

**WAT-G-075**

**EASR Guidance: The discharge of water run-off from construction sites**

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# 1 Purpose

This document provides information and guidance for anyone undertaking the discharge of surface water run-off from a construction site which requires authorisation under The Environmental Authorisations (Scotland) Regulations 2018.

This guidance does not cover any other permissions that may be required.

# 2 Understanding the activity

This activity is the discharge to the water environment of water run-off from construction sites.

Water run-off includes any water from rainfall (or any meltwater from ice or snow) that flows over (or horizontally through) the surface of the ground and any matter (for example soils) that are picked up by that water as it does so.

Construction includes any land preparation, demolition work or ground remediation required prior to construction taking place.

# 3 Types of authorisation

## 3.1 Discharge of water run-off

Depending on the activity, the discharge may be authorised by EASR GBR 10D or require a permit under The Environmental Authorisations (Scotland) Regulations (EASR). Table 1 sets out the types of authorisation.

**Table 1: Types of authorisation for the discharge of water run-off from a construction site to the water environment**

| **Type of authorisation** | **Activity description** |
| --- | --- |
| Water GBR 10D | The discharge of water run-off from a construction site to the water environment where the site, including any constructed access tracks, does not—   1. exceed 4 hectares, 2. contain a road or track length in excess of 5km, or 3. include any area of more than 1 hectare or any length of more than 500 metres on ground with a slope in excess of 25 degrees. |
| Permit | The discharge of water run-off from a construction site to the water environment where the site, including any constructed access tracks-where the activity is not authorised by GBR 10D |

GBR10D authorises water run-off from a construction site, of specific scale and criteria. SEPA does not authorise the overland, sheet flow from any construction site to the water environment. Any overland flow must be managed so that it doesn’t cause pollution; this could include directing these flows to a surface water drainage system.

## 3.2 Other Activities

Large scale construction sites may comprise of a number of regulated activities in addition to run-off discharges. These may include activities such as engineering works (river banks/bed, culverts, tracks/roads, bridges, quarrying/borrow pits, abstractions/dewatering). Our EASR Guidance: Construction works and silt / pollution mitigation provides further information.

The temporary abstraction and subsequent discharge of groundwater at some construction sites may be authorised by GBR 15. The GBR rules can be found on the GBR 15 activity webpage.

Outfalls must be installed in accordance with EASR Water GBR 6. The outfall should be designed and installed following best practice as described in WAT-G-036 EASR Guidance: Intakes and outfalls.

## 3.3 Phasing of construction

If you want the development to be constructed in area-based phases, the GBR threshold may be applied to each separate area provided that:

* The distinct phases remain below the thresholds for a permit.
* All construction work is complete before any construction work (including land preparation) begins in the next phase.
* No water run-off from a ‘live construction’ phase drains to (or through) a completed phase.
* The final sustainable urban drainage system (SUDS) is fully operational for the completed phase.

The run-off from any access roads within your construction site will be included in the Construction Run-off Permit.

## 3.4 Discharges to sewers

A discharge to a foul, surface water or combined sewer network, including via a drain[[1]](#footnote-2), will **not** require authorisation from SEPA. However, permission will be required from Scottish Water (or the asset owner). Asset owners will decide if they can accept a discharge of surface water run-off from a construction site into their assets. If a discharge is acceptable, the asset owners may require a certain level of treatment of the surface water run-off from the construction site into their asset and an application for an authorisation may require to be made to the asset owner. For further guidance you should contact Scottish Water or the relevant third-party asset owner and take advice from a solicitor.

Further [information on Scottish Water’s requirements](https://www.scottishwater.co.uk/en/Business-and-Developers/Byelaws-and-Trade-Effluent/Trade-Effluent) can be found on their website. A summary of the authorisation required is set out in table 2.

