

**Land at Squabb Wood Salisbury Road,  
Romsey Hampshire**

**Statement of Physical Characteristics  
April 1996**

**Resource Planning Team  
Guildford Statutory Group  
ADAS Reading**

**ADAS Reference 1512/055/96  
MAFF Reference EL 15/01355  
LUPU Commission 02470**

## **STATEMENT OF PHYSICAL CHARACTERISTICS**

### **LAND AT SQUABB WOOD SALISBURY ROAD, ROMSEY HAMPSHIRE**

#### **Introduction**

1 This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 48.1 ha of land to the south of Squabb Wood at Romsey Hampshire. The survey was carried out during April 1996.

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading. This land is currently the subject of a planning application for minerals extraction and consequently a statement of physical characteristics has been prepared. This survey supersedes previous ALC surveys on 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). Approximately two thirds of the agricultural land has previously been excavated for minerals and subsequently reinstated. 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. All of the land on this site has been reinstated for more than five years and has thus been given an ALC grading assessment. A description of the ALC grades and subgrades is given in Appendix I.

4 At the time of survey the undisturbed agricultural land use was winter cereal. The reinstated land was under permanent pasture. The areas shown as Other Land comprise a young tree plantation and established woodland.

#### **Summary**

5 The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10,000. It is accurate at this scale but any enlargement would be misleading. A map at a scale of 1:10,000 illustrates the soil resources found on the site.

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

7 The fieldwork was conducted at an average density of one boring per hectare of agricultural land surveyed. A total of 36 borings and five soil pits were described.

**Table 1 Area of grades and other land**

Grade/Other Land	Area (hectares)	/ Total Site Area	/ Surveyed Area
3b	34.9	72.6	100.0
Other Land	13.2	27.4	
Total Surveyed Area	34.9		100.0
Total Site Area	48.1	100.0	

8 Both the undisturbed agricultural land (i.e. the south eastern field) and the reinstated land have been classified as Subgrade 3b moderate quality. Most of the undisturbed land is limited by soil droughtiness occasionally in conjunction with a topsoil stone limitation. Topsoils typically comprise medium clay loams though occasionally they are lighter in texture. Topsoils are moderately stony including 5-12% flints larger than 2 cm. Occasionally the topsoil contains more than 15% by volume of these larger flints. Where this occurs this land is also restricted to Subgrade 3b by a topsoil stone limitation. Such stoniness will impede cultivation, harvesting and crop growth and cause excessive implement and tyre wear. Upper subsoils comprise very stony medium clay loams which pass into slightly stonier clay lower subsoils. These soil characteristics in combination with climatic factors at this locality act to impose a soil droughtiness limitation which will lead to the soil available water being insufficient to fully meet crop needs. Consequently this land may be subject to low and inconsistent crop yields.

9 A small area in the north of the undisturbed land is limited by soil wetness and workability. Medium clay loam topsoils overlie similarly textured upper subsoils. These pass into poorly structured clay lower subsoils which are slowly permeable. These subsoils cause poor drainage conditions which at this locality will result in restricted flexibility of cropping, stocking and cultivations consistent with Subgrade 3b.

10 Where the land has been reinstated the principal limitation is soil droughtiness. A topsoil stone content limitation also occurs in the north of the site where there are more than 15% flints larger than 2 cm by volume. Much of the reinstated land is also limited by soil wetness and workability. Topsoils are typically medium textured and overlie subsoils of varied texture. The lower subsoils tend to be 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 Subgrade 3b. Where clay subsoils occur they are poorly, sometimes very poorly, structured and slowly permeable. Thus this land is also subject to soil wetness and workability limitations.

## Factors Influencing ALC Grade

### Climate

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

12 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)

Factor	Units	Values	Values
Grid reference	N/A	SU 333 217	SU 329 214
Altitude	m AOD	55	65
Accumulated Temperature	day°C	1492	1481
Average Annual Rainfall	mm	830	838
Field Capacity Days	days	178	180
Moisture Deficit Wheat	mm	105	98
Moisture Deficit Potatoes	mm	103	96

13 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

14 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

15 The combination of rainfall and 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. At this locality the average annual rainfall and field capacity days are comparatively high for the south east. Such factors will increase the likelihood of soil wetness limitations. Crop adjusted soil moisture deficits are correspondingly low thereby reducing the effects of soil droughtiness.

