

**A1  
Oxfordshire Structure Plan  
Land at Easington, Banbury**

**Agricultural Land Classification Report  
Semi-detailed Survey**

**March 1996**

**Resource Planning Team  
Guildford Statutory Group**

**ADAS Reference 3301/033/96  
MAFF Reference EL 33/00838**

# AGRICULTURAL LAND CLASSIFICATION REPORT

## OXFORDSHIRE STRUCTURE PLAN LAND AT EASINGTON BANBURY

### Introduction

1 This report presents the findings of a semi detailed Agricultural Land Classification (ALC) survey of 123 hectares of land to the immediate south of Easington a suburb of Banbury in Oxfordshire The survey was carried out during March 1996

2 The survey was commissioned by the Ministry of Agriculture Fisheries and Food (MAFF) from its Land Use Planning Unit in Reading in connection with the Oxfordshire Structure Plan The results of this survey supersede any previous ALC information for this land The northern most part of the site was surveyed at a detailed level in 1990 (ADAS Ref 3301/012/90) Information collected during that survey was used in the current grading of the land Equally data gathered during the most recent survey has been used to update the 1990 survey and the grade boundaries as mapped in 1990 have been slightly amended accordingly

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) A description of the ALC grades and subgrades is given in Appendix I

4 At the time of survey the agricultural land on this site was in a variety of arable uses including cereals potatoes and field vegetables The areas shown as Other Land comprise farm buildings and tracks allotment gardens and an area where a pipeline was being laid at the time of survey

### 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

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

Table 1 Area of grades and other land

Grade/Other land	Area (hectares)	/ site area	% surveyed land
2	78.8	64.2	67.8
3a	5.2	4.2	4.5
3b	32.2	26.2	27.7
Other Land	6.6	5.4	
Total surveyed land			100.0
Total site area		122.8	100.0

7 The fieldwork was conducted at an average density of approximately 1 boring every 1.5 hectares of agricultural land. A total of 38 borings and 3 soil inspection pits were described during the current survey. An additional 37 borings and one soil pit were described during the 1990 survey.

8 The site has been classified largely as Grade 2 (very good quality land) and Subgrade 3b (moderate quality land) on the basis of slight soil droughtiness and moderate soil wetness or gradient restrictions respectively. A small area of Subgrade 3a, (good quality land) has also been mapped.

9 Land assigned to Grade 2 comprises relatively deep well drained although slightly to moderately stony soils derived from Marlstone Rockbed. The combination of soil characteristics and the local climatic regime imparts a slight restriction on the land in terms of soil droughtiness. Moisture balance calculations indicate that there are insufficient reserves of available water to meet the demands of a growing crop throughout the year. This land is also subject to a slight soil workability restriction in parts arising from heavy topsoil textures which will affect the opportunities for landwork.

10 Land graded as Subgrade 3b is principally affected by soil wetness where heavily textured soils derived from Lias Clay are poorly drained and subject to seasonal waterlogging. This will adversely affect crop growth and development as well as influencing the opportunities for cultivations and/or grazing. The Subgrade 3a land mapped towards the north of the site is also affected by soil wetness but to a lesser extent than elsewhere on the site since the slowly permeable clay occurs deeper in the profile.

11 A small area of Subgrade 3b land has been mapped along the western boundary of the site where gradients in the range 7.9 degrees limit the effective use of agricultural machinery.

### 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	SP 445 385	SP 455 382
Altitude	m AOD	130	120
Accumulated Temperature	day°C (Jan June)	1352	1363
Average Annual Rainfall	mm	698	693
Field Capacity Days	days	157	156
Moisture Deficit Wheat	mm	100	101
Moisture Deficit Potatoes	mm	89	91

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 temperature at this site mean that there is no overall climatic limitation (Climatic Grade 1) However climatic factors can interact with soil properties to influence soil wetness and droughtiness

17 Local climatic factors such as frost risk and exposure are not thought likely to adversely affect agricultural land use on this site

#### Site

18 The land on this site slopes gently from 112m AOD in the south west to 135m AOD in the north west Gradient and microrelief do not affect agricultural land quality across the majority of the site However a small area of land along the western most boundary of the site is limited to Subgrade 3b on the basis of gradient where slopes of 8° were measured

19 Flooding does not appear to be limiting on this site

#### Geology and soils

20 The relevant geological sheet for the site (BGS 1968) maps Upper Lias Clay across the northern part of the survey area Marlstone Bedrock in the middle and southern parts of the site and areas of Middle Lias Clay have been mapped in the south west and south eastern parts of the site

21 The most recently published soils information for this area (SSEW 1983) maps the Banbury soil association across most of the site with an area of Denchworth soils across the

northern part of the site. The former are described as well drained brashy fine and coarse loamy ferruginous soils over Ironstone. Some deep fine loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging (SSEW 1983). The latter are slowly permeable seasonally waterlogged clayey soils with similar fine loamy over clayey soils and some slowly permeable calcareous soils (SSEW 1983).

### **Agricultural Land Classification**

22 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 2

23 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

#### *Grade 2*

24 Very good quality land has been mapped across the majority of the agricultural land on the site. It comprises two distinctly different soil types

25 Across the north western part of the site where soils are developed from deposits of Upper Lias Clay two small units of Grade 2 land have been mapped on the basis of a minor soil wetness restriction. Profiles typically comprise non calcareous medium or heavy clay loam topsoils overlying similar upper subsoils and passing to bluish grey Lias clay which is slowly permeable in the lower subsoil from about 60 cm depth. Profiles tend to be stoneless or only very slightly stony throughout. Impeded drainage through the lower subsoils is evidenced by gleying below about 60-80 cm. Soils with such a drainage status are assigned to wetness class I or II (see Appendix II) which in combination with the prevailing climate and the topsoil textures gives rise to a land classification of Grade 2

26 Across the remainder of the area mapped as Grade 2 land is limited by minor soil droughtiness and/or workability restrictions. Soils have developed from Marlstone Rockbed and profiles were found to comprise non calcareous medium or heavy clay loam topsoils which contain 1-15% total stones (hard fragments of Marlstone). These overlie similar subsoils which tend to become heavier and more stony with depth. Many observations were impenetrable (to the soil auger) at variable depths between 35-100 cm but two soil inspection pits 1p and 3p (see Appendix III) revealed that the soil resource although containing between 10 and 50% hard Marlstone fragments did extend to at least 120 cm. However moisture balance calculations show that as a result of the interaction between soil characteristics and the local climatic conditions there is insufficient moisture in the soil to meet the demands of a growing crop throughout the year such that the land cannot be classified higher than Grade 2. These soils are assessed as wetness class I but the land is limited by a slight workability restriction in places where heavy clay loam topsoils occur. The result will be a restriction on the timing of cultivations and/or grazing as trafficking may cause soil structural damage

### *Subgrade 3a*

27 Good quality agricultural land has been mapped across the north central part of the site where soils are affected by imperfect drainage having developed from deposits of Upper Lias Clay. Non-calcareous topsoils of medium or heavy clay loam overlie similar subsoils which become progressively heavier with depth and pass to clay from about 30-60 cm. Such profiles are typically gleyed and slowly permeable from 40-60 cm, thereby being classed as wetness class II or III. Such drainage characteristics along with topsoil textures and the prevailing climate combine to give rise to Subgrade 3a on the basis of soil wetness/workability restrictions.

