

## Soil Management Standards



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## 1. Introduction

The purpose of these soil management standards is to set out the requirements for effectively managing our work activities to reduce environmental impact when during earthworks or groundworks operations.

It is the responsibility of the Land & Planning Team to commission site investigations at the pre-construction stage. Where applicable, the Technical Department should obtain the relevant permissions e.g. materials management plan, waste exemptions etc. This must be recorded through the pre-start meeting process. All relevant information / licences etc. must be filed in the Project Environmental Plan (green folder).

Construction teams should ensure adequate provision is made, where applicable, to monitor earthworks in line with any agreed strategies (e.g. remediation strategy), planning conditions etc.

The Group Health, Safety and Environment Advisors will support constructions teams throughout the build process, through regular site visits, ensuring agreed processes are followed.

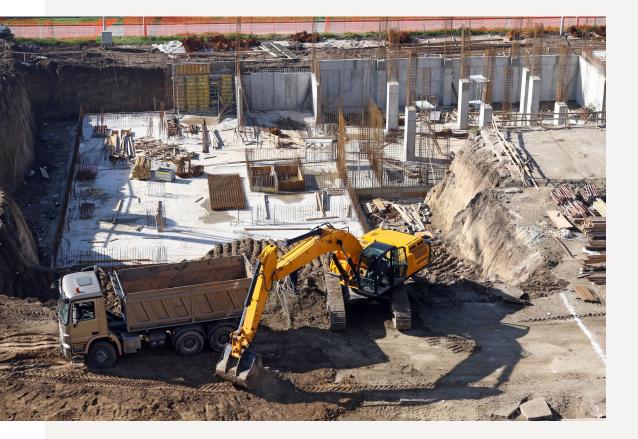




## 2. Definitions & Acronyms

Contaminated land	The legal definition of contaminated land is: Land that appears within the local authority boundaries, to be in such condition by reason of substances in, on or under land, that – Significant harm is being caused or there is a significant possibility of such harm being caused; or Pollution of controlled waters is being, or is likely to be, caused. Environmental Protection Act 1990 (Part 2A). 'Harm': harm to the health of living organisms or other interference with the ecological systems of which they form a part, and in the case of man, incudes harm to his property. If the site falls under this definition, planning consent usually requires remediation.
Waste Classification	Most wastes do not need sampling to classify them in accordance with the European Waste Catalogue e.g. metals, timber, plastics etc. Some wastes must be sampled and analysed to identify which EWC code should be used. This includes soils, asphalt suspected of containing coal tar, materials containing asbestos etc. Chemical testing is conducted to determine a waste code, this must be done before any waste soils are removed.
Waste Acceptance Criteria (WAC) Test	Required for wastes intended for disposal at landfill sites. Criteria are in place for inert waste landfill and hazardous waste landfills. A WAC test must not be used to classify waste.
Remediation strategy	A description of the works to be carried out to enable a site to be used for development without risk to the environment or human health from contamination. Including removal of hotspots bioremediation, soil treatment etc. The strategy includes target levels for contaminants based on what the site will be used for, and the likelihood of exposure to contamination.
Validation report	A report containing evidence to demonstrate that remediation objectives have been achieved. This may be required to discharge planning conditions and to submit to CL: AIRE in accordance with the Definition of Waste Code of Practice (DoWCoP) when sites are operating under a Materials Management Plan (MMP).
Environmental Impact Assessment (EIA)	A statutory assessment required for particular types of development under the Town & Country Planning Act. An EIA may require long-term environmental monitoring prior to planning consent being obtained. The development must comply with the measures set out in the Environmental Statement.





### 3. Reuse of Site Won Material

Sites may have an opportunity to reuse excavated material, avoiding significant disposal costs. This includes but is not limited to:

- topsoil
- sub/soil
- made ground

A full review of the site investigation report must be undertaken before any decision is made.

To understand the correct mechanism to be followed to ensure compliance, reference must be made to the:

Site Investigation Process Map and Materials Planning Flowchart which is found in the Materials Planning Checklist (see below).

The Technical Department must complete the materials planning checklist for all developments and action, as necessary.

Refer to EMS form <u>012</u> – Materials Planning Checklist (England & Wales) Refer to EMS form <u>012</u> – Materials Planning Checklist (Scotland)



#### Clean & naturally occurring material

Clean & naturally occurring material can be reused on the site of origin without any regulatory controls. The Technical Department must complete the materials planning checklist

#### Refer to EMS form <u>012</u> – Materials Planning Checklist

The Materials Planning Checklist must be completed by the Technical Department and filed within the Project Environmental Plan (PEP). This will provide suitable lines of evidence, demonstrating that the material is both suitable for use, and has certainty of use, without the need for a Materials Management Plan with Qualified Persons sign-off.



