

Working at construction and demolition sites: PPG6 Pollution Prevention Guidelines

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Published by:

Environment Agency

Horizon House

Deanery Road,

Bristol, BS1 5AH

Tel: 03708 506 506

Email: enquiries@environment-agency.gov.uk

www.environment-agency.gov.uk

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Introduction to PPG6

Working at construction and demolition sites

This document provides practical advice and guidance to help you prevent [pollution](#). There are several hundred pollution [incidents](#) from construction and demolition sites every year that damage the environment, yet most can easily be prevented. Managing your activities properly on site will protect the environment, wildlife and human health.

This guidance explains what you're required to do by law and describes good practice measures to reduce the risks of a pollution [incident](#).

Who is this document for?

This guidance is for site managers, foremen and supervisors, in companies of all sizes, including small to medium enterprises (SMEs) and specialist contractors. This includes anyone responsible for managing what happens day to day on a construction or demolition site.

Others who are likely to find this guidance helpful include: main or principal contractors, environment managers, clients, developers and design consultants, local council officers and environmental regulators.

Basic principles – Things you should know

What is pollution?	<p>Pollution is the release of any substance that can harm people or animals, plants, soil, water or air; for example, an oil spill, silty water getting into a river or smoke into the air.</p> <p>Common pollutants from sites include: silt, oil (including fuel), cement, concrete, grout, chemicals, sewage, waste materials, dust, and smoke.</p> <p>Common causes of pollution are: illegal discharges, burning waste, pollutants carried by rain water run-off, poor maintenance or supervision, accidental spillage and vandalism.</p>
What's at risk from pollution?	<p>Water environment – pollution can kill fish and affect other users such as farmers, industry and drinking water abstractions. In the UK, public drinking water supplies come from rivers and groundwater so we must protect them from pollution.</p> <p>Surface waters include rivers, lakes, lochs, loughs, reservoirs, ponds, streams, canals, ditches, including those that are temporarily dry, estuaries and coastal waters up to three miles offshore.</p> <p>Groundwater is all water below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.</p> <p>Surface waters and groundwater have legal protection. It is an offence to pollute them.</p> <p>Silt and oil are the most common construction site pollutants to water. Your site doesn't need to be next to a river to cause a problem; any pollutants getting into drains can end up in a river even if it's miles away from site, and can be traced back to their source. Drainage systems, including land drains, act as unseen pathways. If your site is near surface waters or drainage connection leading to surface waters, you'll need to take extra care to manage your site activities to reduce the risk of pollution.</p> <p>If you're actually working in or near a watercourse, you need to refer to PPG 5 Works and maintenance in or near water.</p> <p>Land and soil – support a variety of species (plant and animal) which can be directly harmed through chemical and oil pollution, or changes to pH. Effects can be immediate or arise over time depending on the pollution and quantities.</p> <p>Air quality – emissions to the air can affect people's health, be a nuisance to site neighbours (odour and dust) and have an impact on ecology.</p> <p>People – noise, light and vibration can all create nuisance affecting people's quality of life.</p>

<p>What are your responsibilities?</p>	<p>Responsibility for preventing pollution rests with those in control of the site. In this guidance we use the term ‘responsible person’. This person should be responsible for managing activities and risks on site such as deliveries, oil and chemical storage and emergencies. They are likely to need training to enable them to carry out these roles. On larger sites, this may be more than one person and on smaller sites, one person may take all roles. But everyone on site, including sub-contractors, must carry out their activities in line with plans, procedures and methods designed to prevent pollution.</p>
<p>Managing your responsibilities</p>	<p>Managing your environmental responsibilities will:</p> <ul style="list-style-type: none"> • enhance your company’s reputation and reduce nuisance to neighbours • help you win future work • save time and prevent costly delays to your project • help save money by using resources wisely and avoiding fines • protect the environment
<p>What are the consequences if you cause pollution?</p>	<p>If site activities cause pollution you, your company, your subcontractors and your client could end up in court. You may face a significant fine, court costs and you could go to prison. You may also have to pay clean up and restoration costs, under the ‘Polluter pays’ principle.</p> <p>Other legal action may include formal warnings and enforcement notices. For example, if a river is at risk from pollution, an ‘anti pollution works notice’ may be served to require you to do work to prevent or clean up pollution. Enforcement can also be applied through Fixed Penalty Notices.</p> <p>Being prosecuted may also affect your ability to win future work as you may need to declare any successful prosecutions on pre-qualification or tender applications.</p>

What is the regulators role?

Your environmental regulator has responsibility for regulating sites and activities that could affect the environment. We are:

- Environment Agency
- NIEA
- SEPA

We provide advice and guidance to businesses on how to comply with environmental regulations through our officers, websites, and publications.

This document refers to environmental regulators as 'we', 'us' or the 'local regulator'.

Contact us early on so we can help you prevent pollution, minimise damage to the environment and achieve high standards of environmental management on site. See [contact details](#) on the last page.

Legislation & enforcement

There are laws that protect land, water, air, wildlife and people from pollution. If you pollute [surface waters](#) or [groundwater](#), air or land you are probably committing an offence. Penalties include fines, imprisonment, Fixed Penalty Notices, stop-work notices or equivalent and having to pay clean-up costs, along with damage to your reputation.

United Kingdom (UK) (England, Northern Ireland, Scotland and Wales)

Legal requirements are different throughout the UK. These differences are sometimes significant (e.g. legislation in one part of the UK doesn't apply in another) or can be minor (e.g. regulation is the same in principle, but slightly different in application). These are reflected in the Essential pollution prevention sections of this guidance.

You are responsible for ensuring that you understand and comply with all applicable legislation wherever your site is. If you have any concerns, or require clarification, contact your local regulator before taking action. Ignorance of legislation is no defence under law, so you need to understand which laws apply to you and your work. In England and Wales **The Environmental Permitting Regulations 2010** mean you might need an environmental permit from us to manage your activities.

Incident hotline – report it, don't ignore it!

Good planning and using this guidance will help you prevent pollution. **But if a pollution incident does occur, call our Hotline: 0800 80 70 60 to report it.**

What this document covers

This document provides guidance on pollution prevention by topic in separate sections – see contents below.

Each section contains common themes:

Introduction

Essential pollution prevention – things you must do to prevent pollution and meet legal requirements.

Further considerations – other things to consider which may or may not be practical depending on your site.

Checklist – to check you've considered and attempted to mitigate pollution risk for that topic. The checklists contain space for you to record your comments and actions for each point and extra lines to add your own requirements.

The scope of this guidance is pollution prevention; it's not a guide to managing all environmental aspects on site. For guidance on this, refer to:

Construction industry research and information association (CIRIA)

[Environmental Good Practice on Site, 3rd Edition, 2010](#)

[Construction Industry Publications \(CIP\) Construction Environmental Manual](#)

Contents

Acknowledgements

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Bam Construct UK	Construction Skills	Westfield
Bovis Homes	Galliford Try	
Carillion	Jones Brothers	
Infrastructure	Kier Group	
CIRIA	NetRegs	

Construction site navigation diagram



Hover over the section of the construction site you wish to find out more about and then click to be taken to this section, or use the category buttons below

This diagram is for illustrative purposes only (it is not drawn to scale). Different arrangements will exist depending on the site.

Section 1: Pollution prevention planning

Allowing time to plan and prepare before work starts on site can significantly reduce the risk of a pollution **incident**. Once you've identified potential sources of pollution, you'll be much better prepared to put measures in place to avoid or reduce the risk of causing pollution.

Planning will:

- help make the job run smoothly
- improve **risk management**, reducing risk of pollution incidents and fines
- help identify efficiencies and potential cost savings
- improve relationships with clients, local regulators and neighbours and reduce likelihood of complaints
- reduce damage and clean up costs if an incident does happen
- help you win and maintain contracts

This section explains four steps you can take to reduce the risk of causing pollution.

Step 1 – Know your risks

Take time out to plan; a few hours can make all the difference.

- Ask yourself: *where could pollution occur and what are the **pathways for pollution***? The site drawings and plans should help with this. See [Figure 1 \(Site diagram\)](#) for prompts
- Has any environmental information been provided in the contract/planning documents? These often identify pollution potential and should be reviewed and understood.
- Identify:
 - what activities you are likely to carry out that could cause pollution and their location
 - what might increase the risks of your activities causing pollution
 - all your interested groups i.e. regulators and neighbours (see [PPG5](#))
- Identify **surface waters** and **groundwater** on, under or adjacent to your site. This also includes any small (dry) ditches capable of transporting water.
- Find out if the groundwater is in a protected zone as you may need to take extra steps to prevent pollution.



Section 1: Pollution prevention planning

- Identify legislation that applies to your project and make sure you understand how it affects your site and your responsibilities.
- Identify what [permissions](#) you may require from us (e.g. [abstraction](#), [discharge](#), temporary flood defence); pay particular attention to [Environmental Permitting Regulations \(in England and Wales\)](#).
- Consult your environment advisor / manager if you have one.
- Consult your existing [Environmental Management System](#); if you or your company has one, this will provide valuable guidance for pollution prevention.
- Decide which pollution risks are most significant to your project and focus on these first. All risks should be addressed ultimately. Review the following sections of this document for guidance that relates to your site.

At the planning stage it is important to consider the potential for [deliveries](#) and [vehicles](#) on site to cause pollution and how you will manage [silty water](#) generated by your project. The following guidance will assist you to manage these risk.

Deliveries and vehicles on site

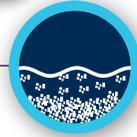


Deliveries to site can be a common cause of pollution. Vehicles can cause water, noise and dust pollution as they enter and exit site, for example by spreading mud or contaminated material on neighbouring roads. Pollution can also be caused at the point of delivery, especially with fuels, oils and hazardous materials; for example, a fuel hose not correctly connected and leaking, or when the area is unsuitable for storing that material. See sections: [4 Stockpiles](#), [5 Oil storage, use and refuelling](#), [6 Nuisance](#), [10 Waste management](#).

- Identify an area where all deliveries will be completed, and communicate the requirements to suppliers and those working on site.
- Ensure all deliveries are made as far away from [watercourses](#) and drains as possible.
- Define times for deliveries to site and communicate these to suppliers and those working on site. Make sure these delivery times are suitable for neighbours, i.e. after 9am.
- Ensure any tanks, drums or containers coming to site are in a satisfactory condition – check for damage or leaks.
- Clearly define delivery and material storage areas.
- Design one way systems for vehicle movements to minimise vehicle reversing alarm nuisance, including turning circles.
- Make sure that deliveries of polluting materials are delivered directly to a safe storage area, and not left anywhere else on site; a safe storage area may need [secondary containment](#) depending on the material to be stored e.g. oil and hazardous chemicals.
- Ensure that all material deliveries will be supervised, especially hazardous materials.
- Define access routes to and from site to prevent nuisance.
- Make arrangements to reduce mud leaving the site on delivery vehicles e.g. road sweeping or wheel wash facilities on entrance and exits from site, and plan to deal with any effluent.
- Seek to reduce dust; consider a 10mph speed limit on site and damping down haul roads with fine mist spray, or placing hard standing on roads.
- Prepare for deliveries; check any [bunds](#), or [drip trays](#) for maintenance requirements, for instance emptying drip trays.
- Prepare [tool box talks](#) to site workers on deliveries and preventing pollution.

Section 1: Pollution prevention planning

Silty water



Poor management of silt and silty water is a major cause of serious pollution incidents from construction sites.

Silt for these purposes is a fine inert sediment derived from soil and rocks.

Silt pollution can:

- damage and kill aquatic life by smothering and suffocating
- reduce water quality
- cause flooding by blocking culverts and channels

Many construction processes produce silty water: movement and maintenance of plant and vehicles on site, rain water run-off from exposed ground, trenches or foundations and even from plant, wheel and boot wash facilities.

If you can, prevent water becoming contaminated with silt in the first place, as this reduces the risk of pollution and the overall cost of your [control measures](#). To avoid silt pollution you should, wherever possible, use methods of work that reduce or eliminate the likelihood of producing silt and silty water. For example use of cut-off trenches, vegetation corridors adjacent to waterways (to act as 'buffer strips') and reduce the amount of exposed ground.

- Identify where your activities are likely to produce silt, e.g. earthworks, excavations.
- Identify how silty water could travel on your site, i.e. pollution pathways, consider;
 - drains
 - watercourses
 - lie of the land. How will water flow over or off the site due to slopes or topography?