### *Subgrade 3b*

28 Moderate quality land has been mapped across the north western and western parts of the site. The majority of this grade of land is limited by soil wetness/workability having developed over Upper Lias Clay deposits, whilst the small unit of Subgrade 3b along the western boundary is associated with steep slopes and a gradient limitation.

29 Across the north western part of the site, soils typically comprise non-calcareous heavy clay loam or occasionally clay topsoils which directly overlie clay in the subsoil. Drainage through the clayey subsoils is significantly impeded, such that gleying is evident from shallow depths. A soil inspection pit 2p (see Appendix III) proved subsoil structural conditions to be poor and the clay horizons to be slowly permeable. Consequently, wetness class III or IV is appropriate for these soils, which when combined with the heavy topsoil textures and the prevailing climate, gives rise to a land classification of Subgrade 3b. Soil wetness and workability will adversely affect crop establishment and growth as well as restricting the opportunities for landwork, since badly timed cultivations or grazing may lead to soil structural damage.

30 A small unit of Subgrade 3b land has been mapped along the western site boundary where slopes of 8-9° were measured. Such gradients will restrict the safe and efficient use of farm machinery.

Michelle Leek  
Resource Planning Team  
Guildford Statutory Group  
ADAS Reading

## SOURCES OF REFERENCE

British Geological Survey (1968) *Sheet No 218 Chipping Norton 1 50 000 Series*  
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*  
SSEW Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in South East England*  
SSEW Harpenden

## APPENDIX I

### DESCRIPTION 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 that 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 that restricts 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.

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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

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#### 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).

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<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)

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

degree of development    **WK** weakly developed            **MD** moderately developed  
   **ST** strongly developed

ped size                            **F** fine                                    **M** medium  
   **C** coarse                                **VC** very coarse

ped shape                        **S** single grain                        **M** massive  
   **GR** granular                         **AB** angular blocky  
   **SAB** sub angular blocky        **PR** prismatic  
   **PL** platy

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 OXON SP EASINGTON P t N mbe 1P

G id Referenc SP44403830 A g A l R f l l 693 mm  
 Acc mul ted Tempe t re 1363 degree days  
 F eld Capac ty Le el 157 d y  
 Land Use  
 Slope and Aspect 02 degrees E

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 30	MCL	75YR34 00	0		10	HR					
30 60	HCL	75YR44 00	25		46	HR		WKCSAB	FR	M	
60 100	HCL	10YR44 00	0		30	HR		MDCOAB	FR	M	
100 120	C	10YR46 00	0		10	HR				M	

Wetness Grade 1  
 Wet ss Class I  
 Gley ng cm  
 SPL cm

Drought Grade 2  
 APW 116mm MBW 15 mm  
 APP 88 mm MBP 3 mm

FINAL ALC GRADE 2  
 MAIN LIMITATION Drought ess

SOIL PIT DESCRIPTION

Site Name OXON SP EASINGTON Pit Number 2P

Grid Reference SP44403860  
 Average Annual Rainfall 693 mm  
 Accumulated Temperature 1363 degree days  
 Field Capacity Level 157 days  
 Land Use Potatoes  
 Slope and Aspect 01 degrees SW

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0	2B	HCL	75YR46 00	0	2	HR					
28	44	C	10YR46 00	0	5	HR	C	WKCSAB	FM	M	
44	75	C	25 Y52 00	0	5	HR	C	MDCOAB	FM	P	Y

Wetness Grade 3B  
 Wetness Class III  
 Gleying 028 cm  
 SPL 044 cm

Drought Grade 3A  
 APW 98 mm MBW 3 mm  
 APP 106mm MBP 15 mm

FINAL ALC GRADE 3B  
 MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name OXON SP EASINGTON P t N mbe 3P

Grid Reference SP45003830 Ave g A al Ra f 11 693 mm  
 Accumulated Temperature 1363 degree days  
 Field Capacity Level 157 d ys  
 Land Use Cereals  
 Slope and Aspect 01 degree SE

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0 23	MCL	10YR34 00	1		14	HR					
23 55	HCL	75YR46 00	10		27	HR		WKCSAB	FR	M	
55 120	HCL	75YR46 00	0		30	HR		WKCSAB	FR	M	

