Candwr Solar Farm

Pre Application Consultation

Outline Soil Management Plan

2 July 2026

TotalEnergies

PAC DRAFT

CANDWR SOLAR FARM,
LAND AT COURT FARM,
PONTHIR, MONMOUTHSHIRE

OUTLINE
SOIL MANAGEMENT PLAN

June 2026

Authorised By ……….

Greenacres Barn, Stoke Common Lane, Purton Stoke, Swindon SN5 4LL
T: 01793 771333 Email: info@kernon.co.uk Website: www.kernon.co.uk

*Directors - **Tony Kernon** BSc(Hons), MRAC, MRICS, FBIAC **Sarah Kernon***
*Consultant – **Dan Miller** BSc(Hons)*

CONTENTS

Appendices

1 INTRODUCTION

Purpose and Scope of the Document

1.1 The outline Soil Management Plan (oSMP) sets out the key principles and considerations for the handling of soils for the development of a solar farm and related infrastructure (the Proposed Development) on land at Court Farm, Ponthir. It is intended that this is an outline of a Soil Management Plan that will be required by condition under the Development Consent Order.

1.2 The document therefore needs to be read as one setting out the principles.

1.3 The oSMP has been prepared by Tony Kernon of Kernon Countryside Consultants Ltd and James Fulton of Amet Property Ltd. It draws on a detailed Agricultural Land Classification (ALC) and soil survey carried out by Amet Property Ltd. This is reproduced in **Appendix SMP1**.

Structure of Report

1.4 This oSMP:

- sets out the key recommendations in section 2;
- describes the soil resource in section 3;
- describes and sets out the key principles of soil management in section 4;
- describes soil suitability tests in section 5;
- summarises the construction phasing and timing in section 6;
- sets out the soil handling methodology for construction compounds in section 7;
- sets out soil methodology for the access tracks and bases in section 8;
- sets out soil methodology for the solar PV arrays in section 9;
- sets out the substation works in section 10;
- sets out the on-site fencing in section 11;
- sets out drainage in section 12;
- sets out soil survey and works for the ecological enhancement areas in section 13;
- sets out operational phase soil management in section 14;
- and sets out the principles for decommissioning in section 15.

1.5 Implementation of this oSMP, and adherence to its principles, will be the responsibility of the site manager.

2 KEY OBJECTIVES AND RECOMMENDATIONS

Objectives

2.1 The objectives of the oSMP are to set out the principles for soil handling and management to minimise disturbance to soils and to ensure, so far as possible that restoration of disturbed land is to the same ALC grade following construction works or at decommissioning, whichever is relevant.

Key Recommendations

2.2 The soils are most likely to be saturated and unsuitable for being driven over or moved between November and March. Project development planning should aim to avoid, or minimise so far as possible, construction works involving the need to travel over or move soil in this period.

2.3 Whilst this oSMP seeks to minimise trafficking over land in the November to March period, if ground conditions are suitable then works can continue in that period. Adherence to the soil suitability tests described in this oSMP will enable flexibility of construction periods.

2.4 It is recommended that the key managers read and follow the soil suitability tests set out in this report, thus reacting to seasonal variations and providing flexibility. There is also some variation between the soil types as set out in this oSMP.

3 THE SOIL RESOURCE

3.1 The soils are described in the Agricultural Land Classification (ALC) report by Amet property Ltd, the text and plans from which are reproduced in **Appendix SMP1**.

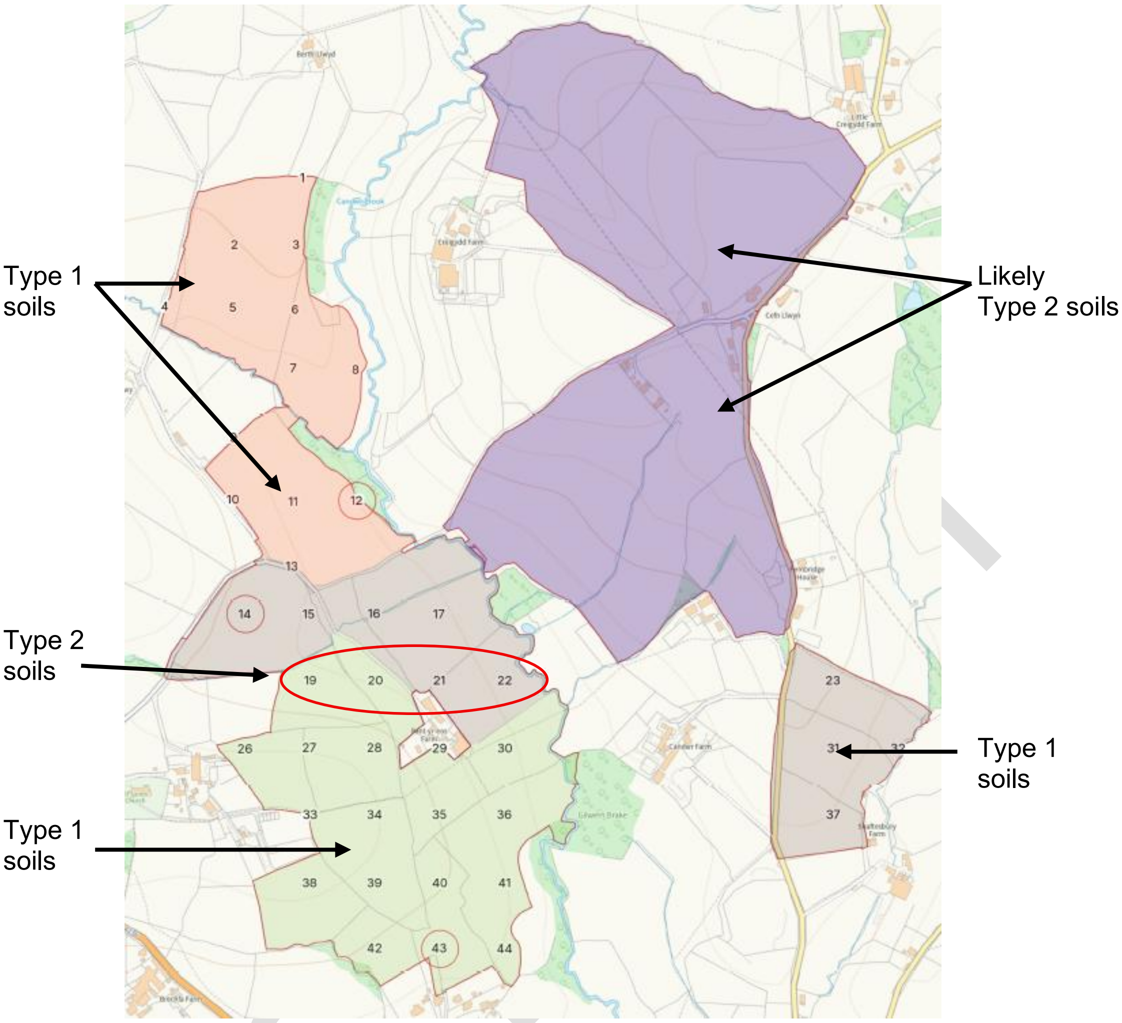
3.2 Published information indicates that most of the Site is covered by soils of the Milford Association, being well-drained fine loamy reddish soils over rock. Some Alum Association soils were predicted in the eastern part of the Site.

3.3 Detailed survey has found two types of soil. These are described and mapped below.

3.4 **Soil Type 1.** This is a clay loam or silty clay loam topsoil over poorly structured slowly permeable clay loam or clay, sometimes shallow over stone. The topsoil was found to be a brown (10YR 5/3), dark brown (7.5YR 3/4), dark reddish brown (5YR 3/4), reddish brown (5YR 4/3) clay loam or silty clay loam with few ochreous mottles. The upper subsoils had the texture of clay loam or silty clay loam. The colours were found to be light brownish grey (10YR 6/2), yellowish red (5YR 5/6), reddish brown (5YR 4/4). The subsoil had a poor structure and were gleyed or reddish soils and slowly permeable. Where a second subsoil was found the texture was found to be silty clay loam in the northwest, yellowish red (5YR 5/6) with a poor structure.

3.5 Type 1 soils were found mostly on the western area, shown below, but not including the non-BMV areas. Type 2 soils were identified at locations 7, 16, 17, 26, 27, 28, 30 and 41, but it will not be necessary to work those few points differently.

Insert 1: Sample Points, Western Area

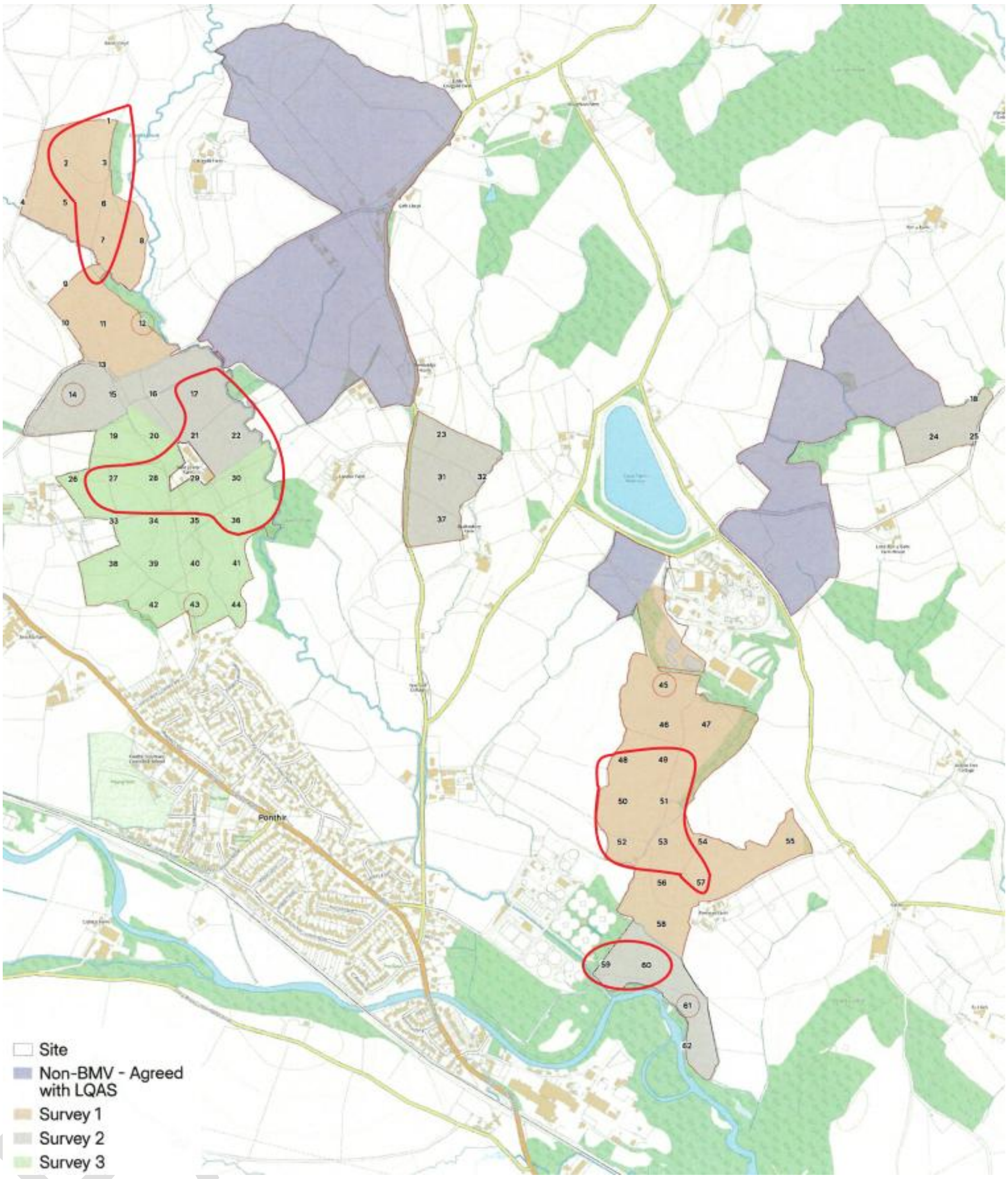


3.6 **Soil Type 2** This is also a clay loam or silty clay loam over moderately structured permeable clay loam or silty clay loam topsoil, sometimes shallow over stone. The topsoil was found to be a brown (7.5YR 4/3), dark brown (7.5YR 3/4), dark reddish brown (5YR 3/4), reddish brown (5YR 4/3) clay loam or silty clay loam with few ochreous mottles. The upper subsoils were found to have the texture of clay loam or silty clay loam. The colours were found to be brown (7.5YR 4/4), dark brown (7.5YR 3/4) or strong brown (7.5YR 5/6). The subsoil had a moderate structure. Occasionally a second subsoil was found and the texture was found to be coarse sandy loam, brown (7.5YR 4/4) with a good structure. Impenetrable stone was found at sample point.

3.7 Type 2 soils were identified in the areas shown on Insert 1 and across the rest of the Site, and are likely across the non-BMV areas not surveyed.

3.8 Shallow soils over rock or impenetrable stone, identified at depths of 30-60cm, were found in the following locations.

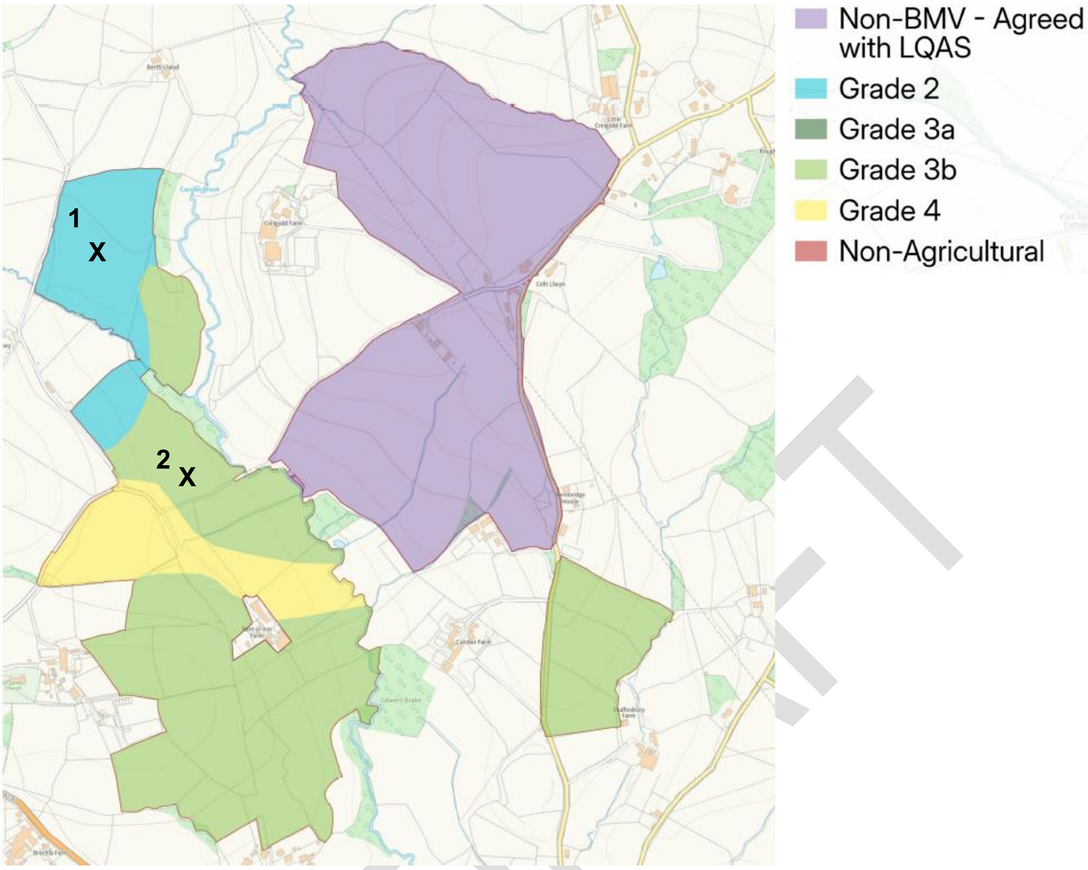
Insert 2: Locations Where Stone was identified at Shallow Depths



3.9 The Site contains a mix of different ALC grades, from Grade 2 “very good” quality to Grade 4. Parts of the Site have not been the subject of ALC survey because they are identified on the Predictive ALC map as subgrades 3b or Grade 4.

3.10 The land quality in the central and western areas is mostly moderate or poor, with only parts of the Site being Grade 2, as shown below.

Insert 3: Extract from the ALC Showing Simple Points, Type 1 Soils



3.11 The Grade 2 soils are illustrated below, inspected in November 2025.

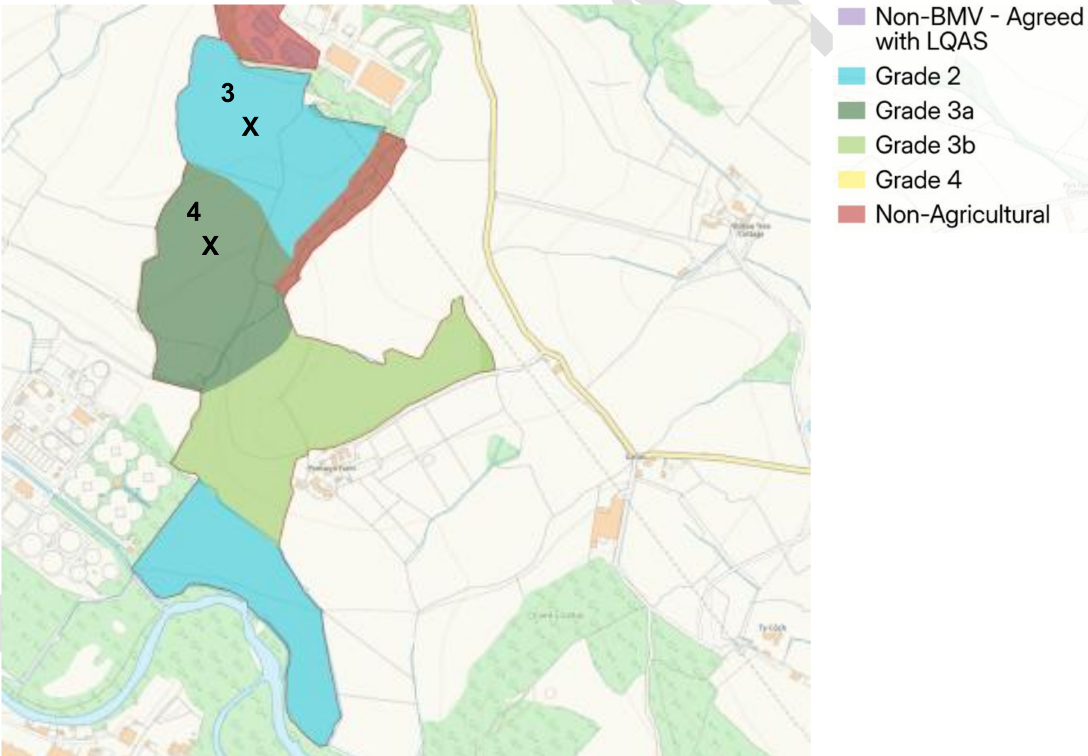
Photos 1 - 3: Sample Pit 1, Grade 2 Soils, Type 1 Soils

3.12 The Subgrade 3b soils are illustrated below, showing a higher clay content. Otherwise the soils are similarly coloured.

