

Toolbox talks: heritage

Archaeology

What?

- archaeology is the scientific study of human history and prehistory through the excavation of sites and the analysis of physical remains
- where no other records exist, it is often the only source of information about previous occupation of an area from the earliest inhabitants many thousands of years ago to more recent times of just a hundred years or so
- it is not only buildings and foundations, but also artefacts such as jewellery, pottery, coins, bones and skeletons that need expert examination before removal and preservation
- many sites may have ancient monuments and/or listed buildings on them, which are protected by law and planning control. Any specific issues related to these should be identified before work on site begins.

Why?

- **avoid environmental harm:** archaeology is an important part of heritage and valuable and irreplaceable remains can easily be damaged on construction sites
- **avoid prosecution:** it is illegal to disturb human remains, remove treasure and to damage certain monuments and historical structures/buildings.

Questions

- 1 Are there any potential ancient monuments on this site?
- 2 What old artefacts might be found on this site?
- 3 What should be done if something is found that looks like it might be of archaeological interest?



Do

- ✓ stop work if anything is found that might be archaeological and immediately contact a line manager for instructions
- ✓ find out if there are any archaeological sensitive areas on site
- ✓ fence off any part of the site suspected of containing archaeological artefacts
- ✓ follow the advice provided by any appointed archaeologist.

Don't

- ✗ assume that any artefacts or features discovered are unimportant
- ✗ remove any 'finds' such as coins, pottery, or bones from the site – it is illegal
- ✗ undertake work near to areas of archaeological importance without considering if any damage may be caused:
 - use vibrating equipment as it may cause cracking – check with a line manager
 - dewatering may cause a preserved feature to settle and crack – check with a line manager
 - drive vehicles through protected sites.

Toolbox talks: heritage

Built heritage

What?

- built heritage is an irreplaceable and valuable part of our national 'identity'
- buildings and structures of special architectural or historic interest may be listed or be subject to a Building Preservation Notice (BPN)
- areas containing built heritage may have been designated as a Conservation Area (CA)
- the local planning authority (LPA), is responsible for the protection of built heritage and its permission and/or consent is required before any work is carried out on a listed building or structure or any external works are carried out on a building within a CA.

Why?

- **avoid environmental harm:** valuable heritage buildings or structures might easily be damaged either directly by construction works or through vibration or subsidence caused by nearby works
- **avoid prosecution:** it is an offence to demolish or carry out work on a listed building or structure or one subject to a BPN or to alter the external appearance of a building or structure within a CA without the permission or consent of the LPA.

Questions

- 1 Are there any listed buildings on site?
- 2 What should be done if construction activities include works on or near a heritage building/structure?



Do

- ✓ inform every person on site of the listed buildings that may be affected during construction.

Don't

- ✗ alter, damage or demolish any listed building.

Toolbox talks: heritage

Working on previously developed land

What?

- land that has previously been built on or used by industrial processes (brownfield land) or that has had imported material placed upon it (made ground) may be contaminated with substances that are harmful to humans, wildlife and/or the surrounding environment
- contaminants could be present in solid form (eg asbestos or tar residues), in liquid form (eg oils or solvents) or even as a gas (eg methane)
- potentially contaminated material can potentially be discovered unexpectedly, so it is wise to remain observant during works.

Why?

- **avoid environmental harm:** working in contaminated soils without the proper precautions and controls may result in pollution of and/or harm to the surrounding land, nearby watercourses or into the atmosphere
- **avoid prosecution:** any pollution found to have escaped from the site may lead to prosecution
- **reduce health hazard:** exposure to certain contaminants may cause skin and/or respiratory irritation, cancer or birth defects. Wearing the correct Personal Protective Equipment (PPE) can prevent ill health
- **public relations:** the occurrence of pollution incidents can cause reputational damage to the organisation.

Questions

- 1 What was the previous use of the site?
- 2 Where is there contaminated land on this site?
- 3 What type of contamination is there on this site and how is it to be managed?
- 4 What actions should be taken when the type of material being worked changes unexpectedly?
- 5 What hazards are created by this contaminated land?
- 6 Is the contaminated land clearly marked on the ground or its location known or identified?



Do

- ✓ fully understand the 'signs' of contaminated land to look for on site and the precautions to be taken
- ✓ know what the management plan is for contaminated land
- ✓ be aware of any known areas of contamination
- ✓ always wear the correct PPE for the anticipated contaminants
- ✓ look out for changes to the types of material being worked in that may show up as:
 - differences in colour or texture
 - presence of refuse (rubbish) or other foreign objects
 - differences in smell – common contaminants, eg such as oils, landfill gases and degrading waste have distinctive odours
 - fumes
- ✓ if changes are seen **STOP WORK**, make the area safe and inform a line manager
- ✓ wash hands and all areas of exposed skin after working in made ground or brownfield land
- ✓ prevent the spread of contaminated dust – either cover the source or damp it down
- ✓ prevent runoff entering drains/watercourses.

Don't

- ✗ remove PPE
- ✗ eat or smoke until hands are washed
- ✗ do not enter the contaminated area until a line manager gives instructions to do so.

Toolbox talks: heritage

Working around trees and hedgerows

What?

- trees and hedgerows are an important part of the environment and the countryside and serve as habitats for wildlife. As such they can be protected by legislation enforced by the local authority
- they provide shelter and pathways for insects, amphibians, mammals and birds.

Why?

- **avoid environmental harm and prosecution:** during certain times of the year nesting birds (protected by law against disturbance) may be present in trees and hedgerows
- **avoid prosecution:** it is illegal to cut down or wilfully damage trees protected by a Tree Preservation Order (TPO) or in a conservation area, or to pull up certain countryside hedges except with the consent of the local planning authority (LPA)
- **reduce safety risk:** damaged trees may become unstable and potential hazards. Trees can be damaged by compaction of roots and other damage to the root system, by pollution and through impact by machines.

Questions

- 1 How can trees and hedgerows be protected on this site?
- 2 What care should be taken when moving plant or storing and using fuels and other potential pollutants on site?
- 3 What must be done if nesting birds are found on site?



Do?

