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Chichester District Local Plan
Objector Site OSR 02
Boxgrove Manor Archaeological Park, Boxgrove, West Sussex
Agricultural Land Classification
August 1995

Resource Planning Team
Guildford Statutory Group
ADAS Reading

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AGRICULTURAL LAND CLASSIFICATION REPORT

CHICHESTER DISTRICT LOCAL PLAN
OBJECTOR SITE OSR 02:
BOXGROVE MANOR ARCHAEOLOGICAL PARK,
BOXGROVE, WEST SUSSEX

Introduction

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 143.4 hectares between the A27 and Eartham, at Boxgrove Common, West Sussex. The survey was carried out during October 1995.

2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF), Land Use Planning Unit, Reading in connection with the Chichester District Local Plan. The results of this survey supersede previous ALC information for this land.

3. The work was conducted by members of the Resource Planning Team in the Guildford Statutory Group of ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). To the south of Ounces Barn and the north of Tinwood Lane and south of Dyer's Copse the land has been excavated for minerals and then reinstated. Those areas which have been reinstated for more than five years have been given an ALC grading assessment. Land restored within the last five years has not been surveyed as physical conditions on restored land may take several years to stabilise; therefore, the land is not normally graded until the end of the statutory aftercare period, or otherwise not until five years after soil replacement. A description of the ALC grades and subgrades is given in Appendix I.

4. At the time of survey the agricultural land use was a mixture of maize stubble, oilseed rape, permanent grass and recently ploughed land.

5. Open pits, silt lagoons and land yet to be restored at the time of survey have been classified as Non-Agricultural. Areas of Woodland and Agricultural Buildings are also mapped. The area shown as Urban comprises the Estate Office and tarmac areas.

Summary

6. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10000; it is accurate at this scale but any enlargement would be misleading.

7. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

8. The fieldwork was conducted at an average density of 1 boring per hectare. A total of 60 borings and four soil pits were described.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% site area	% agricultural area
3a	3.2	2.2	6.5
3b	44.3	30.9	89.3
4	2.1	1.5	4.2
Urban	3.2	2.2	
Non-Agricultural	51.5	35.9	
Woodland	8.5	5.9	
Agricultural Buildings	0.7	0.5	
Not Surveyed	29.9	20.9	
Total survey area	49.6		100.0
Total site area	143.4	100.0	

9. A relatively small area in the north of the site has been classified as Subgrade 3a, good quality. This land is limited by soil droughtiness, arising from silty textured soils which overlie very flinty subsoils or chalk at moderate depth within the soil profiles. Parts of this land are also limited by a topsoil stone limitation, arising from 10 to 15% of flints larger than 2 cm within the top 25 cm depth. This limitation may impede cultivation, harvesting and crop growth.

10. Most of the agricultural land surveyed has been classified as Subgrade 3b, moderate quality. This land is principally limited by the topsoil stone content, sometimes in conjunction with soil droughtiness, or gradient. The soils are silty textured and become increasingly flinty with depth. Topsoils contain between 16 and 35% of flints larger than 2 cm within the top 25 cm. Such stoniness will impede cultivation, harvesting and crop growth and cause excessive implement and tyre wear. Parts of this land are also limited by soil droughtiness, caused by the interaction of the relatively dry prevailing climate and the high flint contents of the soil profiles. Some of the restored land is also affected by a soil wetness limitation. To the south of Warehead House, some of the land occupies slopes of greater than 7°. Such gradients act to restrict the safe and efficient use of farm machinery.

11. To the south of Dyer's Copse a small area of restored land has been classified as Grade 4, poor quality. This land is restricted by a soil droughtiness limitation caused by very stony topsoils and subsoils. The subsoils are very compacted, and as such would not allow crop roots to efficiently extract water from the lower subsoils. Such restricted rooting would result in less available water in the soil profile, causing the land to be downgraded to Grade 4.

Factors Influencing ALC Grade

Climate

12. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

13. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values	Values
Grid reference	N/A	SU 935 078	SU 923 088
Altitude	m, AOD	35	60
Accumulated Temperature	day°C	1507	1478
Average Annual Rainfall	mm	823	846
Field Capacity Days	days	171	176
Moisture Deficit, Wheat	mm	111	107
Moisture Deficit, Potatoes	mm	106	101

14. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

15. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (AT0, January to June), as a measure of the relative warmth of a locality.

16. The combination of rainfall and accumulated temperature at this site mean that there is no overall climatic limitation. Local climatic factors such as exposure and frost risk are not believed to adversely affect the site. The site is climatically Grade 1. However, climatic factors do interact with soil factors to influence soil wetness and droughtiness limitations. The proximity to the south coast means that evapotranspiration rates will be relatively high. This may increase the likelihood of soil droughtiness limitations.

17. In the extreme north of the site at an altitude of approximately 55 m AOD there is an important field capacity days (FCD) boundary, in terms of ALC assessment. Land at or above 55 m AOD falls into a higher FCD category, and is thus more likely to be downgraded due to soil wetness and workability limitations.

Site

18. The agricultural land on the site occupies either flat or gently undulating land. Where the latter occurs, gradients are typically within the range of 1-5°. However, to the south of Warehead House, some of the land occupies slopes of 7-11°. Such gradients act to restrict the safe and efficient use of farm machinery.

Geology and soils

19. The published geological information (BGS, 1972) shows most of the agricultural land to be underlain by drift deposits of valley gravel over Upper Chalk. The land in the extreme north of the site is mapped as Upper Chalk.

20. The published soils information (SSGB, 1967) maps the Charity Series across the entire site. Three variants and phases of this series have been mapped. Most of the soils are shown as the extremely flinty phase, with a small area in the north of the site mapped as the undifferentiated phase. Across an area approximate with that underlain directly by Upper Chalk, soils of the calcareous variant are mapped. Soils of the Charity Series are described as 'well drained fine silty and fine silty over clayey soils, locally very flinty, some shallow over flint gravel' (SSGB, 1967).

