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West Lothian Council

Planning Services
Development Planning & Environment

PG planning GUIDANCE

PLANNING GUIDANCE (PG)

Soil Management & After Use of Soils on Development Sites

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Soil Management & After Use of Soils on Development Sites

1. Introduction

Complaints are often received by the council about flooded or waterlogged gardens or failed landscaping on development sites, which can be the result of poor soil treatment, reinstatement and planting procedures.

The "West Lothian Soil Sustainability Report", originally published in 2004, and under review, indicates that the majority of soils in West Lothian have a soil texture ranging from clay to sandy clay loam. This high clay content often results in the worst drainage conditions.

In line with good practice for sustainable use of soil, as set out in the local development plan, there is a need for good soil management procedure to be in place before the commencement of specific developments on site, which should be implemented during, as well as after, construction.

2. Purpose and Aim of the Planning Guidance

The purpose and aim of the Planning Guidance is to:

- conserve prime quality soils, as an irreplaceable natural resource where greenfield sites are being developed;

- minimise problems, like flooding, for development sites and adjacent land uses, where soil has been poorly managed during the course of construction; and

- to ensure that sites are prepared more effectively for future landscaping and open space use.

3.The West Lothian Local Development Plan

The West Lothian Local Development Plan includes policy ENV 5 which relates to soil sustainability plans and provides the context for this Planning Guidance.

Policy ENV 5 – Soil Sustainability Plans

"On all greenfield development sites over 1 ha, an assessment of soils will be required in relation to their sustainable re-use for landscape, habitat creation and open space provision and for their capacity to absorb water. These Soil Sustainability Plans, to be submitted with relevant planning applications will include soil identification for after-use purposes, top-soil handling, soil management during construction, site restoration, open space drainage and post-development monitoring.

The terms of policy EMG 6 will also require to be met"

In response to concerns about flooding and poor landscaping and to ensure best practice in soil management this Planning Guidance has been prepared and will be applied when determining planning applications.

4. Planning Guidance

When proposing development applicants will be required to meet the following requirements:

Large sites

On large greenfield sites, over 1.0 ha, applications for planning permission in full or for matters specified in conditions (MSC) shall be accompanied by a Soil Sustainability Plan (SSP).

If an application is for planning permission in principle, a planning condition will be imposed requiring a Soil Sustainability Plan as part of the matters specified in conditions. Subsequent smaller phases of development, which result from a larger overall site, will also be subject to these requirements.

Small sites / Brownfield sites:

On smaller sites, and large brownfield sites, where consultation with the council's Flood Risk Management Team has highlighted specific flooding, drainage issues, or particular reinstatement needs for landscaping and after-use proposals, planning conditions will be imposed which ensure soil conservation and minimise the risk of compaction.

Alternatively, consultation may raise the requirement for the submission of a full Soil Sustainability Plan either prior to the grant of planning permission, or before work starts on site. This would be on sites which are long standing greenfield sites or abut sites with known soil quality

5. Soil Sustainability Plans and Planning Conditions

When preparing a Soil Sustainability Plan (SSP) the following factors will require to be considered and reflected in any planning conditions imposed on any planning consent:

- soil analysis and assessment of the whole development site soil types prior to development. (This will need to follow approved standards of sampling and analysis of Scottish soils);
- risk assessment before moving soil;
- soil archaeology assessment, including location of archaeological evidence, historical landforms and landscape elements (if appropriate and subject to comment from West of Scotland Archaeological Services (WoSAS) who inform the council on these issues);
- good practices for handling, storing and reusing soils (as outlined in Annex A of this Planning Guidance);
- site restoration proposals, including assessment of suitability of soil properties for type of landscaping and planting proposed;
- open space drainage proposals;
- correction of mineral and nutrient deficiencies;
- soil erosion mitigation measures; and
- monitoring of soil post-development.

Consequently, a Soil Sustainability Plan should include the following:

1. soil maps (following Scottish Soil Classification or 'WRB standard' at a scale appropriate for sites management), including variation in depth of topsoil / subsoil, and any features of interest identified in the archaeological and risk assessment surveys.

2. map of proposed areas to be stripped and left in-situ; including scheduled of access paths for construction operations.

3. detail on specific methods for stripping, stockpiling, re-spreading and ameliorating the soils.

4. map of location of soil stockpiles and content (e.g. Topsoil type A, subsoil type B); including expected timing, scale of creation, management and removal of material.

5. schedules of volumes for each material; including identification of any shortcomings and need for import topsoils, or creation of topsoils.

6. proposals for monitoring suitability of reinstated materials in line with site restoration proposals (depth of topsoil, soil analysis).