- ✓ check with a line manager before felling any trees or removing any hedgerows to ensure permission has been obtained
- ✓ check for nesting birds and if any are found stop work and contact a line manager **IMMEDIATELY**
- ✓ ask a line manager what protection is required to trees and hedgerows
- ✓ check with a line manager before excavating near to trees and hedgerows
- ✓ ensure plant and machinery are kept out of any excluded areas
- ✓ store all fuels and oils and other potential pollutants away from root systems
- ✓ only hand dig around root systems.

Don't

- ✗ undertake tree felling or hedgerow clearance during the bird nesting season
- ✗ undertake any works to, or near to, trees without authorisation from a line manager
- ✗ track vehicles or plant over tree protection areas
- ✗ store materials, especially fuels and oils under or near trees.

Toolbox talks: nuisance

Be a good neighbour

What?

- many of the local community will regard construction works in their neighbourhood with great concern
- public concern of construction includes noise, dust, road closures, increased heavy traffic and disruption to normal life
- being a good neighbour means to act with consideration for all those who live and work in the area surrounding the construction site to minimise their inconvenience.

Why?

- **avoid prosecution:** if any problems being caused by dust or noise are not satisfactorily resolved the local authority can prosecute those responsible
- **avoid prosecution:** if neighbours make a complaint about work on site exceeding the agreed hours the local authority can take action against the site
- **avoid programme delays:** if neighbours make a complaint about dust or noise nuisance the local authority can stop works, which leads to delays
- **reduce costs:** if good relations can be established with neighbours, many issues such as access to site, material deliveries and working hours can be improved through friendly negotiation
- **public relations:** being a good neighbour creates a positive image for a company and the industry



- **public perception:** many construction companies register with the Considerate Constructors Scheme (CSS) and abide the Code of Considerate Practice as a way improve the 'image' of construction and encourage best practice (ie beyond statutory requirements).

Questions

- 1 What should be done to avoid nuisance on this site?
- 2 Which parts of the site are close to houses, schools etc?
- 3 What are the activities likely to cause a nuisance on site?
- 4 What should be done if a complaint is received?

Do

- ✓ be polite and considerate to the public at all times
- ✓ take notice of any complaint made by a neighbour and pass it on to a line manager
- ✓ only use approved routes to access the site
- ✓ minimise reversing vehicles as much as possible
- ✓ use only designated parking areas, and always park vehicles with consideration for the needs of others
- ✓ keep dust and noise to a minimum
- ✓ always close any noise reducing engine covers while plant is in use
- ✓ direct site and activity lighting away from neighbouring properties
- ✓ tell a line manager if rubbish bins or skips are full or nearly full

- ✓ notify a line manager immediately if any fly-tipped waste is found in the area.

Don't

- ✗ park vehicles in a way that obstructs driveways to neighbouring properties
- ✗ park on pavements, footpaths or bridleways
- ✗ trespass on neighbour's land
- ✗ leave engines running unnecessarily
- ✗ shout on site or have noisy radios on
- ✗ shout or whistle at passers by
- ✗ drop litter or leave sites and surrounding areas untidy
- ✗ leave gates to the site open
- ✗ drag mud onto the roads outside the site by ensuring vehicle wheels are clean before leaving.

Toolbox talks: nuisance

Dust and air quality

What?

- ❑ dust, odours and other emissions can annoy neighbours and may cause health risks at very high concentrations
- ❑ dust can damage vegetation and crops and affect local wildlife and watercourses.

Why?

- ❑ **avoid prosecution:** emission of dark smoke from plant, chimneys and fires is illegal and is harmful to human health
- ❑ **avoid environmental harm:** dust can damage the ecology of a watercourse and affect plant growth (eg crops)
- ❑ **avoid programme delays:** regulators have the power to stop works if dust or other emissions are causing a nuisance
- ❑ **reduce health hazard:** dust may cause eye irritation or make asthma worse and could be carcinogenic
- ❑ **reduce health hazard:** emissions may cause nausea, dizziness or fainting
- ❑ **public relations:** dust can settle on neighbours' properties and cars etc, which may lead to local dispute
- ❑ **public relations:** poorly controlled emissions and odours from plant or works may lead to valid complaints.



Questions

- 1 What should be done to reduce emissions?
- 2 What is the speed limit on this site?
- 3 What sources of dust are there on site?
- 4 What is the procedure for dealing with complaints?

Do

- ✓ keep surfaces swept and damp down with water at regular intervals during dry weather
- ✓ minimise drop heights into haulage vehicles and conveyors
- ✓ ensure cutting and grinding operations are adequately shielded or wetted
- ✓ sheet over lorries carrying dry materials to or from site
- ✓ keep to site speed limits to minimise dust generation
- ✓ use the wheelwash, for appropriate vehicles, if one is provided on site
- ✓ store fine dry materials within buildings or provide adequate protection from the wind
- ✓ store bulk cement and bentonite in silos
- ✓ position silos and stockpiles away from residential areas or watercourses

- ✓ clean up or damp down any spillage of dry dusty materials
- ✓ make sure dust suppression systems are working and are effective on crushers and screeners
- ✓ notify a line manager if work activities are causing poor air quality.

Don't

- ✗ burn materials on site
- ✗ use poorly maintained plant – black smoke may give rise to poor health and can cause a nuisance
- ✗ leave plant and vehicles running if not in use
- ✗ ignore sources of dust and fumes on site, notify a line manager
- ✗ ignore complaints – respond politely and inform a line manager.

Toolbox talks: nuisance

Noise and vibration

What?

- the construction industry is one of the leading sources of noise complaints made to local authorities
- something is considered 'noisy' when the sound is unwanted by the listener
- noise and vibration can disturb local residents and give rise to complaints and delays
- noisy activities include excavation, tunnelling, concrete cutting, piling, and using un-silenced generators
- sound and vibration can travel through the ground.

Why?

- **avoid environmental harm:** noise and vibration can disturb wildlife as well as humans
- **avoid prosecution:** exceeding noise limits can result in fines
- **avoid programme delay:** local authorities have powers to stop works if noise from the site is causing a nuisance
- **avoid structural damage:** vibration may cause structural damage
- **public relations:** avoid complaints and maintain good relations with the local community.



