A1
Berkshire Minerals Plan
Site 1: Chamberhouse Farm
Agricultural Land Classification
ALC Map & Report
September 1993

BERKSHIRE MINERALS PLAN
SITE 1: CHAMBERHOUSE FARM, THATCHAM
AGRICULTURAL LAND CLASSIFICATION

1.0 Summary

1.1 During April 1993, an Agricultural Land Classification (ALC) survey was carried out on 21.3 hectares of land at Chamberhouse Farm near Thatcham, Berkshire. ADAS was commissioned by MAFF to determine the quality of land affected by proposals in the Berkshire Minerals Plan. A further 49.2 hectares of land to the immediate west of the track running north from the buildings at Chamberhouse Farm was surveyed in March 1991 in connection with the same Minerals Plan. The remainder of the report considers the two surveys as one.

1.2 The survey was undertaken at a detailed level of approximately one boring per hectare. A total of 62 borings and four soil inspection pits were described in accordance with MAFF's revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988). These guidelines provide a framework for classifying land according to the extent to which its physical and chemical characteristics impose long term limitations on its agricultural use.

At the times of the survey, the area surveyed in March 1991 had mostly recently been ploughed, with some fields in the north eastern corner under permanent pasture. The area inspected in April 1993, was ploughed over the southern half with the northern half being partly rough permanent pasture, the remaining area marginal reed and sedge beds.

1.3 The distribution of grades and sub-grades is shown on the attached ALC map and the areas and extent are given in the table below. The map has been drawn at a scale of 1:10,000. It is accurate at this scale, but any enlargement may be misleading.

Table 1A: Distribution of Grades and Sub-grades- April 1991 Survey

	Area (ha)	% of site	% of total agricultural land
Grade 2	38.9	79.1	81.6
Grade 3a	8.8	17.9	18.4
Total Agricultural Area	47.7	97.0	100
Non Agricultural	1.5	3.0	
Total Site Area	49.2	100	

Table 1B: Distribution of Grades and Sub-grades - April 1993

	Area (ha)	% of site	% of total agricultural land
Grade 2	7.4	34.7	53.6
Grade 3a	0.4	1.9	4.2
Grade 3b	6.0	28.2	43.5
Total Agricultural Area	13.8	64.8	100
Non Agricultural	7.5	35.2	
Total Site Area	21.3	100	

Table 1C: Distribution of Grades and Sub-grades - Total survey area

	Area (ha)	% of site	% of total agricultural land
Grade 2	46.3	65.7	75.3
Grade 3a	9.2	13.0	14.9
Grade 3b	6.0	8.5	9.8
Total Agricultural Area	61.5	87.2	100
Non Agricultural	9.0	12.8	
Total Site Area	70.5	100	

1.4 Appendix 1 gives a general description of the grades and land use categories identified in this survey. The main classes are described in terms of the type of limitation that can occur, the typical cropping range and the expected level and consistency of yield.

2.0 Climate

2.1 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.

2.2 The main parameters used in the assessment of the overall climatic limitation are average annual rainfall, as a measure of overall wetness, and accumulated temperature, as a measure of the relative warmth of a locality.

2.3 A detailed assessment of the prevailing climate was made by interpolation from a 5km gridpoint dataset (Met. Office, 1989). The details are given in the table below and these show that there is no overall climatic limitation affecting the site.

2.4 No local climatic factors such as exposure or frost risk affect the site.

Table 2 : Climatic Interpolations

Grid Reference	SU515659	SU521658
Altitude (m)	65	65
Accumulated Temperature (days)	1457	1457
Average Annual Rainfall (mm)	706	703
Field Capacity (days)	154	153
Moisture Deficit, Wheat (mm)	109	109
Moisture Deficit, Potatoes (mm)	102	102
Overall Climatic Grade	1	1

3.0 Relief

3.1 The altitude of the site varies between approximately 64-68m A.O.D. with the highest land occurring towards the north east of the site, falling gently southwards towards the River Kennet. Nowhere on the site does gradient or altitude represent a significant limitation to agricultural land quality.

4.0 Geology and Soils

4.1 The relevant published geological sheet (British Geological Survey, 1971, Sheet 272, Newbury), shows the site to be underlain for the most part by Recent Alluvium deposits. The remaining area is shown as Recent River and Valley gravels.

4.2 The Soil Survey of England and Wales (1983), Sheet 6, Soils of South-East England shows the site to comprise soils of the Frome Association. In the Kennet Valley fine textured deposits rest on flint and/or chalky gravel; calcareous marl and peat bands occur locally and the soils are described as "calcareous alluvial gley soils. They are grey and mottled silty clay loam soils affected by high groundwater, with calcareous flints and/or chalky gravels at relatively shallow depths", (SSEW, 1984) Soils of this type were found during both surveys.

5.0 Agricultural Land Classification

5.1 Table 1 provides the details of the area measurements for each grade and the distribution of each grade is shown on the attached ALC map.

5.2 The location of the soil observation points is shown on the attached sample point map.

5.3 Grade 2

Land of this quality occurs across most of the area surveyed. Deep extremely calcareous profiles were identified, with silt loam or medium silty clay loam topsoils, which occasionally have relatively high organic matter contents and are thereby termed organic. Subsoils were variable, but most profiles contained horizons of algal marl over peat, or interbedded layers of algal marl and peat, whose extent and depth

from the surface varied considerably across the site. All these soils, having developed from calcareous algal marl deposits have very high levels of calcium carbonate in both the topsoil and subsoil, which typically ranges from c. 37-82% (as assessed by laboratory analysis). Such high levels, act to restrict micro nutrient availability to plants. It is therefore judged that these soils have sufficiently high carbonate contents, to impose a slight chemical limitation on plant growth, thereby restricting the agricultural land quality.

In addition, most profiles showed evidence of imperfect drainage, in the form of gleying, found at variable depths, as a result of groundwater movement. Such profiles were thereby assigned to wetness class II. However some profiles were found to be well drained and thus assigned to wetness class I accordingly.

5.4 Grade 3A

Land of this quality is mapped across the north of the site where the land is slightly higher than the rest of the site. The soil falls into two variants.

Firstly, those profiles which comprise very slightly stony medium or heavy clay loam topsoils (c. 1-3% total flints by volume) over slightly stony heavy clay loam or organic medium clay (c. 5-10% total flints by volume) in the subsoil, and becoming impenetrable (to soil auger) between c. 47 and 60 cm due to the underlying geology of gravels. In addition occasional profiles showed evidence of slightly imperfect drainage in the form of gleying, thus being assigned to wetness class II. However most profiles were found to be well drained, wetness class I. The principal limitation to these soils is droughtiness as a result of shallow depth over gravel horizons. Gravel horizons were confirmed in pit observations.