You must not discharge any silty water to a drain or watercourse without prior treatment to settle or remove suspended solids. If you've identified that you will be generating silty water, identify suitable means to treat the water before discharge; examples include:

- lagoons
- settlement tanks
- silt traps
- grassy areas that slow water and allow solids to settle
- [Sustainable Drainage Systems/Sustainable Urban Drainage Systems](#) (SUDS).

Plant, wheel and boot washing:

- Should be carried out in a designated area of hard standing at least 10 metres from any surface waters.
- Run-off should be collected in a sump, with settled solids removed regularly and water recycled and reused where possible. Any excess water should be discharged to [foul sewer](#) with prior permission from your local sewerage provider or tankered off site for authorised disposal.

Silt treatment options can be complex or relatively simple depending on the volume of water, the amount and type of silt and the type and size of site. Whichever method is used, you need an area where water can be undisturbed for a period of time. These facilities must be correctly installed, routinely maintained and inspected to ensure they're working efficiently.

For more information on ways to prevent silt and silty water causing pollution see sections: [2 Drainage](#), [3 Excavations](#), [4 Stockpiles](#), and [7 Cement](#), case studies [8](#), [9](#), [10](#) and [PPG 5](#).

Section 1: Pollution prevention planning

Step 2 – Preparing for pollution prevention

- Document your site requirements. This may be a simple [Environment Plan](#) which records how you'll manage the pollution risks you've identified.
- Transfer each specific pollution prevention requirement you've defined for your site into a [Method Statement](#) for an activity.
- Having identified the activities and risks, plan appropriate [control measures](#). These may include: [secondary containment](#), designated areas, procedures, screening, drainage separation, [silt traps](#), settlement lagoons.
- Plan a regular inspection process. The frequency of the inspections will depend on the nature of your site, location, type of works, weather conditions and local environmental sensitivities. You may need to carry out a basic check of receiving [surface waters](#) at the start and end of the day for any visible signs of pollution.
- Designate a '[responsible person\(s\)](#)' to monitor high risk activities on site and has sufficient authority to enable them to act to prevent an incident.
- Plan how you'll manage a pollution incident if one occurs. If you have fuel on site, you need a plan to respond to a spill – see [Section 11](#).
- Train staff how to deal with a spill in line with the response plan.
- Depending on the size and nature of your site, you may also need to consider other ways you can reduce your risks of causing pollution or nuisance. For example, specific refuelling areas, full time environmental support, mains electricity, a wheel wash to prevent mud being carried out onto the road.
- If you're applying for a permit, or seeking permission from regulators, allow sufficient time. Obtaining authorisation takes time and can involve clarifying information that you provide with your request.

- Make provision for separating clean and [dirty water](#). Consider the land drains and watercourses bringing water into your site as 'clean' and water on site that becomes polluted due to work activities as 'dirty'. Aim to keep the two separate so that you only need to deal with the smallest volume of [dirty water](#). One way of achieving this is by routing watercourses through temporary culverts across the site. This separates the [clean water](#) from the dirty site water. Any potential restriction to flow that you may be intending or required to make, such as culverts, must be agreed with us.
- Understand local weather conditions and patterns, such as average rainfall and wind direction and take these into account. For example when planning certain activities such as topsoil stripping - where will dust be blown and how can you manage this?

Step 3 – Site security

- You must think about site security. Remember the '[polluter pays](#)' principle – if someone gains access to your site and causes pollution, you could be responsible.
- Ensure the site boundary is secure and access to site is controlled.
- Ensure that polluting substances are securely locked away when not being used, e.g. fuel – see [Section 9](#).

Section 1: Pollution prevention planning

Step 4 – Communication

- Ensure that a [responsible person](#) acts as a point of contact to coordinate response to any incident, for example ordering an operator to move a stockpile away from a potential pollution pathway.
- Arrange a meeting with local regulators to discuss the environmental risks you've identified, and the measures you've taken to limit these risks.
- Communicate your plans and actions to everyone working on site.
- All people working on site should receive an induction that includes pollution risks and how to avoid them. Remember these aren't the same for every site, so the induction should be specific to your site. Use [tool box talks](#) to help reinforce the message. Ensure all people working on site know how and when to report a pollution [incident](#).
- Ensure that maintenance requirements of permanent control measures are communicated to the client before handover, so these continue to prevent pollution in future e.g. SUDS.

Section 1: Pollution prevention planning – Checklist



The following checklist will help you plan pollution prevention on your site

Item	Yes / No	Comments / Actions
Have you identified the environmental legislation that applies to your site?		
Do you have all the relevant permissions and authorisations in place before you start work?		
Have you consulted with your environmental advisor / manager if you have one?		
Have you reviewed your Environmental Management System (EMS) if you have one?		
Are you diverting water on site? If yes, have you received permission from us to do so?		
Have you identified: <ul style="list-style-type: none">• the potential pollutants?• the potential to cause pollution on site?• any historical contamination? If so, where is risk management documented?• control measures to prevent pollution?		
Are pollution prevention methods recorded? If so, where?		
Have pollution prevention requirements been communicated to those working on site?		



The following checklist will help you plan pollution prevention on your site

Item	Yes / No	Comments / Actions
Have you identified pollution prevention communication & awareness sessions for those working on site, e.g. Tool Box Talks?		
Have you identified drainage on site?		
Has drainage been colour coded?		
Have you identified all surface water and groundwater on, under and around the site?		
Have you contacted local regulators?		
Have you invited them to visit the site if appropriate?		
Have pollution incidents been planned for and do you have an incident plan?		
Have you nominated a 'responsible person' for pollution prevention on site?		
Have site personnel been trained to use spill kits ?		
Have you considered how to minimise and manage your waste on site?		
Have you identified local weather conditions and the means to keep updated throughout the project?		
Have you developed a site inspection routine to check for pollution incidents or potential problems?		



The following checklist will help you plan pollution prevention on your site

Item	Yes / No	Comments / Actions
Vehicles and Deliveries		
Is a Traffic Management Plan in place?		
Has a location for deliveries (the delivery point) been identified?		
Is the delivery point located away from watercourses, drains and hazards?		
Have times for deliveries been identified to avoid disruption to operations or neighbours?		
Have suppliers and staff been informed of the delivery point and delivery times?		
Has a designated 'responsible person' been identified to supervise deliveries?		
Has the condition of drums, containers or tanks been inspected and verified fit for purpose before accepting the delivery?		
Are emergency response plans and spill kits located at delivery points?		
Have you planned how you will prevent mud being taken off site by delivery vehicles?		



The following checklist will help you plan pollution prevention on your site

Item	Yes / No	Comments / Actions
Silty Water		
Can you avoid exposing areas of bare ground until you need them?		
Have you got vegetation corridors along the watercourse or drain to act as a buffer to help prevent silt entering them?		
Have you identified all the potential sources of silty water on site?		
Have you the necessary permissions in place if you plan to dispose of water to a drain or watercourse?		
Are silt controls in place to prevent silt entering watercourses or drains?		
Have you installed cut-off trenches or other features to minimise the amount of run-off on site?		
Are you required or have you considered using SUDS ?		
Do you have an inspection and maintenance programme for all your silt treatment systems?		
Are plant, wheel and boot washing facilities sited at least 10 metres away from surface waters?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcgc.org.uk
- PPG 5 Works and maintenance in or near water
- PPG 21 Pollution incident response planning
- Pollution Prevention Pays pack available on the Environment Agency website www.environment-agency.gov.uk/construction

Section 2: Drainage

Drainage systems can act as a pathway to spread **pollutants**. Small amounts of pollutants (such as oil) can spread large distances in water. Drains can also make pollution invisible; a large scale pollution incident can happen on site without you even knowing it. So you must know where your drains on site are located, and where they lead (e.g. **surface water**, **foul water**). Then you can prevent polluting materials entering the drains.

PPG13 provides further guidance on **sewers**, drains and **trade effluent**. In this guidance, where we refer to discharges to sewers, we mean discharges to public sewers.

Essential pollution prevention

- You must prevent any pollutants entering the drains.
- You must have permission from us or the local sewerage provider before discharging anything other than clean uncontaminated surface water to a drain and other surface waters or groundwater. Apply for permission early, as authorisation can take time (perhaps up to four months once you've submitted a full application).
- Identify existing drainage on site by type:
 - **surface water drains** and **soakaways**
 - land drains
 - **foul water** and **combined sewers**
- Identify if drains have existing protection, e.g. **oil separators** such as **interceptors** and **silt traps**.
- Identify pollution risk; what types of pollution could enter the drains? No pollutants – such as silt laden water, oil/fuel or vehicle / cement washings – should enter surface water drains.
- If you have been issued a permit or authorisation, ensure that you read and fully understand the conditions. Throughout the project you need to ensure that you fully comply, additional **control measures** might be necessary to comply with the conditions and prevent pollution. See PPG 5 2.2 for more details on treatment and disposal options.
- If drains are flushed during the contract, ensure that the flushing operation itself doesn't cause pollution. The wash water from drain flushing must not be allowed to enter a watercourse and should be considered '**dirty water**' to be contained prior to treatment or approved disposal.



Section 2: Drainage

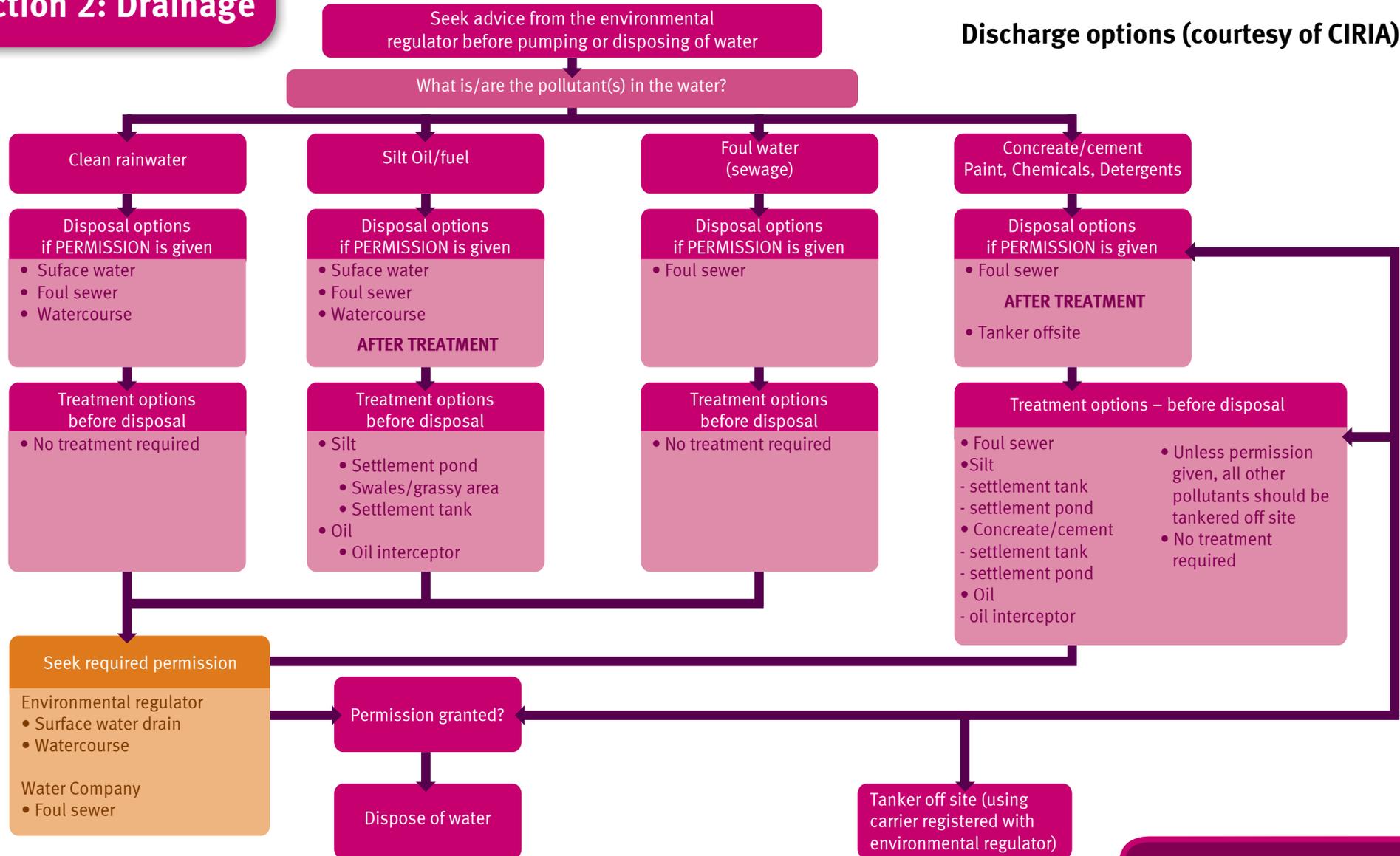
- Design [SUDS](#) for the construction phase to control surface water run-off – quantity and quality – there are many benefits associated with this, see [PPG 5 2.2a](#). This is a legal requirement in Scotland.
- Include drainage in Incident Plans. See [Section 11 Incident response](#).
- If any pollutant enters a drain, immediately stop the pollution with a physical block, stop the activity causing the pollution, then notify us for surface water drains or the local sewerage provider for foul water drains. If there's a spill, accident or emergency, try and prevent pollutants entering the drains. See [Section 11 Incident response](#).
- Report all pollution incidents to management and via the Hotline. Keep records of all occasions when pollutants have entered drains and/or watercourses and/or un-made up ground and the action taken. See [Section 11 Incident response](#).

