Rampion 2 WIND FARM

Rampion 2 Wind Farm

Category 7: Other Documents

Outline Soils Management Plan (clean)

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B	25/04/2024	Final for Deadline 3 submission	WSP	RED	RED

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Executive summary

This Outline Soils Management Plan (SMP) (Document Reference: 7.4) has been prepared as an appendix to the **Outline Code of Construction Practice (CoCP)** (Document Reference: 7.2), to provide the measures to manage the impact on soil resources for the onshore element of the Proposed Development. This is part of a suite of plans supporting onshore construction works for Rampion 2.

The Outline SMP has been produced following soil resources surveys and assessment carried out in the **Chapter 20: Soils and agriculture, Volume 2** (Document Reference: 6.2.20) of the ES. This process has identified the embedded environmental measures secured within these documents.

This Outline SMP includes information on soil types, the baseline agricultural land quality and the further surveys required prior to construction. It also includes the embedded environmental measures including soil handling techniques, timing and any remediation measures to manage impacts on soil resources arising during the construction of the Proposed Development.

Stage specific SMPs will be produced by the appointed Contractor(s) following the grant of the Development Consent Order (DCO) and prior to the relevant stage of construction. This will be produced in accordance with this Outline SMP for approval of the relevant planning authority as part of the stage specific CoCP.

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1. Introduction

1.1.1 Rampion Extension Development Limited (hereafter referred to as 'RED') (the Applicant) is developing the Rampion 2 Offshore Wind Farm Project (Rampion 2) located adjacent to the existing Rampion Offshore Wind Farm Project ('Rampion 1') in the English Channel.

1.1.2 Rampion 2 will be located between 13km and 26km from the Sussex Coast in the English Channel and the offshore array area will occupy an area of approximately 160km^2.

1.1.3 The key offshore elements of the Proposed Development will be as follows:

- up to 90 offshore wind turbine generators (WTGs) and associated foundations;
- blade tip of the WTGs will be up to 325m above Lowest Astronomical Tide (LAT) and will have a 22m minimum air gap above Mean High Water Springs (MHWS);
- inter-array cables connecting the WTGs to up to three offshore substations;
- up to two offshore interconnector export cables between the offshore substations; and
- up to four offshore export cables each in its own trench, will be buried under the seabed within the final cable corridor; and
- the export cable circuits will be High Voltage Alternating Current (HVAC), with a voltage of up to 275kV.

1.1.4 The key onshore elements of the Proposed Development will be as follows:

- a single landfall site near Climping, Arun District, connecting offshore and onshore cables using Horizontal Directional Drilling (HDD) installation techniques;
- buried onshore cables in a single corridor for the maximum route length of up to 38.8km using:
  - trenching and backfilling installation techniques; and
  - trenchless and open cut crossings.
- a new onshore substation, proposed near Cowfold, Horsham District, which will connect to an extension to the existing National Grid Bolney substation, Mid Sussex, via buried onshore cables; and
- extension to and additional infrastructure at the existing National Grid Bolney substation, Mid Sussex District to connect Rampion 2 to the national grid electrical network.

1.1.5 A full description of the Proposed Development is provided in **Chapter 4: The Proposed Development, Volume 2** of the ES (Document Reference: 6.2.4).

1.2 Purpose

1.2.1 This Outline SMP provides the measures to manage the impact of Rampion 2 on soil resources on the onshore cable corridor, associated works including accesses and the onshore substation at Oakendene and the existing National Grid Bolney substation extension works. The two key impacts are land access timing and soil handling for excavations. The measures within this document are informed by the findings and interpretation of the soil resource survey conducted in February 2022, reported in **Appendix A: Detailed Agricultural Land Classification Report** (Land Research Associates Limited, 2023) of the ES and the outcomes of the environmental assessment reported in **Chapter 20: Soils and agriculture, Volume 2** (Document Reference: 6.2.20) of the ES.

1.2.2 The Outline SMP is part of a set of management plans provided, securing the delivery of measures committed to in the application to manage the impacts arising during construction of the Proposed Development. The **Outline CoCP** (Document Reference: 7.2) sets out the embedded environmental measures to be applied during construction which is accompanied by topic specific plans including this Outline SMP providing further detail. The Outline SMP applies to the construction works for Rampion 2 where soil handling is required, as summarised below:

- onshore cable corridor construction including open cut and trenchless construction, cable clamp construction at points along cable trenches where cable circuits travel along steep slopes, and the installation of the permanent at or above ground infrastructure including joint bays (including the transition joint bay), link boxes and fibre-optic joint bays;
- onshore substation construction at Oakendene including the permanent access, and the existing National Grid Bolney substation extension works;
- temporary construction compounds; and
- accesses (temporary and permanent).

1.2.3 The Outline SMP includes:

- baseline information on soil types and agricultural land quality (**Section 2** and **Section 3**);
- measures regarding timing of works (**Section 4**);
- measures to manage soil stripping, handling, storage, re-instatement and aftercare methods (**Section 5**, **Section 6** and **Section 7**); and
- requirements for monitoring and auditing of compliance with the Outline SMP (and subsequent stage specific SMPs (see further information below in Paragraphs 1.2.5 to 1.2.6) during construction, and verification of land reinstatement being completed to the required standard (**Section 7** and **Section 8**).

1.2.4 This Outline SMP interfaces with the following documents which support the Rampion 2 DCO Application and should be read in conjunction with these:

- **Outline Landscape and Ecology Management Plan** (Document Reference: 7.10) – which interacts with the Outline SMP in regard to reinstatement and sensitive habitats;
- **Vegetation Retention Plan** – this accompanies the **Outline CoCP** (Document Reference: 7.2) and shows hedgerows, tree lines, woodland, scrub, calcareous grassland, and semi-improved species-rich grassland, which are to be retained;
- **Outline Construction Method Statement** (Document Reference: 7.23) – which interacts with the Outline SMP in regard to the staging of the works that will include soil handling during construction;
- **Outline Site Waste Management Plan** (Document Reference: 7.3) – which sets out measures required to minimise waste during construction and to ensure compliance with local and national waste management legislation; and
- **Outline Onshore Written Scheme of Investigation** (Document Reference: 7.9) which interacts where there is potential for archaeological monitoring to be needed during soil excavation for the Proposed Development.

1.2.5 The Outline SMP has been developed based on the soil resource surveys completed prior to the DCO Application and reported in **Appendix A: Detailed Agricultural Land Classification Report** (Land Research Associates Limited, 2023) of this Outline Soil Management Plan. Access for survey within the proposed DCO Order Limits has been limited prior to the DCO Application due to safety considerations (moderate and high unexploded ordnance (UXO) hazard zones) (see paragraph 2.1.4). Most of the affected land is within the South Downs National Park where provisional Agricultural Land Classification (ALC) mapping shows mainly Grades 2 and 3, and the likelihood of best and most versatile land is assessed by Natural England (Natural England, 2017) to be moderate or high. As in all sections of the onshore cable corridor, appropriate soil handling and restoration will be necessary to enable the land to be restored to its original grade. The Contractor(s) will therefore provide stage specific Soils Management Plans developed in accordance with this Outline SMP and include the soil and ALC survey coverage of all soils and agricultural land within the proposed DCO Order Limits where soil disturbance will take place. The surveys will be completed by suitably qualified and experienced soil scientists or experienced soil specialists prior to the relevant stage construction of the Proposed Development using the same standards as the survey completed to date.

1.2.6 Each stage specific SMP will be developed in conjunction with the following plans to be part of the detailed CoCP. These are to be developed following granting of development consent, as outlined in the **Outline CoCP** (Document Reference: 7.2):

- Materials Management Plan (MMP) – the Contractor(s) stage specific MMP will seek to maximise the reuse of excavated soils during the construction work, including where soils cannot be reinstated at their original location due to permanent infrastructure, and ensure that all soils are suitable for their intended use. During pre-construction, soil volumes will be confirmed in the MMP (and SRP – see bullet below, which will be integrated with, and may form

a sub-section of, the MMP), and the MMP will interact with the stage specific SMP;

- Soils Resource Plan (SRP) – which will be produced during pre-construction to detail the type and volume of soils to be stripped, haul routes and stockpile arrangements and be produced in conjunction with the MMP, and will interact with the stage specific SMP; and
- Construction Phase Drainage Plan (CPDP) – which will set out the measures for drainage during construction and reinstatement of existing drainage, measures to prevent soil erosion and sediment laden run-off from excavations or stockpiles. This will be produced by the Contractor and approved in consultation with relevant stakeholders, as stated in the **Outline CoCP** (Document Reference: 7.2).

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2. Soil types

2.1.1 A soil resource survey was carried out in February 2022. It was based on observations at 100m intervals along the cable route corridor and including areas of permanent development (e.g., the onshore substation at Oakendene) within the proposed DCO Order Limits. During the survey, soils were examined by a combination of pits and augers to a maximum depth of 1.2m, shallower profiles are logged where bedrock was encountered within this depth or the auger was stopped on stones. A log of the sampling points and a map showing their locations is in **Appendix A** to this Outline SMP.

2.1.2 The land surveyed was predominantly in agricultural use, mainly pastureland for grazing livestock and arable use. Parts of the site were in equestrian use, especially where the route passes alongside settlements. Of land surveyed so far, the majority of soils were found to be heavy types (soils with high clay and silt fractions) with drainage restrictions. Areas of medium loamy soils over slowly permeable soils were also encountered with lesser drainage restrictions. Smaller areas of sandy permeable soils were also identified, mainly in the south of the proposed DCO Order Limits and in patches further north where land is formed in sand and gravel deposits. Full soil descriptions of areas surveyed to date are provided in **Appendix A: Soil and Agricultural Land Classification Report** (Land Research Associates Limited, 2023) of the ES describing agricultural land quality and soil characteristics. Each stage specific SMP will include all additional Soil and ALC survey report(s) completed prior to construction of that stage of the Proposed Development.

2.1.3 Under the relatively moist climate, the slowly permeable subsoil layers that are found across most of the land surveyed to date mean natural restrictions to drainage would cause waterlogging, particularly in winter and early spring, in the absence of artificial drainage measures[1]. Measures to address drainage during construction are described in **Section 5.10** of the **Outline CoCP** (Document Reference: 7.2).

2.1.4 Agricultural land and soils within the portion of the onshore cable corridor that is within the South Downs National Park (SDNP) have not been surveyed to date. The SDNP was historically used for military training as the South Downs Training Area (SDTA) and as a result there are moderate to high unexploded ordnance (UXO) hazard zones within the SDNP. Due to health and safety requirements, the Soil and ALC Survey was paused within moderate and high UXO hazard zones prior to the DCO Application. The required actions to mitigate the UXO risk sufficiently in these areas to enable the Soil and ALC Survey, and other pre-construction surveys needed for the Proposed Development to proceed will involve a combination of specialist non-intrusive survey and intrusive survey. These UXO surveys, using appropriate specialist techniques, will be required to

[1] Under agricultural land, subsurface drainage pipes are typically used to increase the speed of drainage to watercourses and lower the level of shallow groundwater. Seasonal waterlogging will increase if these drains are not maintained.

identify whether avoidance, investigation or removal/ clearance of anomalies is appropriate to enable surveys / other works (including soil and ALC surveys) to progress within the SDNP.

2.1.5 Information available from sources including the National Soil Map (Cranfield University, 2013) and the British Geological Survey (BGS) GeoIndex (BGS, 2023) indicates that soils in the SDNP are likely to comprise mainly shallow silty soils over chalk, which are calcareous, often stony and freely draining. Detailed descriptions of soil types will be included in the stage specific SMP to reflect all soil types found within that area of the proposed DCO Order Limits.

3. Baseline agricultural land quality

3.1.1 To assist in assessing agricultural land quality, the former Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF ALC system (MAFF, 1988) classifies land into five grades numbered 1 to 5, with grade 3 divided into two sub-grades (3a and 3b). Grades 1, 2 and 3a are defined as best and most versatile (BMV) land.