Agricultural Land Classification

21. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

22. The location of the auger borings and pits is shown on the attached sample location map and the details of the soils data are presented in Appendix III.

Subgrade 3a

23. All of the land classified as Subgrade 3a, good quality, is limited by soil droughtiness. This limitation arises from silty textured soils which either overlie chalk or very flinty subsoils at moderate depth within the soil profiles. Where the profiles overlie chalk, topsoils comprise calcareous medium silty clay loams. These generally overlie strong brown coloured clay upper subsoils which pass into chalk at 40 to 55 cm depth. The topsoils tend to be slightly stony, typically containing about 5-9% of flints >2 cm, 2-3% of flints >6cm and 12-15% total flints by volume. Upper subsoils are slightly to moderately stony, containing 2-10% of flints by volume.

24. Pit 4, which represents such profiles, found the chalk to be relatively hard and blocky with about 2% total flints by volume. Rooting by crops into the chalk was found to extend approximately 23 cm. However, the chalk only becomes much more compact at 80 cm, thus allowing for 30 cm rooting into the chalk. The interaction of these moderately deep soils (with restricted rooting into the chalk) and the dry prevailing climate results in the amount of soil available water being inadequate to meet crop requirements in some years. The resultant soil droughtiness limitation means that this land will suffer from slightly lower yield potential and less consistent crop yields.

25. Other profiles within this mapping unit overlie very flinty subsoils at depth. Non-calcareous medium silty clay loam topsoils overlie heavier, heavy silty clay loam and clay, subsoils. Profiles are moderately stony, containing 20-30% total flints by volume. At approximately 55 to 60 cm depth, these profiles proved impenetrable to a soil auger because of underlying gravelly lower subsoils. Using information from Pit 1, it is likely that the lower subsoils prove impenetrable because they are very stony (approximately 50-60% total flints by volume). The high soil moisture deficits at this site and the soil properties means that land is classified as Subgrade 3a, because of soil droughtiness.

26. Where the soils overlie flinty lower subsoils, the land is also subject to a topsoil stone content limitation. This is caused by moderate amounts of larger flints within the top 25 cm from the surface. Flints larger than 2 cm (approximately 11-15% by volume) and larger than 6 cm (approximately 6% by volume) act to increase wear and tear to implements and tyres, plus impede cultivation, harvesting and crop growth.

Subgrade 3b

27. The majority of agricultural land has been classified as Subgrade 3b, moderate quality. Most of this land is subject to a topsoil stone content limitation, often in conjunction with soil droughtiness restrictions. Some of the restored land is limited by soil wetness and workability. To the south of Warehead House and near Mount Noddy, some of the land occupies slopes of 7°-11°. This land can be classified as no higher than Subgrade 3b due to restrictions on the safe and efficient use of agricultural machinery.

28. Across most of the Subgrade 3b mapping unit profiles typically comprise silty textured soils which become increasingly flinty with depth. Topsoils comprise non-calcareous medium silty clay loams and, to a lesser extent, silt loams. Topsoils are moderately or very stony, typically containing 15-30% of flints >2cm, 6-12% of flints > 6 cm and 25-40% total flints by volume. The high percentage of flints over 2 cm, and where profiles contain 10% or more of flints larger than 6 cm, means that the land can be classified as no higher than Subgrade 3b because of a topsoil stone content limitation. Such flintiness acts as a significant impediment to cultivation, harvesting and crop growth, and increases tyre and implement wear and tear.

29. Within this mapping unit topsoils overlie medium silty clay loam upper subsoils which are typically moderately stony, containing 30-40% total flints by volume. Due to the gravelly nature of the lower subsoils, all of the auger borings proved impenetrable between 35 and 50 cm depth. Consequently, a soil inspection pit (Pit 1) was dug to assess subsoil conditions.

30. From Pit 1 it could be seen that the lower subsoils comprise medium and heavy silty clay loams. These were found to be very stony, passing from approximately 50% to 60% total flints by volume at 65 cm depth. Despite the high stone contents the lower horizons were found to be relatively friable and non-compact, and have thus been assumed to be moderately structured. The flinty nature made it impossible to dig beyond a depth of 85 cm. It is possible that below 85 cm the soil profile may pass into pure gravel (that is, greater than 70% stone by volume). Roots should be able to extend further in search of available water but the exact depth of penetration and stone content below 85 cm is uncertain. Given the soil moisture deficits at this locality, the land has been placed in Subgrade 3b because of a significant risk of drought stress. Consequently, this land will be subject to a lower yield potential and inconsistent crop yields. However, where silt loam topsoils occur the land would be placed

into Subgrade 3a on the basis of soil droughtiness. Silt loams have a high available water capacity, and in comparison to medium silty clays loams more water is available for uptake by crop roots. However, this land is still mapped as Subgrade 3b due to an overriding topsoil stone content limitation.

31. Some of the restored land to the north of Tinwood Lane is also subject to a topsoil stone content limitation. These profiles were similar in stone content and texture to those described above, and also proved impenetrable to a soil auger between 35 and 45 cm depth. The soil inspection pit dug in this area (Pit 3) revealed the presence of a very stony medium silty clay loam horizon, with 50% total flints by volume, which passed into a stoneless clay lower subsoil. The clay was assessed as having moderately developed coarse platy peds of firm consistence, which results in a slowly permeable horizon. The relatively high FCD days (171 FCD) means that this profile is assigned to Wetness Class III. Given the medium textured topsoil, Subgrade 3a is most appropriate classification. However, the overriding limitation is that of topsoil stoniness.

