

# Soil Profile Pit at BIFoR-FACE, Norbury Junction, Staffordshire

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**Grid Reference: SJ79953 22618 (Latitude 52.80075° north; Longitude -002.29877° west)**  
(profile No. SJ72/99532618)

Described by: John Hollis & Bob Jones on 01-07-2021.

**On behalf of the British Society of Soil Science.**

## Site Description

Weather: Dry, warm and sunny day following a week of heavy showers.

Locality: BIFoR-FACE facility in Mill Haft wood, Norbury Junction, Staffordshire ST20 0PN.

Elevation: 107m O.D.

Regional Relief: Rolling (MIS2) glacial plain of till and glaciofluvial outwash.

Local relief: Level crest at the edge of a small spur leading off an isolated plateau at about 100 to 110m O.D.

No significant microrelief, erosion, deposition, rock outcrops or flooding.

Vegetation: Old mature deciduous Oak (*Quercus Robur*) woodland.

Tree layer shows sky approximately 70% obscured by canopy leaves. Shrub layer comprises hazel and some birch 2-3m in height. Field layer comprises brambles hazel and birch saplings.

Ground layer comprises surface leaf litter with some dead bramble stems and rotting fallen Oak branches colonized by fungi.

## Profile Description

2-0 cm L & F	Litter layer of Oak with some hazel & birch leaves becoming increasingly decomposed towards the base
0-10 (7-15) cm Ah	Very dark brown (10YR2/2 & rubbed)); non-calcareous sandy loam, (England & Wales humose sandy loam), estimated 12% clay, 15% silt; Few, small & very small, rounded and sub-rounded quartz & quartzite pebbles; moist; weakly developed fine and medium (1.5 to 4 mm e.s.d.) granular peds; low packing density, extremely porous; no fissures; >5% fine & very fine macropores; loose soil strength, very weak ped strength; very slightly sticky, non-plastic; common roots, both medium fine woody roots and fine & very fine fibrous roots; No earthworms or other fauna observed; Abrupt irregular boundary. (pH in the area of 4.5)
10 – 37 (35-45) cm Bw	Dark brown (7.5YR3/4 & rubbed); non-calcareous sandy loam, (England & Wales sandy loam), estimated 14% clay, 18% silt; Common (estimated 8-10%), large to small, rounded, sub-rounded and some subangular quartz & quartzite pebbles with a few igneous stones and hard sandstones; moist; weakly developed fine with some medium (1.5 to 4 mm e.s.d.) subangular blocky peds; Medium packing density, extremely porous; no fissures; >5% fine & very fine macropores; Moderately weak soil strength with a brittle failure, very weak ped strength; slightly sticky, non-plastic; Common (estimated 20 per 10x10cm) roots, both coarse and medium

	woody roots and fine & very fine fibrous roots; No earthworms or other fauna observed; Abrupt wavy boundary. (pH in the area of 5.5)
37 – 65 cm BC1	Yellowish red (6YR4/6 & rubbed); non-calcareous loamy sand, (England & Wales loamy sand), estimated 7% clay, 11% silt; Common (estimated 8-10%), large to small, rounded, sub-rounded and some subangular quartz & quartzite pebbles with a few igneous stones and hard sandstones; moist; very weakly developed coarse & medium granular peds; Medium packing density, extremely porous; no fissures; >5% fine & very fine macropores; Loose soil strength, very weak ped strength, some with a brittle failure; non-sticky, non-plastic; Common (estimated 20 per 10x10cm) roots, both coarse and medium woody roots (more than the horizon above) and fine & very fine fibrous roots (less than the horizon above); No earthworms or other fauna observed; Clear smooth boundary. (pH in the area of 5.5)
65 – 90 cm BC2	Yellowish red (5YR4/6 & rubbed); non-calcareous loamy sand, (England & Wales loamy sand), estimated 6% clay, 10% silt; Common (estimated 8-10%), large to small, rounded, sub-rounded and some subangular quartz & quartzite pebbles with a few igneous stones and hard sandstones; moist; Apedal loose; Low packing density, extremely porous; no fissures; >5% fine & very fine macropores; Loose soil strength; non-sticky, non-plastic; Common (estimated 14 per 10x10cm) roots, both medium & fine woody roots and fine & very fine fibrous roots; No earthworms or other fauna observed; Abrupt wavy boundary. (pH in the area of 5.5)
90 – 100+ cm Cu	Yellowish red (5YR5/8 & rubbed) with some lenses of brown (7.5YR5/4); non-calcareous sand, (England & Wales sand), estimated 3% clay, 7% silt; Abundant (estimated 40%), mainly small & very small but with common medium and few large, rounded, sub-rounded and some subangular quartz & quartzite pebbles with a few igneous stones and hard sandstones; moist; Apedal loose; medium packing density, extremely porous; no fissures; >5% fine & very fine macropores; Loose soil strength; non-sticky, non-plastic; Few (estimated 5 per 10x10cm) roots, both very fine fibrous roots & some fine woody roots; No earthworms or other fauna observed. (pH in the area of 5.5)

#### Soil Classification

**World Reference Base: Dystric CAMBISOL (Epi-loamic, Endo-arenic)**

**Soil Taxonomy: Typic Dystrudepts**

**England & Wales:** *Typical brown sand (5.51) in sandy drift with siliceous stones.* Newport Series (superficial sandy loam phase)

Newport series profile under mature oak woodland (natural colour)



Newport series profile under mature oak woodland (with camera flash to better reveal colour of the lowest horizon)



## REFERENCES

### Soil description terminology

Hodgson, J M. (Ed.) (Third Edition 1997). *Soil Survey Field Handbook: Describing and sampling soil profiles*. Soil Survey Technical Monograph No. 5. Cranfield University.