3.1.2 The ALC survey to date (**Appendix A: Soil and Agricultural Land Classification Report** (Land Research Associates Limited, 2023)) has identified best and most versatile land as summarised below by area and percentage of the total proposed DCO Order Limits. The ALC Survey has therefore confirmed that at least 13% of the land within the proposed DCO Order Limits is BMV land which is as follows:

- 53.5ha of Grade 2 land, equivalent to 9%
- 22.1ha of Subgrade 3a, equivalent to 4%; and
- No Grade 1 land has been observed.

3.1.3 In addition, post 1988 ALC survey (Natural England, 2016) has identified a further 2.0ha of Grade 2 land within the proposed DCO Order Limits.

3.1.4 As reported in **Chapter 20: Soils and agriculture, Volume 2** of the ES **[APP-061]**, using available provisional ALC data to supplement the available survey data reported in **Appendix A: Detailed Agricultural Land Classification Report** (Land Research Associates Limited, 2023), and post-1988 ALC data, the total area of Grade 2 land within the proposed DCO Order Limits is estimated at 128.5ha (23%), and the total area of Subgrade 3a is 200.0ha (35%), giving a total estimated area of BMV land within the proposed DCO Order Limits of 328.5ha, 58%. The estimated total area of best and most versatile land within the proposed DCO Order Limits is intended to provide the worst case scenario for the area of best and most versatile land that could be affected by Rampion 2. This is because it includes the areas of Grade 2 and Subgrade 3a land confirmed by ALC survey and assumes that all land not yet surveyed and provisionally identified as Grade3 is best and most versatile land.

3.1.5 The majority of the land surveyed to date has imperfectly to poorly draining soils. The principal agricultural limitation on this type of land is caused by wet conditions (the result of the combination high soil clay content and restricted drainage). This mainly limits agricultural quality to a combination of subgrade 3a and 3b (good to moderate quality land). These soils are highly susceptible to machinery compaction which destroys natural subsoil structure and means response to artificial drainage is poor compared to the same soils prior to disturbance.

3.1.6 There are also areas of land within the proposed DCO Order Limits that have permeable loamy soils which are of grade 2 quality limited by droughtiness. This is very good quality agricultural land. These soils are more resistant to handling with machinery due to their lower clay content. Full details of agricultural land quality

and for land surveyed to date are provided in **Appendix A: Soil and Agricultural Land Classification Report** (Land Research Associates Limited, 2023) of the ES and associated figures.

3.1.7 Land within the SDNP has not yet been subject to ALC survey (see **Section 2**). The land includes a mixture of arable and livestock farms with woodland plantation (which is to be crossed using trenchless cable installation methods). Provisional ALC mapping (Natural England, 2015) shows the land as mainly Grade 2 and Grade 3 (which may include Subgrades 3a and 3b). The Predictive BMV Land Assessment map (Natural England, 2017) for this area shows the provisional Grade 2 land as having a high likelihood of being BMV land (>60% area BMV) and areas of Grade 3 as having a moderate likelihood of being BMV land (20 – 60% area BMV).

3.1.8 The stage specific SMP will include the ALC grades identified through surveys within the proposed DCO Order Limits, including those further surveys to be obtained prior to the stage of construction. The measures in this Outline SMP and subsequent stage specific SMPs are intended to ensure that the soils can be handled, stored and reinstated in such a manner that following the aftercare period and any required remediation (see **Sections 7** and **8**), the agricultural land quality in the onshore cable corridor does not deteriorate from the baseline as a result of the construction of the Proposed Development. However, where there are permanent above ground structures some loss of agricultural land will be unavoidable. This includes the onshore substation at Oakendene, the National Grid Bolney substation extension works, transition joint bay, joint bays and link boxes. The measures in the Outline SMP are intended to maximise the potential for excavated soils that cannot be replaced at their original location due to the construction of permanent above ground infrastructure, to be used elsewhere within the proposed DCO Order Limits or to be used at an offsite receptor site, though the use of an MMP.

3.1.9 The ALC grades should be used to inform ‘micro-siting’ in the final design so that where practicable, temporary or permanent development on the best quality agricultural land is avoided. Where there is flexibility for a final joint bay location to be positioned in areas of agricultural land with different ALC grades, consideration will be given in the final design to locating the joint bay in the land with the lowest ALC grade (with the highest being Grade 1).

3.1.10 Future ALC survey(s) and ALC reports produced for Rampion 2 will be completed in accordance with the MAFF ALC system (MAFF, 1988). Surveys will include auger borings, supplemented by hand dug pits, and will include the use of the Munsell soil colour system for all observation points. Hand pits are to be used to obtain supplementary information on soils including subsoil structure and stone content. The site specific details of micro relief, gradient and flood risk applied in the ALC assessment will be recorded in the future ALC survey report(s) for Rampion 2.

4. Timing of construction

4.1 Overview

4.1.1 The land within the proposed DCO Order Limits has the potential for significant constraints associated with periods of wetness that could also affect soil management as soil is generally stronger and becomes more resistant to damage as it dries. This is described further in **Section 4.2** to **Section 4.4** below.

4.1.2 The detailed timing of different aspects of the construction will be established post-consent during detailed design. As described in the Department for Environment, Food and Rural Affairs (Defra) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009), the programming of works will allow flexibility to seek to reduce the risk of causing damage during periods of adverse weather conditions, noting that there is increasing uncertainty in weather patterns due to climate change.

4.1.3 The timing of activities requiring lighter plant and shorter term soil handling requirements e.g., hedgerow and vegetation removal (see **Outline CoCP** (Document Reference: 7.2) for related ecological commitments) and archaeological works will also be considered within the detailed programming.

4.1.4 Stage specific SMPs will includes all soil types within the proposed DCO Order Limits that will potentially be excavated or otherwise disturbed by the construction works, including those that are obtained through further soil resource and ALC surveying during pre-construction.

4.2 Heavy slowly permeable soils

4.2.1 These soils are poorly to imperfectly draining with high topsoil clay content which makes them highly susceptible to damage if handled or trafficked when wet. Activities including topsoil stripping and trench excavation will be focused in drier periods where possible (typically between the start of May and end of October). Access to these areas with heavy machinery following significant rainfall (>10 mm in 24 hours) will be subject to review for a minimum of 48 hours following the guidance in **Table 5-1** to check the soil wetness prior to resuming use of heavy machinery in the affected area i.e., if after 48 hours the field test for suitably dry soils is still failed then use of heavy machinery should be avoided on the affected land and review should continue until soil wetness is at an acceptable level (as per **Table 5-1**).

4.3 Loamy over slowly permeable soils

4.3.1 These soils are imperfectly draining with moderately high topsoil clay content which makes them highly susceptible to damage if handled or trafficked when wet. Activities including topsoil stripping and trench excavation will be focused in drier periods where possible (typically between the start of May and end of October). Access to these areas with heavy machinery following significant rainfall will be

subject to review for a minimum of 24 hours following the guidance in **Table 5-1** to check the soil wetness prior to resuming use of heavy machinery in the affected area.

4.4 Sandy soils

4.4.1 These soils have a high sand content which makes them resistant to compaction damage during a typical year. Access to these areas with heavy machinery following significant rainfall will be subject to review for a minimum of 24 hours following the guidance in **Table 5-1** to check the soil wetness prior to resuming use of heavy machinery in the affected area.

5. Soil handling

5.1 General soil management principles

5.1.1 All operations will be undertaken in accordance with the methodology described within this document and the Defra Construction Code of Practice (Defra, 2009).

5.1.2 Soil quality can be impaired by incorrect handling, separation, storage and replacement. Particular problems arise from:

- handling soils at inappropriate moisture content;
- inappropriate use of machinery;
- incorrect topsoil stripping depth resulting in dilution with underlying subsoil;
- poor storage separation resulting in mixing; and
- excess stockpile height leading to compaction damage, runoff and erosion.

5.1.3 The ease of soil handling is affected by soil type. Heavy soils, such as those that are typically found within the proposed DCO Order Limits, are difficult to handle when wet without causing structural damage.

5.2 Soil stripping

Assessing whether soils are sufficiently dry to be handled

Overview

5.2.1 Assessment of whether soils are in a suitable condition to be handled will be by determination of soil wetness using the method recommended by the Institute of Quarrying (2021), as detailed below in **Table 5-1**.

5.2.2 Samples for soil wetness testing in the field will be taken from at least five locations in the soil handling area and at each soil horizon (meaning each soil layer, with distinct physical, chemical and biological characteristics) to the full depth of the profile to be recovered/replaced.

Table 5-1 Field tests for suitably dry soils (Institute of Quarrying (2021))

Field tests for suitably dry soils		
(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**.

Field tests for suitably dry soils		
		• If the sample is moist (i.e., there is a slight 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 because the soil is too loose and wet means **no soil handling to take place**. • Possible - go to second test.
		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.

Note: 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.

5.2.3 During rainfall and soon after it ceases there will always be surplus of water in the surface layers of soil. If earth moving continues the surface layer will become compacted, ruts will be formed and any further rain will lie on the surface and tend to drain away far more slowly than previously. Consequently, soil stripping will be suspended during heavy rainfall. After rainfall, the wetness of the soil will be checked by the Contractor(s) using the tests in **Table 5-1** before recommencing mechanised soil handling.

5.2.4 Generic guidance for responding to rainfall events during soil handing operations is provided by the Institute of Quarrying (2021) as follows:

- 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; and
- in heavy rain and intense showers, handling shall cease immediately.

5.2.5 The Institute of Quarrying guidance in **Paragraph 5.2.4** is advisory, for reacting to rainfall events where soils were previously in a dry condition. However, the decision to proceed or stop will be made at a local level based on the actual wetness state of the soils being handled, using the tests in **Table 5-1**, following rainfall.

Soil stripping and soil storage

5.2.6 Stripping and stockpiling of soil is to be undertaken as described in Sections 5.2 to 5.4 of the Defra Construction Code of Practice (Defra, 2009) and outlined in paragraph 5.2.20.

5.2.7 Topsoil and subsoil resources will be stripped separately and stored in separate low bunds, of up to 3m in height for topsoil, and up to 5m in height for subsoil. The maximum bund / stockpile height within the above ranges will be defined in the stage specific SMPs considering the soil's resilience to compaction, to avoid over-compaction of the soil types present. Subsoil stockpiles / bunds are not to be covered with topsoil to avoid mixing of topsoil and subsoil.

5.2.8 Topsoil stripped from different fields will be stored separately, as will soil from hedgerow banks or woodland strips. Topsoils of different quality will also be stored separately from each other.

5.2.9 Vegetation should be cleared from ground to be used for storing topsoil. Topsoil can be stored in stockpiles onto topsoil of the same type.

5.2.10 Topsoil will be stripped carefully to avoid dilution with subsoil. The topsoil depths for each section surveyed to date are specified in **Annex A** of **Appendix A** of this report. In most places there is a distinct colour difference between topsoil and subsoil that will aid accurate stripping. Stage specific SMPs will include updated figures once further survey data is available.

5.2.11 In any instance where there is doubt over the boundary between topsoil and subsoil excavation work will stop and advice be sought from a suitably qualified and experienced soil scientist to check the appropriate depth for topsoil stripping.

5.2.12 Separate topsoil and subsoil stockpiles are allowed for within the 40m construction working width for the onshore cable corridor and areas for soil storage outside floodplains are also included in proposed DCO Order Limits. These areas will be clearly identified prior to and during the construction work. Unique identifiers will be used for each stockpile with a consistent approach taken in the Contractor(s) stage specific MMP.

5.2.13 Topsoil stockpiles which remain present for six months or longer will be sown to a seed mix of grass and clover (or suitable alternative – see paragraph 5.2.14) and kept weed free by cutting. Where it is identified through materials management planning that stockpiles will be present for longer than six months, seeding will take place at the earliest opportunity following stockpile creation.