**Table 2: Summary of authorisation required**

| **Where is the discharge to?** | **Is SEPA authorisation required?** | **Is Scottish Water authorisation required?** |
| --- | --- | --- |
| Discharge only to the water environment | Yes | No |
| Discharge only to Scottish Water asset | No | Yes |
| Discharge to both water environment and Scottish Water asset | Yes | Yes |

The discharge of water run-off from completed developments is authorised by GBR 10A, GBR 10B or an EASR permit.

Discharges of run-off from water-bound roads are authorised by GBR 22.

# 4 Risks to the water environment

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

An elevated 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 conservation sites nearby (e.g. a Special Area of Conservation (SAC) for freshwater pearl mussels) that could be impacted.

Other pollution impacts can be from the discharge of oil / hydrocarbons or from scouring at discharge locations during heavy rain.

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.

## 4.1 High Risk Areas

On many development sites, there are certain ‘high risk’ areas of activity such as:

* Fuel delivery areas, or any areas where vehicles, plant and equipment are refuelled.
* Vehicle loading or unloading bays where potentially environmentally harmful matter is handled.
* Oil and chemical storage handling and delivery areas.

You should aim to eliminate or minimise the amount of run-off from these high risk areas to the water environment (or to a surface water sewer). This is due to the risk of spillage and the polluting nature of the substances involved.

If you undertake these activities indoors, you can eliminate water run-off draining from these high risk areas.

If you cannot eliminate run-off from high risk areas, you may need to consider draining to Scottish Water’s foul (or combined) sewer network. However Scottish Water does not normally accept water run-off to the foul sewer. In exceptional circumstances where such connections are being considered, Scottish Water should be consulted to establish the acceptability of the proposal and to determine their specific drainage requirements. The use of canopies may significantly reduce the amount of rainwater run-off entering the foul sewer.

If Scottish Water does not allow connection to the foul sewer, it may be possible to contain high risk run-off and tanker it away for treatment or authorised disposal.

If none of these options is feasible, and discharge to the water environment is the only possibility, then this activity will require to be permitted as it is not authorised under GBR 10D.

## 4.2 Discharges of trade or other effluent to the water environment

Where you intend to discharge trade or other effluent (for example concrete wash waters) from the construction site to the water environment, you must apply to us for a separate discharge of effluent permit. This activity will not be covered by your construction run-off permit. Further details on the authorisation requirements for trade or other effluent discharges are available on in our Discharges of effluents webpage.

Best practice is to discharge trade effluent from construction sites to the foul sewer with the permission of Scottish Water. Where this is not possible, tankering away is the next best option. Only where you have demonstrated that neither of these options is practicable will SEPA consider an application to discharge trade effluent to the water environment.

# 5 Pre application consultation

You are strongly advised to contact us before applying for a permit. This is in relation to the following two issues.

## 5.1 Site location

If you provide the site location showing the boundary of your site and each discharge location, we can then advise on the sensitivity of the site and whether a suspended solids limit of 30 or 80 mg/l will be included in the permit.

The majority of discharges are likely to be limited to 80mg/l of suspended solids which will afford protection to the water environment, such as protection to freshwater fish. A limited number of sites will be required to meet 30mg/l due an enhanced level of protection required for areas sensitive to suspended solids.

Knowing the suspended solids limit will help you determine the nature and scale of the mitigation measures required.

It is helpful especially for larger, linear projects if you could submit a Shapefile showing the boundary of the site. The Shapefile format to submit is a zipped shapefile, comprising the following file types as a minimum: .shp, .shx, .dbf, .prj. File should be provided with the British National Grid projection. File should contain single part polygon features only, i.e. sites made up of multiple separate areas must not be merged into a multi-part feature.

## 5.2 Proposed chemical use

You may wish to use chemicals to aid the settlement of solids in construction phase settlement ponds. However, we discourage the use of chemical additives to treat water run-off from construction sites as a primary measure. The use of chemical additives to treat water run-off from construction sites presents a high risk to the water environment given the presence of harmful chemicals.

We expect passive (and / or mechanical) treatment systems to be used where possible, and chemical treatment only to be used as a last resort.