Questions

- 1 What are the working hours of this site?
- 2 Are there areas where undue noise might cause annoyance to anyone?
- 3 What potentially noisy operations are being undertaken on this project?
- 4 Where might vibration cause a problem?
- 5 What precautions can be taken to reduce noise and vibration on this site?

Do

- ✓ if possible, restrict noisy activities to agreed times of the day
- ✓ adhere to working hours – some sites are only consented to work at certain times
- ✓ plan deliveries by arranging routes and times to minimise potential nuisance to the local community
- ✓ if possible, keep noisy plant away from public areas
- ✓ minimise drop heights into hoppers, lorries and other plant
- ✓ use local screening where necessary to reduce noise when placed between plant and a sensitive receptor (ie house), such as acoustic curtains when available
- ✓ keep acoustic doors, hoods and panels on plant closed – it does make a difference

- ✓ minimise vehicles and plant reversing – plan work to incorporate one way systems

Don't

- ✗ undertake noisy works outside of normal working hours (ie evening, at night, early morning)
- ✗ leave doors and hoods open on plant
- ✗ leave plant running unnecessarily
- ✗ use poorly maintained plant
- ✗ ignore complaints from the local community. Respond politely and pass the complaint onto a line manager
- ✗ shout or talk loudly where this could cause annoyance
- ✗ undertake activities that could cause damage to nearby structures through vibration unless approved by a line manager.

Toolbox talks: pollution prevention

Bentonite

What?

- bentonite is a type of clay that swells and gels when dispersed in water
- it acts like a liquid when agitated or stirred and like a solid when left at rest
- as mud it is used as a lubricant when drilling or pipe pushing and as slurry it is used to fill and support the sides of excavations during the construction of diaphragm walls, cut off walls, or piles
- bentonite is delivered to site as a powder or as granules before being mixed with water. The mud or slurry is pumped to where it is being used and then the excess is cleaned up
- the use of bentonite can lead to spillage around operational areas and around mixing, pumping and storage equipment.

Why?

- **avoid environmental harm:** liquid bentonite is highly polluting and if it enters watercourses or drains it can cause damage to plants and animals in watercourses
- **avoid prosecution:** if not correctly managed, bentonite in powder form can become airborne causing dust nuisance to local residents leading to legal action by the local authority
- **reduce costs:** the cost of clean-up and legal proceedings far exceeds the cost of putting proper control measure in place. Bentonite is very expensive to dispose of.

Questions

- 1 Where will bentonite be stored, mixed, pumped and contained on this site?
- 2 How will waste bentonite be stored and disposed of?
- 3 Where and how can bentonite cause pollution?



Do

- ✓ keep dry powder or granule containers closed so that bentonite cannot become airborne or be damaged by rain or moisture.
- ✓ ensure that bentonite does not spill onto the ground
- ✓ ensure that if spillages do occur they are promptly cleared up
- ✓ protect watercourses and drains from any spillage or escape of liquid bentonite
- ✓ **IMMEDIATELY** report to a line manager any incidents where bentonite is seen entering a watercourse or a drain, or is becoming airborne
- ✓ ask a line manager what to do with waste bentonite
- ✓ have contingency plans in place in case of break out or accidental release.

Don't

- ✗ leave containers or bags containing bentonite open to the air
- ✗ ignore spillages on the ground
- ✗ intentionally allow liquid or powdered bentonite to spill onto the ground
- ✗ pour bentonite into watercourses or drains
- ✗ give bentonite to third parties without checking with a line manager.

Toolbox talks: pollution prevention

Cement and concrete

What?

- cement and concrete are probably the most common materials used in construction
- cement is a highly alkaline and is corrosive
- concrete can contain additives, some of which are harmful
- if cement or concrete is allowed to enter a watercourse in an uncontrolled manner, it can have a devastating effect on wildlife.

Why?

- **avoid environmental harm:** water contaminated with cement is highly alkaline and can be toxic to fish, clog their gills and destroy spawning grounds, as well as being toxic to other plants and animals living on watercourses
- **avoid prosecution:** it is illegal to allow cement, unset concrete or washout water containing cement to enter a watercourse or drain.

Note that special permission is needed before construction work can take place in or around a watercourse.

Questions

- 1 Where are the designated washout areas on this site?
- 2 Where can bagged cement be stored on this site?
- 3 What should be done if any potential pollution incidents are seen?



Do

- ✓ be aware of all watercourses, gullies and drains before starting work
- ✓ store bulk and bagged cement and concrete additives at least 10 m away from watercourses, gullies and drains
- ✓ undertake mixing/batching works well away from watercourses, gullies and drains
- ✓ ensure watercourses, gullies and drains are protected from any nearby concreting works
- ✓ use only designated areas for concrete washout and ensure concrete delivery drivers are aware of where they are
- ✓ where necessary, protect nearby drains against washout water running into them
- ✓ notify a line manager **IMMEDIATELY** if any concrete spillages or concrete washout are seen likely to cause pollution.

Don't

- ✗ hose down spills of concrete or cement into watercourses, gullies and drains
- ✗ allow washout water to flow into watercourses, gullies or drains
- ✗ allow ready-mix trucks to washout anywhere other than in areas designated for the purpose
- ✗ wash off any tools or plant in watercourses.

Toolbox talks: pollution prevention

Cleaning plant and machinery

What?

- washing down plant and machinery, hosing down concrete truck mixers can all lead to serious pollution incidents if it is not properly carried out
- the resulting dirty water should not be allowed to enter surface water drains or road gullies, which generally discharge directly into local streams, rivers or soakaways and could encourage the spread of invasive plants and species to new areas
- careful consideration must be given to where washing down is carried out to ensure this activity is controlled.

Why?

- **avoid environmental harm:** dirty washing and rinsing water may contain dislodged mud, grease, oils, detergents, cleaning agents, invasive weeds or toxic chemicals and materials that can kill fish and other aquatic life and which may also seriously affect the surrounding environment
- **avoid environmental harm:** control and careful washing of plant and equipment can minimise the risk of further contamination of brownfield sites and potential for expensive clean-up operations
- **avoid prosecution:** it is an offence to allow polluting matter such as silt, cement, concrete, fuel, oils, cleaning chemicals and detergents to enter a watercourse, gully or drain. It is also illegal to cause invasive plants to spread to new areas
- **reduce costs:** the cost of cleaning up a pollution incident far exceeds the cost of putting proper control measures in place.