5.2.14 The stage specific SMP will identify the use of appropriate specific seed mixes, and identify any topsoils that will not be seeded during storage e.g., in areas of species-rich grassland, to promote habitat recovery. The reinstatement in such areas is defined in the **Outline Landscape and Ecology Management Plan (LEMP)** (Document Reference: 7.10).

5.2.15 Subsoil stockpiles which remain present for six months or longer will be managed to prevent seeding, such as may occur from adjacent land. Stockpiled subsoil will be placed on geotextile matting.

5.2.16 At temporary compounds where topsoil has been stripped, the ground will be surfaced with imported aggregate placed over geotextile matting, to ensure that the aggregate can be fully removed during decommissioning of the compound.

5.2.17 During construction, access roads and temporary tracks will be utilised. Where construction of accesses is undertaken in dry conditions, soils may be left *in situ* to minimise the risk of compaction through topsoil stripping and machinery handling. Where appropriate, bogmats (or similar) will be utilised. Selection of an appropriate measure to lower the risk of ground compaction will be made by a suitably trained / experienced person.

5.2.18 Stockpile locations will be defined in a Soil Resource Plan (see paragraph 1.2.6). Stockpiles must be located outside the root or crown spread of trees, and must not be located adjacent to ditches, watercourses or existing or future excavations.

Biosecurity

5.2.19 The use of tried and tested invasive species control and biosecurity measures to avoid the spread of infested materials is a commitment in the **Outline CoCP** (Document Reference: 7.2) and details will be provided as part of the stage specific detailed CoCP.

Machinery for soil handling

5.2.20 Soil stripping, stockpiling, and removal from storage will be carried out in accordance with Section 5.4 in the Defra Construction Code of Practice (Defra, 2009). A tracked hydraulic excavator will be used to load topsoil and subsoil. Soils will be loaded into a dump truck and loose-tipped in heaps from the dump truck starting at the furthest point in the storage area and working back toward the access point. A tracked excavator will be used to level soil heaps, and to compact and re-grade the stockpile as needed, in accordance with the Defra guidance. Soils will be reinstated, or placed, by tracked hydraulic excavator using the loose tipping method (Section 6.1 in the Defra Construction Code of Practice (Defra, 2009), with only gentle firming by tracked vehicles.

Reinstatement / placement of soil

5.2.21 Most of the soil (topsoil and subsoil) disturbed during the construction of the Proposed Development can be reinstated in order to restore the land to its original use / habitat type. The majority of the land in the proposed DCO Order Limits is in agricultural use and it is intended that through adherence to the Outline SMP and stage specific SMP that the land will be restored to its original ALC grade, as defined by the soil resource surveys **Appendix A: Soil and Agricultural Land Classification Report** (Land Research Associates Limited, 2023).

5.2.22 Soil reinstatement will follow the same general principles for soil handling as set out above. This will also apply to where soil is to be re-used within the proposed DCO Order Limits (e.g., for landscaping at the onshore substation at Oakendene and existing National Grid Bolney substation extension works). Areas used as haul roads will be ripped to loosen subsoils prior to topsoil replacement.

5.2.23 Temporary access tracks and hardstanding will be removed as early as practicable when they are no longer required. All imported materials (aggregate, geotextile matting etc.) will be removed under dry conditions by an excavator/dumper operating on the track surface to avoid soil compaction. Following removal of the hardstanding and associated materials, upper subsoils should be cross-ripped to a depth of approximately 300mm before topsoil is replaced, in order to ensure any minor compaction is thoroughly removed. Topsoil in these areas will be replaced using the excavator and dumper method previously described. Land will be cultivated and seeded to grass as soon as practical.

5.2.24 Stockpiled soils will be checked to ensure they are at an appropriate moisture content for handling and will be checked by obtaining material from the stockpile outer layer and core using the Consistency tests in **Table 5-1**.

5.2.25 Storage of soil in stockpiles can induce anaerobic conditions within the stockpile core (e.g., from approximately 1m from surface) which will impact soil fauna essential for soil health, such as earthworms. Consideration will therefore be given during soil reinstatement to placing alternating strips of surface and core soils from the stockpile to assist with soil fauna re-colonisation by the near surface soils acting as an inoculum. This will be done in a manner that avoids multiple / extra handling of soil materials as this will increase the risk of damage to soil structure.

5.2.26 Specification for further actions following soil reinstatement, such as seeding, will be agreed in advance with the landowners, farmers or tenants, or where sensitive habitats are present this is covered in the **Outline LEMP** (Document Reference: 7.10). Aftercare and monitoring will then be carried out (see **Section 8**).

5.2.27 In general, vegetation cover will be established as soon as possible on reinstated soils. This will be done progressively as the soil is replaced, and, before the end of the growing season, to enable vegetation to become established as early as possible and lower the risk of water or wind erosion or infestation by weeds.

5.2.28 The majority of the soils excavated during construction along the onshore cable corridor are anticipated to be reinstated at their original location. However, some permanent at or above ground structures, including the onshore substation at Oakendene and existing National Grid Bolney substation extension works could include a volume of excess soil being generated. Any soils that cannot be reinstated will be reused within the proposed DCO Order Limits, wherever possible, in accordance with an MMP.

5.2.29 Where it is identified through soil resource and materials management planning that topsoil or subsoil cannot be reinstated at its original location, sampling and testing of excavated topsoil and subsoil will be completed in accordance with BS:3882:2015 and BS:8601:2013, respectively, at the earliest opportunity, to inform the reuse of these soils elsewhere within the proposed DCO Order Limits or at a suitable offsite receptor site in compliance with the Definition of Waste: Code of Practice (CL:AIRE, 2011) and the stage specific MMP.

5.3 Soil Resources / Material Management Planning

5.3.1 The Contractor will use suitable field methods and data management systems to support the return of excavated soils, including topsoils and subsoils, to their original location, above the installed underground cables, at temporary

compounds, temporary works areas, and temporary accesses, and any other areas within the Proposed Development where excavated soils can be reinstated where they came from. This will support the return of agricultural land within the Proposed Development to its original ALC grade on completion of construction.

5.3.2 To meet the requirements of the CL:AIRE (2011) *The Definition of Waste: Development Industry Code of Practice, Version 2, March 2011*, MMPs must be based on a suitable tracking system, so that all materials subject to excavation, disposal, treatment and/or reuse are tracked throughout construction, and evidence generated to provide an auditable trail. Where required, and particularly when topsoils and / or subsoils will be temporarily stored away from their field of origin, measures will include:

- Geo-referencing of excavated soils will be undertaken by the Contractor at the point of excavation to record what soil is being removed (i.e. topsoil or subsoil) and its original location;
- Where soils cannot be stored locally, suitable global positioning systems (GPS) equipment will be used to geo-reference soils as they are excavated. The GPS equipment will be used by excavator operators or a supervisor of excavations, and relevant information transferred to dumper truck operators, other supervisors etc., as appropriate. Typically, the working area will be divided into a grid so that the excavated soils can be located to the relevant grid square within the Rampion 2 onshore cable construction corridor working area;
- At the point of placement of a topsoil or subsoil into a stockpile for temporary storage away from its point of origin, the stockpile will also be geo-referenced and will have a unique identifier;
- This approach means that soil stored temporarily in a stockpile will be well defined: typical information that may be assigned to stockpiles could include: whether the stockpile holds a subsoil or a topsoil, the date(s) soil was placed, soil type, soil test results such as topsoil or subsoil sample testing to British Standard (BS) BS:3882:2015 and BS:8601:2013, respectively; and
- Stockpile management measures will also include the permitted stockpile height (i.e. the maximum stockpile height for the soil being stored, in accordance with this Outline Soil Management Plan or subsequent Stage Specific Soil Management Plans).

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6. Drainage systems

6.1.1 Most of the land is subject to piped drainage systems which are essential to the maintenance of agricultural land quality. A combination of clay and plastic pipes are anticipated to underlie this land. Due to the issue of slow lateral movement through poorly-structured clay subsoil, these soils are also often subject to secondary *mole drainage* (dragging a cylindrical tine through the upper subsoil at narrow intervals) in order to aid the efficiency of water removal. Being cohesive and low in stones these soils respond well to mole drainage.

6.1.2 The position of all individual drains cannot be predicted, therefore a strategy for logging and replacing damaged sections will be necessary. A pre-construction drainage programme will be necessary to divert drainage systems which will be intercepted by the works, in order to prevent waterlogging of the trench during working. This work is likely to involve the installation of one or more land drains complete with permeable fill installed parallel to intercept soil and groundwater before it reaches the trench. The **Outline CoCP** (Document Reference: 7.2) includes measures to ensure that the condition of existing drainage systems are appropriately maintained and restored.

6.1.3 The detail will be developed at the detailed design stage and set out in the Construction Drainage Plan to support the detailed CoCP. This will include consideration of a number of variables including topography, existing drainage and the location of appropriate outfall points. Drainage system design will take account of the standards set out in the National Association of Agricultural Contractors (NAAC) Guidelines for Drainage Reinstatement on Cross Country Pipelines (NAAC, 2021).

6.1.4 The onshore cable corridor includes areas in the SDNP where the cable construction works are likely to run through shallow chalk bedrock (as outlined in paragraph 2.1.5). The stage specific SMP will include measures to help maintain the condition of excavated chalk during stockpiling and enable restoration of the chalk and existing land drainage conditions as close to its baseline condition as possible. Chalk handling and storage measures will be designed with reference to the Construction Industry Research and Information Association's (CIRIA's) Engineering in chalk (C574D) (CIRIA, 2002) and as a minimum will include the measures set out in the Department for Transport (DfT) Specification for the Reinstatement of Openings in Highways Fourth edition (DfT, 2020) for excavated chalk, including segregated stockpiling of chalk for re-use, avoidance of multiple handling and, during wet weather, protection of excavated chalk from water ingress.

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7. Monitoring, roles and responsibilities, and aftercare

7.1.1 Given the agricultural nature of the land within the proposed DCO Order Limits an Agricultural Liaison Officer (ALO) will be appointed to oversee the implementation of this plan and they will be available throughout the construction phase and during the aftercare phase of Rampion 2.

7.1.2 Regular monitoring of the construction work will be completed to ensure compliance with the stage specific SMP. This is to include the following activities and items: soil handling / excavation; formation of soil stockpiles and the condition of soil stockpiles. Soil reinstatement is to be inspected at defined stages (such as directly following reinstatement, following any necessary remediation, and during the aftercare phase) by a suitably qualified and experienced soil scientist, or an experienced soil specialist, to certify that the work has been carried out in accordance with the stage specific SMP. The stage specific SMP will include the detail of the personnel and roles and responsibilities in ensuring compliance.

7.1.3 The Defra Construction Code of Practice (Defra, 2009) advises a period of between one and five years for aftercare, and notes that even where soil compaction has not occurred it can take between one and three years for the soil structure to stabilise and provide the necessary drainage and aeration for plant roots and the soil's fauna and flora to function properly. The period of aftercare and reinstatement standard (where the aftercare phase will be deemed to be complete) is to be defined in the stage specific SMP. Where the need for remedial action to address soil compaction is identified during the aftercare phase, decompaction measures will be designed to reflect the depth of compaction observed. The proposed decompaction strategy for the soil types present will be outlined in the stage specific SMPs. Methods for possible remediation for soil compaction are set out in **Section 8.2**.

7.1.4 The Contractor(s) will define the reporting programme to provide evidence of monitoring and compliance with the stage specific SMP. This will also define a protocol to be used during the construction phase for non-conformance reporting, corrective actions, and incident reporting.

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8. Remediation

8.1 Introduction

8.1.1 Remediation should generally not be necessary if the measures in this Outline SMP and the stage specific SMP are adhered to. However, should agricultural land quality issues arise either during construction or the aftercare period these will be raised with the ALO and investigated.

8.2 Soil compaction

8.2.1 Compaction damage following soil reinstatement may be evidenced by standing water at the land surface, or by poor crop growth, resulting either from soil waterlogging or drought stress due to inhibited rooting depth. Existence of over-compacted layers will be initially assessed by inspection of shallow pits.