Where you wish to use chemical treatment, you should contact SEPA in advance of application for a permit. Robust justification for chemical use must be provided, and a permit application submitted to SEPA. Where your justification is insufficient, your application to use chemical treatment will be refused. Guidance on this is provided in Appendix 2.

If your justification is accepted, we will authorise its use and include further discharge limits in the permit to control the impact of any harmful chemicals present in the selected chemical treatment.

# 6 Treatment required to prevent pollution

As a minimum requirement, any water run-off from the construction site must pass through a treatment system. This is a requirement of GBR 10D and permits.

This system must be suitably designed, operated and maintained to collect and treat discharges of water run-off that arise from the construction site. The treatment system should be designed to control and mitigate the expected volume of water run-off from the site.

[CIRIA’s Control of water pollution from linear construction projects. Technical Guidance (C648) Section 18](https://www.ciria.org/CIRIA/CIRIA/Store_Home.aspx?hkey=4a041b49-608b-4f48-9a46-51681945f4c0) enables the expected water 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 water run-off. In addition, reducing the area 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 waters.

In addition to the above guidance, [CIRIA](https://www.ciria.org/CIRIA/CIRIA/Store_Home.aspx?hkey=4a041b49-608b-4f48-9a46-51681945f4c0) also have the following manuals available:

* Control of water pollution from construction sites. Guidance for consultants and contractors (C532).
* Drainage of development sites - a guide (X108) (Free).
* Guidance on the Construction of SUDS (C768).
* The SuDS Manual (C753) (Free).

Netregs has useful [Guidance for Pollution Prevention (GPP)](https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/) documents, including the following:

* GPP 1: Understanding your environmental responsibilities - good environmental practices.
* GPP 5: Works and maintenance in or near water.
* GPP 6: Working at construction and demolition sites.

## 6.1 Pollution Prevention Plans

It is considered best practice that at construction sites a Pollution Prevention Plan is produced, followed and regularly updated. A Pollution Prevention Plan will allow you to plan out, in advance of any work, the necessary mitigation measures required to prevent pollution.

For instance, this is useful in calculating the expected volume of run-off and the area required for a suitable treatment system to remove silt. Regularly reviewing the Pollution Prevention Plan as the site develops allows you to determine if the mitigation measures are still appropriate.

You are not required to send these plans to us for approval. However, where pollution incidents do occur, we may seek to review your plans and procedures as part of our investigation. Absent, inadequate, or badly implemented plans and procedures will reflect poorly on you and will be taken into consideration during our assessment of pollution incidents and the enforcement action we may take.

We would consider it good practice to include the details as set out in the template Pollution Prevention Plan in Appendix 3.

## 6.2 Treatment Systems

Sediment removal is an essential part of the treatment for surface water run-off discharges, especially during the construction phase, during which the risk of pollution is high.

Pollution from construction sites commonly occurs due to large areas of stripped soil being exposed to rainfall over a protracted period. GBR 11 (which authorises discharges into surface water drainage systems) therefore requires the minimising of the extent of such areas of exposed soil and the duration that these areas are exposed.

Whereas source control will obviously reduce the quantity of silt entering a SUDS, a pond/basin may be required for larger developments. The most appropriate means of achieving this depends on site-specific factors such as expected flows and the anticipated loading of silt.

If your construction site is authorised by GBR 10D, rule 10D(d) requires that the site is “drained by a SUD system or equivalent system equipped to avoid the introduction of any substance or heat to the water environment which may give rise to harm to the water environment”.

The treatment system used during the construction phase generally needs to be able to treat a much higher load of silt than the treatment system to be used to treat run-off from the completed built development. Therefore, the SUD system used for the completed built development is not normally suitable on its own as treatment for the construction site runoff.

If you are proposing to use the same SUD system (such as a swale, filter trench, detention basin or pond) to treat runoff from both the construction phase and the completed development, you will likely have to remove silt once the construction phase is complete.