Photos 4 - 6: Sample Pit 2, Grade 3b Soils, Type 1 Soils

3.13 In the central part of the Site the soils are similar, as shown below.

Insert 4: Extract from the ALC Showing Sample Points, Type 2 Soils



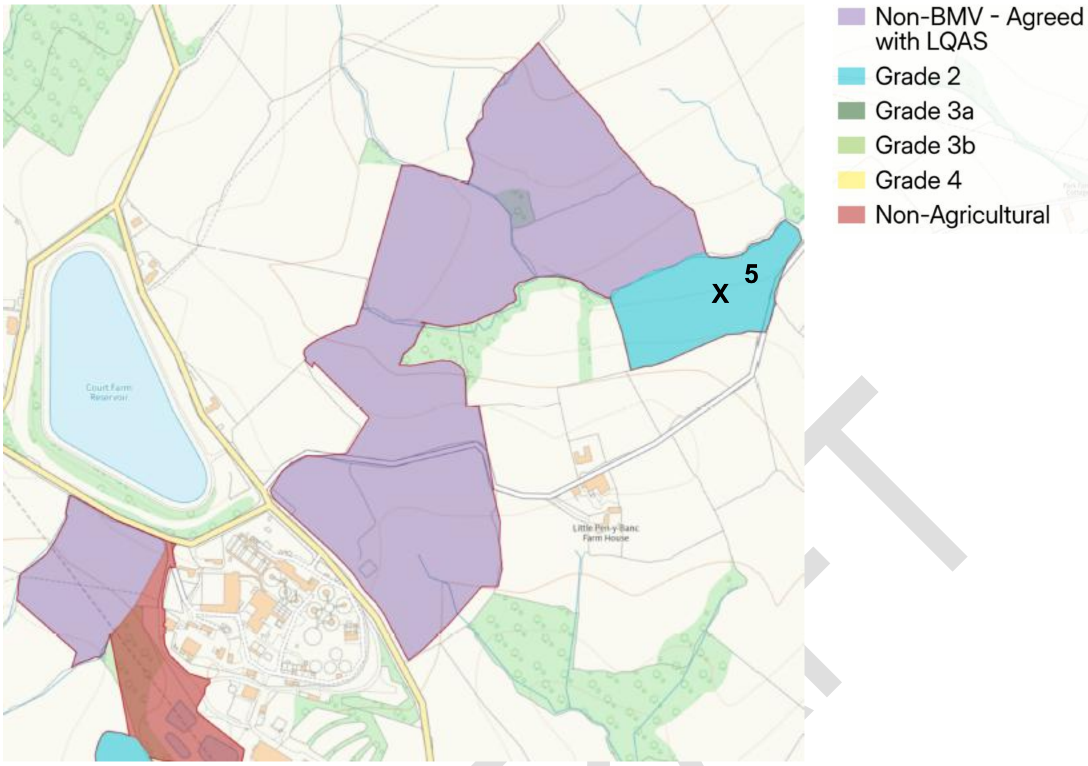
3.14 The Grade 2 and Subgrade 3a soils are shown below.

Photos 7 - 9: Sample Pit 3, Grade 2 Soils

Photos 10 and 11: Sample Pit 4, Subgrade 3a Soils

3.15 The eastern part of the Site is shown as mostly poorer quality land. The grade 2 area is shown below.

Insert 5: Extract from the ALC Plans Showing Sample Point



3.16 The reddish loamy nature of the soils, similar to the rest of the Site, is shown below.

Photos 12 and 13: Sample Pit 5, Grade 2 Soils, Type 2 Soils

4 KEY PRINCIPLES

Guidance

4.1 Soil and soil management principles are set out in a number of documents, but those of most relevance are listed below. Some are of English origin but are still applicable:

- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, Defra (2009);
- Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction, British Society of Soil Science (v 3 January 2022);
- Good Practice Guide for Handling Soils in Mineral Workings, The Institute of Quarrying (July 2021);
- Building on Soil Sustainability: principles for soils in planning and construction, Cornwall Council and others (September 2022);
- Assessment of the impact of land use on Welsh organo-mineral soils, Welsh Government (June 2021);
- Planning and aftercare advice for reclaiming land to agricultural use, Natural England (April 2022), especially in respect of soil bund management;
- Solar PV on Agricultural Land: Essential Components of Environmental Assessments and Reports, ISEP (December 2025);
- Soil Health and Environmental Assessment, ISEP (December 2025).

Overview

4.2 For much of the installation process there is no requirement to move or disturb soils. Soils will need to be moved and disturbed to create temporary working compounds, and to create the tracks and small fixed infrastructure bases. Soils will need to be disturbed to enable cables to be laid, but the soils will be reinstated shortly after they are lifted out (ie this is a swift process).

4.3 For those areas where soil needs to be disturbed to create the bases for the substation and some fixed equipment, the soil will be stored in suitably-managed areas. The soil needs to be looked after because it will be needed at the decommissioning phase to restore the land under the bases back to agricultural use.

4.4 It is unlikely that subsoil will need to be removed to create the shallow bases, but if subsoil does need to be moved and stored, it should be stored separately to the topsoil, and clearly marked.

4.5 It is not particularly evident within these reddish, loamy soils where topsoils become subsoils. The distinction is identified below for sample pit 4, which is close to ALC auger point 48. Here there is 30 cm of medium clay loam which graduates to a silty clay between 30cm and 40cm.

Photo 14: Identification of Top and Upper Subsoil

4.6 For the majority of the proposed development soils do not need to be disturbed. The effects on agricultural land quality and soil structure are therefore limited to the effects of vehicle passage. Therefore the key consideration is to ensure that soils are passed over by vehicles (trafficked) when the soils are in a suitable condition, and that if any localised damage or compaction occurs (which is common with normal farming operations too), it is ameliorated suitably.

4.7 The key principles for successfully avoiding damage to soils are:

- timing;
- retaining soil profiles, ensuring that topsoils and subsoils are not mixed;
- avoiding compaction;
- ameliorating compaction.

Timing

4.8 The most important management decision/action to avoid adverse effects on soils is the timing of works. If the construction work takes place when soil conditions are sufficiently dry, then damage from vehicle trafficking and trenching will be minimal.

4.9 Vehicle travel over soils creating limited impact is shown below. This is good practice and is to be aimed-for, so far as possible.

Photo 15: Soils Suitable for Trafficking

4.10 Poor practice is shown below. If this type of soil disturbance occurs it can be rectified, as set out below, but as a point of principle if soils are rutting as shown below they are not well suited to being trafficked. Work should, so far as possible, be delayed until soils dry out.

Photo 16: Soils not Suitable for Trafficking (example of poor practice)

4.11 The clay and heavy clay loam soils across all of the Site will be susceptible to this sort of damage. Minimising travel over those soils from November to March in most years is recommended, but in wet years this period could be extended.

4.12 As a general rule any activity that requires soil to be dug up and moved, such as cabling works, should be minimised during the winter. Soils handled when wet tend to lose some of their structure, and this results in them taking longer to recover after movement, and potentially needing restorative works (eg ripping with tines) to speed recovery of damaged soil structure. The period when soils are most likely to be saturated, and therefore assessing soils before works commence is important (see below), is shown below.

Table 1: Unsuitable Period for Working with Soils

Soil Type	**Likely Period When Soil Suitability Tests Are Important**
Soil type 1	November to March
Soil type 2	November to March

4.13 Works within these periods may be able to take place, but it will be necessary to carry out soil suitability tests more frequently as there will be times within those periods when soils will be too wet to handle. As a general rule project planning should assume that the soils will not be suitable for being worked between those months.

4.14 Soil handling/assessment guidelines are set out in section 5.

4.15 The equipment used to construct solar farms is generally lightweight, as explained later in section 9. It is unlikely that deep compaction will be caused, even with travel in suboptimal conditions.

4.16 In localised instances where it is not possible to avoid undertaking construction activities when soils are wet and topsoil damage occurs then soils can be recovered by normal agricultural management, using normal agricultural cultivation equipment (subsoiler, harrows, power harrows etc) once soils have dried adequately for this to take place. There may be localised wet areas in otherwise dry fields, for example, which are difficult to avoid.

Retaining Soil Profiles

4.17 The successful installation of cabling at depths of >60cm requires a trench to be dug into the ground. Topsoils vary across the site but the coverage is generally about 30cm, with subsoils below that being generally similar to depth. As set out in the BRE Agricultural Good Practice Guidance for Solar Farms at page 3:

> "**When excavating cable trenches, storing and replacing topsoil and subsoil separately and in the right order is important to avoid long-term unsightly impacts**

on soil and vegetation structure. Good practice at this stage will yield longer-term benefits in terms of productivity and optimal grazing conditions”.

4.18 In those areas where the soil is dug up (trenching and for compounds and access roads), the soils should be returned in as close to the same order, and in similar profiles, as it was removed.

<u>Avoiding Compaction</u>

4.19 It is stressed that the objective of the oSMP is to avoid causing compaction. Compaction by normal machinery is very unlikely to affect land quality, but it results in the need for physical ameliorating with consequent cost implications. It should be avoided wherever possible.

4.20 This oSMP sets out when soils should generally be suitable for being trafficked. There may be periods within this window, however, when periodic rainfall events result in soils becoming liable to damage from being trafficked or worked. In these (likely rare) situations, work should only continue with care, to minimise structural effects on the soils, until soils have dried, usually within 48 hours of heavy rain stopping.

4.21 There may be areas where ground conditions take longer to dry out. If access needs to be achieved across these areas (eg wetter areas near to water courses), the use of temporary matting (often referred to as bog mats), such as the example below, can and should be used.

Photo 17: Example of Temporary Matting

<u>Ameliorating Compaction</u>

4.21 If localised compaction occurs during construction, it should be ameliorated. This can normally be achieved with standard agricultural cultivation equipment, such as subsoilers (if required), power harrows and rolls.

4.22 The amount of restorative work will vary depending upon the localised impact. Consequently where the surface has become muddy, for example in the photograph below, this can be recovered once the soil has dried, with a tine harrow and, as needed, a roller or crumbler bar.

Photos 18 and 19: Inter-row Localised Soil Disturbance and Subsequent Restoration

4.23 If there are any areas where there has been localised damage to the soils due to vehicle passage, for example, a low wet area within a field which despite best efforts could not be avoided, this should be made good and reseeded at the end of the installation stage, when conditions are suitable. This is illustrated below.

Photo 20: Localised Restoration

4.24 The soils across the site, provided they have dried sufficiently, will readily restore. The ruts will need to be harrowed level when the ground is dry, and then they will naturally restore.

4.25 Accordingly the ground surface should be generally levelled prior to any seeding or reseeding.

5 SOIL SUITABILITY TESTS

5.1 The soils across the site are generally able to be worked between April and October. Avoiding the November to March period if possible is recommended.

5.2 The heavier clayey soils are most susceptible to traffic damage when wet. They will therefore need to be assessed after prolonged rain, depending upon the activities proposed.

5.3 Guidance on determining soils suitability to be handled is set out in the Good Practice Guide for Handling Soils, **Appendix SMP2**.

5.4 If you can roll soil into a ball or a sausage easily and the soil holds that shape, it is too wet to travel over or move soils. This is illustrated in the photograph below.

Photo 21: Indication of When Soils are Too Wet (not taken at this site)

5.5 If the soils once rolled then cannot be held in this manner and break or crumble, as shown below, they are likely to be suitable for being handled. See the test methodology in **Appendix SMP2**.

Photos 22 and 23: Soils Suitable (this Site, November 2025) soils crumble with thumb

5.6 The upper subsoils, from the same sample pit, being higher clay were not suitable for being moved, as shown below.

Photos 24 and 25: Upper Subsoils, Not Suitable, do not crumble with pressure from thumb

5.7 When topsoil is assessed as suitably dry, vehicle trafficking will not cause structural damage. Trenching works, however, should not take place until the subsoil is also suitable for being handled, which may be a week or two later than the topsoil, depending upon the weather. Unsuitable subsoil, not taken from within the Site, is shown below. This will tend to smear if dug up in this condition, and trenching works should be delayed.

Photos 26 and 27: Subsoil Still Unsuitability Wet for Handling

6 CONSTRUCTION PHASING AND TIMING

6.1 Works will start with the construction of the access bell mouths, then the construction compounds, internal drainage works etc.

6.2 The access tracks will then be laid. It will be possible to construct the tracks from the highway in, minimising the need to travel over surrounding agricultural land, if the soils are damp. There are existing tracks around the site that will facilitate access.

6.3 Works to install and connect the solar PV arrays will then take place. This will be planned, so far as possible, to mostly take place from late spring and should be complete by November.

6.4 The construction programme obviously involves the potential to slip into winter work, and so care will be taken to minimise soil disturbance as much as possible.

6.5 Restoration of areas that have been trafficked will take place towards the end of the construction period, aiming to be complete by late October, prior to seeding with grass. If the programme, or the weather, means that the ground conditions are not suitable then this work will be delayed until ground conditions are suitable the following spring.

6.6 The construction compounds will be removed in suitably dry conditions after the construction is complete, and those areas restored and seeded.

6.7 Establishing a vegetation cover over winter, so that soils are not left bare, will assist in reducing the potential for erosion by water or wind, and will assist in drying the soils in the spring. Therefore so far as is possible all bare soil should be sown to a vegetation cover by October.

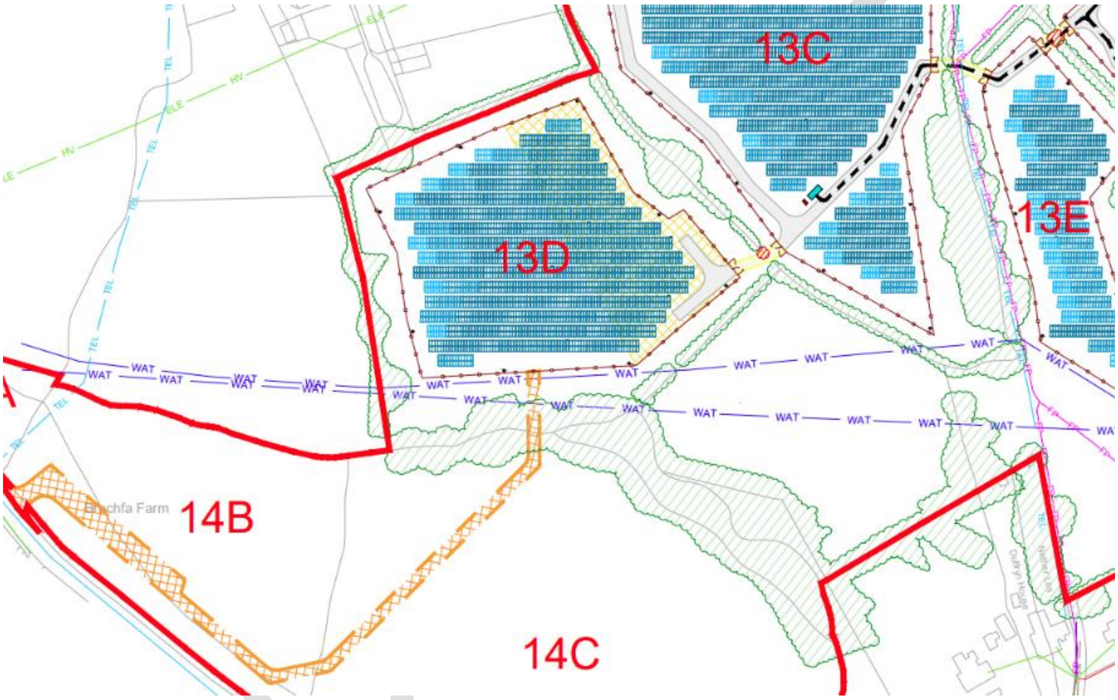
7 CONSTRUCTION COMPOUNDS

<u>Construction Compound Location</u>

7.1 Temporary construction compounds will be created at the start of construction and reinstated at the end. These will be in parcels 1C, 10A and 13D.

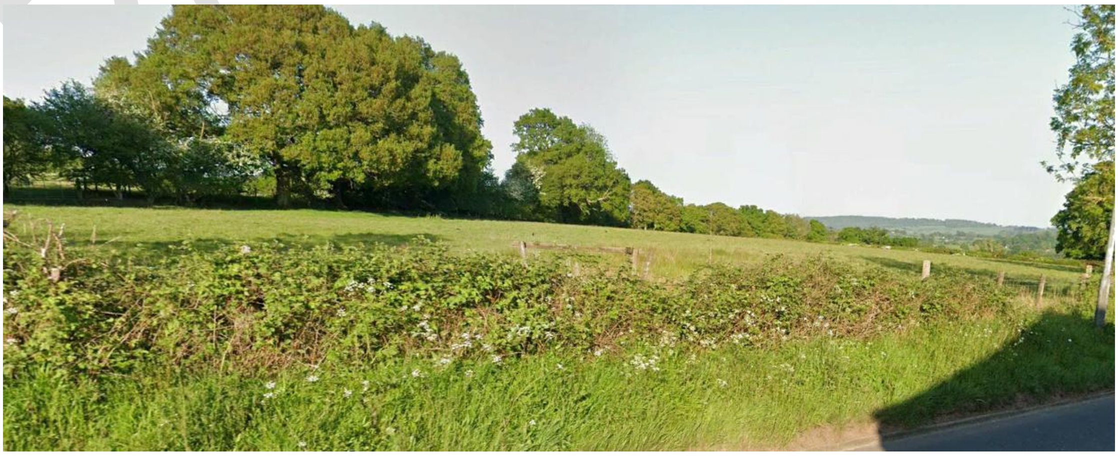
7.2 The access track and the construction compound in Parcel 13D is a temporary works, and is shown below.

Insert 6: Location of Temporary Access Track and Construction Compound



7.3 The temporary access will cross the following field (Google Streetview).

Insert 7: Location of Track



7.4 The initial works will likely involve the laying of a temporary surface, as per the example shown below, enabling a route for the importation of material. These can be removed once ground conditions are suitable.