### Soil classification

IUSS Working Group WRB. 2015. *World Reference Base for Soil Resources 2014, update 2015 International soil classification system for naming soils and creating legends for soil maps*.

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Soil Survey Staff. 2014. *Keys to Soil Taxonomy*, 12th ed. USDA-Natural Resources Conservation Service, Washington, DC.

Avery, B.W. (1980). *Soil Classification for England & Wales (Higher Categories)*. Soil Survey Technical Monograph No. 14. Cranfield University.

Clayden, B. & Hollis, J M. (1984). *Criteria for Differentiating Soil Series*. Soil Survey Technical Monograph No. 17. Cranfield University.

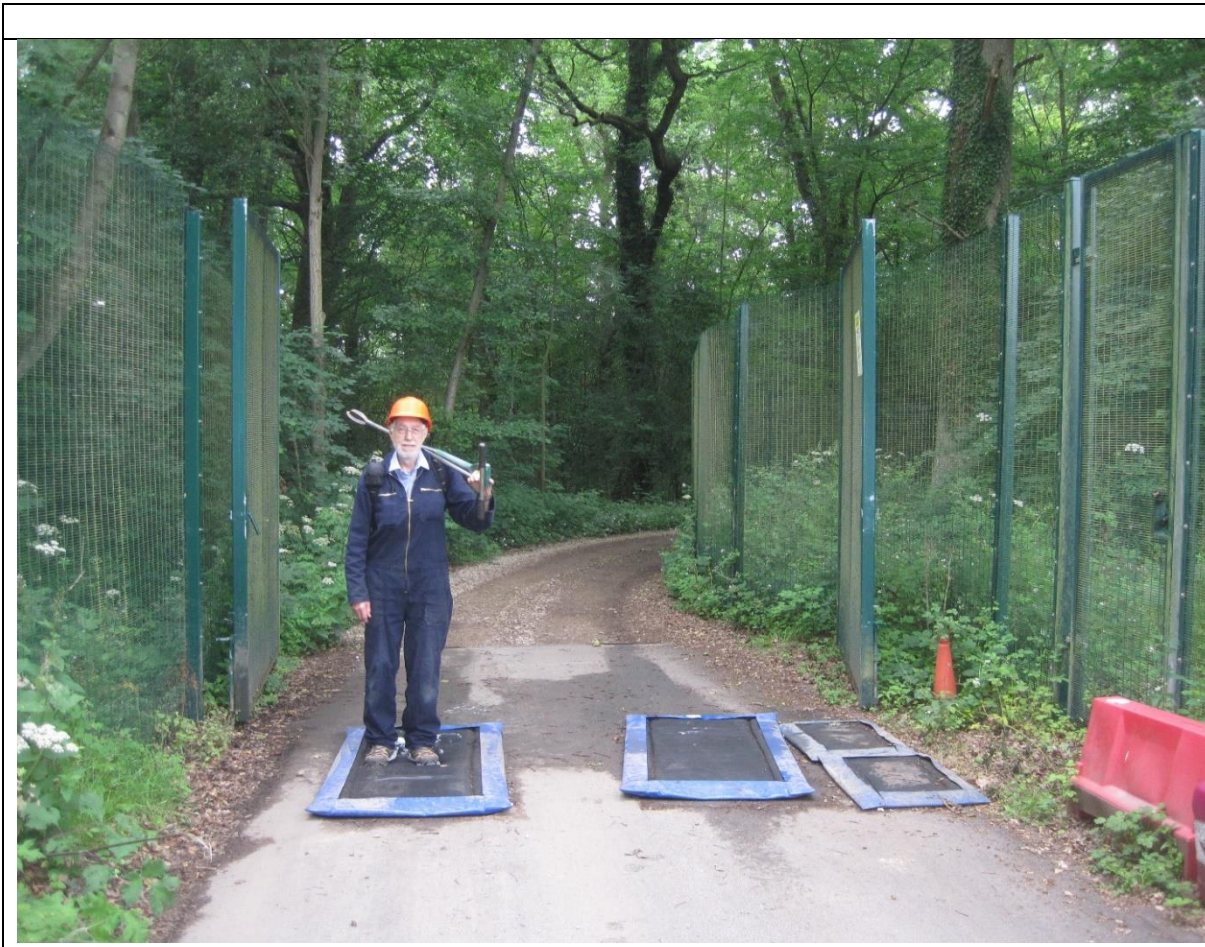


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**The process of digging a soil pit to reveal and describe its profile**



John Hollis entering the experimental forest site BIFoR



Selecting the soil pit site



John Hollis marking out the site





Covering the ground with plastic sheets



Removing the topsoil



Digging out the topsoil



Topsoil removed to a depth of 40cm



Removing the subsoil below 40cm



Subsoil being dug out



Subsoil removed



Large tree root removed with a saw





Several more tree roots had to be removed



The roots varied in size



Exposing the soil profile – half way through



The soil pit face down to 100cm depth



Soil Colour measured using Munsell Colour Charts



Other soil properties measured and described in detail



Descriptions, measurements and samples completed



Filling in first from the subsoil pile





Treading the soil down improve settlement



Subsoil returned to the pit, topsoil still in a pile on the side



Preparing to replace the topsoil



Pit site fully restored except for the litter layer