In order to prevent suspended solids entering the watercourses you must identify and implement suitable mitigation measures. Examples of suitable mitigation measures include:

* **Pre-Works Measures:**
* Limit area of exposed soil.
* Pre-earthworks cut-off trenches to reduce water entering the construction site.
* **Passive Treatment:**
* Attenuation channels/ponds.
* Settlement ponds.
* Swales.
* **Mechanical Treatment:**
* Mechanical force to separate solids from liquids. E.g. vortex settlement chambers.
* **Chemical Treatment:**
* Chemical treatment (e.g. coagulants /flocculants), in addition to the above to aid settlement.

Whilst these ‘equivalent systems’ may be satisfactory for pollution control for run-off from a construction site, these do not meet the longer-term treatment, attenuation and amenity objectives of SUDS. Hence ‘equivalent systems’ are not permissible for treatment of runoff water from completed developments (Run-off from most completed developments is authorised by GBR 10B).

# 7 Soil Stabilisation

Due to the nature of construction site projects, soil stabilisation (e.g. application of lime) may be required. Whilst this will be primarily controlled via the planning authorities, we would expect that best practice is followed to ensure that excess applied material is not lost across and beyond the site. Best practice would include understanding the minimal amount of soil stabilisation required to do the job. Where excess material has been applied then applying the pollution prevention measures to ensure that this material is collected and prevented from entering the water environment, where it may cause pollution by changing the pH value, is good practice.

# 8 Flood Risk

We would normally advise against the siting of the treatment system on the functional floodplain. Where treatment facilities are to be sited on the floodplain, it will become inundated during flood events and may be unable to function during this period. Therefore, if treatment facilities are intended to be located on the floodplain, this is at the operator’s risk and a wet weather protocol may be required to be adopted/applied as appropriate dependant on circumstances. SEPA guidance on flood risk can be found on our [website](https://www.sepa.org.uk/environment/land/planning/guidance-and-advice-notes/).

# 9 Track Construction and Maintenance

The nature of creating new access tracks means that soil will naturally be exposed along the new route. It is important that these tracks are planned in advance to avoid the loss of sediment into the local burns and rivers. The main aspects of mitigation are:

* Preparation of the route – removal of vegetation will expose the soil which is likely to be washed into the rivers if no appropriate mitigation is used.
* Materials used for track construction – the type of material can make a big difference as to how much sediment will be moved from the track. Different material will break down at different rates depending on the large number / weight of vehicular movements. It is important that the correct mitigation is used to reduce the risk of sediment loss from these tracks. This could include higher quality aggregate, suitable sediment traps, correct camber to shed water, drainage channels to control the flow of surface waters.
* Route profile – Where routes are required to pass through steep sections, additional care is needed to ensure that the most appropriate mitigation methods are chosen.
* Design and maintenance of cut-off drains, separation of clean and dirty water – all mitigation methods will need to be regularly monitored and maintained to ensure that they work effectively to prevent silt pollution.

# 10 Managing Changes to the Construction Run-off Permit

Once the construction run-off permit has been issued to the Authorised Person, there are occasions where alterations are needed. Refer to the [Construction Run-off Permit webpage](https://scottishepa.sharepoint.com/:w:/r/sites/IntegratedAuthorisationFramework/Shared%20Documents/WS08_Guidance_Web/Website/Web%20page%20content/Tranche%204/Water%20activities%20and%20guidance/Water%20activity%20pages/241209_EASR_Permit_Activity_webpage_construction_runoff.docx?d=w6c52733219204fe9972c976c97bae921&csf=1&web=1&e=yROkN3) for details of how to make a change.

The following sections describe issues specific to construction run-off permits in relation to transfers, variations, or surrenders of the permit.

## 10.1 Transfers

The process of transferring a permit is applicable in several circumstances:

* Where one Authorised Person wishes to transfer the permit to another person (e.g. client applied for permit and now wishes to transfer to a contractor who is carrying out works on site).
* As the application for a construction run-off permit can be undertaken in advance of the tender for subcontractors, the permit could then be transferred to the Authorised Person for the company overseeing the construction works on site.
* A partial transfer may be required when part of a construction site is sold to another developer. Please contact waterpermitting@sepa.org.uk to discuss.

