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Water Use

# **Supporting Guidance (WAT-SG-75)**

## **Sector Specific Guidance: Construction Sites**

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### Update Summary

Version	Description
v1	First issue for Water Use reference using approved content from the following documents: <i>DRAFT SG Sector Specific Guidance – Construction Sites</i>

### Notes

**References:** Linked references to other documents have been disabled in this web version of the document. See the References section for details of all referenced documents.

**Printing the Document:** This document is uncontrolled if printed and is only intended to be viewed online.

If you do need to print the document, the best results are achieved using Booklet printing or else double-sided, Duplex (2-on-1) A4 printing (both four pages per A4 sheet).

**Always refer to the online document for accurate and up-to-date information.**

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# 1. Key Points

This document provides guidance on the application of environmental standards and good management practice techniques in relation to large scale construction sites and pollution control.

A CAR licence (to control surface water discharges) will be required when the construction site<sup>1</sup> consists of:

- an area greater than 4 hectares, or
- a linear development greater than 5km, or
- has an area of more than 1 hectare or any length of more than 500 metres on ground with a slope in excess of 250 (GIS layer described in Annex A).

Large scale construction sites may comprise of a number of controlled activities, and in addition to discharges of clean and dirty water run-off may also include other works such as engineering works (river banks/bed, culverts, tracks/roads, bridges, quarrying/borrow pits, abstractions/dewatering). As such, where a controlled activity is above the General Binding Rules threshold then they will also need to be authorised under a Registration or Licence as appropriate. It is likely the site will have more than one type of controlled activity and therefore the Responsible Person can opt to keep the construction site licence separate, or have all activities on a Multiple Water Use Licence (*WAT-TEMP-10: Multiple Water Use Licence Template*).

A key aspect of a construction site licence will be the Pollution Prevention Plan. This will be produced by the Responsible Person and will contain details of:

- how to minimise, control and treat the site run-off,
- maintenance and monitoring regimes and
- general site management to prevent pollution.

Note: Where sites falls below or within the GBR10 threshold requirements for surface water discharges but still cause pollution incidents, as part of the enforcement process SEPA may, where appropriate, escalate the level of authorisation and impose a Construction Site Licence.

Specifically, this guidance relates to the determination for a construction site licence (*WAT-TEMP-21: Construction Site Licence*).

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<sup>1</sup> E.g. as delineated by the red line boundary in the planning permission.

## 2. What is a construction site

### 2.1 Large construction sites

The construction phase of large scale developments, such as major road and housing developments, overhead pylons, pipelines, wind farms, forestry and hydro power schemes, can pose a number of serious risks to the water environment. This also includes ancillary facilities such as access tracks and roads.

High risk of pollution is associated with rainfall derived silty water run-off from exposed soils, material stockpiles, quarrying and road run-off. Pollution incidents occur where no, or inadequate, pollution mitigation measures are implemented prior to, and during the construction phase coupled with poor ongoing inspection and management. Silty run-off travels from the site and can affect receptors on- and off- site. This is especially significant if there are protected or designated sites nearby (e.g. SAC, SPA or SSSI – for species such as pearl mussels) that could be impacted. Good practice mitigation measures and ongoing monitoring should be used on all sites to reduce the risk of this happening.

Early contact with SEPA, preferably at the planning stage, will give clients, developers and operators the opportunity to discuss site specific mitigation techniques to reduce the risk of polluting the water environment at all sites, with additional measures deployed at higher risk sites.



The Construction Site Licence is to be applied for by a Responsible Person. The Responsible Person would apply using the *CAR Application Forms*:

- Form A - for all NEW applicants, and
- Form B - point source discharges, excluding fish farm effluent.

The statutory timescale for a CAR licence application determination process is up to 4 months. All run-off risk and mitigation would be detailed in the Pollution Prevention Plan that would be submitted to SEPA either with the licence application or at a later date. The Responsible Person is the organisation to whom the licence is issued and has the ability to ensure compliance with the licence. As

the Construction Site Licence will be charged on a large project basis (as per the *Environmental Regulation (Scotland) Charging Scheme*) the application and subsistence fees will be charged on a “time and materials” basis.