Wetness Grade 1 Wetness Class I  
 Gleying cm  
 SPL No SPL

Drought Grade 2 APW 118mm MBW 17 mm  
 APP 91 mm MBP 0 mm

FINAL ALC GRADE 2  
 MAIN LIMITATION Droughtine



SAMPLE NO	GRID REF	ASPECT USE	WETNESS		WHEAT		POTS		M REL		EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
			GRDNT	GLEY SPL	CLASS	GRADE	AP	MB	AP	MB					
1	SP44203860	CER N	02		1	1	53	48 53	38 3B				DR 2	IMP 32	SEE 3P
1P	SP44403830	HOR E	02		1	1	116	15 88	3 2				DR 2		
2	SP44303860	CER N	02	028 028	3	3B	88	13 96	5 3A				WE 3B	IMP 60	
2P	SP44403860	POT SW	01	028 044	3	3B	98	3 106	15 3A				WE 3B		
3	SP44403860	POT		055 040	3	3B	116	15 116	25 2				WE 3B		
3P	SP45003830	CER SE	01		1	1	118	17 91	0 2				DR 2		
4	SP44503860	POT		040 040	3	3B	114	13 118	27 2				WE 3B		
5	SP44703860	POT		035 035	4	3B	99	2 114	23 3A				WE 3B	IMP 70	
6	SP44203850	CER NW	01		1	1	59	42 59	32 3B				DR 2	IMP 35	SEE 3P
7	SP44403850	POT		035	3	3B	86	15 89	2 3A				WE 3B	SL GLEY 35	
8	SP44603850	POT			1	2	72	29 72	19 3B				WD 2	IMP 42	SEE 3P
9	SP44803850	CER		034 034	3	3B	105	4 116	25 3A				WE 3B		
10	SP45003850	CER		045 035	3	3B	106	5 118	27 2				WE 3B		
11	SP44903850	CER S	01	050 035	3	3B	110	9 118	27 2				WE 3B		
12	SP45403850	PLO S	02		1	1	63	38 63	28 3B				DR 2	IMP 50	SEE 3P
13	SP44403840	HOR			1	1	97	4 104	13 3A				DR 2	IMP 65	SEE 3P
14	SP44603840	CER S	01		1	1	116	15 108	17 2				DR 2	IMP 100	
15	SP45203840	PGR E	01		1	1	149	48 115	24 1				1		
16	SP45503840	PLO S	01		1	1	91	10 100	9 3A				DR 2	SEE 3P	
17	SP45703840	PLO S	01		1	1	145	44 117	26 1				1	SL GLEY 75	
18	SP44203830	CER W	03		1	1	76	25 76	15 3B				DR 2	SEE 3P	
19	SP44403830	HOR			1	1	152	51 115	24 1				1		
20	SP44603830	CER SW	01		1	1	150	49 113	22 1				1		
21	SP44703830	CER S	01		1	2	80	21 80	11 3B				WD 2	IMP 50	SEE 3P
22	SP44803830	CER SE	01		1	1	75	26 75	16 3B				DR 2	IMP 45	SEE 3P
23	SP45003830	CER S	01		1	1	64	37 64	27 3B				DR 2	IMP 42	SEE 3P
24	SP45203830	CER E	02		1	1	130	29 117	26 2				DR 2	IMP 95	
25	SP45403830	CER S	01		1	1	110	9 110	19 2				DR 2	IMP 82	
26	SP45603830	PLO SE	02	060 060	2	2	119	18 110	19 2				WD 2		
27	SP45903830	CER W	02		1	2	88	13 91	0 3A				WD 2	SEE 3P	
28	SP44303820	CER W	02		1	1	49	52 49	42 4				DR 2	IMP 30	SEE 3P
29	SP44503820	CER SE	01		1	2	132	31 110	19 1				WK 2		
30	SP44703820	CER SE	01		1	2	135	34 110	19 1				WK 2		
31	SP44903820	CER SE	01		1	1	151	50 114	23 1				1		
32	SP45403820	CER S	01		1	1	141	40 117	26 1				1		
33	SP45603820	PLO E	01	080	1	2	131	30 111	20 1				WK 2		
34	SP44303810	CER W	04		1	1	66	35 66	25 3B				DR 2	IMP 40	SEE 3P
35	SP44603810	CER SE	01		1	2	63	38 63	28 3B				WD 2	IMP 40	SEE 3P
36	SP44803810	CER SE	01		1	2	97	4 109	18 3A				WD 2	IMP 72	SEE 3P
37	SP45003810	CER SE	01		1	2	73	28 73	18 3B				WD 2	IMP 45	SEE 3P
38	SP45203810	CER E	02	090 090	1	1	136	35 109	18 1				1		

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES			PED		STONES			STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL	GLY	2	6	LITH		TOT	STR	POR		
1	0 25	mc1	10YR44 00						3	0	HR	5					
	25 32	hc1	10YR44 00						0	0	HR	10		M			Imp ma l tone
1P	0 30	mc1	75YR34 00						0	0	HR	10					
	30 60	hc1	75YR44 00						25	0	HR	46	WKCSAB	FR M			
	60 100	hc1	10YR44 00						0	0	HR	30	MDCOAB	FR M			
	100 120	c	10YR46 00						0	0	HR	10		M			
2	0 28	c	10YR44 00						0	0	HR	2					
	28 60		10YR54 00	10YR68 00 C				Y	0	0	HR	5		M		Y	I p ma l to e
2P	0 28	hc1	75YR46 00						0	0	HR	2					
	28 44	c	10YR46 00	10YR58 00 C				S	0	0	HR	5	WKCSAB	FM M			
	44 75	c	25 Y52 00	25 Y56 00 C				Y	0	0	HR	5	MDCOAB	FM P	Y	Y	Y
3	0 25	hc1	10YR44 00						0	0	HR	1					
	25 40	c	10YR44 00						0	0	HR	2		M			
	40 55	c	25 Y66 00	10YR54 00 C				S	0	0		0		M		Y	
	55 90	c	25 Y63 64	10YR68 00 C				Y	0	0		0		M		Y	
3P	0 23	mc1	10YR34 00						1	0	HR	14					
	23 55	hc1	75YR46 00						10	0	HR	27	WKCSAB	FR M			
	55 120	hc1	75YR46 00						0	0	HR	30	WKCSAB	FR M			
4	0 35	hc1	10YR44 00						0	0	HR	1					
	35 40	c	10YR44 00						0	0	HR	1		M			
	40 85	c	25 Y64 00	10YR58 00 C				Y	0	0		0		M		Y	
5	0 25	h 1	10YR44 00						0	0	HR	2					
	25 35	c	10YR44 00	00MN00 00 C					0	0	HR	2		M			
	35 70	c	25Y 64 00	10YR58 00 C				25Y 52 00 Y	0	0	HR	3		M		Y	Imp ma l t ne
6	0 27	mc1	10YR44 00						0	0	HR	5					
	27 35	hc1	10YR44 00						0	0	HR	5		M			Imp ma l tone
7	0 25	hc1	10YR44 00						0	0	HR	2					
	25 35	c	10YR44 00						0	0	HR	2		M			
	35 53		10YR54 00	75YR58 00 C				25Y 63 00 S	0	0		0		M		Y	Imp ma lstone
8	0 27	hc1	10YR44 00						0	0	HR	1					
	27 33	c	10YR44 00						0	0	HR	2		M			
	33 42	c	10YR58 00	10YR54 00 C				S	0	0	HR	1		M			Imp ma l t ne
9	0 28	hc1	10YR44 00						0	0	HR	1					
	28 34		10YR44 00						0	0	HR	1		M			
	34 75	c	10YR54 00	10YR66 00 C				S	0	0	HR	1		M		Y	
10	0 35	hc1	10YR44 00						0	0	HR	2					
	35 45		10YR54 00	10YR66 00 C				S	0	0		0		M			
	45 75	c	25Y 53 00	10YR68 00 C				25Y 62 00 Y	0	0		0		M		Y	Y

