

WEST DORSET LOCAL PLAN: EASTERN AREA CONSULTATION: CROSSWAYS
SOIL PIT DESCRIPTIONS

Pit No 1

This pit examination took the form of a Soil Stoniness Assessment for the topsoil (the top 25 cm) adjacent to Auger Sample Point No 10.

Pit Size approximately 30 x 30 x 25 cm.

Total stone content = 7.35 kg

Stone size is in the range 2-6 cm

Stone type is flint (both angular and rounded form): bulk density = 2.66 g cm^{-2}

Total number of spheres (1 cm) replacing soil and stone = 2555

Volume of pit = $7.3 (2555) + 64.3$

= 18715.8 cm^3

$7,350 \div 2.66 = 2763.2$

$(2763 \div 18715.8) \times 100\% = 14.76$

Total Stone Content (2.6 cm) = 14.76% (technically, this topsoil qualifies for sub-grade 3A, being less than 15%, but given the tolerance of the field method and the fact that the stone contents vary over the surface on this part of the site and are visibly higher nearby, this area is downgraded to **sub-grade 3B**).

Pit No 2

Topsoil: 0-30 cm : Medium Sandy Silt Loam
10YR32; dark brown
6.8% stones (2-6 cm): Stoniness Assessment
(stone = flint; weight = 3.85 kg;
pit volume = $21,380 \text{ cm}^3$)

Structure = Weakly Developed
Medium Subangular Blocky
Very Friable
(Breaking easily to Fine/Medium Granular)

Subsoil: 30-51 cm : Medium Sandy Loam
10YR43; brown
20% stones (2-6 cm): Visual Sieve estimate
Structure = Weakly Developed
Coarse Angular Blocky
Friable
(Good Structural conditions. The Angular nature of the structure may be a reflection of the high content of angular flint).
Porosity, good

Subsoil, Lower: 51-80 + cm : Loamy Medium Sand
10YR64 and 7.5YR68
10% flint (2-6 cm); Visual
Structure = Weakly Developed
Coarse Angular Blocky
Firm
(ie Moderate Structural Conditions)
Porosity, good
Roots evident

No evidence of wetness in the top 80 cm
AP Wheat = 119 mm MD Wheat = 100 mm MB Wheat = 19 mm (assuming subsoil,
lower to 120 cm)
AP Potatoes = 98 mm MD Potatoes = 92 mm MB Potatoes = +6 mm
Grade According to Droughtiness = 2
Grade According to Topsoil Stone Content = 2

(Augering at this site reveals that the auger cannot penetrate the high stone contents of the upper subsoil but that roots can penetrate easily and that the soil matrix extends to depth).

Pit No 3

(For Stoniness Assessment only)
Total stone content = 12.15 kg; stones = flint (2-6 cm);
bulk density = 2.66g cm⁻²
Volume of pit = 7.3 (4015 x 1 cm sphere) + 64.3
= 29373.8 cm³

12150 g ÷ 2.66 = 4567.7
4567.7 ÷ 29373.8 = 15.6%

ALC grade according to topsoil stone content = Sub-grade 3B

Pit 4

Topsoil: 0-26 cm
Medium Sandy Silt Loam
10YR32; very dark greyish brown
3.6% stone (stoniness assessment: stone = flint;
weight = 2.8 kg; pit volume = 29,373 cm³)
No evidence of wetness
Structure = Moderately developed
Medium Sub-Angular Blocky (breaking to Medium
Granular)
Friable

Subsoil, Upper: 26-41 cm
Medium Sandy Silt Loam
10YR56; yellowish brown
Similar stone content to topsoil with approx 5% flint
2 mm - 2 cm
Structure = Massive; a compacted layer immediately below
topsoil. When broken through by pick the soil breaks
into lumps (35 x 15 x 12 cm deep).
Very to extremely firm
Very porous

Subsoil, Lower: 41- +90 cm (Pit dug to 70 cm; Augered to 90 cm, too stony
to penetrate)
Medium Sandy Silt Loam
10YR56; yellowish brown
Approx 5% flint
Structure = Weakly Developed
Coarse Angular Blocky
Firm
(ie Moderate Subsoil Structure)

AP Wheat = 148 mm; MD Wheat = 100 mm; MB Wheat = +48 mm = Grade 1

Given the variable and sometimes high nature of the subsoil stone content,
Grade 2 is felt to be a more appropriate ALC grade.