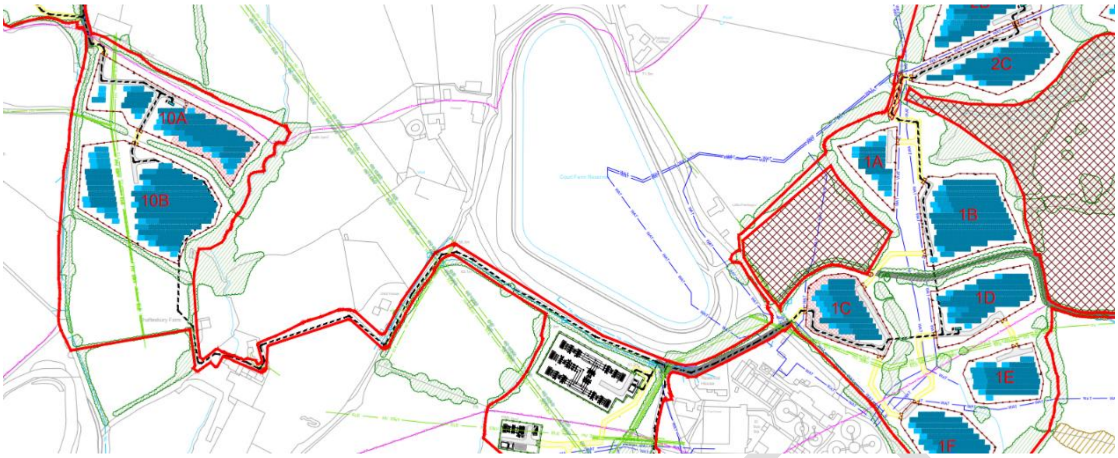
Photos 28 and 29: Temporary Track Construction

7.5 Topsoil will then be removed from the route of the track to a temporary store, matting laid down, and the track material imported, as per the example below. These works need to take place when the soils are dry.

Photo 30: Temporary Site Access (North Hykeham Relief Road)

7.6 Temporary construction compounds in Parcels 1C and 10A are also proposed, as shown.

Insert 8: Location of Temporary Construction Compounds



Construction Methodology

7.7 Construction compounds are built by either matting over the top of the topsoil, or by stripping topsoil and storing that on the edge of the site. A matting is then laid down, and stone imported and levelled, as shown below.

Photo 31: Newly-laid Construction Compound (Elsham-Lincoln Pipeline)

7.8 The matting prevents the stone from mixing with the subsoil, as shown below.

Photo 32: Matting

7.9 Topsoil if removed will need to be stored short-term, such as shown below. If soils are still wet when moved, the storage should be no higher than 1m, but otherwise temporary storage can be up to 2m in height.

Photo 33: Topsoil Storage Example

Movement of Soils

7.10 The soils need to be sufficiently dry to handle. The works will be scheduled to start when soils should be dry.

7.11 Guidance on determining soils suitability to be handled is set out in the Good Practice Guide for Handling Soils, **Appendix SMP2** and in section 5.

7.12 As described in this oSMP, most of the soils across the site will be suitable for being moved for much of the year. However, after prolonged periods of rain and in the November to March period, the advice in section 5 on assessing suitability should be followed. Generally the programme seeks to avoid working the soils in this period.

7.13 The topsoils will be stripped to a depth of 30cm, and placed in short-term storage in locations not at risk of flooding.

7.14 Short term storage of soil is shown above. If the soil is likely to be stored for in excess of six months then, depending upon timing, it should be seeded with grass. This binds the soil together and minimises erosion.

7.15 Therefore if the construction compounds are not to be removed before the wet weather in the autumn, the bunds should be seeded with grass, as per the example below, at a suitable time of the year. The compound can then be reinstated after April the following year.

Photo 34: Grass-seeded Soil Storage

Removal

7.16 The removal of the construction compounds should be timed for dry weather. That will be before November or in the following spring.

7.17 At the end of the construction process, the aggregate will be removed. This can be seen in progress below.

Photo 35: Start of Restoration of Construction Compound

7.18 The base area should be loosened when soils are dry and the topsoil then spread over the site to the original depth. This should be lightly cultivated.

7.19 Panels can then be installed over the construction compound, or the area returned to agricultural use.

Land Quality Following Reinstatement

7.20 The soils will be returned to the same depth. The ALC grade will be unaffected. The Applicant commits to restoration back to comparable ALC grade.

8 SITE ACCESS, MAINTENANCE TRACKS AND TRANSFORMERS

Construction Methodology

8.1 Track construction involves removing the topsoil, normally to a depth of 20cm, and placing it to the side of the track (therefore enabling easy return to the same place on decommissioning). A geotextile membrane is then spread over the upper subsoil, and the track surface is laid onto this.

8.2 The small areas of fixed equipment will stand on a similarly-constructed hardstanding or concrete foundations, requiring some removal of soil to create the foundation.

Soil Management

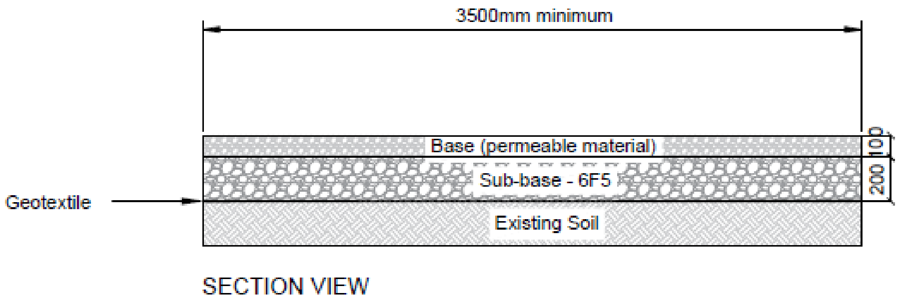
8.3 Soil should be stripped when the soil is sufficiently dry and does not smear. This is a judgement that is easily made. If the soils can be rolled into a sausage shape in the hand which is not crumbly, or if rubbing a thumb across the surface causes a smudged smooth surface (a smear), the soil is generally too wet to strip or move without risk of structural damage. Topsoil depths are consistent across the site and a stripping depth of 30cm will be a suitable maximum depth for topsoil in most cases, although rarely will it need to be stripped to such a depth. See section 5 for the tests.

8.4 Soil stripping should be carried out in accordance with Defra's "Construction Code of Practice for the Sustainable Use of Soils on Construction Sites" (Defra, 2009).

Construction Methodology: Membrane Tracks

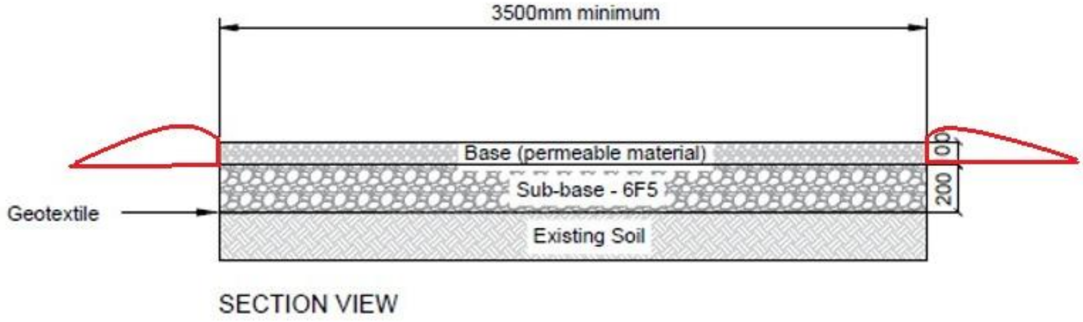
8.5 The access tracks are created by stripping off some or all of the topsoil (to a depth of 200mm) and then adding an aggregate-based surface. The aggregate will be placed onto a permeable membrane, which allows water penetration but which prevents the aggregate from mixing with the topsoils or upper subsoils. A cross-section is shown below.

Insert 9: Access Track Cross Section



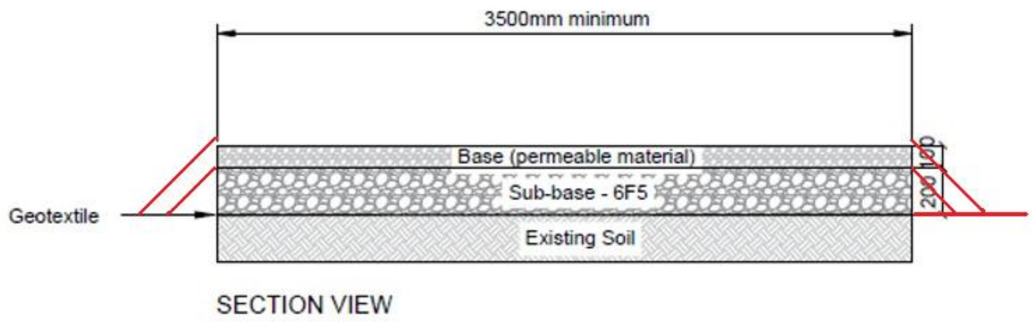
8.6 The topsoil from a 3 metre strip at 20cm depth equates to 0.6 cubic metre per metre run. This will be retained in a shallow, almost imperceptible, mound, adjacent to the tracks, as shown below, so that the soil is retained in the correct location for return and reinstatement.

Insert 10: Soil Storage Adjacent to the Tracks



8.7 In some areas, for areas for root protection for example, a no-dig solution will be used, constructed by building onto the existing soil.

Insert 11: No-dig Track



Transformers

8.8 The small areas of fixed equipment will stand on a gravel base area, as shown below. As these areas will be restored in the future, the construction is carried out as follows:

(i) topsoil to c20cm is removed. This will be stored in a low bund adjacent to the equipment, for use in future restoration;

(ii) a permeable terram layer is then laid;

(iii) the base of stone is then added, and forming put around before concrete is poured to create the pad, or stone is added to create the pad;

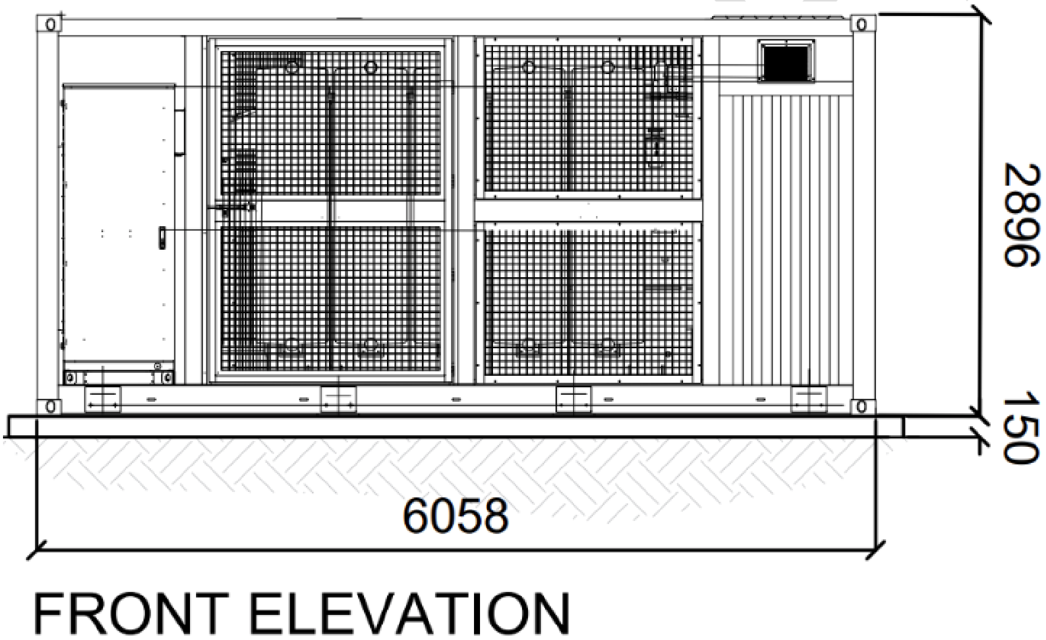
(iv) the equipment is then placed on top;

(v) further security fencing is added once the cabling and connections are complete.

8.9 A typical example of fixed equipment from an operating solar farm, is shown below, plus an extract from the approved application plan.

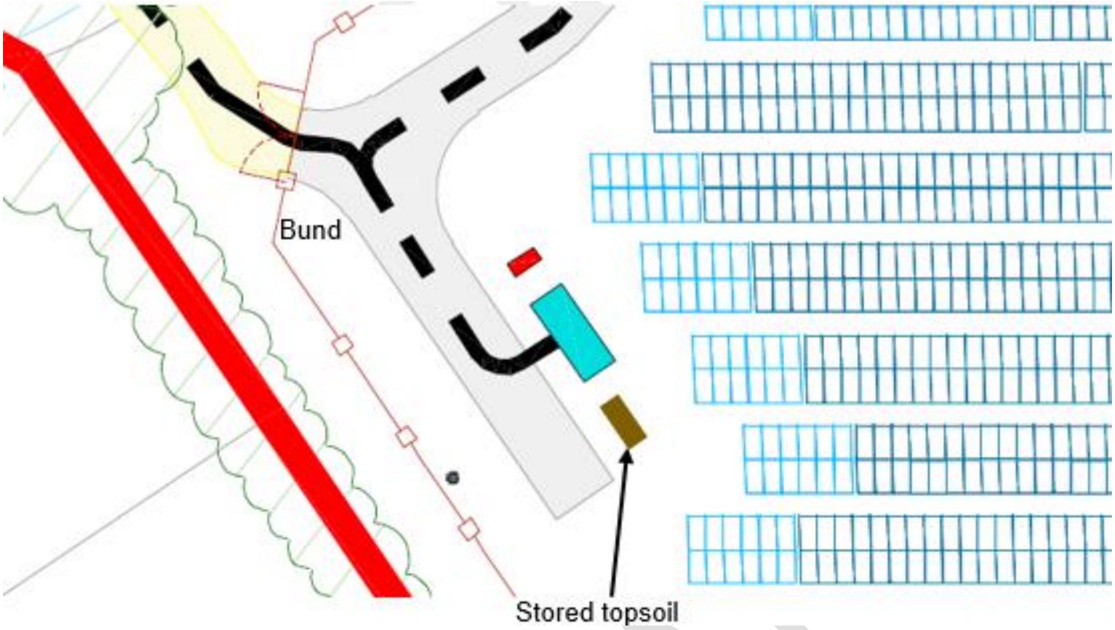
Photo 36: Typical Fixed Equipment Base Details

Insert 12: Excerpt from Approved Plans



8.10 The small amount of topsoil will be retained in shallow bunds, likely less than 1m high, such as indicated below.

Insert 13: Storage of Topsoil Adjacent to Transformers



Replacement

8.11 The soils will be replaced on decommissioning (see section 16) and the Applicant commits to restoration back to comparable ALC grade.

9 SOLAR ARRAYS AND ON-SITE TRENCHING

The Areas

9.1 The PV Arrays will be distributed across the Solar PV Site as shown on the application plans.

Construction Methodology

9.2 The installation should be carried out so far as is practicable and possible when the ground conditions are suitable. This will be possible for most of the year, but extra care will be needed between November and March, and this period should be avoided if possible. If conditions are suitable, this stage of the installation should create no soil structural damage or compaction, as shown below.

Photos 37 and 38: Ground After Construction

Soil Management

9.3 A suitability test, as described in section 5, should be used to determine suitability of the soils for working or access. In simple terms, if the soil is so wet that vehicles cause tyre marks, such as shown below, deeper than about 10cm when travelling across the land, conditions are not yet suitable.

Photo 39: Track Marks

9.4 In most years work access to the land is not restricted between March and November. Between those periods the ground conditions will normally be resilient to vehicle trafficking.

9.5 In winter periods the soils are more likely to be saturated, and the propensity to being damaged, albeit in a way capable of rectification, is greatest. As a general rule, vehicular travel in these periods should be limited as much as possible. It is recognised that rainfall is the factor that wets the soils, so a dry spring will offer different conditions to a wet spring, and this may mean that soil structural damage will inevitably result.

9.6 Work in suboptimal conditions should be minimised. The layout includes a network of access tracks and in most cases once legs have been installed, only small numbers of vehicle movements will be needed between each string of panels.

9.7 The machinery normally used is small, lightweight and tracked, and damage to soils will generally be minimal.

Photos 40 and 41: Example of Leg Piling and Panel Moving Equipment

9.8 Any surface disturbance will be limited (as shown above), will not result in deep compaction, and can be ameliorated easily in the spring, as described above.

9.9 It is very unlikely that trafficking during construction when soils are relatively dry will result in compaction sufficient to require amelioration. However, if rutting has resulted the soil should be levelled by standard agricultural cultivation equipment such as tine harrows, once the conditions suit, and prior to seeding. This can be done with standard agricultural machinery, or with small horticultural-grade machinery such as is shown below.

Photos 42 and 43: Horticultural Machinery

9.10 The objective is to get the surface to a level tilth for seeding/reseeding as necessary, as was shown earlier.

9.11 Grass growth will then recover or establish rapidly.

<u>Construction Methodology</u>

9.12 Cabling is done mostly with either a mini digger or a trenching machine. The cable routing areas are shown on the plans. Trenches will be at varying depths. An example trench, with the topsoil, placed on one side (0-30cm) and subsoil on the other (below 30cm), is shown below, and with the soil put back after cable installation. This methodology should be followed.

Photos 44 and 45: Cable Installation

9.13 It is important that topsoils are placed separately to the subsoils, and that they are then put back in reverse order, ie subsoils first.

9.14 The type of machinery used for trenching is shown below, taken from the BRE National Solar Centre “Agricultural Good Practice Guidance for Solar Farms” (2013).

Insert 14: Machinery Used (extract from BRE Good Practice Guidance)

Cable trenching, showing topsoil stripped and set to one side, with subsoil placed on the other side ready for reinstatement (photo courtesy of British Solar Renewables)

9.15 The trenches are narrow (mostly 40-70cm). In bare soils the trench can be cultivated with the wider area for seeding to grass post installation.

Photo 46: Grass After 4 Weeks (natural recovery)

(The photos in this section were taken on heavy, clay soils with poorly draining subsoil, and the work was photographed in July and August 2015)

<u>Soil Management</u>

9.16 All trenching work will be carried out when the topsoil is dry and not plastic (ie it can be moulded into shapes in the hand).

9.17 The top 30cm will be dug off and placed on one side of the trench, for subsequent restoration. There is no need to strip the grass first.

9.18 The subsoils will then be dug out and placed on the other side of the trench, as per the example below.

Photo 47: Subsoils Dug out of the Trench

9.19 Once the cable has been laid, the subsoils will be placed back in the trench. Where there is a clear colour difference within the subsoils, so far as practicable the lower subsoil will be put back first and the upper subsoil above that, which is likely to happen anyway as the lower soil is at the top of the pile. As set out in the ALC (extracts at **Appendix SMP1**) in most places there is no different lower subsoil.

9.20 If dry and lumpy the subsoils will be pressed down by the bucket to speed settlement. If the soils are settling well no pressing-down is required.