### Site

16 Most of the site is flat and lies at approximately 60.65 m AOD. In the east of the site the land falls gently through gradients of 1.5% to lie at approximately 55 m AOD. Nowhere on the site does gradient or relief result in any limitation to land quality.

### Geology and soils

17 The published geological information for the site (BGS 1973) shows most of the site to comprise plateau gravels overlying Bagshot Sands. A very small area in the east of the site is mapped as clay with flints.

18 The published soils information for the site (SSEW 1983) maps the entire site as soils of the Sonning 2 Association. These soils are described as well drained flinty coarse loamy and gravelly soils. Associated with slowly permeable seasonally waterlogged fine loamy over clayey and coarse loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging (SSEW 1983). Detailed field examination found the soils on both the undisturbed and the reinstated land to be consistent with this description.

### **Agricultural Land Classification**

19 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.

20 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 3b*

21 All of the agricultural land (undisturbed and reinstated) has been classified as Subgrade 3b moderate quality. Most of the undisturbed land is principally limited by soil droughtiness though discrete areas are also subject to a topsoil stone content limitation. The gently sloping land in the north of this area is principally limited by soil wetness and workability.

22 Where the land is undisturbed topsoils typically comprise non calcareous medium clay loams and to a lesser extent fine sandy silt loams. Topsoils are moderately stony typically containing 5-12% of flints >2cm, 1-4% of flints >6 cm and 20-35% total flints by volume. Occasionally profiles contain more than 15% of flints over 2 cm. This 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 On the flatter higher land within this mapping unit the topsoils generally overlie medium clay loam upper subsoils. These are typically very stony containing 40-45% total flints by volume. Due to the gravelly nature of the lower subsoils all of the auger borings proved impenetrable either below the topsoil or at shallow depths within the soil profile. Consequently a soil inspection pit (Pit 1) was dug to assess subsoil conditions.

30 From Pit 1 it could be seen that the subsoils are very stony passing from medium clay loam upper subsoils into clay lower subsoils. The upper subsoil was found to contain approximately 45% flints which passed into a lower subsoil with approximately 60% total flints by volume from 57 cm depth. This profile was gleyed from below the topsoil and so is assigned to Wetness Class II (see Appendix II). The high stone content means that despite heavy soil textures this horizon is not slowly permeable. Given the combination of soil moisture deficits and soil characteristics at this locality the land has been placed in Subgrade 3b because of a significant risk of drought stress. Consequently this land may be subject to a lower yield potential and inconsistent crop yields.

31 In the north of the undisturbed area, where the land is gently sloping the topsoils are similar to those elsewhere in the field but overlie subsoils which are much less stony at depth.

Upper subsoils comprise permeable medium and heavy clay loams which are moderately stony containing 15-35% total flints by volume. At approximately 35-40 cm these pass into very slightly stony clay subsoils. From Pit 2 which represents such profiles the lower subsoils were assessed to be slowly permeable. This would result in poor soil drainage conditions and so these profiles have been assigned to Wetness Class IV. The interaction between the relatively moist prevailing climate, the medium textured topsoils and the soil drainage status means that Subgrade 3b is the most appropriate classification. This land will be subject to significant restrictions on the flexibility of cropping, stocking and cultivations.

32 Where the land has been reinstated the principal limitation is soil droughtiness resulting from relatively shallow and flinty profiles. A topsoil stone limitation also occurs in the north of the site. In addition, much of the reinstated land is limited by soil wetness and workability.

33 Topsoils are typically medium textured medium clay loams, medium silty clay loams, silt loams. Heavier and lighter variants heavy clay loams and fine sandy silt loams also occur sporadically. Topsoils tend to be moderately or very stony generally containing approximately 11-20% of flints larger than 2 cm, 3-8% of flints larger than 6 cm and 25-40% total flints by volume. Where the top 25 cm depth contains more than 15% of flints over 2 cm this land can be classified as no higher than Subgrade 3b because of a topsoil stone content limitation. Upper subsoils are of varied texture (sandy, loamy and clayey) though clays occur most frequently. Where penetrable to a soil auger these horizons tend to be moderately to very stony containing 25-50% total flints by volume. Due to very compact and stony underlying horizons most of the profiles within this mapping unit proved impenetrable to a soil auger either below the topsoil or within 50 cm depth. Consequently three soil inspection pits (Pits 3, 4 and 5) were dug to assess subsoil conditions.