7. expected after-use for each soil whether topsoil to be used on site, or sold off-site, or subsoil to be retained for landscape areas, used as structural fill, or for topsoil manufacture.

8. identification of person responsible for supervising soil management.

6. Implementation

The council is committed to ensuring the conservation and sustainable use of soil, as a valuable natural resource across West Lothian. Therefore, where planning conditions are imposed on planning permissions, or specific working practices are recommended in approved Soil Sustainability Plans, non-compliance will result in the council serving breach of condition or stop notices.

In addition to imposing conditions, Annex A and Annex B to this Planning Guidance will be issued alongside any planning consents in the same way that a landscape specification is currently enclosed giving more technical advice and will include details such as appropriate weather and times of year for handling soil; acceptable heights of soil dumps; recommended methods for controlling weeds on soil dumps and optimum depths of top-soil depending on the eventual end use.

7. Examples of Standard Planning Conditions related to Soil Management

Condition 1: During Construction / compaction - landscaping

During construction, the developer shall employ best practice techniques, as outlined in the Planning Guidance Note on Soil Sustainability for Site Agents & Contractors (2020), to minimise the risk of compacting sub-soil and damaging the structure of top-soil to be used in proposed garden and open space areas.

When it is not possible to avoid the compaction of sub-soil, such as in the immediate environs of a proposed structure, the developer shall ensure that all debris is removed from site and intensive methods of soil cultivation and de-compaction are employed prior to the spreading of top-soil.

Condition 2: Soil Removal / Stripping top & sub-soil

The removal of soils from greenfield sites shall be carried out in dry weather, and the stripping of top-soil and sub-soil shall be carried out as separate operations.

Condition 3: Soil Dumps

Soil which is to be re-used on the site shall be stored in soil dumps as outlined in the "Planning Guidance Note on Soil Sustainability for Site Agents & Contractors" (2020) and 'Best practice specification for handling of soil on Development Sites (2020).

*The **location**, **profile** and **height** of these dumps shall be agreed in writing with the Development Management Manager prior to the start of soil stripping. Top-soil shall be first removed from areas on which sub-soil is to be stored, and top-soil and sub-soil shall be carefully stored in separate dumps.*

8. Review

Better and tighter control over not only soil conditions, but others such as landscaping, will through a Start Notice require the purification of conditions before any work can start on site.

This Planning Guidance will be subject to review when considered necessary, in order to take into account the introduction of new secondary planning legislation or regulations arising from the Planning (Scotland) Act 2019 and any future improvements in working practices for soil management.

Annex A

Best practice specification for handling of soil on Development Sites (NB: to be issued with planning permissions for relevant sites)

Introduction

Soil is a fundamental but finite resource. Some of the most significant impacts on soil result from construction activity, yet it appears that there is a general lack of awareness and understanding of soil within the construction industry.

As defined in the Environmental Impact Assessment process, applicants can minimise the direct effects of a project on the existing use of the proposed site, or proposed uses near the site, by the application of good design principles, including the layout of the project and the protection of soils during construction.

This Best Practice Specification has been developed by West Lothian Council to assist anyone involved in the construction sector to better protect the soil resources with which they work. By following this specification this will not only assist in helping to protect and enhance the soil resources on site, but may also achieve cost savings.

The aim is to reduce incidence of flooding and waterlogging in development and failed landscaping due to unsuitable soil handling during construction.

General principles of good soil practices during construction drawing from existing information (DEFRA 2009) are set out and apply to 'greenfield land' and some 'brownfield land' where the conditions for it to be designated as contaminated land (significant harm or significant possibility of such harm) under Part 2A of the Environmental Protection Act 1990 are present. Specific consideration related to the handling and management of contaminated soils are not covered in this Planning Guidance and are the subject of separate policy guidance relating to contaminated land.

The principles do not apply to organic soil (soil with peat layer more than 50cm depth) where specific consideration for the handling and storage of peat will be required. For development on peat soil refer to SEPA guidance. Where such development is unavoidable, handling and reuse of peat soil will require specific consideration to reduce loss of carbon.

Construction activity can have adverse direct impacts on the soil resource and its functions (i.e. soil supports biodiversity, stores water, sequesters carbon, mitigates flood impact and pollution), in a number of ways by:

- covering soil with impermeable materials, effectively sealing it results in loss of soil and soil functionality (drainage, flood mitigation);
- contaminating soil as a result of accidental spillage, or the use of chemicals;
- over-compacting soil through the use of heavy machinery, or the storage of construction materials;
- reducing soil quality, for example by mixing topsoil with subsoil; and
- wasting soil by mixing it with construction waste or contaminated materials, which then have to be treated before re-use, or even disposed of at landfill as a last resort.

