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LIDSEY LANDFILL EXTENSION
LIDSEY, WEST SUSSEX
STATEMENT OF PHYSICAL CHARACTERISTICS
ALC and Soil Resource Maps
July, 1994

STATEMENT OF PHYSICAL CHARACTERISTICS

Lydsey Landfill Extension, Lydsey, West Sussex

Summary

1 1 ADAS was commisioned by MAFF's Land Use Planning Unit to provide information on land quality on land adjacent to the existing landfill site at Lydsey in West Sussex This work was in connection with an ad hoc planning application to extend the area of landfill given the high quality of land involved a statement of the site s physical characteristics has also been prepared

1 2 Approximately 22 hectares of land was surveyed in July 1994 The survey was undertaken at a detailed level of approximately one boring per hectare A total of 23 borings and 3 soil inspection pits were assessed 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 or chemical characteristics impose long term limitations on its use for agriculture

1 3 The work was carried out by members of the Resource Planning Team in the Guildford Statutory Group of ADAS

1 4 At the time of survey the agricultural land use was wheat on the two main fields with permanent grass on the lowerlying western field The Non agricultural area relates to a farm track

1 5 The distribution of the grades and subgrades is shown on the attached ALC map and the areas 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 would be misleading This map supersedes any previous survey information for this site

Table 1 Distribution of Grades and Subgrades

Grade	**Area (ha)**	**% of Site**	**% of Agricultural Area**
3a	18 9	86 3	89 2
3b	2 3	10 5	10 8
Non Agricultural	0 3	1 4	**100% (21 2 ha)**
Agricultural Bldgs	0 4	1 8	
Total	**21 9 ha**	**100%**	

1 6 A general description of the grades subgrades and land use categories is provided in Appendix I 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

1 7 The land quality on the site has been classified as Subgrade 3a (good quality land) on the two main fields and Subgrade 3b (moderate quality land) on the western field Soil

wetness is the main limitation across the site as a result of clay subsoils that restrict the drainage soils in the western field are significantly worse in terms of wetness than the majority of the site

2 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 an 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 The combination of rainfall and temperature at this site mean that there is no overall climatic limitation

Table 2 Climatic Interpolation

Grid Reference	SU929038
Altitude (m AOD)	9
Accumulated Temperature (°days Jan-June)	1539
Average Annual Rainfall (mm)	767
Field Capacity Days	156
Moisture deficit wheat (mm)	118
Moisture deficit potatoes (mm)	114
Overall Climatic Grade	1

3 Relief

3 1 The majority of the site is flat and lowlying at an altitude of 5 9 metres The small western field lies below the level of the rest of the site with a strong break of slope marked by the existing field boundary The slope itself is not wide enough to map separately and the majority of the western field is flat

4 Geology and Soils

4 1 The published geology map for the site area (BGS 1972) shows the site to be underlain by drift Brickearth deposits over Upper Chalk

4 2 The published soils information for the area (SSEW 1983) shows the site to comprise mainly soils of the Park Gate series (moderately permeable soils affected by high winter water tables) with the Calcetta series in the west (loamy pebbly marine drift)

5 Agricultural Land Classification

5 1 The ALC classification of the site is shown on the attached ALC map

5 2 The location of the soil observation points is shown on the attached sample point map

Subgrade 3a

5 3 The majority of the site has been placed in this grade with soil wetness as the single most limiting factor Two soil pits have been dug in this map unit and these describe the range of soils that exist

5 4 Typically the soils exhibit medium silty clay loam topsoils overlying clay subsoils that extend to depth There is clear evidence of shallow gleying throughout these soils but there was difficulty in determing the presence of a slowly permeable layer by auger observation alone under the dry conditions that prevailed during the time of survey the subsoil clays often crumbled out of the auger The soils at Pit 2 for example show clear evidence of gleying at shallow depths but the clay subsoils are not slowly permeable subsoils are tending to angular but are described as moderately developed coarse subangular blocky These soils fall into Wetness Class II (see Appendix II) and may be graded as high as Grade 2 Pit 3 however shows soils that are similarly gleyed at shallow depths but also possess slowly permeable subsoils with moderately developed prismatic structures These soils fall into Wetness Class III and can be graded no higher than Subgrade 3a