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES			PED		STONES			STRUCT/ CONSIST	SUBS				
				COL	ABUN	CONT	COL	GLE	2	6	LITH		TOT	STR	POR	IMP	SPL
11	0 35	hc1	10YR44 00						0	0	HR	2					
	35 50	c	10YR53 00	10YR64 00	C				S	0	0	HR	1	M		Y	
	50 80	c	25 Y53 00	10YR58 00	C			25	Y62	00	Y	0	0	M		Y	Y
12	0 30	mc1	75YR46 00							0	0	HR	10				
	30 40	hc1	75YR44 00							0	0	HR	10	M			Imp ma lstone
13	0 25	mc1	75YR46 00							0	0	HR	2				
	25 55	hc1	75YR46 44							0	0	HR	2	M			
	55 65	sc1	10YR58 00							0	0	HR	15	M			Imp ma l tone
14	0 25	mc1	75YR46 00							0	0	HR	2				
	25 45	hc1	75YR44 00							0	0	HR	20	M			
	45 100	c	75YR44 00	00MN00 00	C					0	0	HR	5	M			Imp ma lstone
15	0 35	mc1	75YR46 00							0	0	HR	2				
	35 75	hc1	10YR46 00							0	0	HR	5	M			
	75 120	hc1	10YR46 00							0	0	HR	10	M			
16	0 30	mc1	75YR46 00							0	0	HR	10				
	30 65	hc1	75YR44 00							0	0	HR	10	M			Imp ma lstone
17	0 35	mc1	75YR46 00							0	0	HR	2				
	35 75	hc1	75YR44 00							0	0	HR	2	M			
	75 120	c	75YR44 00	75YR58 00	C				S	0	0	HR	2	M			
18	0 27	mc1	10YR44 00							3	0	HR	10				
	27 50	hc1	75YR46 00							0	0	HR	15	M			Imp ma lstone
19	0 30	mc1	75YR46 00							0	0	HR	2				
	30 120	hc1	75YR46 00							0	0	HR	3	M			
20	0 28	mc1	75YR46 00							0	0	HR	2				
	28 120	hc1	75YR46 00							0	0	HR	5	M			
21	0 32	hc1	75YR46 00							0	0	HR	5				
	32 40	hc1	75YR44 00							0	0	HR	10	M			
	40 50		75YR44 00	00MN00 00	C					0	0	HR	15	M			Imp ma lstone
22	0 30	mc1	75YR46 00							0	0	HR	3				
	30 45	hc1	75YR46 00							0	0	HR	7	M			Imp ma lstone
23	0 25	mc1	75YR46 00							0	0	HR	10				
	25 42	hc1	75YR46 00			F		00MN00 00		0	0	HR	15	M			Imp marlsto e
24	0 35	mc1	75YR46 00							0	0	HR	2				
	35 95	hc1	75YR44 00	00MN00 00	C					0	0	HR	2	M			Imp ma lstone

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES		PED		GLEYS	STONES		STRUCT/ CONSIST	SUBS			SPL	CALC
				COL	ABUN	CONT	COL		2	6		LITH	TOT	STR		
25	0 29	mc1	75YR46 00						0	0	HR	3				
	29 82	hc1	75YR44 00						0	0	HR	10	M			Imp ma lstone
26	0 35	mc1	75YR46 00						0	0	HR	3				
	35 60	hc1	75YR44 00						0	0	HR	5	M			
	60 100	zc	25 Y54 00	10YR56 00 C				Y	0	0	HR	10	P		Y	
27	0 28	hc1	75YR46 00						0	0	HR	2				
	28 55	hc1	75YR56 00						0	0	HR	5	M			Imp ma l tone
28	0 30	mc1	10YR44 00						4	0	HR	10				Imp marlstone
29	0 28	hc1	75YR44 00						0	0	HR	2				
	28 120	c	75YR46 00						0	0	HR	10	M			
30	0 28	hc1	75YR44 00						0	0	HR	2				
	28 65	hc1	75YR46 00						0	0	HR	10	M			
	65 120	c	10YR56 00						0	0	HR	10	M			
31	0 32	mc1	75YR44 00						0	0	HR	2				
	32 75	hc1	75YR46 00						0	0	HR	5	M			
	75 120	sc1	10YR56 00						0	0	HR	5	M			
32	0 32	mc1	75YR46 00						0	0	HR	1				
	32 70	hc1	75YR46 56						0	0	HR	2	M			
	70 120	c	75YR56 00						0	0	HR	10	M			
33	0 30	hc1	75YR46 00						0	0	HR	2				
	30 50	hc1	75YR44 00						0	0	HR	10	M			
	50 80	c	75YR44 00						0	0	HR	10	M			
	80 120		25 Y54 00	10YR56 00 C				S	0	0	HR	2	P		Y	
34	0 27	mc1	10YR44 00						0	0	HR	2				
	27 40	hc1	10YR46 00						0	0	HR	15	M			Imp ma lstone
35	0 30	hc1	75YR44 00						6	0	HR	10				
	30 40	c	75YR46 00						0	0	HR	10	M			Imp ma l tone
36	0 30	hc1	75YR44 00						0	0	HR	5				
	30 65	c	75YR46 00						0	0	HR	10	M			
	65 72	hc1	10YR56 00						0	0	HR	15	M			Imp ma lstone
37	0 30	hc1	75YR44 00						3	0	HR	5				
	30 45	c	75YR46 00						0	0	HR	10	M			Imp ma lstone
38	0 25	mc1	75YR46 00						0	0	HR	2				
	25 40	hc1	75YR44 00						0	0	HR	5	M			
	40 65	hc1	75YR44 00						0	0	HR	15	M			
	65 90	c	75YR44 00						0	0	HR	5	M			
	90 120	c	25 Y63 00	10YR58 00 C				Y	0	0	HR	2	M		Y	

BANBURY LOCAL PLAN - EASINGTON AREAAUGER BORING SCHEDULE

1 Plough flat not stony on surface

0 27	MCL	gritty 10YR 4/2 non calc
27-75	MC	matrix 10YR 5/3 → 5/2 mottled and gleyed 10YR 5/6 and 10YR 7/2 becoming more gleyed with depth
75 100	HC	dominantly grey with OM Gleyed
100+	HC	becoming greyer with depth becoming Fe enriched Gleyed as above

WC IV Grade 3b (wetness)

2 Ploughed flat not stony on surface

0-33	MCL	10YR 4/2 non-calc
33-38	H/MCL	10YR 5/4 sl stony and gritty Not gleyed
38 60	MC	becoming gleyed Matrix 10YR 5/3 with CDOGM
60 80	MC	Gleying increasing with depth dominantly grey and ochreous
80-110	MC	dominantly grey - N6 and N5 with OM

WC IV Grade 3b (wetness)

3 Ploughed flat not stony on surface

0 30	MCL	10YR 4/2 non-calc not stony
30 60	M/HCL	10YR 4/3 few Mn concs Not mottled or gleyed occ ironstone frags
60 70	MC	10YR 6/1 grey matrix with 7 5YR 5/8 OM Mottled and gleyed
70-100+	MC	becoming dominantly bluish grey with OM N5 → N6

WC II Grade 2 (wetness)

4 Plough flat not stony on surface

0 27	HCL	10YR 4/3 non calc
27 48	HCL	10YR 5/4 sl gritty few frags of ironstone and marlstone (calc)
48-56	HCL	10YR 5/3 matrix mottled and gleyed
56-82	MC	starting to become less gleyed from 75 10YR 5/3 matrix many Fe concs gritty

(80 82 thin band of marlstone brashy)

82	MC	orange/brown clay mixed with brashy marlstone
82+		Impenetrable brashy marlstone within clay matrix

Poss going into blue Lias clay below brashy horizon

WC II/III Grade 3a/b (wetness)