Since the application of the Construction Site Licence can be undertaken in advance of the tender for subcontractors, the licence could then be transferred to the Responsible Person for the company overseeing the construction works on site. The Construction Site Licence requires the production of a satisfactory Pollution Prevention Plan before construction works can start, this plan will usually be done by those planning the work on site. Once works have been completed you will need to surrender the licence.

Access Roads – In relation to construction sites, access roads within the site will be regulated via the construction site licence and dirty water arising from these areas managed under the pollution prevention plan. In relation to CAR engineering activities, where an access road is created in order to carry out engineering works then this will not be covered by the CAR engineering authorisation (with the exception noted below). Exception: Where temporary access tracks and crossings are constructed in order to carry out the specific CAR engineering activity and affect the water environment (e.g. tracks excavated down bankings, temporary tracks or platforms created within riverbed or temporary crossings over watercourse) then these will be covered by the CAR engineering authorisation.

## 3. The Pollution Prevention Plan

### 3.1 Pollution Prevention Plan - Preparation by applicant

The CAR licence requires the production of a Pollution Prevention Plan. This Plan needs to be written in accordance with this guidance and submitted to SEPA (the licence may specify the timescales) before work begins. The Plan can also be varied at any time, subject to meeting the requirements of this guidance, and notified to SEPA. The licence holder will be responsible to ensure that the Plan is kept up to date and complied with. The Plan's purpose is to make sure that steps are taken to prevent potential for pollution arising from the site, the potential impacts of that pollution, and methods (and alternative methods) of preventing environmental harm occurring have been adequately considered. As a minimum the Pollution Prevention Plans will be site specific and should address the following:

#### What land does this plan apply to?

Boundary of the land to which this pollution prevention plan applies	<provide map> <if site on steep ground, provide ESRI as per Annex A>
Area of this land (hectares)	
Location of this land within the construction site as a whole (if the plan covers only part of the site)	<provide map>
Location of watercourses (inc. culverted watercourses, land drains etc.), ponds, wetlands, estuaries and coast on the construction site	<provide map>

#### What is being constructed on the land to which this plan applies?

Type of construction work that will be carried on the land to which this plan applies (eg residential housing; industrial units; metalled roads; waterbound roads; etc)	
Scale of the construction work (eg no. of houses; road length; etc)	
Date on which the phase of construction covered by the plan is expected to start and to be completed (Notify SEPA the start and finish of each phase)	
Dates of start and completion of construction site as a whole (where this differs)	

### Who is the point of contact with SEPA in relation to this plan?

Person(s) acting as normal contact with SEPA about this plan	
Person(s) acting as 24 hour contact with SEPA in an emergency (ie if there is an imminent risk of pollution or where pollution is occurring)	
Reference to use when contacting SEPA	<SEPA permit reference for the construction site>

### What pollution risks will be managed under this plan?

Potential pollutant sources during the phase of construction covered by this plan, including exposed soil, fuel storage areas, concrete washouts, wheel washes etc.	<include map or maps of the location of the sources, including how they may change over the period covered by the plan. This may also include an examination of soil type and ground conditions>
Routes by which pollutants (including soil) could reach the water environment from these sources, e.g. overland flow, field drains, unauthorised pumping	<include map or maps of existing site drainage, watercourses, field drains etc, including how this may change over the period covered by the plan>
Parts of the water environment that the pollutants could reach and any particularly sensitive features (e.g. salmon, freshwater pearl mussels,)	<include map or maps of the parts of the water environment, including how these might change (eg as a result of ground works) over the period covered by the plan>

### What will be done to prevent pollution?

<b>How we will manage risks at source, including alternative methods if required.</b>
Source 1 management
Source 2 management
Source 3 management
<i>Add new rows as required</i>