32. A small area to the south of Dyer's Copse and to the north of the Quarry Office (within the urban area) is limited by soil wetness and workability. This land has also been restored. Medium and heavy silty clay loam and clay topsoils are directly underlain by clay subsoils. Pit 2, dug within this mapping unit, found the clay subsoils to comprise moderately developed coarse angular blocky peds of firm consistence. Such profiles are considered poorly drained, equating to Wetness Class IV. The interaction between the topsoil textures and drainage characteristics with the prevailing climate means that this land is most appropriately classified as Subgrade 3b. This land will be subject to significant restrictions on the flexibility of cropping, stocking and cultivations.

Grade 4

33. This land occurs on the restored area immediately to the south of Dyer's Copse. This land is restricted by severe soil droughtiness limitations, resulting from very shallow and flinty profiles. Topsoils comprise medium silty clay loams. Topsoils are very stony, containing approximately 25-30% of flints larger than 2 cm, 12-15% of flints larger than 6 cm and 40% total flints by volume. These overlie very shallow upper subsoils which are of similar texture and stone content. Due to very compact and stony underlying horizons these profiles proved impenetrable to both soil auger and spade at 30 to 35 cm depth. Although no soil inspection pit was dug in this area it is likely that the underlying horizon is likely to be hard and consolidated, and thus impenetrable to implements and plant roots. The resultant restricted rooting means that the amount of profile available water will be severely restricted. This land will therefore suffer from severe soil droughtiness.

34. In addition, this land is likely to suffer from soil wetness and workability limitations. The hard and consolidated horizon is likely to be of low permeabilty, thus acting as a very slowly permeable horizon at a shallow depth within the soil profile. Such poor drainage characteristics means that this land will suffer from restricted flexibility of cropping, stocking and cultivations.

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SOURCES OF REFERENCE

British Geological Survey (1972) *Sheet No. 317, Chichester, 1:63,360 (drift edition).*
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land.*
MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification.*
Met. Office: Bracknell.

Soil Survey of England and Wales (1967) *Sheet SU90, Bognor Regis, 1:25,000 and accompanying bulletin 'Soils of the West Sussex Coastal Plain'.*
SSGB: Harpenden.

APPENDIX I

DESCRIPTIONS OF THE GRADES AND SUBGRADES

Grade 1: Excellent Quality Agricultural Land

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2: Very Good Quality Agricultural Land

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1 land.

Grade 3: Good to Moderate Quality Land

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When more demanding crops are grown, yields are generally lower or more variable than on land in Grades 1 and 2.

Subgrade 3a: Good Quality Agricultural Land

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

Subgrade 3b: Moderate Quality Agricultural Land

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

Grade 4: Poor Quality Agricultural Land

Land with severe limitations which significantly restrict the range of crops and/or the level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

Grade 5: Very Poor Quality Agricultural Land

Land with severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Urban

Built-up or 'hard' uses with relatively little potential for a return to agriculture including: housing, industry, commerce, education, transport, religous buildings, cemetries. Also, hard-surfaced sports facilities, permanent caravan sites and vacant land; all types of derelict land, including mineral workings which are only likely to be reclaimed using derelict land grants.

Non-agricultural

'Soft' uses where most of the land could be returned relatively easily to agriculture, including: private parkland, public open spaces, sports fields, allotments and soft-surfaced areas on airports. Also active mineral workings and refuse tips where restoration conditions to 'soft' after-uses may apply.

Woodland

Includes commercial and non-commercial woodland. A distinction may be made as necessary between farm and non-farm woodland.

Agricultural Buildings

Includes the normal range of agricultural buildings as well as other relatively permanent structures such as glasshouses. Temporary structures (eg. polythene tunnels erected for lambing) may be ignored.

Open Water

Includes lakes, ponds and rivers as map scale permits.

Land Not Surveyed

Agricultural land which has not been surveyed.

Where the land use includes more than one of the above, eg. buildings in large grounds, and where map scale permits, the cover types may be shown separately. Otherwise, the most extensive cover type will be shown.

APPENDIX II

SOIL WETNESS CLASSIFICATION

Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging[1]
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years.[2]
II	The soil profile is wet within 70 cm depth for 31-90 days in most years **or**, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years **or**, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

[1] The number of days is not necessarily a continuous period.
[2] 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL DATA

Contents:

SOIL PROFILE DESCRIPTIONS: EXPLANATORY NOTE

Soil pit and auger boring information collected during ALC fieldwork is held on a computer database. This uses notations and abbreviations as set out below.

Boring Header Information

1. **GRID REF**: national 100 km grid square and 8 figure grid reference.

2. **USE**: Land use at the time of survey. The following abbreviations are used.

ARA:	Arable	**WHT:**	Wheat	**BAR**:	Barley
CER:	Cereals	**OAT**:	Oats	**MZE**:	Maize
OSR:	Oilseed rape	**BEN**:	Field Beans	**BRA**:	Brassicae
POT:	Potatoes	**SBT**:	Sugar Beet	**FCD**:	Fodder Crops
LIN:	Linseed	**FRT:**	Soft and Top Fruit	**FLW**:	Fallow
PGR:	Permanent Pasture	**LEY**:	Ley Grass	**RGR**:	Rough Grazing
SCR:	Scrub	**CFW**:	Coniferous Woodland	**DCW**:	Deciduous Wood
HTH:	Heathland	**BOG**:	Bog or Marsh	**FLW**:	Fallow
PLO:	Ploughed	**SAS**:	Set aside	**OTH**:	Other
HRT:	Horticultural Crops				

3. **GRDNT**: Gradient as estimated or measured by a hand-held optical clinometer.

4. **GLEY/SPL**: Depth in centimetres (cm) to gleying and/or slowly permeable layers.