#### 4.1 Definition of Waste: Code of Practice (DoWCoP)

All sites proposing to reuse excavated material, which is either a) contaminated or b) not clean and naturally occurring, must comply with the CL: AIRE (Contaminated Land: Applications in the Real Environment) Definition of Waste Code of Practice (DoWCoP), with a suitable Materials Management Plan (MMP) and associated Qualified Person sign-off in place.

The DoWCoP is managed by CL: AIRE, which is an independent body that promotes the sustainable remediation of sites and reuse of materials. When followed it allows materials to be de-classified as waste and reused on the site of origin, or other development sites. It is an independent, not-for-profit organisation that acts for the development industry and regulators.

Contaminated and non-contaminated material may be used as a non-waste providing ALL the following criteria are met and documented in an approved Materials Management Plan (MMP) with Qualified Person sign-off:

- Use of the material will not increase the risk of harm to the environment or human health;
- The material is suitable for use;
- There is a certainty of use; and
- Materials should only be used in the quantity necessary for that use.

An MMP must be in place prior to breaking ground.

4.1 Definition of Waste: Code of Practice (DoWCoP)

Options allowing for the reuse of soils:

Site of origin

Naturally occurring soils used on the site of origin for construction purposes (e.g., landscaping / planting within planning consent requirements) is not classed as waste. Soil can be used without consideration for regulatory controls.

**Note** – as per Section 3 above, in this scenario, we will complete the Materials Planning Checklist and evidence suitability of soils for reuse within the PEP, without making a declaration to CL: AIRE.

Import (from development site)

Soil imported directly from other construction / development sites is not classed as waste if it is imported under an MMP developed using the CL:AIRE Definition of Waste: Development Industry Code of Practice.

Soil imported directly from other construction / development sites without using the CL:AIRE DoWCoP is classed as waste (i.e. it was surplus to requirements on the site of origin).

In certain circumstances, contaminated soils can be moved from one development site to another. Speak to your local Group Health, Safety and Environment Advisor for further advice.



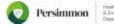
#### 4.2 U1 Exemption

In England and Wales, up to 1,000 tonnes of non-hazardous soil can be imported under a <u>U1 exemption</u> (from the Environmental Permitting Regulations) that has been registered with the Environment Agency (in England) or Natural Resources Wales (in Wales). Further information can be found in the waste management standard.

Refer to: EMS standards– Waste Management







SEPA has adopted the <u>regulatory position</u> that, in certain circumstances, surplus natural topsoil and subsoil from "greenfield" sites will not be classified as a waste, "greenfield" means land that has not been previously developed and is uncontaminated If producers and users of greenfield soil comply with this guidance, SEPA will not regulate its use under waste legislation.

#### 5.1 Greenfield soils

On-site reuse

Clean & naturally occurring material can be reused on the site of origin without any regulatory controls.

Off-site reuse

Before excavation operations begin, the person responsible for the excavation site must establish that there is an identified and certain end-use for the greenfield soil.

Uses covered by the regulatory position:

- Use of greenfield soil from one development on another development where the soil is required for engineering works as per the planning permission. Such uses include soil for front and rear gardens.
- Use of greenfield soil in developments on brownfield land to meet site-specific capping requirements for remediation.
- Use of greenfield soil in sustainable urban drainage schemes (SUDS).
- Use of greenfield soil in the construction of roads and road verges.

#### 5.1 Greenfield soils

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The upper limits listed below must be followed for approved uses of soil in construction projects. Uses at depths greater than these must be carried out under a relevant exemption

Soil type	Depth (mm)
Topsoil	100–150
Subsoil	300–450

#### **Declaration**

In order to benefit from this regulatory position, the producer or receiver of the soil must:

- complete and sign a single page declaration form;
- send this declaration form to the SEPA office nearest to where the soil is to be used.

