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Hampshire Minerals Plan
Omission Site 32 Yeatton Farm, Hordle
Agricultural Land Classification
ALC Map and Report
December 1994

AGRICULTURAL LAND CLASSIFICATION REPORT

HAMPSHIRE MINERALS PLAN
OMISSION SITE 32 YEATTON FARM, HORDLE

1 Summary

1 1 ADAS was commissioned by MAFF s Land Use Planning Unit to provide information on land quality for a number of sites in Hampshire The work forms part of MAFF s statutory input to the Hampshire Minerals Plan

1 2 Site 32 comprises approximately 39 hectares of land to the east of Hordle in Hampshire An Agricultural Land Classification (ALC) survey was carried out in November 1994 The survey was undertaken at a detailed level of approximately one boring per hectare A total of 43 borings and two 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 the survey the majority of the land was in permanent grass The remainder of the site towards the west was in set aside and was covered with volunteer linseed

1 5 The distribution of 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 ALC survey information for this site

Table 1 Distribution of Grades and Subgrades

Grade	Area (ha)	% of Site	% of Agricultural Land
2	5 8	14 8	15 4
3a	22 9	58 4	60 7
3b	9 0	23 0	23 9
Non-Agricultural	0 7	1 8	100% (37 7ha)
Woodland	0 8	2 0	
Total area of Site	39 2ha	100%	

1 6 Appendix I gives a general description of the grades subgrades and land use categories identified in the 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

1 7 The agricultural land at this site has been classified Grade 2 very good quality to Subgrade 3b moderate quality including a substantial proportion of Subgrade 3a good quality The principal limitations include soil wetness and to a lesser extent soil droughtiness Soil wetness affects the majority of the land surveyed where slowly permeable clay horizons occur between 25 and 85cm in the soil profile These cause drainage to be slightly to severely impeded dependant on depth to the slowly permeable horizon Poorly drained soils can inhibit plant and root development and may be more susceptible to structural damage through trafficking by machinery or poaching by grazing livestock In some observations soil droughtiness was more (or equally) limiting than (to) soil wetness At these points the soil profile was found to contain varying proportions of flints These serve to slightly and moderately restrict profile available water such that within the local climatic parameters there is a risk of soil droughtiness

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

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 are believed to affect the site However climatic and soil factors interact to influence soil wetness and droughtiness limitations

Table 2 Climatic Interpolation

Grid Reference	SZ272941	SZ274940
Altitude (m AOD)	30	26
Accumulated Temperature (°days Jan June)	1534	1538
Average Annual Rainfall (mm)	815	812
Field Capacity Days	169	168
Moisture deficit wheat (mm)	110	111
Moisture deficit potatoes (mm)	106	107
Overall Climatic Grade	1	1

3 Relief

3 1 The site lies between approximately 26 and 30m AOD The land rises gently from the south east towards the north west of the site Nowhere on the site does relief or gradient affect agricultural land quality

4 Geology and Soils

4 1 The published geological information (BGS 1975) shows the majority of the site to be underlain by plateau gravel as a drift deposit The remaining area concentrated to the east of the site is shown as Osborne and Headon Beds

4 2 The published soils information (SSEW 1983) shows the site to be underlain by soils of the Efford 1 Association The legend accompanying the map describes these as well drained fine loamy soils often over gravel associated with similar permeable soils variably affected by groundwater (SSEW 1983) Soils encountered at the site commonly comprise fine loamy over clayey becoming gravelly at variable depths and occasionally affected by groundwater

5 Agricultural Land Classification

5 1 Paragraph 1 5 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 are shown on the attached sample point map

Grade 2

5 3 Land of very good quality is mapped towards the east of the site The principal limitation is soil wetness although soil droughtiness is equally limiting in most cases Profiles affected by soil wetness typically comprise a very slightly stony (up to 2% total flints) medium clay loam or medium silty clay loam topsoil This

passes to a slightly stony (up to 5% total flints) gleyed medium or heavy clay loam or medium silty clay loam upper subsoil horizon This commonly overlies a slightly stony (up to 15% total flints) gleyed and slowly permeable clay lower subsoil horizon from between 75 and 85cm In some instances the clay was not encountered Soils of this nature given the local climatic regime are placed in Wetness Class II (see Appendix II) leading to a Grade 2 classification when the workability status of the topsoil is taken into account These wetness and workability factors lead to slight restrictions on the versatility of the land principally in terms of the timing of cultivations and stocking if structural damage to the soil is to be avoided Pit 1 (see Appendix III) is typical of this mapping unit