5. **AP (WHEAT/POTS)**: Crop-adjusted available water capacity.

6. **MB (WHEAT/POTS)**: Moisture Balance. (Crop adjusted AP - crop adjusted MD)

7. **DRT**: Best grade according to soil droughtiness.

8. If any of the following factors are considered significant, 'Y' will be entered in the relevant column.

MREL:	Microrelief limitation	**FLOOD:**	Flood risk	**EROSN**:	Soil erosion risk
EXP:	Exposure limitation	**FROST**:	Frost prone	**DIST**:	Disturbed land
CHEM:	Chemical limitation				

9. **LIMIT**: The main limitation to land quality. The following abbreviations are used.

OC:	Overall Climate	**AE**:	Aspect	**EX**:	Exposure
FR:	Frost Risk	**GR**:	Gradient	**MR**:	Microrelief
FL:	Flood Risk	**TX**:	Topsoil Texture	**DP**:	Soil Depth
CH:	Chemical	**WE**:	Wetness	**WK**:	Workability
DR:	Drought	**ER**:	Erosion Risk	**WD**:	Soil Wetness/Droughtiness
ST:	Topsoil Stoniness				

Soil Pits and Auger Borings

1. **TEXTURE**: soil texture classes are denoted by the following abbreviations.

S:	Sand	**LS**:	Loamy Sand	**SL**:	Sandy Loam
SZL:	Sandy Silt Loam	**CL**:	Clay Loam	**ZCL**:	Silty Clay Loam
ZL:	Silt Loam	**SCL**:	Sandy Clay Loam	**C**:	Clay
SC:	Sandy Clay	**ZC**:	Silty Clay	**OL**:	Organic Loam
P:	Peat	**SP**:	Sandy Peat	**LP**:	Loamy Peat
PL:	Peaty Loam	**PS**:	Peaty Sand	**MZ**:	Marine Light Silts

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction will be indicated by the use of the following prefixes:

F: Fine (more than 66% of the sand less than 0.2mm)
M: Medium (less than 66% fine sand and less than 33% coarse sand)
C: Coarse (more than 33% of the sand larger than 0.6mm)

The clay loam and silty clay loam classes will be sub-divided according to the clay content: **M:** Medium (<27% clay) **H**: Heavy (27-35% clay)

2. **MOTTLE COL**: Mottle colour using Munsell notation.

3. **MOTTLE ABUN**: Mottle abundance, expressed as a percentage of the matrix or surface described.

F: few <2% **C:** common 2-20% **M**: many 20-40% **VM**: very many 40% +

4. **MOTTLE CONT:** Mottle contrast

F: faint - indistinct mottles, evident only on close inspection
D: distinct - mottles are readily seen
P: prominent - mottling is conspicuous and one of the outstanding features of the horizon

5. **PED. COL**: Ped face colour using Munsell notation.

6. **GLEY:** If the soil horizon is gleyed a 'Y' will appear in this column. If slightly gleyed, an 'S' will appear.

7. **STONE LITH**: Stone Lithology - One of the following is used.

HR:	all hard rocks and stones	**SLST**:	soft oolitic or dolimitic limestone
CH:	chalk	**FSST**:	soft, fine grained sandstone
ZR:	soft, argillaceous, or silty rocks	**GH**:	gravel with non-porous (hard) stones
MSST:	soft, medium grained sandstone	**GS**:	gravel with porous (soft) stones
SI:	soft weathered igneous/metamorphic rock		

Stone contents (>2cm, >6cm and total) are given in percentages (by volume).

8. **STRUCT**: the degree of development, size and shape of soil peds are described using the following notation:

degree of development	**WK**: weakly developed **ST**: strongly developed	**MD**: moderately developed
ped size	**F**: fine **C**: coarse	**M**: medium **VC**: very coarse
ped shape	**S** : single grain **GR**: granular **SAB**: sub-angular blocky **PL**: platy	**M**: massive **AB**: angular blocky **PR**: prismatic

9. **CONSIST**: Soil consistence is described using the following notation:

L: loose **VF**: very friable **FR**: friable **FM**: firm **VM**: very firm
EM: extremely firm **EH**: extremely hard

10. **SUBS STR**: Subsoil structural condition recorded for the purpose of calculating profile droughtiness: **G**: good **M**: moderate **P**: poor

11. **POR**: Soil porosity. If a soil horizon has less than 0.5% biopores >0.5 mm, a 'Y' will appear in this column.

12. **IMP**: If the profile is impenetrable to rooting a 'Y' will appear in this column at the appropriate horizon.

13. **SPL**: Slowly permeable layer. If the soil horizon is slowly permeable a 'Y' will appear in this column.

14. **CALC**: If the soil horizon is calcareous, a 'Y' will appear in this column.

15. Other notations
    APW: available water capacity (in mm) adjusted for wheat
    APP: available water capacity (in mm) adjusted for potatoes
    MBW: moisture balance, wheat
    MBP: moisture balance, potatoes

SOIL PIT DESCRIPTION

Site Name : CHICHESTER DLP BOXGROVE Pit Number : 1P

Grid Reference: SU93400780 Average Annual Rainfall : 836 mm
Accumulated Temperature : 1495 degree days
Field Capacity Level : 174 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	ZL	10YR43 00	21	35	HR					
29- 40	MZCL	10YR54 00	0	35	HR				M	
40- 65	MZCL	10YR54 00	0	50	HR				M	
65- 85	HZCL	10YR56 00	0	60	HR				M	

Wetness Grade : 1 Wetness Class : I
Gleying : cm
SPL : No SPL

Drought Grade : 3B APW : 82 mm MBW : -28 mm
APP : 83 mm MBP : -21 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name : CHICHESTER DLP BOXGROVE Pit Number : 2P