5 5 There is clearly some variation within this mapping unit with some individual observations of a higher quality than Subgrade 3a but the variation is such that it has not proved viable to delineate an area of Grade 2 As a result the whole of the two large fields has been placed in Subgrade 3a with soil wetness as the key limitation This limitation will inhibit root development but will mainly restrict the number of days when the soil is in a suitable condition for cultivation trafficking by machinery or grazing by livestock

Subgrade 3b

5 6 Poorer quality land is located in the west of the site on lowerlying land in a flood meadow location Pit 1 is located in this map unit and illustrates soils with a significant soil wetness limitation related to slowly permeable clay horizons at shallow depths The soils are placed in Wetness Class IV Anecdotal evidence suggests regular flooding but there is not enough information available to downgrade the land further this part of the site is at best Subgrade 3b

6 Soil Resources

6 1 The distribution of the soil resources across the site together with the types of materials and volumes involved are shown on the attached soil resource maps

Topsoil

6 2 Topsoil is defined as the organic rich darker surface horizons of medium silty clay loam and silt loam texture on the two eastern fields and heavy clay loam on the western field These two topsoil resource units reflect the ALC boundaries

6 3 In the east in Map Unit A the medium textured topsoils are approximately 25 cm deep brown in colour (10YR53) with a negligible stone content a moderately developed coarse subangular blocky structure and a firm or friable consistence There is slight evidence of mottling in the topsoils but not enough to call them gleyed

6 4 In the west in Map Unit B the heavy textured topsoils are approximately 27 cm deep dark greyish brown in colour (10YR42) with a negligible stone content a moderately developed coarse subangular blocky structure and a firm consistence Again there is slight evidence of mottling but the soils are not gleyed

6 5 There is a total topsoil resource available on the site of 55 1990 cubic metres

Subsoil

6 6 Subsoil is defined as the non organic rich lighter subsurface horizons of clay in the western fields and clay and silty clay in the eastern field These two subsoil resource units reflect the ALC and topsoil boundaries

6 7 In the east in Map Unit A the subsoils are approximately 95 cm thick and exhibit a range of colours (10YR62 63 and 53 and 2 5Y64) The soils are stone free and show clear evidence of gley colours and mottling The structures range from moderately developed coarse subangular blocky to moderately developed coarse prismatic depending on whether or not they are slowly permeable porosity is low for all subsoils

6 8 In the west in Map Unit B the subsoils are approximately 93 cm thick and light brownish grey in colour (2 5Y62) The soils are stone-free and show very clear evidence of gley colours and mottling The structures are initially prismatic becoming massive with depth The subsoils have low porosity and are slowly permeable

6 9 There is a total subsoil resource available on the site of 207 610 cubic metres

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 which can be grazed or harvested over most of the year

Grade 4 Poor Quality Agricultural Land

Land with severe limitations which significantly restrict the range of crops and/or the level of yields It is mainly suited to grass with occasional arable crops (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 severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

Urban

Built up or hard' uses with relatively little potential for a return to agriculture including housing industry commerce education transport 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 Also active mineral workings and refuse tips where restoration conditions to 'soft' after uses may apply

Woodland

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

Agricultural Buildings

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

Open Water

Includes lakes ponds and rivers as map scale permits

Land Not Surveyed

Agricultural land which has not been surveyed

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

APPENDIX II

FIELD ASSESSMENT OF SOIL WETNESS CLASS

SOIL WETNESS CLASSIFICATION

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

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 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

Soils can be allocated to a wetness class on the basis of quantitative data recorded over a period of many years or by the interpretation of soil profile characteristics site and climatic factors Adequate quantitative data will rarely be available for ALC surveys and therefore the interpretative method of field assessment is used to identify soil wetness class in the field The method adopted here is common to ADAS and the SSLRC

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

Boring Header Information

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

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

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

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

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

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

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

7 **DRT** Best grade according soil droughtiness

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

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

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

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

Soil Pits and Auger Borings

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

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

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

F Fine (more than 66% of the sand less than 0 2mm)
M Medium (less than 66% fine sand and less than 33% coarse sand)
C Coarse (more than 33% of the sand larger than 0 6mm)

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

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

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

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

4 **MOTTLE CONT** Mottle contrast

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

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

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

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

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

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

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

degree of development	**WK** weakly developed	**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 appropiate 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 LIDSEY LANDFILL Pit Number 1P