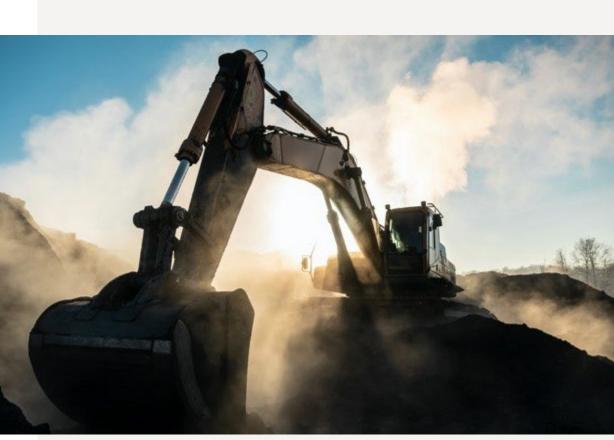
This must be done before the soil is despatched to the receiving site.

If soil is to be delivered to more than one site, declaration forms must be completed for each receiving site. A copy of the declaration form should be retained for two years.

SEPA will not issue a formal acknowledgement receipt of the declaration form(s), but the transfer and use of the soil may be audited to ensure full compliance with this guidance. For further details of the circumstances when this regulatory position applies, please contact your local Group Safety, Health and Environment Advisor.

Excavated contaminated soil requiring treatment before it can be used will also be regulated under waste legislation. Treatment of waste soil and groundwater must be carried out within the terms of a waste management licence (either a mobile plant licence or site licence).





## 5. Reuse of Soils in Scotland

#### 5.2 Brownfield soils

SEPA has adopted the regulatory position that, in certain circumstances excavated brownfield soils can be used on-site without treatment, strict rules apply.

This guidance sets out how SEPA will regulate the treatment and/or use of contaminated materials only at the site of excavation. It does not apply to the use of such materials away from the site of excavation, such activities will be regulated under waste legislation.





#### 5.3 On-site use without treatment

Materials containing contaminants can be used on site for construction and engineering purposes without treatment; however, this will depend on:

- the risks and pollutant linkages identified during the site investigation; and
- the measures to mitigate those risks described in the remediation plan.

SEPA will not regulate under waste management controls the use of excavated materials on the development or remediation site (either through the planning or contaminated land regimes) where a remediation plan is in place incorporating all the following six criteria:

- 1. The use is a necessary part of the planned works.
- 2. The material is suitable for that use.
- 3. The material does not require any processing or treatment before it is reused.
- 4. No more than the quantity necessary is used.
- 5. The use of the material is not a mere possibility but a certainty.
- 6. The use of the soil will not result in pollution of the environment or harm to human health.

The remediation plan must be agreed with the local authority (or SEPA if the site is a special site). SEPA will work with the relevant planning or Part IIA authority to ensure compliance with the remediation plan.

Any use of materials that do not meet the six criteria will be regulated by SEPA under waste management controls. In most cases, material use that does not meet all the criteria will be required to be:

- treated prior to reuse;
- removed from site as waste; or
- considered as disposal of waste by landfill.

#### 5.4 On-site use with treatment

Under waste legislation the treatment of contaminated soils is considered a waste treatment operation. As such, the treatment of soils (by use of mobile plant) falls under Regulation 12 of the Waste Management Licencing Regulations 1994. The treatment of groundwater falls under Schedule 10, Part 2 of the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR).





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#### 5.5 Conditions of use

The conditions of reuse for treated materials on the site of excavation are similar to those set out for untreated material in Section 4.4.1 above. The only distinction here is that the materials are being treated prior to reuse, which requires a mobile plant licence. All the following five conditions must be met:

1. The use is a necessary part of the planned works.

2. The material is suitable for that use.

3. No more than the quantity necessary is used.

4. The use of the material is not a mere possibility but a certainty.

5. The use of the soil will not result in pollution of the environment or harm to human health.

Before the operation begins, the licence holder must provide details of the proposed use and the treatment targets in the site specific working plan. Extracts from a remediation plan agreed with the local authority (or SEPA) must form part of this evidence. In general, SEPA will not scrutinise the derivation of treatment targets agreed with a local authority. However, SEPA will regulate to ensure that the targets are met and, where they are not, that suitable alternative arrangements are made.

Following treatment, SEPA will require written confirmation from the licence holder that:

• the soil has been treated successfully;

• the treatment targets have been met

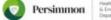
#### 5.6 Off-site treatment (and use)

SEPA will allow the use of treated materials at the source site (i.e. site of excavation) under the mobile plant licence for the treatment site without requiring an additional waste management licence or exemption provided the following conditions are met:

- Both the source site and the treatment site are defined in the site-specific working plan for the treatment site.
- The details of the use are provided and comply with the conditions of use given in Section 4.4.3 above.
- Soils from different sites are not mixed. Treatment areas, stockpiles, biopiles, etc at the treatment site covered by the mobile plant licence to ensure segregation of materials received.
- A full mass balance approach has been taken that shows quantities imported and exported, matched to transfer notes/consignment notes.