Occasional observations in this grade were principally limited by soil droughtiness Profiles are essentially similar to those described above i e medium clay loam topsoil and upper subsoil becoming heavy clay loam in the lower subsoil except that the stone content of the lower subsoil increased from about 90cm such that borings became impenetrable to the soil auger Such stone contents cause slight soil droughtiness due to minor restrictions on profile available water which is likely to slightly affect plant growth and yield

Subgrade 3a

5 4 Land of good quality is mapped across the majority of the site The principal limitation for the majority of observations is soil wetness although soil droughtiness is significant in some cases Profiles limited by soil wetness typically comprise a very slightly stony (up to 5% total flints) occasionally gleyed or slightly gleyed medium clay loam or medium silty clay loam topsoil This passes to a similarly stony commonly gleyed medium silty clay loam medium or heavy clay loam upper subsoil horizon Underlying this is a gleyed and slowly permeable slightly stony (10% total flints) clay which either passes to a slowly permeable moderately stony (20% total flints) heavy clay loam lower subsoil and becomes impenetrable to the soil auger between 70 and 110cm depth or remains as clay to depth (120cm) The effect of the slowly permeable horizon is to impede drainage to the extent that Wetness Class III (see Appendix II) is appropriate and subsequently Subgrade 3a when the workability status of the topsoils are taken into account These wetness and workability factors lead to moderate restrictions on the versatility of the land principally in terms of the timing of cultivations and stocking Pit 2 (see Appendix III) is typical of this soil type

The occasional observations limited by soil droughtiness have profiles that comprise a slightly stony (up to 10% total flints) medium clay loam topsoil over a slightly or moderately stony (up to 20% total flints) commonly gleyed medium clay loam or heavy clay loam upper subsoil Occasionally this horizon becomes impenetrable to the soil auger around 60cm but more commonly the upper subsoil overlies a moderately stony (up to 30% total flints) gleyed sandy clay loam heavy clay loam or clay which becomes impenetrable to the soil auger around 70cm

From the pit observation 3p on a previous adjacent survey (ADAS Ref 1508/109/94 Appendix III) profiles of this nature are placed in Subgrade 3a on the basis of soil droughtiness when local climatic factors are considered These profiles have a moderate droughtiness limitation primarily because the stones in the profile reduce soil available water to the extent that there is a moderate risk of drought stress affecting plant growth and yield potential

Subgrade 3b

5 5 Land of moderate quality is shown in two units towards the north and centre of the site Principal limitations include soil wetness and soil droughtiness Profiles affected by soil wetness are in two groups The most common occur towards the centre of the site and typically comprise a very slightly stony (2% total flints) clay loam occasionally medium silty clay loam topsoil This passes to a commonly gleyed very slightly stony (up to 5% total flints) shallow clay loam upper subsoil This overlies a slightly stony (up to 10% total flints) slowly permeable clay horizon Occasionally the clay loam upper subsoil horizon was absent from the profile Where this occurs the topsoil passes to slowly permeable clay In the majority of observations the clay overlies a clay loam lower subsoil remaining slowly permeable if heavy (see 2p Appendix III) Commonly the lower subsoil becomes increasingly stony (up to 15% total flints) until impenetrable to the soil auger between 75 and 105cm The severe drainage impedance that the slowly permeable horizon(s) cause places these soils in Wetness Class IV (see Appendix II) and subsequently Subgrade 3b when the workability status of the topsoil is taken into account This degree of soil wetness places severe restrictions on the versatility of the land in terms of the timing of cultivations and stocking Soil wetness may also adversely affect crop growth and development

The second group of soils affected by soil wetness occur towards the north of the site These were saturated at the time of survey (November) and Wetness Class IV (see Appendix II) was considered appropriate Profiles were typically found to comprise a slightly stony (up to 10% total flints) occasionally gleyed medium clay loam or medium silty clay loam topsoil This passes to a stoneless to moderately stony (up to 20% total flints) gleyed heavy clay loam overlying a similarly stony gleyed and slowly permeable clay lower subsoil horizon When the assigned wetness class is considered alongside the workability status of the topsoil Subgrade 3b is appropriate Soil wetness of this nature places severe restrictions cultivations and/or grazing by livestock