## 10.2 Variations

Should any material changes be required then an application for a variation to the permit may be required. These would include an extension or change to the site boundary.

The Authorised Person may wish to chemically treat the water run-off to manage silt settlement, which was not highlighted during the initial permit application. As such, an application for a variation to the permit will be required.

## 10.3 Partial surrenders

As construction works are finalised and the associated discharge of water run-off ceases, the Authorised Person may wish to partially surrender the permit to remove this area of land from the permit.

SEPA considers the activity to have ceased when construction work is complete, a final SUD system has been installed and it is being fully utilised to manage water run-off.

There must be no water run-off from a ‘completed construction’ phase draining to (or through) a live construction phase, or vice versa.

Please contact <mailto:waterpermitting@sepa.org.uk> to discuss.

## 10.4 Full Surrenders

Where the discharge of water run-off from a construction site to the water environment has ceased, an [application](https://www.sepa.org.uk/media/286999/car-la-form-i-surrender-of-authorisation.doc) can be submitted to SEPA to surrender the construction run-off permit.

SEPA consider the activity to have ceased when construction work is complete, a final SUDS system has been installed and it is being fully utilised to manage water run-off.

The appropriate time to submit an application to surrender the construction run-off permit is when all the construction works have been completed and any worked/loose soils have been stabilised / vegetation re-established (to prevent silt pollution). This may be a number of months after the considered project completion (i.e., when the heavy plant and machinery has left site) and should take into account any time required for snagging works.

It must be noted that in determining the surrender of the Construction Run-off Permit, SEPA may impose some conditions in relation to the management and mitigation required to ensure that the disturbed soils from the construction activity do not result in silt pollution.

# Appendix 1 - Frequently Asked Questions

## Is the site compound regarded as part of the construction site?

If the compound is within or directly connected to the construction site (i.e. connected by a road that is under your ownership) then it is considered part of the entire construction site.

If the compound is out with, or not directly connected to the construction site (i.e. it is remote or connected by a public or privately owned road) then it is not considered part of the entire construction site. The discharge of water run-off from the site compound construction site must also be authorised by SEPA, either by GBR 10D or (if it meets the permit level thresholds) a separate construction run-off permit.

## Does the discharge of water run-off from remediation of land contamination require an authorisation?

Yes, the discharge of water run-off to the water environment during the remediation of a land contamination must be authorised by SEPA. This is in addition to any requirements for the treatment of the land/water contamination.

Any SEPA authorisation that is already in place for the site prior to its remediation (e.g. the discharge of water run-off from the final SUDS or the discharge of trade effluent from the site) does not authorise the discharge of water run-off to the water environment during remediation. Therefore, the authorisation requirements set out above must be met.

## I have finished construction – what now?

Where the discharge of water run-off from a construction site to the water environment has ceased, an application should be submitted to SEPA to surrender your construction run-off permit (see also above section 10 on surrender of a permit).

SEPA consider the activity to have ceased when construction work is complete, a final SUDS system has been installed and it is being fully utilised to manage water run-off. Please also be aware of the authorisation requirements for the discharge of water run-off to the water environment from final SUDS. WAT-G-056 EASR Guidance: The discharge of water run-off from a surface water drainage system from built developments.

# Appendix 2 – Use of Chemicals to reduce Suspended Solids or Discolouration

## A2.1 Justification

Your justification should broadly address the following three questions:

1. What passive / mechanical treatment systems have been used or considered?

2. What features of the construction site and its location mean your passive / mechanical treatment is insufficient?

3. How will chemical treatment solve the identified issues?

### A2.1.1 What passive / mechanical treatment systems have been used or considered?

#### Summary of passive / mechanical systems used

You should have exhausted or ruled out all reasonable passive / mechanical treatment systems before escalating to chemical treatment. The justification should summarise all the passive / mechanical treatment systems that have been used or considered. The passive / mechanical treatment systems used or considered should be proportionate to the overall risk presented by the construction site.