The second group of soils comprise medium or heavy clay loam topsoils with occasional organic silt loam over similar textures with c. 10-50% algal marl in the soil matrix at various depths, overlying organic clays which were gleyed between c. 40 and 45 cm. These rest over sandy clay loams and medium clay loams, becoming impenetrable (to soil auger) due to gravel between c. 70 and 90 cm. As a result of imperfect drainage these soils are assigned to wetness class III. The principal limitation to this land is a combination of droughtiness, wetness and workability thereby restricting the agricultural land quality to a maximum of grade 3a.

5.5 Grade 3B

Land of this quality is mapped to the north east of the site where three distinct sets of circumstances lead to differing restrictions on agricultural land quality.

i. To the north and north west of the area graded as 3B, the profiles were found to overlie gravel at shallow depth (within 50 cm). This was confirmed by an observation pit. The reduced reserves of water available from such soils in combination with the local climate regime gives rise to a soil droughtiness limitation. Crops will be subject to a moderate risk of drought stress such that grade 3b is appropriate.

ii. Towards the centre of the area mapped as grade 3B, the limitation becomes wetness due to the presence of a gleyed and slowly permeable heavy clay loam horizon within the profile. Medium silty clay loam topsoils and heavy silty clay loam upper subsoils overlie this. The slowly permeable layer passes to wet organic peaty horizons before returning to a wet slowly permeable clay at depth. Due to the presence of the slowly permeable horizon and given the local climatic regime wetness class IV is appropriate and subsequently grade 3B is assigned.

iii. The remaining area to the north east of the site, contains reed and sedge beds, which were in part considered non-agricultural, but where marginal have been mapped as 3B, due to the presence of a shallow water table (see Appendix II). Wetness class IV was considered appropriate and given the local climatic conditions and topsoil texture, land is limited to grade 3B on the basis of soil wetness and workability problems.

5.6 The areas mapped as non agricultural include scrub around field drains and the main river channel, unmetalled trucks, scrubby woodland, and the areas of sedge and reed beds to the east which are constantly wet.

ADAS Reference: 0200/006/91
0202/053/93
MAFF Reference: PC 4607

Resource Planning Team
Guildford Statutory Centre
ADAS Reading

SOURCES OF REFERENCE

* British Geological Survey (1971), Sheet No 267, Newbury, 1:63360.

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

* Meteorological Office (1989), Climatological Datasets for Agricultural Land Classification.

* Soil Survey of England and Wales (1979), Bulletin No. 8: Soils of Berkshire.

* Soil Survey of England and Wales (1983) Sheet 6, Soils of South East England, 1:250,000.

* Soil Survey of England and Wales (1984) Bulletin 15, Soils and their use in South East England.

APPENDIX 1
DESCRIPTION OF THE GRADES AND SUBGRADES

The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. In practice,, the grades are defined by reference to physical characteristics and the grading guidance and cut-offs for limitation factors in Section 3 enable land to be ranked in accordance with these general descriptions. The most productive and flexible land falls into Grades 1 and 2 and Subgrade 3a and collectively comprises about one-third of the agricultural land in England and Wales. About half the land is of moderate quality in Subgrade 3b or poor quality in Grade 4. Although less significant on a national scale such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in Grade 5, which mostly occurs in the uplands.

Descriptions are also given of other land categories which may be used on ALC maps.

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 and horticultural crops can usually be grown but on some land in the 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.

Grade 3 - good to moderate quality agricultural land

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where 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 level of yields. It is mainly suited to grass with occasional arable crops (eg 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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Descriptions of other land categories used on ALC maps

Urban

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

Non-agricultural

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

Woodland

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

Agricultural buildings

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

Open water

Includes lakes, ponds and rivers as map scale permits.

Land not surveyed

Agricultural land which has not been surveyed.

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

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

Definition of Soil Wetness Classes

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

[1] The number of days specified is not necessarily a continuous period.

[2] 'In most years' is defined as more than 10 out of 20 years.

APPENDIX III

SOIL PIT AND SOIL BORING DESCRIPTIONS

Contents :

SOIL PROFILE DESCRIPTIONS : EXPLANATORY NOTE

Soil profile and pit information obtained during ALC surveys is held on a database. This has commonly used notations and abbreviations as set out below.

BORING HEADERS

1. GRID REF : National grid square followed by 8 figure grid reference.

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

ARA - arable	PAS/PGR - permanent pasture
WHT - wheat	RGR - rough grazing
BAR - barley	LEY - ley grassland
CER - cereals	CFW - coniferous woodland
OAT - oats	DCW - deciduous woodland
MZE - maize	SCR - scrub
OSR - oilseed rape	HTH - heathland
BEN - field beans	BOG - bog or marsh
BRA - brassicae	FLW - fallow
POT - potatoes	PLO - ploughed
SBT - sugarbeet	SAS - set-aside
FDC - fodder crops	OTH - other
FRT - soft and top fruit	LIN - linseed
HOR/HRT - horticultural crops	

3. GRDNT : Gradient as measured by optical reading clinometer.

4. GLEY/SPL : Depth in centimetres (cm) to gleyed and/or slowly permeable horizons.

5. AP (WHEAT/POTS) : Crop-adjusted available water capacity. The amount of soil water (in millimetres) held in the soil profile that is available to a growing crop (wheat and potatoes are used as reference crops).

6. MB (WHEAT/POTS) : The moisture balance for wheat and potatoes obtained by subtracting the soil moisture deficit from the crop-adjusted available water capacity.

7. DRT: Grade according to soil droughtiness assessed against soil moisture balances.

8. M REL : Micro-relief)
   FLOOD : Flood risk)
   EROSN : Soil erosion)
   EXP : Exposure)
   FROST : Frost prone)
   DIST : Disturbed land)
   CHEM : Chemical limitation)
   If any of these factors are considered significant in terms of the assessment of agricultural land quality a 'y' will be entered in the relevant column.

9. LIMIT : Principal limitation to agricultural land quality.
The following abbreviations are used:

OC - overall climate
AE - aspect
EX - exposure
FR - frost
GR - gradient
MR - micro-relief
FL - flooding
TX - soil texture
DP - soil depth
CH - chemical limitations
WE - wetness
WK - workability
DR - drought
ER - erosion
WD - combined soil wetness/soil droughtiness
ST - topsoil stoniness

PROFILES & PITS

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

S - sand
LS - loamy sand
SL - sandy loam
SZL - sandy silt loam
ZL - silt loam
MZCL - medium silty clay loam
MCL - medium clay loam
SCL - sandy clay loam
HZCL - heavy silty clay loam
HCL - heavy clay loam
SC - sandy clay
ZC - silty clay
C - clay

For the sand, loamy sand, sandy loam and sandy silt loam classes, the predominant size of sand fraction may be indicated by the use of prefixes.