8.2.2 Where compacted subsoil layers are observed, they will be loosened/ripped using commercial subsoiling equipment (e.g., a winged tine) by qualified agricultural contractors. Specialist grassland subsoilers (which minimise vegetation disturbance) are also commercially available.

8.2.3 Should compaction damage occur in grass fields, it may be additionally necessary to cultivate the topsoil and reseed to grass to remove near-surface compaction. Topsoil compaction will be removed automatically by cultivation in arable fields and is therefore unlikely to be an issue.

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9. Glossary of terms and abbreviations

Term (acronym)	Definition
ALC	Agricultural Land Classification
ALO	Agricultural Liaison Officer
Baseline	Refers to existing conditions as represented by latest available survey and other data which is used as a benchmark for making comparisons to assess the impact of development.
Baseline conditions	The environment as it appears (or would appear) immediately prior to the implementation of the Proposed Development together with any known or foreseeable future changes that will take place before completion of the Proposed Development.
BGS	British Geological Survey
Best and Most Versatile (BMV)	Land as classified by MAFF (1988) that is considered to be the highest quality agricultural land classification.
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
Code of Construction Practice (COCP)	The code sets out the standards and procedures to which developers and contractors must adhere to when undertaking construction of major projects. This will assist with managing the environmental impacts and will identify the main responsibilities and requirements of developers and contractors in constructing their projects.
Contractor(s)	Any contractor working on the construction of the Proposed Development.
CPDP	Construction Phase Drainage Plan
DfT	Department for Transport
DCO Application	An application for consent to undertake a Nationally Significant Infrastructure Project made to the Planning Inspectorate who will consider the application and make a recommendation to the Secretary of State, who will decide on whether development consent should be granted for the Proposed Development.

Term (acronym)	Definition
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Defra	Department of Environment, Food and Rural Affairs
Development Consent Order (DCO)	This is the means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects, under the Planning Act 2008.
Embedded environmental measures	Equate to 'primary environmental measures' as defined by Institute of Environmental Management and Assessment (2016). They are measures to avoid or reduce environmental effects that are directly incorporated into the preferred masterplan for the Proposed Development.
Environmental measures	Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible, remedy identified effects.
Horizontal Directional Drill (HDD)	A trenchless crossing engineering technique using a drill steered underground without the requirement for open trenches. This technique is often employed when crossing environmentally sensitive areas, major water courses and highways. This method is able to carry out the underground installation of pipes and cables with minimal surface disruption
Impact	The changes resulting from an action.
JB	Joint bay
LEMP	Landscape and Ecology Management Plan
Link Boxes (LBs)	Underground chambers or above ground cabinets adjacent to the cable trench containing low voltage electrical earthing links.
MAFF	(former) Ministry of Agriculture, Fisheries and Farming
MMP	Materials Management Plan
NAAC	National Association of Agricultural Contractors
Nationally Significant Infrastructure Project (NSIP)	Nationally Significant Infrastructure Projects are major infrastructure developments in England and Wales which are consented by DCO under the Planning Act 2008. These include proposals for renewable energy projects with an installed capacity greater than 100MW.

Term (acronym)	Definition
Proposed Development	The development that is subject to the application for development consent, as described in **Chapter 4: The Proposed Development, Volume 2** of the ES (Document Reference: 6.2.4).
Proposed DCO Order Limits	The proposed DCO Order Limits combines the search areas for the offshore and onshore infrastructure associated with the Proposed Development. It is defined as the area within which the Proposed Development and associated infrastructure will be located, including the temporary and permanent construction and operational work areas.
Receptor	These are as defined in Regulation 5(2) of The Infrastructure Planning 'Environmental Impact Assessment' Regulations 2017 and include population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape that may be at risk from direct and indirect exposure to pollutants as a result of the Proposed Development.
SDNPA	South Downs National Park Authority
SDTA	South Downs Training Area
Secretary of State	The SoS of Business, Energy and Industrial Strategy oversees the planning system and decision making with regards to development consent for offshore windfarms. This agent works within the relevant government department relating to the application.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value associated to that receptor.
Significant effects	It is a requirement of the Infrastructure Planning 'EIA Regulations' 2017 to determine the likely significant effects of the development on the environment which should relate to the level of an effect and the type of effect. Where possible significant effects should be mitigated.
SWMP	Site Waste Management Plan
SMP	Soil Management Plan
Soil Resource Plan (SRP)	A plan to be produced during pre-construction in accordance with Defra (2009) mapping the areas and

Term (acronym)	Definition
	type of topsoil and subsoil to be stripped or left in-situ, areas of soil to be protected from construction activities, the locations of haul routes, and stockpile locations, including the type and management of each soil stockpile, schedules of volumes for each material, and the expected after-use of the soil. To avoid duplication, the SRP can cross-reference the MMP or form a sub-section of the MMP, and will cross-reference the Final SMP and Site Waste Management Plan.
Unexploded Ordnance (UXO)	Unexploded ordnance are explosive weapons (bombs, shells, grenades, land mines, naval mines, etc.) that did not explode when they were deployed and still pose a risk of detonation, potentially many decades after they were used or discarded.
WSI	Written Scheme of Investigation

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Appendix A
Detailed Agricultural Land Classification Report

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AGRICULTURAL QUALITY OF LAND WITHIN THE ONSHORE ELECTRICAL CONNECTION OF RAMPION 2

Report 1687/1

12th July 2023

Land Research ASSOCIATES
www.lra.co.u

AGRICULTURAL QUALITY
OF LAND WITHIN THE ONSHORE ELECTRICAL
CONNECTION OF RAMPION 2

Report 1687/1
Land Research Associates Ltd
Lockington Hall,
Lockington,
Derby
DE74 2RH
www.lra.co.uk

12th July 2023

SUMMARY

A soils and agricultural land quality survey has been undertaken of 231 hectares (ha) of land within the proposed Development Consent Order (DCO) Order Limits of Rampion 2 offshore wind farm development. The onshore (landward of mean high-water springs) cable route runs from the landfall at Climping, to the onshore substation at Oakendene, and the existing National Grid Bolney substation extension works, Mid Sussex. The survey work covers approximately 40% of the proposed DCO Order Limits. The remaining land could not be surveyed due to health and safety risks associated with an elevated (moderate or higher) risk of encountering UXO and land access restrictions The survey was undertaken in February 2022, the maps (see appendix to this report) show all land surveyed to date including land surveyed within the original Preliminary Environmental Information Report (PEIR) (Rampion Extension Development Ltd (RED), 2021) Assessment Boundary that following design refinement is no longer included within the proposed DCO Order Limits.

The land within the proposed DCO Order Limits has mainly fine loamy over clay soils with wetness/workability restrictions to agricultural use, giving a mixture of subgrade 3a and 3b quality. Patches with deep loamy soils are of grade 2 quality, limited by slight droughtiness, stoniness and wetness. A limited area of grade 4 is encountered on steep sloping land.

Contents

1.0 Introduction

1.1 This report provides information on the soils and agricultural quality of 231 ha of land within the proposed DCO Order Limits of Rampion 2. The onshore cable route runs from the cable landfall at Climping, to the onshore substation at Oakendene, and the existing National Grid Bolney substation extension, Mid Sussex. The land surveyed makes up approximately 40% of the proposed DCO Order Limits, land surveyed on the original Preliminary environmental Information Report (PEIR) Assessment Boundary is included on the maps (see appendix to this report) for information and completeness.

SITE ENVIRONMENT

1.2 The proposed DCO Order Limits crosses sections of arable fields, pasture and grassland paddocks. The survey area is undulating with elevation ranging from 0 m AOD at Littlehampton to over 150 m AOD where the route passes through the South Downs National Park.

PUBLISHED INFORMATION

1.3 1:50,000 scale British Geological Survey (BGS) (BGS, n.d) information records the underlying geology of the southern half of the of the proposed DCO Order Limits to be predominantly chalk formation with a patch of London Clay Formation, the southern half is overlain by river terrace and marine deposits. The northern part of proposed DCO Order Limits comprises Weald Clay Formation mudstone with patches of head and alluvium deposits. The northern and southern halves of the proposed DCO Order Limits are divided by a band of Folkestone and Lower Greensand sandstone.

1.4 The National Soil Map (published at 1:250,000 scale) records the following associations within the survey area

- The land in south is recorded to be either Newchurch Association (deep stoneless calcareous clayey and fine silty soils) or Efford 1 Association (well drained fine loamy soils over gravel) (Hodge et al., 1984);
- The land in the centre of the survey area is recorded as Fyfield 1 Association (well drained coarse and fine loamy soils over interbedded sands and sandstones); and
- The land in the north is recorded as predominantly Wickham 1 Association (slowly permeable seasonally waterlogged fine silty/loamy over clayey and clayey soils).

2.0 Soils

2.1 A soils and agricultural quality survey was carried out in February 2022 in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) (1988) Agricultural Land Classification guidelines. It was based on soil observations at 100 m intervals along a grid corridor, giving a density of one observation per hectare. During the Agricultural Land Classification (ALC) survey, soils were examined by hand augering and pits to a maximum depth of 1.2 m. A log of the sampling points and a map (Map 1A-G) showing their location is in an appendix to this report.

2.2 Soils were found to vary in texture and drainage, as described below.

HEAVY SLOWLY PERMEABLE SOILS

2.3 This soil type comprises heavy clay loam or clay topsoils that directly overlie dense slowly permeable clay subsoils. The subsoils are *gleyed* (pale or greyish colours with ochreous mottles), which is evidence of seasonal waterlogging. These soils are mainly judged to be poorly-draining under the local climate (Soil Wetness Class IV).

2.4 Example profiles from pits at observation points 40 and 135 (Map 1A, 1C) are described in an appendix to this report.

LOAMY OVER SLOWLY PERMEABLE SOILS

2.5 This soil type occurs extensively within the survey area. It typically comprises a fine loamy topsoil and permeable upper subsoil that overlies dense slowly permeable clay at depth. The subsoils are gleyed (pale or greyish colours with ochreous mottles), which indicate the land is seasonally waterlogged. These soils are judged to be imperfectly to moderately freely-draining (Soil Wetness Class III / II), dependent on depth to the slowly permeable layer.

2.6 Example profiles from pits at observation points 89, 226, 239 and 372 (Map 1B, 1F, 1G) are described in an appendix to this report.

DEEP PERMEABLE LOAMS

2.7 These soils occur in patches throughout the survey area. They comprise medium or fine loamy topsoils that have permeable subsoils of similar texture. They are permeable to depth although some show evidence of seasonal waterlogging at variable depth with *gleyed* horizons. These soils are freely to moderately-freely draining (Soil Wetness Class I/II).

2.8 Example profiles from pits at observation points 29, 156, 166 and 195b (Map 1A,

1D, 1E) are described in an appendix to this report.

COARSE LOAMS

2.9 These soils typically occur where sandstone geology is recorded. They comprise sandy loam topsoils that overlie sand subsoils. They are stoneless and freely-draining (Soil Wetness Class I).

2.10 An example profile is described from an observation at point 145 (see Map 1C), in an appendix to this report.

3.0 Agricultural land quality

3.1 To assist in assessing land quality, the MAFF (1988) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF (1988) ALC system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced in the 1960s and revised in 1988.

3.2 The agricultural climate is an important factor in assessing the agricultural quality of land and has been calculated using the Climatological Data for Agricultural Land Classification (Meteorological Office, 1989).

3.3 The relevant survey area data at three locations has been included below for areas surveyed within the proposed DCO Order Limits.

