

SPECIFICATION

- 1. General Landscaping
 - i. Existing levels shall be preserved around retained trees and vegetation.
 - j. Existing trees and vegetation shall be protected in accordance with BS5837: 2012 during all construction operations.
 - ii. All landscape works shall be undertaken by competent persons, with appropriate training and equipment.
 - iii. All arisings shall be removed from site at Contractor's expense unless otherwise noted.

2. Services

The Contractor must ascertain the exact location of underground services before commencing work.

GROUND PREPARATION

- 3. Formation Level
 - The site shall be brought to formation level using a suitable fine-graded material where possible to avoid large voids but retain free drainage, and de-compacted to a depth of at least 300mm.

4. Subsoil

Where there is insufficient depth excavate and dispose of material, loosen the formation and make up with additional subsoil or secondary topsoil. Grade to smooth flowing contours to achieve specified finished levels of topsoil.

Imported subsoil/secondary topsoil shall be supplied in accordance with BS 8601: 2013. It shall be free of pests, diseases, weeds, fragments and roots of weeds, sticks, straw, turf and significant quantities of material such as building materials, vegetation, lumps of clay, and the like. Do not use any materials contaminated with rubbish or other materials that are:

- corrosive, explosive, or flammable
- hazardous to human or animal life
- damaging to healthy plant growth

Prior to the placement of topsoil, and when ground conditions are reasonably dry, the subsoil shall be thoroughly loosened to full depth. Remove any stones larger than 75mm and other items including bricks, kerbs, lumps of concrete, plaster, timber, plastic, glass, metal and any other building debris brought to the surface.

5. Topsoil

- Where there is insufficient depth topsoil shall be imported in accordance with BS 3882: 2013 as follows:
 - For tree pits: shrubs, hedgerows and amenity grass: multi-purpose for general landscaping operations
 - For wildflower meadows: low-fertility topsoil to reduce risk of competition from weeds

Imported topsoil shall be spread in layers not exceeding 150mm to achieve the depths as specified below. Finished levels shall be smooth flowing, free of minor hollows and high spots and marry neatly with paving, kerbs, edgings, manhole covers and existing levels.

Soil handling operations shall be carried out when the soil is reasonably dry and non-plastic (friable) in consistency (at least 5% below the Lower Plastic Limit). Topsoil shall not be unnecessarily compacted by trampling or trafficking of site machinery. Topsoil handling shall be stopped during and after heavy rainfall, and not continued until the soil is again non-plastic in consistency.

Any areas of topsoil that are contaminated with rubbish shall be replaced. Any rubbish, bricks, concrete, tarmac and other deleterious material shall be removed. Topsoiled areas shall be in an un-compacted and uncontaminated state prior to final cultivation.

6. Soil Depths & Clearance

Provide a minimum depth of subsoil and topsoil as follows:

- Amenity Grass: 100mm topsoil over 100mm cultivated subsoil with clearance to 450mm below ground level

• Wildflower Lawn: 50mm low-fertility topsoil over 100mm cultivated subsoil with clearance to 450mm below ground level

• Ornamental Trees & Hedges: 400mm topsoil over 100mm cultivated subsoil with clearance to 600mm below ground level

• Native Shrubs & Hedges: 300mm topsoil over 100mm cultivated subsoil with clearance to 600mm below ground level

• Tree pits: see specific requirements below, with clearance to 1000mm below ground level

7. New Planting Adjacent Services & Structures

All trees and shrubs, whether existing, new, or proposed, on or adjacent to the site shall be taken into consideration by the landscape contractor when calculating foundation types and depths.

• No trees shall be planted within 6m of an adoptable sewer unless appropriate protection is provided (subject to water authority approval).

• All trees planted within 3m of a building or heavily loaded structure shall have their roots deflected away by a minimum of a high density deep application root barrier to avoid direct damage from future tree growth.

• All trees shall be within 3m of a massive boundary wall, or within 3m of any hard paved surface or underground service, shall have their roots deflected away by the installation of a tree root barrier system to avoid direct damage from future tree growth.