Grid Reference: SU92750818 Average Annual Rainfall : 836 mm
Accumulated Temperature : 1495 degree days
Field Capacity Level : 174 days
Land Use :
Slope and Aspect : 03 degrees E

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 20	C	10YR44 00	0	5	HR		WKCSAB	FR		Y
20- 50	C	75YR56 00	0	0			MDCAB	FM	P	Y
50- 60	MZCL	10YR43 00	0	0					M	Y

Wetness Grade : 3B Wetness Class : IV
Gleying : cm
SPL :20 cm

Drought Grade : 3B APW : 77 mm MBW : -33 mm
APP : 83 mm MBP : -21 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : CHICHESTER DLP BOXGROVE Pit Number : 3P

Grid Reference: SU92200800 Average Annual Rainfall : 836 mm
Accumulated Temperature : 1495 degree days
Field Capacity Level : 174 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	MZCL	10YR42 00	18	35	HR		WKCSAB	FR		Y
25- 45	MZCL	10YR43 56	0	30	HR				M	Y
45- 55	MZCL	10YR56 00	0	50	HR				M	Y
55-120	C	75YR56 00	0	0			MDCPL	FM	P	Y

Wetness Grade : 3A Wetness Class : III
Gleying : cm
SPL :55 cm

Drought Grade : 3A APW : 109mm MBW : -1 mm
APP : 85 mm MBP : -19 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Topsoil Stoniness

SOIL PIT DESCRIPTION

Site Name : CHICHESTER DLP BOXGROVE Pit Number : 4P

Grid Reference: SU92050875
Average Annual Rainfall : 836 mm
Accumulated Temperature : 1495 degree days
Field Capacity Level : 174 days
Land Use : Ploughed
Slope and Aspect : 02 degrees S

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 28	MZCL	10YR43 00	9	15	HR					Y
28- 49	C	75YR56 00	0	15	HR	M	MDCSAB	FR	M	Y
49- 72	CH	10YR81 00	0	2	HR				P	Y

Wetness Grade : 2
Wetness Class : I
Gleying : cm
SPL : No SPL

Drought Grade : 3A
APW : 91 mm MBW : -19 mm
APP : 95 mm MBP : -9 mm

FINAL ALC GRADE : 3A
MAIN LIMITATION : Droughtiness

SAMPLE NO.	GRID REF	ASPECT USE		GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1	SU92100880	PLO					1	2	81	-21	85	-9	3B				DR	3B	Border 3a dr
1P	SU93400780	PGR					1	1	82	-28	83	-21	3B				ST	3B	Pit dug to 85
2	SU92200880	PLO	S	02			1	2	85	-17	89	-5	3A				DR	3A	Chalk 40 Imp50
2P	SU92750818	STB	E	03		20	4	3B	77	-33	83	-21	3B			Y	WE	3B	Restored land
3	SU92300880	PLO	S	02			1	2	95	-15	97	-7	3A				DR	3A	Chalk 55 Imp65
3P	SU92200800	STB				55	3	3A	109	-1	85	-19	3A			Y	ST	3B	Restored land
4	SU91880875	PLO	S	01			1	2	78	-32	85	-19	3B				ST	3A	Imp 60 flinty
4P	SU92050875	PLO	S	02			1	2	91	-19	95	-9	3A				DR	3A	Pit dug to 80
5	SU91980870	PLO	S	02			1	2	67	-43	67	-37	3B				ST	3B	Border 3a st
6	SU92080870	PLO	S	02			1	2	75	-35	79	-25	3B				ST	3A	Imp 55 flinty
7	SU92200872	PLO					1	2	85	-25	98	-6	3B				ST	3A	Imp 70 flinty
8	SU92240876	PLO	S	02			1	2	91	-19	104	0	3A				ST	3A	Imp 75 flinty
9	SU92300872	PLO	S	01	28	28	4	3B	89	-21	99	-5	3B				WE	3B	Imp 70 flinty
10	SU91500860	PLO	SE	04			1	1	41	-69	41	-63	4				ST	3B	Imp 40 flinty
11	SU91600860	PLO	SW	05			1	1	72	-38	72	-32	3B				ST	3B	Imp 50 flinty
12	SU92050857	PLO	S	02			1	2	53	-57	53	-51	4				ST	3B	Imp 40 flinty
13	SU91500850	PLO	E	05			1	1	58	-52	58	-46	4				ST	3B	Imp 45 flinty
14	SU91600850	PLO	SW	03			1	1	57	-53	57	-47	4				ST	3B	Imp 40 flinty
15	SU91400840	PLO	E	04			1	1	53	-57	53	-51	4				ST	3A	Imp 38 flinty
16	SU91500840	PLO	W	04			1	1	45	-65	45	-59	4				ST	3B	Imp 38 flinty
17	SU91600840	PLO					1	1	43	-67	43	-61	4				ST	3B	Imp 35 flinty
18	SU91900840	PLO					1	1	45	-65	45	-59	4			Y	ST	3B	Restored Imp35
19	SU92000840	PLO					1	1	55	-55	55	-49	4			Y	ST	3B	Restored Imp40
20	SU91400830	PLO	W	04			1	1	55	-55	55	-49	4				ST	3B	Imp 38 flinty
21	SU91500830	PLO					1	1	44	-66	44	-60	4				ST	3B	Imp 35 flinty
22	SU91540822	PLO					1	1	41	-69	41	-63	4				ST	3B	Imp 35 flinty
23	SU92680835	STB	NE	05			1	1	52	-58	52	-52	4			Y	DR	4	Restored Imp40
24	SU92570832	STB	N	02			1	1	35	-75	35	-69	4			Y	DR	4	Restored Imp30
25	SU92750825	STB	NE	02			1	1	40	-70	40	-64	4			Y	DR	4	Restored Imp35
26	SU92540825	STB					1	1	156	46	120	16	1			Y	ST	2	Restored
27	SU92600820	STB	N	02			1	1	35	-75	35	-69	4			Y	DR	4	Restored Imp30
28	SU92750818	STB	E	03		20	4	3B	81	-29	88	-16	3B			Y	WE	3B	Restored Re 2P
29	SU92540815	STB				30	4	3B	85	-25	90	-14	3B			Y	ST	3B	Restored Imp80
30	SU92650815	STB				30	4	3B	117	7	98	-6	2			Y	WE	3B	Restored Re 2P
31	SU93300820	PGR	SE	03			1	1	59	-51	59	-45	4				ST	3B	Imp 40 flinty
32	SU92370807	STB	W	01			1	1	54	-56	54	-50	4			Y	ST	3B	Restored Imp42
33	SU91400855	PLO	SE	02			1	1	44	-66	44	-60	4				ST	3B	Imp 35 flinty
34	SU93100810	STB	W	04			1	1	063	-47	063	-41	3B				ST	3B	Imp 45 flinty
35	SU93200810	PGR	S	01			1	1	83	-27	85	-19	3B				ST	3B	Imp 55 flinty
36	SU93300810	PGR	SE	05			1	1	99	-11	110	6	3A				ST	3B	Imp 72 flinty
37	SU92050805	STB	W	01	23	23	4	3B	96	-14	92	-12	3A			Y	WE	3B	Restored Re 2P
38	SU92150805	STB				45	4	3B	79	-31	88	-16	3B			Y	ST	3B	Restored