34 Pits 4 and 5 revealed the presence of very stony (55-60% total flints by volume) clay and sandy clay upper subsoils. These were assessed as being slowly permeable. These either pass into similar lower subsoils or instead pass into very poorly structured and very slowly permeable lower subsoils. The latter occur where the lower subsoils are only moderately stony and relatively plastic by nature. These profiles will be poorly drained and thus Wetness Class IV is appropriate. This land will be subject to significant restrictions on the flexibility of cropping, stocking and cultivations. Pit 3 was similarly stony but slightly better drained because of sandy textured upper subsoils. All of these pits proved impenetrable to both soil auger and spade between 52 and 100 cm because of underlying stony, hard and consolidated lower subsoils. It is possible that these lower subsoils may comprise pure gravel (that is greater than 70% stone by volume) but the consolidated nature means that roots would not be able to extend further in search of available water. This land will therefore suffer from significant soil droughtiness. These lower subsoils are also likely to be very slowly permeable.

## **Soil Resources**

### *Soil Units Consideration for Restoration*

35 The following section and the accompanying soil resources map describe the pattern of topsoil and subsoil resources on the site. Table 3 gives the depths and volumes of the four soil units on this site. It should be emphasised that the map is not a soil stripping map but merely

an illustration of the soil resources available for restoration on the site. When considering these details it is important to remember that soils were sampled to a maximum depth of 120 cm during survey work. In some cases soil resources will extend below this depth. The depths and volumes quoted should be treated with caution due to soil variability.

### *Unit I*

36 This unit comprises an average 30 cm of dark greyish brown or brown (10YR 4/2 or 4/3) non calcareous medium clay loam topsoil. This topsoil is moderately stony containing 11-12% of flints >2cm, 1-4% of flints >6 cm and 20-35% total flints by volume.

37 These overlie an average 5-10 cm of brown or yellowish brown (10YR 5/3 or 5/4) medium or heavy clay loam upper subsoil having 15-35% total flints by volume. This upper subsoil horizon exhibits no evidence of drainage imperfections and is well aerated and rooted. It has moderate structure comprising weakly developed coarse sub angular blocky peds of friable consistence.

38 Lower subsoil horizons comprise a further 80 cm of brown grey or light yellowish brown (10YR 5/3 2.5Y 6/1 or 6/3) clay which has many ochreous mottles (yellowish brown, brownish yellow light olive brown strong brown 10YR 5/6 5/8 or 6/8 2.5Y 5/6 7.5YR 5/8) and contains approximately 0-2% total flints by volume. These subsoil horizons are poorly structured comprising weakly developed coarse angular blocky peds of firm consistence. Pit 2 is typical of this soil unit.

### *Unit II*

39 This unit comprises the same topsoil as detailed above for Unit I (para 36).

40 These overlie upper subsoils of medium or heavy clay loam which extend about 25 cm. These are brown (10YR 4/3 or 5/3) with yellowish brown brownish yellow strong brown, reddish yellow mottles (10YR 5/6 5/8 or 6/8 7.5YR 5/8 or 6/8). Structural conditions are moderate being weakly developed coarse sub angular blocky peds of firm consistence.

41 On the evidence of Pit 1 (these subsoils are impenetrable to a soil auger) subsoils pass to clay which contains approximately 60% total flints by volume. This subsoil extends for approximately 20 cm. Below this depth this subsoil may either continue for a further 45 cm or pass into gravel (over 70% total flints by volume). The clay is brown (10YR 5/3) with many strong brown mottles (7.5YR 5/8). This horizon was assumed to be poorly structured although it was in fact too stony for an accurate structural assessment to be made.

### *Unit III*

42 This unit comprises an average 30 cm of non calcareous medium clay loam topsoil though medium silty clay loams and silt loams also occur. The topsoil is very dark or dark greyish brown and brown (10YR 3/2 4/2 or 4/3). The topsoil is very stony containing approximately 16-20% of flints larger than 2 cm, 3-8% of flints larger than 6 cm and 35-40% total flints by volume.