5 Ploughed flat not stony on surface

0 27	HCL	10YR 4/3 non calc sl gritty
27 65	HCL/MC	10YR 5/4 Gritty few Fe concs Not gleyed Fe concs becoming more common from 40 cm
65 80	HCL	becoming more reddish 10YR 4/3 fewer Fe concs
80 90	MC	becoming gleyed 10YR 5/2 and 10YR 4/3 v gritty with calc brash c 5- few ironstone frags and Fe concs
90 100	MC	becoming more yellowish gritty and brashy few ironstone frags and calc marlstone brash Gleyed
100+	MC	bluish grey abrupt change Gleyed

WC I Grade 2 (topsoil texture)

6 Ploughed flat not stony on surface

0 32	HCL	10YR 4/3 non calc
32 38	HCL	10YR 4/4 non calc gritty
38 50	HCL	10YR 4/6 with 10YR 5/6 orange Fe concs Not gleyed v gritty with Fe frags few greenish mottles possibly sl gleyed c 5% ironstone frags
50 60	HCL	becoming sl reddish 7 5YR 4/4
60 100	MC	7 5YR 4/4 with ironstone frags Not gleyed non calc c 10% ironstone frags

WC I Grade 2 (wetness)

7 Ploughed flat no surface stones

0 30	MCL	10YR 4/3 non calc not stony
30 42	HCL	10YR 4/4 few ironstone frags and Mn concs
42 50	HCL	v gritty with c 10% iron concs becoming redder - 7 5YR 4/4 few marlstone frags
50 65	MC	7 5YR 4/4 not mottled or gleyed c 10% marlstone brash within soil matrix
65 75	MC	becoming gleyed greenish grey matrix 2 5Y 4/4
75 90	MC	becoming predominantly grey with depth 5Y 4/2 matrix gleyed
90 110	MC	yellowish grey matrix with CDOM gleyed
110	MC	As above but becoming brashy calc marlstone

WC II Grade 2 (wetness)

8 Forage crop flat

0 25	HCL	10YR 5/4 v sl calc c 5% stones >6 cm
25 30	MC	10YR 6/3 c 20% calc marlstone >2 cm
30	Impenetrable	50 calcareous marlstone within soil matrix

WC I Grade 3b (drought)

9 Ploughed level few surface stones

0 38	HCL	7 5YR 5/4
38-45	MC	mottled and gleyed ? 7 5YR 5/4 5Y 5/3 and 10YR 6/8
45 75	MC	dominantly grey 5Y 5/3 gleyed
75 105	MC	2 5YR 6/4 matrix gleyed few marlstone frags
105+	Impenetrable - marlstone rubble within soil matrix	

WC III Grade 3b (wetness)

10 Ploughed level few surface stones

0 27	HCL	10YR 5/4
27 35	HCL	7 5YR 5/4 matrix (brown) 10YR 7/8 and 2 5Y 6/4 mottles gleyed ?
35-100	MC	5Y 5/3 greenish grey matrix gleyed
100	Impenetrable marlstone brash in soil matrix	

WC IV Grade 3b (drought) ;

11 Ploughed level few surface stones

0 23	HCL/MC	10YR 5/4
23 30	MC	5Y 7/4 grey matrix with 7 5YR 5/4 and 7 5YR 5/8 mottles
30 50	MC	greenish grey clay gleyed N6 with 7 5YR 5/4 mottles
50 85	HC	2 5YR 6/4 matrix with CDOM gleyed few marlstone frags
85	Impenetrable marlstone brash	

WC IV Grade 3b (wetness)

12 Ploughed level few surface stones

0 35	HCL	7 5YR 5/4
35 50	HCL	possibly mottled and gleyed possibly mottling caused by weathering ironstone 7 5YR 5/4 matrix with 10YR 6/8 OM and 2 5Y 5/2 grey mottles
50 65	MC	Gleyed with 2 5Y 6/4 greenish grey matrix 7 5Y 5/4 OM and marlstone frags
65 105	HC	bluish grey clay gleyed N6 few frags of brashy marlstone
105	Impenetrable brashy marlstone within clay matrix	

WC III Grade 3b (wetness)

13 Almost flat v few surface stones <5%

0 32	HCL	10YR 4/4 non calc not stony
32-38	HCL	10YR 5/4 (sl paler than topsoil) non-calc
38-80	MC	Gleyed and mottled with occ marlstone frags 10YR 6/4 matrix with 10YR 6/2 and 10YR 7/8 mottles becoming gleyed and more mottled with depth esp below 60
80-90	MC	becoming sl reddish with few Fe frags pale matrix 10YR 6/2 with 7 5YR 4/4 mottles
90+	Impenetrable	brashy marlstone in soil matrix

WC IV Grade 3b (wetness)

14 Ploughed flat sl stony on surface c 2% marlstone >6 cm

0-28	10YR 4/4 MCL	sl gritty occ marlstone frags
28 65	HCL	10YR 4/4 c 5% brashy marlstone frags marlstone frags increasing with depth
65 70	MC	As above with ironstone frags increasing
70 75	MC	becoming sl greyer and greenish gleyed
75 90	M/HC	greenish grey and bluish grey clay Gleyed few marlstone frags
90	Impenetrable	brashy marlstone

WC II Grade 2 (wetness)

15 Ploughed no surface stones almost flat

0 32	MCL	7 5YR 4/4 non calc not stony
32 45	MCL	becoming sl paler with occ marlstone and ironstone frags Not mottled or gleyed
45-55	HCL	7 5YR 4/4 sl gritty with few ironstone frags
55 65	HCL	As above sl gritty Not mottled or gleyed
65 80	MC	7 5YR 4/4 few Mn concs and ironstone frags Not mottled or gleyed
80-90	MC	becoming more brashy with depth calc
90 100	MC	Greenish grey clay gleyed

WC I Grade 1

16 Ploughed occ marlstone frags on surface v v gentle falls W

0 30	MCL	7 5Y 4/4 not stony non calc
30-40	HCL	7 5YR 4/6 → 5/6 Not mottled or gleyed
40 70	HCL	7 5YR 4/6 → 5/6 v gritty common Fe concs and occ marlstone frags
70 80	MC	becoming greyer - 10YR 5/2 matrix mottled and gleyed with CDOM
80 100+	MC	abrupt change to greenish grey clay with CFOM gleyed

WC II Grade 2 (wetness)



- 17 Ploughed few small marlstones on surface top of sl rise
- |       |     |  |
|-------|-----|--|
| 0 27  | HCL | 10YR 5/4 gritty non calc   |
| 27 32 | MC  | becoming gleyed 5 GY 5/1 10YR 5/8 and 7 5YR 4/4 mottles v gritty with c 30% marlstone frags calc |
| 32 45 | MC  | marlstone rubble c 30% in clay matrix N5 and N6 gleyed   |
| 45 55 | MC  | becoming less brashy c 10% marlstone N6  |
| 55-70 | MC  | becoming reddish with Fe concs 10% marlstone   |
| 70-80 | MC  | greyer - N5 and N6 mottled and gleyed  |
| 80    |     | Impenetrable marlstone   |