Towards the centre of the site occasional observations were limited to Subgrade 3b on the basis of soil droughtiness Profiles in this area typically comprise a very slightly stony (5% total flints) medium clay loam topsoil passing to a moderately or very stony (20% 40% total flints) medium or heavy clay loam upper subsoil which became impenetrable to the soil auger between 40 and 45cm From the adjacent survey (ADAS Ref 1508/109/94 1p) impenetrable profiles of this

nature were found to be overlying gravelly horizons As a result available water in the profile is severely limited by the high stone content such that Subgrade 3b is appropriate Soil droughtiness is likely to affect plant growth and yield potential in this area

ADAS Reference 1508/277/94
MAFF Reference EL15/107

Resource Planning Team
Guildford Statutory Group
ADAS Reading

SOURCES OF REFERENCE

ADAS (1994) Hampshire Minerals Plan Omission Site 16 Downton Manor Farm Downton Agricultural Land Classification Report Ref 1508/109/94

British Geological Survey (1975) Sheet 300 Alresford Drift Edition 1 50 000

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

Meteorological Office (1989) Climatic datasets for Agricultural Land Classification

Soil Survey of England and Wales (1983) Sheet No 6 Soils of South East England 1 250 000 and Accompanying Legend

Soil Survey of England and Wales (1984) Bulletin No 15 Soils and their use in South-East England

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 (e g cereals and forage crops) the yields of which are variable In moist climates yields of grass may be moderate to high but there may be difficulties in utilisation The grade also includes very droughty arable land

Grade 5 Very Poor Quality Agricultural Land
Land with severe limitations which restrict use to permanent pasture or rough grazing except for occasional pioneer forage crops

Urban
Built up or hard uses with relatively little potential for a return to agriculture including housing industry commerce education transport 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 (e g 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 e g 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

DEFINITION OF SOIL WETNESS CLASS

Wetness Class I

The soil profile is not wet within 70 cm depth for more than 30 days in most years

Wetness Class 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 180 days but only wet within 40 cm depth for 31 90 days in most years

Wetness Class 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

Wetness Class IV

The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth fro 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

Wetness Class V

The soil profile is wet within 40 cm depth for 211 335 days in most years

Wetness Class VI

The soil profile is wet within 40 cm depth for more than 335 days in most 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 database This has commonly used notations and abbreviations as set out below

Boring Header Information

1 **GRID REF** national 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 measured by a hand held optical clinometer

4 **GLEY/SPL** Depth in cm to gleying or slowly permeable layers

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

6 **MB (WHEAT/POTS)** Moisture Balance

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

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

MREL Microrelief limitation	**FLOOD** Flood risk	**EROSN** Soil erosion risk
EXP Exposure limitation	**FROST** Frost	**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 **ST** Topsoil Stones
CH Chemical	**WE** Wetness	**WK** Workability
DR Drought	**ER** Erosion Risk	**WD** Soil Wetness/Droughtiness

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	**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 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

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

6 **STONE LITH** 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	**GH** gravel with non porous (hard) stones
SI soft weathered igneous/metamorphic rock	

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 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

8 **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

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

SOIL PIT DESCRIPTION

Site Name HANTS MINS OM SITE 32 Pit Number 1P

Grid Reference SZ27309440

Average Annual Rainfall	812 mm
Accumulated Temperature	1538 degree days
Field Capacity Level	168 days
Land Use	Permanent Grass
Slope and Aspect	degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 30	MCL	10YR42 00	0	2	HR					
30- 53	MCL	10YR52 53	0	2	HR	M	MDCSAB	FR	M	
53- 75	MCL	10YR53 52	0	2	HR	M	MDCSAB	FR	M	
75-120	C	25Y 61 00	0	10	HR	M	WKCSAB	FR	M	

Wetness Grade 2

Wetness Class	II
Gleying	30 cm
SPL	75 cm

Drought Grade 2

APW	142mm	MBW	31 mm
APP	116mm	MBP	9 mm

FINAL ALC GRADE 2

MAIN LIMITATION Soil Wetness/Droughtiness

SOIL PIT DESCRIPTION

Site Name HANTS MINS OM SITE 32 Pit Number 2P

Grid Reference SZ27109370

Average Annual Rainfall	812 mm
Accumulated Temperature	1538 degree days
Field Capacity Level	168 days
Land Use	Permanent Grass
Slope and Aspect	degrees