Construction activity can also have longer term impacts on the quality and function of reinstated soils and landscape by:

- reducing soil quality, (for example by mixing topsoil with subsoil reduces top soil quality); and
- introducing unsuitable material in soils (Non-native invasive species, unsuitable soil type for reinstated habitats and species).

Key Messages

Pre-construction planning / Planning Application stage

- Whether an Environmental Impact Assessment is required or not, developers should have a soil resource survey carried out on site by a suitably qualified and experienced soil scientist or practitioner (e.g. a member of CIEEM or the Institute of Professional Soil Scientists – https://soils.org.uk/), at the earliest convenience and prior to any earthworks operations. It can be combined with a geotechnical or geo-environmental survey, provided the relevant expertise is applied.
- Incorporate the results of the soil resource survey into the site working strategy (e.g. Site Waste Management Plan), ensuring liaison between the soil resource survey and other ground investigations.
- Ensure that you are informed of and follow waste regulations as necessary.
- For all greenfield site >1ha, prepare a Soil Sustainability Plan (SSP) as referred to in Policy ENV 5 of the West Lothian Local Development Plan (2018). This will include the areas and type of topsoil and subsoil to be stripped, haul routes, the methods to be used and location, type & management of each stockpile.
- For small sites (<1ha) and brownfield sites, requirement for a Soil Sustainability Plan (SSP) may rise from consultation with the council where specific flooding, drainage issues, or particular reinstatement needs for landscaping and after-use proposals arise.

Soil management during construction

- Record any substantial change to the Soil Sustainability Plan (SPP). For multi-phase development with included stages of re-instatement and stockpile movement, keep a record of all soil movements and type of material handled.
- When stripping, stockpiling or placing soil, do so in the driest condition possible and use tracked equipment where possible to reduce compaction.
- Confine traffic movement to designated routes.
- Keep soil storage periods as short as possible.
- Clearly define stockpiles of different soil materials and ensure that slope and height of stockpiles is appropriate for material stored.

Landscape, habitat or garden creation

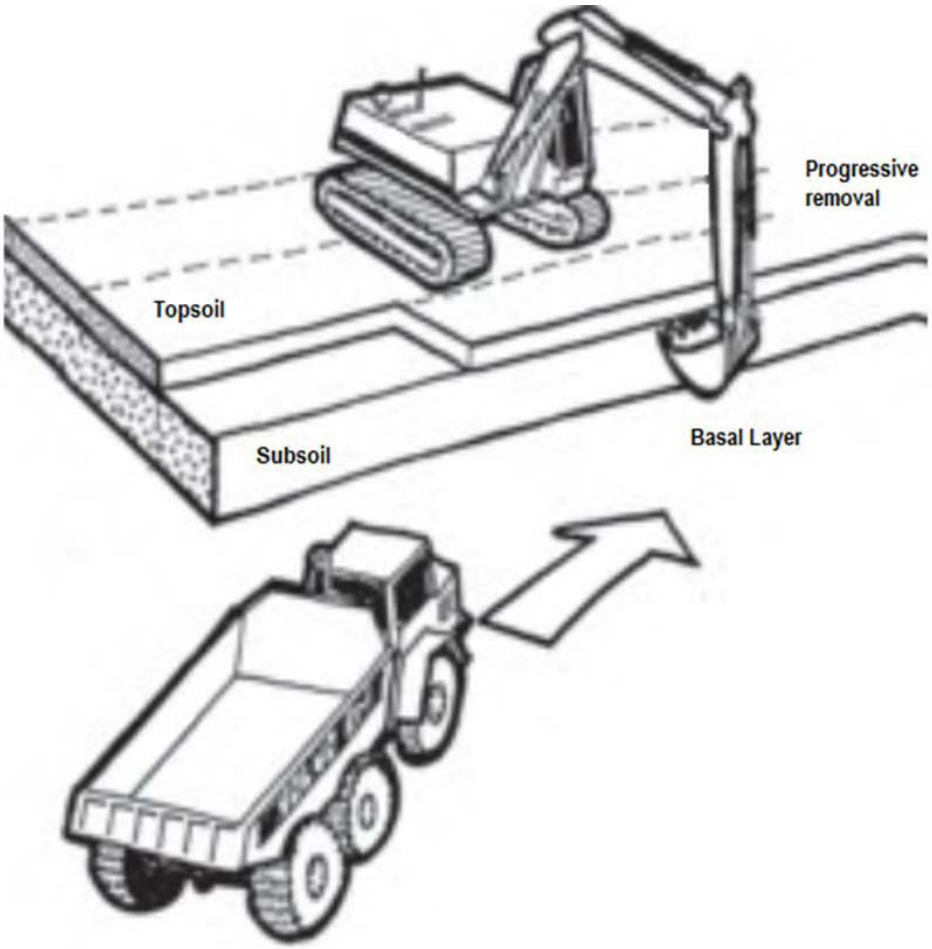
- Ensure that for all reinstated soil, the entire soil profile (top soil / subsoil) is stable and in a condition to promote sufficient aeration, drainage, fertility and root growth.
- Safeguard and utilise on-site soil resources where possible. If importing soils use a reputable supplier, establish the source of the soil and ensure it is suitable for the intended use.