Further considerations

- Colour code each drain according to type:
 - Blue for [surface water](#)
 - Red for [foul water](#)
 - Red C for [combined](#)
- Identify drains at risk from spills, contamination or misuse. Protect them where 'pollution risky' activities or pollutants that are a hazard e.g. oil / fuel / chemical / waste storage areas, refuelling areas, vehicle / cement mixing or washing out, dewatering.
- Provide protection facilities for any vulnerable drainage.
- Identify existing protection measures, e.g. gullies and [silt traps](#) and [oil separators](#) (see [PPG 3](#)).
- Inspect existing protection measures; repair, empty and clean out before you start work on site.
- Inspect drains and protection measures frequently and maintain them during the work; well maintained drains will also reduce risks of flooding.

Section 2: Drainage

Discharge options (courtesy of CIRIA)



Section 2: Drainage – Checklist



PPG 6 Checklist – Drainage

Item	Yes / No	Comments / Actions
Have all drains on site been located, and identified as either surface water or foul?		
Have drains been checked for existing protection?		
Have pollution risks to the drains been identified?		
If anything will be discharged to drains, have you applied for a permission?		
Have plans been put in place to prevent pollution entering watercourses in emergencies?		
Are spill kits located near drains?		
Are you required to use or have you considered using SUDS?		
Have silt traps and oil separators been identified / installed?		
Has an inspection & maintenance schedule for drains and protections measures been established?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- www.ciria.org.uk/suds
- PPG 3 Use and design of oil separators in surface water drainage systems
- PPG 5 Works and maintenance in or near water
- PPG 13 Vehicle washing and cleaning

Section 3: Excavations

Excavations are widely used: for drainage or service installation, foundations, trial pits for locating services, archaeological investigation and sampling. Excavations can increase the risk of **pollution** on site by:

- generating excessive dust
- producing **silt and silty water**
- spreading contaminated soils
- finding contamination or objects, such as old fuel tanks; this is often indicated by smells, discoloured soils and oily residues
- water such as rain or contaminated water **run-off**, or **groundwater** entering excavations (ingress), if your **water table** is high.

In most cases, excavations below ground level will accumulate water; before you start work, plan how you will treat and dispose of water that enters your excavations, shafts or tunnels. Using cut-off trenches will prevent surface water run-off from entering an excavation, reducing the quantity of contaminated water you will have to deal with.

This section should be read in conjunction with section 1 planning (**know your risks** and **silty water**).

Essential pollution prevention

- Contact us to see if you need:
 - permission to extract and / or dewater on site
 - permission to discharge anything to **surface waters** or **groundwater**
 - **control measures** such as a settlement lagoon or tank, silt trap or a grassed area
- Do this early on as the process can take up to four months, or even longer for complex cases.
- Before any excavations, make sure you know the site history. Known contamination may require specialist removal or treatment – see **Section 8 Land contamination & invasive species**.
- Ensure that those excavating the site are aware they might find **contaminated ground**, especially in **brownfield** (previously developed) sites. Give these members of the team a tool box talk on what to look out for and what to do if they find contamination.



Section 3: Excavations

- If the site is or could be contaminated, or you suspect that the water in your excavation is contaminated with anything other than silt, you must have samples taken and laboratory tested before you pump this water out. The results of these tests will help you decide how to dispose of the water. If the water isn't contaminated, you may be able to discharge it over land. If it is contaminated, you must have it taken off site for disposal. Signs of contamination can include colour, smell or an oily sheen; but visual examination or smell alone can't detect some sorts of contamination.
- If you're intending to remove water (dewater) from excavations, this is high risk.
 - Consider implementing a management control system on site (such as a company 'permit to pump' system) to ensure that the person who's supervising the pumping out of excavations is fully trained with legal requirements and how to mitigate pollution.
 - If the base of the excavation needs to be free of water, dig a small sump for the head of the pump, and surround it with a perforated pipe and a suitable grade of clean stone. Water produced may still be silty.
 - Where possible, switch off the pump before it begins to suck up the last dregs of water as these are likely to contain high levels of silt.
- You must not discharge silty water to a watercourse or surface water drain as it will cause pollution.
- Suspended solids in silty water must be allowed to settle out before disposal.
- You must have prior permission from the local sewerage provider if you intend to discharge settled water to the foul sewer because this will be regarded as a trade effluent.
- You must have prior permission from us if you need to discharge anything to a watercourse. In Scotland if you comply with certain conditions, a discharge will be covered by a General Binding Rule and you will not need to contact SEPA.

Further considerations

- Find out the depth of the water table so you can plan and manage water ingress.
- Consider settlement tanks or lagoons for removing the sediment from the water.
- For long term excavations or large jobs, consider well point dewatering. This method removes the groundwater directly from the ground before it reaches your excavation. As this can affect the local water table, you should contact us when considering this technique.
- Use cut-off trenches to minimise the amount of water coming onto site, to minimise the potential for silt.
- Minimise the amount of exposed earth to reduce silt transportation.
- Maintain vegetation corridors adjacent to watercourses. These act as a buffer strip and prevent pollution by suspended solids.
- Consider using SUDS construction, even when not required by local regulation or client requirements. If it becomes a standard process for you, it can help prevent pollution.
- Protect watercourses with silt traps to prevent run-off silt entering them.
- Establish inspection and maintenance schedules for silt treatment systems.
- Encourage site personnel to be your eyes and ears to report any damage to silt treatment systems to allow for immediate repair.

Section 3: Excavations – Checklist



PPG 6 Checklist – Excavations

Item	Yes / No	Comments / Actions
Has the site been investigated for contamination?		
If there is contaminated soil, do you have procedures in place to manage it?		
Have you checked with us if you need permission for extraction, dewatering or discharge?		
Do you have any necessary permissions in place before you start work?		
Have you taken measures to prevent water entering excavations?		
Have the staff working on excavations been made aware of risks and control measures?		
Have you identified all watercourses culverts and drains on or close to the site?		
Have you got vegetation corridors alongside the watercourse or drain to act as a buffer to help prevent silt entering them?		
Have you the necessary permissions if you plan to dispose of water to a drain or watercourse?		



PPG 6 Checklist – Excavations Cont.

Item	Yes / No	Comments / Actions
Are controls (to capture, contain and treat) in place to prevent silt entering watercourses or drains?		
Have you installed cut-off trenches or other features to minimise the amount of run-off on site?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- PPG 5 Works and maintenance in or near water (sections 2.1b and 2.2)
- SEPA: Controlled Activities Regulations (CAR) practical guide
- CL:AIRE Definition of waste: industry code of practice

Section 4: Materials storage, stockpiles & exposed ground

Exposed ground and materials stockpiled on site, such as soils, hardcore and sand, can pollute water and air with silt and dust. Stockpiles can cause dust pollution from wind blown dry material. When managing stockpiles and exposed ground, you need measures to prevent pollution. For example, **silty water** can be produced from rainfall run-off or poorly managed / excessive damping down of your stockpile. If this silty water enters **surface waters** or a **surface water drain**, this will cause pollution. Silt damages the environment by killing plants and animals in the watercourse and can block drains causing flooding.

You need to plan early on where your material stockpiles will be located to prevent pollution, minimise **waste** and for ease of use. Also consider how you deal with packaging materials to prevent blown waste polluting the site and adjacent areas.

For guidance on use and storage of chemicals and hazardous substances see [section 9](#).

Essential pollution prevention

- You must prevent stockpiles and exposed ground from generating pollution as water run-off or dust.
- Locate stockpiles well away from watercourses, ditches and drains. Contact us at our local office for further advice.
- Locate stockpiles on level ground if possible. If not possible, then ensure slope stability; steeply sloping land or high piles can slip causing pollution and habitat destruction.
- You must prevent any stockpile run-off from entering drains, ditches and watercourses.
- You must stockpile contaminated material on an **impermeable** surface, in a **bunded** area, at least 10 metres from a watercourse and cover them to prevent contaminated run-off. If you contaminate clean ground, your business will be responsible for the clean up of that pollution.
- Contaminated stockpile run-off must be contained and legally disposed of. See [section 10 Waste management](#).

Prevent stockpiles from:

- drying out, by covering or damping down; this will reduce the amount of dust
- getting above the height of the site boundary
- being eroding by rain water or surface water run-off



Section 4: Materials storage, stockpiles & exposed ground

Packaging:

- Wherever possible, ensure suppliers take back their packaging when delivering materials to site.
- Where packaging is held on site – e.g. to protect materials in storage – ensure that you provide suitable enclosed waste disposal facilities to prevent blow away. You need to consider remote working where materials are unpacked away from suitable waste facilities. See [section 10 Waste management](#).

Further considerations

- Consider the phases of works on site. Can the programme be altered to reduce stockpiling?
- If stockpiles are going to remain for long periods, consider seeding them. The vegetation will bind the material together preventing both dust and surface water run-off.
- Commercially available stabilisation products can be applied to bind exposed ground and prevent dust and surface water run-off.
- Direct water away from stockpiles to avoid transporting suspended solids to a watercourse.
- Provide cut-off trenches / [silt traps](#) to intercept run-off where silty water run-off is likely to be a problem.
- Consider using silt fencing around the base of stockpiles to prevent suspended solids escaping.

Section 4: Materials storage, stockpiles & exposed ground – Checklist



PPG 6 Checklist – Material storage, stockpiles and exposed ground

Item	Yes / No	Comments / Actions
Are stockpiles located to minimise the risk of pollution?		
Are they located away from watercourses, ditches and drains?		
Have you considered ways to minimise stockpiling on site (such as phasing works)?		
Are stockpiles protected or damped down to reduce dust?		
Are stockpiles covered and/or protected to reduce or intercept silt run-off?		
Are contaminated stockpiles located in an appropriate area? (E.g. an impermeable surface, bunded, covered to prevent run-off, at least 10 metres from a watercourse?)		
Have you considered and made arrangements for containing packaging waste?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

Section 5: Oil use, storage & refuelling

Oil is one of the most common pollutants in the UK. Spilt oil can pollute streams, rivers and (if it soaks through the soil and rock) groundwater supplies which can be used for drinking water. Oil is toxic and harmful to plants and animals, and is a threat to their habitats. A small amount of oil can cause a large problem; five litres of oil can pollute an area of water the size of two football pitches.

Oil includes petrol, diesel, heating oils, biofuels, lubricating and hydraulic oils, synthetic and mineral oils, biodegradable, shuttering and cutting oils, and waste oils.

In this section we refer to: [oil storage container](#), [oil storage area or oil store](#), [secondary containment](#), these are explained in the glossary.

This section should be read in conjunction with sections: [1 Planning](#) (deliveries), [2 Drainage](#), [10 Waste management](#) and [11 Incident response](#) and Pollution Prevention Guidance Notes: [PPG 2](#) and [PPG 26](#).

Essential pollution prevention

You must comply with legal rules covering oil storage. These are different in England, Wales, Scotland and Northern Ireland and depend on the type and quantity of oil, the premises and the type of container. Make sure you know which legislation applies to your oil storage. The rules apply to temporary, permanent fixed and transportable / mobile oil storage facilities.

Even if your oil storage isn't covered by these rules, you should follow their requirements to reduce the risk of pollution and protect everyone's health and safety. It's against the law to cause pollution. If oil from your site, or in your care, causes pollution you can be prosecuted and fined. You'll also have to pay clean up costs, which can be high.

If the site you're working on requires an [oil storage container\(s\)](#) to serve the constructed premises, it may have to comply with pollution prevention storage rules; regional building regulations for pollution prevention and fire safety may also apply. These tanks should be installed by a professionally competent person who's trained and qualified to install, give advice and self certify work, consult your local authority.