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
39	SU92250805	STB							55	-55	55	-49	4			Y	ST	3B	Restored Imp45
40	SU93100800	STB	W	04			1	1	052	-58	052	-52	4				ST	3B	Imp 40 flinty
41	SU93200800	PGR					1	1	60	-50	60	-44	3B				ST	3B	Imp 45 flinty
42	SU93400800	PGR	W	02			1	1	50	-60	50	-54	4				ST	3B	Imp 38 flinty
43	SU93500800	PGR					1	1	63	-47	63	-41	3B				DR	3B	Imp 45 flinty
44	SU92400800	STB					1	1	48	-62	48	-56	4			Y	ST	3B	Restored Imp35
45	SU92450795	STB					1	1	58	-52	58	-46	4			Y	ST	3B	Restored Imp40
46	SU92510783	STB					1	1	57	-53	57	-47	4			Y	ST	3B	Restored Imp45
47	SU92580787	STB					1	1	125	15	99	-5	2				DR	2	Restored
48	SU92700793	STB			70	25	4	3B	114	4	91	-13	3A			Y	WE	3B	Restored Re 2P
49	SU93300788	PGR					1	1	55	-55	55	-49	4				ST	3B	Imp 40 flinty
50	SU93400790	PGR					1	1	56	-54	56	-48	4				ST	3B	Imp 38 flinty
51	SU93500790	PGR					1	1	75	-35	75	-29	3B				ST	3B	Imp 48 flinty
52	SU93300780	PGR					1	1	51	-59	51	-53	4				ST	3B	Imp 40 flinty
53	SU93400780	PGR					1	1	64	-46	64	-40	3B				ST	3B	Imp 45 flinty
54	SU93500780	PGR					1	1	61	-49	61	-43	3B				ST	3B	Imp 40 flinty
55	SU93300765	OSR	W	02			1	1	54	-56	54	-50	4				ST	3B	Imp 40 flinty
56	SU93400768	OSR					1	1	67	-43	67	-37	3B				ST	3B	Imp 40 flinty
57	SU93500770	OSR					1	1	68	-42	68	-36	3B				ST	3B	Imp 50 flinty
58	SU93300760	OSR	W	02			1	1	86	-24	96	-8	3B				ST	3A	Imp 70 flinty
59	SU93150755	OSR	W	02			1	1	97	-13	109	5	3A				DR	3A	Imp 70 flinty
60	SU91300835	PLO	E	03			1	1	69	-41	69	-35	3B				DR	3B	Imp 50 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0-25	mzcl	10YR53 00						9	5	HR	15						Y	
	25-40	mzcl	10YR53 54						0	0	HR	15		M				Y	
	40-70	ch	10YR81 00						0	0	HR	2		P				Y	
1P	0-29	zl	10YR43 00						21	9	HR	35							
	29-40	mzcl	10YR54 00						0	0	HR	35		M					) too stony to
	40-65	mzcl	10YR54 00						0	0	HR	50		M					) assess subsoil
	65-85	hzcl	10YR56 00						0	0	HR	60		M					) strucs. Pit 85
2	0-28	mzcl	10YR53 43						5	3	HR	12						Y	
	28-40	c	75YR58 00	00MN00	00	C			0	0	CH	3		M				Y	
	40-70	ch	10YR81 00						0	0	HR	2		P				Y	
2P	0-20	c	10YR44 00						0	0	HR	5	WKCSAB	FR				Y	
	20-50	c	75YR56 00						0	0		0	MDCAB	FM	P	Y	Y	Y	Restored - spl
	50-60	mzcl	10YR43 00						0	0		0		M				Y	Query spl
3	0-28	mzcl	10YR53 00						6	2	HR	12						Y	
	28-55	c	75YR58 00	00MN00	00	C			0	0	HR	20		M					
	55-78	ch	10YR81 00						0	0	HR	2		P				Y	23cm rooting 4P
3P	0-25	mzcl	10YR42 00						18	6	HR	35	WKCSAB	FR				Y	
	25-45	mzcl	10YR43 56						0	0	HR	30		M				Y	)Too stony to asses
	45-55	mzcl	10YR56 00						0	0	HR	50		M				Y	) s/soil structures
	55-120	c	75YR56 00						0	0		0	MDCPL	FM	P	Y	Y	Y	Restored - spl
4	0-28	mzcl	10YR43 00						12	6	HR	20							
	28-60	c	75YR58 00	00MN00	00	C			0	0	HR	20		M					Impen 60 flinty
4P	0-28	mzcl	10YR43 00						9	5	HR	15						Y	
	28-49	c	75YR56 00	75YR68 00	M		00MN00 00	S	0	0	HR	15	MDCSAB	FR	M			Y	Slightly gleyed
	49-72	ch	10YR81 00					Y	0	0	HR	2		P				Y	23cm rooting
5	0-28	mzcl	10YR43 00						15	6	HR	25							
	28-45	hzcl	10YR56 00						0	0	HR	30		M					
	45-50	hzcl	10YR56 00						0	0	HR	40		M					Impen 50 flinty
6	0-30	mzcl	10YR43 00						11	6	HR	20							
	30-55	c	75YR58 00	00MN00	00	C			0	0	HR	20		M					Impen 55 flinty
7	0-28	mzcl	10YR43 00						13	4	HR	20							
	28-70	c	75YR58 00	00MN00	00	F			0	0	HR	20		M					Impen 70 flinty
8	0-25	mzcl	10YR43 00						13	4	HR	20							
	25-45	c	75YR58 00						0	0	HR	20		M					
	45-70	c	75YR58 00	00MN00	00	C			0	0	HR	2		M				Y	
	70-75	c	75YR58 00	00MN00	00	F		Y	0	0	HR	40		M				Y	Impen 75 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
9	0-28	mzcl	10YR53 00						5	2	HR	10							