43 The upper subsoil of this unit is very varied and extends between 20 and 70 cm depth. Past restoration of this unit means that soil textures, colours, drainage status and stone content often differ over comparatively short distances. Many of the borings within this unit proved impenetrable either below the topsoil or at shallow depths within the soil profile. On the evidence of Pits 3, 4 and 5 soil textures typically comprise clay and sandy clay though lighter variants, sandy/medium/heavy clay loam, medium sandy loam, loamy medium sand also occur. Typical colours include strong brown, light brownish grey, pale brown, grey or light yellowish brown (7.5YR 5/8, 10YR 6/2 or 6/3, 2.5Y 6/1 or 6/3). These horizons are usually very stony containing 35-60% total flints by volume. Unless sandy textured subsoil horizons were assessed as being either poorly or very poorly structured being composed of massive peds of firm or very firm consistence. Although these horizons are stony, compaction of these soils during reinstatement has resulted in less than 0.5% biopores greater than 0.5 mm in diameter. Below 50-100 cm depth the subsoil may either continue to 120 cm depth or pass into gravel (over 70% total flints by volume). These lower subsoils are very consolidated and are likely to be poorly structured.

#### *Unit IV*

44 This unit comprises an average 30 cm of very dark or dark greyish brown and brown (10YR 3/2, 4/2 or 4/3) non calcareous topsoil. The topsoil tends to be medium textured (medium clay/silty clay loams, silt loams) though heavier (heavy clay loams) and lighter (fine sandy silt loams) textures also occur. The topsoil is moderately stony containing approximately 5-14% of flints larger than 2 cm, 2-6% of flints larger than 6 cm and 15-30% total flints by volume.

45 The subsoils are as for Unit III as previously described (para 43)



**Table 3 Soil Resources**

Unit	Topsoil			Subsoil		
	av depth (cm)	area (ha)	volume (m <sup>3</sup> )	av depth (cm)	area (ha)	volume (m <sup>3</sup> )
I	30	2.1	6 300	90	2.1	18 900
II	30	7.6	22 800	90	7.6	68 400
III	30	8.4	25 200	90	8.4	75 600
IV	30	16.8	50 400	90	16.8	151 200
Total soil resource		34.9	104 700		34.9	314 100

Gillian Iles  
Resource Planning Team  
ADAS Reading

## SOURCES OF REFERENCE

British Geological Survey (1973) *Sheet No 315 Southampton 1 50 000 Series (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 (1983) *Sheet 6 Soils of South East England 1 250 000*

SSEW 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.

## 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 <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years <sup>2</sup>
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)

<sup>1</sup> The number of days is not necessarily a continuous period

<sup>2</sup> In most years is defined as more than 10 out of 20 years

**APPENDIX III**

**SOIL DATA**

**Contents**

**Sample location map**

**Soil abbreviations Explanatory Note**

**Soil Pit Descriptions**

**Soil boring descriptions (boring and horizon levels)**

**Database Printout Horizon Level Information**

## 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

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

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

4 **GLEYSPL** 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

<b>MREL</b> Microrelief limitation	<b>FLOOD</b> Flood risk	<b>EROSN</b> Soil erosion risk
<b>EXP</b> Exposure limitation	<b>FROST</b> Frost prone	<b>DIST</b> Disturbed land
<b>CHEM</b> Chemical limitation		

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

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

## Soil Pits and Auger Borings

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

<b>S</b>	Sand	<b>LS</b>	Loamy Sand	<b>SL</b>	Sandy Loam
<b>SZL</b>	Sandy Silt Loam	<b>CL</b>	Clay Loam	<b>ZCL</b>	Silty Clay Loam
<b>ZL</b>	Silt Loam	<b>SCL</b>	Sandy Clay Loam	<b>C</b>	Clay
<b>SC</b>	Sandy Clay	<b>ZC</b>	Silty Clay	<b>OL</b>	Organic Loam
<b>P</b>	Peat	<b>SP</b>	Sandy Peat	<b>LP</b>	Loamy Peat
<b>PL</b>	Peaty Loam	<b>PS</b>	Peaty Sand	<b>MZ</b>	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

<b>F</b>	Fine (more than 66% of the sand less than 0.2mm)
<b>M</b>	Medium (less than 66% fine sand and less than 33% coarse sand)
<b>C</b>	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

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

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





SOIL PIT DESCRIPTION

Site Name SQUABB WOOD ROMSEY HANTS Pit Numbe 1P

Grid Reference SU33102110 Average Annual Rainfall 830 mm  
 Accumulated Temperature 1492 degree days  
 Field Capacity Level 179 days  
 Land Use Cereals  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0-28	MCL	10YR4/3 00	5		18	HR					
28-57	HCL	10YR5/3 43	0		42	HR	C	WKCSAB	FM	M	
57-77	C	10YR5/3 00	0		60	HR	M		FM	P	