### How we will manage water run-off

Details of minimisation of exposed soil
<b>Drainage system 1</b>



<Map of area drained>			
<Maximum water run-off rate likely from drained area>	<Soil/sediment settlement rate>	<Capacity of drainage system>	<Discharge location>
<Details of the drainage systems that will be installed to intercept and trap/treat contaminated water run-off>			
<Steps to prevent drainage system being bypassed>			
<b>Drainage system 2</b>			
<Map of area drained>			
<Maximum water run-off rate likely from drained area>	<Soil/sediment settlement rate>	<Capacity of drainage system>	<Discharge location>
<Details of the drainage systems that will be installed to intercept and trap/treat contaminated water run-off>			
<Steps to prevent drainage system being bypassed>			
<b>Drainage system 3</b>			
<Map of area drained>			
<Maximum water run-off rate likely from drained area>	<Soil/sediment settlement rate>	<Capacity of drainage system>	<Discharge location>
<Details of the drainage systems that will be installed to intercept and trap/treat contaminated water run-off>			

<Steps to prevent drainage system being bypassed>

*Add new rows as required*

### What will we do if something goes wrong?

Rapid response actions that will be taken to try to prevent pollutants reaching the water environment	
Rapid response actions that will be taken in the case of pollution occurring	
Rapid response actions that will be taken in the case of site characteristics changing (e.g. soil types)	

### How will we ensure that the plan is effective?

Maintenance programme that will be undertaken in relation to vehicles, plant and any infrastructure used to avoid, intercept or trap/treat pollutants	
Inspection programme that will be carried out to check the correct operation and effectiveness of the actions in this plan	
Management programme that will be used to ensure all workers on the site and anyone visiting the site are aware of, and doing, what is required of them in relation to this plan	

### Who is in charge of making sure this plan is implemented?

Person(s) with overall responsibility for ensuring this plan is implemented on a day-to-day basis	
Person(s) responsible for the maintenance programme (if different)	
Person(s) responsible for the inspection programme (if different)	
Person(s) responsible for ensuring appropriate rapid response to prevent or minimise pollution if something goes wrong	

## 3.2 Pollution Prevention Plan - SEPA review

SEPA will review the PPP to ensure that the Responsible Person (Operator) has identified all of the pertinent issues that arise on a construction site and have designed and implemented appropriate mitigation measures.

**Has the operator identified:**

Primary Indicator	Detail	Operator has included requirement in PPP
What land does this plan apply to?	<p>Has the operator identified the area(s) where work is to be undertaken? This can be for the site as a whole, or different phases within the site.</p> <p>As the PPP can be applied to different phases it is essential that the plan covers all the work relevant to that phase. Therefore, any construction work undertaken on the site will identified and the plan will specify the relevant mitigation being used.</p>	
What is being constructed on the land to which this plan applies?	<p>Has the operator identified the main type of construction activity that will occur on site and the dates of the phasing of the works.</p> <p>The plan is to describe the type, scale and timings of the works being undertaken at the site.</p>	
Who is the point of contact with SEPA in relation to this plan?	<p>Has the operator identified the person or persons SEPA will need to liaise with and contact in relation to the PPP and in cases of emergency.</p>	
What pollution risks will be managed under this plan?	<p>Has the operator identified</p> <ul style="list-style-type: none"> <li>• Relevant sources of pollution, including soil type and settlability,</li> <li>• routes these pollutants could take to reach the water environment, and</li> <li>• possible parts of the water environment that the pollutants could reach where no mitigation is provided, failed or inadequate.</li> </ul>	
What will be done to prevent pollution?	<p>Has the operator identified mitigation measures, and potential alternatives, they consider appropriately sufficient to prevent pollution at source?</p>	