	28-65	c	10YR53 00	10YR58 00	M			Y	0	0	HR	5		P			Y		
	65-70	hcl	10YR53 00	10YR56 00	C			Y	0	0	HR	40		M					Impen 70 flinty
10	0-30	mzcl	10YR43 00						20	8	HR	40							
	30-35	mzcl	10YR54 00						0	0	HR	40		M					Impen 35 flinty
11	0-30	zl	10YR43 00						20	9	HR	30							
	30-50	mzcl	10YR54 00						0	0	HR	35		M					Impen 50 flinty
12	0-25	mzcl	10YR43 00						17	6	HR	25							
	25-40	mzcl	10YR54 00						0	0	HR	35		M					Impen 40 flinty
13	0-30	mzcl	10YR43 00						16	5	HR	30							
	30-45	mzcl	10YR54 00						0	0	HR	35		M					Impen 45 flinty
14	0-30	zl	10YR43 00						29	15	HR	40							
	30-40	zl	10YR43 00						0	0	HR	35		M					Impen 40 flinty
15	0-30	mzcl	10YR43 00						14	5	HR	25							
	30-38	mzcl	10YR54 00						0	0	HR	35		M					Impen 38 flinty
16	0-30	mzcl	10YR43 00						24	15	HR	40							
	30-38	mzcl	10YR44 00						0	0	HR	35		M					Impen 38 flinty
17	0-30	mzcl	10YR43 00						18	5	HR	35							
	30-35	mzcl	10YR54 00						0	0	HR	40		M					Impen 35 flinty
18	0-25	mzcl	10YR42 00						20	6	HR	30							
	25-35	mzcl	10YR54 00						0	0	HR	35		M					Restd I35 flinty
19	0-28	mzcl	10YR42 32						16	6	HR	25							
	28-40	mzcl	10YR54 00						0	0	HR	30		M					Restd I40 flinty
20	0-30	zl	10YR43 00						18	5	HR	35							
	30-38	mzcl	10YR54 00						0	0	HR	35		M					Impen 38 flinty
21	0-30	mzcl	10YR43 00						18	8	HR	35							
	30-35	mzcl	10YR54 00						0	0	HR	35		M					Impen 35 flinty
22	0-30	mzcl	10YR43 00						24	10	HR	40							
	30-35	mzcl	10YR54 00						0	0	HR	35		M					Impen 35 flinty
23	0-30	mzcl	10YR33 00						18	6	HR	30					Y		
	30-40	c	75YR54 00						0	0	HR	35		M			Y		Restd Imp40 flinty
24	0-25	mzcl	10YR53 00						30	15	HR	40					Y		
	25-30	mzcl	10YR53 00						0	0	HR	40		M			Y		Restd Imp30 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
25	0-25	mzcl	10YR42 00						25	12	HR	40						Y	
	25-35	mzcl	10YR54 00						0	0	HR	40		M				Y	Restd Imp35 flinty
26	0-25	mzcl	10YR43 00						6	0	HR	10						Y	
	25-70	mzcl	75YR46 00						0	0		0		M				Y	
	70-120	mcl	75YR46 00						0	0		0		M				Y	
27	0-25	mzcl	10YR42 00						30	15	HR	40						Y	
	25-30	mzcl	10YR42 00						0	0	HR	40		M				Y	Restd Imp30 flinty
28	0-20	c	10YR44 00						0	0	HR	5						Y	
	20-50	c	75YR56 00						0	0		0		P		Y		Y	Restored - spl
	50-60	mzcl	10YR43 00						0	0		0		M				Y	Restored - Q spl
29	0-30	mzcl	10YR43 00						18	6	HR	25						Y	
	30-45	c	10YR56 00						0	0		0		P		Y		Y	
	45-80	c	10YR56 00						0	0	HR	20		P		Y		Y	Restd Imp80 flinty
30	0-30	mzcl	10YR43 00						11	3	HR	20						Y	
	30-80	c	10YR56 00						0	0		0		P		Y		Y	Restored - spl
	80-120	mzcl	10YR56 00						0	0		0		M				Y	Restored - Q spl
31	0-20	zl	10YR43 00						18	8	HR	30							
	20-40	mzcl	10YR54 00						0	0	HR	25		M					Impen 40 flinty
32	0-30	mzcl	10YR42 00						20	5	HR	30						Y	
	30-42	mzcl	10YR43 00						0	0	HR	35		M				Y	Restd Imp42 flinty
33	0-30	mzcl	10YR43 00						18	5	HR	35							
	30-35	mzcl	10YR54 00						0	0	HR	35		M					Impen 35 flinty
34	0-25	mzcl	10YR43 00						16	5	HR	25							
	25-40	mzcl	10YR54 00						0	0	HR	20		M					
	40-45	mzcl	10YR56 00						0	0	HR	35		M					Impen 45 flinty
35	0-30	zl	10YR43 00						18	5	HR	30							
	30-50	mzcl	10YR54 00						0	0	HR	10		M					
	50-55	mzcl	10YR40 00						0	0	HR	40		M					Impen 55 flinty
36	0-30	zl	10YR43 00						16	5	HR	30							
	30-45	mzcl	10YR54 00						0	0	HR	15		M					
	45-72	mzcl	10YR54 00						0	0	HR	8		M					Impen 72 flinty
37	0-23	hzcl	10YR42 00						5	0	HR	8							
	23-40	c	10YR42 00	10YR58 00	C			Y	0	0		0		P		Y		Y	Restored - spl
	40-60	lms	25Y 56 00	10YR58 00	C			S	0	0		0		M				Y	Slightly gleyed
	60-80	msl	10YR73 00	05 Y21 00	C			Y	0	0		0		M				Y	

