

Soil science in landscape design and construction



WORKING WITH SOIL

setting standards in soil science



Background

The characterisation and management of soil and soil materials forms an important part of the design, construction and subsequent management of landscape schemes. The nature and management of soils, whether natural or manmade, influences planting options and the subsequent use of the landscaped area. Landscape projects are often in the urban environment where there are typically many site constraints in addition to the soil limitations. They include public parks, private gardens, sports pitch construction and the soft landscape aspects of infrastructure projects and business and logistics parks.

Soil science is fundamental to all landscape projects and inputs to a number of significant steps in the process of establishing a new landscape scheme, including:

- Soil and site characterisation
- Soil handling, storage and construction of the new landscape
- Landscape scheme design and specification

- Planting and establishment, and
- Ongoing management (aftercare)

This document builds on three other *Working with Soil* professional competency documents. Foundation skills in field soil investigation, description, and interpretation (BSSS PCSS Document 1) details the foundation skills required to characterise soils and soil materials accurately and consistently. BSSS PCSS Document 4 on soil science in soil handling and restoration covers aspects of soil storage, handling, the preparation of a Soil Management Strategy and subsequent restoration. Where semi-natural habitats are to be created on a site, BSSS PCSS Document 6 addresses professional competency in soil science and the establishment, management and/or conservation of natural habitats and ecosystems.

Over and above these documents, soil science has a bearing on the appraisal of different planting options and on the subsequent planting, establishment and ongoing management of plants, trees and grass.

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Well-managed soil is a key determinant of the performance and value of public open spaces and private landscapes. The skills and knowledge identified below build on those identified in Documents 1, 4 and 6 and relate to these further aspects of landscaping practice.

Qualifications

Professional scientists and engineers, with competence in soil science for landscape design and construction will have graduated in a relevant science subject. They will also have a second degree and/or a number of years of relevant practical experience and will have, or be adequately qualified for, full membership of a relevant professional body such as the British Society of Soil Science. A member of the Landscape Institute may have appropriate experience where their training and work has included soil-related aspects of landscape design, construction and management.

Minimum competencies

Skills:

- 1 Competency in the Foundation Skills (field soil investigation, description and interpretation) as per BSSS PCSS Document 1
- 2 Competency in soil science in soil handling and restoration (BSSS PCSS Document 4) and, in particular, the development of a Soil Resource Plan¹ or Soil Management Strategy
- 3 Where appropriate, competency in soil science in the establishment, management and/or conservation of natural habitats and ecosystems (BSSS PCSS Document 6)

- 4 Where appropriate, the ability to translate an understanding of the soils, soil materials and soil conditions on the site into qualitative and quantitative advice on pre-planting soil preparation, the implications for planting options and site management post-establishment
- 5 The ability to interpret site landscape design options and their requirements for soils (from on or off site)
- 6 The ability to communicate soil science accurately and informatively, verbally and in writing at all stages of the project with clear statements as to the reliability and certainty of the results

Knowledge:

- 1 An understanding of the relationships and interactions between soil, landscape and plants
- 2 Knowledge and understanding of soil as a physical, chemical and biological system in supporting the establishment and growth of trees and other landscaping plants
- 3 Knowledge of relevant Health and Safety and Environmental and Waste regulations and all relevant safe working practices
- 4 An awareness of the British Standards for soils² (topsoil and subsoil) if there is a need for imported soils

1 Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

2 e.g. BS3882:2007 Specification for Topsoil and Requirements for Use

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