Practical advice - Soil management during construction / On-site soil management

Topsoil Stripping Method

- Remove surface vegetation by blading off, by scarification and raking, or kill off by application of a suitable non-residual herbicide applied not less than two weeks before stripping commences.

- The method illustrated below is the best practice method for minimising damage to topsoil. It shows the transport vehicle running on the basal layer under subsoil as subsoil is also to be stripped. If only topsoil is to be stripped, the vehicle would run on the subsoil layer. (NB: If site is on slope other consideration might apply).



- Stripping should be undertaken by the excavator standing on the surface of the topsoil, digging the topsoil to its maximum depth and loading into site or off-site transport vehicles.

- Alternative stripping methods that can be shown to afford the same degree of soil protection are acceptable.

- As a standard practice, an archaeological watching brief may be needed during topsoil and sub-soil stripping, depending on West of Scotland Archaeological Services comments.

Subsoil Stripping Method

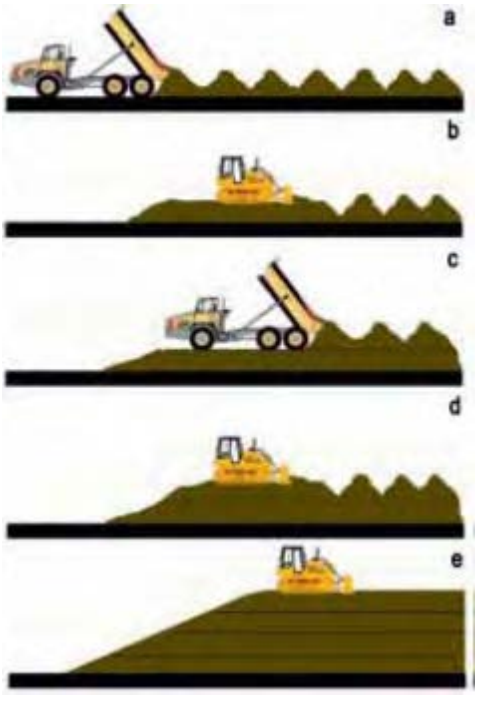
- Topsoil should first be stripped from all areas from which subsoil is to be removed for reuse.
- Within each soil unit the soil layers above the base/formation layer are removed in sequential strips that can be up to 6m wide (the reach of a 360° excavator).
- Using an excavator bucket with teeth is preferable to using one without. Where there is a cover of topsoil, that layer is removed first before stripping subsoil to the specified depth. The soil transport vehicle runs on the layer beneath the subsoil.
- Weathered basal layer (e.g. geological parent material) below the subsoil has limited value for landscaping and soil reinstatement and should be kept separated from stockpiles intended for such uses.

Soil stockpiling

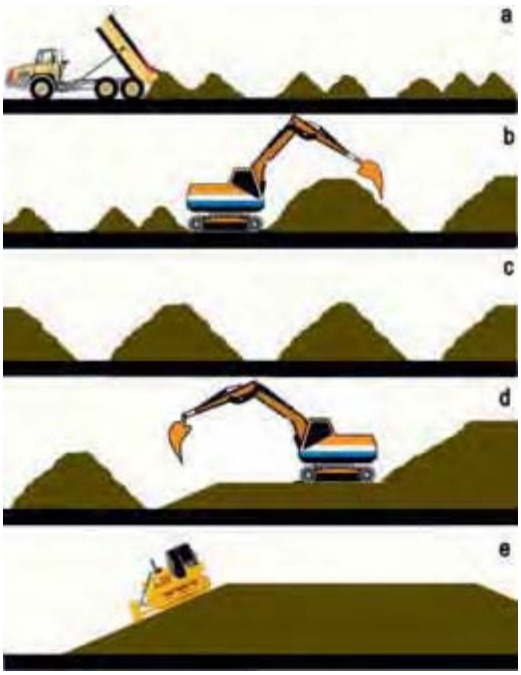
- Soil should be stored in an area of the site where it can be left undisturbed and will not interfere with site operations.
- Ground to be used for storing the topsoil should be cleared of vegetation and any waste arising from the development (e.g. building rubble and fill materials).
- Topsoil should first be stripped from any land to be used for storing subsoil.

