

TAKING ACTION TO CONTROL SEDIMENT



SIMPLE SOLUTIONS
TO PROTECT THE HEALTH OF
PERTH'S WATERWAYS

TAKING ACTION TO CONTROL SEDIMENT

Pollutants such as soil, sand and cement can be blown or washed away from building and construction sites. Appropriate erosion controls should be used on road work sites and residential, commercial and industrial developments. When appropriate erosion controls are not used, soil, sand and cement travels through the stormwater drainage system and can pollute local parks and sensitive environments such as rivers, wetlands and oceans.

SEEKING SEDIMENT SOLUTIONS

INTRODUCING THE SEDIMENT TASK FORCE

The Sediment Task Force develops and encourages sediment control solutions. The Task Force is supported by:

- Leading industry groups; Housing Industry Association WA, Master Builders Association of Western Australia, Urban Development Institute of Australia (WA)
- WA State government agencies; Department of Biodiversity, Conservation and Attractions, Department of Water and Environmental Regulation, Main Roads WA, Water Corporation
- WA Local Governments; WA Local Government Association and the Cities of Armadale, Gosnells and Subiaco
- WA community environment groups; Perth NRM and the South East Regional Centre for Urban Landcare.



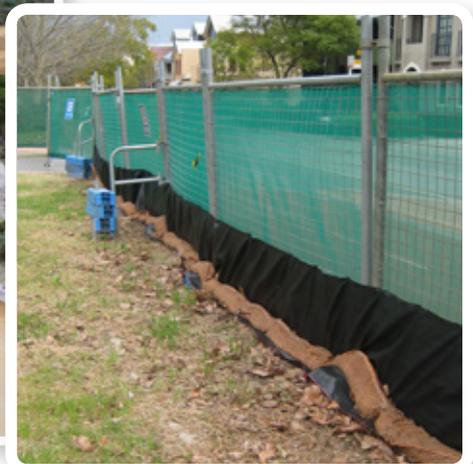
POSITIVE ACTIONS



A sediment fence installed around a new home site to improve sediment capture. Source: Healthy Land and Water and Brisbane City Council



Stabilisation of newly-constructed batter and table drain using coir matting and rock armouring as part of road works construction. Photographer: Matt Coppen, Main Roads WA.



To prevent sediment leaving site, geotextile material should be secured to the site perimeter fence to a minimum height of 600mm. Photographer: Vincent Cusack, The Western Suburbs Regional Organisation of Councils (WESROC)



THINGS TO AVOID



Builders sand is blown by wind and transported by water, entering the drain due to the absence of a sediment control mechanism such as a sediment fence. Photographer: Perth NRM



This construction site drain flows directly into a nearby wetland. Photographer: Giles Pickard, City of Subiaco



Sediment build-up at Mabel Talbot wetland. Photographer: Giles Pickard, City of Subiaco

THE BENEFITS OF ACTION ON SEDIMENT CONTROL

Together with builders, residents, Local Government and environmental managers, the Sediment Task Force is working to control sediment to:

- Reduce the risk of houses and roads flooding as a result of blocked stormwater drains
- Reduce the risks of accidents on roads and paths
- Prevent sediment from covering grass in the parks that receive stormwater runoff
- Help to maintain stormwater management systems such as biofilters, pervious paving, infiltration cells and tree pits that are critical to protecting our rivers, wetlands, marshlands and oceans
- Protect hydrological functions of rivers, wetlands and other waterways
- Prevent sediment from smothering the reeds, plants and seagrasses that keep our rivers, wetlands and oceans healthy
- Ensure river pools continue to provide a vital refuge for fauna during long hot summers and dry seasons
- Protect aquatic invertebrates and benthic algae populations, whose presence is necessary for waterways to remain healthy ecosystems
- Prevent fish, prawns, crabs and other aquatic wildlife being killed due to the detrimental effects of sediments entering ecosystems
- Reduce nutrient enrichment of waterways and associated algal blooms
- Prevent the creation of breeding grounds for pest and potential disease causing mosquitoes and midges and protect public health from mosquito-borne diseases and pathogens.