Questions

- 1 Are there any receptors on this site that may be affected by pollutants?
- 2 Is there a designated controlled wash down area on this site?
- 3 Are there alternative ways to avoid washing down?



Do

- ✓ avoid wash down on site unless there is a designated area to do so and confirm with a line manager where this area is located
- ✓ ensure that any wash down slurry or residue is contained and cannot enter watercourses, gullies or drains
- ✓ check with a line manager before using degreasing or cleansing solutions – do not just assume they can be used
- ✓ report to a line manager any washing down that may cause a pollution incident
- ✓ ensure waste slurry/mud containing invasive plants and species is disposed of appropriately.

Don't

- ✗ wash down before finding out the proper place to do it
- ✗ wash down directly into watercourses or surface water drains
- ✗ allow dirty wash down water to go down roadside gullies
- ✗ wash down near material or storage areas or immediately next to working areas
- ✗ use any more water than is necessary.

Toolbox talks: pollution prevention

Fuel and oil

What?

- poor storage, lack of care during refuelling, vandalism and poorly maintained plant can all result in spillage of fuel or oil.

Why?

- **avoid environmental harm:** even a small spillage of oil or fuel can cause damage to the environment and harm plants, animals, fish, and humans
- **avoid prosecution:** a spillage, even one caused by vandalism or during theft can result in a prosecution, a significant fine, and damage a company's reputation
- **reduce costs:** spillages will lead to clean up costs, which can be significant, often many times greater than any fine.



Questions

- 1 How far away from drains or watercourses should oils be stored?
- 2 What is the minimum capacity of a bund?
- 3 What should be done if there is a spillage?

Do

- ✓ ensure bulk fuel and oil storage tanks are bunded and that the bund has a capacity of 110 per cent of the tank
- ✓ store all containers of oil and fuel in a secure, bunded area
- ✓ regularly check tanks, containers and bunds for damage and leaks
- ✓ supervise all fuel and oil deliveries
- ✓ lock containers and tanks when not in use
- ✓ ensure a spill kit is provided adjacent to fuel storage and refuelling areas
- ✓ place a drip tray or absorbent mat under all static plant and mobile plant during fuelling
- ✓ clear up all minor spillages immediately
- ✓ use a funnel when refuelling small plant

- ✓ use an automatic shut off or pistol grip delivery system when refuelling plant
- ✓ seek advice from a line manager before disposing of waste fuel or oil, or contaminated spill granules or absorbent mats
- ✓ liaise with a line manager to organise removal of contaminated water from bunds and drip trays by an appropriate contractor.

Don't

- ✗ pour waste fuel and oil down drains
- ✗ wash fuel and oil spillages down drains
- ✗ store fuel and oil, or carry out refuelling, within 10 m of a watercourse or drain
- ✗ allow drip trays or bunds to overflow
- ✗ locate fuel and oil tanks/storage area near to vehicle routes
- ✗ leave a tank to fill unsupervised.

Toolbox talks: pollution prevention

Pumping and over-pumping

What?

Pumping

- excavations often require dewatering (ie pumping out of any rainwater or groundwater)
- this water may contain silt and/or other contaminants that, if disposed of incorrectly, could result in pollution of controlled waters (rivers, streams, groundwater, lakes and the sea)
- pumped water, unless it is absolutely clean rain or ground water, must not be discharged into watercourses, gullies drains or sewers without a permit/authorisation or consent granted by the appropriate regulator or local sewerage undertaker

Overpumping

- sections of existing sewers and pipelines are sometimes taken out of service construction or repair works
- flows can be maintained by installing temporary pumps and 'overpumping' those sections
- if not controlled correctly overpumping can cause pollution.

Why?

- **avoid environmental harm:** water pumped from excavations can be muddy (silty) and, when in previously developed or brownfield land, can be contaminated. The improper discharge of polluted water can cause serious pollution to watercourses
- **avoid environmental harm:** overpumping is often required in maintaining the flows of foul sewage that, if it is allowed



to escape to find its way into a watercourse, can have a devastating effect on wildlife

- **avoid prosecution:** it is illegal to allow polluted or silty water to enter watercourses, gullies or drains
- **avoid flooding:** if water is discharged into a sewer or gully of insufficient capacity then flooding will occur, potentially causing pollutants to enter watercourses or creating nuisance to site operations and neighbours.

Questions

- 1 Are there any consents to discharge on this site?
- 2 What is the quality of water allowed to discharge, for example clear water or silty water?
- 3 Under what conditions should a line manager be notified?

Do

- ✓ before pumping, check with a line manager what treatment systems are required before final (eg settlement tanks or lagoons, discharge over grassed areas, through silt socks or hay bales)
- ✓ check that the point of discharge is in the correct location to the sewer, manhole or gully as set out by a line manager
- ✓ check that all couplings and other pipework fittings are secure
- ✓ regularly check that any treatment systems are working and that water being finally discharged is clear of silt or solids that may cause pollution and is not causing damage to the bed or banks of any watercourse
- ✓ notify a line manager immediately if it is noticed that:
 - pollution (muddy water, oils etc) is occurring

- the discharge is causing flooding
- any pipework is damaged or connections have broken or are leaking.

Don't

- ✗ pump without prior approval from a line manager
- ✗ leave pumping operations unattended for long periods unless authorised to do so by a line manager
- ✗ continue with overpumping if the receiving sewer or pipeline cannot cope with the capacity
- ✗ ignore signs that pollution is occurring (eg muddy water entering watercourses or gullies)
- ✗ change pipework or discharge points without the authorisation of a line manager.

Toolbox talks: pollution prevention

Silt

What?

- silt is the term used for very fine sand, clay or other material carried by running water
- silt can be washed off construction sites into nearby watercourses and drains with the potential of causing blockages and leading to flooding
- the biggest cause of pollution incidents is construction operations
- pollution by silt can be caused by:
 - rainwater run-off from uncovered areas of the topsoil stripped site
 - pumping out and dewatering of excavations
 - cleaning of ditches and drains.

Why?