Grid Reference SU92550370

Average Annual Rainfall	767 mm
Accumulated Temperature	1539 degree days
Field Capacity Level	156 days
Land Use	Permanent Grass
Slope and Aspect	degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	HZCL	10YR42 00	0	1	HR	F	MCSAB	FM		
25- 41	C	10YR41 00	0	0		C	MMP	VM	P	
41- 63	ZC	25Y 51 00	0	0		M	MCP	FM	P	
63-120	ZC	25Y 62 00	0	0		M	MASS	FM	M	

Wetness Grade 3B

Wetness Class	IV
Gleying	025 cm
SPL	025 cm

Drought Grade 2

APW	133mm	MBW	15 mm
APP	105mm	MBP	-9 mm

FINAL ALC GRADE 3B
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name LIDSEY LANDFILL Pit Number 2P

Grid Reference SU92800375

Average Annual Rainfall 767 mm
Accumulated Temperature 1539 degree days
Field Capacity Level 156 days
Land Use Wheat
Slope and Aspect degrees

HORIZON	TEXTURE	COLOUR	STONES	2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 25	MZCL	10YR53 00	0		1	HR	F	MDCSAB	FM		
25- 60	C	10YR63 00	0		0		C	MDCSAB	FM	M	
60-120	C	10YR62 00	0		0		M	MDCSAB	FM	M	

Wetness Grade 2

Wetness Class II
Gleying 025 cm
SPL No SPL

Drought Grade 2

APW 143mm MBW 25 mm
APP 119mm MBP 5 mm

FINAL ALC GRADE 2
MAIN LIMITATION Wetness

SOIL PIT DESCRIPTION

Site Name LIDSEY LANDFILL Pit Number 3P

Grid Reference SU93020364

Average Annual Rainfall	767 mm
Accumulated Temperature	1539 degree days
Field Capacity Level	156 days
Land Use	Wheat
Slope and Aspect	degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 22	MZCL	10YR53 00	0	1	HR	F	MCSAB	FR		
22- 44	C	25Y 64 00	0	0		C	MCSAB	FM	M	
44- 70	C	10YR53 63	0	0		M	MCP	VM	M	

Wetness Grade 3A

Wetness Class	III
Gleying	022 cm
SPL	044 cm

Drought Grade 3A

APW	102mm	MBW	-16 mm
APP	118mm	MBP	4 mm

FINAL ALC GRADE 3A
MAIN LIMITATION Wetness

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	SU92700380	WHT			000		2	2	072	-46	072	-42	3B				DR	3A	IMPX2QDR
1P	SU92550370	PGR			025	025	4	3B	133	15	105	-9	2				WE	3B	
2	SU92800380	WHT			000	090	2	2	142	24	119	5	2				WE	2	DEEPSPL
2P	SU92800375	WHT			025		2	2	143	25	119	5	2				WE	2	NOSPL
3	SU92900380	WHT			028	028	4	3B	128	10	103	-11	3A				WE	3B	H2CRUMBL
3P	SU93020364	WHT			022	044	3	3A	102	-16	118	4	3A				WE	3A	
4	SU93000380	WHT			025	070	3	3A	138	20	119	5	2				WE	3A	POSSSPL
5	SU93100380	WHT			025	045	3	3A	135	17	112	2	2				WE	3A	POSSSPL
6	SU93200380	WHT			032		2	2	141	23	133	19	2				WE	2	IMPEN100
7	SU92550373	PGR			025	040	4	3B	130	12	105	-9	2				WE	3B	SPL
8	SU92700370	WHT			022		2	2	125	7	110	-4	2				DR	2	WE ALSO
9	SU92800370	WHT			000	078	2	2	139	21	119	5	2				WE	2	
10	SU92900370	WHT			032	060	3	3A	155	37	132	18	1				DR	3A	
11	SU93000370	WHT			000	070	3	3A	139	21	120	6	2				WE	3A	POSSSPL
13	SU93200370	WHT			029		2	2	155	37	131	17	1				WE	2	
14	SU93300370	WHT			000	025	4	3B	123	5	108	-6	2				WE	3B	
15	SU92600360	PGR			028	050	3	3A	140	22	115	1	2				WE	3A	SPL
16	SU92700360	WHT			025	040	4	3B	104	-14	114	0	3A				WE	3B	I70 H3CH
17	SU92800360	WHT			030	030	4	3B	108	-10	108	-6	3A				WE	3B	SPL IMP
18	SU92900360	WHT			029	055	3	3A	149	31	125	11	1				WE	3A	H23CRUMB
19	SU93000360	WHT			030		2	2	108	-10	120	6	3A				WE	2	NOSPLIMP
20	SU93100360	WHT			025	080	2	2	139	21	119	5	2				WE	2	
21	SU93200360	WHT			025		2	2	129	11	129	15	2				WE	2	
22	SU92600350	PGR			032	070	3	3B	160	42	141	27	1				WE	3B	
23	SU92700350	WHT			020	045	3	3A	097	-21	102	-12	3B				DR	3B	I60WE3A
24	SU92800350	WHT			028		2	2	119	1	119	5	3A				WE	2	NOSPLIMP

