Silt management

Silt pollution is a major cause of environmental incidents. During construction there is an increased risk of silty water run-off.

If you allow water contaminated with silt to enter the water environment or drainage system you risk enforcement action, including prosecution.

To avoid pollution you should:

- **Prepare** a Pollution Prevention Plan and identify the necessary mitigation measures required to prevent/ manage silt pollution
- **Divert** clean water away from exposed soils and working areas
- **Minimise** erosion of exposed soils
- **Prevent** silty water from leaving the site
- **Treat** silty water appropriately
- **Dispose** of treated/collected water appropriately

Prepare a Pollution Prevention Plan

Allowing time to plan and prepare can significantly reduce the risk of a pollution incident.

When preparing your plan you should include:

- Site details including, location of the area of the land, and location of watercourses, drains, ponds, lochs, wetlands, estuaries and coasts
- What is being constructed on the land including, the scale of the works, start and finish dates relating to phase work and whole project
- Contact details for SEPA (**0300 099 66 99**) and the Pollution Hotline (**0800 80 70 60**)
- What pollution risks are covered by the plan. Include details of pollution sources, pathways and receptors - see image below

Source

Example: a spill on ground from oil drums or tanks

Pathway

Examples: drains, through soil to groundwater, over hard surfaces

Receptor

Examples: river, stream, lake, groundwater

Prepare a Pollution Prevention Plan (continued)

Include details of the actions you are going to take to prevent silt pollution, such as:

- How you will manage the risks at each source, for example to minimise run-off from areas of exposed soils, materials stockpiles, quarrying and haul roads
- How you will manage water run-off. Identify the maximum water run-off rate likely from the drained area, the soil/sediment settlement rate, the capacity of the drainage system, and the discharge location
- Provide details of the drainage systems that will be installed to intercept and trap/ treat the run-off, and the steps to ensure this system is not by-passed
- What you will do if something goes wrong. This should include details of your rapid response actions to prevent pollution or minimise the impact
- How you will keep the plan effective, including maintenance, monitoring, and management to ensure equipment works properly and staff understand their roles

Note: In Scotland, you will require authorisation from SEPA to discharge any water run-off to the water environment. The level of authorisation depends on the scale of the site.

A permit is required if the site covers an area larger than 4 hectares; or

- Contains a road or track longer than 5 kilometre; or
- Includes any area more than 1 hectare on ground with a slope of more than 25 degrees; or
- Includes any road (or track) with a length of more than 500 metres on ground with a slope of more than 25 degrees

Sites that fall below these thresholds are authorised under General Binding Rule 10. Sites must meet the requirements of the Rule, but do not need to notify or apply to SEPA.

Divert clean water away from exposed soils and working areas

Diverting clean water from exposed soils and working areas can significantly reduce the volume of water contaminated with sediment on site. Reducing the risk of pollution and the costs associated with treating contaminated water before discharge.

The following methods can be used to divert clean uncontaminated water:

Diversion drains - can be used on the upstream edge of the site or immediately upstream of areas of exposed soil (for example, excavations, embankments and stockpiles).

Line drains with non-erodible material such as turf/geotextiles, to prevent the water becoming contaminated.

Bunds - can be placed around exposed soils (for example, excavations and stockpiles). This will prevent clean water entering the area and dirty water from leaving the area.

Where possible, bunds should be made of non-erodible, impermeable material, for example sand bags, soil/clay wrapped in geotextile.

Route uncontaminated water to the water environment or nearby land - with permission from the landowner and, where required, approval from SEPA**.**

Any discharge of water run-off from a construction site in Scotland will require authorisation. The type of authorisation depends of the scale of the construction site. See the note on the previous page.

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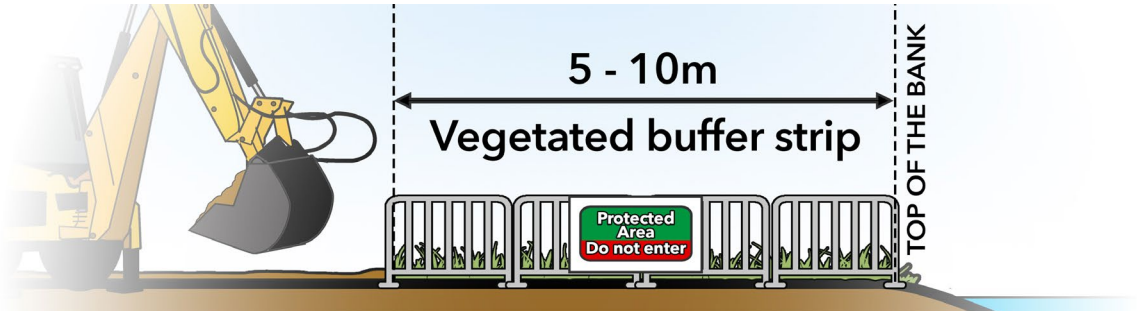
Minimise the erosion of exposed soils

To reduce the risk of contaminated run-off from a site, minimise the erosion of exposed soils. Keeping soils vegetated helps absorb rainfall, filter sediments, and stabilise the soil with root systems.