To be a valid justification, the passive / mechanical treatment systems listed as being inadequate must be of a suitable type and sized appropriately for the soil type and rainfall events likely to be experienced during the build-out period (i.e. not obviously inadequate).

Examples of obviously inadequate passive / mechanical treatment systems include:

* A single small pond to treat all run-off from a large site (inadequate residence time or attenuation).
* A single mechanical treatment system to treat all run-off from a large site (insufficient treatment capacity).
* A reliance only on hay bales or silt fencing for treatment (no settlement).
* No source control - no efforts made to keep ‘clean’ and ‘dirty’ water separate or to minimise the generation of silt-laden run-off.
* Use of inappropriate permanent SUDs for silt mitigation (e.g. filter trenches, detention basins).

#### Provide details of measures to enhance or extend mechanical /passive treatment during construction operations:

Where you consider passive / mechanical treatment is not sufficient and propose to introduce chemical treatment, you will need to provide evidence that you have legitimately exhausted passive / mechanical treatment as an option.

To be a valid justification, reasonable efforts to enhance or extend the passive / mechanical treatment measures should be demonstrated. For example:

* The overall size / capability of the treatment system has been increased.
* New types of passive / mechanical treatment have been introduced (e.g., addition of baffle tanks as a pre- or post-stilling pond measure).
* Measures to minimise the generation of silty run-off have been extended / improved.

### A2.1.2 What features of the construction site (including its location) means your passive/mechanical treatment is insufficient?

#### Site Topography:

* The layout and orientation of the land and physical features of the construction site have a direct influence on the management of surface water run-off.
* Certain aspects of the site topography can create challenges that passive or mechanical treatment systems may not be able to cope with.
* Your justification should identify why the construction site’s topography and physical features have created challenges.

Examples include:

* Steep / sloping construction sites.
* Long / extended slopes (even if only moderate gradient).
* Site already urbanised with impermeable surfaces already in place and/or heavily constrained by surrounding buildings.

#### Dominant Soil Type:

The type of soil that is scoured / accumulated by water run-off has a direct bearing on how long it takes to ‘settle-out’ of suspension.

Some clay soils, especially colloidal soils are exceptionally fine with highly charged particles. Passive and mechanical treatment may not be sufficient to remove these particles from suspension. Clay-based soils are found throughout Scotland, including the central belt and the Northeast.

The justification should identify the dominant soil type on the construction site and state why this soil type has created difficulties in treating the water run-off.

Ground investigations and simple settlement tests can be carried out to identify the soil type and settlement rate. Where this shows the presence of non-settling soils, it can be used as justification for chemical treatment.

#### Site Space Constraints:

Passive treatment systems need more space than a mechanical or chemical treatment system. However, mechanical treatment systems alone may be inadequate due to restricted capacity.

Where space on a construction site is limited, the ability to extend or add further passive treatment systems may not be possible. Use of chemical treatment with a mechanical system can be a way of ensuring effective silt mitigation in highly constrained sites.

Space constraints are more likely to occur in urban settings or linear developments. Space is unlikely to be an issue in large-scale rural developments (e.g., wind farms or greenfield housing developments).

The justification must identify that there is insufficient space available to construct a passive surface water drainage system that is adequate to manage the run-off generated from the site.

As previously stated, to be a valid justification, the passive treatment systems used on the construction site must be of a reasonable standard and not obviously inadequate.

Major infrastructure projects may be able to apply for chemical use without supplying justification in terms of soil types or urban constraints. This is because of the impracticality of sampling soils over a project upwards of 15km in length and which may have a constrained build-out envelope due to public procurement limitations.

#### Extreme Weather:

* Occurrences of extreme weather are becoming more common: Extended periods of extreme rainfall are likely to create surface water run-off management challenges.
* Chemical treatment may be necessary to alleviate the symptoms of these extended periods of extreme rainfall.

The justification should demonstrate that:

* The passive treatment system has been sized appropriately to treat expected (‘normal’) levels of rainfall; and
* The levels of rainfall currently experienced at the construction site are significantly higher than expected (‘normal’) levels.