Wetness Grade 3A  
 Wetness Class II  
 Gleying 0.28 cm  
 SPL No SPL

Drought Grade 3B  
 APW 71 mm MBW 33 mm  
 APP 75 mm MBP 22 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name SQUABB WOOD ROMSEY HANTS Pit Numbe 2P

G 1d Reference SU33202120 Average Annual Rai fall 830 mm  
 Accumulated Tempe ature 1492 degree days  
 Field Capacity Level 179 days  
 Land Use Cereals  
 Slope and Aspect 02 degrees NE

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 30	MCL	10YR43 00	12		29	HR					
30 40	MCL	10YR53 00	0		35	HR		WKCSAB	FR	M	
40 120	C	10YR53 00	0		2	HR	M	WKODAB	FM	P	

Wetness G ade 3B Wetness Clas IV  
 Gleying 040 cm  
 SPL 040 cm

Drought G de 2 APW 110mm MBW 6 mm  
 APP 88 mm MBP 9 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name SQUABB WOOD ROMSEY HANTS Pit Numbe 3P

Grid Reference SU33102140 Average Annual Rainfall 830 mm  
 Accumulated Temperature 1492 degree days  
 Field Capacity Level 179 days  
 Land Use Permanent Grass  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0	30	ZL	10YR42 00	11	30	HR					
30	41	LMS	75YR58 00	0	65	HR			FR	M	
41	52	C	25Y 61 53	0	65	HR	M		FM	P	

Wetness Grade 2 Wetness Class I  
 Gleying 041 cm  
 SPL No SPL

Drought Grade 3B APW 58 mm MBW -46 mm  
 APP 58 mm MBP 39 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Droughtiness

SOIL PIT DESCRIPTION

Site Name SQUABB WOOD ROMSEY HANTS Pit Number 4P

Grid Reference SU33002150 Average Annual Rainfall 830 mm  
 Accumulated Temperature 1492 degree days  
 Field Capacity Level 179 days  
 Land Use Permanent Grass  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 30	MCL	10YR4/2 0/0	18		39	HR					
30 100	SC	7.5YR5/6 0/0	0		59	HR	C	MASSIV	FM	P	

Watness Grade 3B  
 Watness Class IV  
 Gleying 030 cm  
 SPL 030 cm

Drought Grade 3B  
 APW 66 mm MBW 38 mm  
 APP 59 mm MBP 38 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Soil Watness/Droughtiness

SOIL PIT DESCRIPTION

Site Name SQUABB WOOD ROMSEY HANTS Pit Number 5P

Grid Reference SU32902120 Average Annual Rainfall 830 mm  
 Accumulated Temperature 1492 degree days  
 Field Capacity Level 179 days  
 Land Use Permanent Grass  
 Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 26	MCL	10YR42 00	12		30	HR					
26 57	C	10YR58 00	0		60	HR	C	M	VM	P	
57 62	C	25Y 61 63	0		25	HR	M	M	VM	P	

Wetness Grade 3B Wetness Class IV  
 Gleying 026 cm  
 SPL 026 cm

Drought Grade 3B APW 55 mm MBW 49 mm  
 APP 59 mm MBP 38 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Soil Wetness /Droughtiness