9.21 The topsoil will then be returned onto the top of the trench. It is likely, and right, that the topsoil will sit a few centimetres higher than the surrounding level. This should be left to allow it to settle naturally as the soils become wetter.

9.22 If there is a surplus of topsoil this may be because the lower subsoils were dry and blocky and there are considerable gaps in the soil. These will naturally restore once the lower soils become wet again. If the trench backfilling will result in the soil being more than 5-10cm proud of surrounding levels, which is unlikely but possible, the topsoil should not be piled higher. It should be left to the side, and the digger returned to add back the surplus soil once the trench has settled and add the rest of the topsoil onto the trench at that point.

9.23 Any excess topsoil should not be piled higher than 5 – 10cm above ground level.

9.24 If considered appropriate, a suitable grass seed mix could be spread by hand over any parts of the trenches that would seem likely to benefit from extra grass.

Restoration

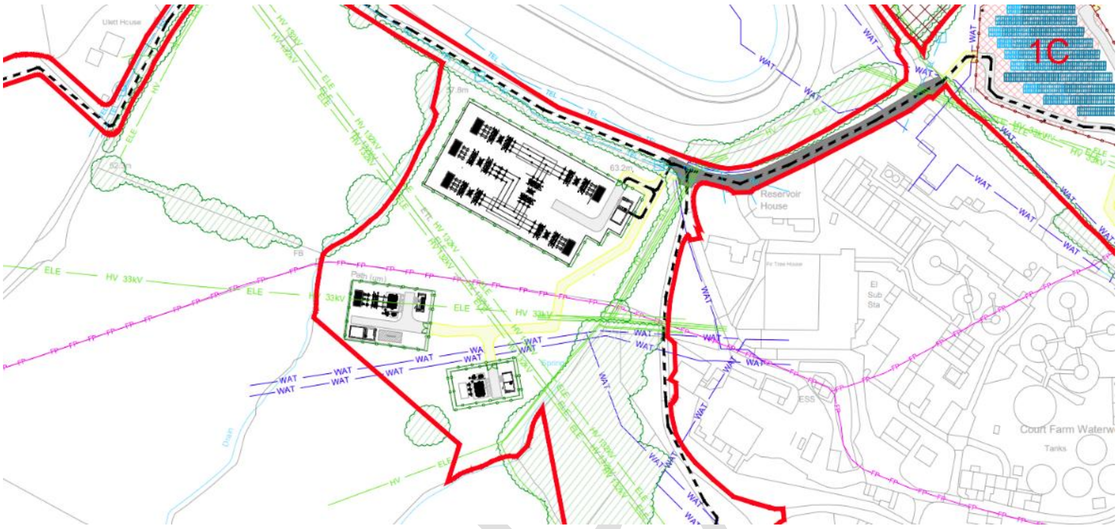
9.25 These works will restore the land without any adverse effects on ALC grade. The Applicant commits to restoration back to comparable ALC grade.

10 SUBSTATION

Location

10.1 The substation is proposed near the centre of the site, in an area of predictive subgrade 3b on the Welsh Government's Map, and is shown below.

Insert 15: Proposed Substation location



10.2 The location is on land predicted to be of poorer quality, and currently in rough grazing as shown below.

Insert 16: Google Earth, location for substation

The Works

10.3 The works include removing the topsoil, for storage, and in places removal of some of the subsoil. Bases and in places foundations will be built. The whole area will be restored on decommissioning.

10.4 The key is to remove and store the topsoil when conditions are right, following the principles set out in the oSMP. Long-term storage against the guidance in the Defra Code of Practice for the Sustainable Use of Soils on Construction Sites and IQ guidance Field Tests for Soil Sustainability (an extract is in **Appendix SMP2**) will ensure that soils remain in good condition for the duration of the operational period.

10.5 Subsoil must be stored separately to the topsoil.

10.6 Details of the location and size of the soil storage will be presented in the oSMP, including annual maintenance of the bunds.

Restoration

10.7 Further details are provided in section 15. The works will restore the land back to the comparable ALC grade, and the Applicant commits to achieving that.

11 SITE FENCING

The Areas

11.1 Fence designs can vary, but they all involve a post being inserted into the ground. Pole mounted internal facing closed circuit television (CCTV) systems are also likely to be deployed around the perimeter of the operational areas. Access gates will be of similar construction and height as the perimeter fencing.

Construction Methodology

11.2 The site fencing is proposed to be deer fencing. This can be erected at any time, if soil conditions allow. The following photographs show fencing installed early in the process.

Photos 48 and 49: The Fencing

11.3 Similarly CCTV poles are inserted in the same way.

Photos 50 and 51: CCTV Poles and Fencing

Soil Management

11.4 If the movement of vehicles is not causing significant rutting (i.e. more than 10cm), then fencing could be erected outside of the key working period.

11.5 Any rutting that results from fencing can be made good with standard agricultural equipment.

11.6 However lightweight fencing machinery, as per the example below, can usually be operated without damage to soils all year round.

Photo 52: Fencing Machinery

11.7 Generally limited vehicle damage, such as below, will not adversely affect soils or land quality.

Photo 53: Limited Machinery Impacts

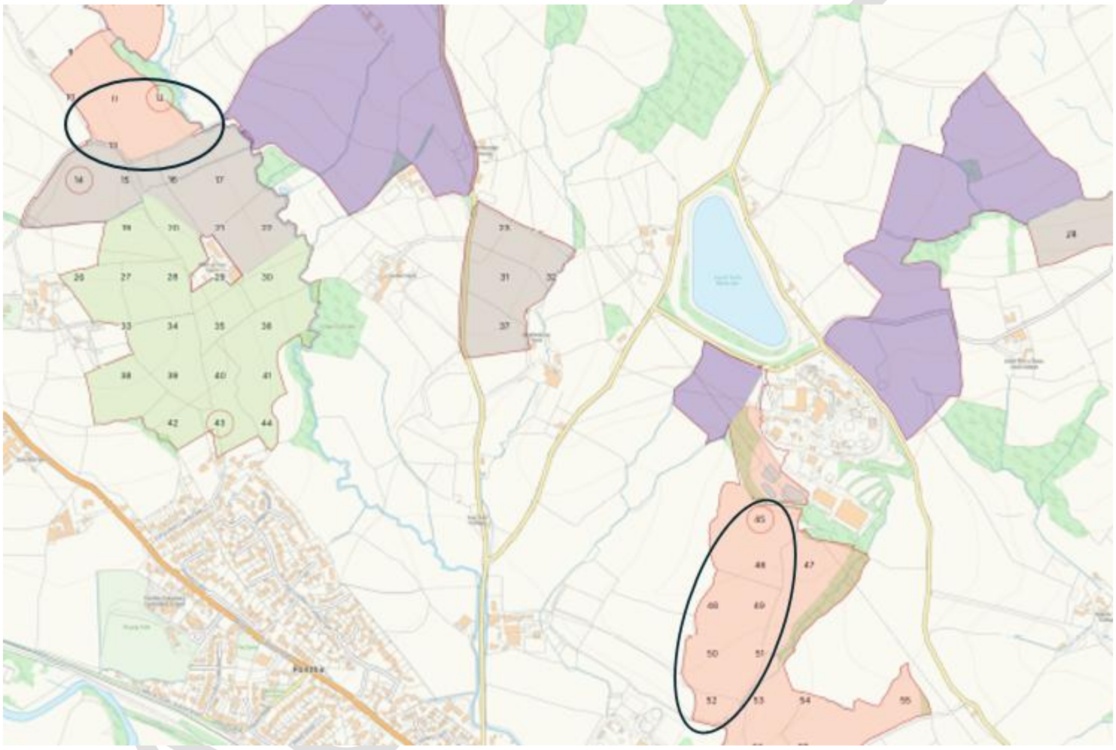
11.8 If greater levels of damage are resulting, works should be halted temporarily until soils dry further.

12 DRAINAGE

Known Field Drainage

12.1 There is the potential for parts of the site to have in place underfield drainage schemes. At the outset, prior to construction, all efforts will be made with landowners to identify historic maps and records of any known underfield schemes. From interviews with those managing the land, very limited and localised drainage exists. The only areas where landowners made us aware of underfield drainage are identified below.

Insert 17: Areas Where Some Underfield Drainage Is Known



Key Considerations

12.2 The extent to which there is the potential for an adverse effect will depend upon a number of factors including:

- the depth of drainage;
- the direction and spacing of any underdrainage;
- the extent to which the underdrainage is operational;
- the type of works being undertaken.

12.3 Further detailed investigation of the drainage will be needed before construction. Scanning for clay and plastic pipe field drainage is not possible, and the depth of drainage is not known.

12.4 The Agricultural and Horticultural Development Board advisory guide "Field Drainage Guide: principles, installations and maintenance" (2024) should be reviewed. This notes that given good maintenance a useful life of a system is at least 20 years, but some systems can last many decades longer (page 4 refers).

12.5 The key consideration in minimising the effects on under-field drainage is to identify the location and depth of the drainage. Page 11 sets out a methodology for identifying the location of field drainage.

<u>Effects on Land Quality</u>

12.6 The land classification system (Defra, updated 2025) assumes that "**where limitations can be reduced or removed by normal management operations or improvements, for example cultivations or the installation of an appropriate underdrainage scheme, the land is graded according to the severity of the remaining limitations**".

12.7 Consequently any adverse effects on field drainage will not result in a downgrading or change to the ALC grading of the site.

<u>Installing Cabling and Repairing Drains</u>

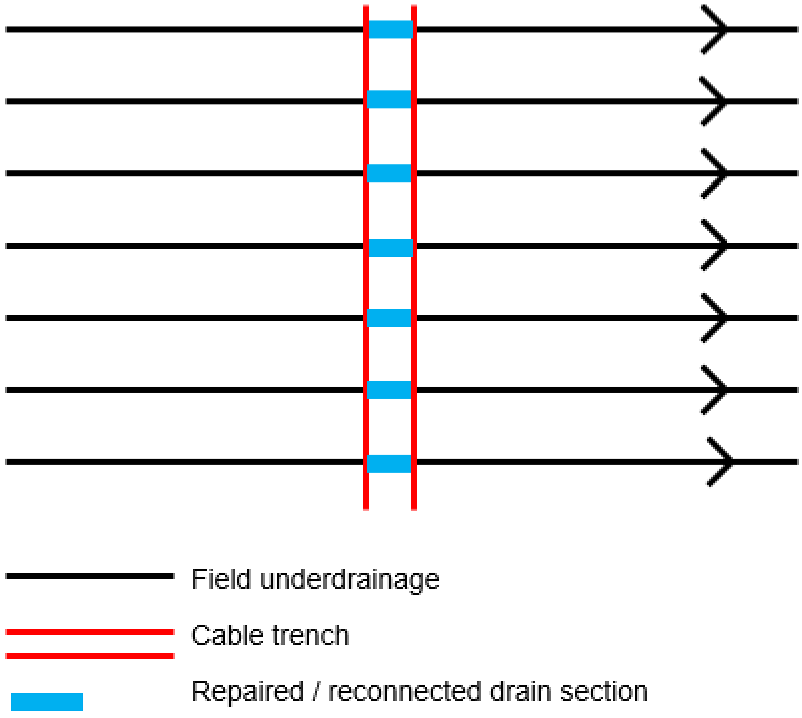
12.8 The installation of cabling will be supervised by an experienced advisor. He or she will know where to expect drainage, and will be able to identify if drainage pipes are broken as either clay pipe fragments or plastic pipe will be evident in the material dug out.

12.9 Those areas affected by cable damage will be repaired in one of two ways:

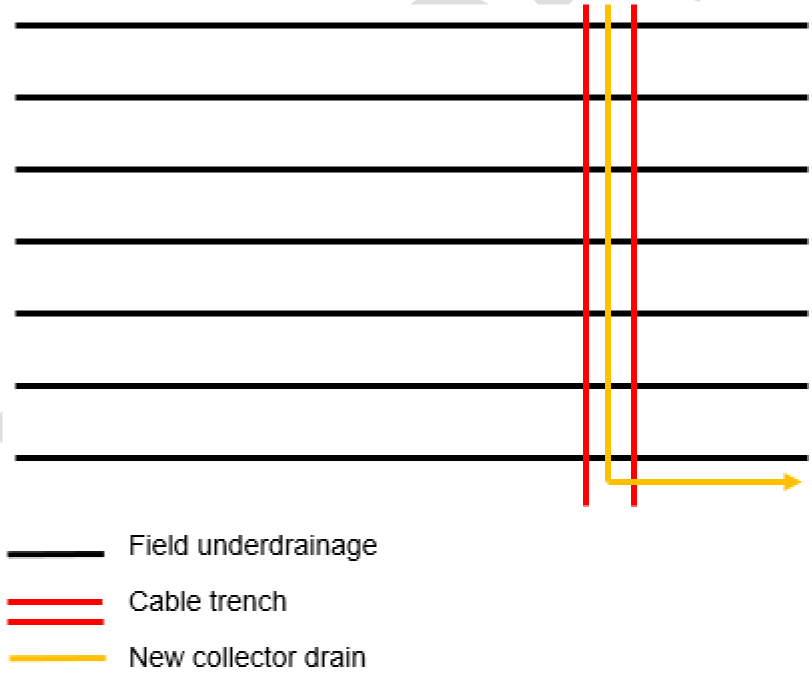
(i) either the individual drains will be reconnected with new sections across the pipe, as illustrated below;

(ii) or a collector drain will be laid along the cable trench and will then connect, at a low point, to a new drainage pipe to take water away.

Insert 18: Drainage System Repair Option



Insert 19: Drainage System Repair Option



Drains Affected by Piling

12.10 Drains affected by piling will be repaired locally, if required.

12.11 The purpose of under-field drainage is to help crop growth and to extend the time that land can be accessed. Drainage allows earlier and later access to the land, and evens out the drainage across the land to help with cultivations etc.

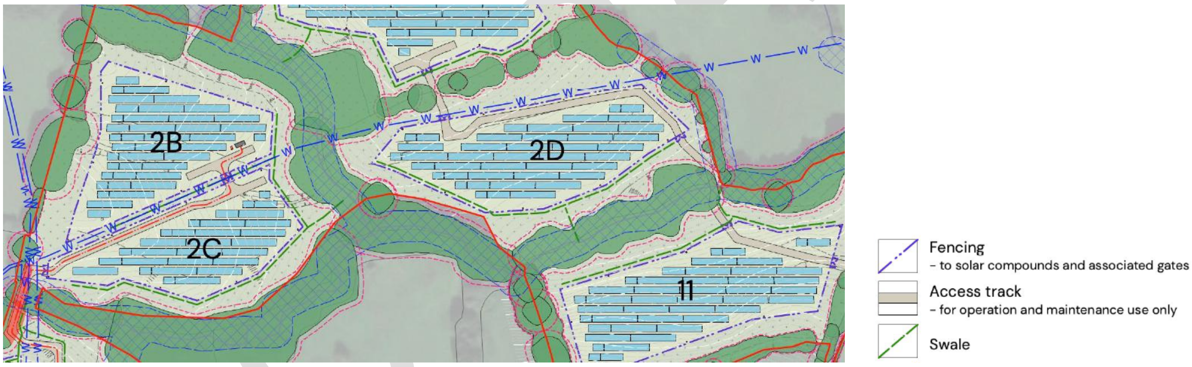
12.12 That is not important for the solar farm. Vehicular access is normally only needed in the summer months, when panels are cleaned. Having under-field drainage working is not, therefore, important unless there are areas of standing water due to broken drainage.

12.13 Localised wet areas where drainage has been impeded such that surface puddling occurs, will be repaired with new sections of plastic drainage pipes dug around the blocked section to connect the old system.

<u>Swales</u>

12.14 The Proposed Development allows for swales to be constructed along some of the fencelines, as indicated on the extract below from the Landscape Strategy Plan.

Insert 20: Excerpt from Landscape Strategy



12.15 Swales are simply shallow scrapes. The topsoil will be scraped off and placed immediately downhill of the swale so that, on decommissioning, the soil can simply be pulled back with a machine to infill the shallow swale indentation. This is illustrated in the photograph below.

Photo 54: Example of a swale

12.16 These small drainage features will not result in permanent land loss or downgrading of quality. On decommissioning the area will be harrowed to level any unevenness.

Monitoring

12.17 Two winter inspections after heavy rain will be carried out in years 1 and 2 following commissioning. Thereafter works will only be carried out if site engineers report problems.

13 ECOLOGICAL MITIGATION AREAS

13.1 There are no specific mitigation areas proposed but there are buffer areas for landscape and ecological purposes (i.e. PRoWs, woodland buffers etc). These will be planted with native grass mixes using standard agricultural equipment which should cause no damage subject to works being carried out in the right conditions.

Soil Management

13.2 A suitability test, as described in section 5, should be used to determine suitability of the soils for working or access. In simple terms, if the soil is so wet that vehicles cause tyre marks, such as shown below, deeper than about 10cm when travelling across the land, conditions are not yet suitable.

13.3 As shown on the Landscape Strategy (Pegasus Planning), a number of areas of native woodland are proposed. These will need to be planted during the winter when plants are dormant. Care will be needed with the delivery to avoid causing rutting soils during the planting period, and for any related fencing that will be added.

14 OPERATIONAL PHASE: LAND MANAGEMENT

Solar PV Arrays

14.1 The land around the Solar PV Arrays will be managed including potentially by the grazing of sheep.

14.2 Panels grazed by sheep tend to be free of weeds, as shown below.

Photo 55: Sheep Grazing Under Panels

14.3 Any localised weed treatment can be carried out at the appropriate time of the year using a quad-mounted sprayer, or by hand using a strimmer or knapsack sprayer.

Ongoing Maintenance

14.4 There are many different cleaners on the market, some tractor based and some operated from smaller machines, such as below.

Photo 56: Cleaning of Solar Arrays

Source: Lightsource bp UK

14.5 The normal cleaning period is late Spring / early summer, so that panels are clean for the maximum light period, so soils are usually dry and damage is unlikely.

14.6 If vehicles, including farm vehicles, cause ruts in the soil these will naturally repair in time, especially as the land is grazed by sheep and their feet are excellent at levelling land. Alternatively a light harrow or rolling will restore the ruts, when the soil is still soft enough to roll but hard enough to not rut more.

Photo 57: Ruts Caused by Vehicles

14.7 If vehicles have caused rutting it is probably, as per the example above, only localised. In the photograph above this is a wet spot, and on the land either side of the ruts within the row there is no evidence of wheel indentation. If these areas are not levelled they will tend to sit with water in them.

14.8 Localised, small rutting should be repaired by either treading-in the edges with feet, by light rolling or harrowing, or adding a small amount of soil simply to fill-in the depression so that water does not collect there.

14.9 Deeper rutting will require either light harrowing in the drier period, or some soil adding, or both, before reseeding.