(See details of methods below on Dry 'non-plastic' soils & Wet 'plastic' soils)

Method 1 – Dry non-plastic soils

a) The soil is loose-tipped in heaps from a dump truck, starting at the furthest point in the storage area and working back toward the access point. b) When the entire storage area has been filled with heaps, a tracked machine (excavator or dozer) levels them and firms the surface in order for a second layer of heaps to be tipped. c & d) This sequence is repeated until the stockpile reaches its planned height. e) To help shed rainwater and prevent ponding and infiltration a tracked machine compacts and re-grades the sides and top of the stockpile (to form a smooth gradient.	

Method 2 – Wet plastic soils

a) The soil is tipped in a line of heaps to form a 'windrow', starting at the furthest point in the storage area and working back toward the access point. b &c) Any additional windrows are spaced sufficiently apart to allow tracked plant to gain access between them so that the soil can be heaped up to a maximum height of 2m. To avoid compaction, no machinery, even tracked plant, traverses the windrow. d)Once the soil has dried out and is non-plastic in consistency (this usually requires several weeks of dry and windy or warm weather), the windrows are combined to form larger stockpiles, using a tracked excavator. e) The surface of the stockpile is then regraded and compacted by a tracked machine (dozer / excavator) to reduce rainwater ingress.	

Stockpile location and stability

- Stockpiles should not be positioned within the root or crown spread of trees, or adjacent to ditches, watercourses or existing or future excavations.

- Soil will have a natural angle of repose of up to 40° depending on texture and moisture content but, if stable stockpiles are to be formed, slope angles will normally be less.

- For stockpiles that are to be grass seeded and maintained, a maximum side slope of1 in 2 (25°) is appropriate.

Stockpile protection and maintenance

- Once the stockpile has been completed the area should be cordoned off with secure fencing to prevent any disturbance or contamination by other construction activities.

- If the soil is to be stockpiled for more than six months, the surface of the stockpiles should be seeded with an appropriate grass / clover mix to minimise soil erosion and to help reduce run-off and infestation by nuisance weeds that might spread seed onto adjacent land.

- Management of weeds that do appear should be undertaken during the summer months, either by spraying to kill them or by mowing or strimming to prevent their seeds being shed.

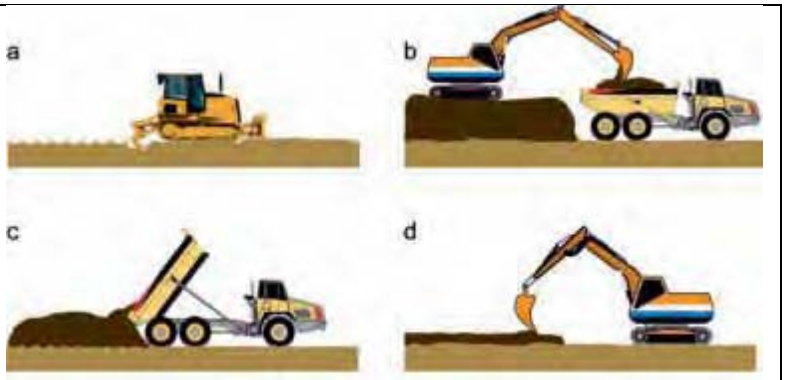
Soil placement

This method entails working to a strip system (the width of the strip determined by the reach of the excavator), and replacing soil sequentially across the soiling area. The receiving ground, whether a basal layer or compacted subsoil is first loosened with a wing-tine ripper.

A hydraulic excavator, fitted with a toothed-bucket to avoid excessive smearing, should be used to load the soil materials from the source area or stockpile into a dump truck which then discharges them onto the receiving surface.

An excavator stands next to the newly dropped soil and spreads this to the required thickness. If there is to be more than one soil layer (i.e. if both topsoil and subsoil are being replaced) then the whole length of the strip is restored with subsoil before the process is repeated with topsoil.

The topsoil is lifted onto the subsoil without the excavator travelling on the newly placed subsoil. Only when the strip has been completed is the next one started. If soil is cloddy in structure, the excavator bucket can be used to break up the clods. Large stones can be removed during the operation.