Littlehampton at average elevation of 5 m AOD (grid reference: TQ 022055)

- Average annual rainfall: 769 mm
- January-June accumulated temperature >0°C 1540 day°
- Field capacity period 159 days
  (when the soils are fully replete with water)
- Summer moisture deficits for: wheat: 118 mm
  potatoes: 115 mm

Warningcamp at average elevation of 45 m AOD (grid reference: TQ 033073)

- Average annual rainfall: 819 mm
- January-June accumulated temperature >0°C 1494 day°
- Field capacity period 168 days
  (when the soils are fully replete with water)
- Summer moisture deficits for: wheat: 110 mm
  potatoes: 105 mm

Wineham at average elevation of 10 m AOD (grid reference: TQ 214205)

- Average annual rainfall: 794 mm
- January-June accumulated temperature >0°C 1524 day°
- Field capacity period 169 days
  (when the soils are fully replete with water)
- Summer moisture deficits for: wheat: 114 mm
  potatoes: 110 mm

3.4 The ALC survey described in **Section 2.1** was used in conjunction with the agro-climatic data above to classify the survey area using the revised guidelines for ALC issued in 1988 by MAFF (1988). There are no climatic limitations within the localities.

SURVEY RESULTS

3.5 The agricultural quality of the land is primarily determined by droughtiness, wetness/workability, stoniness, slope gradient and flooding. Other factors have been assessed but do not affect the land grade. Land of grades 2 and subgrades 3a and 3b has been identified, and a small area of grade 4.

Grade 2

3.6 This land grade comprises the deep permeable soils that have medium loamy topsoils and are moderately-freely draining. The soils are mainly limited by slight topsoil stoniness and wetness/workability, often in combination. The moderately high topsoil clay content under the local climate can limit the flexibility of machinery access for cultivation over winter. The topsoil stone content can impair precision crop drilling and distort root crops.

3.7 Also included are deep permeable soils that are freely-draining and are limited by slight droughtiness. The soils will store slightly below optimum moisture for crop uptake in dry summers under the local climate.

Subgrade 3a

3.8 This subgrade includes areas with moderately high topsoil clay content and imperfect drainage (Soil Wetness Class III) and areas of moderately-freely draining land (Soil Wetness Class II) with high topsoil clay content. Under the local climate this combination causes wetness/workability constraints, which limits machinery access for cultivations in winter and early spring, although late spring (as well as autumn) sowings are usually possible.

Subgrade 3b

3.9 This subgrade includes areas with moderately high clay content and poor-drainage (Soil Wetness Class IV) and areas with high clay content and imperfect to poor-drainage (Soil Wetness Class III/ IV). This combination causes significant wetness/ workability limitation, which means that spring access to land with cultivation machinery is rarely possible and arable use is therefore mainly limited to autumn sowings.

3.10 Flooding is an equally limiting factor for land near the coast with limited flood protection.

3.11 Also included are minor areas with steep slope gradients (of 8° degrees and greater), this land is limited as the slopes are not safe for the use of cultivation machinery and often have additional soil erosion risks.

Grade 4

3.12 This land grade comprises a minor area with very steep slope gradient of 12° and an area of highly undulating topography. This land could not be cultivated safely and is limited to use as grassland.

Grade areas

3.13 The grade areas of the surveyed land within the proposed DCO Order Limits are included in **Table 1** below and shown on maps 2A-G in an appendix to this report.

Table 1: Areas occupied by the different land grades within the cable route

Grade/subgrade	***Area (ha)***	***% of the land***
Grade 2	53.5	23
Subgrade 3a	22.1	10
Subgrade 3b	153.5	66
Grade 4	1.9	1
Total	231.0	100

ANNEX A
DETAILS OF OBSERVATIONS
SOIL PIT DESCRIPTIONS

Rampion 2: Details of observations at each sampling point

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
1	0-30	HCL	5-10	30-58	HCL	xx(x)	58-100+	C/SC	xxx	0	II/III	3a/b	W/FL??
2	Gravel/flood defences												
3	0-34	MC/SCL	5-10	34-40	HCL	xx	40-100+	HCL	xxx	0	II	3a	W
4	0-33	HZCL	<5	33-100+	ZCca	xxx				0	IV	3b	W
5	0-30	M/SCL	5-10	30-56	SCL	xxx	56-100+	SC	xxx	0	II/III	2/3a	W
6	0-38	MCL/SCL	5-10	38-68	HCL	xx(x)	68-100+	HCL	xxx	0	II	2	W
7	0-33	MZCL	<5	33-62	Cslca	xxx	62-100+	ZC	xxx	0	IV	3b	W
8	0-30	HZCL	<5	30-100+	ZC	xxx				0	IV	3b	W
9	0-30	SCL/HCL	<5	30-50+	SCL	xx	50+	Stopped hard		0	I	2	D
10	0-31	MSL.SCL	5-10	31-48	SCL	o	48-100+	MSL	o	0	I	2	D/St
11	0-45	HCL ca	<5	45-60+	Cca	xxx				0	IV	3b	W
12	0-32	C ca	<5	32-100+	Cca	xxx				0	IV	3b	W
13	0-30	SCL	5-10	30-51	SCL	x	51-86 86+	SCL Stopped on stones	xx	0	I	2	D/St
14	0-32	SCL	5-10	32-54	HCL	xxx	54+	Stopped on stones		2	II	2	W
15	0-31	HZCL	<5	31-100+	C	xxx				0	IV	3b	W
16	0-32	ZC	<5	32-100+	C	xxx				0	IV	3b	W
17	0-33	C	<5	33-100+	C	xxx				0	IV	3b	W
18	0-33	HCL	5-10	33-60	C	xxx	60-100+	SC	xxx	2	IV	3b	W
19	0-33	MCL	5-10	33-40	MSCL	xx	40+	Flinty		1	I	2	D
20	0-32	M/SCL	5-10	32-51	MCL	x	51-63 63-100+	HCL Cr	xxx xxx	1	II	2	W
21	0-32	SCL	<5	32-84	SCL	xx(x)	84-100+	SC	xxx	0	II	2	W
22	0-31	C ca	10-15	31-90+	C ca	xxx				0	IV	3b	W
23	Electric cable not recorded												
24	0-33	C ca	<5	33-55	C ca	xxx	55-100+	Cca	xxx	0	IV	3b	W
25	0-27	slstMCLca	5-10	27-70	slstMCLchky	o	70-90+	HCL(dist?)	xxx	0	II	2	W/D
26	0-30	Cca	0	30-90+	Cca	xxx				0	IV	3b	W
27	0-35	vslstMSL	<5	35-72	vslstMSL	x	72-100+	SCL	xx	0	I	2	D
27A	0-35	vslstSCL	<5	35-55	vslstSCL	x	55-90+	SC	xx	0	I	2	D
28	0-32	vslstSCL	<5	32-90+	vslstSCL	x				1	I	2	D
29	0-40	vslstMSL	<5	40-70	vslstSCL/MSL	x	70-90+	SCL	xx	1	I	2	D
29A	0-29	vslstSCL	<5	29-100+	vslstSCL	x				0	I	2	D
30	0-37	vslstSCL	<5	37-90+	SCL	o				0	I	2	D
31	0-37	slstSCL	<5	37-90+	vslstSCL	x				0	I	2	D
32	0-32	vslstSCL	<5	32-100+	vslstSCL	o				1	I	2	D
33	0-31	vslstSCL	<5	31-76	SCL	x	76-90+	MSL	x	1	I	2	D
34	0-33	vslstSCL	<5	33-90+	C	xxx				0	IV	3b	W
35	0-30	C	0	30-90+	C	xxx				0	IV	3b	W
36	0-31	ZC	0	31-90+	C	xxx				0	IV	3b	W
37	0-31	HZCL	0	31-60	C	xxx	60+	Waterlogged (stopped)		0	IV	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
38	Flooded												
39	0-32	C	0	32-90+	C	xxx				0	IV	3b	W
40	0-30	C	0	30-90+	C	xxx				1	IV	3b	W
41	0-27	Cslca	0	27-90+	C	xxx				0	IV	3b	W
42	0-27	C	0	27-90+	C	xxx				0	IV	3b	W
43	0-38	C	0	38-64	MZCL	xxx	64-90+	C	xxx	0	III	3b	W
44	0-35	Cca	0	35-90+	C	xxx				0	IV	3b	W
45	0-32	C	0	32-70	C	xxx	70-90+	C	xxx	0	IV	3b	W
46	0-36	C	0	36-90+	C	xxx				0	IV	3b	W
47	0-31	HZCLca	0	37-50	ZCca	xxx	50-90+	C	xxx	0	III/IV	3b	W
48	0-26	HZCL	0	26-62	C	xxx	62-90+	C	xxx	0	IV	3b	W
49	0-33	C	0	33-90+	C	xxx				0	IV	3b	W
50	0-40	HZCLca	0	40-50	HZCL	xxx	50-90+	MZCL	xxx	1	II	3a	W
51	Bramble scrub-not accessible												
52	0-35	HZCLca	0	35-49	Cca	xxx	49-90+	C	xxx	0	III	3b	W
53	0-35	HZCLca	0	35-46	HZCL	xxx	46-90+	MZCL	xxx	0	II	3a	W
54	0-36	HZCLca	0	36-50	SCLca	xxx	50-90+	MSZL	xxx	0	II	3a	W
55	0-37	MZCLca	0	37-52	MZCL/ZL	xxx	52-100+	MS	xxx	0	II	2	D
56	0-33	Cca	0	35-58	C	xxx	58-90+	Cca	xxx	0	IV	3b	W
57	0-29	C	0	29-90+	C	xxx				0	IV	3b	W
58	0-26	C	0	26-80+	C	xxx				0	IV	3b	W
59	0-30	C	0	30-90+	C	xxx				0	IV	3b	W
60	0-23	mstMSL	5-10	23+	Stopped on stones					1	-	-	-
61	0-27	mstMSL	0	27-40	mstMSL	x	40-72 72+	mstSCL Stopped on stones	xx	1	I	2	D
62	0-18	HZCL(org)	0	18-45	C	xxx	45-80+	C	xxx	0	IV	3b	W Fl?
63	0-30	HZCL	0	30-45	HZCL	xxx	45-80+	C	xxx	0	IV	3b	W Fl?
64	0-13	MZCL	0	13-24	HZCL	xxx	24-50 50+	C Wet (stopped)	xxx	0	IV	3b	W Fl?
65	0-30	ZC	0	30-44	Cca	xxx	44-80+	C	xxx	0	IV	3b	W Fl?
66A	0-24	C	0	24-60	C(wet)	xxx	60+	Wet (stopped)		1	IV	3b	W Fl?
66	0-36	C	0	36-80+	C	xxx				1	IV	3b	W
67	0-30	SCL	<5	30-39	SC	xxx	39-90+	C	xxx	1	IV	3b	W
68	0-28	SCL	<5	28-50	SC	xxx	50+	Wet (stopped)		1	IV	3b	W
69	0-28	SCL	<5	28-50	SC	xxx	50+	Wet (stopped)		2	IV	3b	W
70	0-32	SCL	<5	32-50	SCL	xxx	50-80+	SC	xxx	1	III	3a	W
71	0-28	SCL	<5	28-64	SCL	xxx	64-90+	SCL	xxx	1	III	3a	W
72	0-35	MSL	<5	35-55	MSL	-	55-90+	SCL	xxx	1	II/I	2	D
73	0-13	MZCL	0	13-30	HZCL	xxx	30-80+	C	xxx	0	IV	3b	W /FL ?
74	Reed swamp												
75	0-31	C	0	31-90+	C	xxx				1	IV	3b	W / FL?
76	0-31	C	<5	31-80+	C	xxx				0	IV	3b	W /FL?
77	0-28	C v sl ca	0	28-100+	C ca	xxx				0	IV	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
78	0-31	HZCL	<5	31-100+	C ca	xxx				0	IV	3b	W
79	0-30	C ca	<5	30-80	C ca	xxx	80-100+	ZCL	xxx	0	IV	3b	W
80	0-30	C sl ca	0	30-100+	C chalky	xxx				0	IV	3b	W
81	0-26	C sl ca	<5	26-100+	C ca	xxx				0	IV	3b	W
82	0-24	MCL	5-10	30-70	MCL	x	70+	Stopped on stones		0	I	2	D
83	0-29	MCL	<5	29-51	SCL	xx	51-60 60-100+	SC C	xxx xxx	0	III/II	2/3a	W
84	0-28	MCL	5-10	28-61	SCL gravel	xxx				2	II	2	W
85	0-26	MCL	<5	26-44	SC/MCL	xx	44-100+	SCL	xxx	0	I	2	D
86	0-27	MCL	<5	27-61	SCL	xxx	61-100+	C	xxx	2	III	3a	W
87	0-25	MCL	<5	25-60	SCL	xx	60-100+	SCL	xxx	0	I	2	D
87b	0-30	MCL	<5	30-40+	MCL	x	40+	Stopped on stones		0	I	2	D
88	0-29	SCL	5-10	29-76	SCL	xxx	76-100+	HCL	xxx	0	II	2	W/D
89	0-32	slstSCL	<5	32-40	slstSCL	xx	40-63 63-90+	mstSCL mstSC	xxx xxx	2	II	2	W
90	0-32	MCL	5-10	32-56	SCL	xx	56+	Stopped on stones		1	I	2	D
91	0-30	slstSCL	<5	30-52	slstSCL	xxx	52-90+	mstSC	xxx	1	III	3a	W
92	0-40	MCL	<5	40-68	HCL	xxx	68-90+	SCL/gravel	xxx	0	II	2	W?
93	0-30	HCL	<5	30-54	C	xxx	54-70+	HCL/gravel	xx	1	II	3a	W
94	0-31	HCL	5-10	31-60+	C	xxx				0	IV	3b	W
95	0-28	slstHCL	<5	28-35	SCL/gravel(wet)	xxx	35+	Stopped on stones		2	-	-	-
96	0-16	HCL	0	16-30	HCL	xxx	30-68 68+	C Stopped on stones	xxx	2	IV	3b	W
97	0-15	H/MCL	<5	15-37	HCL	xxx	37-100+	C	xxx	0	IV	3b	W
98	0-30	MCL	<5	30-90+	C wet v sl ca	xxx				2	IV	3b	W
99	0-30	MCL	<5	30-100+	C	xxx				2	IV	3b	W
102	0-26	MCL	<5	26-33	MCL	xxx	33-90+	C	xxx	3	IV	3b	W
103	0-25	HZCL	<5	25-34	HZCL	xxx	34-100+	C	xxx	0	IV	3b	W
104	0-26	MZCL	<5	26-100+	C	xxx				0	IV	3b	W
105	0-32	HZCL	0	23-43	ZC	xxx	43-80+	C	xxx	1	IV	3b	W
106	0-28	MCL	<5	28-73	MCLchky	xxx	73-90+	HCL	xxx	2	II	2	W
107	0-30	mstC	10-15	30-40	mstC	x	40+	Stopped on stones		1	-	-	Flooding?
108	0-32	mstC	10-15	32-80+	slstC	xxx				3	IV	3b	W
114	0-26	HCL	<5	26-100+	C	xxx				4	IV	3b	W
115	0-26	HCL	<5	26-50	C	xxx	50-71 71-100+	SCL C grey	xxx xxx	6	IV	3b	W
116	0-28	HCL	<5	28-100+	C	xxx				5	IV	3b	W
117	0-28	HCL	<5	28-100+	C	xxx				5	IV	3b	W
118	0-2	HCL	<5	25-64	C	xxx	64+	Chalk		5	IV	3b	W
119	0-25	HCL	<5	25-100+	C	xxx				3	IV	3b	W
120	0-25	HCL	<5	25-100+	C	xxx				0	IV	3b	W
121	0-25	HCL	<5	25-95	C wet	xxx				0	IV	3b	W
122	0-22	HCL	<%	22-100+	C wet	xxx				2	IV	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
123	0-20	HCL	0	20-90+	C	xxx				0	IV	3b	W
124	0-25	HCL	0	25-100+	C	xxx				3	IV	3b	W
125	0-20	SCL	<5	20-34	HCL grey	xxx	34-60 60-100+	SC C	xxx xxx	2	IV	3b	W
126	0-25	HZCL	<5	25-45	Cslca	xxx	45-80	ZLchalky	xx	9	II	3b	SI
127	0-20	HCL	<5	20-42	HCL	xxx	42-100+	C	xxx	8	III	3b	SI/W
128	0-30	HCL	<%	30-41	HCL	xxx	41-95+	C	xxx	3	III	3b	W
129	0-11	HCL ca	<5	11-33	Cchky	xxx	33+	Chalk		6	II		
130	0-30	HZCL ca	<5	30-40	HCca	xxx	40-65 65+	Cca Chalk	xxx	3	III	3b	W
131	0-30	HCL	0	30-100+	C	xxx				0	IV	3b	W
134	0-20	HZCL	0	20-33	C	xxx	33-90+	C	xxx	2	IV	3b	W
135	0-25	HZCL	0	25-38	C	xxx	38-100+	C	xxx	0	IV	3b	W
136	0-15	HZCL	0	15-60	C	xxx				0	IV	3b	W
137	0-29	HZCL	0	29-40	HZCL/C	xxx	40-90+	C	xxx	0	IV	3b	W
138	0-23	HZCL	0	23-72	C	xxx	72-90+	C	xxxx	0	IV	3b	W
139	0-36	HZCL	0	36-90+	C	xxx				2	IV	3b	W
140	0-33	HZCL	0	33-43	HZCL	xxx	43-90+	C	xxx	2	IV	3b	W
141	0-32	MCL	0	32-64	MCL	x	64-80+	MCL	xx	2	I	2	D
142	0-31	MSL	0	31-74	SCL	xx	74-100+	MSL	xxx	1	I	2	D
143	0-23	SCL	<5	23-41	MstSCL	xx(x)	41+	Stopped on stones		3	I/II	2	W/D
144	0-26	SCL	<5	26-90+	SCL	xx				1	I	2	D
145	0-32	CSL	0	32-62	CS	o	62-100+	CS	xx(x)	4	I	3b/4?	T
146	0-32	vslstLMS	<5	32-62	LMS	o	62-100+	MS	xx	12	I	4	SI
147	0-27	vslstMSL	<5	27-100+	vslstMSL	xx				6	I	2	D
148	0-27	SCL	0	27-58	SCL	xxx	58-90+	SC	xxx	0	III	3a	W (FL?)
149	0-22	vslstMSL	<5	22-75	vslstMSL	xx(x)	75+	Stopped on stones		6	I	2	D
150	0-30	MSL	0	30-76	SCL	xxx	76-100+	MSL	xx	3	I	2	D
151	0-26	SCL	<5	26-70	SCL	xxx	70+	Wet (stopped)		1	IV	3b	W
152	0-30	SCL	0	30-50	SCL	xxx	50-90+	SCL/SC	xxx	1	III	3a	W
153	0-28	HCL	0	28-48	C(gr)	xxx	48-80+	C(gr)	xxx	1	IV	3b	W
154	0-27	SCL	0	27-90+	SCL	xx				1	I	2	D
155	0-31	SCL	0	31-65	SCL	xx	65-90+	SCL	xxx	3	II	2	W
156	Pit									1			
157	0-30	slstSCL	<5	30-55	SCL	xxx	55-80+	SCL	xxx	2	II/III	2/3a	W
158	0-23	slstSCL	<5	23-75	SCL	o	75-90+	SCL	xx	2	I	2	D
159	0-26	vslstSCL	<5	26-54	SCL	xx	54-80+	SCL	xxx	3	II	2	W
160	0-25	vslstSCL	<5	25-55	SCL	xxx	55-80+	SCL	xxx	3	II/III	2/3a	W
161	0-30	MCL	<5	30-52	HCL	xx	52-90+	HCL/SCL	xx	2	I	2	D
162	0-27	MCL/SCL	<5	27-52	SCL	xxx	52-90+	HCL/SCL	xx	2	II/III	2/3a	W
163	0-40	SCL	<5	40-58	SCL	xxx	58-60 60+	mstSCL/SST SST	xxx	0	II	3b	D
164	Gas easement (not sampled)												