<u>Emergency Repairs</u>

14.10 For the duration of the operational phase there should be only localised and infrequent need to disturb soils, such as for repair of a cable. Any works involving trenching should be carried out, ideally, when the soils are dry but recognising that any works will be those of emergency repair, that may not be possible.

14.11 Accordingly if new cabling is needed and has to be installed in wet periods, it can be expected that the trench will look unsightly initially, such as the example below.

Photo 58: Trench During Wet Period

14.12 Any area disturbed should be harrowed or raked level once the soils have dried, and be reseeded. These areas will be small, and this can probably be done by hand.

Panel Damage

14.13 In the very unlikely event of panel damage, eg from storms or falling branches, an assessment will be needed to determine whether there has been any contamination from broken glass or other materials. If this is the case, the turf should be removed as this will remove within it the contamination, which will lie on the surface.

14.14 This will not result in a diminution of land quality. Turf production commonly removes circa 2cm of topsoil, and this will recover once the area has been resown to grass and over time.

15 DECOMMISSIONING PRINCIPLES

15.1 Given the length of time before decommissioning it is likely that the ALC methodology will have been amended by then. Further, unless we are successful as a world, climate change may have altered the seasons and rainfall patterns. Therefore this guidance is prefaced with a requirement for a suitably qualified soil scientist to revisit the site prior to decommissioning, and to update the guidance and timing.

15.2 The objective is to remove panels and restore all fixed infrastructure areas to return the land to the same ALC grade and condition as it was when the construction phase commenced.

<u>Removal of Panels</u>

15.3 A qualified soil scientist should advise prior to decommissioning time. The effects of climate change by the time of decommissioning may mean that these dates, applicable in 2026, are no longer applicable.

15.4 Once the panels have been unbolted and removed, the framework will then be a series of legs, as shown below.

Photos 59 and 60: The Framework

15.5 These will be removed by low-ground pressure machines, in a reverse operation to the installation. These machines will provide a pneumatic tug-tug-tug vertically upwards. This will break the seal between soil and leg, and once that surface tension is released the leg will come out easily.

15.6 The legs will be loaded onto trailers and removed.

15.7 There will be no significant damage to the soils, and no significant compaction.

Removal of Cables

15.8 Cables buried less than 1 metre deep will be removed. This is likely to need a trench to be dug. This will be done is done mostly with either a mini digger or a trenching machine. An example trench, with the topsoil placed one side (0-30cm) and subsoil on the other (below 30cm), is shown below, and with the soil put back after cable installation.

Photo 61: Example Trench

Photo 62: Topsoil Replaced

15.9 The type of machinery used for trenching is shown below, taken from the BRE National Solar Centre "Agricultural Good Practice Guidance for Solar Farms" (2013).

Insert 21: Machinery Used for Trenching

Cable trenching, showing topsoil stripped and set to one side, with subsoil placed on the other side ready for reinstatement (photo courtesy of British Solar Renewables)

15.10 Once the trench has been backfilled it can be left for cultivation with the rest of the field post removal of panels.

Removal of Fixed Infrastructure

15.11 Switchgear, such as that shown below, will need to be removed.

Photo 63: Switchgear

15.12 Low ground pressure vehicles, and cranes, will be needed to lift the decommissioned units onto trailers, and removed from site. An example is shown below.

Insert 22: Example of Low Ground Vehicles

Case Steiger Quadtrac used to deliver inverters and other heavy equipment to site under soft ground conditions (photo courtesy of British Solar Renewables)

15.13 Any concrete bases will need to be broken up. This will most likely involve breaking with a pneumatic drill to crack the concrete, after which it can be dug up and loaded onto trailers and removed.

15.14 The ground beneath the base may then benefit from being subsoiled, to break any compaction. This can be done by standard tractor-mounted equipment, such as the following examples.

Photos 64 and 65: Examples of Tractor Mounted Equipment

Tracks

15.15 The tracks will be the last fixed infrastructure removed. The tracks will have been used for vehicle travel during the decommissioning stage. The tracks will also be used for removal of material from the tracks themselves, which will be removed from the furthest point first.

15.16 The stone will be removed and any matting removal. The base will then be loosened by subsoiler or deep tine cultivators, depending on specific advice given by the soil expert at the time following and analysis of soil compaction and condition.

Reinstatement of Soils

15.17 Topsoil from the storage areas will then be returned and spread to the depth removed. The area will then be cultivated, probably in combination with the whole of each field.

Fences and Gates, and CCTV Cabling

15.18 The cabling be removed in the summer months, after the panels have been removed. This will involve a tractor and trailer. The CCTV cabling is shallow buried and will probably pull out without the need for trenching, but if required tranches will be dug, as described above, and replaced in order once the cables have been removed.

15.19 Fences and gates will be rocked by machinery and pulled out. The holes are generally small and will fill in easily, but the bucket could be used to loosen the surface so that soil fills the void, if there is a risk of injury from the small holes.

Cultivation

15.20 The fields will be handed back to the farmers. Whether they are handed back as grassland or sprayed off and cultivated, will be determined in discussions with each landowner.

Land Quality Following Decommissioning

15.21 The restoration will enable the land to be restored without loss of quality. The Applicant commits to restoration back to comparable ALC grade.

16 REFERENCES

- Defra (2009), Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.
- British Society of Soil Science (2022), Benefitting from Soil Management in Development and Construction.
- Institute of Quarrying (2021), Good Practice Guide for Handling Soils on Mineral Workings.
- Cornwall Council and Others (2022), Building on soil sustainability: principles for soils in planning and construction.
- Natural England (2022), Planning and Aftercare Advice for Reclaiming Land to Agricultural Use.
- BRE National Solar Centre (2014), Agricultural Good Practice Guidance for Solar Farms.
- AHDB (2024), Field Drainage Guide: principles, installations and maintenance.
- Defra (2025), Agricultural Land Classification of England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land (updated 2025).
- ISEP (December 2025), Solar PV on Agricultural Land: Essential Components of Environmental Assessments and Reports.
- ISEP (December 2025), Soil Health and Environmental Assessment.

Appendix SMP1

Amet Property Ltd ALC Report

Agricultural Land Classification
Candwr Solar Farm

Client: Candwr Solar Farm Ltd
Project: Candwr Solar Farm
Date: 2nd June 2026 – Issue 6
Issued By: James Fulton MRICS FAAV

CONTENTS

1. EXECUTIVE SUMMARY

1.1 This report assesses the Agricultural Land Classification (ALC) grading of 120.3Ha, of land at Court Farm, Ponthir, Monmouthshire.

1.2 The limiting factor found to be soil wetness, a combination of the climatic regime, soil water regime and texture of the top 25cm of the soil across the most of the site and a combination of droughtiness, stoniness and depth on small areas throughout the site.

1.3 The land is graded as follows:

Non-BMV on the predictive map:	51.4 Ha
Grade 2:	17.8 Ha
Grade 3a:	5.4 Ha
Grade 3b:	36.6 Ha
Grade 4:	6.2 Ha
Non-Agricultural:	2.9 Ha

2. INTRODUCTION

2.1 Amet Property Ltd have been instructed by Candwr Solar Farm Ltd to produce an Agricultural Land Classification (ALC) report on a 117.8-hectare site on land at Court Farm, Ponthir, Monmouthshire. The ALC report is being prepared to accompany a planning application to be submitted for installation and operation of ground mounted solar photovoltaic arrays with all associated works, equipment and infrastructure.

2.2 The report's author is James Fulton BSc (Hons) MRICS FAAV who has worked as a chartered surveyor, agricultural valuer, and agricultural consultant since 2004, has a degree in agriculture which included modules on soils and over 10 years' experience in advising farmers on soil structure and cultivation methods and in producing agricultural land classification reports. Additional information on authors experience is found at ***appendix 1***.

2.3 The report is based on 3 site surveys conducted by two surveyors on the 11th February 2023, 1st March 2025 and 7th of June 2025. Conditions during all visits were dry and sunny with soils moist for the first two visits but dry for the final visit. The surveys were carried out as three separate reports and have now been compiled into a single report. Prior to the first survey advice was sought from LQAS and areas that were shown to be non-BMV on the predictive map have not been surveyed.

2.4 During the inspections 5 trial pits were dug to a depth of 120cm, or as deep as possible if the sample point became impenetrable. In addition to the trial pits an auger was used to take approximately one sample per hectare on the proposed development site to a depth of 120cm with smaller trial pits at some of these locations to confirm soil structure and colour where it was not clear from the auger samples. A plan of auger points and trial pit locations can be found at ***appendix 2***. The trial pit locations were selected as they were representative of the soils found on site. Where subsoils were inspected with a spade, descriptions of structure have been recorded based on the soil survey field handbook[1]; where an auger has been used the structure is described as good, moderate or poor based on figure 9,10 and 11 in the MAFF[2] guidance. Colours are described using Munsell Colours[3].

2.5 The area extends to 120.3Ha of which the surveyed area makes up 66ha of arable and grassland. The site is located at Court Farm, Ponthir, Monmouthshire.

2.6 Further information has been obtained from the MAGIC website, the Soil Survey of England and Wales, the British Geological Survey, the Meteorological Office and the WAG Predictive ALC map for Wales.

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[1] Hodgson, JM (1997) Soil Survey Field Handbook

[2] MAFF (1988) - *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.* MAFF Publications

[3] Munsell Color (2009) Munsell Soil Color Charts

2.7 The collected information has been judged against the Ministry of Agriculture Fisheries and Food Agricultural Land Classification of England and Wales revised guidelines and criteria for grading the quality of agricultural land.

2.8 The principal factors influencing agricultural production are climate, site and soil and the interaction between them MAFF (1988) & Natural England (2012)[4].

2.9 The report is prepared and formatted considering the latest BSSS guidance[5].

3. Published Information

3.1 The British Geological Survey 1:50,000 scale map shows the bedrock geology on the western blocks to be largely Raglan Mudstone Formation – Mudstone and sandstone, interbedded. The bedrock geology in the northeast corner of the block is shown to be Downton Castle Sandstone Formation – sandstone. The area surrounding the ford along the eastern boundary of the block is shown to have the bedrock geology of Raglan Mudstone Formation – Mudstone and sandstone, interbedded with superficial deposits of Alluvium – clay, silt, sand and gravel.

The central block is shown to have bedrock geology to be Raglan Mudstone Formation – Mudstone and sandstone, interbedded.

The eastern block is shown to have bedrock geology to be Raglan Mudstone Formation – Mudstone and sandstone, interbedded.

The southern block is shown to have bedrock geology of Raglan Mudstone Formation – Mudstone and sandstone, interbedded with superficial deposits of Alluvium – clay, silt, sand and gravel.

3.2 The soils on the western block of the site are identified as being 541a MILFORD Association, well drained fine loamy reddish soils over rock, in the north of the block. The soils in the east of the block are identified as being 561c ALUN Association, deep stoneless permeable coarse loamy soils. The soils in the south of the block are identified as being 541a MILFORD Association, well drained fine loamy reddish soils over rock.

The soils on the central block are identified as being 541a MILFORD Association, well drained fine loamy reddish soils over rock.

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[4] MAFF (1988) - *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land.* MAFF Publications

Natural England (2012) - *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition

[5] BSSS (2022) Working with Soil Guidance Note on Assessing Agricultural Land Classification Surveys in England and Wales

The soils on the eastern block are identified as being 541a MILFORD Association, well drained fine loamy reddish soils over rock.

The soils on the southern block are identified as being 561c ALUN Association, deep stoneless permeable coarse loamy soils.

3.3 The Predictive Agricultural Land Classification maps for Wales shows the western block to be Grade 3b in the northwest and Grade 2 in the northeast. The south is shown to be Grade 3b, Grade 3a in the west, Grade 2 in the southeast and a small patch on the eastern boundary of Grade 1.

The central block near is shown to be Grade 2 with Grade 3b along the eastern boundary.

The eastern block is shown to be Grade 2 in the north, Grade 3b in the southeast and Grade 4 in the southwest.

The southern block is shown to be largely Grade 2 with patches in the north of grade 3b and an area to the south of Grade 1.

4. CLIMATE

4.1 Climate has a major, and in places overriding, influence on land quality affecting both the range of potential agricultural uses and the cost and level of production.

4.2 There is published agro-climatic data for England and Wales provided by the Meteorological Office, such data for the subject site is listed in the table below.

Agro-Climatic Data – Full details can be found at ***appendix 3***

Western block - Climatic data

Grid Reference	332411,193812
Altitude (ALT)	43
Average Annual Rainfall (AAR)	1106
Accumulated Temperature - Jan to June (ATO)	1497
Duration of Field Capacity (FCD)	222
Moisture Deficit Wheat	80
Moisture Deficit Potatoes	66

Central block – Climatic data

Grid Reference	333102,193695
Altitude (ALT)	42
Average Annual Rainfall (AAR)	1077
Accumulated Temperature - Jan to June (ATO)	1498
Duration of Field Capacity (FCD)	217
Moisture Deficit Wheat	82
Moisture Deficit Potatoes	69

Eastern block – Climatic data

Grid Reference	334314,193775
Altitude (ALT)	27
Average Annual Rainfall (AAR)	1026
Accumulated Temperature - Jan to June (ATO)	1514
Duration of Field Capacity (FCD)	209
Moisture Deficit Wheat	86
Moisture Deficit Potatoes	74

Southern block – Climatic data

Grid Reference	333659,192421
Altitude (ALT)	11
Average Annual Rainfall (AAR)	1027
Accumulated Temperature - Jan to June (ATO)	1534
Duration of Field Capacity (FCD)	210
Moisture Deficit Wheat	88
Moisture Deficit Potatoes	77

4.3 The main parameters used in assessing the climatic limitation are average annual rainfall (AAR), as a measure of overall wetness; and accumulated temperature (ATO), as a measure of the relative warmth of a locality.

4.4 The AAR and ATO provide climatic limitation to Grade 1.

4.5 The site is shown to be in flood zone 1 – areas with a less than 1 in 1000 annual chance of flooding. There was no evidence of flooding seen during the site visit and it is considered that will not result in a limitation to land grade.

5. STONINESS

5.1 While there are substantial areas with stone in the topsoil, occasionally limiting areas to Grade 2, it is never the most limiting factor.

6. DEPTH

6.1 The depth to overlying consolidated or fragmented rock which cannot be penetrated satisfactorily limits the grade in some areas to between grade 2 and grade 3b but this is never the most limiting factor

7. GRADIENT AND MICRORELIEF

7.1 Most of the site is gently sloping with no gradient or microrelief that limits land grade. However, there are areas across the site that are steeper and limit these areas to Grade 3b but these areas are equally limited by other factors and so it is never the single most limiting factor.

8. SOILS

8.1 Full information on the sample points along with trial pit descriptions and photographs and lab test results can be found at ***appendix 4***. There were two soil types identified on the site.

SOIL TYPE 1 Clay loam or silty clay loam over poorly structured slowly permeable clay loam or clay, sometimes shallow over stone

8.2 The topsoil was found to be a brown (10YR 5/3), dark brown (7.5YR 3/4), dark reddish brown (5YR 3/4), reddish brown (5YR 4/3) clay loam or silty clay loam with few ochreous mottles.

8.3 The upper subsoils had the texture of clay loam or silty clay loam. The colours were found to be light brownish grey (10YR 6/2), yellowish red (5YR 5/6), reddish brown (5YR 4/4). The subsoil had a poor structure and were gleyed or reddish soils and slowly permeable.

8.4 Where a second subsoil was found the texture was found to be silty clay loam in the northwest, yellowish red (5YR 5/6) with a poor structure. Stone was found from 40cm at sample points 9, 13, 14.

SOIL TYPE 2 – Clay loam or silty clay loam over moderately structured permeable clay loam or silty clay loam, sometimes shallow over stone

8.5 The topsoil was found to be a brown (7.5YR 4/3), dark brown (7.5YR 3/4), dark reddish brown (5YR 3/4), reddish brown (5YR 4/3) clay loam or silty clay loam with few ochreous mottles.

8.6 The upper subsoils were found to have the texture of clay loam or silty clay loam. The colours were found to be brown (7.5YR 4/4), dark brown (7.5YR 3/4) or strong brown (7.5YR 5/6). The subsoil had a moderate structure.

8.7 Occasionally a second subsoil was found the texture was found to be coarse sandy loam, brown (7.5YR 4/4) with a good structure. Impenetrable stone was found at sample point.

INTERACTIVE FACTORS

9. Wetness

9.1 An assessment of the wetness class of each sample point was made based on the flow chart at Figure 6 and the graphs at Figure 7 and 8 in the MAFF guidance.

9.2 The wetness class assessment results in an assessment of wetness class I where the subsoil is not gleyed and slowly permeable and wetness class IV where the subsoil is gleyed and slowly permeable.

9.3 The wetness class and topsoil texture were then assessed against Table 6 of the MAFF guidance to determine the ALC grade according to wetness. The wetness assessment can be found at ***appendix 4***.

9.4 Wetness was shown to be the limiting factor across the majority of the site.

10. DROUGHTINESS

10.1 Droughtiness limits are defined in terms of moisture balance for wheat and potatoes using the formula:

MB (Wheat) = AP (Wheat) - MD (Wheat)

and

MB (Potatoes) = AP (Potatoes) - MD (Potatoes)

Where:
MB = Moisture Balance
AP = Crop Adjusted available water capacity
MD = Moisture deficit

10.2 Moisture deficit for wheat and potatoes can be found in the agro-climatic data and are as follows:

MD (Wheat) = 80-88
MD (Potatoes) = 66-77

10.3 Crop adjusted available water is calculated by reference to the total available water and easily available water which is calculated by reference to soil texture and structural condition and the stone content.

10.4 The moisture balance was calculated for all survey points and this assessment can be found at ***appendix 4***.

10.5 Droughtiness was shown to be the limiting factor where soils were not slowly permeable with most significant limitations occurring where soils are shallow and stony.

11. AGRICULTURAL LAND CLASSIFICATION

11.1 The Agricultural Land Classification provides a framework for classifying land according to which its physical or chemical characteristics impose long-term limitations on agricultural use. The limitations can operate in one or more of four principle ways: they may affect the range of crops that can be grown, the level of yield, the consistency of yield and the cost of obtaining it.