How we will manage water run-off	<p>Has the operator provided calculations to show the maximum amount of surface water expected to be at each stage of the surface water drainage system(s), the capacity of the drainage system, the steps to ensure the drainage systems works and the discharge to the river or sea.</p> <p>It is the operator's responsibility to identify what is required and the associated technical requirements (e.g. sizing) needed to ensure that their site will not cause pollution to the water environment, SEPA will review the PPP to ensure that the operator considered and developed pollution prevention mitigation.</p>	
What will we do if something goes wrong?	<p>Has the operator identified what they will do "in the event of ..." (different scenarios e.g. storm conditions, treatment design incorrect, failure in management procedures, wet/winter plans).</p> <p>SEPA acknowledges that even the best plans can still go wrong, but the PPP requires identifying what will be done when these situations occur.</p>	
How will we ensure that the plan is effective?	<p>Has the operator identified how they will check the effectiveness of the different mitigation measures, such as monitoring and maintenance. Also how does the operator intend to communicate the requirements of the plan to those working and visiting the site.</p>	
Who is in charge of making sure this plan is implemented?	<p>Has the operator identified the relevant persons who have responsibility on the ground (at the construction site) to ensure that the various parts of the PPP are implemented and followed, and where not working or inappropriate that changes to the plan are made.</p>	
Pollution Prevention Plan not written in accordance with this guidance	<p>Allow the operator to re-write their Pollution Prevention Plan.</p> <p>Remind the operator of the licence condition "All operations on the construction site will be carried out in accordance with the Pollution Prevention Plan, and any revisions, which must be written in accordance with <i>WAT-SG-75: Sector-specific guidance - Construction sites</i> and will demonstrate how the Responsible Person will comply with the conditions of this permit." Where an operator fails to comply with this condition we will assess and take appropriate enforcement action to protect the water environment from silt run-off.</p>	

**Has the operator referenced and actioned the mitigation requirements identified in the following (as a minimum) supporting documentation:**

Organisation	Guidance
SEPA – Netregs	<p><i>Pollution Prevention Guidance (PPG/GPP)</i></p> <ul style="list-style-type: none"> <li>• PPG 1: Understanding your environmental responsibilities - good environmental practices</li> <li>• GPP 2: Above ground oil storage tanks</li> <li>• GPP 5: Works and maintenance in or near water</li> <li>• PPG 6: Working at construction and demolition sites</li> <li>• GPP 13 Vehicle washing and cleaning</li> <li>• GPP 21: Pollution incident response planning</li> <li>• PPG 22: Incident response - dealing with spills</li> <li>• PPG 27 Installation, decommissioning and removal of underground storage tanks</li> </ul>
CIRIA	<p><i>Control of water pollution from construction sites. Guidance for consultants and contractors (C532)</i></p> <p><i>Control of water pollution from linear construction projects. Technical Guidance (C648)</i></p> <p><i>Control of water pollution from linear construction projects. Site guide (C649)</i></p> <p><i>Drainage of development sites - a guide (X108) (Free)</i></p> <p><i>Guidance on the Construction of SUDS (C768)</i></p> <p><i>Site handbook for the construction of SUDS (C698) (Free)</i></p> <p><i>Sustainable Drainage Systems - Hydraulic, structural and water quality advice (C609)</i></p> <p><i>The SuDS Manual (C753) (Free)</i></p>

## 4. Exposed Soils (suspended solids)

Nearly all construction sites requiring groundworks involves clearing land and re-profiling so that the necessary infrastructure can be built. As such, the clearance generally results in exposing an area of soil. Once the soil is exposed then any rainfall and snow event may lead to suspended solids, nutrients and trace metals being mobilised off the site and into the nearby drainage systems or watercourses with the potential to cause gross pollution and environmental impact.

### 4.1 Mitigation for suspended solids

In order to prevent suspended solids entering the watercourses the sites must identify suitable mitigation measures. As a minimum requirement any run-off containing suspended solids must pass through a SUD treatment system or equivalent. This is a requirement of GBR10 and is the minimum for licences.