SAMPLE	DEPTH	TEXTURE	COLOUR	-- MOTTLES --- COL	ABUN	CONT	PED COL	GLEY	----STONES---- >2	>6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
1	0-25	mzcl	10YR42 00	000C00	00	C		Y	0	0	HR	2						
	25-40	mzcl	10YR44 00	000C00	00	C		S	0	0		0		M				
1P	0-25	hzcl	10YR42 00	10YR56	00	F			0	0	HR	1	MCSAB	FM		Y		
	25-41	c	10YR41 00	75YR56	00	C		Y	0	0		0	MMP	VM	P	Y		Y
	41-63	zc	25Y 51 00	10YR56	00	M	25Y 52 00	Y	0	0		0	MCP	FM	P	Y		Y
	63-120	zc	25Y 62 00	10YR56	00	M		Y	0	0		0	MASS	FM	M	Y		Y
2	0-28	mzcl	10YR53 00	000C00	00	C		Y	0	0	HR	2						
	28-58	hcl	25Y 64 00	000C00	00	M	00MN00 00	Y	0	0		0		M				
	58-90	c	10YR63 00	000C00	00	M	00MN00 00	Y	0	0		0		M				
	90-120	c	10YR63 00	000C00	00	M	00MN00 00	Y	0	0		0		P	Y			Y
2P	0-25	mzcl	10YR53 00	10YR56	00	F			0	0	HR	1	MDCSAB	FM		Y		
	25-60	c	10YR63 00	10YR68	72	C	00MN00 00	Y	0	0		0	MDCSAB	FM	M	Y		
	60-120	c	10YR62 00	10YR68	00	M	00MN00 00	Y	0	0		0	MDCSAB	FM	M	Y		
3	0-28	mzcl	10YR53 00						0	0	HR	2						
	28-50	zc	10YR62 00	10YR78	72	C		Y	0	0		0		P				Y
	50-120	zc	10YR52 00	10YR78	72	M	00MN00 00	Y	0	0		0		P				Y
3P	0-22	mzcl	10YR53 00	10YR56	00	F			0	0	HR	1	MCSAB	FR				
	22-44	c	25Y 64 00	10YR58	00	C		Y	0	0		0	MCSAB	FM	M			
	44-70	c	10YR53 63	75YR56	00	M	00MN00 00	Y	0	0		0	MCP	VM	M	Y		Y
4	0-25	mzcl	10YR53 00						0	0	HR	2						
	25-70	c	25Y 62 00	000C00	00	C		Y	0	0		0		M				
	70-120	c	10YR62 00	000C00	00	M		Y	0	0		0		P	Y			Y
5	0-25	mzcl	10YR53 00						0	0	HR	1						
	25-45	c	10YR64 00	000C00	00	C		Y	0	0		0		M				
	45-120	c	25Y 62 00	000C00	00	M		Y	0	0		0		P	Y			Y
6	0-32	zl	10YR53 00						0	0	HR	2						
	32-65	c	10YR63 00	10YR78	72	C	00MN00 00	Y	0	0		0		M				
	65-100	c	10YR62 00	10YR78	72	M	00MN00 00	Y	0	0		0		M				
7	0-25	hcl	10YR42 00						0	0		0						
	25-40	c	25Y 52 00	000C00	00	M		Y	0	0		0		M				
	40-120	zc	05Y 51 00	000C00	00	M		Y	0	0		0		P	Y			Y
8	0-22	mzcl	10YR43 00	10YR58	00	F			0	0	HR	2						
	22-45	mzcl	10YR62 00	10YR68	71	C		Y	0	0		0		M				
	45-60	msl	10YR63 00	10YR58	74	C		Y	0	0		0		M				
	60-90	lms	10YR53 00	10YR58	71	C		Y	0	0		0		M				
	90-120	ms	10YR54 58					Y	0	0		0		M				
9	0-28	mzcl	10YR53 00	000C00	00	C		Y	0	0	HR	2						
	28-78	c	10YR53 54	000C00	00	M	00MN00 00	Y	0	0		0		M				
	78-120	c	10YR62 00	000C00	00	M		Y	0	0		0		P	Y			Y