Front cover:

Dolphins and pelicans fishing near Canning Bridge. Photographer: Sue Harper, River Guardian
Sweeping up at the end of each day costs builders and consumers relatively little but prevents sediment from entering drains. Photographer: Emma Monk, Department of Water

SUCCESS IN SEDIMENT CONTROL WILL:

- Reduce the costs to governments and the community for stormwater and river and wetland management
- Protect wetland hydrological and biological functions and water quality values
- Protect our local parks (where storm water is often discharged)
- Reduce weed infestation of waterways caused by sediment settling on the river bed and transporting nutrients
- Help conserve our recreational fishing assets

- Protect the aesthetic value of rivers, wetlands, marshlands and oceans that are icons of the natural beauty of Perth and regional WA
- Reduce sand and sediment build up on roads.

For home owners, builders and the building industry:

- Reduce the costs of supplying sand for building sites and fill for urban development
- Facilitate "all-weather" site access and improved wet weather working conditions
- Less mud and dust problems and reduced stockpile losses
- Reduced clean-up costs
- Enhanced public image

BE A PART OF THE SOLUTION

Do the right thing by our rivers and comply with environmental regulations.

EVERYONE HAS A ROLE TO PLAY:

The **Sediment Task Force** is seeking to support practical initiatives to implement best practice in sediment control. To do this we are also seeking financial support from industry and government stakeholders. Please contact enquiries@perthnrm.com if you are interested in working collaboratively with the Task Force.

The Building Industry can:

- Limit excavation and maintain existing vegetation on building sites
- Contain all sand and cement on the site (e.g. locate sand stockpiles away from the road/stormwater drains or deliver and store sand in bags; locate cement wash down site away from the road/stormwater drains)
- In situations where run off may occur, install a sediment control system between the site and the street
- Clean up any sediment that reaches the street
- Keep sand deliveries well inside the site and away from the road. If a delivery is on the verge make sure the road is protected with a sediment fence or the sand is delivered in a bag
- Educate site workers not to wash out barrows, clean tools, or wash down concrete trucks or pumps adjacent to stormwater drains. Keep the wash down on site
- Create all-weather gravel/crushed rock access to the site

- Manage rainfall run-off on site
- Educate and allocate responsibility for soils getting onto the roads. Five minutes of sweeping at the end of each working day will stop sediment getting into drains, and will cost builders and the consumer relatively nothing
- Ensure contingency plans are in place for unexpected high rainfall or storm events. For example, builders can provide extra sediment fence materials on-site to facilitate emergency repairs
- Employ a licenced waste service provider to manage waste and to recycle materials
- Prepare and implement a Site Management Plan or Erosion and Sediment Control Plan.

Local Governments can:

- Issue sediment control advice with building approvals
- Include sediment control in compliance action
- Include planning approval conditions or advice notes requiring developers to control, mitigate and regularly sweep sediment drifts
- Manage public works to ensure best practice sediment control
- Enact local laws to provide for enforcement methods.

Government Agencies constructing public works, such as roads and railways and water management infrastructure can:

- Develop and implement policies, guidelines and procedures for erosion and sediment control
- Conduct erosion and sediment control training for operational staff and contractors
- Prepare and implement a Site Management Plan or Erosion and Sediment Control Plan
- Manage public works sites to ensure best practice sediment control

- Audit compliance with policies, guidelines and procedures
- Prepare guidelines for preventing mosquito breeding grounds which can be associated with construction practices near wetlands, marshes and other waterways.

Residents can make a difference:

- Remember that the drain is just for rain
- Avoid littering (including covering trailer loads), reduce fertiliser use and prevent gardening waste and lawn clippings from entering roads
- Sweep or blow (via blower-vacs) sediment and lawn clippings back onto the verge or garden, or dispose of collected sediment and lawn clippings into a bin or composting device
- Prevent soil erosion on your property. For example, retain soil cover by mulching and covering exposed soil
- Plant native vegetation along waterways

- Report sediment loss or incidents to your Local Government and dispose of waste materials according to your Local Government's instructions
- Choose builders that have a suitable Sediment Management Plan/Waste Management Plan
- Seek property management advice from your Local Government.