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
38	0-30	mzcl	10YR43 00						20	7	HR	35						Y	
	30-45	mzcl	10YR43 56						0	0	HR	25		M				Y	
	45-75	hzcl	10YR56 00						0	0		0		P			Y	Y	Restored - spl
39	0-30	mzcl	10YR42 00						18	6	HR	35						Y	
	30-45	mzcl	10YR43 56						0	0	HR	35		M				Y	Impen 45 flinty
40	0-30	mzcl	10YR43 00						18	8	HR	30							
	30-40	mzcl	10YR54 00						0	0	HR	35		M					Impen 40 flinty
41	0-30	mzcl	10YR43 00						16	9	HR	30							
	30-45	mzcl	10YR54 00						0	0	HR	25		M					Impen 45 flinty
42	0-30	mzcl	10YR43 00						16	5	HR	30							
	30-38	mzcl	10YR54 00						0	0	HR	35		M					Impen 38 flinty
43	0-30	mzcl	10YR43 00						13	1	HR	30							
	30-45	mzcl	10YR54 00						0	0	HR	15		M					Impen 45 flinty
44	0-35	mzcl	10YR42 00						18	5	HR	30						Y	Impen 35 flinty
45	0-30	zl	10YR42 43						20	10	HR	30						Y	
	30-40	mzcl	10YR54 00						0	0	HR	50		M				Y	Restd Imp40 flin
46	0-30	mzcl	10YR43 00						17	8	HR	30						Y	
	30-45	mcl	75YR58 00						0	0	HR	35		M				Y	Restd Imp45 flinty
47	0-28	mcl	10YR44 00						2	0	HR	8						Y	
	28-45	mcl	10YR54 00						0	0	HR	5		M				Y	
	45-120	mzcl	10YR74 00						0	0	CH	75		P				Y	Q rooting depth
48	0-25	mzcl	10YR53 00						12	6	HR	30						Y	
	25-50	c	10YR56 00						0	0		0		P			Y	Y	Restored - spl
	50-70	hzcl	10YR56 00						0	0		0		P			Y	Y	Restored - spl
	70-120	zc	10YR56 00	75YR68 71	M			Y	0	0		0		P			Y	Y	Restored - spl
49	0-30	mzcl	10YR43 00						18	5	HR	30							
	30-40	mzcl	10YR54 00						0	0	HR	20		M					Impen 40 flinty
50	0-30	zl	10YR43 00						20	9	HR	35							
	30-38	mzcl	10YR54 00						0	0	HR	30		M					Impen 38 flinty
51	0-30	zl	10YR43 00						18	5	HR	30							
	30-48	mzcl	10YR54 00						0	0	HR	15		M					Impen 48 flinty
52	0-35	mzcl	10YR43 00						21	9	HR	35							
	35-40	mzcl	10YR54 00						0	0	HR	30		M					Impen 40 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
53	0-30	zl	10YR43 00						21	9	HR	35							
	30-45	mzcl	10YR54 00						0	0	HR	30		M					Impen 45 flinty
54	0-30	zl	10YR43 00						19	6	HR	30							
	30-40	mzcl	10YR54 00						0	0	HR	30		M					Impen 40 flinty
55	0-28	mzcl	10YR42 00						18	3	HR	23							
	28-40	mzcl	10YR44 00						0	0	HR	40		M					Impen 40 flinty
56	0-28	zl	10YR42 00						20	5	HR	23							
	28-40	zl	10YR43 00						0	0	HR	40		M					Impen 40 flinty
57	0-25	mzcl	10YR42 00						18	2	HR	23							
	25-50	mzcl	10YR54 00						0	0	HR	30		M					Impen 50 flinty
58	0-28	mzcl	10YR42 00						12	2	HR	17							
	28-70	mzcl	10YR54 00						0	0	HR	30		M					Impen 70 flinty
59	0-28	mzcl	10YR43 00						3	1	HR	5							
	28-70	hzcl	10YR44 00						0	0	HR	20		M					Impen 70 flinty
60	0-30	mzcl	10YR43 00						14	0	HR	20							
	30-50	mzcl	10YR54 00						0	0	HR	35		M					Impen 50 flinty