## WC IV Grade 3b (wetness)

- 18 Plough OSR stony on surface (marlstone) v gentle falls S gently undulating
- |         |     |  |
|---------|-----|--|
| 0 30    | MCL | 10YR 4/3 sl stony → c 2 % >2 cm occ large marlstone frags  |
| 30 70   | HCL | 10YR 5/4 Not mottled few marlstone frags and Fe concs becoming sl gritty from c 50 Ironstone frags increasing with depth |
| 70-85   | HCL | 10YR 4/4 becoming sl redder with frags of pinkish weathered ironstone  |
| 85 100+ | MCL | 7 5YR 4/4 Not mottled few ironstone frags  |

## WC I Grade 1

- 18a About 30 m from boring 18  
v stony on surface

TOPSOIL	c 20 stones >6 cm	20- >2 cm	c 5- <2 cm → 45
0 30	total		
	v hard calc marlstone		
SUBSOIL 30+	c 50 60- brashy marlstone in soil matrix		

## Grade 3b (topsoil stones)

- 19 Ploughed level
- |       |     |   |
|-------|-----|---|
| 0 35  | HCL | 10YR 5/4  |
| 35 45 | MC  | 7 5YR 5/4 few Mn concs and Fe concs Not gleyed  |
| 45 90 | MC  | greenish grey clay 2 5Y 6/4 matrix with 2 5Y 6/2 and 7 5YR 6/8 mottles Gleyed and mottled |
| 90    |     | Impenetrable marlstone  |

## WC III Grade 3a (wetness)

20 Ploughed level

0-32	HCL	10YR 5/4
32-38	MC	10YR 5/4 few frags of weathered marlstone giving ochreous mottles Not gleyed
38 62	MC	mottled and gleyed
62		10YR 6/4 matrix with 10YR 7/8 and 2 5 Y 6/4 mottles
62	Impenetrable	marlstone

WC IV Grade 3b (wetness)

21 Plough flat (old ridge and furrow)

0 32	MCL	10YR 4/4 non-calc not stony
32 60	HCL	becoming redder 7 5YR 4/4 sl gritty few weathered marlstone frags few ironstone frags
60-65	MC	becoming paler
65 75	MC	7 5YR 5/4 few marlstone frags poss sl gleyed
75 110+	MC	greenish and bluish grey clay Lias clay FFOM gleyed few marlstone frags sl calc

WC II Grade 2 (wetness)

22 Ploughed flat (old ridge and furrow)

0-28	MCL	10YR 4/3 non calc not stony
28-50	MCL	10YR 4/4 few ironstone frags non calc not stony
50 60	HCL	10YR 4/4 sl gritty few Fe concs and marlstone frags
60 68	HCL	10YR 4/4 with few ochreous mottles
68 75	MC	becoming sl gleyed 10YR 4/3 matrix common Fe concs - 10YR 5/8
75-100+	MC	Gleyed 10YR 5/3 matrix with CDOM few frags calc marlstone and few Fe concs marlstone frags increasing with depth

WC II Grade 2 (wetness)

23 Ploughed level

0 25	HCL	10YR 5/4
25 55	HCL	7 5YR 5/4 with few ironstone frags few Fe concs (weathering of marlstone)
55 60	MC	gleyed 10YR 6/4 matrix with 10YR 6/2 and 6/8 mottles
60 65	MC	grey 2 5Y 6/2 with few marlstone frags gleyed
65	Impenetrable	marlstone

WC II/III Grade 3a/b (wetness)

## 24 Ploughed level

0-28	MCL	10YR 5/4
28-41	MC	10YR 4/4 Not gleyed but marlstone frags giving ochreous colours
41 90	MC	Mottled and gleyed 10YR 6/4 matrix with 10YR 6/2 and 10YR 6/8 mottles
90+	Impenetrable	becoming brashy at c 85+ brashy marlstone

WC III Grade 3a (wetness)

## 25 Ploughed almost flat (ridge and furrow)

0-32	MCL	10YR 3/4 not stony non-calc
32 50	HCL	10YR 3/4 few ironstone frags and Fe concs weathering marlstone producing ochreous mottling Not gleyed sl gritty
50-60	HCL	10YR 3/4 few Fe concs marlstone frags
60-65	MC	more brashy not gleyed as above
65 70	MC	becoming gleyed with 10YR 5/3 matrix 10YR 5/6 mottles and occ marlstone frags
70 90	MC	becoming greenish and bluish grey mottled and gleyed
90	MC	Blue Lias clay with CFOM gleyed

WC II Grade 2 (wetness)

## 26 Plough v gentle falls N/almost flat not stony on surface

0 32	HCL	10YR 4/3 not stony non-calc
32-45	HCL	10YR 4/3 (sl paler than topsoil) sl gritty Fe/Mn concs
45 50	HCL/MC	10YR 4/3 brown matrix not gleyed few ochreous mottles and Fe concs
50 65	HCL/MC	v gritty with common Fe concs Not gleyed
65 70		As above with few marlstone frags
70 100+	MC	10YR 4/4 matrix with common Fe concs few marlstone frags increasing with depth v gritty

WC I Grade 2 (topsoil texture)

## 27 Ploughed occ marlstone frags on surface v sl falls S

0-29	MCL	10YR 4/3 sl gritty v sl calc
29 38	HCL	few ironstone frags and Mn concs 10YR 4/4 sl gritty
38-50	HCL	few marlstone frags increasing with depth 10YR 4/4 v brashy c 30% marlstone
50-52		
52 85	MC	yellowish brown clay 2 5Y 6/4 matrix gleyed with mottles 7 5YR 4/6 and 2 5Y 6/2 c 30% marlstone brash
85 100	MC	becoming more distinctly mottled and greyer
100	MC	bluish grey Lias clay

WC III Grade 3a (wetness)

28 Ploughed level v few surface stones

0-30	MCL	10YR 4/3
30 40	HCL	10YR 4/4
40-60	MC	mottled and gleyed 10YR 5/3 matrix with 7 5YR 4/4 and 10YR 6/8 mottles sl gritty few ironstone frags and occ Mn concs
60 75	MC	becoming more bluish grey and gleyed occ marlstone frags
75-110+	MC	2 5Y 6/4 matrix mottled and gleyed

WC III Grade 3a (wetness)

29 Ploughed almost flat (old ridge and furrow) not stony on surface

0-30	HCL	7 5YR 4/4 non-calc not stony
30-40	HCL	7 5YR 4/4 few ironstone frags sl gritty
40-60	HCL/MC	becoming redder 7 5YR 4/6 few ironstone frags gritty Not mottled or gleyed becoming brashy (marlstone) from c 55 cm
60 70	MC	yellowish brown 10YR 5/3 matrix 10YR 5/8 mottles brashy
70 80	MC	mottled and gleyed 2 5 Y 5/2 brashy
80 100	MC	bluish and greenish grey clay
100-110+	MC	becoming yellowish brown