8. Root-Barrier System

• For protection of building foundations: ReRoot 2000 high density deep application root barrier as supplied by GreenBlueUrban Ltd., or similar

• For protection of pavements only (surround applications): Root Director preformed root protection system as supplied by GreenBlueUrban Ltd., or similar; size dependent on predicted girth (circumference) of mature tree trunk (to be advised by manufacturer)

• For protection of pavements & underground services/utilities (linear applications): ReRoot ribbed root barrier as supplied by GreenBlueUrban Ltd., or similar; size dependent on predicted girth (circumference) of mature trunk (to be advised by manufacturer)

Installation shall be in full accordance with manufacturer's instructions.

The Landscape Contractor shall be responsible for acquiring 'As-Built' drain and service plans before commencing work on site.

CULTIVATION & PLANTING

9. General Planting Notes

All plants supplied shall comply with the National Plant Specification. Supplying nurseries shall be registered under the Horticultural Trade Association (HTA) Nursery Certification Scheme. Plants shall be first class examples of their species or variety, free from pests and diseases, with good fibrous root systems and materially undamaged. Native species shall be British provenance, where available, and certified to confirm origin.

All planting operations shall be in general compliance with BS 4428: 'Code of Practice for general landscape operations'.

All soft landscape including preparatory operations shall be carried out when all building works are complete and before the end of the first planting season. Only carry out planting while soil and weather conditions are favourable; do not plant when frost, cold, rain, or snow, excessively wet or waterlogged, or in extremely dry or sandy conditions. Plant only during the growing season.

• Bare-root and rootballed deciduous trees and shrubs: from late October to late March. All bare root stock, where used, shall be root dipped in mycorrhizal inoculant such as Alignire or similar, applied in accordance with the manufacturer's recommendations.

• Container grown plants: at any time if ground and weather conditions are favourable. Ensure that adequate watering is provided.

All landscaping work shall adopt good horticultural practices. Compost, mulch and soil conditioners shall be free-paste. The use of pesticides (herbicides, insecticides, fungicides, slug pellets etc) shall be discouraged. Any plants that are not residual, i.e. glyphosate, and used only where absolutely necessary to control weed infestations.

10. Plant Handling & Establishment

Plant handling shall be in accordance with 'Handling and establishing landscape plants', published by the CPSE.

The Contractor shall comply with Part 3: Recommendations for plant handling from delivery to site to ensure successful establishment.

11. Cultural

Areas for seeding and planting shall be treated with a non-residualised herbicide to clear existing weeds and other herbaceous vegetation and thoroughly cultivated by hand or suitable machinery to the depths specified below. Hand cultivation shall be carried out to achieve the required finish in areas where machine cultivation is not possible (i.e. adjacent to kerbs, manholes and footpath junctions, around retained trees etc). Seeds shall not contain rubbish and surface stones with a dimension greater than 50mm shall be collected and removed from the site.

12. Planting Species in Tree Open Ground

Tree planting shall be carried out in accordance with BS 8545: 2014 'Trees: from nursery to independence in the landscape - Recommendations'. All specified materials shall be installed in accordance with the manufacturer's recommendations and/or instructions.

The landscape contractor shall ensure that the natural root flare of the tree is clearly visible at the finished surface soil level to prevent premature tree death. To ensure the correct planting level is achieved, the contractor shall take care to remove:

- Soil placed above the natural root flare during nursery packaging and production
- Adventitious roots from the outer root flare
- Wire encircling the main stem
- Wire cage and capsule where possible. Otherwise, peel back and remove once the tree is in the planting pit

Trees shall be planted into prepared pits - refer to table for dimensions.

Form	Girth (cm)	Diameter	Depth	Tree Pit Dimensions		
				Length	Width	Depth
Half Standard	4-6cm	400mm	300mm	700mm	700mm	300mm
Heavy Standard	12-14cm	500mm	400mm	800mm	800mm	400mm

based on: BS 4428: 1989 and nursery suppliers standard rootball dimensions.

Stated tree pit dimensions are a minimum; rootball dimensions can vary naturally between species, tree stock, suppliers, and season. In the event that the rootball exceeds the stated dimensions, the landscape contractor shall excavate the hole (in open ground) to the advice given in BS 8545: 2014 with the exception of tree pit diameter, which shall be varied to achieve a minimum radius of 150mm greater than the rootball. Tree pit depth shall not be greater to than the existing rootball or container depth. Where necessary tree pit depth shall be increased from the stated dimensions to accommodate the depth of the rootball and obtain the correct planting level. See typical tree pit detail.