HORIZON	TEXTURE	COLOUR	STONES >2	TOT STONE	LITH	MOTTLES	STRUCTURE	CONSIST	SUBSTRUCTURE	CALC
0- 29	MCL	10YR42 00	0	2	HR					
29- 48	MCL	10YR42 00	0	3	HR	C	MDCSAB	FR	M	
48- 74	C	10YR53 00	0	10	HR	M	WKCSAB	FR	M	
74-120	HCL	10YR53 00	0	20	HR	M	WKCSAB	FR	M	

Wetness Grade 3A

Wetness Class	III
Gleying	29 cm
SPL	48 cm

Drought Grade 2

APW	138mm	MBW	27 mm
APP	113mm	MBP	6 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	SZ27109460	PGR					1	1	087	-24	092	-15	3B				DR	3A	IMP60 SLGLEY33
1P	SZ27309440	PGR		30	75	2	2	2	142	31	116	9	2				WD	2	PIT 120
2	SZ27109450	PGR		28	28	4	3B	3B	077	-34	081	-26	3B				WE	3B	IMP FLINTS 55
2P	SZ27109370	PGR		29	48	3	3A	3A	138	27	113	6	2				WE	3A	PIT110 AUG120
3	SZ27209450	PGR		0	25	4	3B	3B	122	11	100	-7	2				WE	3B	SATURATED
4	SZ27309450	PGR		70	70	2	2	2	190	79	174	67	1				WE	3B	SATURATED 45
5	SZ27409450	PGR		33	90	2	2	2	157	46	126	19	1				WE	2	SATURATED 90
6	SZ27509450	PGR		28	70	3	3A	3A	127	16	114	7	2				WE	3A	
7	SZ27109440	SAS		28	45	4	3B	3B	139	28	116	9	2				WE	3B	
8	SZ27209440	SAS		35	55	3	3A	3A	140	29	116	9	2				WE	3A	
9	SZ27309440	PGR		30	85	2	2	2	141	30	117	10	2				WD	2	
10	SZ27409440	PGR		0		2	2	2	123	12	115	8	2				WD	2	IMP FLINTS 90
11	SZ27509440	PGR		0	60	3	3A	3A	140	29	118	11	2				WE	3A	
12	SZ27209431	SAS		35	65	3	3A	3A	097	-14	109	2	3A				WE	3A	IMP FLINTS 70
13	SZ27309430	PGR		30	30	4	3B	3B	110	-1	104	-3	3A				WE	3B	IMP FLINTS 90
14	SZ27409430	PGR		0	25	4	3B	3B	130	19	110	3	2				WE	3B	IMP FLINTS 105
15	SZ27509430	PGR		28	45	4	3B	3B	102	-9	109	2	3A				WE	3B	IMP FLINTS 75
16	SZ27129420	SAS		65	65	2	2	2	150	39	117	10	1				WE	2	
17	SZ27209420	SAS		35	55	3	3A	3A	138	27	116	9	2				WE	3A	
18	SZ27309420	PGR				1	1	1	064	-47	064	-43	3B				DR	3B	IMP FLINTS 40
19	SZ27409420	PGR		45		1	1	1	122	11	116	9	2				DR	2	IMP FLINTS 90
20	SZ27509420	PGR		30	60	3	3A	3A	120	9	115	8	2				WE	3A	IMP FLINTS 95
21	SZ27109410	PGR		27	48	3	3A	3A	097	-14	109	2	3A				WE	3A	IMP FLINTS 70
22	SZ27209410	PGR		0	43	4	3B	3B	125	14	108	1	2				WE	3B	IMP FLINTS 100
23	SZ27309410	PGR		35	35	4	3B	3B	101	-10	112	5	3A				WE	3B	IMP FLINTS 75
24	SZ27409410	PGR				1	1	1	067	-44	067	-40	3B				DR	3B	IMP FLINTS 45
25	SZ27509410	PGR		35	85	2	2	2	145	34	116	9	2				WD	2	
26	SZ27009400	PGR		23	40	4	3B	3B	130	19	107	0	2				WE	3B	
27	SZ27109400	PGR		24	50	3	3A	3A	112	1	108	1	3A				WE	3A	IMP FLINTS 90
28	SZ27209400	PGR		27	42	4	3B	3B	103	-8	108	1	3A				WE	3B	IMP FLINTS 80
29	SZ27309400	PGR		35	35	4	3B	3B	128	17	115	8	2				WE	3B	VERY WET
30	SZ27409400	PGR		25	80	2	2	2	123	12	117	10	2				WD	2	IMP FLINTS 90
31	SZ27009390	PGR		29	48	3	3A	3A	105	-6	110	3	3A				WE	3A	IMP FLINTS 80
32	SZ27109390	PGR		27	52	3	3A	3A	134	23	109	2	2				WE	3A	
33	SZ27209390	PGR		38	75	2	2	2	126	15	115	8	2				WD	2	IMP FLINTS 100
34	SZ27009380	PGR		27	60	3	3A	3A	129	18	113	6	2				WE	3A	IMP FLINTS 110
35	SZ27109380	PGR		27	52	3	3A			0		0					WE	3A	SL GLEY 0
36	SZ27209380	PGR		25		2	2	2	102	-9	112	5	3A				DR	3A	IMP FLINTS 70
37	SZ27009370	SAS				1	1	1	148	37	116	9	2				DR	2	
38	SZ27109370	SAS		55	55	3	3A	3A	119	8	115	8	2				WE	3A	IMP FLINTS 90
39	SZ27209370	PGR		25	60	3	3A	3A	140	29	115	8	2				WE	3A	
40	SZ27299370	PGR		60		1	1	1	102	-9	113	6	3A				DR	3A	IMP FLINTS 70