11.2 The principle physical factors influencing agricultural production are climate, site and soil and the interactions between them which together form the basis for classifying land into one of 5 grades; grade 1 being of excellent quality and grade 5 being land of very poor quality. Grade 3 land, which constitutes approximately half of all agricultural land in the United Kingdom is divided into 2 subgrades – 3a and 3b. A full definition of all of the grades can be found at ***appendix 5.***

11.3 This assessment sets out that the site is limited by wetness, droughtiness, stoniness and depth.

11.4 The breakdown of land by classification is:

Non-BMV on the predictive map:	51.4 Ha
Grade 2:	17.8 Ha
Grade 3a:	5.4 Ha
Grade 3b:	36.6 Ha
Grade 4:	6.2 Ha
Non-Agricultural:	2.9 Ha

11.5 A plan of the land grading can be found at ***appendix 6***.

Appendix 1 – Details of the Authors Experience

James Fulton

Professional Education and Qualifications

BSc (Hons) Agriculture, University of Nottingham (2004)

Member of the Royal Institution of Chartered Surveyors (MRICS) (2008)

Fellow of the Central Association of Agricultural Valuers (FAAV) (2009)

Relevant Work Experience

While working for a regional firm from 2004 until 2016 as part of my work I provided advice to farmers on soils, cultivation techniques and cropping and was involved in field trials which assessed cropping and cultivation techniques and how they impacted soil structure. At the same time I worked alongside an experienced surveyor who produced Agricultural Land Classification reports and I received training in field survey techniques and the ALC process to the point where I was able to produce ALC reports.

In 2016 I left my employer and formed Amet Property Ltd providing development consultancy and other rural practice surveying services. Of all of the services that we provide Agricultural Land Classification reports is the single largest area of work accounting for approximately 70% of all of my working time.

While I am not a member of the BSSS I meet the minimum competencies set out by the BSSS in Document 1 *Foundation skills in field soil investigation, description and interpretation* and Document 2 *Agricultural Land Classification (England and Wales)*

Professional Standards

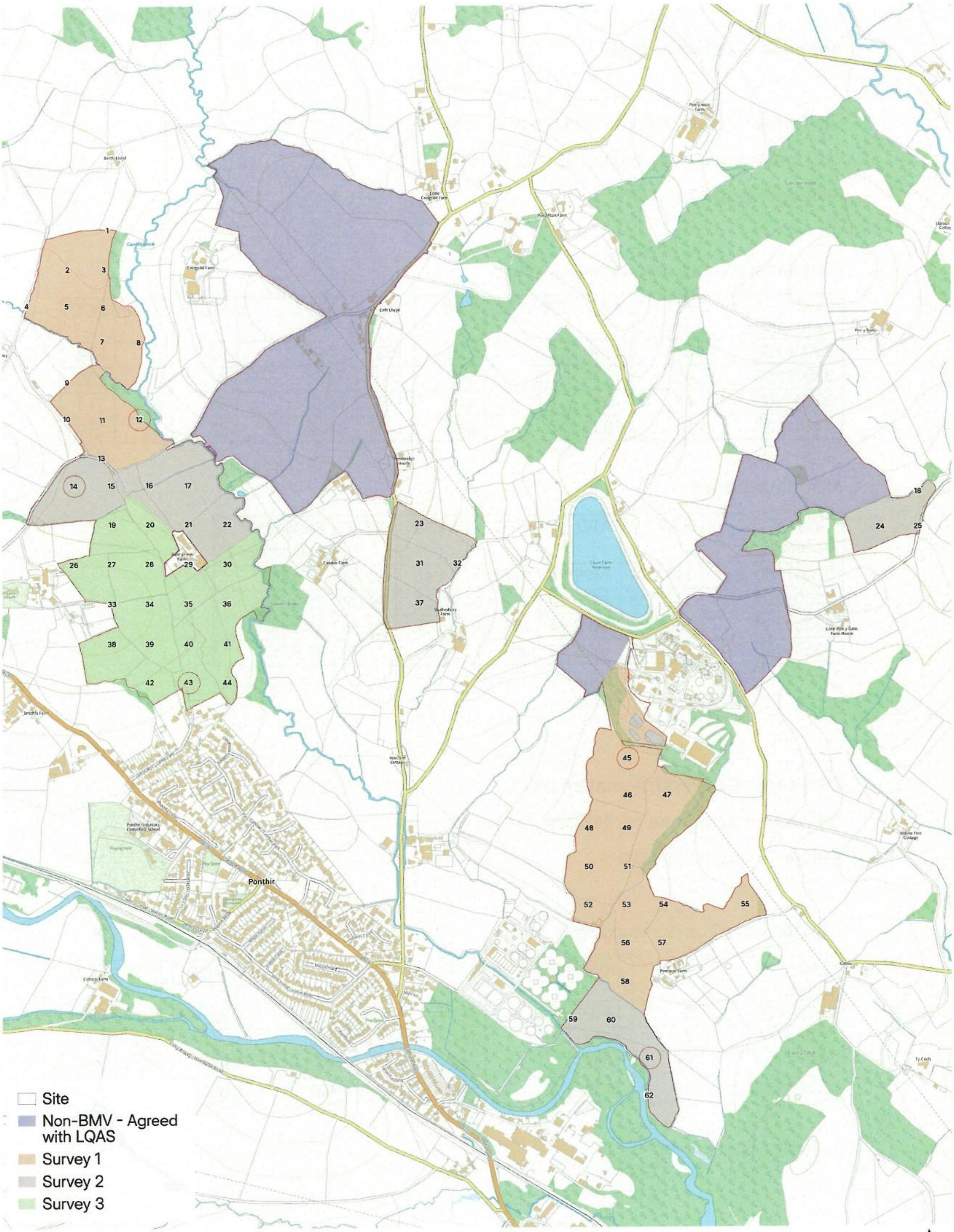
As a member of the Royal Institution of Chartered Surveyors and Fellow of the Central Association of Agricultural Valuers I am bound by their professional standards and am only able to carry out work where I am suitably qualified and experienced to do so. Due to the formal and practical training that I have received I am able to competently produce Agricultural Land Classification reports.

Assistant Surveyors

All assistant surveyors have completed the BSSS working with soil course and have been trained to meet the requirements of BSSS Document 1 *Foundation skills in field soil investigation, description, and interpretation.*

Appendix 2 - Map of Survey Points

Land App



Produced on Land App, Jun 2, 2026.

100 m
Scale 1:6000 (at A2)
N

Appendix 3 – Climatic Data

Site Details: Court Farm – central block

Grid reference (centre of site): 333102,193695

Altitude: Mean 42.25 AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
33001900	8	1140	1.6	520	1539	2458	82	70	228
33001950	40	1174	1.5	540	1501	2416	76	62	233
33501900	65	1031	1.1	475	1473	2387	82	69	211
33501950	51	1033	1	480	1487	2402	83	70	210

Altitude Adjusted:

Grid Reference	AAR	ATO	FCD	MDW	MDP	Proximity Adjustment
33001900	1194.80	1499.96	235.92	74.65	60.38	11.38%
33001950	1177.38	1498.44	233.49	75.53	61.39	23.38%
33501900	1005.98	1498.94	207.38	86.09	74.36	15.34%
33501950	1024.25	1496.98	208.73	84.51	71.98	49.90%

Site Details: Court Farm – eastern block

Grid reference (centre of site): 334314,193775

Altitude: Mean 27.33 AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
33001900	8	1140	1.6	520	1539	2458	82	70	228
33001950	40	1174	1.5	540	1501	2416	76	62	233
33501900	65	1031	1.1	475	1473	2387	82	69	211
33501950	51	1033	1	480	1487	2402	83	70	210

Altitude Adjusted:

Grid Reference	AAR	ATO	FCD	MDW	MDP	Proximity Adjustment
33001900	1170.93	1516.96	232.47	77.85	64.57	4.64%
33001950	1155.00	1515.44	230.25	78.63	65.44	7.59%
33501900	989.56	1515.94	205.01	88.77	77.88	10.36%
33501950	1009.33	1513.98	206.58	87.09	75.37	77.41%

Site Details: Court Farm – southern block

Grid reference (centre of site): 333599,192881

Altitude: Mean 29.82 AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
33001900	8	1140	1.6	520	1539	2458	82	70	228
33001950	40	1174	1.5	540	1501	2416	76	62	233
33501900	65	1031	1.1	475	1473	2387	82	69	211
33501950	51	1033	1	480	1487	2402	83	70	210

Altitude Adjusted:

Grid Reference	AAR	ATO	FCD	MDW	MDP	Proximity Adjustment
33001900	1174.91	1514.13	233.05	77.32	63.87	13.19%
33001950	1158.73	1512.61	230.79	78.11	64.77	16.07%
33501900	992.30	1513.11	205.40	88.32	77.30	27.31%
33501950	1011.82	1511.15	206.94	86.66	74.80	43.43%

Site Details: Court Farm – western block

Grid reference (centre of site): 332411,193812

Altitude: Mean 43.29 AOD

Climatic data from surrounding locations:

Grid Reference	ALT	AAR	LR_AAR	ASR	ATO	ATS	MDW	MDP	FCD
33001900	8	1140	1.6	520	1539	2458	82	70	228
33001950	40	1174	1.5	540	1501	2416	76	62	233
33501900	65	1031	1.1	475	1473	2387	82	69	211
33501950	51	1033	1	480	1487	2402	83	70	210

Altitude Adjusted:

Grid Reference	AAR	ATO	FCD	MDW	MDP	Proximity Adjustment
33001900	1196.46	1498.77	236.16	74.43	60.09	13.73%
33001950	1178.94	1497.25	233.71	75.32	61.11	38.68%
33501900	1007.12	1497.75	207.55	85.90	74.12	13.16%
33501950	1025.29	1495.79	208.89	84.33	71.75	34.43%

Appendix 4a - Sample Point Assessment

Sample No	Altitude	Topsoil Depth	Topsoil Texture	Topsoil Colour	Stoniness <2cm	Stoniness 2-6cm	Stoniness >6cm	Mottles	Upper Subsoil Depth	Texture	Colour	Stoniness	Mottles	Structure	Lower Subsoil Depth	Texture	Calc	Colour	Stoniness	Mottles	Structure	Wetness Assesment Depth to Gleyed	SPL	Wetness Class	Grade limit by Wetness	Droughtiness Assessment MB Wheat	MB Potato	Grade limit by Droughtiness	Most limiting Grade
1	55	0 - 30	MCL	10YR 4 / 3	5%	10%			30 - 60	MZCL	10YR 4 / 6		CB	Moderate	60 - 120	Stone					Poor			I	2	13.35	32.35	2	2
2	51	0 - 30	MCL	5YR 4 / 4		5%			30 - 50	MZCL	7.5YR 4 / 4		CGB	Moderate	50 - 120	Stone					Poor			I	2	8.95	21.45	2	2
3	53	0 - 30	MCL	10YR 4 / 3		5%			30 - 60	MZCL	10YR 4 / 6		CB	Moderate	60 - 120	Stone					Poor			I	2	18.45	37.45	2	2
4	42	0 - 30	MCL	5YR 4 / 4		5%			30 - 120	ZC	5YR 4 / 4		CGB	Moderate										I	2	57.45	45.45	1	2
5	44	0 - 30	MCL	5YR 4 / 4		5%			30 - 120	MZCL	5YR 4 / 4		CGB	Moderate										I	2	75.45	53.45	1	2
6	34	0 - 30	MCL	10YR 4 / 3		5%			30 - 55	C	2.5Y 6 / 2		MOB	Poor	55 - 120	Stone					Poor	30	30	IV	3b	4.20	19.45	3a	3b
7	38	0 - 30	MCL	10YR 4 / 3		5%			30 - 70	MZCL	5YR 4 / 4		CB	Moderate	70 - 120	Stone					Poor			I	2	27.95	53.45	2	2
8	34	0 - 30	MCL	10YR 4 / 3		5%			30 - 120	MZCL	10YR 5 / 3		cob	Poor								30	30	IV	3b	37.45	33.45	1	3b
9	37	0 - 30	MCL	10YR 4 / 3					30 - 60	C	10YR 6 / 3		CB	Poor	60 - 120	C		5YR 4 / 4		CGB	Poor	30	30	IV	3b	49.00	40.00	1	3b
10	44	0 - 30	MCL	10YR 4 / 3					30 - 120	ZC	5YR 4 / 4		CB	Moderate										I	2	60.00	48.00	1	2
11	38	0 - 30	MCL	10YR 4 / 3					30 - 120	ZC	5YR 5 / 3		COGB	Poor								30	30	IV	3b	47.00	36.00	1	3b
12	31	0 - 25	MZCL	10YR 4 / 3					25 - 120	C	2.5Y 5 / 2		MOB	Poor								25	25	IV	4	49.00	40.00	1	3b
13	39	0 - 30	HZCL	10YR 4 / 3					25 - 120	ZC	5YR 3 / 3		COGB	Poor								reddish	25	IV	4	56.00	45.00	1	4
14	46	0 - 25	HZCL	10YR 5 / 3				FO	25 - 45	HZCL	10YR 6 / 2		CO	Poor	45 - 120	HZCL	N	5YR 5 / 6		CBG	Poor	25	25	IV	4	39.50	35.50	1	4
15	38	0 - 25	HZCL	10YR 5 / 3				FO	25 - 120	HZCL	5YR 5 / 6		FB	Poor								reddish	25	IV	4	39.50	35.50	1	4
16	27	0 - 35	HZCL	7.5YR 3 / 4				FO	25 - 120	Stone				Poor										I	3a	-7.50	5.00	3a	3a
17	32	0 - 25	HZCL	7.5YR 3 / 4				FO	30 - 40	HZCL	7.5YR 4 / 4		CGB	Moderate	40 - 120	Stone					Poor			I	3a	-11.00	1.50	3a	3a
18	23	0 - 25	MCL	7.5YR 3 / 4		10%		FB	25 - 120	MZCL	7.5YR 5 / 6		FB	Moderate										I	2	67.25	43.25	1	2
19	43	0 - 30	MCL	10YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		FB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
20	38	0 - 30	MCL	5YR 4 / 3		5%		FB	30 - 120	MZCL	5YR 4 / 4		FB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
21	32	0 - 25	HZCL	7.5YR 3 / 4		10%		FO	25 - 40	HZCL	10YR 6 / 2		CO	Poor	40 - 120	Stone					Poor	25	25	IV	4	-14.50	-2.00	3a	4
22	14	0 - 25	HZCL	7.5YR 3 / 4		10%		FO	25 - 40	HZCL	10YR 6 / 2		CO	Poor	40 - 120	Stone					Poor	25	25	IV	4	-14.50	-2.00	3a	4
23	48	0 - 30	MCL	5YR 3 / 4		5%		FB	30 - 120	MCL	5YR 4 / 4		CBG	Poor								reddish	30	IV	3b	42.45	30.45	1	3b
24	28	0 - 25	MCL	7.5YR 3 / 4		10%		FB	25 - 120	MZCL	7.5YR 5 / 6		FB	Moderate										I	2	67.25	43.25	1	2
25	31	0 - 20	MCL	5YR 3 / 4		10%		FB	20 - 60	mSZL	7.5YR 3 / 4		CBG	Moderate	60 - 120	Stone					Poor			I	2	11.60	27.60	2	2
26	57	0 - 25	MCL	10YR 4 / 3		10%		FB	25 - 120	Stone				Poor										I	2	-33.25	-20.75	3b	3b
27	58	0 - 30	MCL	10YR 4 / 3		10%		FB	30 - 70	MZCL	5YR 4 / 4		FB	Moderate	70 - 120	Stone					Poor			I	2	25.40	50.90	2	2
28	53	0 - 30	MCL	5YR 4 / 3		5%		FB	30 - 120	Stone				Poor										I	2	-23.05	-10.55	3b	3b
29	42	Non Agricultural																											
30	29	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 40	MCL	7.5YR 4 / 4		CB	Good	40 - 120	Stone					Poor			I	2	-3.05	9.45	3a	3a
31	46	0 - 30	MCL	5YR 4 / 3		10%		FO	30 - 120	MCL	5YR 4 / 4		CBG	Poor								reddish	30	IV	3b	39.90	27.90	1	3b
32	34	0 - 30	MZCL	5YR 3 / 4		5%		FO	30 - 120	MZCL	5YR 4 / 4		CBG	Poor								reddish	30	IV	3b	38.30	33.30	1	3b
33	66	0 - 15	MCL	7.5YR 4 / 3		10%		FB	15 - 120	Stone				Poor										I	2	-48.55	-36.05	3b	3b
34	61	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		FB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
35	55	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		CGB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
36	44	0 - 30	MCL	7.5YR 4 / 3		10%		FB	30 - 60	HZCL	5YR 4 / 4	5%	CB	Poor	60 - 120	Stone					Poor	reddish	30	IV	3b	0.53	18.25	3a	3b
37	41	0 - 20	MCL	5YR 4 / 3		10%		FO	20 - 120	HZCL	5YR 4 / 4		CBG	Poor								reddish	20	IV	3b	28.60	23.60	2	3b
38	60	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		CB	Poor									30	IV	3b	37.45	33.45	1	3b
39	52	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		CB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
40	41	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		CB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
41	37	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	Stone				Poor										I	2	-23.05	-10.55	3b	3b
42	47	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		CB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
43	43	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	HZCL	5YR 4 / 4		CB	Poor								reddish	30	IV	3b	37.45	33.45	1	3b
44	49	0 - 30	MCL	7.5YR 4 / 3		5%		FB	30 - 120	ZC	5YR 4 / 4		CB	Poor								reddish	30	IV	3b	44.45	33.45	1	3b
45	48	0 - 30	MZCL	5YR 4 / 4					30 - 60	MZCL	5YR 4 / 4		CGB	Moderate	60 - 120	Stone					Poor	reddish		I	2	16.00	32.00	2	2
46	41	0 - 35	MZCL	5YR 4 / 4					35 - 120	ZC	5YR 4 / 4		CGB	Moderate								reddish		I	2	57.00	42.00	1	2
47	42	0 - 35	MZCL	5YR 4 / 4					35 - 120	ZC	5YR 4 / 4		CGB	Moderate								reddish		I	2	57.00	42.00	1	2
48	38	0 - 30	MCL	5YR 4 / 4					30 - 40	ZC	5YR 4 / 4		CGB	Moderate	40 - 120	Stone					Poor	reddish		I	2	-14.50	-5.00	3a	3a
49	35	0 - 30	MCL	5YR 4 / 4					30 - 45	ZC	5YR 4 / 4		CGB	Moderate	45 - 120	Stone					Poor	reddish		I	2	-7.50	2.00	3a	3a
50	33	0 - 30	MCL	5YR 4 / 4					30 - 40	ZC	5YR 4 / 4		CGB	Moderate	40 - 120	Stone					Poor	reddish		I	2	-14.50	-5.00	3a	3a
51	30	0 - 30	MCL	5YR 4 / 4					30 - 40	ZC	5YR 4 / 4		CGB	Moderate	40 - 120	Stone					Poor	reddish		I	2	-14.50	-5.00	3a	3a
52	28	0 - 30	MCL	5YR 4 / 4					30 - 40	ZC	5YR 4 / 4		CGB	Moderate	40 - 120	Stone					Poor	reddish		I	2	-14.50	-5.00	3a	3a
53	23	0 - 30	MCL	5YR 4 / 4					30 - 70	ZC	5YR 4 / 4		CGB	Moderate	70 - 120	Stone					Poor	reddish		I	2	14.50	37.00	2	2
54	23	0 - 25	MCL	5YR 4 / 4					25 - 120	Stone				Poor										I	2	-37.00	-27.50	3b	3b
55	39	0 - 30	MCL	5YR 4 / 4					30 - 120	Stone				Poor										I	2	-28.50	-19.00	3b	3b
56	24	0 - 25	MCL	5YR 4 / 4					25 - 120	Stone				Poor										I	2	-37.00	-27.50	3b	3b
57	28	0 - 30	MCL	5YR 4 / 4					30 - 70	MZCL	2.5YR 4 / 4		FB	Poor	70 - 120	Stone					Poor	reddish		I	2	4.50	25.00	3a	3a
58	26	0 - 25	MCL	5YR 4 / 4					25 - 120	Stone				Poor										I	2	-37.00	-27.50	3b	3b
59	12	0 - 30	MCL	7.5YR 4 / 3				FB	30 - 85	MCL	7.5YR 4 / 4		FOB	Moderate	85 - 120	Stone					Poor			I	2	34.75	41.00	1	2
60	12	0 - 35	MCL	7.5YR 4 / 3				FB	35 - 85	MCL	7.5YR 4 / 4		FOB	Moderate	85 - 120	Stone					Poor			I	2	35.75	42.00	1	2
61	11	0 - 35	MCL	7.5YR 4 / 3				FB	35 - 80	MCL	7.5YR 4 / 4		FOB	Moderate	80 - 120	cSL	N	7.5YR 4 / 4			Good			I	2	89.00	42.00	1	2
62	10	0 - 35	MCL	7.5YR 4 / 3				FB	35 - 80	MCL	7.5YR 4 / 4		FOB	Moderate	80 - 120	cSL	N	7.5YR 4 / 4			Good			I	2	89.00	42.00	1	2