Section 5: Oil use, storage & refuelling

Location

Think about environmental and fire protection, safe delivery access, maintenance and security requirements before deciding where to put any permanent or temporary oil storage facilities. Locate [oil stores](#) in dedicated areas specifically designed and constructed to be safe and secure.

Avoid storing oil in **high risk locations. Don't store oil:**

- where there is risk of damage by impact or collision e.g. from site traffic
- within 50 metres of a spring, well or borehole
- within 10 metres of a watercourse, ditch or drainage channel
- where spilt oil could enter open drains, loose fitting manhole covers or soak into unmade ground where it could pollute groundwater
- where a spill could run over hard ground to enter a watercourse or soak into unmade ground where it could pollute groundwater
- where a tank vent pipe outlet can't be seen from its filling point
- on roofs as spilt oil can run down guttering which is connected to surface water systems.

Oil spilt in these locations will pollute watercourses and / or groundwater. If you can't avoid these locations, check with us as you may require additional measures to prevent pollution, e.g. tank overfill prevention device.

Avoid storing or using oil in areas at risk from flooding. Containers may float in a flood causing oil to spill and pipelines to break. See [PPG 2](#) for more information.

Fixed position oil tanks (remaining in one place for the duration of a scheme) require special consideration because of the weight and volume of oil stored; they should be installed on a purpose-built, [impermeable](#) hard base by a professionally competent person.

Storage

Oil is supplied and stored in different types of [container](#). Find out what [legal requirements](#) apply to the containers you intend to use. Some tanks and bowsers come as complete units with integral [secondary containment](#) which reduces the risk of oil spills. Commercially available bunded pallets and stores are available for drums and [Intermediate Bulk Container](#) (IBC). For more information see [PPG 2](#) and [PPG 26](#).

Use [storage containers](#) that are designed and manufactured for the type of oil you're storing, where and how it will be used. Storage manufacturers and suppliers can help you choose an appropriate product. If you're hiring containers, make sure the supplier knows your how you will use them and your legal requirements; specify good quality containers and systems with good pollution prevention and security features.

Section 5: Oil use, storage & refuelling

Are all valves, filters, sight gauges, vent pipes, taps, and fill pipes arranged so that oil is caught within the SCS (Secondary Containment System)?*

Is the flexible draw-off pipe fitted with a nozzle at the delivery end that closes automatically when not in use? Or, where the nozzle is capable of being fixed in the open position does it have an automatic shut off device?*

Are all taps, valves, and flexible hoses, and any pumps, through which oil can be discharged, located within the SCS?*

Are all taps and valves (where oil could escape) kept locked shut when not in use?*

Is the primary oil container in good condition and not likely to burst or leak?*

Is the pump set fitted with a check valve in the feed line to prevent tank drain down in event of damage to pump or feed line?*

Figure 1 – Proprietary oil storage tank system (Capacity of 200 Litres or more)



Is the fill point situated within SCS or provided with a drip tray for use in deliveries to the tank?

Is the SCS, its ancillary equipment and pipe work located or protected from damage collision or impact?

Maximum height of secondary containment. SCS capacity should be: 110% of tank, IBC and mobile bowers 25% of drum or total drum capacity

Is the SCS impermeable to oil and water?*

Have you checked the SCS doesn't have any drain down opening or valves?*

Can the SCS provide maximum containment at all times? Remove any accumulated water / oil frequently.

Is the container clearly labelled with product type and maximum capacity?

If a sight gauge is used to measure tank contents, is it properly supported, and fitted with a valve that closes automatically when readings aren't being taken?*

* indicates Law in some parts of UK

Example of an integrally banded oil storage tank (can be constructed of metal or polyethylene and may not be this shape and design). This is for illustrative purposes only and is not drawn to scale. Different configurations exist depending on the manufacturer, type of tank and installation.

Section 5: Oil use, storage & refuelling

Use enclosed [secondary containment](#) systems and, if practical, cover open [oil storage areas](#) to prevent rainwater collecting. This water, which may be contaminated with oil, has to be removed frequently from open bunds and trays to maintain the emergency spillage volume. Oily waste water must be disposed of legally. See section [10 Waste management](#).

Using and handling oils on site

- Produce procedures for safe deliveries and handling oils and containers on site. Make sure everyone knows what to do for pollution prevention and health and safety.
- Oil deliveries should always be supervised.
- Don't over order; always make sure there's enough room in a tank or [oil storage area](#) to receive the intended delivery. See [PPG 2](#) for more information about safe deliveries to tanks.
- Drums, cans and [IBCs](#) should be placed into the secure [oil storage area](#) immediately on delivery and after they've been used on site. Never leave [oil containers](#) in unsecured or [high risk locations](#).

Dispensing pumps for refuelling plant and site vehicles

Use proper fuel dispensing pumps for refuelling plant and site vehicles. This reduces the chance of oil spills because:

- fuel tanks can be sited at ground level and installed on a properly designed and constructed base making tank filling, inspection, maintenance and dispensing easier and safer
- it's more secure; dispensing pumps (electrical or mechanical) can be isolated from unauthorised use and interference when not in use
- there's no flexible pipe work connected directly to the tank which is vulnerable to damage by thieves (to steal oil), vandals or accidents
- oil can't drain down by gravity and be lost.

If you can't avoid gravity dispensing:

- support and install tanks properly
- design secondary containment for the tank and its ancillary equipment to take into account oil 'jetting' from the tank if there's an overflow, or damage to tank or pipe work
- use a top draw-off, with anti syphon protection
- ensure flexible delivery pipe work, nozzles and valve security locks comply with regional oil storage regulations
- protect operators working at height (to fill, inspect, maintain and draw off) by providing suitable ladders, railings and other health and safety equipment.

Refuelling and dispensing should:

- be carried out carefully in a designated area with an [impermeable](#) surface sited away from any watercourses, ditches or drains
- always be supervised and never left unattended
- be by pump, where possible, (see above) with automatic cut-off trigger nozzles, which can't be left propped open.

If refuelling or dispensing (for example using mobile bowsers) has to be done away from a designated area you should:

- complete refuelling or dispensing over a drip tray or other [secondary containment](#) solution; never allow oil to spill onto the ground
- use funnels or other appropriate filling equipment to avoid spills
- return all oil containers (including mobile bowsers), funnels, couplings, pipes, taps and cloths to the designated storage area after use
- deal with any spilt oil and drips in the secondary container immediately using proprietary spill clean-up materials

Section 5: Oil use, storage & refuelling

- store and dispose of waste oil and contaminated spill clean-up materials legally and without causing further pollution (see section [10 Waste management](#)); never empty waste oil or oily wastes onto the ground or burn it on site.

Inspection and maintenance

- Inspect [oil containers](#), [secondary containers](#) and [storage areas](#) frequently to check for signs of damage, corrosion, bulging, leaks or unauthorised use and interference. Frequency will depend on the amount of oil on site, type of storage container and storage area. See [PPG 2](#) and [PPG 26](#) for more information about oil container maintenance.
- Carry out required maintenance, get any defects or faults repaired immediately and keep records.
- Check oil levels (visually and / or by contents measuring equipment) within tanks and bunds frequently. Keep accurate records of oil usage patterns. Investigate any sudden loss of oil from tanks or build up in bunds, either could indicate a leak.
- Deal with any oil in secondary containers immediately. Never allow oil to remain; it reduces the emergency containment volume. Dispose of this oily waste and water legally without causing pollution. See section [10 Waste management](#).

Security

Oil is valuable; take all necessary security measures to prevent theft, or unauthorised use, by providing suitable locks, lockable containers and/ or lockable valves where necessary. Make sure the locks are used when oil storage facilities are not in use. This may be a [legal requirement](#) for some oil [storage containers](#). Tank installation and fuel oil delivery companies may be able to advise you.

Generators

Oil storage rules only apply to generators and associated oil containers where the oil is being *stored*, rather than *used*, and where no other exemptions, such as the oil being stored within a building, apply. If possible use commercially available generators with built in secondary containment for the oil storage / day tank.

Oil storage rules don't apply to smaller 'day job' generators that:

- are taken to and from a job on a daily basis, and
- have a day tank capacity of 200 litres or less, and
- have all oil used during an operating day, and
- are stored with an empty day tank when not in use.

It's good practice to provide [drip trays](#) for the generator and associated pipework to catch any spills or leaks for these generators.

Oil storage rules do apply to:

generators that:

- are taken to and from a job on a daily basis or are in constant use, and
- have a day tank with a capacity of more than 200 litres, and
- or where there's still more than 200 litres left and therefore stored in the tank.

stand-by generators not in continual use:

- with a day tank of greater than 200 litres capacity, and
- that are storing oil for later use.

Section 5: Oil use, storage & refuelling

Day tanks for both the above require 110% [secondary containment](#).

oil storage tanks that:

- supply a generator (in full time or standby use), or
- are used to fill up other mobile generator day tanks, and
- hold more than 200 litres.

Pipework delivering oil from a tank to generator is particularly vulnerable; it is good practice to provide [secondary containment](#) for the whole installation – storage tank and generator. Generator housings aren't regarded as buildings and therefore don't give an exemption from oil storage rules.

Section 5: Oil use, storage & refuelling – Checklist



PPG 6 Checklist – Oil use, storage and refuelling

Item	Yes / No	Comments / Actions
Are oil storage areas away from high risk locations ?		
Are oil storage areas on an impermeable surface?		
Are tanks, drums or containers suitable for use?		
Are tanks, drums or containers in good condition with no sign of damage or corrosion?		
Have oil stores and containers got secondary containment? e.g. bund, drip trays		
Is secondary containment sufficient to contain contents of the containers?		
Have you produced a maintenance and inspection schedule for containers and secondary containment?		
Are bunds/drip trays frequently checked for oil and rainwater levels?		
Are oil use records being kept up to date to help you detect leaks?		
Are oil store maintenance and inspection records being kept up to date?		
Is refuelling equipment (e.g. nozzles, couplings, funnels, etc) stored within secondary containment when not in use?		



PPG 6 Checklist – Oil use, storage and refuelling Cont.

Item	Yes / No	Comments / Actions
Are oil storage containers and stores secure e.g. kept lock shut when not in use?		
Are emergency plans and spill equipment available at oil storage areas?		
Are emergency plans and spill equipment available at refuelling areas?		
Have staff been trained in the use of spill kits and in emergency procedures?		
Has a responsible person been designated to oversee implementation of the emergency plan?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- CIRIA C650 Environmental Good Practice on Site
- PPG 2 Above ground oil storage tanks
- PPG 7 Refuelling facilities
- PPG 26 Storage and handling of drums and intermediate bulk containers
- Get to know your oil tank
- Environment Agency Fuel Storage Regulations
Information: www.environment-agency.gov.uk/osr
- Building Regulations 2002 Approved document J (2010 edition) [England and Wales building regulations](#)
- The Building (Amendment) Regulations (Northern Ireland) 2006 Technical booklet L
- Building (Scotland) Act 2003 and applicable regulations under that act; Section 3 (Environment) of the Building Standards Technical Handbooks (Domestic and Non Domestic Handbooks 2011), Scottish Government, particularly subsections 3.23 and 3.24 of both handbooks

Section 6: Nuisance

Many forms of pollution that affect people are considered **statutory nuisance**. Noise is the largest cause of complaint against construction and demolition sites. Non-statutory nuisances can also affect the environment, in particular ecology; for example noise or light pollution can disturb nesting birds, which can result in enforcement action under the Wildlife and Countryside Act. Common nuisances include:

- **Dust** – if there's the potential to generate dust on site, can you erect a physical barrier at the site boundary to prevent it becoming a nuisance to your neighbours?
- **Light** – can cause disturbance to adjacent residents and ecology, especially temporary lighting. This nuisance can be prevented through screening, effective programming of work, directional lighting and type of lights used, amongst others.
- **Noise** – generated throughout construction activities. Establish baseline noise levels, the noise levels before you start work, and identify who and what may be affected by noise, i.e. neighbours and ecology. If you expect to generate considerable noise – above the baseline – throughout the contract or for specific activities, such as piling, then consider applying for a **Sec 61 consent** with the relevant local council. A section 61 is a process whereby the local council approves your working methods, including methods to reduce and manage noise, before work starts. Approval for a section 61 can take time and you will need to fully consider the work and methods to reduce noise. Once approved, you must complete the work in accordance with the approved methods, including monitoring requirements. Note that section 61s only apply to nuisance and don't consider disturbance to ecology.
- **Insects and vermin** – standing water, or unclean sites, can lead to insects and vermin breeding and creating a nuisance.
- **Emissions/smoke** – can be caused by poorly maintained plant, exhausts near to neighbours and/or property (nuisance only). There should be no reason for generating smoke on site through normal activities. But if you expect to generate smoke, contact your regulator to approve the method of work before work starts.
- **Vibration** – is caused by the same sources as noise, but travelling through solid objects. This can cause a nuisance to neighbours and to ecological habitats. You should identify your potential to cause vibration nuisance in line with noise.