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
165	0-30	MCL	<5	30-53	MCL	o	53-68 68-90+	MCL HCL	xx xxx	1	II	2	W
166	0-31	MCL	0	31-62	MCL	xx	62-90+	HCL/SCL	xxx	1	I	2	D
167	0-33	vslstMCL/SCL	<5	33-90+	SCL	o				2	I	2	D
168													
169	0-20	MZCL	0	20-46	MZCL	xxx	46-80+	HZCL	xxx	3	III	3a	W
170	0-14	MZCL	0	14-40	MZCL	xxx	40-82 82-90+	HZCL C	xxx xxx	2	IV	3b	W
171	0-25	MZCL	0	25-50	HZCL	xxx	50-90+	C	xxx	4	III	3a	W
172	0-22	MZCL	<5	22-90+	C	xxx				5	IV	3b	W
173	0-23	MZCL	<5	23-36	HZCL	xxx	36-80+	C	xxx	4	IV	3b	W
174	0-34	slstHZCL	<5	34-50	vstSCL	xxx	50+	Stopped on stones		4			
175	0-20	MZCL	0	20-30	M/HZCL	xxx	30-90+	C	xxx	2	IV	3b	W
176	0-34	HZCL	0	34-40	HZCL	xxx	40-90+	C	xxx	2	IV	3b	W
177	0-17	MZCL	0	17-70	C	xxx				2	IV	3b	W
178	0-23	M/HZCL	0	23-90+	C	xxx				2	IV	3b	W
179	0-22	MCL	0	22-90+	C(r)	xxx				1	IV	3b	W
180	0-38	MCL	<5	38-90+	MCL	xxx				3	II	2	W
181	0-32	SCL	<5	32-42	SCL	xxx	42-90+	C	xxx	3	IV	3b	W
182	0-27	SCL	<5	27-45	SCL	xxx	45-61 61-80+	C HCL	xxx xxx	3	III	3a	W
183	0-33	SCL	<5	33-62	SCL	xxx	62-90+	SC	xxx	2	III	3a	W
184	0-25	MCL	<5	25-53	MCL	xx	53-90+	SCL/HCL	xxx	2	II	2	W
185	0-24	HZCL	0	24-35	HZCL	xxx	35-90+	C	xxx	3	IV	3b	W
186	0-30	MCL	0	30-50	MCL	xxx	50-90+	HCL	xxx	3	III	3a	W
187	0-15	MCL	<5	15-71	C	xxx	71+	Stopped on stones		3	IV	3b	W
188	0-27	HZCL	<5	27-47	HCL	xxx	47-90+	C	xxx	3	III	3b	W
189	0-31	HZCL	0	31-90+	C	xxx				1	IV	3b	W
190	0-30	HZCL	0	30-42	HZCL	xxx	42-90+	C	xxx	0	IV	3b	W
191	0-24	HZCL	0	24-29	HZCL	xxx	29-90+	C	xxx	0	IV	3b	W
192	0-27	HCL/SCL	<5	27-38	SCL	xxx	38-64 64+	HCL Stopped on stones	xxx	1	IV	3b	W
193	0-30	slstSCL	<5	30-70	slstSCL	xxx	70-90+			0	II	2	W
194	0-30	slstSCL	<5	30-70+	slstSCL(dist)	xx				0	I	2	D
195	0-25	MCL	0	25-90+	MCL	o				0	I	2	D
195b	0-29	MCL	0	29-100+	MCL	o				0	I	2	D
196	0-22	HZCL	0	22-90+	C	xxx				0	IV	3b	W /FL?
197	0-12	MZCL	<5	12-60+	C	xxx				0	IV	3b	W 200,023
198	0.31	lstSCL	<5	31-53	slstSCL	xx	53-85 85-90+	SCL C		1	I	2	D
199	0.32	slstSCL	<5	32-52	slstSCL	o	52-90+	SCL		0	I	2	D
200	0.25	MZCL	<5	25-35	HZCL	xxx	35-90+	C		1	IV	3b	W
201	0-23	MCL	0	23-90+	C	xxx				3	IV	3b	W
202	0-50+	SCL(dist)	0							0	-	-	-