- **avoid environmental harm:** high levels of silt suspended in water can suffocate fish by blocking their gills, remove essential oxygen from the water, kill plants, animals and insects living in the water by stopping sunlight reaching them
- **avoid environmental harm:** silt often combines with other contaminants such as oils and chemicals potentially causing greater pollution than silt alone
- **avoid environmental harm:** silt running into drains carries the risk of blocking them and cause flooding and pollution



- **avoid prosecution:** it is illegal to allow silt to enter a watercourse or drain. Silt pollution is easily traceable to the site from where it originated. In the past it has been a major cause of prosecution.

Questions

- 1 What activities on this project could generate silt?
- 2 What causes silt to leave the site?
- 3 Where are the suitable discharge locations at this site?
- 4 Where does surface discharge on this site go to?

Do

- ✓ only discharge silty water into designated settlement systems
- ✓ check the site drainage and settlement systems are working – discolouration may indicate high pollution loading
- ✓ stop pumping and contact a line manager if there is a problem arising
- ✓ ensure that all hardstandings are kept clean – notify a line manager if an area is silty or is covered in mud
- ✓ notify a line manager immediately if silty water is seen entering a watercourse or drain. Do try to stop it or divert it away by, for example, using sand bags
- ✓ consider installing cut-off trenches or silt fences to prevent silty surface runoff
- ✓ monitor weather forecasts and plan work accordingly

- ✓ regularly check watercourses that could be affected by dewatering operations or rainwater runoff
- ✓ ensure drain cleaning operations have systems in place to intercept polluted water.

Don't

- ✗ dewater any excavation without getting permission from a line manager
- ✗ pump silty water directly into rivers, ditches or surface water drains
- ✗ strip land of vegetation unless it is absolutely necessary – vegetation reduces silt runoff
- ✗ store soil, stone or similar materials within 10 m of watercourses or drains
- ✗ dig a grip to release ponded water to a watercourse or drain.

Toolbox talks: pollution prevention

Spill control

What?

- accidental releases of oils and chemicals from construction sites make up a large number of pollution incidents that occur each year
- spills can be prevented. It is important everyone on site knows what preventative measures are in place, but if a spill does occur how to control it to minimise its impact
- fuels and oils will disperse over a significant area of water if not contained (a teaspoon of oil can cover the area of an Olympic-sized swimming pool).

Why?

- **avoid environmental harm:** spills spread very quickly and can cause damage to the environment
- **avoid prosecution:** fines and clean-up costs can be significant
- **public relations:** avoid negative publicity for the company and clients to maintain workload.

Questions

- 1 What are the spill control procedures on areas of the site?
- 2 Where is the nearest spill kit located?
- 3 Where and to whom are spills reported to on site?
- 4 What should be done with contaminated soils?
- 5 Where is the designated place for concrete washout on site?



Do

- ✓ know where all spill kits are and how to use them
- ✓ practice annual spill response drills to ensure knowledge of plans and how to use clean-up equipment
- ✓ if a spill occurs **STOP WORK** and act immediately
- ✓ if possible and safe to do so contain the spill in accordance with the spill plan
- ✓ if spillage is flammable, extinguish all possible ignitions
- ✓ contain the spill – on land use earth/sand to construct a bund around the spill to stop it spreading
- ✓ protect sensitive areas (eg watercourses or surface water drains), and use drain covers or use earth/sand to construct a bund
- ✓ in watercourses consider placing an oil boom downstream of all possible spills before work starts

- ✓ clean up the spill. Use absorbent granules/pads to mop up spills. Large pools of oil or spills that cannot be absorbed should be removed by gulper
- ✓ ensure to have the correct spill clean-up equipment, eg oil booms, chemical absorbent mats
- ✓ dispose of all contaminated materials (soil/absorbent materials) correctly – those containing substances such as oil, diesel or paint will be hazardous/special waste
- ✓ notify a line manager of actions taken.

Don't

- ✗ ignore it – **STOP WORK** and act immediately
- ✗ hide the incident – ensure it is reported to a line manager and controls implemented
- ✗ hose **ANYTHING** into surface drains.

Toolbox talks: pollution prevention

Working on or near watercourses

What?

- surface waters include rivers, streams/burns, dry ditches, lakes/lochs, loughs, reservoirs, ponds, canals, estuaries and coastal waters
- construction and maintenance activities in or near water have the potential to cause serious pollution to watercourses. This could also lead to additional expenses associated with the costs of the clean up
- some activities with the potential for affecting watercourses may require an authorisation (eg maintenance of a bridge crossing a main river)
- potential pollutants from types of works could include:
 - **silt:** can kill aquatic life by smothering and suffocating. It can also cause flooding by blocking culverts and channels
 - **cement and concrete:** are very alkaline and corrosive and can cause serious pollution
 - **chemicals and solvents:** can be toxic to plants and animals if released in to the environment
 - **bridge cleaning debris:** dust, debris and wastewater are the most common pollutants produced by structure maintenance. Abrasive blasting produces the greatest level of dust and debris
 - **herbicides:** can seriously damage water ecology
 - **waste materials:** including hazardous/special waste
- special consideration needs to be taken when working on pontoons and barges to ensure risk of water pollution is eliminated



Why?

- **avoid environmental harm:** construction and maintenance activities in or near water could seriously affect the bed and banks of a watercourse and the quality and quantity of the water
- **avoid prosecution:** it is illegal to pollute watercourses and prosecution could lead to severe fines.

Questions

- 1 What activities might cause water pollution?
- 2 Are there any pollution prevention measures in place?
- 3 What should be done to avoid water pollution?
- 4 Where should polluting materials/waste be stored?
- 5 What should be done if incidents happen?

Do

- ✓ if possible, prevent water becoming contaminated in the first place – it reduces the risk of pollution and the overall cost of control measures
- ✓ use methods of work that reduce or eliminate working in the watercourse and that do not contaminate surface water
- ✓ use materials (eg sealants, coating, oils, cement mixing) carefully to protect the environment
- ✓ store materials and waste in areas sited 10 m away from any watercourse and put containment systems and mitigation measures in place. Spill kits should be kept close to storage areas

- ✓ prevent dust or litter blowing into and run-off entering watercourses or surface water drain
- ✓ remove damaged leaking or empty drums from site immediately and dispose any drums via a registered waste disposal contractor
- ✓ ensure works are secured from vandals
- ✓ repeat incidents to site management **immediately.**

Don't

- ✗ wash anything down in a watercourse.