SAMPLE NO	GRID REF	ASPECT USE	WETNESS-		-WHEAT		POTS-		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS	
			GRDNT	GLEYSPL	CLASS	GRADE	AP	MB	AP	MB						DRT
1	SU33202170	PGR N	01	025	2	3A	40	-64	40	57	4		DR	3B	Imp32f1inty	
1P	SU33102110	CER		028	2	3A	71	33	75	22	3B		DR	3B	Pit to 77	
2	SU33302170	RGR E	03	025 045	4	3B	120	16	99	2	2		Y	WE	3B	
2P	SU33202120	CER NE	02	040 040	4	3B	110	6	88	9	2			WE	3B	Border 3a/3b w
3	SU33002160	PGR		030 030	4	3B	41	63	41	56	4		Y	WD	3B	Imp37f1 ty
3P	SU33102140	PGR		041	1	2	58	-46	58	39	3B		Y	DR	3B	V compact 52
4	SU33102160	PGR			1	2	55	-49	55	42	3B		Y	DR	3B	Imp45f1inty
4P	SU33002150	PGR		030 030	4	3B	66	38	59	38	3B		Y	WD	3B	Pit77Augd100
5	SU33202160	PGR S	01		1	2	36	68	36	61	4		Y	DR	3B	Imp30f1inty
5P	SU32902120	PGR		026 026	4	3B	55	-49	59	38	3B		Y	WD	3B	V compact 85
6	SU33302160	RGR E	02	033	2	2	88	16	83	14	3A		Y	DR	3A	Imp90f1inty
7	SU32802150	PGR		025 025	4	3B	37	67	37	60	4		Y	WD	3B	Imp30f1inty
8	SU32902150	PGR		027 027	4	3B	46	58	46	51	4		Y	WD	3B	Imp35f1inty
9	SU33002150	PGR		027 027	4	3B	46	58	46	51	4		Y	WD	3B	Imp45f1inty
10	SU33102150	PGR		030	2	3A	52	52	52	-45	4		Y	DR	3B	Imp40f1inty
11	SU33202150	PGR S	01		1	2	49	55	49	48	4		Y	DR	3B	Imp32f1 ty
12	SU33302150	RGR E	01	028	2	2	57	-47	57	40	3B		Y	DR	3B	Imp40f1inty
13	SU32732140	PGR			1	1	42	62	42	55	4		Y	DR	3B	Imp30f1inty
14	SU32802140	PGR		030 030	4	3B	88	16	96	1	3A		Y	WE	3B	Imp70f1inty
15	SU32902140	PGR			1	2	41	63	41	56	4		Y	DR	3B	Imp30f1inty
16	SU33002140	PGR		045 045	3	3A	124	20	87	10	2		Y	WE	3A	Q sp1 at 45
17	SU33102140	PGR		028	2	3A	53	51	53	44	4		Y	DR	3B	Imp35f1 ty
18	SU33202140	PGR S	01		1	2	30	74	30	67	4		Y	DR	3B	Imp25f1inty
19	SU33302140	RGR S	05	027 027	4	3B	37	67	37	60	4		Y	WD	3B	+ t/s stone
20	SU32802130	PGR			1	2	52	52	52	45	4		Y	DR	3B	Imp40f1inty
21	SU32902130	PGR		045	4	3B	68	36	68	29	3B		Y	WE	3B	Imp50f1inty
22	SU33002130	PGR		030 040	4	3B	057	47	057	-40	3B		Y	DR	3B	Imp45f1inty
23	SU33102130	CER N	02		1	1	52	52	52	45	4			DR	3B	Imp40f1 nty
24	SU33202130	CER N	04	035 035	4	3B	114	10	89	8	2			WE	3B	
25	SU32902120	PGR			1	2	036	68	036	61	4		Y	DR	3B	Imp26f1 nty
26	SU33002120	PGR			1	3A	44	60	44	53	4		Y	DR	3B	Imp32f1inty
27	SU33102120	CER NE	01		1	1	54	50	54	43	3B			DR	3B	Imp35f1 ty
28	SU33202120	CER NE	01	028 035	4	3B	111	7	89	8	2			WE	3B	
29	SU33302120	CER			1	2	39	65	39	58	4			ST	3B	Imp35f1 ty
30	SU32902110	PGR		025 025	4	4	46	58	46	51	4		Y	WE	4	Imp40f1 ty
31	SU33022116	CER		029 075	3	3A	104	0	102	5	3A			WD	3A	Imp90f1 ty
32	SU33102110	CER			1	2	57	47	57	40	3B			DR	3B	Imp40f1inty
33	SU33202110	CER			1	2	41	63	41	56	4			DR	3B	Imp30f1 ty
34	SU33002106	CER		028	3	3A	53	51	53	-44	4			DR	3B	S1 gley 28
35	SU33102100	CER			1	2	36	68	36	61	4			DR	3B	Imp25f1inty
36	SU33202100	CER			1	2	41	63	41	56	4			DR	3B	Imp30f1 ty