Section 6: Nuisance

The best way to prevent nuisance is early planning and adopting good practice, which will also reduce the risk of complaints. If you cause a statutory nuisance, you can be served an 'abatement notice' by the local council. These notices require you to stop or will impose restrictions on your operations.

Throughout your time on site you should undertake regular visual monitoring of activities that can cause nuisance, including checking that actions designed to reduce or eliminate nuisance are working. This doesn't need to be an additional activity – simply ensure that site employees with responsibilities are aware and look out for potential nuisance whilst on site.

Essential pollution prevention

- Consider the potential for nuisance in the planning stage for the site. Discuss the potential for nuisance with local regulators.
- Arrange a meeting with your local council's Environmental Health Officer (EHO) before work starts on site as an introduction, to put forward nuisance mitigation proposals and to take on board any suggestions from the EHO.
- Where possible, use machinery or plant with noise control measures e.g. silencers, mufflers, acoustic covers.
- Ensure that potential to cause nuisance through exhaust emissions is minimised by maintaining plant to prevent black smoke and positioning mobile or fixed plant away from site boundaries.
- Comply with any restrictions on operating hours or emissions set out in the planning consent.
- Don't burn any waste on site unless you have our permission.

- Ensure machinery and vehicles are well maintained to meet necessary standards, minimise emissions and noise.
- Talk to your neighbours, explain what you're doing and try to find solutions before problems arise.
- To help you resolve concerns early on, give neighbours your contact details so that they can speak to you directly if they need to.
- Respond effectively to any requests or complaints from neighbours or regulators.
- Only use temporary lighting where absolutely necessary. Where it is absolutely necessary use low power lighting or down lighting, or erect physical barriers such as screens.
- Consider the impact and potential for nuisance outside your site boundary, for example dust from deliveries.
- Consider joining the [Considerate Constructor Scheme](#)

Further considerations

- Small plant can be further silenced if necessary by building straw bale barriers or plywood walls around them.
- Anti-vibration mountings should be fitted to rotating / impacting equipment where practicable.
- Place / use site compound buildings, soil mounds, embankments or other site features as noise barriers where possible.
- Use one-way traffic systems to minimise the annoyance caused by vehicle reversing alarms.
- Keep haul roads as smooth as possible and maintain them to reduce vibration impacts caused by heavy plant movements.

Section 6: Nuisance – Checklist



PPG 6 Checklist – Nuisance

Item	Yes / No	Comments / Actions
Have you identified potential nuisances before starting work?		
Have you put in place a control measure to minimise each nuisance that you've identified?		
Have you found out and complied with any restrictions such as working hours and noise levels?		
Is a procedure in place for dealing with complaints from neighbours?		
Has the scope of work been communicated to neighbours?		
Have you made site workers and sub-contractors aware of nuisance restrictions?		
Is nuisance monitoring required? If so, do you have monitoring equipment and a programme in place? If your monitoring shows you have a problem, put it right!		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- Considerate constructors – www.ccscheme.org.uk
- The control of dust and emissions from construction and demolition
- DEFRA guidance on statutory nuisance

Section 7: Cement, concrete & grout

Cement, concrete and grouts are highly alkaline and corrosive and can cause serious pollution to the ground and watercourses. Water wildlife, such as invertebrates and fish, are very sensitive to changes in pH (acid/alkaline) levels. Whereas oil in water is easy to see, changes to pH are not, so pollution can occur for some time before the extent of damage to wildlife is noticed.

Whether storing, making, mixing or using, take care with all works involving cement, concrete and grout. You also need suitable arrangements to deal with the wash-out of concrete mixing plant, ready mix concrete lorries and tool and equipment washings to prevent pollution. Never allow treated or untreated washings or wastes to enter into any drain, surface water or onto the ground without a permit/authorisation from us and/or from the water company to do so.

Working with concrete in water

Some specialised projects will require concrete to be used in watercourses. Designs for these projects should specify suitable concrete mixes that minimise pollution. If working on a site under these circumstances, you must ensure that the concrete used is as specified and that required controls are defined and applied to your method of work, i.e. [Method Statements](#). If you plan to carry out any work in, over or under a watercourse, see [PPG 5](#).

Essential pollution prevention

- Concrete and cement mixing should be:
 - sited on an [impermeable](#) designated area
 - at least 10 metres away from a [watercourse](#) or [surface water drain](#), to reduce the risk of run-off entering a watercourse.
- Surplus dry concrete, cement and grout should be used elsewhere on site if possible, or as inert rubble; if not, it will need to be disposed of off site and transported using a registered waste carrier.
- Equipment, such as chutes, portable mixers, barrows, pump lines, shovels, should be washed out in a designated area that has been specifically designed to contain wet concrete/wash water.
- Concrete mixing and delivery lorries should return to the batching plant for washout.
- Excess concrete should be sent back to the batching plant. With design concrete this may not be possible, so you should build a designated area to allow the concrete to cure without polluting the ground or watercourses.



Section 7: Cement, concrete & grout

- Store wash waters to let them settle out and have re-circulation systems to reuse the water (e.g. for mixing and washing) to minimise the risk of pollution and reduce water use. The size of your site and amount of materials you use affects your choice of facilities. These range from sumps, specifically manufactured equipment, to a simple metal container. A lined and covered skip may be suitable for smaller sites providing it's in good condition (i.e. water tight) and solids are frequently reused, recycled or removed and disposed of legally.

Collect wash waters that can't be reused to:

- discharge to the [foul sewer](#) (you must have prior permission from the local sewerage provider for this) or
- for authorised disposal off site by a registered waste carrier see section [10 Waste management](#).

It may be possible to reuse the solids that settle out during storage otherwise they will also need to be disposed of legally. Contact us for advice.

Further considerations

- Ensure all cement bags are sealed after use, stored appropriately to prevent leaks or dust (preferably in a waterproof building or storage container) and disposed of legally off site, never buried or burned.
- Provide a contained wash-off area for tools.
- Consider the types of cement, concrete and grout ordered – e.g. use quick setting products in structures in or near watercourses. (See [PPG5](#))
- Don't over-order materials; you'll either have to store them, or pay to have them taken away.
- Consider timing of deliveries; you're more likely to have waste cement and concrete if it's delivered at the wrong time.

Section 7: Cement, concrete & grout – Checklist



PPG 6 Checklist – Cement, Concrete & Grout

Item	Yes / No	Comments / Actions
Have control measures been put in place to prevent cement, grout or concrete wash-off entering watercourses or drains?		
Are staff aware that they shouldn't let cement, grout or concrete washings enter surface waters or surface water drains?		
Are designated wash-off areas provided?		
Are wash areas contained and sited away from surface waters and surface water drains?		
Has the treatment and disposal of wash-off effluent been considered?		
Is cement powder stored carefully on site to prevent leaks and dust?		
Have you considered the products ordered, quantities and timing?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- PPG 5: Works and maintenance in or near water

Section 8: Land contamination & invasive plants

Your site may be contaminated with pollutants as a result of past activities, especially on [brownfield sites](#). Common pollutants include asbestos, hydrocarbons (such as oils and fuels) and hazardous heavy metals and solvents. They might be present in either the soil or [groundwater](#) or both.

On any site it is important to identify possible contamination before you start works as your activities have the potential to mobilise any contamination and present a risk to human health and the environment. You need to ensure your activities don't cause future land contamination, particularly if you handle [hazardous substances](#). If you pollute the land or ground you could be prosecuted and may be liable for clean up costs.

If your site is classed as [contaminated land](#) you will have responsibilities under law for managing the contamination and will need to work very closely with your local regulator to remediate the site to ensure that the land is not a risk to human health or the environment.

Invasive plants

Some plants in the UK are designated as invasive non-native species; these are plants that don't naturally occur in the UK but, when introduced, establish themselves very quickly. They have a significant impact on construction sites as they spread easily, are difficult to eradicate, can damage structures, contaminate soil and also damage the natural ecology in your area. [Invasive plants](#) can be either land or water based e.g. Japanese Knotweed, Himalayan Balsam and Giant Hogweed. The owner / occupier of a site is required by law to manage and prevent the spread of [invasive plants](#). If you knowingly spread, or allow these plants to spread, through your activities you will be causing an offence.

This section should be read in conjunction with section [4 Materials storage, stockpiles and exposed ground](#) and [10 Waste management](#).



Section 8: Land contamination & invasive plants

Essential pollution prevention

Land contamination

- Ensure you're aware of any planning conditions or requirements to investigate or remediate any land contamination.
- Before work starts, identify any potential contamination on site.
- Contact your local authority to find out if they are aware of any contamination issues at the site.
- A specialist contamination assessment may have been undertaken, even if your site is not classed as 'contaminated land'; this should help you identify the location of any contaminants and the measures required to manage them.
- Seek expert advice on dealing with contamination. If required, e.g. from a consultant with proven experience in the assessment and remediation of contaminated sites.
- Ensure you work to an agreed [remediation strategy](#) for dealing with contamination.
- Liaise with your local authority to discuss your proposed methods for dealing with contaminants.
- Ensure that you work to agreed methods to prevent pollution.
- Ensure that you have an incident / emergency plan for dealing with incidents on site such as a spillage.
- If you discover unexpected contamination on the site, stop works and seek advice from us or your local council.

Invasive plants

- Before work starts, identify any [invasive plants](#) on site. If you're unsure, seek a site visit from a competent expert (e.g. an ecologist, environmental manager from your company).
- You must contact us if you propose to use herbicides to manage invasive plants in or near water.
- You have a [duty of care](#) to dispose of waste responsibly. Contact us if you need advice on how to dispose of invasive plants.
- Put in place working methods to prevent the spread of invasive plants.
- Keep up-to-date with new invasive plants. See additional information over.

Section 8: Land contamination & invasive plants

Further considerations

- Obtain and collect pictures and information to identify invasive species for use on site.
- Talk with an expert advisor so you're familiar with the contaminants / invasive plants and how to deal with them.
- Communicate this to staff on site so that they are aware of how to deal with them or what to look out for.
- If you think you've identified any contamination, stop work and contact us for guidance.
- If you think you've identified any invasive plants on site, stop work and contact site management.

Section 8: Land contamination & invasive plants – Checklist



PPG 6 Checklist – Land contamination & Invasive plants

Item	Yes / No	Comments / Actions
Have you investigated the site history to check for potential land contamination?		
Have areas of land contamination or invasive plants been identified before starting work?		
Are all areas of land contamination and/or invasive species marked on site drawings?		
If there are contaminants, have you contacted us to discuss how you will deal with them?		
If there are invasive plants on site, are you confident you can manage them effectively and comply with your duty of care?		
If you plan to treat invasive plants in or near water with herbicides, have you contacted us for permission?		
Is it necessary to gain expert advice to deal with any land contamination?		
Is there a remediation strategy for dealing with any contamination?		
Are control measures in place to ensure contaminants or invasive plants are not spread within or outside the site?		
Are staff aware of how to recognise land contamination, and what to do if they find any?		



PPG 6 Checklist – Land contamination & invasive plants Cont.

Item	Yes / No	Comments / Actions
Are staff aware of how to recognise invasive plants, and what to do if they find any?		
Have you planned for stockpiling contaminated materials carefully to prevent spread of pollution? e.g. more than 10 metres away from watercourses, on impermeable surface, bunded and covered.		
If contaminated soil needs to be removed from site or treated on site it may be considered waste (see The Definition of Waste below).		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- CIRIA: [Invasive species management for infrastructure managers and the construction industry](#)
- [Managing Japanese Knotweed on development sites - The Knotweed code of practice](#)
- [Building \(Scotland\) Act 2003](#) and applicable regulations under that act; [Section 3 \(Environment\) of the Building Standards Technical Handbooks \(Domestic and Non Domestic Handbooks 2011\)](#), Scottish Government, particularly subsections 3.23 and 3.24 of both handbooks
- [SEPA Land Remediation and Waste Management Guidelines](#)
- www.environment-agency.gov.uk/invasivespecies
- [Guidance for the Control of Invasive Weeds In or Near Fresh Water](#)
- www.nonnativespecies.org
- [CL:AIRE Definition of waste: industry code of practice](#)

Section 9: Chemicals and hazardous substances

All chemicals and **hazardous substances** or materials you store and use such as oils, cleaning products, solvents and pesticides could cause pollution if they spill onto land, enter surface waters or groundwater or are released into the air. If you cause or allow pollution to occur you may be prosecuted and fined. Your business could suffer from lost contracts, downtime and have to pay clean up costs and increased insurance premiums.