F - fine (more than ⅔ of the sand less than 0.2 mm)
C - coarse (more than ⅓ of sand greater than 0.6 mm)
M - medium (less than ⅔ fine sand and less than ⅓ coarse sand)

The sub-divisions of clay loam and silty clay loam classes according to clay content are indicated as follows:

M - medium (less than 27% clay)
H - heavy (27-35% clay)

Other possible texture classes include:

OL - organic loam
P - peat
SP - sandy peat
LP - loamy peat
PL - peaty loam
PS - peaty sand
MZ - marine light silts

2. MOTTLE COL : Mottle colour

3. MOTTLE ABUN : Mottle abundance

F - few - less than 2% of matrix or surface described
C - common - 2-20% of the matrix
M - many - 20-40% of the matrix
VM - very many - 40% + of the matrix

4. MOTTLE CONT : Mottle continuity

F - faint - indistinct mottles, evident only on close examination
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

6. STONE LITH : Stone lithology. One of the following is used.

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

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

7. 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 well developed

- ped size

F - fine
M - medium
C - coarse
VC - very coarse

- ped shape

S - single grain
M - massive
GR - granular
SB/SAB - sub-angular blocky
AB - angular blocky
PR - prismatic
PL - platy

8. CONSIST : Soil consistence is decribed using the following notation:

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

9. SUBS STR : Subsoil structural condition recorded for the purpose of calculating profile droughtiness.

G - good
M - moderate
P - poor

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

11. IMP : If the profile is impenetrable a `y' will appear in this column at the appropriate horizon.

12. SPL : Slowly permeable layer. If the soil horizon is slowly permeable a `y' will appear in this column.

13. CALC : If the soil horizon is calcareous, a 'y' will appear in this column.

14. 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

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT	ALC	COMMENTS
1A	SU52206610	PGR			032		2	2	88	-21	85	-17	3B				DR	3B	IMP GRAVEL 50
1P	SU52206610	PGR			030		2	2	78	-31	75	-27	3B				DR	3B	PIT AT 1
2A	SU52306610	PGR			033		2	3A	140	31	119	17	1				WE	3A	
3A	SU52406610	PGR			030	030	4	3B	161	52	148	46	1				WE	3B	WATER TABLE 70
4A	SU52506610	RGR			060		4	3B	185	76	182	80	1				WE	3B	HI WATER TABL
5A	SU52106600	PGR			022		2	2	228	119	130	28	1				WE	2	
10A	SU52106590	PGR			040		1	1	228	119	120	18	1					1	PROB 2 CHEM
11A	SU52206590	PGR			0	040	4	3B	166	57	135	33	1				WE	3B	SPL 40
14A	SU52106580	PLO			035		2	2	208	99	122	20	1				WE	2	GLEY 35
15A	SU52206580	PLO			038		2	2	197	88	127	25	1				WE	2	GLEY 38
16A	SU52306580	PLO			027		2	2	210	101	120	18	1				WE	2	GLEY 27
17A	SU52106570	PLO			023		2	2	240	131	135	33	1				WE	2	GLEY 23
18A	SU52206570	PLO			028		2	2	178	69	117	15	1				WE	2	GLEY 28
19A	SU52306570	PLO			026		2	2	160	51	110	8	2				WE	2	WE & DR
20A	SU52106560	PLO			045		1	1	109	0	122	20	3A				DR	3A	IMP 70

SOIL PIT DESCRIPTION

Site Name : BERKS MIN CHBRHSE FM 93 Pit Number : 1P

Grid Reference: SU52206610
Average Annual Rainfall : 703 mm
Accumulated Temperature : 1457 degree days
Field Capacity Level : 153 days
Land Use : Permanent Grass
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 30	MCL	10YR42 00	0	2		
30- 47	MSL	25 Y62 00	7	35	C	WK MAB
47-120	GH	25 Y62 72	0	0		

Wetness Grade : 2
Wetness Class : II
Gleying :030 cm
SPL : No SPL

Drought Grade : 3B
APW : 78 mm MBW : -31 mm
APP : 75 mm MBP : -27 mm

FINAL ALC GRADE : 3B
MAIN LIMITATION : Droughtiness

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
1A	0-32	mcl	10YR42 00						0	0	HR	2						Y	
	32-50	scl	10YR71 00	10YR68 00	C			Y	0	0	HR	10		M				Y	
	50-120	gh	00ZZ00 00						0	0		0		M				Y	
1P	0-30	mcl	10YR42 00						0	0	HR	2						Y	
	30-47	msl	25 Y62 00	10YR66 00	C			Y	7	0	HR	35	WK MAB FR	M				Y	
	47-120	gh	25 Y62 72						0	0		0		M				Y	
2A	0-33	hcl	10YR21 00						0	0		0						Y	
	33-40	hcl	10YR41 00	75YR58 00	C			Y	0	0		0		M				Y	
	40-50	c	10YR51 00	75YR58 00	C		10YR61 00	Y	0	0		0		M				Y	
	50-70	hcl	10YR51 00	75YR58 00	C		10YR61 00	Y	0	0		0		M				Y	
	70-85	scl	10YR71 00	10YR58 00	M			Y	0	0		0		M				Y	
	85-100	msl	10YR71 00	10YR58 00	M			Y	0	0		0		M				Y	
	100-120	gh	00ZZ00 00						0	0		0		M				Y	
3A	0-30	ocl	10YR21 00						0	0		0						Y	
	30-73	c	05 Y41 00	10YR46 00	C			Y	0	0		0		M			Y	Y	
	73-85	c	10YR71 00	10YR68 00	C			Y	0	0		0		M			Y	Y	
	85-100	scl	10YR71 00	10YR68 00	C			Y	0	0		0		M				Y	
	100-120	gh	00ZZ00 00						0	0		0		M				Y	
4A	0-35	ocl	10YR21 00						0	0		0						Y	
	35-60	ocl	75YR20 00						0	0		0		M				Y	
	60-80	msl	10YR71 00	10YR56 58	C			Y	0	0	HR	5		M				Y	
	80-120	gh	00ZZ00 00						0	0		0		M				Y	
5A	0-22	zl	10YR32 00						0	0	HR	1						Y	
	22-55	mzcl	10YR52 00	10YR56 00	M			Y	0	0	CH	5		M				Y	
	55-95	mzcl	10YR51 71	10YR46 00	C			Y	0	0	CH	10		M				Y	+ 3% HR
	95-120	fp	75YR21 00					Y	0	0		0		M					
10A	0-30	mzcl	10YR42 00						0	0		0						Y	
	30-40	mzcl	10YR43 00						0	0	CH	5		M				Y	
	40-70	mzcl	10YR81 00	10YR58 00	M			Y	0	0	CH	20		M				Y	
	70-120	hp	10YR21 00					Y	0	0		0		M					
11A	0-29	mzcl	10YR41 00	75YR46 00	C			Y	0	0		0						Y	
	29-40	hzcl	10YR81 00	75YR58 00	M			Y	0	0	CH	50		M				Y	
	40-60	hcl	10YR51 00	75YR56 00	M			Y	0	0		0		M			Y	Y	
	60-70	hp	10YR22 00					Y	0	0		0		M				Y	
	70-80	pl	10YR22 00					Y	0	0		0		M				Y	
	80-120	c	10YR51 00	75YR46 00	M			Y	0	0		0		P			Y	Y	
14A	0-35	mzcl	10YR43 53						0	0	HR	2						Y	
	35-70	hzcl	10YR51 61	10YR56 00	M			Y	0	0	CH	10		M				Y	
	70-85	hzcl	10YR52 31	10YR66 00	F			Y	0	0	CH	5		M				Y	
	85-120	hp	75YR21 00					Y	0	0		0		M					