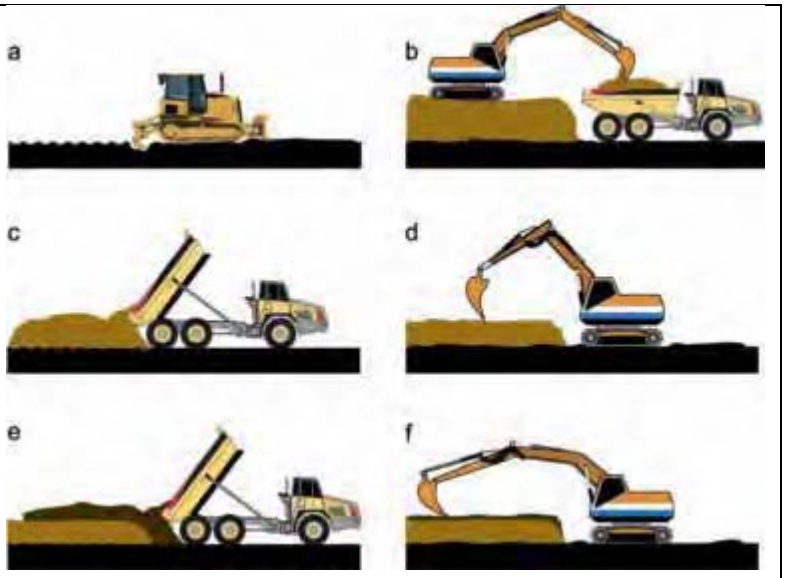
(Loose-tipping method - topsoil spreading only)

a) loosening the subsoil of the receiving ground
b) loading of topsoil from stockpile
c) back-tipping topsoil onto loosened subsoil
d) levelling topsoil

The loose-tipping method (topsoil and subsoil spreading)

Modified versions of the loose-tipping method, for use when both subsoil and topsoil are to be placed, include spreading the subsoil as described above, but then spreading the topsoil layer out using a low ground pressure dozer.

Providing that soil conditions are suitably dry and dozer movements are minimised, this can gently consolidate the placed soil without causing over-compaction.



a) loosening the substrate of the receiving ground
b) loading of subsoil from stockpile
c) back-tipping subsoil onto loosened substrate
d) levelling subsoil
e) back-tipping topsoil
f) spreading topsoil over subsoil using excavator working on substrate

Relief of compaction

On most construction sites, the receiving layer will have been compacted by vehicles, foot trafficking or the storage of building materials. Therefore, prior to spreading soil:

- the substrate should be properly de-compacted to break up any panning to reduce flood risk and to promote deeper root growth.

- a small (1-5 tonne) to medium sized (13 tonne) tracked excavator, fitted with a single rigid tine is effective in restricted areas, such as in planting beds and road verges.

- in more open areas, a tractor-drawn sub-soiler is capable of loosening soil that is not too heavily or deeply compacted. In some instances, compressed air injection can be used to de-compact the soil profile.

Deep compaction can only be effectively relieved using heavy duty ripper equipment, such as the single rigid tine device. For loosening to be most effective, it should be carried out when the soil is sufficiently dry to the full depth of working, otherwise the tine merely cuts and smears the sub-soil rather than lifting, fracturing and loosening it. A toothed excavator bucket is not an appropriate tool for ripping soil.

Topsoil thickness

Topsoil placement thickness will depend on the anticipated rooting depth of the plants to be established and the quality of the underlying subsoil. Trees and shrubs require a much greater routing depth than grasses, through this does not have to be made up entirely of topsoil.

Topsoil at least 150mm deep is desirable for lawns and mown amenity grass and can beneficially be placed more deeply (up to 400mm thick) for trees and shrubs.

However, topsoil does not normally perform well below a depth of 400mm from the surface, where there is an increase in self-compaction and where the biochemical oxygen demand (BOD) often exceeds the rate of aeration. This often results in the development of anaerobic conditions that are detrimental to plant root functions. Subsoil, which has a lower BOD, should, therefore, always be used to create rooting depths in excess of 400mm.

Topsoil cultivation

After re-spreading topsoil, any large, compacted lumps should be broken down by appropriate cultivation to produce a fine tilth suitable for planting (<50mm maximum aggregate size), turfing and seeding (<10mm maximum aggregate size).

Topsoil that has been stored in a stockpile is often compacted and anaerobic. It should therefore be cultivated to its full depth using appropriate tillage equipment to de-compact and fully re-aerate. Only when the topsoil has been fully re-aerated will it be satisfactory for planting turfing or seeding. More than one cultivation may be required to re-aerate the entire thickness of topsoil. Undesirable material (e.g. stones, fill materials and vegetation larger than 50mm in any dimension) brought to the surface during cultivation should be removed by picking or raking.

Adverse weather

If sustained heavy rainfall (e.g. >10mm in 24 hours) occurs during soil handling operations, work must be suspended and not restarted until the ground has had at least a full dry day or agreed moisture criteria (such as ‘drier than the plastic limit’) can be met. Lighter soil can generally be moved at a higher moisture content without damage than a heavy soil.