If these conditions are not complied with, reuse of the returned materials at the source site will require specific and separate (from the treatment site) authorisation from SEPA under waste legislation. Material used anywhere other than the site of excavation will require a waste management licence or exemption.

Refer to EMS form <u>012</u> – Materials Planning Checklist (Scotland)





# 6. Import of topsoil – England and Wales

#### 6.1 Manufactured topsoil

Topsoil imported from soil manufacturers is not classed as waste but must meet the requirements of BS 3882:2015. Environment Agency guidance <u>Use of manufactured topsoil: RPS 190</u> states that you must not use more than 1,000 tonnes of manufactured topsoil.

If the development is required to import >1,000 tonnes of manufactured topsoil, then a Materials Management Plan (MMP) is required. This must be in place prior to importing any topsoil to site.

Note than the MMP can also include other suitable materials, as well as topsoil, where required.

6. Import of topsoil – England and Wales

#### 6.2 Import of topsoil from development sites

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#### >1,000 tonnes

If topsoil is being imported from another development, an MMP is required if the tonnage is >1,000 tonnes.

#### ≤1,000 tonnes

Up to 1,000 tonnes of topsoil can be imported from another development site with a U1 exemption registered for the receiving site. Records of material imports must be maintained to demonstrate compliance with the exemption requirements i.e. you have not exceeded the limits.

#### Refer to EMS guidance – Topsoil Purchasing & Use

Soils that are not suitable for use or are surplus to requirements are waste. The use, treatment, storage and disposal of waste soils are subject to environmental permitting legislation. The transport of waste soils is subject to the duty of care.

Refer to EMS standards – Waste Management

Prior to any works commencing, the potential impacts from earthworks and contaminated land must be assessed using relevant pre-construction information and completion of the environmental aspect & impact assessment form. These initial assessments must identify any control measures required to reduce the impact of our activities

#### Refer to:

#### EMS form <u>002</u> – Environmental Aspect and Impact Assessment

Potential environmental impacts and control measures must be communicated to all relevant operatives and sub-contractors. Subcontractors must also include relevant control measures in their own risk assessments and method statements. Control measures must be monitored to ensure they are in place when required, effective and maintained throughout the works.

Relevant Toolbox Talks should be undertaken to communicate any sitespecific requirements on an on-going basis.

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#### 7.1 Contamination Assessment

The developer is normally responsible for identifying what contamination is present is on the proposed site and ensuring that the necessary steps are taken to meet legal and planning requirements. An environmental impact assessment (EIA) (remember, this is different from the environmental aspect and impact assessment) may have been completed for the development which includes measures required to prevent or reduce environmental impacts.

The requirements of any planning consent (including relevant recommendations from the EIA process) must be incorporated into the project controls. The environmental aspect and impact assessment should include whether the works are likely to encounter any ground or water contamination.

If the presence of ground or water contamination is known or suspected, adequate financial provision must be made to the cover the associated commercial risk.

Reference should be made to all existing documentation relating to the proposed works and the potential for the presence of contamination.

#### 7.1 Contamination Assessment continued

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Documents are likely to include:

- Planning authority public registers.
- Site / ground investigation reports.
- Phase I Desk top study and site walkover survey to determine the potential for contamination, outline conceptual model (source, pathway, receptor to establish potential pollutant linkages) and preliminary risk assessment.
- Phase II Intrusive site investigation to determine the actual presence and distribution of contamination and a detailed risk assessment of risks posed to human health and the environment. Includes an evaluation of remediation requirements.
- Phase III A detailed remediation strategy setting out requirements for managing the contaminated land based on the proposed end use of the site.
- Phase IV Validation / verification that the remediation has met the requirements of the remediation strategy in relation to removing or treating contamination. A validation / verification report is required to confirm this.
- Soil testing results.
- Groundwater and ground gas testing / monitoring results.

#### 7.1 Contamination Assessment continued

Any information relating to soil or groundwater testing conducted must be obtained prior to any works commencing. If potential contamination is known or suspected on site and no such testing has been carried out, we must ensure that the required investigations are undertaken, the associated risk is determined, thereby reducing or eliminating our liability.

Site investigations should comply with BS10175 and be undertaken by competent consultants, ideally with access to a Specialist in Land Contamination (SiLC).