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
15A	0-28	mzcl	10YR43 53						0	0	HR	1						Y
	28-38	zl	10YR53 00						0	0		0		M				Y
	38-50	mzcl	10YR61 81	10YR66 00	M		00MN00 00	Y	0	0	CH	10		M				Y
	50-75	mzcl	10YR51 71	10YR56 00	C		00MN00 00	Y	0	0	CH	10		M				Y
	75-85	fp	75YR21 00					Y	0	0		0		M				Y
	85-115	mzcl	10YR51 72					Y	0	0	CH	40		M				Y
	115-120	fp	75YR21 00					Y	0	0		0		M				
16A	0-27	mzcl	10YR43 53						0	0	HR	1						Y
	27-35	mzcl	10YR51 53	10YR66 00	C			Y	0	0	CH	5		M				Y
	35-85	mzcl	10YR61 81	10YR66 00	M			Y	0	0	CH	15		M				Y
	85-95	ozcl	10YR61 81	10YR66 00	C		75YR21 00	Y	0	0	CH	15		M				Y
	95-120	fp	75YR21 00					Y	0	0		0		M				
17A	0-23	mzcl	10YR43 00						0	0	HR	1						Y
	23-60	mzcl	10YR51 71	10YR56 66	M			Y	0	0	CH	15		M				Y
	60-120	hp	75YR21 31					Y	0	0		0		M				Y
18A	0-28	mzcl	10YR43 53						0	0	CH	5						Y
	28-110	mzcl	10YR61 81	10YR66 00	C			Y	0	0	CH	20		M				Y
	110-120	fp	10YR21 00					Y	0	0		0		M				Y
19A	0-26	mzcl	10YR43 53						0	0	HR	2						Y
	26-60	mzcl	10YR61 81	10YR66 00	C		00MN00 00	Y	0	0	CH	15		M				Y
	60-65	ozl	10YR21 00					Y	0	0	CH	10		M				Y
	65-110	mzcl	10YR61 81	10YR66 00	C			Y	0	0	CH	40		M				Y
	110-120	hp	75YR21 00					Y	0	0		0		M				
20A	0-28	mzcl	10YR31 00						0	0	HR	2						Y
	28-45	hzcl	10YR43 00						0	0	HR	2		M				Y
	45-70	hzcl	10YR53 00	10YR56 00	M			Y	0	0	HR	2		M				Y

SAMPLE NO.	GRID REF	USE	ASPECT	GRDNT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT		ALC	COMMENTS
1	SU50806610	GRA			032		2	2	178	69	130	29	1				Y	WE	2	HIGH pH
2	SU50906610	MZE					1	1	133	24	118	17	2				Y	DR	2	
3	SU51606610	GRS	NS	00			1	1	158	49	135	34	1					WD	1	WE & DR
4	SU51706610	GRS	NS	00	030		2	2	91	-18	92	-9	3A					DR	3A	
5	SU51806610	GRS	SW	00			1	2	100	-9	97	-4	3A					DR	3A	
6	SU51906610	GRS	SW	00	030		2	3A	129	20	100	-1	2					WE	3A	
7	SU52006610	GRA			032		2	2	163	54	121	20	1				Y	WE	2	
8	SU52106610	GRA			038		2	3A	126	17	123	22	2					WE	3A	
9	SU50806600	GRA			035		2	2	187	78	122	21	1				Y	WE	2	HIGH pH
10	SU50906600	GRA			045		1	1	198	89	130	29	1				Y	WD	1	HIGH pH
11	SU51006600	GRA			040		2	2	148	39	124	23	1				Y	WE	2	HIGH pH
12	SU51106600	MZE					1	1	205	96	117	16	1				Y	WD	1	HIGH pH
13	SU51206600	MZE					1	1	137	28	134	33	2				Y	DR	2	
14	SU51306600	MZE					1	1	210	101	192	91	1				Y	WD	1	HIGH pH
15	SU51406600	PLO					1	1	199	90	166	65	1					WD	1	WE & DR
15P	SU51406600	PLO			034		2	2	155	46	170	69	1					WE	2	GLEY 34
16	SU51506600	PLO					1	1	195	86	138	37	1					WD	1	WE & DR
16P	SU51506600	PLO					1	1	171	62	160	59	1					WD	1	PIT 95
17	SU51606600	PLO					1	1	252	143	161	60	1					WD	1	WE & DR
18	SU51706600	GRS	NS	00	030		2	2	92	-17	85	-16	3A					DR	3A	
19	SU51806600	GRS	SW	00	040		3	3A	146	37	133	32	1					WE	3A	
20	SU51906600	GRS	SW	00			1	1	110	1	115	14	3A					DR	3A	
21	SU52006600	GRA			045	045	3	2	143	34	114	13	1					WE	2	
22	SU51006590	GRA			030		2	2	147	38	121	20	1				Y	WE	2	HIGH pH
23	SU51106590	CBG					1	1	156	47	117	16	1				Y	WD	1	WE & DR
24	SU51206590	MZE					1	1	234	125	156	55	1				Y	WD	1	WE & DR
25	SU51306590	MZE					2	2	163	54	131	30	1				Y	WE	2	
26	SU51406590	GRA					1	1	197	88	139	38	1				Y	WD	1	WE & DR
27	SU51506590	PLO					1	1	319	210	158	57	1					WD	1	WE & DR
28	SU51606590	PLO					1	1	254	145	162	61	1					WD	1	WE & DR
29	SU51706590	GRS	NS	00			1	1	171	62	155	54	1					WD	1	WE & DR
30	SU51806590	GRS	SW	00			1	1	89	-20	86	-15	3A					DR	3A	
31	SU51906590	GRS	SW	00	065		1	1	133	24	129	28	2					DR	2	
33	SU51106580	PLO			032		2	2	188	79	133	32	1				Y	WE	2	HIGH pH
34	SU51206580	PLO					1	1		0		0						DR	2	
35	SU51306580	GRA	NE	01	034		2	2	182	73	139	38	1				Y	WE	2	HIGH pH
36	SU51406580	GRA	SE	01	030		2	2	224	115	146	45	1				Y	WE	2	HIGH pH
37	SU51506580	GRA	S	01			1	1	178	69	132	31	1				Y	WD	1	HIGH pH
38	SU51606580	PAS	NE	01	032		2	2	166	57	124	23	1				Y	WE	2	HIGH pH
39	SU51706580	PLO	N	01	030		2	2	233	124	131	30	1				Y	WE	2	HIGH pH
40	SU51806580	MZE					1	1	173	64	125	24	1				Y	WD	1	HIGH pH
41	SU51906580	MZE			115		1	1	352	243	208	107	1				Y	WD	1	HIGH pH