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES -			PED	COLOUR	GLEYS	STONES			STRUCT/	SUBS	IMP	SPL	CALC
				COL	ABUN	CONT				2	6	LITH					
1	0-25	mc1	10YR32 00							12	0	HR	30				
	25-32	mc1	10YR52 00	75YR58 00	C			Y	0	0	HR	35		M			Imp 32 flinty
1P	0-28	mc1	10YR43 00							5	1	HR	18				Wet sieved
	28-57	hc1	10YR53 43	10YR58 00	C			Y	0	0	HR	42	WKCSAB	FM	M		
	57-77	c	10YR53 00	75YR58 00	M			Y	0	0	HR	60		FM	P		V compact 77
2	0-25	fsz1	10YR42 00							2	0	HR	15				Borderline mc1
	25-45	mc1	10YR53 00	10YR58 00	C			Y	0	0	HR	15		M			
	45-65	hc1	25Y 53 00	10YR58 00	M		00MNO0 00	Y	0	0	HR	25		P		Y	Borderline c
	65-120	c	05Y 41 00	75YR58 00	M		00MNO0 00	Y	0	0	HR	15		P		Y	Q v poor struct
2P	0-30	mc1	10YR43 00							12	4	HR	29				Wet sieved
	30-40	mc1	10YR53 00							0	0	HR	35	WKCSAB	FR	M	Wet sieved
	40-120	c	10YR53 00	75YR68 00	M		10YR72 00	Y	0	0	HR	2	WKCOAB	FM	P	Y	Y
3	0-30	mc1	10YR32 00							18	3	HR	40				
	30-37	c	10YR53 00	75YR68 00	C			Y	0	0	HR	40		P		Y	Imp 37 flinty
3P	0-30	i	10YR42 00							11	6	HR	30				
	30-41	lms	75YR58 00							0	0	HR	65		FR	M	Wet sieved
	41-52	c	25Y 61 53	75YR58 00	M			Y	0	0	HR	65		FM	P		V compact 52
4	0-30	mc1	10YR43 00							11	5	HR	30				
	30-40	c	10YR54 43	10YR58 00	M			S	0	0	HR	30		P			Slightly
	40-45	sc1	10YR56 58							0	0	HR	35		M		Imp 45 flinty
4P	0-30	mc1	10YR42 00							18	8	HR	39				Wet sieved
	30-100	sc	75YR56 00	25Y 53 00	C		05YR58 00	Y	0	0	HR	59	MASSIV	FM	P	Y	Y
5	0-30	mc1	10YR32 00							15	3	HR	35				Imp 30 flinty
5P	0-26	mc1	10YR42 00							12	4	HR	30				
	26-57	c	10YR58 00	10YR53 00	C			Y	0	0	HR	60	M	VM	P	Y	Y
	57-62	c	25Y 61 63	10YR58 00	M			Y	0	0	HR	25	M	VM	P	Y	Y
6	0-25	fs 1	10YR42 00							4	0	HR	25				
	25-33	mc1	25Y 61 00							0	0	HR	30		M		
	33-80	sc1	25Y 62 00	10YR68 00	M			Y	0	0	HR	45		M			
	80-90	sc1	25Y 61 62	10YR68 00	C			Y	0	0	HR	50		M			Imp 90 flinty
7	0-25	mc1	10YR32 00							14	6	HR	30				
	25-30	c	10YR62 00	75YR68 00	C			Y	0	0	HR	35		P		Y	Imp 30 flinty
8	0-27	mzcl	10YR32 00							12	2	HR	25				
	27-35	c	10YR63 00	75YR58 00	M			Y	0	0	HR	35		P		Y	Imp 35 flinty
9	0-27	mc1	10YR32 00							20	8	HR	40				
	27-45	c	10YR53 00	75YR68 00	M			Y	0	0	HR	35		P		Y	Imp 45 flinty

SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES			PED		STONES			STRUCT/ CONSIST	SUBS			CALC
				COL	ABUN	CONT	COL	GLE	2	6	LITH		TOT	STR	POR	
10	0-30	mzc1	10YR43 00						13	4	HR	30				
	30-40	mzc1	10YR41 42	10YR58 00	C			Y	0	0	HR	35	M			Imp 40 flinty
11	0-32	l	10YR32 00						16	3	HR	35				Imp 32 flinty
12	0-28	fz1	10YR42 00						6	2	HR	25				
	28-40	mc1	25Y 61 00	10YR68 00	C			Y	0	0	HR	50	M			Imp 40 flinty
13	0-28	fs 1	10YR42 00						18	10	HR	35				
	28-30	ms1	10YR56 00						0	0	HR	60	M			Imp 30 flinty
14	0-30	fsz1	10YR41 00						5	2	HR	20				
	30-40	c	05Y 41 00	05YR58 00	C			Y	0	0	HR	10	P		Y	
	40-70	hc1	10YR21 42	10YR58 00	C			Y	0	0	HR	15	P		Y	Imp 70 flinty
15	0-25	mzc1	10YR42 00						6	3	HR	25				
	25-30	hc1	10YR53 54						0	0	HR	45	M			Imp 30 flinty
16	0-26	mc1	10YR41 42						3	1	HR	15				
	26-45	ms	75YR68 00						0	0		0	M			
	45-65	sc1	25Y 61 00	75YR68 00	M		05YR58 00	Y	0	0		0	P		Y	Borde line sc
	65-75	c	25Y 71 00	75YR68 00	M			Y	0	0		0	P		Y	
	75-80	c	25Y 71 61	05YR58 00	M		75YR68 00	Y	0	0		0	P		Y	
80-120	sc1	25Y 61 00	75YR68 00	M			Y	0	0		0	P		Y		
17	0-28	l	10YR42 00						11	6	HR	30				
	28-35	mc1	10YR63 00	10YR56 58	M			Y	0	0	HR	40	M			Imp 35 flinty
18	0-25	mc1	10YR43 00						18	8	HR	35				Imp 25 flinty
	0-27	mc1	10YR43 00						18	8	HR	35				
19	27-33	c	25Y 53 00	75YR56 00	M			Y	0	0	HR	50	P		Y	Imp 33 flinty
20	0-28	mc1	10YR42 00						11	5	HR	22				
	28-40	mc1	10YR41 42						0	0	HR	40	M			Imp 40 flinty
21	0-30	mc1	10YR42 00						5	0	HR	15				
	30-45	mc1	10YR53 00						0	0	HR	25	M			
	45-50	hc1	10YR32 00						0	0	HR	45	P		Y	Imp 50 flinty
22	0-30	mzc1	10YR32 00						12	2	HR	30				
	30-40	mzc1	10YR52 00	75YR58 00	C			Y	0	0	HR	30	M			
	40-45	c	75YR58 00					Y	0	0	HR	50	P		Y	Imp 45 flinty
23	0-25	fs 1	10YR42 00						8	4	HR	35				
	25-40	mc1	10YR42 00						0	0	HR	40	M			Imp 40 flinty
24	0-30	mc1	10YR43 00						11	4	HR	30				
	30-35	hc1	10YR54 00						0	0	HR	15	M			
	35-45	c	10YR52 00	10YR56 58	M			Y	0	0		0	P		Y	
	45-100	zc	25Y 61 63	25YR56 00	M		10YR58 00	Y	0	0		0	P		Y	
	100-120	c	25Y 61 63	75YR58 00	M			Y	0	0		0	P		Y	



SAMPLE	DEPTH	TEXTURE	COLOUR	-MOTTLES -			PED COL	GLEYS	STONES-		STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT			2	6 LITH TOT		STR	POR	IMP		
25	0 26	mc1	10YR42 00					12	4	HR	25					Imp 25 flinty
26	0 32	hc1	10YR32 00					12	0	HR	25					Imp 32 flinty
27	0 28	f z1	10YR42 00					10	4	HR	25					Borderline mc1
	28-35	mc1	10YR43 53					0	0	HR	40		M			Imp 35 flinty
28	0 28	mc1	10YR42 00					12	3	HR	30					
	28-35	mc1	10YR53 00	10YR56 00	C			Y	0	0	HR	20		M		
	35-120	c	25Y 61 00	10YR68 00	M			Y	0	0	HR	5		P	Y	
29	0 25	mc1	10YR43 00					22	6	HR	35					
	25-35	mc1	10YR43 00					0	0	HR	45		M			Imp 35 flinty
30	0 25	hc1	10YR42 00					12	1	HR	30					
	25-40	sc	10YR53 00	75YR68 00	M			Y	0	0	HR	40		P	Y	Imp 40 flinty
31	0 29	mc1	10YR42 00					6	2	HR	18					
	29 65	mc1	10YR53 00	10YR56 00	C			Y	0	0	HR	10		M		
	65-75	mc1	10YR53 00	10YR58 00	M			Y	0	0	HR	20		M		
	75-90	c	10YR53 54	75YR56 58	M			Y	0	0	HR	35		P	Y	Imp 90 flinty
32	0 35	mc1	10YR42 00					5	1	HR	20					
	35-40	hc1	10YR43 00					0	0	HR	30		M			Imp 40 flinty
33	0 30	mc1	10YR43 00					8	1	HR	25					Imp 30 flinty
34	0 28	mc1	10YR42 43					11	4	HR	30					
	28-45	c	10YR54 56	75YR58 00	C			S	0	0	HR	40		P	Y	Imp 45 flinty
35	0 25	mc1	10YR42 00					6	1	HR	22					Imp 25 flinty
36	0 25	mc1	10YR32 00					7	1	HR	25					Imp 30 flinty