

Soil science in landscape design and construction



Background

The characterisation and management of soil and soil materials can form an important input to the design, construction and subsequent management of landscape schemes. The nature and management of the underlying soil, be it natural or man made, influences planting options and the subsequent use of the landscaped area. The majority of landscape projects are in the urban environment, but many similarities exist with the construction of golf courses and the soft landscape aspects of highways projects.

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:

- Site characterisation
- Soil handling and storage and construction of the new landscape

- Scheme design and specification
- Planting and establishment

This document builds on three other *Working with Soil* professional competency documents.

1. Foundation skills in field soil investigation, description and interpretation (IPSS PCSS Document 1) details the foundation skills required to characterise soils and soil materials accurately and consistently.
2. IPSS 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.
3. Where semi-natural habitats are to be created on a site IPSS PCSS Document 6, which addresses professional competency in soil science related to the establishment, management and/or conservation of natural habitats and ecosystems, will be relevant.

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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. Since publication of the Millennium Ecosystem Assessment there has been much interest in the value of green space as a provider of ecosystem services within urban areas. Well managed soil is a key determinant of the natural value of greenspace. 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 the design and management of landscaping schemes will have graduated in a relevant science subject. They will also have a second degree and/or a number of years of relevant field experience and will have, or be adequately qualified for, membership of a relevant professional body such as the Institute of Professional Soil Scientists. Chartered members/fellows of the Landscape Institute may have appropriate experience if they have trained and worked specifically on the 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 IPSS PCSS Document 1
- 2 Competency in Soil science in soil handling and restoration (IPSS 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 (IPSS PCSS Document 6)
- 4 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 in terms of their ecosystem services potential
- 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 All aspects of soil science specified in IPSS PCSS Documents 1, 4 and 6 as appropriate
- 2 An understanding of the relationships and interactions between soil, landscape and plants
- 3 Knowledge and understanding of soil as a physical, chemical and biological system in supporting the establishment and growth of trees, plants and other landscaping plants
- 4 Knowledge of relevant Health and Safety and Environmental and Waste regulations and all relevant safe working practices
- 5 An awareness of the importance of systems of quality assurance and control in all aspects of professional work

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

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