SAMPLE NO.	GRID REF	USE	ASPECT	GRONT	GLEY	SPL	--WETNESS-- CLASS	GRADE	-WHEAT- AP	MB	-POTS- AP	MB	M.REL DRT	FLOOD	EROSN EXP	FROST DIST	CHEM LIMIT		ALC	COMMENTS
41P	SU51906580	MZE					1	1	172	63	172	71	1				Y	WD	1	PIT 50
42	SU52006580	MZE					1	1	253	144	136	35	1				Y	WE	1	
43	SU51306570	GRA	SW	01	032		2	2	255	146	140	39	1				Y	WE	2	
44	SU51406570	PLO	E	01	035		2	2	165	56	116	15	1				Y	WE	2	
45	SU51506570	GRA	N	01			1	1	166	57	139	38	1				Y	WD	1	WE & DR
46	SU51606570	PLO	N	01	025	080	2	2	210	101	119	18	1				Y	WE	2	
47	SU51706570	MZE			050		1	1	218	109	172	71	1				Y	WD	1	WE & DR
48	SU51806570	MZE			032	046	2	2	292	183	187	86	1				Y	WE	2	
50	SU51606560	MZE			032		2	1	192	83	127	26	1				Y	WE	2	

SOIL PIT DESCRIPTION

Site Name : BERKS MIN CHBRHSE FM 91 Pit Number : 15P

Grid Reference: SU51406600 Average Annual Rainfall : 703 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 150 days
Land Use : Bare Soil
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 34	OL	10YR21 00	0	0		
34- 70	ZL	10YR42 00	0	10	C	MDCSAB

Wetness Grade : 2 Wetness Class : II
Gleying :034 cm
SPL : No SPL

Drought Grade : 1 APW : 155mm MBW : 46 mm
APP : 170mm MBP : 69 mm

FINAL ALC GRADE : 2
MAIN LIMITATION : Wetness

SOIL PIT DESCRIPTION

Site Name : BERKS MIN CHBRHSE FM 91 Pit Number : 16P

Grid Reference: SU51506600 Average Annual Rainfall : 703 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 150 days
Land Use : Bare Soil
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 33	OZL	10YR32 00	0	0		
33- 60	CSL	10YR64 00	0	65		WKCAB
60- 74	LP	10YR21 00	0	0		MDCAB
74- 90	CSL	10YR71 81	0	65		S

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

Drought Grade : 1 APW : 171mm MBW : 62 mm
APP : 160mm MBP : 59 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SOIL PIT DESCRIPTION

Site Name : BERKS MIN CHBRHSE FM 91 Pit Number : 41P

Grid Reference: SU51906580 Average Annual Rainfall : 703 mm
Accumulated Temperature : 0 degree days
Field Capacity Level : 150 days
Land Use :
Slope and Aspect : degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT.STONE	MOTTLES	STRUCTURE
0- 30	OMZCL	10YR42 00	0	0		
30- 50	FP	10YR21 00	0	0		

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

Drought Grade : 1 APW : 172mm MBW : 63 mm
APP : 172mm MBP : 71 mm

FINAL ALC GRADE : 1
MAIN LIMITATION :