'Safety Data Sheet (SDS)' should be provided with chemicals and hazardous by the supplier, or manufacturer. If you receive a chemical without an SDS, contact your supplier to find out whether or not they have to provide one. Follow these instructions carefully as they tell you how to store, use and dispose of chemicals and hazardous materials safely.

This section should be read in conjunction with sections [1 Planning – Deliveries](#), [5 Oil use, storage & refuelling](#) to ensure you are familiar with the latest legal requirements.

Essential pollution prevention

Storing chemicals and hazardous substances

- Store all chemicals and hazardous substances away from watercourses and drains in a contained, bunded area on an **impermeable** surface.
- Store all chemicals and hazardous substances away from areas where there is risk of damage from impact or collision e.g. site traffic.
- Ensure all chemicals and hazardous substances are:
 - stored securely
 - stored on **impermeable** surfaces
 - labelled, and that containers are sealed when not in use
 - inspected regularly and fit for purpose i.e. free from damage, no leaks.
- Dispose of any damaged / old containers in line with your **duty of care** requirements, these may be considered hazardous waste.
- Develop incident / emergency plans to help you deal with spills and train individuals how to use them.
- Ensure that incident / emergency equipment is available at storage point.
- Train staff in the use of spill kits / emergency procedures.



Section 9: Chemicals and hazardous substances

- Ensure there is a designated ‘**responsible person**’ on site at all times to coordinate response.
- Ensure that Safety Data Sheets (SDS) are available with emergency plans.
- Lock storage facilities when not in use.

Using chemicals and hazardous substances

- Limit orders to what you need.
- Place containers of chemicals and hazardous substances in suitable secondary containment such as **drip trays** when in use on site; this will contain any spillage.
- Only take the chemicals and **hazardous substances** needed for each particular job.
- Keep containers sealed on site when not directly being used.
- Return any unused substances to storage facilities at the end of the day.
- Ensure that incident / emergency equipment is available at storage points.
- Establish incident / emergency plans to help you deal with spills and train staff how to use them.
- Deal with **waste** appropriately.

Further considerations

- Try to reduce quantities of chemicals and **hazardous substances** on site – there are also health and safety and financial benefits associated with this.
- Attempt to replace hazardous products with non-hazardous alternatives.
- Ensure that a responsible person is designated to control the issuing of chemicals and hazardous materials.

Section 9: Chemicals and hazardous substances – Checklist



PPG 6 Checklist – Chemicals and hazardous substances

Item	Yes / No	Comments / Actions
Do you only order and store the quantities you need?		
Are chemicals and hazardous substances stored in bunded areas away from watercourses and drains?		
Are storage facilities located to avoid damage from site traffic or vandalism?		
Are the storage facilities locked when not in use?		
Are all chemicals and hazardous substances clearly labelled?		
Is a spill kit or emergency response equipment kept at the storage point?		
Have you produced an emergency plan for the site?		
Are all staff trained in how to deal with chemicals or hazardous substances they use as part of their job? Do they know how to prevent pollution in an emergency?		
Are the Safety Data Sheets provided by the supplier stored with the emergency plans?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcgo.org.uk
- BRE [Green Guide to Specification](#)
- PPG 26 Storage and handling of drums and intermediate bulk containers (IBCs)
- HSE Guidance on Control of Substances Hazardous to Health: www.hse.gov.uk/coshh

Section 10: Waste management

Waste has a complex legal definition but is essentially something that is discarded by its holder. It is important to recognise that discarding doesn't simply cover disposal but can include recovering or reusing an item or material.

Poor waste management is a common cause of pollution at construction and demolition sites; for example, failing to comply with 'duty of care' leading to illegal disposal of waste such as fly tipping, illegal disposal such as burning of waste on site causing air pollution, or emissions caused by the transportation and break down of the waste in landfill sites. This guidance focuses on preventing direct pollution from wastes, and doesn't consider indirect pollution such as energy use, methane and CO₂ emissions from treatment and disposal.

There's a range of waste legislation you need to comply with and many source of guidance to help you which must be considered for your site when managing waste.

Essential pollution prevention

Everyone on site must comply with the waste 'duty of care'; this means you must:

- store your **waste** safely and securely on site e.g. prevent wind blown materials such as plastics leaving your site; covered skips and bins will assist this
- prevent any liquid wastes leaching from bins or skips – this includes dry wastes that may become wet, e.g. through exposure to rain; check your waste storage has no holes or damage
- develop a site procedure for selecting and managing waste contractors, those that remove your waste, to ensure that you meet your **duty of care** requirements
- only pass your waste to authorised persons and companies
- have appropriate **duty of care** documentation, i.e. completed waste transfer notes or consignment notes for **hazardous waste** for each load of waste removed from the site
- prevent hazardous wastes being mixed with other hazardous wastes or non-hazardous wastes
- keep all waste transfer notes and consignment notes for 2 and 3 years respectively.



Section 10: Waste management

Further considerations

- Using Site Waste Management Plans (SWMP) even when not a legal requirement, will help you comply with most waste legislation and reduce the amount of waste you generate. They will also help save you money as well as reduce pollution risks.
- Ensure materials aren't over-ordered to avoid waste in the first place.
- Lock waste storage areas, bins and skips.
- Perform checks on end disposal of waste to satisfy yourself that your contractors are complying with legislation and record your findings.

Section 10: Waste management – Checklist



PPG 6 Checklist – Waste management

Item	Yes / No	Comments / Actions
Do you have copies of all waste carriers' registration certificates?		
Are waste carriers' registrations in date?		
Have you identified your most common European Waste Catalogue (EWC) codes / List of Waste Codes (in England and Wales) to help people on site complete waste transfer notes and consignment notes correctly?		
Do you have a system for keeping waste transfer notes and consignment notes?		
Have you made plans to secure all waste in vehicles leaving site and skips are covered where appropriate?		
Is waste contained securely and safely on site to prevent escape?		
Are waste containers (skips, bins) impermeable to prevent liquid wastes leaching?		
Have you allocated sufficient space on site for waste storage and segregation?		
Are skips and bins on site labelled for different waste types to help segregation, and checked regularly?		



PPG 6 Checklist – Waste management Cont.

Item	Yes / No	Comments / Actions
Are there separate facilities for hazardous or, in Scotland, special waste?		
Are there separate facilities for different types of hazardous or, in Scotland, special waste?		
Do you need to register with us as a hazardous or, in Scotland a special waste, producer?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- Resource efficiency advice: www.wrap.org.uk or WRAP helpline: **0808 100 2040**
- CIRIA Environmental Good Practice Site Guide
- www.environment-agency.gov.uk/waste
- www.sepa.org.uk/waste.aspx
- www.ni-environment.gov.uk/waste-home.htm
- European Waste Catalogue

Section 11: Incident response

Although careful planning and preparation reduces the risks of a pollution incident, accidents can still happen. Be prepared! If site workers know how to deal with an incident, and can use the necessary equipment, they can help prevent the pollution spreading and minimise damage to the environment.

There's a range of guidance available to help you create a pollution incident response plan for your site see [PPG 21](#).

Essential pollution prevention

- Nominate an individual to have responsibility for the incident plan; this person will be the site contact for incidents, i.e. 'responsible person'.
- Identify where pollution incidents could happen on site.
- Develop a pollution incident response plan for your site. This is a short document that outlines the actions you could take to minimise the pollution caused by an incident. Each site needs its own plan as it has its own specific requirements, so don't simply copy plan from a previous site.
- The plan should include:
 - **Stop** – how to stop pollution occurring in the first place
 - **Contain** – how to contain the pollution at source and prevent further spread
 - **Notify** – who to inform of the incident; this may be site management, environment manager, principal contractor and us
 - **Decide** – in consultation with us evaluate significance of incident
 - **Clean up** – how to deal with pollution clean up and disposing of the waste in accordance with waste regulations.
- Train site staff and contactors how to use the plan and equipment such as spill kits – using tool box talks.
- Test your plan.
- Invite us to review the plan, especially if your site is in a high risk location such as near a watercourse.
- When working near a waterway, deploy a boom downstream of your site, if practical.
- When working near water include daily visual inspections into your incident planning.
- **Never** wash any spilt oil, chemicals or other pollutants away into drains or into the ground or use detergents to clean up the oil; you could cause a more serious pollution incident.



Section 11: Incident response

Reporting incidents

You should report all pollution [incidents](#) as soon as possible to:

- site management;
- our **Hotline: 0800 80 70 60** (freephone, 24 hour service)

This will allow:

- us to assess the incident's environmental impact and attend the site if necessary
- us to advise you on action to minimise the environmental damage, and reduce clean up costs
- site workers to learn from the incident and reduce the risk of a more serious incident occurring in the future
- self-reporting through your company's [Environmental Management System](#) (EMS), or other defined means

If you don't report an incident and it is later traced back to your site, this will be taken in to account when we decide what enforcement action to take.

Ensure you understand 'Polluter pays' principle and [Environmental Damage and Liabilities Regulations](#).

Section 11: Incident response – Checklist



PPG 6 Checklist – Incident response

Item	Yes / No	Comments / Actions
Have you identified potential hazards on site and the risks of pollution?		
Do you have an incident response plan on site?		
Are all staff familiar with the plan and trained in what to do if an incident occurs?		
Have you tested your plan?		
Is equipment (e.g. spill kit) available in areas you are likely to need it? E.g. by oil storage areas, refuelling areas and for remote refuelling and dispensing.		
Do relevant staff have our hotline number 0800 80 70 60 on hand to use straightaway if a pollution incident occurs?		
Have you considered discussing your site's incident response plan with us?		

Additional information

- Tool Box Talks: see www.ceca.co.uk and www.ukcg.org.uk
- PPG 21 Pollution incident response planning
- UK Spill: www.ukspill.org
- The Environment Agency “Is your site right?” guide available at: www.environment-agency.gov.uk
- The Environment Agency “Pollution Prevention Pays” guide available at: www.environment-agency.gov.uk

Case studies

PPG 6 Case Study 1: Preventing spills from generators with fuel tanks

Preventing spills from generators with fuel tanks

About the site

Due to the nature of civil engineering sites, mains electricity is often unavailable or impractical and generators are used to supply energy.

Issue / incident

On these types of sites, generators are often required to run 24-7; they're usually supplied with an external fuel tank connected to the generator to supply fuel as required. Although both the fuel tank and generator are bunded in line with the Oil Storage Regulations to hold 110% of their own tank volume, if a problem occurs during the transfer of fuel to the generator, (e.g. due to the fuel return valve being knocked) the generator's bund isn't sufficient to hold the additional volume from the fuel tank and a spillage may occur.

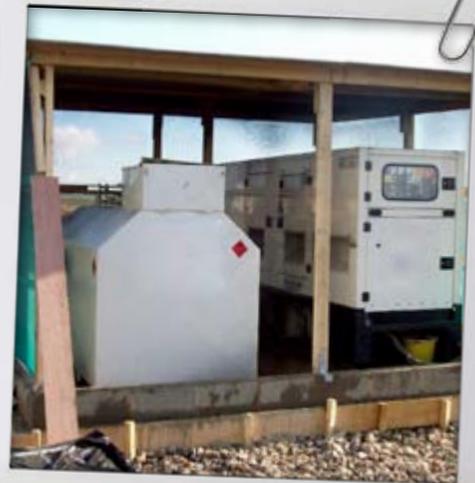
Pollution prevention measure

Working with our preferred supplier, we identified the problem and agreed on three acceptable solutions:

- Hire a secure generator unit which houses the generator and fuel tank in a single, self-contained unit
- Hire a separate fuel tank and generator and create a bund around the set-up once it's on site
- Use a generator without a separate fuel tank and re-fuel each day.

Lessons learnt

- Although having a generator and external fuel tank arrangement is legal, the pipework delivering oil from tank to generator is particularly vulnerable to damage and oil can be lost.
- Provide secondary containment for the whole installation - storage tank and generator as this includes the pipework between the two.
- When potential storage is a concern, liaise with suppliers to find alternative options which meet your needs.



Covered containment area for generator and tank

Case studies

PPG 6 Case Study 2: Incident response

Incident response

About the site

A dockside site where plant was being assembled.