Analysis of historical and current rainfall data within the locale of the construction site is expected.

As previously stated, to be a valid justification, the passive treatment systems used on the construction site must be of a reasonable standard and not obviously inadequate.

It is expected that the passive treatment system has a reasonable degree of redundancy inbuilt: i.e., the treatment system is designed to treat a rainfall event that exceeds the duration of construction. For example, for a site that is expected to be under construction for 5 years, the treatment system may be designed to cope with a 1 in 10-year rainfall event. A treatment system should not be considered adequate if it does not have a reasonable buffer for a rainfall event. Doubling the build-out period should generally give an adequate buffer. Major infrastructure sites will usually use a 1:200 year storm event to design their drainage.

### A2.1.3 How will chemical treatment solve the issues identified?

#### Why is chemical treatment the solution?

Your justification should clearly and unambiguously state how chemical use will resolve the issues identified at the construction site, for instance by the use of jar settlement tests.

The justification must link back to the problems identified to be valid.

#### How is the selected chemical appropriate?

Your justification should demonstrate that a suitable chemical and mechanism of delivery (considering the problems encountered) has been selected.

Chemicals should be selected on the basis of achieving the best possible result for the lowest risk. It may not be necessary to use flocculants on sites with clay soils, for instance, if coagulants are sufficient to achieve the desired result by themselves. On some particularly problematic sites, it may be necessary to use both a coagulant and a flocculant.

You should read SEPA’s chemical risk hierarchy below, and the justification should demonstrate that the least environmentally risky chemical suitable for the purpose has been selected.

You must submit the relevant Materials Safety Data Sheet with your application.

## A2.2 Chemical Risk Hierarchy

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 but can be non-metal based.

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).

Some types of chemicals present a lower risk to the environment than others, as described below.

* Anionic polyacrylamides, non-ionic polyacrylamides and tannin-based chemicals present the lowest risk and are the preferred choice.
* Aluminium-based and Iron-based chemicals present a higher risk. Aluminium-based flocculant must not be used in low pH conditions.
* Cationic polyacrylamides present the highest environmental risk and are the least preferred choice.

As a rule of thumb, you should select the lowest risk chemical that meets the requirements of their site.

# Appendix 3 – Information to be included in the Pollution Prevention Plan

**What land does this plan apply to?** You should include the:

* Boundary of the land to which this pollution prevention plan applies (provide map).
* 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?** You should include the:

* Type of construction work that will be carried on the land to which this plan applies (e.g. residential housing; industrial units; metalled roads; waterbound roads; etc.).
* Scale of the construction work (e.g. 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?** You should include the:

* Person(s) who will be the normal contact with SEPA about this plan.
* Person(s) who can have 24 hour contact with SEPA in an emergency (i.e. 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?** You should include the:

* 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 (e.g. as a result of ground works) over the period covered by the plan).

**What will be done to prevent pollution?** You should include:

* **How you will manage risks at each source, including alternative methods if required.**
* **How you will manage water run-off.** You should includedetails of minimisation of exposed soil.
* **For each Drainage system 1, 2, 3 etc, provide:**
  + A map of area drained.
  + The maximum water run-off rate likely from the drained area.
  + Soil/sediment settlement rate.
  + The capacity of drainage system.
  + The 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

**What you will do if something goes wrong.** You should include:

* 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 you ensure that the plan is effective.** You should include a:

* 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.** You should include the:

* 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.

# Disclaimer

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SEPA reserves the right to depart from this guidance and take appropriate action as it considers necessary or appropriate. Operators are responsible for ensuring that they are compliant with the law. If necessary, independent legal / specialist advice should be sought.

1. Sewerage Scotland Act definitions “public drain” means any drain which is vested in a local authority or Scottish Water. “drain” in relation to premises, means any pipe or drain within the curtilage of those premises used solely for or in connection with the drainage of one building or of any buildings or yards appurtenant to buildings within the same curtilage; [↑](#footnote-ref-2)