WC II Grade 3a (wetness)

30 Ploughed almost flat (old ridge and furrow) not stony

0 32	HCL	10YR 4/3 non-calc not stony
32 50	HCL	10YR 4/4 few Fe concs and ironstone frags few marlstone frags
50 70	MC	yellowish brown clay mottled and gleyed 10YR 5/3 matrix with 10YR 6/8 CFOM brashy with c 2 <sup>3</sup> marlstone throughout
70-80	MC	becoming more brashy mottled and gleyed
80+		Impenetrable - marlstone

WC III Grade 3b (wetness)

31 Ploughed level (old ridge and furrow)

0 28	HCL	10YR 5/4 common ironstone frags
28 57	MC	10YR 5/4 matrix with 10YR 6/6 and 6/2 mottles mottled and gleyed
57-65	MC	mottled and gleyed grey clay 10YR 6/4 matrix
65 80	MC	mottled and gleyed with common Fe concs
80 110+	MC	becoming more reddish with Fe concs as above

WC IV Grade 3b (wetness)

32 Plough almost flat occ marlstone frags on surface

0 32	HCL	10YR 4/3 not stony v sl calc
32 38	HCL/MC	10YR 4/3 few ironstone frags gritty
38 50	MC	common ironstone frags and occ marlstone frags gritty not mottled or gleyed
50 85	MC	bluish grey clay 5Y 4/1 gleyed (Blue Lias clay)
85-87	MC	yellowish brown gleyed clay 10YR 5/3 with CFOM
87+		Impenetrable marlstone brash

WC III Grade 3b (wetness)

33 As above

0-33	HCL	10YR 4/4 non-calc not stony
33-45	HCL	10YR 4/4 common Fe concs and small marlstone frags gritty
45-50	MC	bluish grey clay 5Y 4/1 gleyed
50-100+	MC	variable in colour greenish bluish and yellowish brown 2 5Y 5/4 matrix with few Fe frags occ marlstone frags/brash

WC III Grade 3b (wetness)

34 Cereal stubble gently undulating sl falls S and E

0 28	HCL	10YR 4/3 → 7 5YR 4/4 not stony and non-calc
28 35	HCL/MC	7 5YR 4/4 gritty common ironstone frags and Fe concs
35-50	MC	becoming more brashy c 20% marlstone becoming greyer and mottled gleyed 7 5YR 4/2 matrix occ Fe concs
50+		Impenetrable - marlstone brash within soil matrix

WC IV Grade 3b (wetness)

35 Cereal stubble sl falls east c 10% <2 cm marlstone on surface

0-32	MZCL	7 4YR 4/4 non calc sl stony c 5% <2 cm sl gritty
32-45	MCL	7 5YR 4/4 with few ochreous Fe concs - 10YR 5/8 few marlstone frags v Fe enriched and gritty becoming predominantly ochreous with depth → Fe enrichment
45 55	MSCL	As above v Fe enriched and gritty dominantly 10YR 5/6 and 5/8
55+		Impenetrable - marlstone

WC I Grade 2 (drought)

36 Almost flat/sl falls N S and E cereal stubble

0 35	MZCL	7 5YR 5/4	few ironstone frags
35 50	MCL	7 5YR 5/4	c 30% iron concs v Fe enriched
50 68	MCL	7 5YR 5/4	v Fe enriched as above Not gleyed
68-80	MC	7 5YR 5/4	Fe enrichment as above Not gleyed
80-85	MC		marlstone brash
85			Impenetrable marlstone

WC I Grade 1

37 Cereal stubble abundant small (<2 cm) marlstone on surface

0 30	MZCL	7 5YR 5/4	c 10% marlstone <2 cm
30-38	MCL	7 5YR 5/4	v Fe enriched c 20% Fe concs
38 115	ZC		becoming greyer 10YR 5/4 v distinctly mottled with Fe concs (10%) 10YR 6/8 and 5/2 mottles
115+			Impenetrable marlstone

WC IV Grade 3b (wetness)

38 Bottom of v sl valley gentle falls S and E c 2 3% marlstone >2 cm

0-30	MZCL	7 5YR 5/4	c 2-3% marlstone >2 cm
30 35	MZCL	7 5YR 5/4	soft brashy marlstone
35			Impenetrable - marlstone

WC I Grade 3b (drought)

39 sl falls SE/almost flat few surface stones

0 25	MZCL	7 5YR 4/4	non-calc
25 48	HCL	7 5YR 4/4	with few ochreous Fe concs 10YR 5/8 gritty
48 68	HCL	7 5YR 3/4	with Fe concs as above Not mottled or gleyed
68-90	MC	10YR 4/3	matrix with 10YR 5/6 Fe concs becoming sl paler not mottled or gleyed
90	MSCL	10YR 4/3	matrix becoming sl paler not gleyed

WC I Grade 1

40 Plough v gentle falls S c 5% marlstone frags >2 cm on surface

0 27	MCL	7 5YR 4/4	sl gritty
27 65	MCL	7 5YR 4/4	matrix with common Fe concs Not gleyed weathered marlstone becoming more Fe enriched with depth
65 80	HCL		As above common Fe concs within brown matrix
80			Impenetrable marlstone

WC I Grade 1

41 Plough v sl falls S

0-25	MCL	10YR 4/3 common ironstone frags
25-70	HCL	7 5YR 5/4 common Fe concs few Mn concs
70-110+	HCL	10YR 5/4 few ochreous mottles associated with weathered marlstone not gleying common Fe concs

WC I Grade 1

42 Top of sl ridge falling W ploughed occ areas of brashy marlstone on surface

0 25	MCL	7 5YR 4/4 few stones c 3% >2 cm non-calc
25 30	MCL	paler and more brashy sl calc Fe enriched sl gritty
30+	Impenetrable	brashy calc marlstone

WC I Grade 3b (drought)

43 Forage crop sl stony on surface gently undulating v gentle falls W

0 30	MCL	7 5YR 4/4 c 1% marlstone >2 cm
30 42	MCL	7 5YR 4/4 with common Fe concs Not gleyed gritty
42 50	MCL	7 5YR 5/8 v Fe enriched predominantly orange matrix becoming brashy calc marlstone
50+	Impenetrable	marlstone

WC I Grade 3a (drought)