The results from any contamination survey carried may be required to be passed on to the local planning authority for them to determine whether the land is classified as contaminated under the Environmental Protection Act (1990).

This survey must be carried out by a competent person and should include:

- The current surrounding land use; geology and hydrology.
- Site history and previous land use.
- Possible contamination sources.
- Potential risks to the environment; release of contaminants etc.
- Development of a contaminated land exposure model (including source, pathway, receptor); highlighting any 'hot-spots'.
- Recommendations for further detailed site investigations.

#### 7.1 Contamination Assessment continued

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Detailed site investigations must include:

- Method statements and risk assessments for carrying out intrusive survey works.
- Sampling strategy and methodology.
- Target contaminants and the relevant justification for their selection.
- Investigation results.
- An appropriate generic / detailed quantitative risk assessment model.
- Full interpretation of results including waste classification for all samples taken and waste acceptance criteria test results for material likely to be sent to landfill.
- Recommendations for remediation of contamination and / or a 'remediation strategy'.

Any laboratory engaged to process samples on our behalf must be UKAS certified. We must also ensure that the relevant documentation is retained for use within the validation report to demonstrate compliance with this requirement. A validation report is produced to demonstrate that a remediation strategy has been implemented and has been successful.

#### 7.2 Managing contamination

The financial costs and time delays associated with the management of contaminated land and groundwater can be considerable, so it is essential that full consideration be given to this matter.

A site plan should be marked up showing the locations of existing contaminated land and potential sources of further contamination. Such features may include:

- Oil / fuel storage containers
- Areas of stunted vegetation growth
- Areas of ground that are known or suspected to contain pollutants (hot spots)
- Any drains, watercourses or standing water that may be susceptible to pollutants
- Any land surrounding the site that may be a potential source of pollution

This is not an exhaustive list and any additional information that may be of relevance should be added.

Any sub-contractor (or their sub-contracted haulage companies) removing waste soils, stones, concrete etc. from any of our sites must do so in accordance with the Waste Management Standard.

Particular attention must be paid to sub-contractors dealing with contaminated soils or soil remediation activities to ensure that they are suitably competent to undertake the works.

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## 7. Managing Earthworks and Contamination

#### 7.2 Managing contamination continued

Where the presence of contaminated land is known or suspected to exist, a suitable quarantined area should be provided for the stockpiling of any contaminated arising's prior to removal from site or remediation. We must ensure that:

- Any quarantined soils are placed on an impermeable liner to prevent contaminants from leaching into the ground below
- Suitable measures are put in place to contain surface water run-off from contaminated material in order to prevent any uncontrolled discharge of contaminated effluent
- Contaminated materials are covered to prevent the generation of windblown dust and the ingress of rainwater where practical
- Storage areas are located away from any drains or watercourses
- Site access or egress routes and are clearly signed to alert all personnel to the presence of contaminated soils
- Contaminated areas are cordoned off to prevent the spread of the contamination, thereby complying with health and safety requirements

Prior to carrying out any remediation, reuse or disposal of contaminated soils or groundwater, the project team must consult with the local Group Health, Safety and Environment Advisor to ensure that all applicable legislative requirements are met.



#### 7.2 Managing contamination continued

This may include:

- Environmental permits / mobile plant licences being in place for any processing or treatment plant;
- Waste classification being undertaken to identify relevant list of waste / European waste codes for the material;
- Waste acceptance criteria (WAC) testing being required if the material is being sent to a landfill; and
- Those engaged to carry out remediation activities under a mobile plant licence should hold a relevant WAMITAB Certificate.

Where a remediation strategy has been employed, we must ensure that a validation report is produced to confirm that the remediation objectives have been achieved and all conditions relating to the remediation of the site have been discharged. A copy of this validation report must be retained, and copies submitted to the local planning authority as appropriate.

#### 7.3 Unknown Contamination

Where unexpected land and or groundwater contamination is identified during the works, we must ensure that:

- All works with the potential to disturb the contamination within the immediate vicinity are stopped;
- The discovery is reported to the local Group Health, Safety and Environment Advisor;
- The impacted area and any contaminated arising's are segregated from unaffected works; and
- Testing and analysis is carried out to identify the nature and extent of the contamination.

In addition, if contaminated materials are intended to be removed off site for disposal, refer to the waste management standard regarding waste classification and WAC testing. All waste movements must conform to duty of care requirements.

Should unexpected contamination be discovered, the landowner may be required to inform the Local Authority - Environmental Health Department. Areas of contamination should remain undisturbed where possible.

