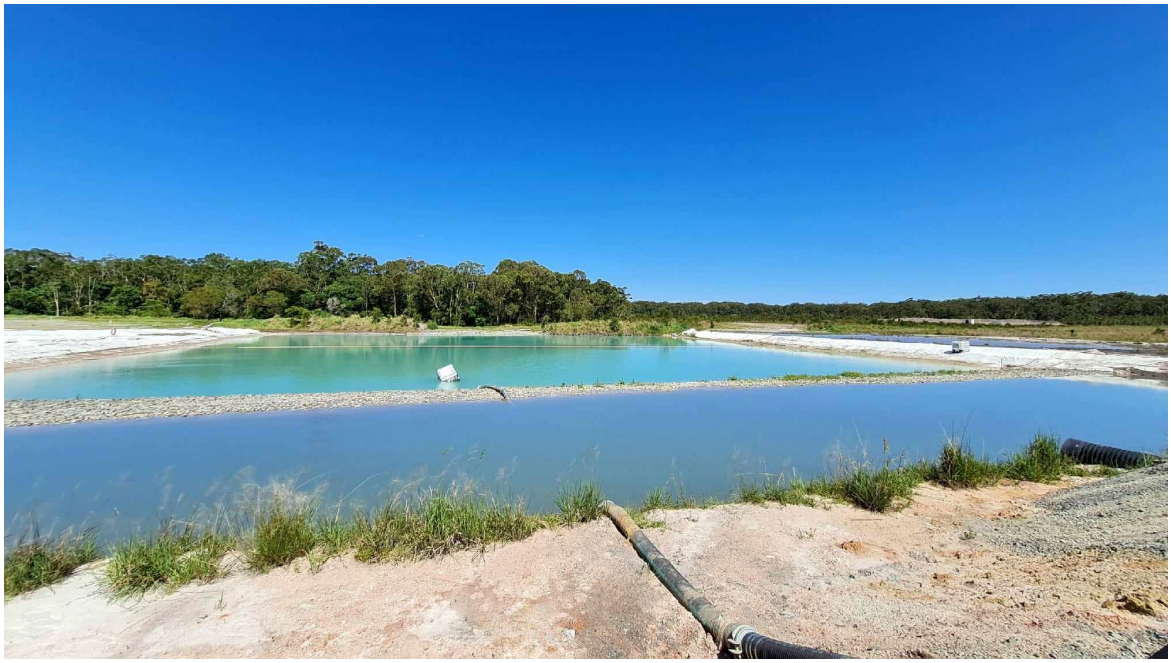
Exposed site (no ESC)

Exposed site (no ESC)