The following measures are included as the most likely to be used on site, although SEPA does not expect any mitigation plan to be limited to these measures:

- Limit exposed soil<sup>2</sup>
- Attenuation channels/ponds
- Pre-earthworks cut-off trenches
- Settlement ponds
- Swales
- Chemical treatment (coagulants/flocculants) (in addition to the above to aid settlement)

SEPA would expect the SUDs or equivalent system to be designed to control and mitigate the run-off from the site. CIRIA's *Control of water pollution from linear construction projects. Technical Guidance (C648)* Section 18 enables the expected run-off volumes to be calculated. Where space for the SUDS or equivalent is limited, reducing the amount of exposed soil will reduce the size of the system required to cope with the run-off. In addition, reducing the amount of exposed soils by phasing the development will allow for better control of water as it passes over the site and towards the river or other receiving water.

As per *WAT-RM-08: Regulation of Sustainable Urban Drainage Systems (SUDS)*, the use of coagulants/flocculants to aid the settlement of solids in a construction phase settlement pond or proprietary treatment system may be discussed with SEPA. SEPA requires non-chemical treatment to be attempted in the first instance. Good surface water management is described in the in best practice guides linked to from *WAT-SG-12: General Binding Rules for Surface Water Drainage Systems*. However, there are situations where the local soil conditions

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<sup>2</sup> GBR11 - on construction sites any area of exposed soil from which water drains into a surface water drainage system, and the period of time during which such water drains, must be the minimum reasonably necessary to facilitate the construction works being undertaken at that site

(e.g. boulder clays, fine clays etc.) result in the suspended solids remaining in suspension for very long periods, and these may require the use of chemical clarifying agents.

In addition to the above guidance CIRIA also have the following manuals available:

- *Control of water pollution from construction sites. Guidance for consultants and contractors (C532)*
- *Control of water pollution from linear construction projects. Site guide (C649)*

## 4.2 Use of chemicals to reduce suspended solids or discolouration

There are two main processes to reduce suspended solids or discolouration; Coagulation and Flocculation. Coagulation is the use of an additive to destabilise colloidal suspensions, while flocculation is used to promote clumping of the destabilised particles to aid settlement. The most common coagulants in use are iron or aluminium salts. Flocculation involves the addition of polymers to bind the particles together into “flocs” that are more easily separated.

It is common for an additive containing both coagulant and flocculant to be referred to simply as a flocculant (e.g. QP 33).

Coagulants can be either metal- or non-metal based. Where the site has a construction site licence, the licence can be used to control the discharges resulting from clarifying agent use. SEPA have an established assessment of coagulants that can be found in *WAT-RM-12: Regulation of Discharges from Water Treatment Works*. Please seek Chemistry advice for appropriate licence conditions as these substances can have complex chemical reactions in the water environment.

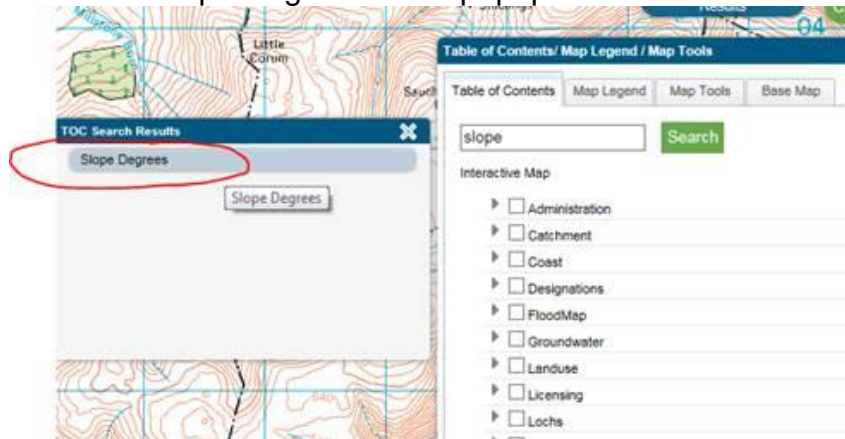
Where an alternative coagulant and flocculant is considered to be used then the above assessment procedure in *WAT-RM-12* must be undertaken for each substance.

## Annex A SEPA GIS

Manual checks of the SEPA GIS layer will be required to confirm that a development meets the licence thresholds.