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	STR	POR	IMP	SPL	CALC	
15P	0-34	ol	10YR21 00						0	0		0							
	34-70	zl	10YR42 00	10YR21 00	C			Y	0	0	CH	10	MDCSAB	FR	M			Y	
16P	0-33	ozl	10YR32 00						0	0		0						Y	
	33-60	csl	10YR64 00						0	0	CH	65	WKCAB	FR	M			Y	
	60-74	lp	10YR21 00						0	0		0	MDCAB	FR	M			Y	
	74-90	csl	10YR71 81						0	0	CH	65	S	FR	M			Y	
41P	0-30	omzcl	10YR42 00						0	0		0						Y	
	30-50	fp	10YR21 00						0	0		0			M			Y	
1	0-32	zl	10YR42 00						0	0		0						Y	
	32-40	mzcl	10YR42 00	10YR56 00	F			Y	0	0		0			M			Y	
	40-50	mzcl	10YR52 00	10YR56-58	C		10YR61-62	Y	0	0	CH	10			M			Y	
	50-60	mzcl	10YR61 00	10YR56 00	M			Y	0	0	CH	40			M			Y	
	60-110	zl	10YR41 51	10YR46 61	C			Y	0	0	CH	80			M			Y	
	110-120	hp	10YR41 00					Y	0	0		0			M			Y	
2	0-30	mzcl	10YR41-00						0	0		0						Y	SL.GRITTY/SHELL FRA
	30-65	mzcl	10YR62-00			-			0	0	CH	20			M			Y	C.20% ALGAL MARL
	65-75	zl	10YR61-00						0	0	CH	80			M			Y	C.80% WET ALGAL MAR
	75-120	cs	10YR61-00						0	0	CH	90			P			Y	100% WET ALGAL MARL
3	0-29	mcl	10YR31 00						0	0		0						Y	
	29-38	hzcl	10YR32 00						0	0		0			M			Y	OCC ALGAL MARL FRAG
	38-40	hzcl	10YR32 00						0	0	CH	50			M			Y	
	40-50	lp	25YR25 00						0	0		0			M			Y	
	50-85	scl	25Y 30 00			-			0	0	CH	5			M			Y	
	85-100	msl	10YR72 00						0	0	CH	5			M			Y	
	100-120	gh	00ZZ00 00						0	0		0			P			N	
4	0-30	mcl	10YR31 00						2	0	HR	2						Y	
	30-50	c	10YR31 41	10YR56-00	C			Y	0	0	HR	5			P			Y	
	50-60	scl	10YR51 00	10YR56-00	C			Y	0	0	HR	10			P			N	IMP OVER GRAVEL
	60-120	gh	00ZZ00 00						0	0		0			P			N	
5	0-27	mcl	10YR31 00						2	0	HR	2						Y	
	27-40	o/c	75YR20 00						0	0		0			M			N	
	40-45	c	10YR41 00						0	0	CH	2			M			Y	
	45-50	scl	05Y 61 00						0	0	CH	2			M			Y	
	50-120	gh	00ZZ00 00						0	0		0			P			N	
6	0-30	hcl	10YR31 00						3	0	HR	5						Y	
	30-37	c	10YR41 00	10YR56 00	C		25Y 40 00	Y	0	0		0			M			Y	GRITTY ALGAL MARL
	37-45	scl	25Y 62 00	10YR56 00	C			Y	0	0		0			M			Y	
	45-50	scl	25Y 62 00						0	0	CH	50			P			Y	IMP OVER GRAVEL
	50-120	ch	00ZZ00 00						0	0		0			P			N	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
7	0-28	mszl	10YR43 00						0	0		0					N		
	28-50	msl	10YR43 00						0	0		0		G			N		
	50-65	msl	10YR54 00						0	0		0		G			N		
	65-78	lms	10YR54 00						0	0		0		G			N		
	78-90	scl	10YR64 00	75YR56	58	C		Y	0	0		0		M			N		
	90-120	msl	10YR64 00	75YR56	58	C		Y	0	0	HR	20		G			N		
8	0-32	o/mcl	10YR31 00						3	0	HR	3					Y		
	32-38	o/hcl	10YR31 00						0	0	HR	3		M			Y		
	38-48	hcl	25Y 52 00	10YR56	00	C		Y	0	0	HR	3		M			Y		IMP OVER GRAVEL
	48-120	gh	00ZZ00 00						0	0		0		P			Y		
9	0-35	mzcl	10YR42 00						0	0		0					Y		
	35-50	mzcl	10YR51 52	10YR46-56	F			Y	0	0	CH	10		M			Y		
	50-85	hzcl	10YR51-52	10YR46-56	C			Y	0	0	CH	20		M			Y		
	85-120	pl	25Y 50 00					Y	0	0		0		M			Y		
10	0-30	mzcl	10YR43 00						0	0		0					N		
	30-60	msl	10YR54 00						0	0		0		G			N		
	60-80	fsl	10YR54 00	10YR64	00	F		Y	0	0		0		G			N		
	80-120	csl	10YR54 64	10YR64	00	F		Y	0	0		0		G			N		
11	0-35	mzcl	10YR32-00						0	0		0					Y		
	35-40	mzcl	10YR41-00						0	0	CH	5		M			Y		
	40-80	hzcl	10YR41-00	10YR46-00	C			Y	0	0	CH	10		M			Y		ALGAL MARL FRAG
	80-110	zc	10YR41-00	10YR46-00	C			Y	0	0	CH	10		P			Y		C.5-10% ALGAL MARL
	110-120	zc	10YR41-00	10YR46-00	C			Y	0	0	CH	10		P			Y		C.10% ALGAL MARL
12	0-30	mzcl	10YR32-00						0	0		0					Y		
	30-50	scl	10YR72-00						0	0		0		M			Y		100% ALGAL MARL
	50-90	scl	10YR72-00						0	0		0		M			Y		100% ALGAL MARL
	90-120	lp	10YR21-00						0	0		0		M			Y		V.WET PEAT
13	0-28	mzcl	10YR32-00						0	0		0					Y		POSS. ORG.
	28-50	mzcl	10YR41-00						0	0	CH	10		M			Y		C.10% ALGAL MARL
	50-58	mzcl	10YR41-00						0	0	CH	20		M			Y		20% ALGAL MARL
	58-70	pl	10YR31-00						0	0		0		M			Y		ORGANIC
	70-80	fszl	10YR71-00						0	0		0		M			Y		SMOOTH ALGAL MARL
	80-120	gh	00ZZ00-00						0	0		0		P			Y		GRAVEL IN FSZL MATR
14	0-32	o/zl	10YR32-00						0	0		0					Y		
	32-40	o/zl	10YR32-00						0	0	CH	10		M			Y		C.10% ALGAL MARL
	40-55	o/zl	10YR32-00						0	0	CH	30		M			Y		C.30% ALGAL MARL
	55-67	hp	10YR21-00						0	0		0		M			Y		
	67-75	pl	10YR61-00						0	0		0		M			Y		
	75-90	fszl	10YR71-00						0	0		0		M			Y		SMOOTH ALGAL MARL
	90-120	gh	00ZZ00-00						0	0		0		P			Y		IMP GRAVEL 90CM

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL.	PED GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
15	0-35	o/zl	10YR21 00						0	0		0						Y	
	35-55	o/mcl	10YR42 00						0	0	CH	10		M				Y	
	55-80	csl	10YR42 00						0	0	CH	90		M				Y	
	80-120	mzcl	10YR42 00						0	0	CH	50		M				Y	
16	0-35	o/zl	10YR32 00						0	0		0						Y	
	35-50	csl	10YR64 00	10YR54 00	C				0	0	CH	90		M				Y	GRITTY ALGAL MARL
	50-68	csl	10YR72 73						0	0	CH	90		M				Y	
	68-78	pl	10YR32 00						0	0		0		M				Y	
	78-90	csl	10YR71 81						0	0	CH	90		M				Y	
	90-100	lp	10YR31 00						0	0		0		M				Y	
	100-120	csl	10YR81 00						0	0	CH	90		M				Y	GRITTY ALGAL MARL
17	0-33	zl	10YR32 00						2	0	HR	2						Y	
	33-40	mzcl	10YR63 00						0	0		0		M				Y	
	40-65	pl	10YR31 00				-		0	0	CH	2		M				Y	
	65-85	zl	10YR52 00						0	0	CH	50		M				Y	V.GRITTY ALGAL MARL
	85-120	lp	10YR31 00						0	0		0		M				Y	
18	0-30	mcl	10YR31 00						0	0		0						Y	
	30-45	c	10YR41 00	10YR56 00	C		10YR61 00	Y	0	0	HR	5		P				Y	
	45-50	c	10YR41-00	10YR56-00	C		10YR61-00	Y	0	0	HR	20		P				N	
	50-120	scl	10YR62-00					Y	0	0	HR	80		P				N	
19	0-28	zl	10YR42 00						0	0		0						Y	GRITTY ALGAL MARL
	28-35	zl	10YR42 00						0	0	CH	50		M				Y	
	35-40	pl	75YR20 00						0	0		0		M				Y	
	40-90	scl	10YR41 51	75YR58 00	C		10YR51 00	Y	0	0	CH	5		M				Y	IMP OVER GRAVEL
	90-120	gh	00ZZ00 00						0	0		0		P				Y	
20	0-30	mcl	10YR32 00						0	0		0						Y	
	30-32	csl	25Y 62 00						0	0	CH	90		M				Y	GRITTY ALGAL MARL
	32-45	mcl	10YR32 00						0	0	CH	50		M				Y	
	45-60	o/c	10YR41 00						0	0		0		M				Y	
	60-70	scl	10YR62 00						0	0	HR	50		P				Y	IMP OVER GRAVEL
	70-120	gh	00ZZ00 00						0	0		0		P				Y	
21	0-30	mcl	10YR42 00						0	0		0						Y	
	30-40	csl	10YR81 00						0	0		0		M				Y	ALGAL MARL
	40-45	pl	10YR21 00						0	0		0		M				Y	
	45-80	hcl	10YR41 00	10YR66 00	C			Y	0	0		0		P		Y		Y	
	80-120	scl	25Y 73 00						0	0		0		P				Y	
22	0-30	mzcl	10YR42 00						0	0		0						Y	
	30-50	hzcl	10YR42 00	10YR56 00	F			Y	0	0	CH	2		M				Y	
	50-60	hzcl	10YR52 00	10YR56 58	C			Y	0	0	CH	10		M				Y	
	60-80	hzcl	10YR52 00	10YR56 58	C			Y	0	0	CH	50		M				Y	
	80-90	mzcl	10YR52 00	10YR56 58	C			Y	0	0	CH	60		M				Y	
	90-120	csl	00ZZ00 00					Y	0	0	CH	80		P				Y	WET ALGAL MARL