Where this is not possible, the Group Health, Safety and Environment Advisor and a suitably qualified environmental consultant should be consulted in order to develop an effective remediation or disposal strategy.



Soil stripping and / or stockpiling activities can result in soil erosion and surface water run-off contaminated with sediment. Any water courses, drains, ecologically sensitive areas or public / private areas that could be affected should be identified.

For projects that involve a significant groundworks package, a plan forming part of the method statement should be developed that describes the movements and storage arrangements of all soil on site in accordance with the requirements of this standard. This method statement should be developed prior to any works commencing.

### 8.1 Soil Stripping

To ensure successful soil reinstatement, soil stripping should be avoided before or after periods of heavy rainfall. Soil should be stripped to predefined depths and topsoil must be segregated from subsoil.

Consideration should be given to surface water run-off from stripped area and control measures put in place to prevent sediment and silt entering drains or watercourses e.g. silt fencing.

## 8. Soils Management

#### 8.2 Soil Storage and stockpiling

The following soil storage practices should be adopted:

- Soil storage periods should be kept to as short a duration as possible
- Different soil types should be stored separately (e.g. sands from clay soils)
- Topsoil and subsoil should be stored separately
- In a large topsoil stockpile, adequate oxygen supply is unlikely to penetrate more than 1m from the stockpile surface. Stockpiles should therefore be as low and narrow as possible
- No stockpile should exceed a height of 4m note that a **Temporary Works** design will likely be required for the temporary storage of soils
- Stockpile edges should be lightly compacted and at an angle of no more than 45° to reduce rainfall penetration and avoid excessive erosion
- Stockpiles should be protected to minimise erosion and weed infestation if storage is to be longer than 6 months (e.g. seeding, covering or light compaction)
- Stockpiles should be protected (e.g. using berms) from flooding to avoid soil losses
- Silt control methods (e.g. silt fences) should be used to prevent run-off contaminating watercourses
- Appropriate dust control measures must be employed e.g. sheeting or seeding of stockpiles, or damping down
- Traffic should be kept off soil stockpiles as much as possible.

It is good practice to draw up a site management plan to identify the source material of any stockpile, the intended duration of storage and its intended use. This could form part of a sub-contractor's method statement. Soils cannot be moved off-site for storage elsewhere pending reuse on site, , unless approval has been provided by the relevant regulatory authority.



#### 8.3 Soil reinstatement

We must avoid reinstating soils following heavy periods of rainfall. Soils should be reinstated in the correct sequence i.e., subsoil first followed by topsoil.

We must ensure that subsoils are appropriately compacted to maintain natural drainage patterns and avoid undue settlement. After the subsoil has been returned and the land profiled, the surface should be loosened and contoured in keeping with the adjacent undisturbed area.

Once prepared, topsoil should be redistributed over the entire area to the specified depth and then thoroughly loosened in areas that are to be landscaped (as may be detailed in an approved landscape plan) to remove any compaction and promote vegetation growth.

Where a significant soil erosion risk may exist after landscaping, we should ensure that suitable, adequate, and effective temporary and / or permanent erosion control measures are implemented to:

- Maintain the depths of reinstated soils;
- Avoid the loss of reinstated soils;
- Avoid any form of soil movement e.g., slumping or subsidence;
- Avoid off-site pollution as a result of surface water run-off containing sediment; and
- Prevent vegetation loss or damage by the washing-out of seeds and plants.



## 8. Soils Management

#### 8.4 Surplus Soil

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If at the pre-construction or construction phase it is identified that there is a surplus of soil, we should ensure that the best practicable option is identified and adopted to reduce the amount of soil that is removed from site.

The general principle should be for all soils to be utilised on site where reasonably practicable and safe to do so.

If soils are to go off-site, we should prioritise sending to other development sites with the relevant permissions in place. Sending soils to landfill should be avoided, where possible.

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## 9. Monitoring

Site management must monitor earthworks and contaminated land issues via daily site checks. The Group HS&E Department monitors compliance with these standards via regular site HS&E inspections.

## 10. Further Reading

Refer to:

EMS <u>guidance</u> – Topsoil Purchasing & Use EMS <u>guidance</u> – Reusing Excavation Materials EMS <u>guidance</u> – Emergency Planning and Spill Response EMS <u>guidance</u> – Persistent Organic Pollutant (POPS) Chemicals EMS <u>guidance</u> – Environment Guide Getting Your Site Right