Appendix 4b – Trial Pit Descriptions

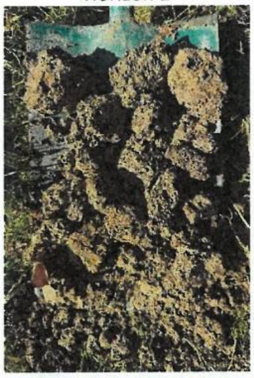
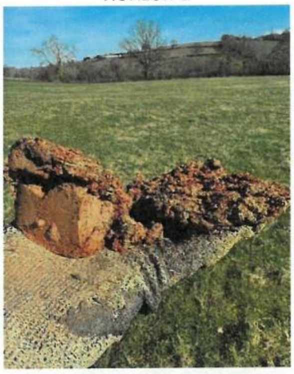
Survey 1

Sample Point No. 12		
Horizon 1	0-25 cm Brown (10YR 4/3) stoneless medium silty clay loam topsoil with a weak medium sub angular blocky structure.	
Horizon 2	25-120 cm – Greyish brown (2.5Y 5/2) stoneless clay subsoil with many ochreous and black mottles. Very weakly structured but coarse platy structure can be identified where a large lump is gently pulled apart.	
Pictures		
Horizon 1 	Horizon 2 	Horizon 2 cont 
Slowly permeable layer	25cm identified by the poorly structured clay subsoil with less than 0.5% biopores >0.5mm and ochreous mottles evidencing wetness	
Gleying	25cm evidenced by grey colours and ochreous mottles	
Wetness Class	IV	
Wetness limitation	3b	
MB Wheat	49	
MB potatoes	40	
Droughtiness Limitation	1	

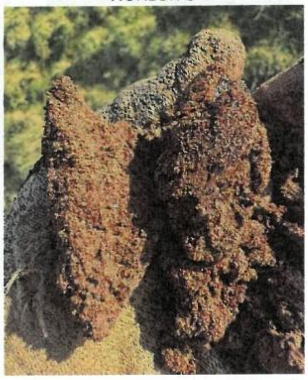
Sample Point No. 45		
Horizon 1	0-30cm Reddish brown (5YR 4/4) stoneless medium silty clay loam topsoil with a weak fine sub angular blocky structure	
Horizon 2	30-60cm Reddish brown (5YR 4/4) stoneless medium silt clay loam subsoil with common grey and black mottles. Structure is medium angular blocky but with a coarse platy section at the top of the horizon likely caused by mechanical compaction.	
Horizon 3	60cm – Impenetrable to further digging or augering with hand tools due to presence of broken bedrock layer.	
Pictures		
Horizon 1 	Horizon 2 	Horizon 3 
Slowly permeable layer	Not present	
Gleying	Not present	
Wetness Class	I	
Wetness limitation	2	
MB Wheat	16	
MB potatoes	32	
Droughtiness Limitation	2	

Survey 2

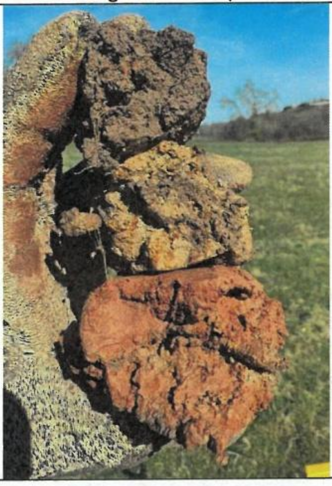
Sample Point No. 14	
Horizon 1	0-25cm – Brown (10YR 5/3) Heavy silty clay loam (HZCL) stoneless topsoil with few ochreous (FO) mottles and a medium sub angular blocky structure (MSAB).
Horizon 2	25-45cm – Light brownish grey (10YR 6/2) heavy silty clay loam (HZCL) stoneless upper subsoil with common ochreous (CO) mottles and a weak coarse angular blocky (CAB) structure with firm consistence.
Horizon 3	45 - 120cm – Yellowish red (5YR 5/6) heavy silty clay loam (HZCL) stoneless lower subsoil with common black and grey (CBG) mottles and a coarse platy (CP) structure with a firm consistence.
Pictures	

Horizon 1	Horizon 2	Horizon 3
		

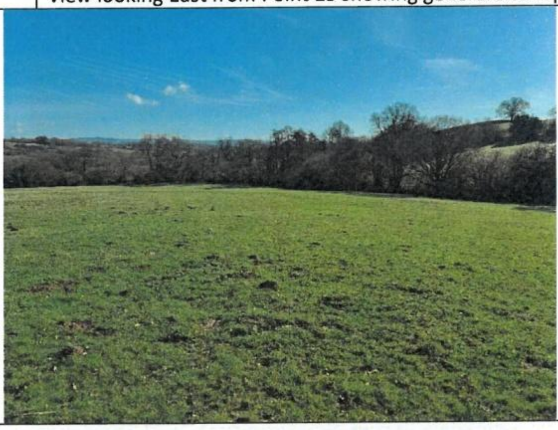
Slowly permeable layer	Starts at 25cm – evidenced by weak coarse angular blocky structure with less than 0.5% biopores >0.5mm.
Gleying	Starts at 25cm evidenced by greyish ped faces and ochreous mottles.
Wetness Class	IV
Wetness limitation	4
MB Wheat	39.5
MB potatoes	35.5
Droughtiness Limitation	1

Sample Point No. 61	
Horizon 1	0-35cm – Brown (7.5YR 4/3) medium clay loam (MCL) stoneless topsoil and few black (FB) mottles and a medium sub angular blocky structure (MSAB).
Horizon 2	35-80cm – Brown (7.5Y 4/4) medium clay loam (MCL) stoneless upper subsoil with few ochreous and black (FOB) mottles. The horizon appeared to have a course platy structure, however, this seemed to be due to compaction and the structure was actually a coarse subangular blocky structure.
Horizon 3	80 -120cm – Brown (7.5YR 4/4) course sandy loam (cSL) stoneless lower subsoil with no evidence of mottling and a medium subangular blocky (MSAB) structure.
Pictures	
Horizon 1 	Horizon 2  Horizon 3 
Slowly permeable layer	Not present.
Gleying	Not present.
Wetness Class	I
Wetness limitation	2
MB Wheat	89
MB potatoes	42
Droughtiness Limitation	1

Sample Point No. 14	
Description	Example of mottling in core samples at Point 1

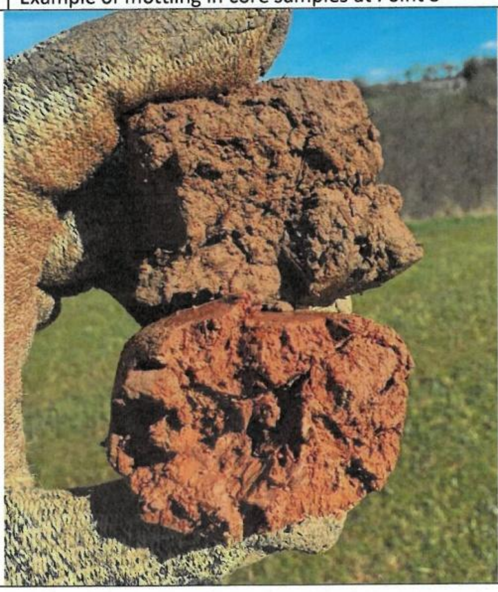


Sample Point No. 15	
Description	View looking East from Point 15 showing general site topography.

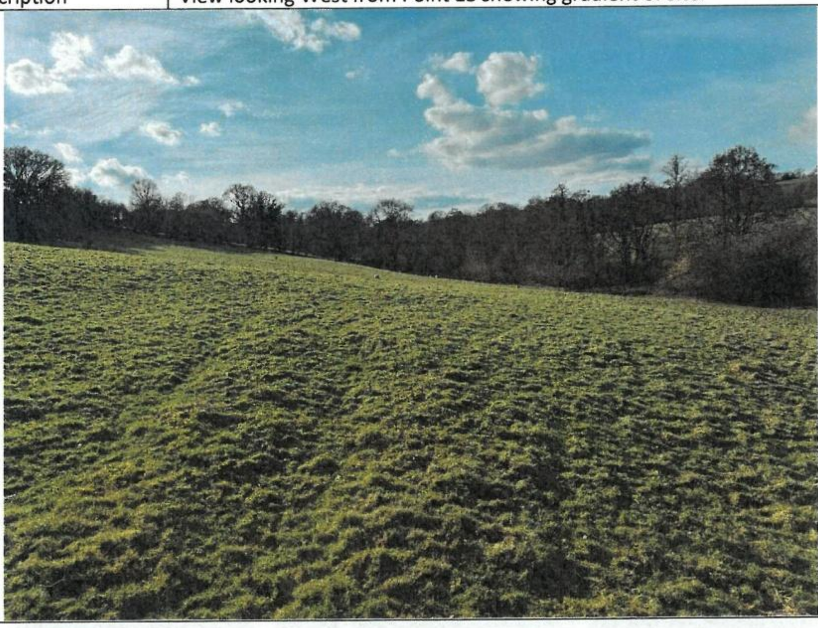


Sample Point No. 23	
Description	View looking South from Point 23 showing general site topography.

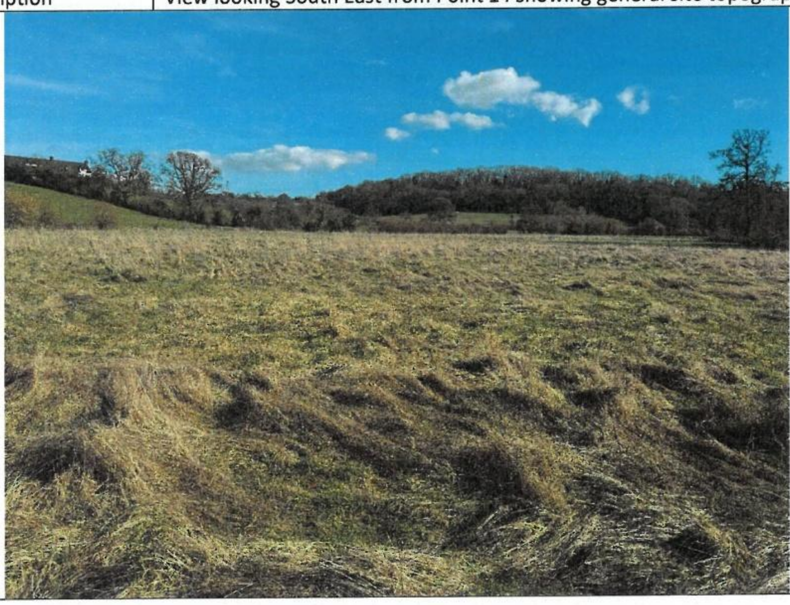
Sample Point No. 31	
Description	Example of mottling in core samples at Point 8



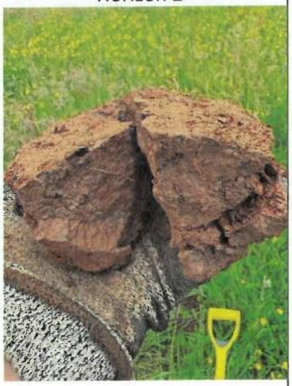
Sample Point No. 25	
Description	View looking West from Point 13 showing gradient of site.

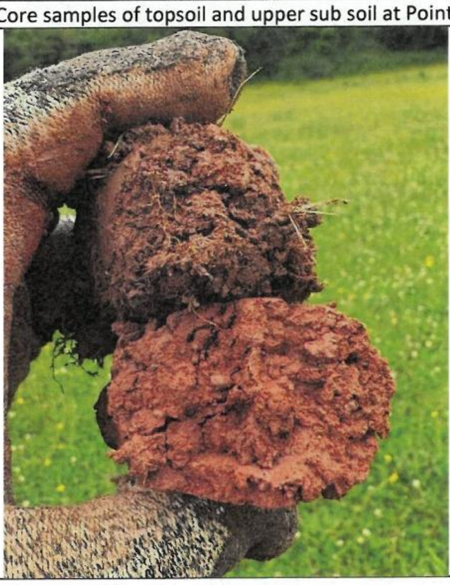


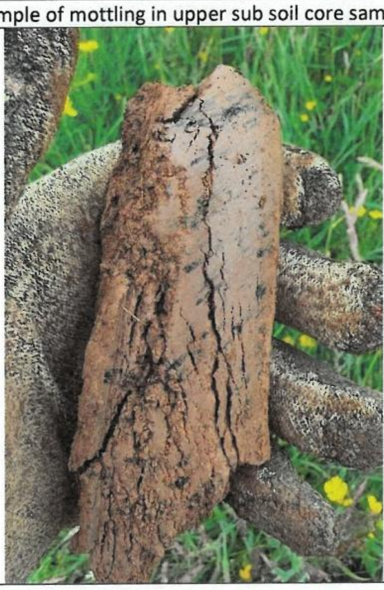
Sample Point No. 59	
Description	View looking South East from Point 14 showing general site topography.



Survey 3

Sample Point No. 43		
Horizon 1	0-30 cm – Brown (7.5YR 4/3) medium clay loam (MCL) topsoil with 5% rounded stones (2-6cm) and few black (FB) mottles and a weak fine sub angular blocky structure (WFSAB).	
Horizon 2	30-120cm – Reddish brownish (5YR 4/4) silty clay (ZC) stoneless upper subsoil with few black (FB) mottles and a course prismatic (CP) structure.	
Horizon 2 cont:	Picture showing depth (30 cm) to horizon 2	
Pictures		
Horizon 1 	Horizon 2 	Horizon 2 cont: 
Slowly permeable layer	Starts at 30cm – evidenced by weak coarse prismatic structure with less than 0.5% biopores >0.5mm.	
Gleying	Not present but soils reddish	
Wetness Class	IV	
Wetness limitation	3b	
MB Wheat	37.45	
MB potatoes	33.45	
Droughtiness Limitation	1	

Sample Point No. 19	
Description	Core samples of topsoil and upper sub soil at Point 11
	

Sample Point No. 30	
Description	Example of mottling in upper sub soil core sample at Point 22
	

Sample Point No. 33	
Description	Stoney layer at 15cm preventing further hand augering.
	

Sample Point No. 34	
Description	View looking South from Point 26 showing general site topography.
	

Sample Point No. 35	
Description	View looking East from Point 27 showing general site topography.