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
23	0-32	mzcl	10YR42-00						0	0		0						Y	
	32-45	hzcl	10YR52-00						0	0	CH	5		M				Y	
	45-65	hzcl	10YR51-00	10YR46-56	C				0	0	CH	50		M				Y	C.50% ALGAL MARL
	65-75	mzcl	10YR41-00	10YR46-00	C			Y	0	0	CH	25		M				Y	C.25% ALGAL MARL
	75-110	mzcl	10YR41-31	10YR44-00	C			Y	0	0	CH	80		M				Y	C.60-80% ALGAL MARL
	110-120	pl	10YR21-00						0	0		0		M				Y	PEAT/CHALK MIX LAYE
24	0-25	zl	10YR32-00						0	0		0						Y	GRITTY ZL TEXTURE
	25-40	zl	10YR71-81						0	0		0		M				Y	GRITTY ZL TEXT
	40-47	hzcl	10YR41-00						0	0		0		M				Y	GRITTY TEXTURE
	47-60	zl	10YR71-81						0	0		0		M				Y	GRITTY ZL TEXT
	60-65	zc	10YR41-00						0	0	CH	0		M				Y	C.10% ALGAL MARL
	65-90	lp	10YR21-00						0	0		0		M				Y	BLACK PEAT
	90-100	lp	10YR21-00						0	0		0		M					
	100-120	fszl	10YR71-00						0	0	CH	90		M				Y	100% SMOOTH WET A.M
25	0-30	mzcl	10YR42-00						0	0		0						Y	
	30-45	zc	10YR51-00	75YR56-00	C			Y	0	0	CH	10		M				Y	C.10% ALGAL MARL
	45-48	mzcl	10YR71-00						0	0	CH	90		M				Y	100% ALGAL MARL
	48-52	pl	10YR31-00						0	0		0		M				Y	SANDY, (FINE SAND)
	52-85	fszl	10YR71-00						0	0		0		M				Y	SMOOTH MARL
	85-100	fszl	10YR71-00						0	0	HR	10		M				Y	IMP GRAVEL GRITTY
	100-120	gh	00ZZ00-00						0	0		0		P				Y	
26	0-30	zl	10YR42-00						0	0		0						Y	
	30-40	zl	10YR42-00						0	0	CH	5		M				Y	C.5% ALGAL MARL
	40-50	zl	10YR52-00	10YR58-00	F	F			0	0	CH	30		M				Y	C.30-40% CHALK
	50-78	mzcl	10YR41-00						0	0	CH	30		M				Y	C.20-30% CHALK.
	78-120	fszl	10YR61-71	10YR58-68	F	F			0	0		0		M				Y	V.WET FROM 100cm.
27	0-29	o/zl	10YR32 00						0	0		0						Y	
	29-45	zl	10YR71 00						0	0		0		M				Y	
	45-70	hzcl	10YR52 00						0	0	CH	5		M				Y	
	70-120	fp	10YR32 00						0	0		0		M				Y	
28	0-30	pl	10YR21 00						0	0		0						Y	
	30-50	mzcl	10YR41 00						0	0	CH	5		M				Y	
	50-55	lp	10YR32 00						0	0		0		M				Y	
	55-68	mzcl	10YR41 00						0	0	CH	10		M				Y	
	68-100	fp	10YR22 00						0	0		0		M				Y	IMP OVER GRAVEL
	100-120	gh	00ZZ00 00						0	0		0		P				N	
29	0-40	pl	10YR31 00						0	0		0						N	
	40-60	c	10YR41 00						0	0		0		M				Y	SL SANDY TO TEXTURE
	60-85	scl	25Y 72 00						0	0		0		M				N	
	85-95	msl	25Y 72 00						0	0		0		M				Y	IMP OVER GRAVEL
	95-120	gh	00ZZ00 00						0	0		0		P				N	

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
30	0-30	mcl	10YR42 00						0	0		0						N	GRITTY ALGAL MARL
	30-40	mcl	10YR42 00						0	0	CH	10		M				Y	
	40-50	scl	10YR52 00						0	0	CH	50		M				Y	STONY & BRASHY
	50-120	gh	00ZZ00 00						0	0		0		P				Y	
31	0-30	zl	10YR42 00						0	0		0						Y	
	30-50	mcl	10YR42 00						0	0	CH	10		M				Y	ALGAL MARL FRAGS
	50-65	scl	10YR41 00						0	0		0		M				Y	
	65-70	scl	25Y 64 00	25Y 54 00	C			Y	0	0		0		P				Y	
	70-85	msl	25Y 64 00	10YR68 00	C			Y	0	0		0		P				Y	
	85-100	lms	25Y 64 00						0	0		0		P				Y	
	100-120	gh	00ZZ00 00						0	0		0		P				N	
33	0-32	zl	10YR42 00						0	0		0						Y	
	32-70	mzcl	10YR52 00	10YR46 00	F			Y	0	0	CH	20		M				Y	
	70-90	hzcl	10YR42 00	10YR46 00	F			Y	0	0	CH	40		M				Y	
	90-110	csl	00ZZ00 00						0	0	CH	90		M				Y	
	110-120	fp	25Y 10-00						0	0		0		M				Y	
34	0-20	mcl	00ZZ00-00						0	0		0		M				N	
35	0-34	zl	10YR42-00						0	0		0						Y	
	34-45	zl	10YR42-00	10YR46-00	C		10YR41-00	Y	0	0	CH	10		M				Y	C.10% CHALK
	45-50	mzcl	10YR52-00	10YR46-00	C			Y	0	0	CH	10		M				Y	C.10% CHALK
	50-60	hzcl	10YR41-00	10YR46-56	C			Y	0	0	CH	20		M				Y	C.20% CHALK FRAGS
	60-80	mzcl	10YR61-62	10YR56-58	C		-	Y	0	0	CH	40		M				Y	GRITTY TO TEXTURE
	80-110	hzcl	10YR41-00	10YR46-00	C			Y	0	0	CH	30		M				Y	C.30% CHALK
	110-120	pl	25Y 20-00						0	0		0		M					
36	0-30	zl	10YR42-00						0	0		0						Y	
	30-38	mzcl	10YR42-52	10YR46-56	M			Y	0	0	CH	5		M				Y	C. 5-10% CHALK
	38-50	zl	10YR61-71	10YR56-58	M			Y	0	0		0		M				Y	GRITTY ALGAL MARL
	50-80	zl	10YR41-00						0	0	CH	30		M				Y	C. 30% CHALK
	80-100	o/zl	10YR21-62						0	0		0		M				Y	PEAT/MARL MIX.V.WET
	100-120	o/zl	10YR21-00						0	0		0		M				Y	
37	0-35	zl	10YR42-00						0	0	CH	5						Y	C.5% ALGAL MARL
	35-47	mzcl	10YR42-52						0	0	CH	10		M				Y	C. 10% ALGAL MARL
	47-100	zc	10YR21-31	-					0	0		0		M				Y	DECOMP WOOD FRAGS
	100-120	pl	25Y 20-00						0	0		0		M					DECAYING WOOD FRAGS
38	0-32	mzcl	10YR42-00		F	F			0	0		0						Y	FEW ROOT MOTTLES
	32-42	zl	10YR42-52	10YR46-56	F	F		Y	0	0	CH	10		M				Y	C.10-20% ALGAL MARL
	42-58	mzcl	10YR42-52	10YR46-51	F	F		Y	0	0	CH	20		M				Y	C.10-20% ALGAL MARL
	58-90	hzcl	10YR51-00	10YR58-68	C			Y	0	0	CH	30		M				Y	C.20-30% ALGAL MARL
	90-100	mzcl	10YR41-00						0	0	CH	30		M				Y	PTY WITH C.30% A.M
	100-110	scl	10YR61-71	10YR58-00	F	F		Y	0	0		0		P				Y	GRITTY ALGAL MARL
	110-120	pl	25Y 20-00						0	0		0		M				Y	PEAT + ALGAL MARL