SAMPLE NO	GRID REF	USE	ASPECT		--WETNESS--		-WHEAT-		-POTS-		M REL	EROSN	FROST	CHEM	ALC	COMMENTS
			GRDNT	GLEY	SPL CLASS	GRADE	AP	MB	AP	MB	DRT	FLOOD	EXP	DIST	LIMIT	
41	SZ27009360	SAS			1	1	153	42	115	8	2				DR 2	
42	SZ27109360	PGR		27 52	3	3A	129	18	110	3	2				WE 3A	IMP FLINTS 110
43	SZ27199360	PGR		45 65	3	3A	116	5	114	7	3A				WE 3A	IMP FLINTS 85

SAMPLE	DEPTH	TEXTURE	COLOUR	MOTTLES COL	MOTTLES ABUN	MOTTLES CONT	PED COL	GLEY	STONES >2	STONES >6	STONES LITH	STONES TOT	STRUCT/ CONSIST	SUBS STR	SUBS POR	SUBS IMP	SUBS SPL	SUBS CALC	
1	0 33	mcl	10YR44 00						0	0	HR	5							SL GLEY FROM 33
	33 60	mcl	10YR54 00	10YR56 00	C			S	0	0	HR	20		M					IMP FLINTS 60
1P	0 30	mcl	10YR42 00						0	0	HR	2							
	30-53	mcl	10YR52 53	10YR68 00	M			Y	0	0	HR	2	MDCSAB	FR	M	Y			
	53-75	mcl	10YR53 52	10YR58 00	M		00MN00 00	Y	0	0	HR	2	MDCSAB	FR	M	Y			
	75 120	c	25Y 61 00	10YR68 00	M		00MN00 00	Y	0	0	HR	10	WKCSAB	FR	M	Y		Y	PIT 120
2	0-28	mcl	10YR53 00						0	0	HR	10							
	28 55	c	05Y 71 00	10YR68 00	M			Y	0	0	HR	20		M				Y	IMP FLINTS 55
2P	0-29	mcl	10YR42 00						0	0	HR	2							
	29-48	mcl	10YR42 00	10YR56 00	C			Y	0	0	HR	3	MDCSAB	FR	M	Y			
	48-74	c	10YR53 00	78YR58 00	M			Y	0	0	HR	10	WKCSAB	FR	M	Y		Y	
	74-120	hcl	10YR53 00	75YR58 00	M			Y	0	0	HR	20	WKCSAB	FR	M	Y		Y	PIT 110 AUG 120
3	0 25	mcl	10YR42 00	10YR46 00	C			Y	0	0	HR	2							SATURATED
	25 70	c	25Y 62 00	75YR58 00	M			Y	0	0	HR	5		M				Y	SATURATED
	70-120	c	25Y 61 00	75YR58 00	M			Y	0	0	HR	5		M				Y	SATURATED
4	0 35	mzcl	10YR31 00						0	0	HR	2							
	35-55	ol	25Y 41 51						0	0		0		M					SATURATED FROM 45
	55-70	lp	25Y 41 51						0	0		0		M					SATURATED
	70-120	c	25Y 61 00	10YR68 00	M			Y	0	0	HR	5		M				Y	SATURATED
5	0-33	mzcl	10YR31 00						0	0		0							
	33-70	mzcl	25Y 52 00	10YR58 00	M		00MN00 00	Y	0	0		0		M					
	70-90	hzcl	25Y 63 00	10YR68 00	M			Y	0	0		0		M					
	90-120	hcl	25Y 63 00	10YR68 00	M			Y	0	0	HR	15		M				Y	SATURATED FROM 90
6	0-28	mcl	10YR42 00						0	0	HR	2							
	28-40	mcl	25Y 62 00	10YR68 00	M			Y	0	0		0		M					
	40-70	hcl	25Y 61 00	10YR58 00	M			Y	0	0	HR	5		M					
	70-105	c	05Y 61 71	10YR58 00	M			Y	0	0	HR	15		M				Y	IMP FLINTS 105
7	0-28	mcl	10YR42 00						0	0		0							
	28-45	hcl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	45-120	c	25Y 62 00	10YR58 00	M		00MN00 00	Y	0	0	HR	5		M				Y	
8	0-35	mcl	10YR42 43						0	0	HR	2							
	35-55	hcl	10YR53 00	10YR56 00	C			Y	0	0	HR	2		M					
	55-120	c	25Y 62 00	10YR56 00	M			Y	0	0	HR	5		M				Y	