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
203	Landfill												
204	0-25	MCL	0	25-90+	C	xxx				0	IV	3b	W
205	0-30	MCL	0	30-45	MCL	xxx	45-90+	C	xxx	0	III	3a	W
206	0-30	HZCL	0	30-45	HZCL	xxx	45-90+	C	xxx	0	III	3b	W
207	0-23	MCL	0	23-90+	C	xxx					IV	3b	W
208	0-25	MCL	0	25-45	SCL	xxx	45-90+	C	xxx	0	III	3a	W
209	0-28	MZCL	0	28-41	HZCL	xxx	41-90+	C	xxx	0	IV	3b	W
210	0-30	MZCL	0	30-56	MZCL	xxx	56-90+	FSZL	xxx	0	II	2	W
211	0-34	HZCL	0	34-90+	C	xxx				0	IV	3b	W
212	0-6	MZCL	0	6-35	C	xxx	35-60 60+	C Wet (stopped)	xxx	0	IV	3b	W
213	0-14	HZCL	0	14-29	C	xxx	29-90+	C	xxx	0	IV	3b	W
214	0-23	HZCL	0	23-40	HZCL	xxx	40-90+	C	xxx	1	IV	3b	W
215	Flooded												
216	0-23	MZCL	0	23-39	HZCL	xxx	39-80+	C	xxx	0	IV	3b	W
217	0-26	HZCL	0	26-38	HZCL	xxx	38-80+	C	xxx	1	IV	3b	W
218	0-28	M/HZCL	0	28-90+	C					0			
219	Disturbed												
220	0-28	HZCL	0	28-40	HZCL		40-90+	C	xxx	1	IV	3b	W
221	0-28	MCL	0	28-43	HCL		43-90+	HCL	xxx	1	III	3a	W
222	0-21	HZCL	0	21-90+	C					1	IV	3b	W
223	0-11	MZCL	0	11-90+	MZCL	xxx				2	IV	3b	W
224	0-15	MZCL	0	15-32	HZCL	xxx	32-80+	C(r)	xxx	3	IV	3b	W
225	0-23	MCL	0	23-39	MCL	xxx	39-90+	C	xxx	2	IV	3b	W
226	0-19	MZCL	0	19-38	MZCL	xxx	38-70+	C	xxx	1	IV	3b	W
227	0-21	HZCL	0	21-90+	C	xxx				1	IV	3b	W
228	0-25	MZCL	0	25-38	MCL	xxx	38-90+	C	xxx	1	IV	3b	W
229	0-26	HZCL	0	26-56	HZCL	xxx	56-80+	HZCL	xxx	0	III	3b	W
230	0-30	MZCL	0	30-38	MZCL	xxx	38-80+	C	xxx	2	IV	3b	W
231	0-20	MZCL	0	20-32	MZCL	xxx	32-90+	C	xxx	2	IV	3b	W
232	0-23	MZCL	0	23-38	MZCL	xxx	38-90+	C	xxx	1	IV	3b	W
232A	0-27	MZCL	0	27-43	HZCL	xxx	43-90+	C	xxx	2	III	3a	W
233	NOT ACCESSED												
234	NOT ACCESSED												
235	NOT ACCESSED												
236	NOT ACCESSED												
237	0-26	MZCL	0	16-51	MZCL	xxx	51-80+	HZCL	xxx	2	III	3a	W
238	0-29	MZCL	0	29-36	MZCL	xxx	36-56 56-90+	HZCL C	xxx xxx	3	IV	3b	W
239	0-23	MZCL	0	23-35	HZCL	xxx	35-90+	C	xxx	2	IV	3b	W
240	0-25	M/HCL	0	25-90+	C(r)	xxx				2	IV	3b	W
241	0-24	MZCL	0	24-42	HZCL	xxx	42-90+	C	xxx	2	IV	3b	W
242	0-27	MCL	0	27-38	MCL	xx	38-55 55-90+	MZCL MZCL	xxx xxx	2	III	3a	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
243	0-27	MCL	0	27-60	MCL	xxx	60-90+	MCL	xxx	3	II/III	2/3a	W
244	0-24	MZCL	0	24-46	HZCL	xxx	46-65 65+	C Stopped on stones	xxx	3	IV	3b	W
245	0-24	MCL	0	24-43	HZCL	xxx	43-90+	C(r)	xxx	4	III	3a	W
246	0-30	HZCL	0	30-55	HZCL	xxx	55-90+	C	xxx	0	III	3b	W
247	0-25	MZCL	0	25-80+	C	xxx				5	IV	3b	W
248	0-26	MZCL	0	26-90+	C	xxx				6	IV	3b	W
249	0-40	MZCL	0	40-60	HZCL	xxx	60-90+	HZCL	xxx	2	III	3a	W
250	0-27	HZCL	0	27-43	HZCL	xxx	43-90+	C	xxx	3	III	3b	W
251	0-31	MZCL	0	31-46	MZCL	xxx	46-90+	HZCL	xxx	2	III	3a	W
252	0-26	HZCL	0	26-90+	C	xxx				0	IV	3b	W
253	0-15	HZCL	0	15-80+	C	xxx				3	IV	3b	W
254	0-15	HZCL	0	15-90+	C	xxx				3	IV	3b	W
255	0-29	HCL	0	29-49	HCL	xxx	49-90+	C	xxx	0	IV	3b	W
256	0-25	MCL	0	25-45	MCL	xxx	55-80+	HCL	xxx	0	III	3a	W
257	0-50+	MCL(dist)	0							3	-	-	-
258	0-30	MCL	0	30-55	MCL	xxx	55-90+	HZCL	xxx	4	III	3a	W
259	0-30	SCL	0	30-60	SCL	xxx	60-81 81-90+	SCL C	xxx xxx	3	II/III	2/3a	W
260	0-26	MZCL	0	26-56	MZCL	xxx	56-90+	HCL	xxx	3	III	3a	W
261	0-24	MZCL	0	24-36	MZCL	xxx	36-90+	C	xxx	0	IV	3b	W
262	0-25	HZCL	0	25-33	HZCL	xxx	33-90+	C	xxx	1	IV	3b	W
263	0-23	MZCL	0	23-34	HZCL	xxx	34-80+	HZCL	xxx	2	IV	3b	W
264	0-25	MZCL	0	25-33	HZCL	xxx	33-90+	C	xxx	2	IV	3b	W
265	0-25	MZCL	0	25-61	MZCL	xxx	61-90+	HZCL	xxx	1	III	3a	W
266	0-21	MZCL	0	21-33	HZCL	xxx	33-80+	C	xxx	1	IV	3b	W
267	0-15	HZCL	0	15-28	HZCL	xxx	28-90+	C	xxx	1	IV	3b	W
268	0-15	HZCL	0	15-90+	C	xxx				3	IV	3b	W
269	0-25	HZCL	0	25-33	HZCL	xxx	33-80+	C	xxx	1	IV	3b	W
270	0-20	MZCL	0	20-43	HZCL	xxx	43-90+	C	xxx	1	III	3a	W
271	0-22	MZCL	0	22-30	M/HZCL	xxx	30-80+	C	xxx	2	IV	3b	W
272	0-25	HZCL	0	25-36	HZCL	xxx	36-80+	C	xxx	2	IV	3b	W
273	0-21	MZCL	0	22-40	HZCL	xxx	40-80+	C	xxx	2	IV	3b	W
274													
275													
276	0-15	M/HZCL	0	15-30	HZCL	xxx	30-90+	C	xxx	2	IV	3b	W
277	0-9	HZCL(org)	0	9-27	HZCL/C	xxx	27-90+	C	xxx	2	IV	3b	W
278	No access												
279	0-25	HZCL	0	25-90+	C	xxx				2	IV	3b	W
298	0-31	HZCL	0	31-50	HZCL	xxx	50-90+	C	xxx	0	IV/III	3b	W
299	0-18	HZCL	0	18-32	HZCL	xxx	32-90+	C	xxx	2	IV	3b	W
300	0-12	HZCL	0	12-45	HZCL	xxx	45-90+	C	xxx	4	III	3b	W
301	0-26	HZCL	0	26-90+	C	xxx				3	IV	3b	W
302	0-23	HZCL	0	23-35	HZCL	xxx	35-90+	C	xxx	4	IV	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
303	0-25	MZCL	0	25-35	HZCL	xxx	35-90+	C	xxx	3	IV	3b	W
304	0-27	HZCL	0	27-50	HZCL	xxx	50-90+	C	xxx	4	III	3b	W
305	NOT ACCESSED												
309	0-21	MZCL	0	12-44	MZCL	xx(x)	44-90+	HZCL	xxx	3	III	3a	W
310	0-12	HZCL	0	12-27	HZCL	xxx	27-60+	C	xxx	3	IV	3b	W
311	0-23	HZCL	0	23-47	HZCL	xxx	47-80+	C	xxx	1	III	3b	W
314	0-25	MCL	0	25-80+	C(r)	xxx				2	IV	3b	W
314A	0-26	MZCL	0	26-42	C	xxx	42-90+	C(r)	xxx	3	IV	3b	W
315	0-23	MZCL	0	23-32	HZCL	xxx	32-90+	C	xxx	3	IV	3b	W
316	0-28	MZCL	0	28-90+	C(r)	xxx				3	IV	3b	W
317	0-19	MZCL	0	19-27	HZCL	xxx	27-80+	C	xxx	1	IV	3b	W
318	0-28	M/HZCL	0	28-40	HZCL	xxx	40-90+	C	xxx	1	IV	3b	W
319	0-25	MCL	0	25-41	MCL	xxx	41-67 67+	MZCL Stopped on stones	xxx	1	II/III	2/3a	W
320	0-29	HZCL	0	29-90+	C	xxx				4	IV	3b	W
321	0-24	HZCL	0	24-32	HZCL	xxx	32-90+	C	xxx	2	IV	3b	W
322	0-24	HZCL	0	24-35	HZCL	xxx	35-90+	C	xxx	2	IV	3b	W
323	0-24	HZCL	0	24-90+	C	xxx				1	IV	3b	W
324	0-31	MCL	0	31-52	MCL	xxx	52-90+	C	xxx	3	III	3a	W
325	0-26	HZCL	0	26-35	M/HZCL	xxx	35-90+	C	xxx	1	IV	3b	W
326	0-33	HZCL	0	33-51	HZCL	xxx	51-90+	C	xxx	0	IV/III	3b	W
327	0-21	HZCL	0	21-90+	C	xxx				1	IV	3b	W
328	0-30	HZCL	0	30-90+	C	xxx				0	IV	3b	W
329	0-27	HZCL	0	27-90+	C	xxx				1	IV	3b	W
330	0-28	HCL	0	28-78	C	xxx	78-90+	MZCL	xxx	2	IV	3b	W
331	0-27	MCL	0	27-90+	C	xxx				2	IV	3b	W
332	0-23	M/HZCL	0	23-90+	C	xxx				0	IV	3b	W
333	0-24	MZCL	0	24-90+	C	xxx				2	IV	3b	W
334	0-18	HCL	0	18-29	HCL	xxx	29-90+	C	xxx	3	IV	3b	W
335	0-20	MZCL	0	20-42	HZCL	xxx	42-90+	C	xxx	3	IV	3b	W
336	0-20	M/HZCL	0	20-38	HZCL	xxx	38-90+	C	xxx	2	IV	3b	W
337	0-19	MZCL	0	19-33	HZCL	xxx	33-90+	C	xxx	2	IV	3b	W
338	0-21	MZCL	0	21-45	HZCL	xxx	45-90+	C	xxx	2	III	3a	W
339													
340	0-26	MZCL	0	26-90+	C	xxx				1	IV	3b	W
341	0-26	MZCL	0	26-39	HZCL	xxx	39-90+	C	xxx	1	IV	3b	W
342	0-26	MZCL	0	26-65	M/HZCL	xxx	65-90+	H/MZCL	xxx	2	II/III	2/3a	W
343	No access												
344	No access												
345	0-21	HZCL	0	21-32	HZCL	xxx	32-90+	C	xxx	1	IV	3b	W
346	0-29	MZCL	0	29-90+	C	xxx				2	IV	3b	W
347	0-25	MZCL	0	25-32	MZCL	xxx	32-90+	C	xxx	2	IV	3b	W
348	0-15	MZCL	0	15-42	MZCL	xxx	42-90+	C		2	IV	3b	W