PIT DETAILSPIT AT BORING 3

TOPSOIL	MCL	10YR 4/3
0-33		
SUBSOIL	HCL	10YR 4/3 occ marlstone frags
33-56		moderately well dev co SAB
		firm consistence >0 5% biopores
		Not gleyed not slowly permeable
		AVERAGE structure
56 63	MC	well dev co AB tending to prismatic
		<0 5% biopores firm consistence
		mottled gleyed and slowly permeable
		5Y 6/1 matrix with MDOM
		dominantly grey and ochreous
		POOR structure
63 78	MC	well developed v co prismatic firm consistence
	(Blue	<0 5% biopores POOR 5Y 6/1 matrix with MDOM
	Lias clay)	gleyed slowly permeable
78+	HC	v well dev v co prismatic firm
		<0 5% biopores POOR structure
		dominantly bluish grey N5 with CFOM
		gleyed and slowly permeable



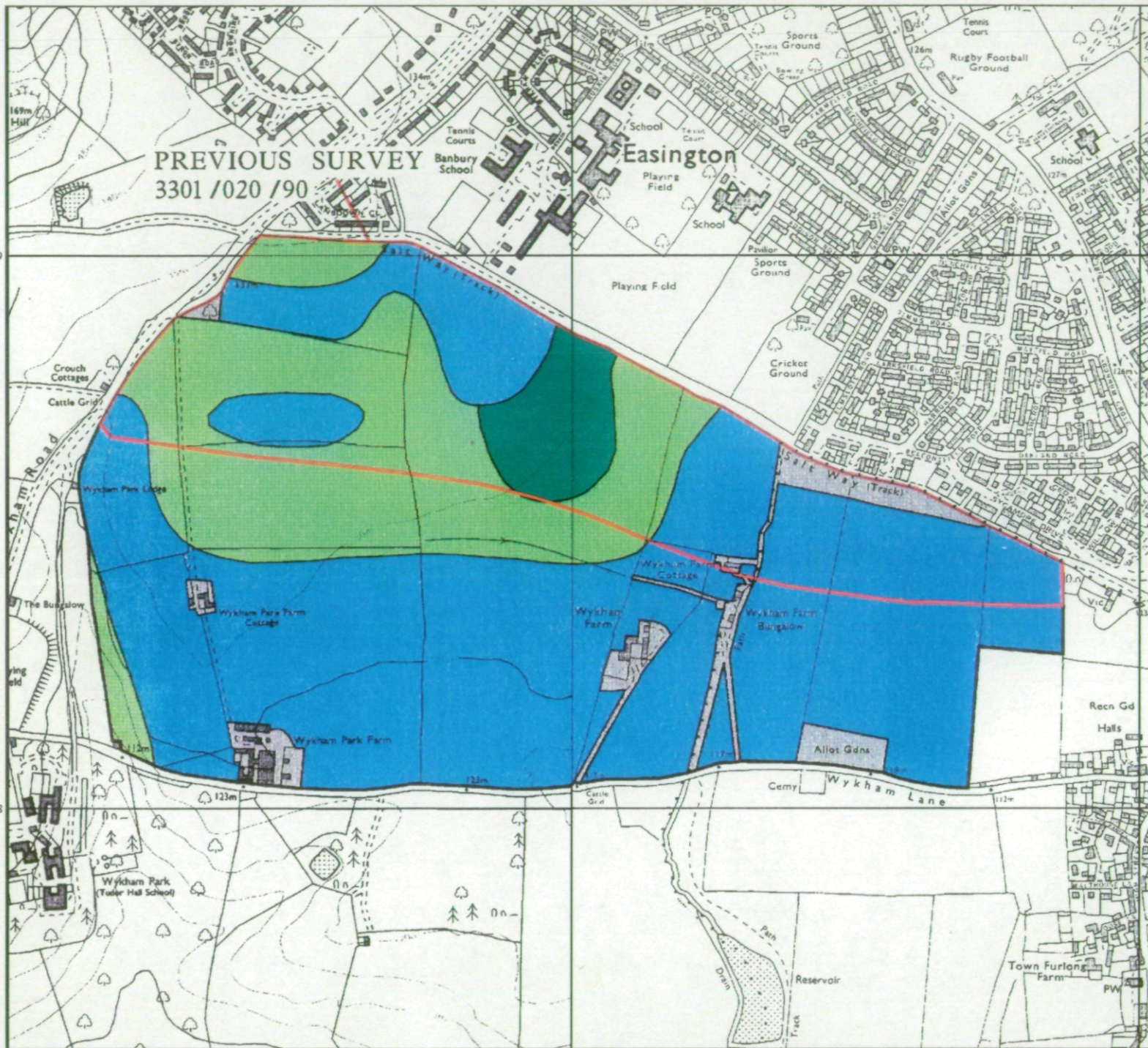
PIT AT BORING 39

TOPSOIL	MZCL	gritty
0 30		
SUBSOIL	MZCL	gritty v dry and compacted
30-60		c 15-20% marlstone frags <2 cm
		weathering of marlstone producing many orange FE
		concs/mottles
		Not gleying brown matrix 7 5YR 4/4
		weakly dev fine SAB (some medium and occ coarse)
		friable consistence >0 5% biopores GOOD structure
60 80	MCL	moderately well dev co AB
		firm consistence >0 5% biopores
		c 2 5% marlstone frags
		5YR 4/3 matrix Not mottled or gleyed
		AVERAGE structure
80 100	HCL	becoming sl paler not mottled or gleyed
		moderately well dev medium SAB
		firm consistence >0 5% biopores
		GOOD structure

## Agricultural Land Classification

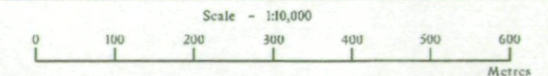
Oxfordshire Structure Plan  
Land at Easington, Banbury  
Semi-detailed Survey

PREVIOUS SURVEY  
3301 / 020 / 90



### Legend

	Quality	Area (ha)
Grade 1	Excellent	nil
Grade 2	Very Good	78.8
Grade 3a	Good	5.2
Grade 3b	Moderate	32.2
Grade 4	Poor	nil
Grade 5	Very Poor	nil
	Agricultural land not surveyed	nil
	Other land	6.6
Boundary of survey area		
Total agricultural land area		116.2
Total survey area		122.8
* Not present within survey area		



Further details contained in MAFF (1988) Agricultural Land Classification of England and Wales - Revised guidelines and criteria for grading the quality of agricultural land. MAFF (publications), London SE99 7TP. The information is accurate at base map scale but any enlargement would be misleading. Reproduction in whole or in part by any means is prohibited without the prior permission of MAFF.

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## Agricultural Land Classification

Oxfordshire Structure Plan  
Land at Easington, Banbury  
Semi-detailed Survey

### Sample Point Map

#### Legend

- 1 Location of soil pit
- 1 Location of auger sample point
- 1 Location of auger sample point (Previous Survey)



Boundary of  
survey area

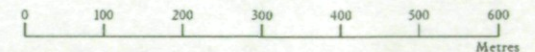


Agricultural land not  
surveyed



Other land

Scale - 1:10,000



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PREVIOUS SURVEY  
3301/020/90

Easington