Toolbox talks: resource efficiency

Certified timber

What?

- the UK consumes about 17 million m³ of timber and 75 per cent is imported mainly from Europe
- to ensure that forests and their inhabitants and wildlife are not being harmed by logging operations, international schemes have been set up to monitor these operations. The main schemes are:
 - Forestry Stewardship Council Scheme (FSC)
 - Programme for the Endorsement of Forest Certification (PEFC).

Timber should only be purchased from a supplier who has obtained Chain of Custody certification. This demonstrates that there is a trail of documentation from the forest to the supplier and ultimately that the forest is being managed in accordance with the FSC/PEFC scheme requirements.

Why?

- **avoid environmental harm:** to preserve forests, their inhabitants and wildlife for future generations.

Questions

- 1 How is certified timber identified when it is delivered to site?
- 2 What should be done if the origin of timber delivered to site is unknown or unclear?



Do

- ✓ follow agreed procedures in terms of only using timber delivered to site once notified by a line manager that from a certified source
- ✓ return immediately to storage any timber suspected to not be certified and inform a line manager.

Don't

- ✗ use timber that is not from certified sources.

Toolbox talks: resource efficiency

Energy efficiency (electricity, gas, fuel)

What?

- many tonnes of emissions are produced each year through the inefficient use of energy and fuel
- emissions can be reduced avoiding unnecessary energy and fuel consumption
- switching off all unnecessary appliances and taking simple precautions when commuting to work or driving plant will make a real difference to the planet and pockets!

Why?

- **avoid environmental harm:** recent studies suggest crop failure, catastrophic changes in sea level and plant and animal extinction may result if global action is not taken
- **avoid environmental harm:** emissions (eg CO₂) are continuing to adversely affect the Earth's climate
- **avoid prosecution:** it is now mandatory for certain organisations to monitor, record and reduce their emissions
- **public relations:** avoid damaging the reputation of the company and of its clients, and maintain workload
- **reduce costs:** by using mains electric supply opposed to fuel-powered generators on site, which reduces energy consumption and emissions.



Questions

- 1 What simple steps can be taken to reduce emissions on this site?
- 2 How should energy be saved on this site?

Do

- ✓ ensure all lighting, heating and electrical equipment is switched off when not in use
- ✓ avoid unnecessary vehicle movements and journeys
- ✓ use appropriate plant for the task
- ✓ operate plant/vehicles efficiently by minimising idling time and using appropriate power
- ✓ service plant/vehicles correctly to ensure optimum performance
- ✓ use sustainable low carbon fuels
- ✓ use public transport, cycle or walk to work
- ✓ where travelling by car is unavoidable, share the journey with friends/colleagues

- ✓ ensure all unnecessary items are removed from cars and tyres are correctly inflated
- ✓ accelerate smoothly and, where practicable, use cruise control
- ✓ use local products, materials and labour.

Don't

- ✗ leave doors and windows open when air conditioning or heating is switched on
- ✗ leave external lighting on overnight unless it is a security requirement
- ✗ leave vehicle and plant engines running.

Toolbox talks: resource efficiency

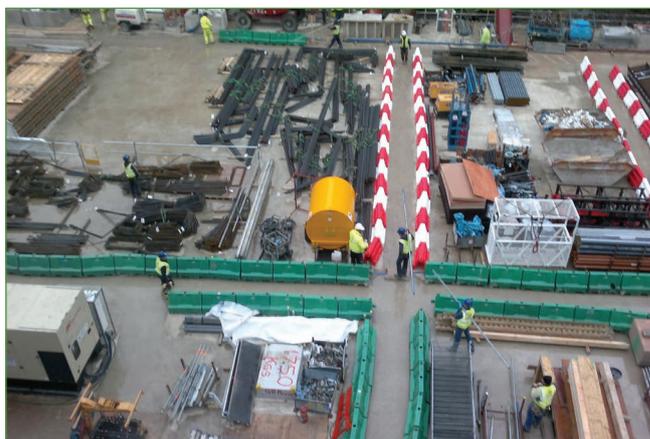
Material storage, handling and housekeeping

What?

- poor storage and handling of materials creates unnecessary waste, is a loss of resource and is very costly
- poorly stored materials increase the risk of pollution incidents and slips, trips and falls.

Why?

- **avoid waste:** reuse of materials reduces the requirement for new materials
- **reduce costs:** waste costs money – not only the cost of replacing materials, but also the disposal cost of those that are damaged (ie those not protected from the weather)
- **reduce pollution risk:** good storage reduces the risk of spills
- **reduce safety risk:** a tidy site is a safe site
- **public relations:** good housekeeping creates a positive image to the general public.



Questions

- 1 Where are the material storage and reuse areas on this site?
- 2 What should be done with surplus materials and off-cuts?
- 3 What can be done to make sure that materials are not damaged or contaminated before they are used?

Do

- ✓ avoid double handling as much as possible – less effort, less damage, less waste
- ✓ supervise the delivery of materials to ensure correct location and method of storage
- ✓ check that a material is fully used before starting a new batch. Use off-cuts where possible
- ✓ return to storage any materials that have not been used at the end of the day
- ✓ reuse formwork as often as practically possible
- ✓ designate an area for surplus concrete, aggregate and sand – these can be crushed and reused
- ✓ ensure storage of off-cuts for future use

- ✓ pick up litter
- ✓ sign and segregate material reuse areas.

Don't

- ✗ place materials in areas where they can be damaged by vehicle and plant movements
- ✗ store or leave unprotected any materials that can be damaged by weather (eg cement bags)
- ✗ over-order materials
- ✗ put materials in a skip if they still could be used
- ✗ use new lengths of pipe or cable for short pieces of work
- ✗ store together any materials that can contaminate each other.