### Accessing the slope layer on SEPA's interactive map:

1. From the intranet homepage, go to the Toolbox dropdown menu, select GIS & then select Interactive Map 2.0.
2. To view the slope layer, type slope into the Table of Contents search box and then click Slope Degrees in the popup box.



3. The application then highlights the location of the Slope Degrees layer in the interactive map, tick the box to switch the layer on.
4. The Map Legend tab shows that slopes with a value  $>25\%$  are coloured pink. Each pixel is 5m X 5m, therefore 400 pixels make up one hectare (10,000 m<sup>2</sup>).

### Assessment process for GBR/licence check for sites on a slope which are $<4$ ha area, or $<5$ km in length.

1. Applicant submits an ESRI shapefile (GIS file) in British National Grid projection containing either a polygon (the areal extent) of the site or a line showing the route of the road or track.
2. The file is attached to an IS Helpdesk call with the title (Brief Summary) 'FAO EQ-GIS Section, GBR slope test' and Details along the lines of:  
"Please can you determine whether the attached shapefile has a slope which is required to be licenced?"
3. Answers to be returned to the enquirer within 5 working days, with the following possible outcomes:
  - a) Site is  $\geq 4$  hectares so automatically needs a licence
  - b) Site is  $\geq 5$  km so automatically needs a licence
  - c) Yes, licence required as the slope of the site is  $>25$  degrees
  - d) No, licence required as the slope of the site does not exceed  $>25$  degrees



## References

NOTE: Linked references to other documents have been disabled in this web version of the document.

See the Water >Guidance pages of the SEPA website for Guidance and other documentation ([www.sepa.org.uk/regulations/water/guidance/](http://www.sepa.org.uk/regulations/water/guidance/)).

All references to external documents are listed on this page along with an indicative URL to help locate the document. The full path is not provided as SEPA can not guarantee its future location.

### Key Documents

- *Application Forms (Water - Controlled Activities Regulations)*
  - Form A - for all NEW applicants
  - Form B - point source discharges, excluding fish farm effluent
- *Environmental Regulation (Scotland) Charging Scheme* ([www.sepa.org.uk](http://www.sepa.org.uk))
- *WAT-RM-08: Regulation of Sustainable Urban Drainage Systems (SUDS)*
- *WAT-RM-12: Regulation of Discharges from Water Treatment Works*
- *WAT-SG-12: General Binding Rules for Surface Water Drainage Systems*
- *WAT-SG-75: Sector-specific guidance - Construction sites*
- *WAT-TEMP-10: Multiple Water Use Licence Template*
- *WAT-TEMP-21: Construction Site Licence*

### Pollution Prevention Guidance

- *Pollution Prevention Guidance (PPG) NetRegs*.([netregs.org.uk](http://netregs.org.uk))  
[and replacement series (GPP) – see *PPG/GPP explanation*]
  - PPG 1: Understanding your environmental responsibilities - good environmental practices
  - GPP 2: Above ground oil storage tanks
  - GPP 5: Works and maintenance in or near water
  - PPG 6: Working at construction and demolition sites
  - GPP 13 Vehicle washing and cleaning
  - GPP 21: Pollution incident response planning
  - PPG 22: Incident response - dealing with spills
  - PPG 27 Installation, decommissioning and removal of underground storage tanks

## **CIRIA Manuals ([www.ciria.org](http://www.ciria.org))**

- *Control of water pollution from construction sites. Guidance for consultants and contractors (C532)*
- *Control of water pollution from linear construction projects. Technical Guidance (C648)*
- *Control of water pollution from linear construction projects. Site guide (C649)*
- *Drainage of development sites - a guide (X108) (Free)*
- *Guidance on the Construction of SUDS (C768)*
- *Site handbook for the construction of SUDS (C698) (Free)*
- *Sustainable Drainage Systems - Hydraulic, structural and water quality advice (C609)*
- *The SuDS Manual (C753) (Free)*

- End of Document -