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
39	0-30	zl	10YR42-00						0	0		0						Y	
	30-45	mzcl	10YR42-52	10YR46-00	C			Y	0	0	CH	5		M				Y	C.5-10% ALGAL MARL
	45-80	mzcl	10YR51-00	10YR56-58	C			Y	0	0	CH	30		M				Y	C.35% ALGAL MARL
	80-120	lp	10YR21-00						0	0		0		M					
40	0-30	mzcl	10YR42 00						0	0		0						Y	
	30-70	mzcl	10YR42 00						0	0		0		M				Y	
	70-80	pl	10YR21 00						0	0		0		M				Y	
	80-120	csl	10YR81 00						0	0		0		M				Y	ALGAL MARL OVER PT
41	0-40	mzcl	10YR42 00						0	0		0						Y	
	40-115	fp	10YR21 00						0	0		0		M				N	
	115-120	msl	25Y 62 00	25Y 66-00	C			Y	0	0		0		P				Y	
42	0-32	mcl	10YR42 00						0	0		0						Y	
	32-40	mcl	10YR42 00						0	0		0		M				Y	
	40-75	zl	10YR81 00						0	0		0		M				Y	ALGAL MARL
	75-110	lp	10YR21 00						0	0		0		M				Y	
	110-120	fp	10YR21 00	-					0	0		0		M				Y	
43	0-32	mzcl	10YR42-00						0	0		0						Y	
	32-48	mzcl	10YR53-52	10YR58-61	C			Y	0	0	CH	10		M				Y	C.10% ALGAL MARL
	48-60	hzcl	10YR61-62	10YR58-00	M			Y	0	0	CH	30		M				Y	C. 30% ALGAL MARL
	60-120	lp	10YR21-00						0	0		0		M					
44	0-35	mzcl	10YR42-00	-					0	0		0						Y	
	35-50	hzcl	10YR52-51	10YR46-56	C			Y	0	0	CH	30		M				Y	C. 30% CALCAREOUS
	50-60	hzcl	10YR51-00	10YR56-58	C			Y	0	0	CH	40		M				Y	C. 40% ALGAL MARL
	60-110	mzcl	10YR58-68	10YR56-58	M			Y	0	0	CH	60		M				Y	GRITTY ALGAL MARL
	110-120	lp	25Y 21-00						0	0		0		M					
45	0-32	zl	10YR42-00						0	0		0						Y	C.5% ALGAL MARL
	32-85	fsl	10YR52-51	10YR58-00	F			Y	0	0	CH	10		M				Y	C.10% ALGAL MARL
	85-110	lms	10YR51-41						0	0	CH	35		M				Y	C.30-40% ALGAL MARL
	110-120	lcs	10YR51-41	10YR56-58	M			Y	0	0	CH	5		M				Y	WET ALGAL MARL
46	0-25	mzcl	10YR42-00						0	0		0						Y	
	25-45	mzcl	10YR52-00		F			Y	0	0	CH	10		M				Y	C.10% ALGAL MARL
	45-70	hzcl	10YR51-00	10YR46-56	C			Y	0	0	CH	20		M				Y	C.20-30% ALGAL MARL
	70-80	hzcl	10YR51-00	10YR58-00	C			Y	0	0	CH	30		M				Y	C.30% ALGAL MARL
	80-90	o/zc	10YR51-00	10YR58-00	C			Y	0	0		0		P		Y		Y	GRITTY + SML.SHELL
	90-120	lp	25Y 20-00						0	0		0		M					
47	0-40	o/mcl	10YR32 00						0	0		0						Y	
	40-50	o/mcl	10YR42 00		F				0	0		0		M				Y	
	50-90	mcl	10YR52 00	75YR46 00	M			Y	0	0		0		M				Y	
	90-110	hcl	10YR52 00	75YR46 00	M			Y	0	0		0		M				Y	
	110-120	pl	10YR21 00						0	0		0		M				Y	ALGAL MARL OVR PEAT

SAMPLE	DEPTH	TEXTURE	COLOUR	----MOTTLES----- COL	ABUN	CONT	PED COL.	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
48	0-32	o/mcl	10YR42 00						0	0		0						Y	
	32-42	o/mcl	25Y 42 72	25Y 66 00	F			Y	0	0		0		M				Y	
	42-46	o/hcl	25Y 52 72	25Y 66-00	F			Y	0	0		0		P				Y	
	46-50	o/zc	10YR31 00	75YR46 00	F			Y	0	0		0		P			Y	Y	
	50-58	mzcl	10YR41 42	10YR72 58	F			Y	0	0		0		P				Y	
	58-120	hp	10YR21 00					Y	0	0		0		M				Y	
50	0-32	mcl	10YR42 00						1	0	HR	1						Y	
	32-55	mcl	10YR46 00	10YR46 00	M		25Y 52-00	Y	0	0		0		M				Y	
	55-70	zl	25Y 52-00	10YR46 00	C			Y	0	0		0		M				Y	
	70-95	zl	10YR81 71	10YR68 00	C			Y	0	0		0		M				Y	GRITTY ALGAL MARL
	95-120	pl	10YR21 00					Y	0	0		0		M				Y	