Care shall be taken to prevent smearing of tree pit sides, thorough to aid root penetration and drainage. Break up base of pit to a depth of 150mm to assist drainage, air movement, and root penetration, and leave slightly domed to prevent ponding.

Tree pits shall be backfilled with 'as dug' material (where suitable for tree growth) to replicate a natural soil profile comprising no more than 300-400mm depth of topsoil over a free-draining, sandy subsoil. All deleterious material shall be removed (weeds, broken brick and large stones etc). Where 'as dug' material is not suitable for tree growth imported topsoil to BS 3882: 2015 (multi-purpose for general landscaping operations), and subsoil softwood, peeled chestnut, larch or oak, free from projections and large or edge knots, with a pointed lower end.

A perforated flexible irrigation pipe, 60mm diameter, with a fixed grid inlet to prevent debris and root penetration shall be installed around the rootball during planting, e.g. Green Blue Urban RootRain subsoil.

The finished compacted pit shall be topped with organic mulch spread evenly to a depth of 75mm after planting within a 1m diameter circle around each tree. Mulch shall comprise composted wood chips or bark, free of pests, disease, fungus, and weeds. Prior to application clear all grass and weed growth and water soil thoroughly.

13. Ornamental Groundcover & Hedges in Cultivated Beds
Areas for planting shall be cultivated to a minimum depth of 300mm taking care to protect roots of existing trees retained.

Container grown plants and bare-root hedging transplants at the sites stated in the plant schedule shall be pit planted into cultivated beds in accordance with the planting arrangement. Hedges shall be planted in a double staggered row, rows planted 40cm apart, and plants positioned 45cm apart within each row.

At each planting position, a hole shall be excavated to the depth of 75mm, with a diameter of 100mm, either 100mm wide, or the root ends will fully spread, and the sides and bottom of the planting hole. Each plant shall be set in the centre of the pit, showing its best side to the front. Finely broken back-fill material excavated from the pit shall be packed around the roots. The plants shall be gently shaken to allow fine soil to surround the roots. As soil is returned it shall be lightly consolidated and firmly heeled around the root collar.

All bare-root stock shall be root-dipped in mycorrhizal inoculant such as Rootgrow Professional, or similar, applied in accordance with manufacturer's recommended rates. Mycorrhizal inoculant shall be of UK origin and contain fungi and bio-additives proven to enhance mycorrhizal colonisation. Product shall not contain fertilisers.

All planting areas shall receive a 75mm deep 8-35mm organic bark mulch layer to prevent weed growth and retain soil moisture. Mulch shall comprise composted wood chips or bark, free of pests, disease, fungus, and weeds. Prior to application clear all grass and weed growth and water soil thoroughly.

14. Compost & Ameliorants - All Planting Areas
A peat-free compost (e.g. PAS100: 2011/Landscape Institute/WRAP grade (10mm screened) green compost) shall be applied to a minimum depth of 50mm and worked into the soil. For native shrubs compost shall be mixed into the planting pit only. Following this a suitable slow-release fertiliser shall be applied and spread at 50g/m² to all planted areas.

15. Grassed Areas
All areas to be turfed/seeded - remove all surface vegetation (where present) and cultivate to a depth of 100mm taking care to protect roots of existing trees retained. All weeds, debris, and stones over 25mm in diameter shall be removed off site and the surface raked to smooth flowing contours with a fine tine.

Turf:
• Amenity Lawn - Incorporate Growmore Fertiliser, or equivalent, in accordance with manufacturer's instructions, to be worked into top 50mm of soil. Do not apply fertiliser to wildflower areas

• All areas - Roll out turf, pressing it down to ensure good root to soil contact. Each turf shall be butted up to the adjacent turf. Remove any stones and debris and roll over the top to ensure a good bond. Dress turf with finely sifted topsoil/sand, or otherwise Finisher, and brush well in to completely fill joints. Trim around each newly planted tree to provide a clear radius of 500mm. Thoroughly water the turf immediately after laying making sure the soil underneath is damp. Continue to water for the first two weeks to prevent turf drying out, after which apply the occasional soak in long periods of dry weather.