Issue / incident

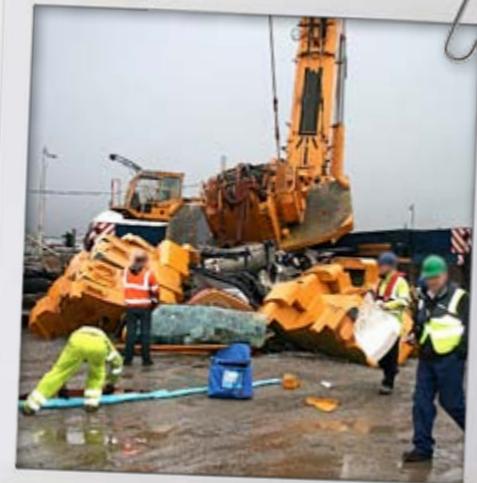
An 800T mobile crane was being assembled in preparation for installing lock gates at a Dock. The chassis fractured, causing the counterweights to topple off the crane and wreck the fuel tank and hydraulic fuel lines. Approximately 700 litres of fuel leaked onto the ground from the machine.

Pollution prevention measure

- Site team responded quickly, with drip trays, mats and pumps used to control the spill at source.
- Surface water drains in the vicinity were quickly sealed with bentonite plugs and absorbent materials fitted in the outfall of the drain to help contain the spill should any leakage into the drain occur.
- Absorbent booms were also deployed in the lock as a precaution
- After the initial event, a pit was excavated, lined with plastic and filled with absorbent granules to act as a sump for any diesel migrating through the ground.
- Finally, about 40T of contaminated ground was removed and disposed of appropriately.

Lessons learnt

- Without the quick emergency response and actions taken by the site team, a significant quantity of the spilt fuel could have entered and contaminated the watercourse resulting in a far more serious impact.
- Having emergency spill equipment available on site meant site staff could deal with the spillage straight away.
- Having a good Emergency Response Plan, communicated to site staff and contractors, is vital.
- Site staff and contractors should be well trained and have practised mock exercises scenarios.
- Check your Emergency Response Plan is up to date (relevant to current activities) with suitable controls and measures in place.
- Communicate the plan – site inductions, toolbox talks / refreshers.



Mobile crane collapse causing oil spillage

Case studies

PPG 6 Case Study 3: Invasive plants – Identifying Himalayan Balsam in time

Invasive plants – Identifying Himalayan Balsam in time

About the site

A site required vegetation clearance before works could start.

Issue / incident

The contractor's Site Agent visited to check if any special measures would be necessary during the works planned for the area. He spotted a large leafed plant with a pinkish tinge to the stem in the area where vegetation clearance was to take place.

Pollution prevention measure

- Using a guide to invasive plants, the species was identified as Himalayan Balsam, an invasive species that can spread rapidly.
- Environment Agency and contractor's own guidance was checked to see how best to deal with it.
- Following the guidance, as it had not yet seeded, it was pulled out by its roots, bagged and sent to a licensed waste site.

Lessons learnt

- A knowledgeable staff member should visit sites where vegetation clearance will be required before starting work to check for invasive species. Don't assume they will have been spotted earlier.
 - If possible, do this during the growing season to identify any invasive species before they seed.
 - Check the [Environment Agency's guidance](#) for how to remove and dispose of invasive species.
- Further information see: www.nonnativespecies.org



Case studies

PPG 6 Case Study 4: Oil spill – Ground contamination

Oil spill – Ground contamination

About the site

Refurbishment of Social Housing adjacent to a river, with temporary power provided to the small site office and storage compound by a power unit containing a generator and a fully bunded fuel tank.

Issue / incident

The unit was delivered to site direct from the manufacturer. It ran for a number of months before a leak was discovered in both the tank and the base of the bund. The leaking fuel soaked into the ground and eventually found its way into the river.

The site staff were able to deal with the fuel that found its way into the river effectively and quickly, but the clean up of the contaminated soil and groundwater took several months.

Pollution prevention measure

- Ground contamination was cleaned up using appropriate procedures.

To stop this type of incident occurring again:

- Introduced a generator log book that includes an inspection checklist, which must be completed daily
- Made it a company requirement that refueling can only be carried out by a named, competent operative

Lessons learnt

- Check that fuel storage tanks and bowsers and all associated pipe work are in good order before filling.
- Ensure that fuel storage tanks and bowsers and all associated pipe work are regularly checked for leaks.
- Monitor fuel usage – an abnormally high rate of consumption may indicate that the fuel storage tank is leaking.
- Report pollution incidents promptly via the Hotline **0800 80 70 60** and near misses to management.



Case studies

PPG 6 Case Study 5: High risk oil storage tank – breaking all the rules!

High risk oil storage tank – breaking all the rules!

About the site

The site was a housing development in a built-up area.

Issue / incident

The contractor had installed a commercially available integrally bunded oil storage tank but safe oil storage was compromised by poor installation (see picture). The tank was raised up so that dispensing could be done by gravity rather than using a pump. The entire base of the plastic tank wasn't supported, increasing the risk of rupture. It was also located in an area that was vulnerable to damage by impact or vandalism.

Pollution prevention measure

The tank needed to be relocated to a properly designed standing which could support the entire base of the tank and away from high risk locations.

Lessons learnt

- Install oil storage tanks according to the manufacturer's instructions, preferably using qualified oil tank technicians. Take into account safe filling and dispensing.
- Use pumped dispensing if possible as it's easier to control. Tank contents are less likely to be lost by gravity, and it avoids working at height.
- Follow the requirements of the Oil Storage Regulations, and locate oil stores where they are away from risk of damage and / or provide adequate protection.



How not to install an oil storage tank!

Case studies

PPG 6 Case Study 6: Planning to reduce pollution

Planning to reduce pollution

About the site

Online widening of a trunk road.

Issue / incident

Approximately 5 gallons of diesel was spilled during a plant refuelling operation. The diesel rapidly soaked into the granular road base. Some of the diesel made its way into the surface water system through the ground, via a porous manhole chamber. Despite using absorbent pads from a spill kit at the outfall, some diesel entered the nearby river.

Pollution prevention measure

- An oil absorbent boom was installed in the watercourse downstream of the construction site at the beginning of the project.
- This was maintained during the contract.
- The oil absorbent boom in the river successfully held the diesel, preventing it affecting the Special Area of Conservation (SAC) further downstream.

Lessons learnt

- Consider the potential movement of pollutants through the ground.
- Effective planning prevents minor events from becoming serious pollution incidents.



Boom deployed across a river

Case studies

PPG 6 Case Study 7: Store fuels away from drains and watercourses

Store fuels away from drains and watercourses

About the site

The site was in a built-up area and the fuel store was located near a drain.

Issue / incident

Vandals broke into the fenced off area on site during the night and attempted to steal diesel by cutting the armoured connecting hose with bolt-cutters. They were unsuccessful and although the hose wasn't severed, it continued to drip overnight. As a result, due to insufficient bunding, diesel spread into a drainage system which discharged into the adjoining river. Fortunately the river was diverted as part of the works and the diesel was restricted to a small still pond.

Pollution prevention measure

- Ensure fuel storage areas are secured and protected from vandals.
- Locate fuel storage areas away from sensitive receptors such as drains or waterways.
- Remove interconnecting hoses at night or protect hoses further by using a scaffold tube with kee clamp fittings.
- Ensure that fuel storage is bunded in accordance with the British Standard.

Lessons learnt

- Ensure a high standard of security for fuel storage where it may be subject to vandalism.
- Anti-syphon valves aren't always effective if hoses are damaged rather than severed.
- Always use appropriate bunding.
- If necessary, divert drainage systems from entering watercourses directly.



Secured fuel tank in secondary containment

Case studies

PPG 6 Case Study 8: Silt management – plan ahead to reduce the problem

Silt management – plan ahead to reduce the problem

About the site

The project was infrastructure preparation works for a large sub-station. The site had a relatively small footprint with little area for water treatment.

Issue / incident

The site struggled to contain a silt problem following rain and snow during December and January which caused the dry ditches entering the site to suddenly flow significantly for an extended period.

Pollution prevention measure

- Initial attempts to manage the silt with straw bales had limited success. This was followed by a small visqueen lined lagoon with straw bales which made little difference. This was supplemented by two silt settlement skips in series followed by discharge to small grassed area, still with limited success.
- A review of the problem highlighted the need to remove clean flows from the site working area. This wasn't easy as flows had to cross the site where extensive ducting was to be installed.
- A recently constructed 300mm dia. deep drain crossing the site was used. A proportion of the clean flows was pumped to the upstream manhole and picked up by another pump at the downstream manhole. The clean water was returned direct to the watercourse downstream of the site, through straw bales. This greatly reduced the pressure on the silt treatment systems.

Lessons learnt

- Consider what your site will be like when conditions are wet as well as dry.
- Separate clean and dirty water to reduce risk and the volume that needs treatment.



Case studies

PPG 6 Case Study 9: Managing silt near watercourses

Managing silt near watercourses

About the site

The site was a large housing development next to a watercourse and a stream ran through the centre of the site.

Issue / incident

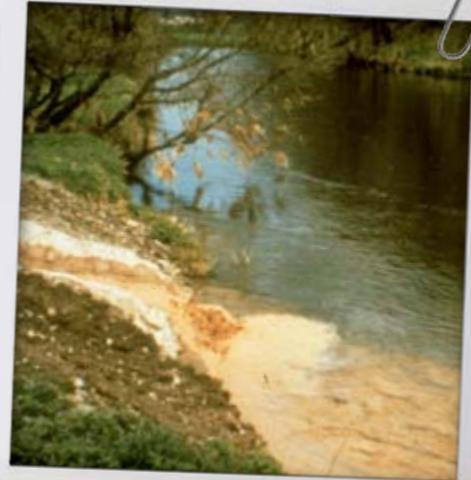
Silt management hadn't been considered. A large quantity of suspended solids entered the stream and caused a pollution incident. A NIEA officer visited the site and issued a formal notice that required the company to remove the gross solids deposited in the watercourse and install measures to prevent further incidents.

Pollution prevention measure

- Ensure awareness of all watercourses on and near the site.
- Put measures in place to prevent silt entering watercourse before beginning work.
- Measures such as silt fencing and silt settlement lagoons can be very useful for preventing incidents.

Lessons learnt

- Consider pollution prevention measures before starting work.
- Be aware that the regulator may visit large scale construction sites. Seek their advice before pollution occurs.



Silt polluting a watercourse

Case studies

PPG 6 Case Study 10: Silt pollution prevention measures

Silt pollution prevention measures

About the site

A motorway widening project in an area crossed multiple watercourses which were culverted beneath the road. Culvert extensions were required in most locations and there was a significant quantity of earthworks involved in the widening.

Issue / incident

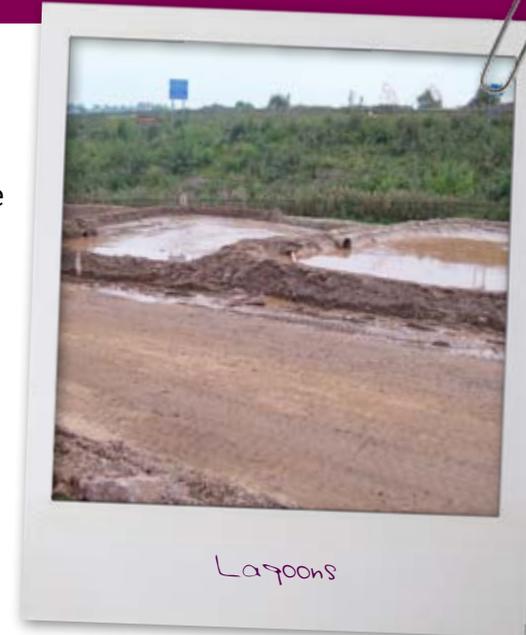
With three wet summers in a row, silty run-off became a major pollution concern. After Environment Agency officers visited following a complaint from a downstream resident, an action plan was developed to implement the most appropriate silt pollution prevention measures at each of the watercourse crossing points.

Pollution prevention measure

- Straw bales wrapped in terram lining the banks of streams.
- Silt fences constructed from terram on a wooden frame.
- A filtration chamber created from an IBC with holes punched in the sides and lined with cloth.
- Creation of a series of lagoons connected with overflow pipes to receive silty water.
- Creation of a further lagoon at the bottom of the haul road with a cut-off ditch to direct run-off into it.

Lessons learnt

- Mitigation measures need to be planned and implemented before works start.
- An assessment needs to be made of likely problem areas and the most appropriate measures chosen.