Resources:

To find out how to minimise sediment escaping from building and construction sites and to help keep Perth's waterways clean, visit <http://www.perthnrm.com/resources/resources-sediment-management>. This website allows builders, planners, engineers, developers and Local Governments to view and download advice on practical solutions for sediment control.

MORE ABOUT THE SEDIMENT TASK FORCE

OUR GOAL

To minimise particulate matter (such as sand and silt) leaving public works, subdivisional works, housing construction and established commercial and residential sites by wind, water or other means.

The establishment of the Sediment Task Force is a significant step to preventing and managing sedimentation and restoring WA's receiving water bodies. Members work together to provide leadership and coordination for sediment management; raise awareness, educate and build capacity; advocate for sediment control solutions; instigate organisational change to develop best practice in sediment management; and support research, knowledge and monitoring to enhance our understanding of the issue.

RESEARCH INTO SEDIMENT RUN-OFF

The Sediment Task Force has identified a lack of local, quantified data on the issue of sediment transport. A study has been initiated to evaluate and quantify sediment loss from urban development.

This study is being undertaken in conjunction with the University of Western Australia and as part of the Australian Governments' Cooperative Research Centre for Water Sensitive Cities.

The research findings will assist in the understanding of the magnitude and impact of sedimentation and in the identification of sediment control mechanisms.

The Cities of Armadale, Gosnells and Kwinana, the Department of Biodiversity, Conservation and Attractions, Main Roads WA, the South East Regional Centre for Urban Landcare, the Water Corporation and the West Australian Local Government Association have contributed financial and in-kind support valued at \$93,500 towards this two-year project. The Department of Water and Environmental Regulation and Perth NRM have provided in-kind support to the value of \$1,500 to help ensure the success of this study.



Professor Carolyn Oldham and Masters student Fraser Eynon from the University of Western Australia conduct a site tour at Balannup Drain in Harrisdale for Sediment Task Force members and sponsors of the Task Force's Sediment Research Project.

From left: Ben Stone (Water Corporation), Debbie Besch (DBCA), Kim Sylva (DBCA), Neil Burbridge (City of Armadale), Professor Carolyn Oldham (UWA/CRC), Nino Scidone (City of Kwinana), Geoffrey Mace (City of Kwinana) and Fraser Eynon (Sediment Research Project Masters Student, UWA).
Photographer: Bronwyn Scallan, Perth NRM

CASE STUDY 1

MAIN ROADS WA

Main Roads WA became a member of the Sediment Task Force in 2014 because of their desire to proactively ensure best practice management of sedimentation, minimise environmental impacts to natural waterways and wetlands, reduce blockages of constructed stormwater systems and because they acknowledged the need to work with other land managers to address an issue that extends beyond property boundaries.

Main Roads WA Metropolitan Region has:

- Reviewed its rapid response process to include a new internet reporting system for recording, communicating and following up incidences in order to respond more rapidly.
 - Improved its management processes to include checking of structures after rainfall events to identify any erosion events, implement improved control measures and remediate any adverse erosion effects.
 - Reviewed its project auditing processes and increased the frequency of auditing and range of operations audited to include sediment.
 - Ensured engagement for sediment management with Local Government occurs at the planning stage of projects, as reflected in planning documents and project charters. Consolidation of the project development function and increased online project tracking assists with early consultation and approvals for sediment management.
- Repair processes have been improved through increased interactions between the environmental and project delivery functions being increased. Project-specific erosion is treated like an environmental incident, with associated cessation and amendment of impacting works, and rapid implementation of stabilisation and repair works.

Work continues on:

- Improving the Main Roads Environmental Impact Assessment Processes. Sedimentation has been identified as a risk in Main Roads' Environmental Aspects Register, with implications for environmental assessment and management plans. Additional data and review processes have been introduced to ensure appropriate consultation and consideration of relevant project-specific information and to improve project assessments and management for Main Roads.
- Main Roads guidelines are being reviewed and updated to better align with stormwater best practice guidelines, the Environmental Assessments and Approvals process has been updated to increase the emphasis on review and compliance and amendments to contract specifications have been proposed for consideration to increase alignment with stormwater best practice.