• Turf shall be laid on soil that is moist but not frozen or waterlogged. No turf shall be laid during periods of drought or onto soil that is excessively dry, or during heavy rainfall.

Seeding:

• Seeding shall be carried out during appropriate seasons and when soil and weather conditions are suitable for the relevant operations. Only machinery and tools suitable for the site conditions and the work to be carried out shall be used. Hand tools shall be used around trees, plants and in confined spaces where it is impractical to use machinery. Seed shall be sown in accordance with BS 4428:1989 'Code of practice for general landscape operations' on prepared, levelled soil at the manufacturer's recommended rate. Sow in autumn or spring during calm weather and not when the ground is frost bound or waterlogged.

IRRIGATION

A perforated flexible plastic irrigation pipe, 60mm diameter, with a fixed grid inlet to prevent debris and root ingress, shall be installed around the rootball during planting, e.g. Green Blue Urban RootRain. Use a perforated irrigation pipe, 60mm diameter, with a fixed grid inlet to prevent debris and root ingress, shall be installed at a depth of approximately 150mm below the ground surface and be of a sufficient length to coil completely around the rootball. Ensure the inlet is slightly above finished mulch surface.

***Depth of root barrier dependent on depth of services/utility to be protected.**

Planting Level - to where stem thickness to root collar (root flare), keep visible at all times

A topsoil saucer shall be created for watering purposes and to retain mulch

SOFT VERGE

Tree Pit Backfill

Tree shall be backfilled with 'as dug' material (where suitable for tree growth) to replicate a natural soil profile comprising no more than 300-400mm depth of topsoil over suitable sandy subsoil. All deleterious material shall be removed (weeds, broken brick and large stones etc). Where 'as dug' material is not suitable for tree growth imported topsoil to BS 3882:2015 (multi-purpose for general landscaping operations), and subsoil to BS 8601:2013, shall be used.

During backfilling, the tree shall be gently shaken at regular intervals to settle the soil closely around the roots. The backfill shall be firmed in layers not exceeding 150mm to obtain the correct planting level.

To relieve any compaction the base of the tree pit shall be loosened (prior to backfilling) using a hand fork to a depth of at least 150mm, and left slightly domed to assist drainage, air movement, and root penetration.

Watering

During the first two years after planting a monitored watering regime shall be implemented, commencing from the end of March/early April to the end of October - depending on weather conditions. Apply water when there has been no appreciable rain for 7 days or when there has been dry wind or very high temperatures.

Replacement of Failed or Defective Plants

Following the initial 12 months defects period any trees or plants which within a period of 5 years from the completion of the development are missing, found dead, or are seriously damaged or diseased shall be replaced in the next planting season.

Watering

During the first year after sowing/tiling:

- Areas which fail to germinate or establish shall be re-turfed or re-seeded as required
- Amenity Lawn - shall receive 2 establishment cuts; first cut carried out once height of initial growth reaches 50mm, with grass cut to a finished height not exceeding 30mm. Second cut shall be carried out when the grass once again reaches 50mm. Thereafter, cut as required to maintain a consistent height of 30-40mm.
- Wildflower Meadow - Mow all newly seeded areas regularly throughout the first year of establishment to control annual weeds and help maintain a balance between faster growing grasses and slower developing wildflowers. Cut to a height c. 40-60mm and remove cuttings if dense.
- All areas - Carefully dig out, pull or spot treat any residual perennial weeds

Once established:

- Amenity - cut to a height of 20-30mm throughout the growing season (March to October inclusive) to maintain a neat tidy appearance. Remove all spring, autumn edges as required
- Flower-Rich Grass Verge - cut as amenity lawn but to a height of 30-40mm. To permit flowering, mowing shall be relaxed from June onwards. Reseed cutting when cut gets unfertilised (after 4-8 weeks)
- Meadow - Grass shall be managed to maximise floristic diversity; cut annually after flowering of desirable species in July or August to a height c. 50mm. Cuttings shall be left to dry and sheet seed for 1-7 days before removal from site.
- All areas - Continue to dig out, pull or spot treat any residual perennial weeds

GRASSLAND ESTABLISHMENT & MANAGEMENT