The earlier or later in the year that soil is moved, the greater the risk of causing damage or having work suspended by adverse weather, although the period when soil can be safely handled is longer in the drier eastern parts of the UK than in the west. Where the soil handling technique is such that trafficking over the soil is minimal (e.g. the ‘loose tipping method’ described above), the period for soil stripping may be extended.

Annex B

Planning Services – Guidance Note to Site Agents & contractors on Soil Management

Scotland's soil is a valuable natural asset and in line with Zero Waste targets proper steps should be taken in development to avoid excessive soil / spoilt wastes on sites and promote sustainable reuse and reinstatement of the material on sites.

Damage and loss of soils during development is major threat to our national soil resources. This Guidance Note has been developed to assist anyone involved in the construction sector to better protect the soil resources with which they work.

Complaints are often received by the council about flooded or waterlogged gardens or failed landscaping on development sites, mainly due to poor soil treatment and planting and can be reduced by ensuring suitable soil handling during construction.

By following this Guidance Note, you will not only be able to help protect and enhance the soil resources on site and reduce future problems but also potentially achieve cost savings for your business.

This Guidance Note applies to 'greenfield land' and some 'brownfield land' where the conditions for it to be designated as contaminated land under Part 2A of Environmental Protection Act 1990 (significant harm or significant possibility of significant harm), are present.

(NB: Annex B does not apply to organic soil - (soil with peat layer more than 50cm depth) - where specific consideration for the handling and storage of peat will be required.)

Key Messages

• Work with soils in driest conditions possible / Don't when wet - if at all possible
• Follow the Soil Plan approved as part of the planning permission.

Best practices for sustainable use of soil in developments are:

• Understand your soils
- Get the right surveys to assess the quality of your soils and volumes affected.

• Plan ahead for proper handling of soil on sites during constructions
Consider value of the Soil Plan to:

- Ensure that soil resource is not wasted though inappropriate stripping, handling and storage procedures.
- Reduce risk of pollution to water course.
- Avoid mixing topsoil and subsoil to maintain its good quality and fertility.

• Reuse / reinstate soils to support sustainable landscape
- Reduce waste disposal cost by re-using on site soils.
- Ensure that soil imported on to the site is fit for purpose.

General principles – for mineral soils (Pre-construction planning):

Do	Don't
✓ Undertake detailed soil resource survey before any earthmoving operations start. ✓ Ensure that the survey is carried out by suitably qualified and experienced soil scientist or practitioner. ✓ Ensure co-ordination between the soil resource survey and other ground investigations as each might have information useful to the other. ✓ Incorporate the results into the Materials Management Plan or the Site Waste Management Plan.	✗ Rely on a geotechnical survey or contamination survey for detailed information on topsoil or subsoil resources.

Soil management during construction: Using the site's Soil Plan implement as follows

Do	Don't
✓ Clearly define soil types, areas of soil to be stripped, haul routes and stockpile locations on your Soil Resource Plan.	✗ Create haphazard stockpiles of soil on site – ensure that material is stable with no risk to nearby receptors (i.e. runoff, leaching into water courses.)
Topsoil stripping	
✓ Follow Soil Plan to account for variation in depth of topsoil across sites. ✓ Use tracked equipment wherever possible to reduce compaction. ✓ Confine movement of trucks or dumpers to designated temporary haul routes.	✗ Mix vegetation into topsoil to be stored. ✗ Strip soils during or after heavy rainfall or when there are pools if water on the surface. ✗ Remove topsoil from below the spread of trees to be retained.

Subsoil Stripping

Do	Don't
✓ Use tracked equipment wherever possible to reduce compaction. ✓ Confine movement of trucks or dumpers to designated temporary haul routes.	✗ Strip soils during, or after heavy rainfall, or when there are pools of water on the surface. ✗ Mix subsoils of different quality & composition.

Soils Stockpiling

Do	Don't
✓ Remove vegetation and waste materials from storage areas before forming stockpiles. ✓ Manage the site so that soil storage periods are kept as short as possible. ✓ Use tracked equipment wherever possible to reduce compaction. ✓ Protect stockpiles from erosion by seeding or covering them. ✓ Use clear signage to identify the content of stockpiles.	✗ Stockpile soils when wet, or 'plastic'. ✗ Stockpile soils of different quality and composition together, especially topsoil and subsoil. ✗ Stockpile subsoil or waste materials on top of topsoil. ✗ Locate stockpiles close to retained trees, drains, watercourses or ditches. ✗ Steepen stockpile sides beyond a slope of 1 in 1.75 (30°) in order to reduce the risk of erosion. ✗ Allow vehicles to run over stockpiles except during their construction.