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC
10	0-32	zl	10YR52 00						0	0	HR	2						
	32-60	hzcl	10YR73 00	10YR78 00	C			Y	0	0		0		M				
	60-120	zc	10YR62 00	10YR78 72	M		00MN00 00	Y	0	0		0		P			Y	
11	0-30	mzcl	10YR53 00	000C00 00	F			Y	0	0	HR	1						
	30-70	c	10YR53 63	000C00 00	C			Y	0	0		0		M				
	70-120	c	10YR63 00	000C00 00	M			Y	0	0		0		P	Y		Y	
13	0-29	zl	10YR53 00	10YR58 00	F				0	0	HR	2						
	29-50	c	10YR63 00	10YR78 72	C			Y	0	0		0		M				
	50-120	c	10YR62 00	10YR78 72	M		00MN00 00	Y	0	0		0		M				
14	0-25	hzcl	10YR42 00	10YR58 00	C			Y	0	0	HR	2						
	25-55	c	10YR51 52	10YR58 00	M		00MN00 00	Y	0	0		0		P			Y	
	55-70	msl	10YR72 00	10YR58 00	C			Y	0	0		0		M			Y	
	70-120	lms	10YR56 54					Y	0	0		0		M			Y	
15	0-28	mzcl	10YR42 00						0	0		0						
	28-40	mzcl	10YR53 00	000C00 00	C			Y	0	0		0		M				
	40-50	hzcl	10YR64 00	000C00 00	M			Y	0	0		0		M				
	50-120	zc	25Y 62 00	000C00 00	M			Y	0	0		0		P	Y		Y	
16	0-25	zl	10YR53 00						0	0	HR	5						
	25-40	hzcl	10YR52 00	10YR68 00	C			Y	0	0	HR	5		M				
	40-70	c	10YR52 00	10YR68 72	M		00MN00 00	Y	0	0	HR	10		P			Y	
17	0-30	mzcl	10YR53 00						0	0	HR	2						
	30-70	c	25Y 53 00	000C00 00	M		00MN00 00	Y	0	0		0		P	Y		Y	
	70-85	c	25Y 64 00	000C00 00	M			Y	0	0	HR	2		M			Y	
18	0-29	zl	10YR53 00						0	0	HR	2						
	29-40	hzcl	10YR52 00	10YR58 00	C			Y	0	0		0		M				
	40-55	zc	10YR62 00	10YR78 72	C			Y	0	0		0		M				
	55-120	zc	10YR53 00	10YR78 72	C		00MN00 00	Y	0	0		0		P			Y	
19	0 30	mzcl	10YR53 00	000C00 00	F				0	0	HR	2						
	30 75	c	25Y 62 00	000C00 00	C			Y	0	0		0		M				
20	0-25	mzcl	10YR53 00						0	0	HR	2						
	25-80	c	10YR63 00	10YR78 72	C		00MN00 00	Y	0	0		0		M				
	80-120	c	10YR62 00	10YR68 72	M		00MN00 00	Y	0	0		0		P			Y	
21	0-25	zl	10YR53 00						0	0	HR	2						
	25-35	mzcl	10YR52 00	10YR68 00	C			Y	0	0		0		M				
	35-60	c	10YR63 00	10YR68 72	C			Y	0	0		0		M				
	60-90	c	10YR62 00	10YR78 72	M		00MN00 00	Y	0	0		0		M				
22	0-32	hcl	10YR42 00						0	0		0						
	32-70	zl	10YR64 00	000C00 00	C			Y	0	0		0		M				
	70-120	zc	25Y 52 00	000C00 00	C			Y	0	0		0		P	Y		Y	

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	0-20	zl	10YR53 00						0	0	HR	4						
	20-45	hzcl	10YR52 00	10YR68 00	C			Y	0	0	HR	5		M				
	45-60	zc	10YR62 58	10YR78 72	C			Y	0	0	HR	5		P			Y	
24	0-28	mzcl	10YR53 00						0	0	HR	2						
	28-70	c	25Y 63 64	000C00 00	M			Y	0	0		0		M				
	70-90	c	25Y 63 64	000C00 00	M			Y	0	0	HR	1		M				