Images of good ESC

Erosion control

Drainage control



Sediment Basin

Stabilised finished lots

ESC Capacity Building images

Joint site inspections

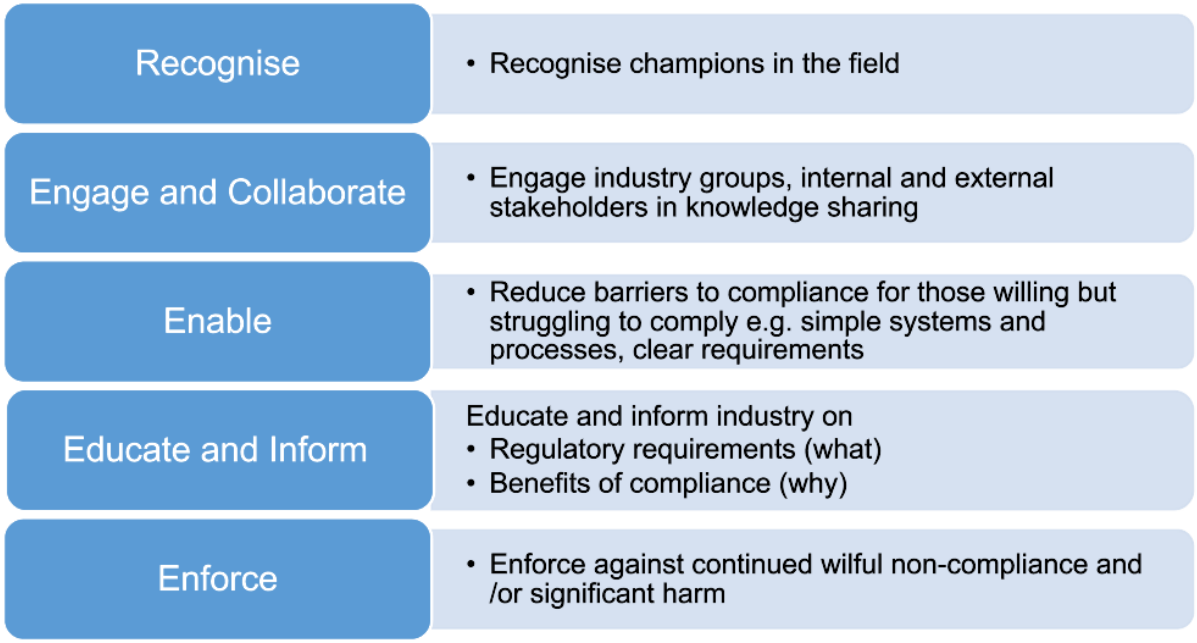
Workshops

ESC Field Days

Educational materials

Case Study – Construction Management & Waterways Protection Program - Sunshine Coast Council

In 2018, Sunshine Coast Council (SCC) commissioned a report which found significant gaps in the implementation of effective ESC on development and building sites across the region. In response, SCC developed a three-year ESC pilot program which began in July 2021. This innovative program was designed to improve ESC compliance and construction management practices to reduce sediment pollution in waterways. It applied a comprehensive engagement, education, and regulatory approach covering residential building works through to large scale developments (see diagram).



The program has resulted in significant ESC compliance improvements on both building and development sites. Building site compliance increased from 4% to 43% and development site ESC compliance increased from 31% to 50%. The awareness of industry regarding sediment impacts and the willingness to comply has increased.

Overall, the program has resulted in halting 38,790 tonnes of sediment from entering local waterways and the environment. That's equivalent to filling 3,879 dump trucks!

Sunshine Coast waterway (source: Sunshine Coast Council)

Sunshine Coast Construction Management & Waterways Protection Team (source: Sunshine Coast Council)

Case Study – Improving Erosion & Sediment Control on building sites in the City of Moreton Bay

The City of Moreton Bay has implemented a compliance program to improve ESC on residential building sites.

The Council appointed a team of experienced ESC compliance officers who are working to educate and regulate the building industry.

The initiative involves educating and working with builders through the distribution of educational information via newsletters and media, the hosting of engagement events such as Breakfast for Builders and undertaking proactive site inspections.

The ESC compliance officers also have the authority to undertake enforcement action when necessary, including issuing regulatory notices and fines.

So far, Council has assessed fourteen residential development areas, consisting of hundreds of dwellings at various stages of construction.

The Council intends to continue to work with local contractors to improve erosion and sediment control practices to reduce sediment run-off and protect local waterways and Moreton Bay.

Photo of a builder's breakfast Healthy Land & Water hosted in the Moreton LGA in March 2024

Photo of a builder's breakfast Healthy Land & Water hosted in the Moreton LGA in March 2024

Case study – Logan City Council Construction Taskforce

As a rapidly growing city, nuisances from construction sites in Logan City including dust pollution and sediment run-off were becoming an increasing concern for the community.

In 2017, the Development Assessment Branch commenced trialling a proactive model of service delivery excellence in relation to construction nuisance management. Called the Construction Taskforce, this model was created to benefit the community, industry as well as the environment.

The priorities for the Construction Taskforce were to:

- Respond quickly to complaints about construction sites subject to a development approval.
- Assist the development industry to understand its construction management responsibilities through proactive monitoring, education and enforcement.
- Provide construction companies with tools and guidance towards successfully managing the impacts of their development upon surrounding residents and environment.
- Create a culture of responsible site management and environmental nuisance abatement.

The Construction Taskforce became a specialised one-stop-shop for proactive construction environmental nuisance monitoring and complaint/compliance handling from pre-start to completion.

In 2022, the Council supported the creation of additional positions in the Construction Taskforce to focus on residential building sites. This enabled the Construction Taskforce to continue operating as a highly effective compliance team that could provide high level compliance services to both residential building sites and development sites.

Overall, the Construction Taskforce program has achieved the following benefits:

- Long term cost savings for ratepayers through the early resolution of problems and avoidance of maintenance expense on council assets.
- Provision of weekend coverage through its on-call service, which is critical to address construction nuisance occurring outside permitted hours and days.
- Public confidence that Council is serious about managing the impacts of development.
- Fairness and transparency, aligning the expectation on large construction sites with those of the dwelling house construction sites.
- Identification of emerging issues before they become problematic.
- Better industry behaviour and construction management practices.
- Faster outcomes and better customer responsiveness.
- Reduced impacts on local waterways, wetlands and environment.

Photos:

New development area in Logan City

High efficiency sediment basin in a development site, Logan