Toolbox talks: waste

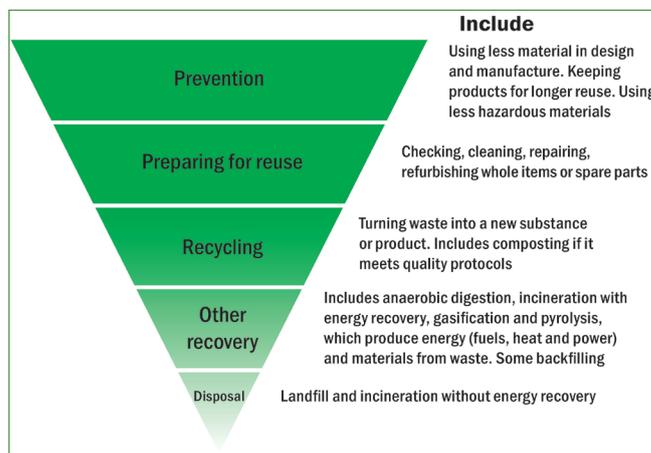
Waste hierarchy

What?

- construction generates waste and sometimes valuable materials are thrown away
- it is important to minimise waste by, in priority order:
 - prevention of waste
 - if it does occur preparing for reuse
 - before considering recycling
 - if it cannot be recycled, then other recovery (energy recovery)
 - disposal of the waste to landfill.
- there will be a resource management plan (RMP) or site waste management plan (SWMP) in place on site to manage waste. Everyone on site must follow this plan when waste is produced.

Why?

- **avoid environmental harm:** reduction, reuse and recycling waste minimises the environmental effects of disposing waste to landfill
- **reduce costs:** the true cost of waste is more than just the disposal cost and is made up of the:
 - original purchase price of the material
 - cost of unloading, handling, storage and transporting the material around site



- cost of collecting the waste or damaged materials, reloading, moving and storage waste on site
- cost of disposing waste (ie tipping charges, landfill taxes)
- cost of replacing damaged and wasted materials.
- **avoid costs:** by focusing on resource efficiency at the start of a project to avoid generating waste in the first place.

Questions

- 1 Are workers familiar with the site's RMP/SWMP?
- 2 Where are off-cuts stored for use in other activities on site?
- 3 What happens to the waste when it goes off site?

Do

Prevent

- ✓ store materials neatly to avoid damage and loss
- ✓ think of ways to reduce waste
- ✓ reduce the amount of waste created on site
- ✓ keep materials in their packaging to protect from damage.

Prepare for reuse

- ✓ keep significant off-cuts for use elsewhere
- ✓ reuse materials until no longer fit for purpose (eg shuttering, fencing)
- ✓ reuse materials for alternative purposes (eg use old shuttering ply for protection).

Recycle

- ✓ materials where possible

- ✓ segregate different waste types
- ✓ store waste in the appropriate skip or container until removed from site
- ✓ make sure skips are labelled clearly
- ✓ add 'housekeeping' to site checklists
- ✓ clear up when work is carried out.

Don't

- ✗ put waste materials into the wrong waste container
- ✗ mix different types of waste – it prevents recycling
- ✗ open new cans or pallets before the ones in use are empty
- ✗ leave materials unprotected and where they are likely to be damaged by, for example, rain or mud
- ✗ burn or bury waste – it's illegal
- ✗ leave materials at risk from site traffic movement.

Toolbox talks: waste

Demolition

What?

- the demolition of buildings and structures can have a significant impact on the environment, so it is seen as high risk and must be effectively managed.

Why?

- **avoid environmental harm:** demolition has the potential to pollute the atmosphere and watercourses
- **avoid environmental harm and prosecution:** demolition can affect protected species (eg bats)
- **avoid prosecution:** it is illegal to mix different hazardous/special waste and to mix hazardous/special and non-hazardous waste
- **avoid prosecution:** without careful management demolition works can cause contaminated land
- **avoid prosecution:** manage asbestos to prevent release during demolition.



Questions

- 1 Has any asbestos feature been identified?
- 2 Has any protected species/plant been found on site?
- 3 What kind of waste will be generated?
- 4 What should be done during demolition?

Do

Before demolition:

- ✓ refer to surveys carried out on the structure(s) that highlighted presence of:
 - protected species (especially nesting birds)/plants (eg trees protected by a Tree Preservation Order [TPO]) – mitigation measures will need to be agreed with the local authority
 - asbestos and other hazardous materials
 - local listed buildings
- ✓ ensure that supplies to the building (water and gas) are disconnected and capped
- ✓ protect drains and watercourses from dust
- ✓ identify what waste will be generated by the demolition and ensure provision if made for each segregated waste stream
- ✓ notify a line manager if any unexpected materials requiring specialist management (eg asbestos) are encountered during demolition

- ✓ make provision to channel dust suppression waters into a lined receptacle for disposal off site or where it can be sampled before disposal to drainage system if clean.

During demolition

- ✓ where possible screen works to prevent spread of noise and dust and hose any vegetation to clear dust build up
- ✓ dampen down structures and channel any liquid to a containment area
- ✓ unless approved by local authority keep demolition activities within core working hours
- ✓ arrange 'rest periods' during which noisy activities are temporarily ceased
- ✓ if using a hydro-vac ensure that removal of sludge from site has the correct waste information or if disposed of on-site ensure that a settlement system is in place.

Don't

- ✗ affect protected species/plants
- ✗ touch any bats discovered, but immediately contact a line manager.

Toolbox talks: waste

Segregation of waste

What?

- segregating wastes into hazardous/special, non-hazardous and inert for disposal can help minimise costs and maximise the opportunities for recovery and recycling
- there is a legal requirement to take all reasonable steps to segregate dry recyclables – metal, glass, plastics, paper waste, and card and food waste (Scotland) for separate collection
- check waste containers use standard signs to encourage segregation of waste.

Why?

- **avoid environmental harm:** incorrectly disposing of waste could cause water pollution and damage habitats. Landfills and waste treatment centres are specially designed to be able to handle specific wastes without causing environmental harm
- **avoid prosecution:** it is illegal to mix different hazardous/special wastes and to mix hazardous/special waste with other waste types. It is also illegal not to take all the reasonable steps to separate dry recyclables for collection
- **reduce costs:** segregating wastes can maximise recycling and can also allow certain types of waste to be recycled and reused on site.

Questions

- 1 Why segregate waste?
- 2 Where on this site is the waste storage area?
- 3 What type of storage containers for waste should be used?