Landscape, habitat or garden creation

Do	Don't
Soil placement ✓ Use tracked equipment wherever possible to reduce compaction. ✓ De-compact subsoil before placing topsoil ✓ Fully re-aerate anaerobic topsoil before planting, turfing or seeding. ✓ Ensure that the physical condition of the entire soil profile (topsoil and subsoil) will promote sufficient aeration, drainage and root growth.	✗ Place or cultivate soils during or after heavy rainfall or when soils are plastic. ✗ Take construction machinery over topsoil or subsoil that has been placed. ✗ Place topsoil too deeply – 'more' is not necessarily 'better'. ✗ Plant into anaerobic, waterlogged topsoil
Sourcing and importing topsoil ✓ Fully investigate on-site resources before considering a source of topsoil from outside the site – (Be aware of Non-native invasive species contamination). ✓ Use a reputable supplier. ✓ Establish the source of the topsoil whether it is natural or manufactured. ✓ Ensure, through appropriate analysis, that the topsoil imported is suitable for the intended planting(s). ✓ Consider producing your own topsoil	✗ Accept non-documented or unverified loads of topsoil. ✗ Use a standard specification for all plantings as different species and land uses have different topsoil requirements. ✗ Accept topsoil that is too cloddy or wet or that contains visible evidence of plastics, concrete, etc.

Do	Don't
Topsoil manufacture ✓ Determine if there is a shortfall of site topsoil at an early stage in the project. ✓ Determine whether topsoil manufacture is feasible by considering the quality of surplus subsoil, programme, space and landscape requirements. ✓ Ensure that all soils and soil ameliorants are used in accordance with current Waste Regulations	✗ Wait until there is a stockpile of surplus subsoil before considering topsoil manufacture.
Soil aftercare ✓ Ensure that soil health as well as plant health is closely monitored during the aftercare period. ✓ Correct deficiencies as soon as they are detected.	✗ Rely on aftercare as an alternative to good soil management – careful soil handling, storage and placement will save on aftercare costs and result in long term benefits to the development ✗ Assume that soils will function adequately immediately after planting
Uses for surplus topsoil ✓ Calculate soil surpluses at an early stage in the project. ✓ Make use of contractor contacts and local authority knowledge to seek sustainable off-site uses. ✓ Ensure that all on-site and off-site uses are in accordance with Waste Regulations.	✗ Bury topsoil deeply on site unless no sustainable off-site uses and there is no risk to significant harm to humans and the wider environment

Further Information

More details on the sustainable use of soils on construction sites are available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/716510/pb13298-code-of-practice-090910.pdf

Site Monitoring

West Lothian Council will continue to check development sites after planning permission is granted and will monitor implementation of relevant planning conditions placed on the development, including soil management.

Enforcement

Where appropriate, Enforcement action will be taken where good soil protection practices are not observed and if not addressed, could eventually result in Stop Notices being issued where there is non–compliance with planning conditions.

Glossary

Key Words	Definitions / terminology
Anaerobic	Oxygen-deficient
Basal Layer	Un-weathered parent material beneath subsoil. Layer upon which subsoil may be re-spread
Biochemical Oxygen Demand	The quantity of oxygen required by aerobic micro-organisms for the complete (aerobic) decomposition of a material
Non-plastic soil	A soil that does not exhibit plasticity at any moisture content, such as sand or gravel
Plastic soil	A soil that, within a certain moisture content range, is capable of being moulded or deformed without rupture
Plastic limit	moisture content above which a 'plastic' soil starts to exhibit 'plastic' behaviour.
Soil compaction	Over-compaction of subsoil or topsoil so that fine pores and the spaces between soil structure aggregates become closed and are unable to allow the passage of roots, water and air
Soil quality	The capacity of soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, promote plant & animal health
Soil sealing	Covering of the soil surface with an impermeable material
Soil structure	The aggregation of soil particles into larger units with spaces between that allow flow of air and water and root penetration
Soil texture	A descriptive classification reflecting the proportions of mineral fractions (sand, silt and clay sized particles)
Subsoil	Weathered soil layer extending between the natural topsoil and the little weathered basal layer (e.g. geological parent material) below, or similar material within a landscaping project on to which topsoil can be spread. Subsoil usually has a lower organic matter and plant nutrient content than topsoil
Topsoil (natural)	Upper layer of a soil profile, usually darker in colour and more fertile than the layer below (subsoil), and which is a product of natural biological and environmental processes. In Scotland, the thickness of natural topsoil will vary from only a few centimetres in some sites to up to 500mm in deeply cultivated agricultural sites or peaty soils

(PG) Soil Management & After Use of Soils on Development Sites

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