Case studies

PPG 6 Case Study 11: Good stockpile and soil management

Good stockpile and soil management

About the site

The site was close to existing housing and other neighbours. It was also close to an environmentally sensitive area.

Issue / incident

Significant requirements for cut and fill would have resulted in increased vehicle movements, causing disturbance to residents and additional cost.

Pollution prevention measure

- The original proposals were changed with agreement of planning so that approximately 28,000m³ of upfill was not required.
- The topsoil was retained on site via a 'cut and fill' balance, with 20,000m³ of soil moved under an Exemption Licence to an adjacent farm field. This eliminated about 4,000 truck movements through the town.
- Creating a temporary wind-breaker bund from 7,000m³ of soil helped to deflect wind from the nearby hills, preventing wind-blown dust affecting neighbouring housing estates.

Lessons learnt

- Considering the cut and fill options to avoid importing or exporting soil can save a lot of money.
- Reducing the need to move soil off site or bring soil on site minimises impacts on the local community from dust and traffic.



Aerial photo of site

Case studies

PPG 6 Case Study 12: Quick thinking contains spill

Quick thinking contains spill

About the site

The site contained a storage compound where aggregate was being unloaded for stockpiling.

Issue / incident

A dumper was unloading aggregate when the banksman noticed a hydraulic hose had failed. After alerting the driver, he immediately placed a nearby large drip tray underneath which contained the spill. Approximately 40 litres of hydraulic oil was contained and prevented from contaminating the ground as a result.

Pollution prevention measure

- Site staff were fully trained to respond to pollution incidents including having practised mock exercises.
- The provision and location of spill kits were regularly checked.

Lessons learnt

- It's difficult to prevent hydraulic hose failures, but having spill kits and drip trays in vehicles or near delivery areas can ensure a speedy response.
- Ensuring staff have had spill response training and know where to find equipment is vital.
- Report incidents and near misses promptly via the incident hotline **0800 80 70 60**.



Case studies

PPG 6 Case Study 13: Dealing with trade effluent from washing down vehicles

Dealing with trade effluent from washing down vehicles

About the site

A large mixed use development in a major city, near a canal.

Issue / incident

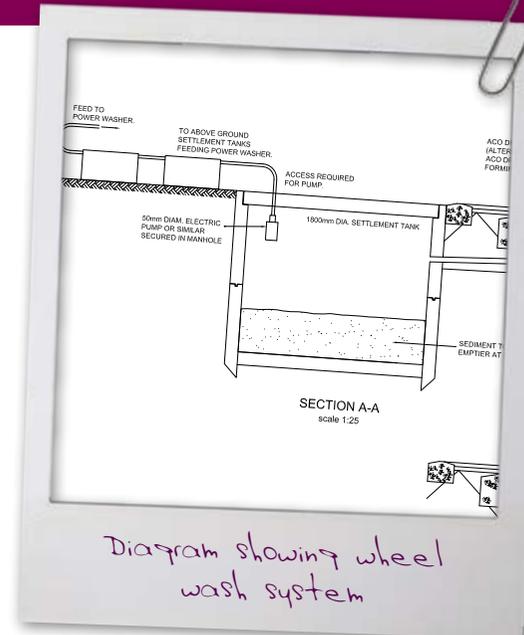
The project team wanted to be able to wash down vehicles before leaving site, without causing waste water run-off (trade effluent), which might also include some oil residue, to enter the surface water drainage system which could potentially pollute the canal.

Pollution prevention measure

- Site team put together a wheel wash solution using a jet wash system.
- Comprised of a hardstand which drained to an underground settlement tank.
- Water in tank could then be reused for feeding the jet washer.
- A Trade Effluent Consent was obtained from local sewerage provider.
- The settlement tank was emptied out regularly and trade effluent discharged to either the foul sewer or pumped out by a sludge gulper.

Lessons learnt

- Always ensure that there's a system in place to contain any trade effluent from vehicle wash down areas on site.
- Ensure this type of control measure is discussed at the start of the project and implemented at the correct time.
- If such trade effluent were allowed to enter a drain or surface water without permission from the appropriate regulator, you'd be breaking the law.



Case studies

PPG 6 Case Study 14: Pollution caused by alkaline leachate from concrete and lime

Pollution caused by alkaline leachate from concrete and lime

About the site

The site drainage systems had outfalls to a local watercourse.

Issue / incident

Drainage outfalls discharging from a construction site had a high, alkaline, pH (9-12) and Environment Agency officers expressed concern and required remediation measures.

We investigated the cause and found that lime stabilisation works had been undertaken at the site and crushed concrete had also been used as fill material. The lime / concrete fines leached into the drainage system and eventually discharged via outfalls from the site.

Pollution prevention measure

- Be aware of potential pollution when selecting materials. Concrete has a high pH and can cause significant (and traceable) pollution.
- Be aware of site drainage systems; protect these to ensure fines or other pollutants will not enter watercourses via the drainage system.
- Use appropriate drainage protection.

Lessons learnt

- Don't use inappropriate materials.
- Be aware of pollutants that could enter drainage systems and put in place appropriate controls.
- Monitor discharge from site to ensure water quality.



Crushed concrete

Glossary of terms used in this document

Abstraction	Removal of water from surface waters or groundwater for use on site.
Abatement notice	Notices that require you to stop, or impose restrictions on, your operations.
Anti Pollution Works Notice	Notices that may be served by us if your site gives rise to, or is at risk of giving rise to, pollution of surface waters or groundwater. This notice will require you to undertake remedial action.
Brownfield site	Previously developed land.
Bunds	A type of secondary containment (see below). In environmental terms, it is usually an impermeable construction designed to hold potentially polluting substances that have leaked or spilled from a primary within it.
Contaminated land	The Environmental Protection Act 1990 defines as: “any land which appears to the local council in whose area the land is situated to be in such a condition, by reason of substances in, on or under the land, that (a) significant harm is being caused or there is a significant possibility of such harm being caused; or (b) pollution of controlled waters is being, or is likely to be, caused”.
Control measures	A system designed to prevent or reduce the risk of pollution from an activity.
Combined drains / sewers	Sewers that collect both foul sewage and surface water run-off and carries it safely to a sewage treatment facility. Either owned privately or by the local sewerage treatment provider.
Clean water	Unpolluted water, without contaminants from site activities.
Discharge	Release of water into surface waters, groundwater, or drainage / sewer systems.
Dirty water	Polluted water (see pollution below).
Drip trays	A type of secondary containment (see below). Generally used for drums, small containers and to catch spillages during refuelling out on site.
Duty of care	A legal obligation to take reasonable care and avoid causing damage (also see waste duty of care below).

Environmental Damage and Liabilities Regulations	If your activities threaten to cause, or have caused, environmental damage, you must take all possible steps to prevent damage and report details of the risk to the enforcing body if the threat remains. .
Environmental (management) plan	A document describing potential environmental impacts and activities of a project / site and ways to manage and mitigate these.
Environmental Management System (EMS)	A structured and documented system you can use to manage your business's environmental performance and responsibilities.
Foul water drains / sewers	Sewers that collect foul water (sewage and trade effluent) and carries it safely to a sewage treatment facility. Either owned privately or by the local sewerage treatment provider.
Groundwater	All water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
Hazardous substances	In broad terms, hazardous substances are those with toxic properties that damage the environment and / or affect human health.
Hazardous waste	Waste that is harmful to human health or the environment. For specific legal definitions including special waste in Scotland.
Incident (pollution)	A pollution incident is a specific event that may have a negative environmental impact.
Interceptor	Mechanism added to / or included in drainage system to intercept pollutants. Different interceptors can be used for different substances (e.g. silt and oil).
Impermeable	A surface or material that liquid cannot pass through.
Invasive plants	A non-native species that causes harm to the environment, human health or the economy if introduced to a region or country.
Method Statement	Documented means to undertake a task or activity.
Oil separators / interceptors	A type of interceptor designed to separate oil from water.
Oil storage container	Tanks, drums, cans, mobile bowsers and Intermediate Bulk Containers (IBCs). Made from metal or polyethylene (plastic) and specifically designed to store oil.
Oil storage area or oil store	An area where one tank is sited, where drums and IBCs are used or a compound where mobile bowsers, tanks and drums are stored and / or used.

Permission	This includes: permits, consents, authorisations, exemptions, licences, registrations or other permissions from us or other organisations such as your local sewerage treatment provider.
Pollution	A change in the physical, chemical, radiological or biological quality of a resource (air, water or land) caused by people or their activities that is injurious to existing, intended or potential uses of the resource.
Pollution pathway	The means that pollution can be passed from source to affected area (receptor). Water can be both a pathway and receptor.
Polluter pays principle	Principle in law that ensures that the party responsible for pollution should pay for damage caused to the environment.
Procedures	A specified way to carry out an activity or process.
Risk management	Identification and management of hazards.
Remediation strategy	A plan that involves one or more remedial options to reduce or control pollutant linkages associated with the site.
Responsible person	Person with specific duties, responsibilities and accountabilities.
Run-off	Water flow over the ground surface to the drainage system or direct to watercourse. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense.
Secondary containment / Secondary Containment System (SCS)	This is another container in which a primary container is located. It is impermeable to the product being stored and water, and designed to catch spills, leaks or overflows from the container (its pipework and equipment) in everyday use, accidents and emergencies. Secondary containment is essential to prevent pollution. Bunds and drip trays are examples of secondary containment.
Sewer	A pipe or channel taking foul sewage and / or surface water from buildings and associated paths and hardstandings and having a proper outfall.
Silt traps	A mechanism, substances or product to remove silt and sediment from water.
Soakaways	A subsurface structure into which surface water is conveyed to allow infiltration into the ground.

Spill Kit	A collection of pollution control equipment held in one place, specific to the materials you have on site. Proprietary oil and/or chemical spill kits are available. Check with your pollution control equipment supplier that contents are suitable for your needs before purchase. We recommend that a spill kit is stored near to where it may be needed, for example next to storage containers or delivery areas, and in an additional location in case it isn't safe to get to during an incident.
Statutory nuisance	An act that causes unreasonable disturbance to your neighbour, your neighbour's property, or business
Surface waters	Waters including rivers, lakes, lochs, loughs, reservoirs, ponds, streams, canals, ditches (including those that are temporarily dry), estuaries and coastal waters up to three miles offshore. Northern Ireland legislation defines these as 'waterways'.
Surface water drains / sewer	Surface water drains / sewers collect surface water drainage only usually carrying water to surface watercourses.
Sustainable Drainage Systems (SUDS)	Sustainable drainage systems or sustainable (urban) drainage systems: a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.
Trade effluent	Trade effluent is any liquid waste (effluent) discharged from premises being used for a business, trade or industry.
Vegetation corridors	Natural or planted vegetation acting as a protective corridor between works and potential receptors. This only applies in the context of this document and should not be confused with ecological vegetation or wildlife corridors which serve entirely different purposes.
Water table	The line below which the ground is saturated or filled with water.
Watercourse	A non technical term generally referring to moving water e.g. rivers, streams, canals and ditches (in which water could flow).
Waste	Any substance or object which the producer or the person in possession of it discards or intends or is required to discard. For specific legal definitions of waste including controlled, special and hazardous wastes.
Waste duty of care	The legal responsibility for ensuring that waste your business produces or handles is stored, transported, treated, reprocessed and disposed of safely without harming the environment.

Regulator contact details

Telephone our hotline: **0800 807060** to [report a pollution incident](#) (freephone, 24 hour service)

Our contact details

In England and Wales please contact our National Customer Contact Centre (NCCC) on **08708 506 506** or at enquiries@environment-agency.gov.uk for details on any of the topics covered in this document. If it is necessary they will put you in contact with your Local Environment Officer.



Environment Agency

National Customer Contact Centre
PO Box 544
Rotherham S60 1BY
Tel: **03708 506 506**
Fax: **0114 262 6697**

www.environment-agency.gov.uk



Northern Ireland Environment Agency (NIEA)

Water Management Unit
17 Antrim Road, Lisburn
Co. Antrim BT28 3AL
(Pollution Prevention Team)
Tel: **028 92 623173**
Fax: **028 92 623011**
www.ni-environment.gov.uk



Scottish Environment Protection Agency (SEPA)

Erskine Court
The Castle Business Park
Stirling FK9 4TR
Tel: **01786 457 700**
Fax: **01786 446 885**
www.sepa.org.uk

Case studies

PPG 6 Case Study 13: Dealing with trade effluent from washing down vehicles

Diagram showing wheel wash system