To minimise erosion:

- Don't strip vegetation and topsoil all at once. Do it in stages, phasing site clearance to match different stages of the project
- Avoid stripping soil up to the edges of watercourses or drainage ditches. Leave a 5 to 10 metre buffer strip of vegetation to act as a sediment filter
- Protect existing vegetation with fences and signs where needed
- Where vegetation removal is unavoidable and permanent works will not replace it (for example around stockpiles), establish new vegetation using locally sourced seeds
- Use temporary protection for exposed soils that will remain uncovered for long periods, such as geotextiles or turf from other site areas
- For projects requiring open trenches, plan work to minimise the length of trenches open at any time, as they produce silty water



Silt management

Prevent water contaminated with silt leaving the site

Water contaminated with silt must not be discharged into the water environment or drainage system without treatment.

To prevent silty water from leaving the site, consider the following:

Cut-off drains

Use cut-off drains to redirect run-off away from the water environment and drainage systems.

Keep cut-off drains at least 10 metres from surface waters and open drains and channel to an appropriate treatment system such as a settlement pond.

Measures to support the effectiveness of cut-off drains

Additional measures to enhance the effectiveness of cut-off drains include:

- Silt fences - temporary geotextile fences/barriers that control the movement of silt and other sediments
- Fibre rolls - geotextile tubes, often filled with straw/mulch. Can be used to reinforce lined drains where there is a risk of overflow
- Filter bunds - usually placed around exposed soils to prevent silt and other sediments leaving the area. Create using non-erodible materials such as straw bales/geotextiles
- Silt traps and lagoons - containment area where surface water run-off is temporarily stored to allow silt and other sediments to settle out before it is discharged

Prevent water contaminated with silt leaving the site (continued)

Maintenance of prevention measures

Regular inspection and maintenance of the prevention measures is critical to prevent failure during the works. Monitoring should be carried out in accordance with the weather, with more frequent inspections required during and after periods of heavy rainfall.

Material that has accumulated upstream of a filter or barrier should be carefully removed and properly disposed of.

Protect final phase Sustainable Drainage Systems (SuDS)

If the completed phase includes SuDS, these should be protected from silty run-off during the construction phase.

Ensure that mud from vehicles and roads or surface water run-off from areas under construction does not enter the drainage systems within areas already completed.

If the site is on a slope, consider whether the up-slope works can be completed first to prevent silty water running down-slope into completed works and drainage.

If final phase SuDS are used during the construction phase, these must be cleaned out and fully de-silted before being brought back online as final SuDS for the development.

Silt management

Collect and treat silty water

Where run-off is contaminated with silt or other pollutants such as oil, this water must not be pumped or allowed to flow (directly or indirectly) into the water environment or drains without treatment.

To prevent silts and other contaminants entering the water environment or drains you must identify and implement suitable treatment measures.

As a minimum requirement, any water run-off containing silt from a construction site must pass through a suitable construction phase SuDS treatment system or equivalent.

Treatment methods include:

Passive treatment - includes attenuation channels/ponds and settlement ponds.

The settlement facility must be sized to match the volume of water and the size of the particles suspended within it.

For details on the typical dimensions for settlement lagoons scan (or click) the QR code to view the NetRegs Guidance for Pollution Prevention (GPP) 5: Works or maintenance in or near water.

Mechanical treatment - mechanical force to separate solids from liquids.

Chemical treatment - chemical treatment such as coagulants/flocculants.

Chemical treatment must only be used as a last resort and in addition to either passive treatment or mechanical treatment measures. You will require authorisation from SEPA to use chemical treatment.

Disposal options

Disposal to foul sewer - permission from the water or sewerage provider is required and may include formal approval, limiting the volume and content of the discharge. If approval cannot be granted, contaminated water may need to be tankered off-site for authorised disposal.

Discharge to land - only clean, uncontaminated water or water contaminated with silt is suitable for discharge to land. Permission from SEPA and the landowner is required for discharges of silt-contaminated water.

The discharge rate must match the rate of infiltration into the soil, which will vary depending on the soil type, weather, amount of vegetation cover and the gradient.

Discharges should be well away from excavations to avoid re-circulation through the ground.

Discharge to the water environment - authorisation from SEPA is required.

Tanker off-site - if no other disposal options are available, contaminated water can be collected by tanker for authorised off-site disposal.

Waste duty of care obligations apply to all wastes and Waste Transfer Notes must be obtained for any waste leaving the site.

Silt management

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Other guidance notes within this series:

- Surface water management
- Cement, concrete and grout
- Waste duty of care
- Fuels and oils
- Ecology and biodiversity
- Air quality and nuisance
- Decarbonisation on site
- Materials sourcing and management

Scan the QR code to view the guidance notes and associated animations on the NetRegs website

Further information

Silt management guidance on NetRegs

Scan (or click) the QR code to view the silt management guidance on the NetRegs website.

These guidance notes have been developed by NetRegs in partnership with:

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