Survey 1

ANALYTICAL REPORT

Report Number	**57714-23**	**W250 AMET PROPERTY**	**Client PONTHIR**
Date Received	**15-FEB-2023**	**HENWICK BARN**	
Date Reported	**28-FEB-2023**	**BULWICK**	
Project	**SOIL**	**CORBY**	
Reference	**PONTHIR**	**NORTHANTS**	
Order Number		**NN17 3DU**	

Laboratory Reference		**SOIL610054**	**SOIL610055**	**SOIL610056**	**SOIL610057**	**SOIL610058**					
Sample Reference		**PONTHIR 2TS** (Not in scheme)	**PONTHIR 13TS** (Now point 7)	**PONTHIR 13SS** (Now point 7)	**PONTHIR 20TS** (Now point 45)	**PONTHIR 20SS** (Now point 45)					
Determinand	**Unit**	**SOIL**	**SOIL**	**SOIL**	**SOIL**	**SOIL**					
Coarse Sand 2.00-0.63mm	% w/w	2	2	2	7	3					
Medium Sand 0.63-0.212mm	% w/w	4	7	6	2	3					
Fine Sand 0.212-0.063mm	% w/w	10	12	12	5	2					
Silt 0.063-0.002mm	% w/w	52	56	57	62	66					
Clay <0.002mm	% w/w	32	23	23	24	26					
Textural Class **		HZCL	MCL	MCL/MZCL	MZCL	MZCL					

Notes

Analysis Notes	The sample submitted was of adequate size to complete all analysis requested.
	The results as reported relate only to the item(s) submitted for testing.
	The results are presented on a dry matter basis unless otherwise stipulated.
Document Control	**This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

** Please see the attached document for the definition of textural classes.

Reported by

Myles Nicholson

Natural Resource Management, a trading division of Cawood Scientific Ltd.
Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
Tel: 01344 886338
Fax: 01344 890972
email: enquiries@nrm.uk.com

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www.cawood.co.uk

Survey 2

ANALYTICAL REPORT

Report Number	**83119-25**	**W250**	**AMET PROPERTY**
Date Received	**10-MAR-2025**		**HENWICK BARN**
Date Reported	**20-MAR-2025**		**BULWICK**
Project	**SOIL**		**CORBY**
Reference	**AMET PROPERTY**		**NORTHANTS**
Order Number			**NN17 3DU**

Laboratory Reference		**SOIL741266**	**SOIL741267**	**SOIL741268**	**SOIL741269**						
Sample Reference		**PONT 1 TS** (Now point 14)	**OONT 1 SS 1** (Now point 14)	**PONT 16 TS** (Now point 61)	**PONT 16 SS** (Now point 61)						
Determinand	**Unit**	**SOIL**	**SOIL**	**SOIL**	**SOIL**						
Coarse Sand 2.00-0.63mm	% w/w	2	0	1	1						
Medium Sand 0.63-0.212mm	% w/w	6	3	9	10						
Fine Sand 0.212-0.063mm	% w/w	12	7	17	25						
Silt 0.063-0.002mm	% w/w	49	58	49	44						
Clay <0.002mm	% w/w	31	32	24	20						
Textural Class **		HCL/HZCL	HZCL	MCL	MCL						

Notes

Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
Document Control	**This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

** Please see the attached document for the definition of textural classes.

Reported by

Teresa Clyne

Natural Resource Management, a trading division of Cawood Scientific Ltd.
Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
Tel: 01344 886338
Fax: 01344 890972
email: enquiries@nrm.uk.com

Survey 3

ANALYTICAL REPORT

Report Number	**96022-25**	**W250**	**AMET PROPERTY**
Date Received	**12-JUN-2025**		**HENWICK BARN**
Date Reported	**23-JUN-2025**		**BULWICK**
Project	**SOIL**		**CORBY**
Reference	**PONT 37**		**NORTHANTS**
Order Number			**NN17 3DU**

Laboratory Reference		**SOIL754049**	**SOIL754050**								
Sample Reference		**PONT 37 TS** (Now point 44)	**PONT 37 SS** (Now point 44)								
Determinand	**Unit**	**SOIL**	**SOIL**								
Coarse Sand 2.00-0.63mm	% w/w	6	0								
Medium Sand 0.63-0.212mm	% w/w	4	0								
Fine Sand 0.212-0.063mm	% w/w	13	1								
Silt 0.063-0.002mm	% w/w	53	62								
Clay <0.002mm	% w/w	24	37								
Textural Class **		MCL	ZC								

Notes

Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
Document Control	**This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

** Please see the attached document for the definition of textural classes.

Reported by *Katie Dunn*

Natural Resource Management, a trading division of Cawood Scientific Ltd.
Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
Tel: 01344 886338
Fax: 01344 890972
email: enquiries@nrm.uk.com

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Technical Information

ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

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, thus:

vf Very Fine (more than 2/3's of sand less than 0.106 mm)
f Fine (more than 2/3's of sand less than 0.212 mm)
c Coarse (more than 1/3 of sand greater than 0.6 mm)
m Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions 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)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

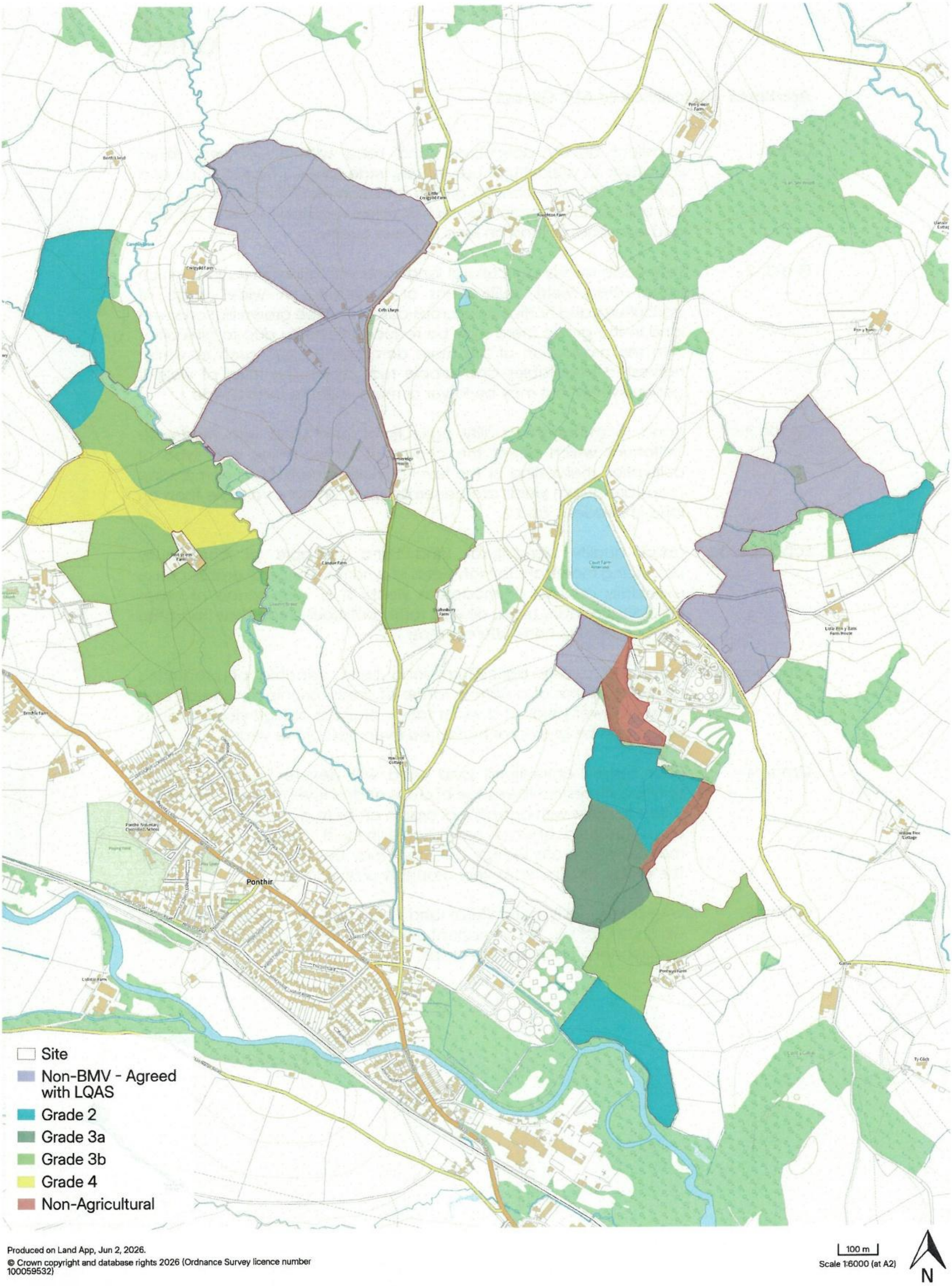
Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.

Appendix 5 - Description of ALC Grades

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 (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 very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Appendix 6 - Map of ALC Grade

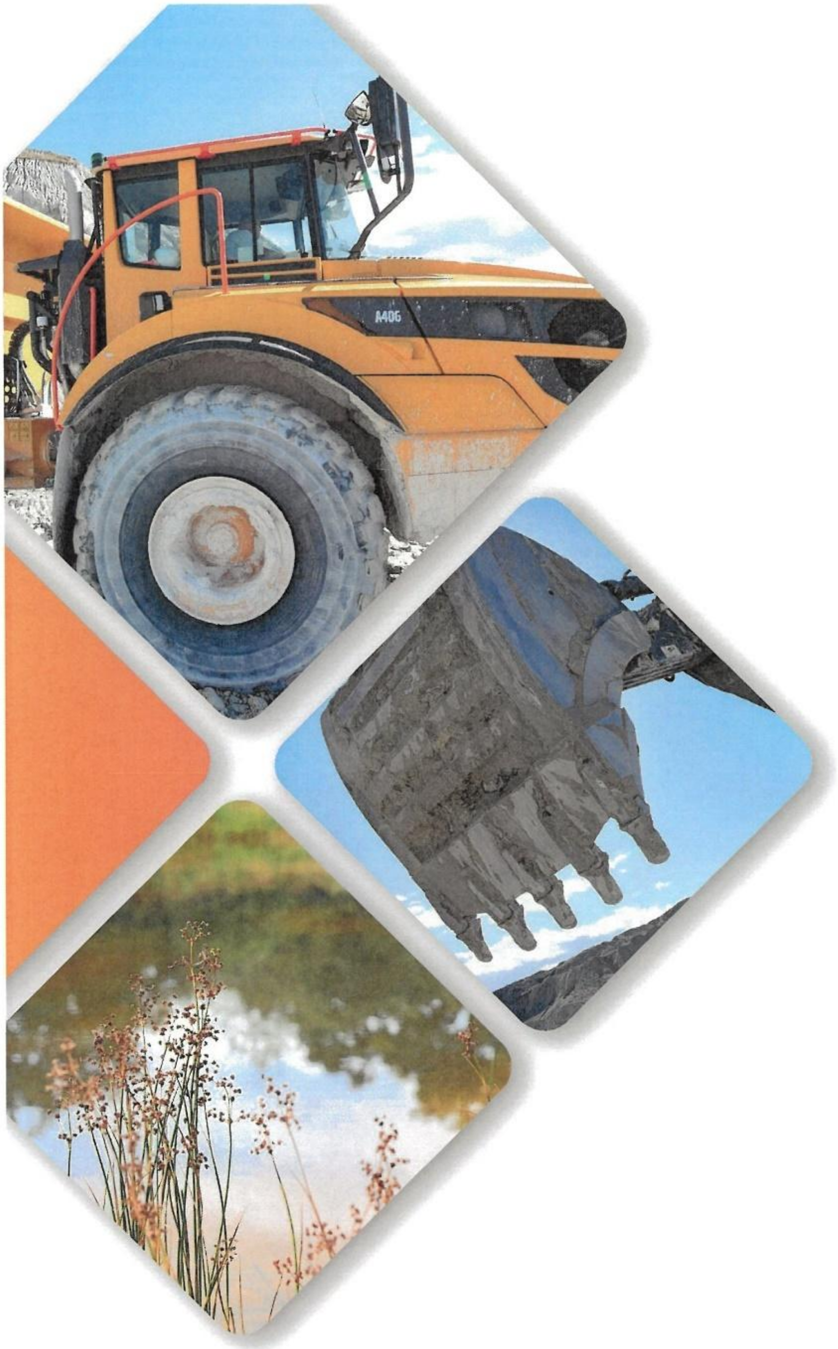
Land App



Produced on Land App, Jun 2, 2026.

Appendix SMP2

Institute of Quarrying Field Tests for Soils Suitability



The Institute of Quarrying

Good Practice Guide for Handling Soils in Mineral Workings

Supplementary Note 4
Soil Wetness

Soil wetness is a major determinant of land use, and environmental and ecosystem services in the UK. It is also a factor in the occurrence of significant compaction arising from handling soils with earth-moving machines and the practices used (Duncan & Bransden, 1986).

Relative soil wetness can range from the waterlogged to moist (mesic) or dry (xeric) depending on rainfall distribution and depth to a water-table and duration of waterlogging. In the UK, soil wetness is largely seasonal with higher evapo-transpiration rates potentially exceeding rainfall in the summer resulting in the soil profile becoming drier where there is vegetation. Whilst soil wetness is largely weather system and equinox (climate) driven, it varies with geographical and altitudinal locations, and importantly the physical characteristics of the soil profile, such as texture structure, porosity, and depth to the water-table and topography including flood risk (MAFF, 1988). The Soil Wetness Class is based on the expected average duration of waterlogging at different depths in the soil throughout the year (days per year), and can be determined by reference to soil characteristics and local climate (MAFF, 1988). The likely inherent wetness and resilience status of a soil should be indicated in the SRMP (see **Part 1, Table 2 & Supplementary Note 1**), reflecting potential risks for soil handling such as low permeability, permanently high groundwater, or a wet upland climate.

Wet soils can also be a result of other circumstances. For example, the interception of water courses, drainage ditches and field land drains. Where these occur, the provisions are to be made in the SRMP to protect the soils being handled and the operational area.

Soils, when in a wet condition generally have a lower strength and have less resistance to compression and smearing than when dry. Lower strength when soils are wet also affects the bearing capacity of soils and their ability to support the safe and efficient operation of machines than when in a dry state.

In terms of resilience and susceptibility to soil wetness, the clay content of the soil largely determines the change from a solid to a plastic state (the water content at which this occurs is called the 'plastic limit' (MAFF, 1982)). This is the point at which an increasing soil wetness has reduced the cohesion and strength of the soil and its resistance to compression and smearing.

Whilst coarse textured sandy soils are not inherently plastic when wet, they are still prone to compaction when in a wet condition. Hence, handling all soils when wet will have adverse effects on plant root growth and profile permeability, which may be of significance for the intended land use and the provision of services reliant on soil drainage and plant root growth. It may be less so in other circumstances where wet soil profiles, perched water tables and ponding are the reclamation objectives, though drainage control, for example to control flooding, may still be important in these contexts.

In cases of permanently wet soils, such as riverine sites, upland or deep organic soils where there is a persistent high water-table throughout the seasons within the depth of soil to be stripped and/or the soil profile remains too wet, a strategic decision has to be made to be able to proceed with the development of the mineral resource. This may mean alternative and less favourable soil handling practices have to be agreed with the planning authority.

Predicting & Determination of Soil Wetness
There are well established methods to predict and determine soil wetness of undisturbed and restored soil profiles (Reeve, 1994). The challenge has been the prediction of the best time for soil stripping. Models based on soil moisture deficits and field capacity dates for a range of soil textures can provide indicative regional summaries (**Table 4.1**) that can help with planning operations at broad scale but cannot be relied upon in practice for deciding operationally whether to proceed on the ground given the actual variation in weather events from year to year and within years.

	Climatic Zones		
Soil Clay Content	**1**	**2**	**3**
Soil Depth <30cm			
<10%	Mid Apr - Early Oct	Late Mar – Early Nov	Late Mar – Early Dec
10 -27%	Late May - Early Oct	Early May – Early Nov	Early Apr – Early Dec
Soil Depth 30-60cm			
<10%	Late Apr - Early Oct	Mid Apr – Early Nov	Early Apr – Early Dec
10-27%	Late May - Early Oct	Early May – Early Nov	Early Apr – Early Dec
>27%	Late June – Early Oct	Early June – Early Nov	Late May – Early Dec
Soil Depth >60cm			
<10%	Late Apr - Early Oct	Mid Apr – Early Nov	Early Apr – Early Dec
10-18%	Late May - Early Oct	Early May – Early Nov	Early Apr – Early Dec
18-27%	Late June – Early Oct	Early June – Early Nov	Late May – Early Dec
>27	Mid July – Mid Sept	Early July – Mid Oct	Late June – Mid Oct

Table 4.1: Indicative on-average months when vegetated mineral soils might be in a sufficiently dry condition according to geographic location, depth of soil and clay content

The timing of most soil handling operations takes place between April and September. Although in western (Zone 1) and central (Zone 2) areas it typically can be a later start in May with an earlier termination in August. Whilst the return to climatically 'excess rainfall' is later in the eastern counties (Zone 3) and can be as late as November/early December, there is a need to maintain transpiring vegetation to keep the soils being handled in a dry as possible condition and to establish new vegetation covers as soon as possible (on replaced soils and storage mounds). Hence, soil handling operations generally need to be completed no later than the end of September (Natural England, 2021), unless appropriate provisions can be assured.

Where data is available, more realistic local and real-time predictions can be made, however, because weather patterns and events differ between and within years, and soils can be vary locally in their condition. Experience has shown that the most practical approach for operations is to inspect the site and soils in question near to/at the time when soil handling is to take place. Professional soil surveyors can advise on the best time for soil handling (stripping, storage & replacement) and carry out site assessments of soil wetness condition prior to the start of operations.

A Practical Method for Determining Soil Wetness Limitation

During the soil handling season (see Table 4.1 above), prior to the start or recommencement of soil handling soils should be tested to confirm they are in suitably dry condition (**Table 4.2**). The 'testing' during operations can be done by suitably trained site staff and reviewed periodically by the professional soil surveyors.

The method is simply the ability to roll intact threads (3mm diameter) of soil indicating the soils are in a plastic and wet condition (MAFF, 1982; Natural England, 2021). Representative samples are to be taken through the soil profile and across the area to be stripped. It is the best available indicator of soils being too wet to be handled and operations should be delayed until a thread cannot be formed. For coarse textured soils which do not roll into threads, a professional's view as to soil wetness and the risk of compaction may have to be taken.

Table 4.2: Field Tests for Suitably Dry Soils

Soil tests are to be undertaken in the field. Samples shall be taken from at least five locations in the soil handling area and at each soil horizon to the full depth of the profile to be recovered/replaced. The tests shall include visual examination of the soil and physical assessment of the soil consistency.

i) Examination

- If the soil is wet, films of water are visible on the surface of soil particles or aggregates (e.g. clods or peds) and/or when a clod or ped is squeezed in the hand it readily deforms into a cohesive 'ball' means **no soil handling to take place.**
- If the samples is moist (i.e. there is a sligh dampness when squeezed in the hand) but it does not significantly change colour (darken) on further wetting, and clods break up/crumble readily when squeezed in the hand rather than forming into a ball means **soil handling can take place.**
- If the sample is dry, it looks dry and changes colour (darkens) if water is added, and it is brittle means **soil handling can take place.**

ii) Consistency

First test

Attempt to mould soil sample into a ball by hand:

- Impossible because soil is too dry and hard or too loose and dry means **soil handling can take place.**
- Impossible becuase the soil is too loose and wet means no soil handling to take place.
- Possible - Go to second text.

Second test

Attempt to roll ball into a 3mm diameter thread by hand:

- Impossible because soil crumbles or collapses means soil handling can take place.
- Possible means no soil handling can take place.

N.B.: It is possible to roll most coarse loamy and sandy soils into a thread even when they are wet. For these soils, the Examination Test alone is to be used.

A Rainfall Protocol to Suspend & Restart Soil Handling Operations

Local weather forecasts of possible rainfall events during operations and the occurrence of surface lying water have been used to advise on a day-to-day basis if operations should stop (Natural England, 2021). Single events such as >5mm/day in spring and autumn months, and >10mm/day in the summer have been suggested as more precise triggers for determining soil handling operations (Reeve, 1994). However, in practice the following generic guidelines are often used:

- In light drizzle soil handling may continue for up to four hours unless the soils are already at/near to their moisture limit.
- In light rain soil handling must cease after 15 minutes.
- In heavy rain and intense showers, handling shall cease immediately.

In all of the above it is assumed that soils were in a dry condition. These are only general rules, and it is at the local level decisions to proceed or stop should be based on the actual wetness state of the soils being handled. After the above rain event has ceased, the soil tests in **Table 4.2** above should be applied to determine whether handling may re-start, provided that the ground is free from ponding and ground conditions are safe to do so.There can be extreme instances where soil horizons have become very dry and are difficult to handle resulting in dust and windblown losses. In these conditions the operation should be suspended. The artificial wetting of extremely dry soils is not usually a practice recommended but has been successful in some cases.

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Reeve M J, 1994. Improving land restoration in Britain by better timing of soil movement, pp 28-37. In, Proceedings American Society of Mining and Reclamation. DOI: 10.21000/JASMR94030028

Greenacres Barn, Stoke Common Lane, Purton Stoke, Swindon, Wiltshire SN5 4LL
Telephone: 01793 771333 • Email: info@kernon.co.uk • Website: www.kernon.co.uk