9	0-30	mcl	10YR42 00						0	0	HR	1							
	30-45	mcl	25Y 61 00	10YR58 00	C			Y	0	0	HR	1		M					
	45-70	hcl	10YR53 00	75YR58 00	C			Y	0	0	HR	2		M					
	70-85	hcl	10YR53 00	75YR58 00	C			Y	0	0	HR	5		M					
	85-120	c	25Y 61 00	75YR58 00	M			Y	0	0	HR	10		M				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	
10	0 25	mcl	10YR42 00	75YR46 00	C			Y	0	0	HR	2							
	25 70	hcl	10YR53 00	10YR68 00	M			Y	0	0	HR	1		M					
	70 90	hcl	10YR53 00	10YR68 61	M			Y	0	0	HR	5		M					IMP FLINTS 90
11	0 25	mzcl	10YR54 00	10YR56 00	C			Y	0	0	HR	2							
	25 40	hzcl	10YR52 63	10YR58 00	M			Y	0	0	HR	2		M					
	40 60	mzcl	25Y 61 00	10YR58 00	C			Y	0	0	HR	2		M					
	60 120	c	25Y 61 00	75YR58 00	M		00MN00 00	Y	0	0	HR	1		M		Y			
12	0-35	mcl	10YR42 00						0	0	HR	10							
	35 65	hcl	10YR53 52	10YR58 00	M			Y	0	0	HR	5		M					
	65-70	c	25Y 51 00	10YR58 00	M			Y	0	0	HR	30		M		Y			IMP FLINTS 70
13	0-30	hcl	10YR42 00	75YR46 00	F				0	0	HR	2							
	30-70	c	10YR53 00	10YR68 00	M			Y	0	0	HR	2		M		Y			
	70 90	mcl	25Y 61 00	75YR58 00	M			Y	0	0	HR	10		M					IMP FLINTS 90
14	0-25	mcl	10YR42 00	75YR46 00	C			Y	0	0	HR	2							
	25-40	c	10YR31 00	10YR68 00	M			Y	0	0		0		M		Y			
	40 65	hcl	10YR53 00	10YR68 52	M			Y	0	0	HR	2		M		Y			
	65-105	mcl	10YR53 00	10YR68 52	M			Y	0	0	HR	10		M					IMP FLINTS 105
15	0 28	mzcl	10YR42 00	75YR46 00	F				0	0	HR	2							
	28 45	mcl	10YR53 62	10YR56 62	C			Y	0	0	HR	5		M					
	45 70	c	10YR53 00	75YR58 52	M			Y	0	0	HR	5		M		Y			
	70-75	hcl	10YR53 00	75YR58 52	M			Y	0	0	HR	15		M		Y			IMP FLINTS 75
16	0-35	mcl	10YR42 00						0	0	HR	3							
	35 65	hcl	25Y 43 53	10YR46 00	F		00MN00 00		0	0		0		M					
	65-80	c	25Y 53 00	10YR56 00	C			Y	0	0		0		M		Y			
	80-100	hcl	25Y 53 63	10YR58 00	M			Y	0	0		0		M		Y			
	100-120	hcl	25Y 53 63	10YR58 00	M			Y	0	0	HR	10		M		Y			
17	0-35	mcl	10YR42 43						0	0	HR	2							
	35-55	hcl	10YR53 00	10YR56 00	C			Y	0	0		0		M					
	55-120	c	10YR53 52	10YR58 00	M			Y	0	0	HR	10		M		Y			
18	0-30	mcl	10YR32 00						0	0	HR	5							
	30-40	hcl	10YR32 00						0	0	HR	20		M					IMP FLINTS 40
19	0-30	mcl	10YR42 00						0	0	HR	2							
	30 45	mcl	10YR44 00						0	0	HR	2		M					
	45 70	hcl	10YR53 00	10YR58 00	M			Y	0	0	HR	1		M					
	70 90	hcl	10YR53 00	10YR58 00	M			Y	0	0	HR	10		M					IMP FLINTS 90
20	0-30	mcl	10YR42 00	75YR46 00	F				0	0	HR	2							
	30-45	mcl	10YR42 00	75YR46 00	C			Y	0	0	HR	2		M					
	45-60	mcl	10YR52 00	10YR56 00	M			Y	0	0	HR	2		M					
	60-95	c	05Y 51 00	10YR56 00	C			Y	0	0	HR	10		M		Y			IMP FLINTS 95