Do

- ✓ look out for the standard signs. Where possible segregate wastes into the different types
- ✓ check what skips there are on site and ensure the correct wastes are placed in them
- ✓ close lids or doors on skips to prevent waste getting wet or escaping
- ✓ ask a line manager for advice if unsure about correct waste segregation on site.

Don't

- ✗ overfill skips
- ✗ put liquids and flammable liquid wastes into skips
- ✗ mix non-hazardous and hazardous/special waste.

Toolbox talks: waste

Storage of waste

What?

- allowing waste to escape into the environment not only causes nuisance to neighbours and generates a poor public image, it is illegal.

Why?

- **avoid prosecution:** it is the duty of all waste producers to prevent their waste escaping into the environment (ie wind-blown or as leachate)
- **reduce costs:** the segregation of waste into separate containers or skips can lead to lower costs by:
 - reducing disposal costs and landfill tax through preventing the contamination of inert wastes by non-hazardous and hazardous/special wastes
 - maximising the potential for reusing and recycling materials
 - making it easier to see how much of each type of waste is being produced and where efforts to reduce waste need to be targeted.



Questions

- 1 Where is the waste storage area on site?
- 2 What wastes cannot be mixed?
- 3 What type of waste needs to be banded?

Do

- ✓ keep sites tidy and collect waste regularly
- ✓ use waste containers or skips suitable for the type of waste being stored
- ✓ use skips with lids or cover them with sheets or nets to prevent dust and litter being blown out
- ✓ check the condition of containers and skips to minimise risk of accidental spillages or leaks
- ✓ use colour coding to mark waste containers and skips clearly with their intended contents
- ✓ ensure labels on containers and skips are kept in good order
- ✓ segregate waste before putting it into the designated containers skips

- ✓ locate skips away from watercourses, gullies and drains
- ✓ place liquid hazardous/special waste containers within bunds or on drip trays
- ✓ ensure protection of waste against vermin (eg rats).

Don't

- ✗ throw materials into the wrong container/skip
- ✗ contaminate one waste type with another
- ✗ mix hazardous with non-hazardous waste – it is illegal
- ✗ give waste away, all waste taken off site needs to be accompanied by paperwork
- ✗ overfill skips
- ✗ damage covers over or bunds around any skips or containers
- ✗ burn or bury waste – it is illegal.

Toolbox talks: waste

Control of road sweeper arisings

What?

- potentially harmful materials that are created as a result of on site activity that can be deposited and then transported around and off the site by plant and other site vehicles.

Why?

- **avoid environmental harm:** inappropriate discharge of arisings may result in water/ground contamination as the arisings may contain harmful substances (eg fuel residues, road salt)
- **avoid prosecution:** waste producers have a responsibility to dispose of arisings at an appropriate facility
- **public relations:** avoid damaging the reputation of the company or clients, and maintain workload.

Questions

- 1 What is the correct procedure for disposing of sweeper arisings?
- 2 Where can sweeper arisings be disposed of on this site?



Do

- ✓ use a road sweeper to keep site accesses clean and free from mud and standing water
- ✓ inform a line manager if arisings have or are being disposed of inappropriately on or off site.

Don't

- ✗ dispose of arisings on site unless authorised by a line manager and in a container
- ✗ dispose of arisings into or near drains or watercourses as this may cause pollution
- ✗ allow deposit of arisings directly on to bare ground
- ✗ use a road sweeper to clean up oil, fuel or chemicals spills – use the appropriate spill kit
- ✗ obstruct the movement of road sweepers around the site.

Toolbox talks: waste

Hazardous/special waste (aerosols, COSHH)

What?

- material(s) containing properties that may make it harmful to human health or the environment
- some products such as fluorescent tubes are always classed as hazardous/special waste, while other materials may be hazardous/special if contaminated with dangerous substances such as oil or chemicals (ie materials from a site kit used to contain a spill)
- the controls of hazardous/special waste require inclusion of full duty of care information
- there are variations across the UK administrations as to how hazardous/special waste is managed.

Why?

- **avoid environmental harm:** inappropriate disposal of hazardous/special waste may result in water/ground contamination as this contains harmful substances (eg arsenic, mercury)
- **avoid prosecution:** waste producers have a responsibility to dispose of hazardous/special waste at an appropriate facility.

Questions

- 1 Has hazardous/special waste been produced? What kind?
- 2 What should be done when producing hazardous/special waste?
- 3 How should this be segregated and disposed of?



Do

- ✓ make sure everyone knows what to do with hazardous/special waste
- ✓ store hazardous/special waste in accordance with legislation specifying the quantity, time limit and condition of storage
- ✓ follow agreed procedures regarding hazardous/special waste ensuring that all documentation (eg Hazardous Waste Consignment Note [HWCN]) is passed to a line manager.

Don't

- ✗ mix hazardous/special waste with inert or non-hazardous wastes or other hazardous/special waste.

Toolbox talks: waste

Waste Electrical and Electronic Equipment (WEEE)

What?

- WEEE is waste electrical and electronic equipment
- examples of WEEE include:
 - small household appliances (eg kettles)
 - IT and telecoms equipment
 - lighting equipment
 - electronic tools
 - monitoring and control instruments (eg protection equipment)
- new products that are placed on the market and are classified WEEE must have one of the following symbols on the item or accompanying paperwork if the item is too small:



The image on the left (with the black line) shows that the item was produced after 13 August 2005.

Why?

- **avoid environmental harm:** inappropriate discharge of WEEE may result in water/ground contamination as some WEEE are hazardous (eg refrigerators)
- **avoid prosecution:** suppliers/producers (for items purchased after 13 August 2005) or end users (for items purchased before 13 August 2005) have the responsibility to dispose of WEEE at an appropriate facility.

Note that organisations can under the legislation arrange for alternative disposal if preferable to returning to supplier.

Questions

- 1 Who is responsible for the disposal of WEEE?
- 2 How are WEEE identified?
- 3 What should be done when purchasing Electrical and Electronic Equipment (EEE)?



Do

- ✓ know what waste on site is classed as WEEE
- ✓ ensure that disposal of the waste complies with the regulations

Don't

- ✗ ignore the requirements of duty of care/hazardous waste legislation when disposing of WEEE
- ✗ mix WEEE with general construction/demolition or hazardous waste.