These actions and involvement in the Sediment Task Force have resulted in a reduction in the risk of sedimentation occurring from road works through the liaison and information-sharing role of the Sediment Task Force organisational review and the increased profile of sedimentation.

“We cannot operate in isolation when our impacts are not isolated – sedimentation has far-reaching and significant impacts that require cooperation, sharing and support to mitigate.”

**SHANE COLLINS, ENVIRONMENTAL OFFICER
MAIN ROADS WESTERN AUSTRALIA**

Silt curtain put in place to intercept eroded material associated with bridge construction at Kwinana Freeway over Serpentine River, 2008. Photographer: Shane Collins, Main Roads WA.



CASE STUDY 2

MASTER BUILDERS ASSOCIATION OF WESTERN AUSTRALIA (MASTER BUILDERS WA)

Master Builders WA became a member of the Sediment Task Force in 2014 in recognition of the importance of industry effectively managing sediment from developments and building and construction sites.

Sediment management has become a key component of the Master Builders WA *Smart Waste* program, a successful industry initiative which is supported by funding from the Waste Authority WA through the Waste Avoidance and Resource Recovery Account. The *Smart Waste* program aims to help educate, assist and encourage the building and construction industries to reduce the amount of Construction and Demolition (C&D) waste generated, and increase the recovery and recycling rate.

Specifically, due to the relationship between C&D waste and sediment on building and construction sites, the *Smart Waste* program seeks to incorporate sediment management, which includes illegal dumping.

A dedicated sediment management webpage on the *Smart Waste* website www.mbawa.com/smartwaste (a valuable industry resource that includes a range of support tools and materials); inclusion of sediment management in their training sessions; and a *Home in WA* television segment promoting sediment management on site <http://archive.homeinwa.com.au/segment.php?id=4560> are examples of initiatives used by Master Builders WA to raise awareness and increase understanding of sedimentation and sediment management.

The *Smart Waste* sediment management webpage www.mbawa.com/sediment-control covers issues such as why sediment management is important, governance and compliance, and how builders use best practice to meet the requirements. An added component is how to avoid and manage illegal dumping, which also has a dedicated webpage: www.mbawa.com/illegal-dumping

Through the *Smart Waste* program, Master Builders WA are also developing additional tools and resources on sediment management, and Water Sensitive Urban Design (WSUD) in the built environment.

For Master Builders WA, these actions – and collaboration with the Sediment Task Force – have resulted in an increased awareness and understanding of responsibilities, improved environmental stewardship and emerging best practice sediment management within the industry.

“Master Builders WA look forward to continuing to work closely with the Sediment Task Force to ensure that the proper education and training are communicated clearly, and that guidance is provided and available to its industry members to ensure a positive outcome is achieved.”

JASON ROBERTSON, HOUSING DIRECTOR
MASTER BUILDERS



SOME OF OUR OTHER ACHIEVEMENTS

- Raising awareness of sediment issues and the use of local laws to effectively manage sediment.
- Review of the sediment management policies and procedures of the participating Sediment Task Force organisations.
- Establishment of a Working Group to review Sediment Guidelines for Local Government.
- The inclusion of best practice sediment management criteria as a provision of the Master Builders Association's (WA) Urban Water Awards.



Roadside stormwater inlet controls are often used to trap sediment and prevent it from entering drains. **However capturing sediment before it gets to the road is a cheaper and more effective control** as roadside controls require ongoing maintenance, cleaning and repair.

Photographer: unknown.

Source: Healthy Land and Water and Brisbane City Council

ORGANISATIONAL CHANGE RESULTS IN FLOW ON BENEFITS DOWNSTREAM

Task Force members have developed an Action Plan which identifies actions their organisations have committed to in order to minimise the amount of sediment flowing into waterways, wetlands and oceans. The effectiveness of this approach is illustrated by the case studies included in this publication.



Conservation efforts to improve water quality continue at the Ramsar listed Forrestdale Lake wetland. Photographer: Luke McMillan, Perth NRM

IN APPRECIATION

We would like to recognise all Sediment Task Force members, past and present, for their commitment to improving sediment management and the Department of Biodiversity, Conservation and Attractions who have provided funding for the coordination of the Sediment Task Force.