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	
21	0-27	mcl	10YR43 00	10YR58 00	F				0	0	HR	2							
	27 48	hcl	10YR52 53	10YR58 00	C			Y	0	0		0		M					
	48 70	c	10YR53 00	10YR68 62	C			Y	0	0	HR	5		M			Y		IMP FLINTS 70
22	0-25	mcl	10YR42 43	10YR58 00	C			Y	0	0	HR	2							
	25-43	hcl	10YR52 00	10YR68 72	C			Y	0	0		0		M					
	43-75	c	10YR63 00	10YR78 72	C			Y	0	0		0		M			Y		
	75 100	hcl	75YR63 00	75YR68 00	M			Y	0	0		0		M			Y		IMP FLINTS 100
23	0-25	mcl	10YR42 00						0	0	HR	2							
	25-35	mcl	10YR42 00						0	0	HR	5		M					
	35-50	c	10YR52 53	10YR56 00	M			Y	0	0	HR	2		M			Y		
	50-75	c	25Y 61 00	75YR58 00	M			Y	0	0	HR	10		M			Y		IMP FLINTS 75
24	0-25	mcl	10YR42 00						0	0	HR	5							
	25-40	mcl	10YR42 00						0	0	HR	20		M					
	40-45	mcl	10YR42 00						0	0	HR	40		M					IMP FLINTS 45
25	0-25	mcl	10YR42 00						0	0	HR	1							
	25-35	hcl	10YR44 00						0	0	HR	2		M					
	35-85	mcl	10YR52 53	10YR58 00	M		00MN00 00	Y	0	0		0		M					
	85-120	c	25Y 61 00	75YR58 68	M		00MN00 00	Y	0	0	HR	10		M			Y		
26	0-23	mcl	10YR42 00						0	0	HR	2							
	23-40	hcl	10YR52 00	10YR58 61	C			Y	0	0		0		M					
	40-120	c	10YR72 00	10YR78 71	M			Y	0	0		0		M			Y		
27	0 24	mcl	10YR42 00						0	0	HR	2							
	24-50	hcl	10YR52 00	10YR58 00	C			Y	0	0		0		M					
	50-90	hcl	10YR63 00	10YR68 71	M			Y	0	0		0		M			Y		IMP FLINTS 90
28	0-27	mcl	10YR43 00	10YR58 00	F				0	0	HR	2							
	27-42	hcl	10YR42 00	10YR58 62	C			Y	0	0		0		M					
	42-80	c	25Y 63 42	10YR78 72	C			Y	0	0		0		M			Y		IMP FLINTS 80
29	0-25	mcl	10YR42 00						0	0	HR	2							
	25 35	hcl	10YR44 00						0	0	HR	5		M					
	35-70	c	10YR53 00	10YR58 00	M			Y	0	0		0		M			Y		
	70-100	hcl	10YR53 00	10YR58 00	M			Y	0	0	HR	5		M			Y		IMP FLINTS 100
30	0-25	mzcl	10YR42 00						0	0	HR	2							
	25-55	mcl	10YR42 00	75YR46 00	C			Y	0	0	HR	2		M					
	55-80	mcl	10YR53 00	10YR58 00	M			Y	0	0	HR	2		M					
	80 90	c	10YR52 00	10YR58 00	M			Y	0	0	HR	10		M			Y		IMP FLINTS 90
31	0-29	mcl	10YR52 42						0	0	HR	2							
	29-48	hcl	10YR52 00	10YR58 00	C			Y	0	0		0		M					
	48-80	c	75YR62 00	75YR68 00	C			Y	0	0		0		M			Y		IMP FLINTS 80

SAMPLE	DEPTH	TEXTURE	COLOUR	-- MOTTLES--- COL	ABUN	CONT	PED COL	GLEY	---STONES 2	6	LITH	TOT	-- STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC
32	0-27	mcl	10YR43 00						0	0	HR	2						
	27-52	hcl	10YR42 00	10YR58 00	C			Y	0	0		0		M				
	52-120	hcl	10YR63 00	10YR68 62	C			Y	0	0		0		M			Y	
33	0-38	mcl	10YR42 00	10YR46 00	F				0	0	HR	3						
	38-75	hcl	25Y 52 00	10YR58 00	M			Y	0	0	HR	5		M				
	75-100	c	25Y 61 00	10YR58 00	M			Y	0	0	HR	15		M			Y	IMP FLINTS 100
34	0-27	mcl	10YR42 52						0	0	HR	2						
	27-45	mcl	10YR52 00	10YR58 00	C			Y	0	0		0		M				
	45-60	hcl	10YR52 53	10YR68 00	C			Y	0	0		0		M				
	60-110	c	75YR63 00	78YR78 00	C			Y	0	0		0		M			Y	IMP FLINTS 110
35	0-27	mcl	10YR43 00	10YR58 00	C			S	0	0		0						SLIGHTLY GLEY
	27-52	hcl	10YR53 00	10YR58 00	C			Y	0	0		0		M				
	52-90	c	75YR62 00	75YR68 00	C			Y	0	0	HR	5		M			Y	IMP FLINTS 90
36	0-25	mcl	10YR42 00						0	0	HR	2						
	25-65	hcl	25Y 42 00	10YR46 00	C			Y	0	0	HR	2		M				
	65-70	scl	25Y 53 00	10YR56 00	C			Y	0	0	HR	30		M				IMP FLINTS 70
37	0-30	mcl	10YR42 00						0	0	HR	2						
	30 55	hcl	10YR44 00						0	0	HR	2		M				
	55 75	c	10YR56 00						0	0		0		M				
	75 120	hcl	10YR56 00						0	0	HR	5		M				
38	0-30	mcl	10YR42 00						0	0	HR	2						
	30-55	hcl	10YR43 00						0	0	HR	2		M				
	55 70	c	10YR53 00	10YR58 00	M			Y	0	0	HR	5		M			Y	
	70-90	hcl	10YR53 00	10YR58 00	M			Y	0	0	HR	10		M			Y	IMP FLINTS 90
39	0-25	mcl	10YR42 00						0	0	HR	2						
	25-60	hcl	10YR53 00	10YR56 00	C			Y	0	0		0		M				
	60-120	c	25Y 52 00	10YR58 00	M			Y	0	0	HR	5		M			Y	
40	0 30	mcl	10YR42 00	10YR46 00	F				0	0	HR	2						
	30 60	hcl	10YR43 00	10YR56 00	F				0	0	HR	3		M				
	60 65	hcl	10YR52 00	10YR56 00	C			Y	0	0	HR	5		M				
	65 70	hcl	10YR52 00	10YR56 00	C			Y	0	0	HR	30		M				IMP FLINTS 70
41	0 30	mcl	10YR42 00						0	0	HR	3						
	30-60	hcl	10YR56 00						0	0	HR	3		M				
	60 120	hcl	10YR56 00						0	0		0		M				
42	0-27	mcl	10YR43 00						0	0		0						
	27 52	hcl	10YR52 43	10YR56 00	C			Y	0	0		0		M				
	52-110	hcl	75YR63 00	75YR68 00	C			Y	0	0		0		M			Y	IMP FLINTS 110

SAMPLE	DEPTH	TEXTURE	COLOUR	--MOTTLES--- COL	ABUN	CONT	PED COL	GLEY	-STONES---- >2	6	LITH	TOT	STRUCT/ CONSIST	SUBS STR	POR	IMP	SPL	CALC	
43	0 30	mcl	10YR43 00						0	0	HR	3							
	30 45	mcl	10YR42 00	10YR46 00	F				0	0	HR	3		M					
	45 65	hcl	10YR52 00	10YR56 00	C		00MN00	00 Y	0	0	HR	5		M					
	65 85	hcl	25Y 52 00	10YR58 00	C			Y	0	0	HR	10		M		Y		IMP FLINTS 85	