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
349	0-25	MZCL	0	25-36	HZCL	xxx	36-90+	C		2	IV	3b	W
350	0-24	HZCL	0	24-48	HZCL	xxx	48-90+	C		0	III	3b	W
351	0-25	HZCL	0	25-35	HZCL(wet)	xxx	35-90+	HZCL	xxx	2	IV	3b	W
352	0-21	MZCL	0	21-36	MZCL	xxx	36-62 62-90+	HZCL C	xxx xxx	1	IV	3b	W
353	0-20	HCL	0	20-35	HCL	xxx	35-50 50+	C Wet (stopped)	xxx	1	IV	3b	W
354	0-21	HZCL/HCL	0	21-28	HZCL/HCL	xxx	28-90+	C	xxx	1	IV	3b	W
355	0-25	HCL	0	25-50	HCL	xxx	50-80+	C	xxx	4	III	3b	W
356	0-25	HZCL	0	25-35	HZCL	xxx	35-80+	HZCL	xxx	3	IV	3b	W
357	0-26	MZCL	0	26-90+	MZCL	xxx				1	II	2	W
358	0-19	MZCL	0	19-30	MZCL	xxx	30-90+	HZCL	xxx	2	II/IV	2/3b	W
359	0-25	HZCL	0	25-44	HZCL	xxx	44-90+	ZC	xxx	1	III	3b	W
360	0-22	MZCL	0	22-40	HZCL	xxx	40-65 65+	HZCL Stopped on stones	xxx	1	IV	3b	W
361	0-22	MZCL	0	22-54	MZCL	xxx	54-90+	HZCL	xxx	2	III	3a	W
362	0-30	MZCL	0	30-42	HZCL	xxx	42-90+	ZC	xxx	1	IV	3b	W
363	0-28	MZCL	0	28-43	MZCL	xxx	43-90+	C	xxx	1	III	3a	W
364	0-21	MZCL	0	21-37	MZCL	xxx	37-62 62-90+	HZCL MZCL	xxx	1	IV	3b	W
365	0-25	MZCL	0	25-50	MZCL	xxx	50-90+	HZCL	xxx	1	II/III	2/3a	W
366	0-27	MZCL	0	27-43	MZCL	xxx	43-90+	HZCL	xxx	1	III	3a	W
367	0-26	MZCL	0	26-38	MZCL	xxx	38-90+	HZCL	xxx	1	IV	3b	W
368	0-28	MZCL	0	28-62	MZCL	xxx	62-90+	HZCL	xxx	1	III	3a	W
369	0-30	MZCL	0	30-40	HZCL	xxx	40-90+	ZC	xxx	0	IV	3b	W
370	0-20	MZCL	0	20-51	MCL	xxx	51-78 78+	HCL Stopped on stones	xxx	1	II/III	2/3a	W
371	0-22	MCL	0	22-90+	SCL	xxx				0	II	2	W
372	0-22	MZCL	0	22-35	M/HCL	xxx	35-90+	HCL	xxx	0	IV	3b	W
373	0-24	HZCL	0	24-35	HZCL	xxx	34-90+	ZC	xxx	0	IV	3b	W
374	0-26	MZCL	0	26-45	HZCL	xxx	45-90+	HZCL	xxx	0	II/III	2/3a	W
375	0-29	MZCL	0	29-40	HZCL	xxx	40-80+	C	xxx	2	IV	3b	W
376	0-30	MZCL	0	30-41	HZCL	xxx	41-90+	HZCL	xxx	1	IV	3b	W
377	0-28	HZCL	0	28-45	HZCL	xxx	45-80+	ZC	xxx	1	III	3b	W

Survey log key

Gley indicators[1]

o	unmottled
x	1-2% ochreous mottles and brownish matrix (or a few to common root mottles (topsoils))[3]
xx	>2% ochreous mottles and brownish matrix and/or dull structure faces (slightly gleyed horizon)
xxx	>2% ochreous mottles and greyish or pale matrix (gleyed horizon) or reddish matrix and >2% greyish, brownish or ochreous mottles and pale ped faces mottles or f-m concentrations (gleyed horizon)
xxxx	dominantly blueish matrix often with some ochreous mottles (gleyed horizon)

Slowly permeable layers[4]

a depth underlined (for example 50) indicates the top of a slowly permeable layer

A wavy underline (for example 50 indicates the top of a layer borderline to slowly permeable

Texture[2]

C - clay
ZC - silty clay
SC - sandy clay
CL - clay loam (H-heavy, M-medium)
ZCL - silty clay loam (H-heavy, M-medium)
SZL - sandy silt loam (F-fine, M-medium,C-coarse)
LS - loamy sand (F-fine, M-medium, C-coarse)
SL - sandy loam (F-fine, M-medium, C-coarse)
S - sand (F-fine, M-medium, C-coarse)
SCL - sandy clay loam
P - peat (H-humified, SF-semi-fibrous, F-fibrous)
LP - loamy peat; PL - peaty loam

Wetness Class[5]

I (freely drained) to VI (very poorly drained)

Limitations:

W - wetness/workability
D - droughtiness
De - depth
F - flooding
St – stoniness
Sl – slope
T – topography/microrelief

Suffixes & prefixes:

r-reddish, gn – greenish
org - organic
(m, v, x)st – (moderately, very, extremely)

(vsl, sl, m, v, x)(very slightly, slightly, moderately very, extremely) calcareous

Other abbreviations

fmn - ferri-manganiferous concentrations
dist - disturbed soil layer;
R – bedrock (CH – chalk, SST – sandstone LST – limestone, MST – Mudstone)

[1]Gley indicators in accordance with Hodgson, J.M., 1997. Soil Survey Field Handbook (third edition). Soil survey technical monograph No. 5
[2]Texture in accordance with particle size classes in Hodgson (1997)
[3] Occasionally recorded in the texture box
[4]Permeability is estimated for auger borings and must be confirmed by full pit observations in accordance with the definitions in: Revised Guidelines for grading the quality of Agricultural Land (Maff 1988)
[5]Soil Wetness Classes are defined in Hodgson (1997)
[6]stoniness classes as defined in Hodgson (1997)
[7]calcareous classes as defined in Hodgson (1997)

Soil pit descriptions

Pit 29 (see Map 1)

0-32 cm Greyish brown (10YR 5/2) medium sandy loam; 3% small and medium sub-angular flints; moderately developed fine sub-angular blocky structure; friable; smooth gradual boundary to:

32-56 cm Brown (7.5YR 5/4) medium sandy loam; very slightly stony; moderately developed coarse sub-angular blocky structure; friable; low packing density; smooth diffuse boundary to:

56-120 cm Brown (7.5YR 5/4) sandy clay loam with paler brown (10YR 5/3) ped faces; very slightly stony; weakly developed coarse and very coarse sub-angular blocky structure; friable; porous; medium packing density.

Pit 40 (see Map 1)

0-29 cm Dark greyish brown (10YR 4/2) clay; stoneless; moderately developed coarse sub-angular blocky structure; firm; calcareous; smooth clear boundary to:

29-47 cm Grey (10YR 6/1) clay with 15% distinct fine yellowish brown (10YR 5/8) mottles; stoneless; moderately developed coarse prismatic structure; very firm; no macropores; high packing density; non-calcareous; smooth diffuse boundary to:

47-100 cm+ Grey (10YR 6/1) clay with 40% distinct coarse strong brown (7.5YR 5/8) mottles; stoneless; moderately developed very coarse prismatic structure to structureless (massive); very firm; no macropores; high packing density; calcareous.

Pit 89 (see Map 1)

0-30 cm Dark greyish brown (10YR 4/2) sandy clay loam; 5% small and medium sub-angular flints; moderately developed coarse sub-angular blocky structure; friable; smooth clear boundary to:

30-55 cm Pale brown (10YR 6/3) sandy clay loam with 20% reddish yellow (7.5YR 6/8) mottles and 2-3% black ferri-manganiferous concentrations; 5-10% flints; moderately developed medium sub-angular blocky structure; friable; medium packing density; porous; smooth diffuse boundary to:

55-110 cm+ Light grey (10YR 7/1) sandy clay with 50% prominent reddish yellow (7.5YR 6/8) mottles and 20% black fine and medium ferri-manganiferous concentrations; 20% flints; weakly developed very coarse angular blocky structure; firm; no macro-pores; high packing density.

Pit 135 (see Map 1)

0-25 cm Dark grey (10YR 3/1) heavy silty clay loam; stoneless; moderately developed very coarse sub-angular blocky structure; firm; abundant fine fibrous roots; non-calcareous; smooth gradual boundary to:

25-38 cm Light greyish brown (10YR 6/2) clay with 20% distinct fine reddish yellow (7.5YR 6/8) mottles; stoneless; moderately developed coarse sub-angular blocky structure; friable; medium packing density; common fine fibrous roots; non-calcareous; smooth gradual boundary to:

38-100 cm+ Grey (10YR 5/1) clay with 10% distinct fine reddish yellow (7.5YR 6/8) mottles; stoneless; structureless (massive); very firm; no macropores; high packing density; non-calcareous.

Pit 145 (see Map 1)

0-32 cm Very dark greyish brown (10YR 3/2) coarse sandy loam; stoneless; weakly developed fine sub-angular blocky structure; very friable; smooth clear boundary to:

32-63 cm Brown (7.5YR 5/4) coarse sand; stoneless; weakly developed fine sub-angular blocky structure; very friable; smooth diffuse boundary to:

63-100 cm+ pale brown (10YR 6/3) coarse sand with 30% distinct fine yellowish brown (10YR 5/8) mottles; stoneless; structureless (single grain); loose.

Pit 156 (see Map 1)

0-28 cm Dark greyish brown (10YR 4/2) sandy clay loam to medium clay loam; 2% small and medium flints; moderately developed coarse sub-angular blocky structure; friable; smooth clear boundary to:

28-52 cm Brown (10YR 5/3) sandy clay loam with 20% distinct fine strong brown (7.5YR 5/8) mottles and greyish brown (10YR 5/2) ped faces; very slightly stony; moderately developed medium sub-angular blocky structure; friable; medium packing density; porous; smooth gradual boundary to:

52-70 cm Greyish brown (10YR 5/2) sandy clay loam with 40% distinct fine and medium strong brown (7.5YR 5/8) and reddish yellow (7.5YR 6/8) mottles; 15% small soft tabular sandstone fragments; moderately developed coarse angular blocky structure; friable; 1% fine bio-pores and worm channels; medium packing density; porous; smooth gradual boundary to:

70-100 cm+ Greyish brown (10YR 5/2) heavy clay loam with abundant distinct strong brown (7.5YR 5/8) and reddish yellow (7.5YR 6/8) mottles; 30-40% small soft tabular sandstone fragments (weathering rock bands; moderately developed coarse platy structure (possibly rock bedding structure); friable; medium packing density; no macropores.

Pit 166 (see Map 1)

0-32 cm Dark greyish brown (10YR 4/2) medium clay loam; 2% small and medium flints; moderately developed coarse sub-angular blocky structure; friable; smooth gradual boundary to:

32-52 cm Brown (10YR 5/3) medium clay loam; very slightly stony; moderately developed medium sub-angular blocky structure; friable; medium packing density; smooth diffuse boundary to:

52-100 cm+ Brownish yellow (10YR 6/6) heavy clay loam/sandy clay loam with 15% distinct medium and coarse yellowish brown (10YR 5/8) mottles and 10% pale brown (2.5Y 7/4) mottles and ped faces; stoneless; moderately developed coarse sub-angular blocky structure; friable; 1% very fine bio-pores; common worm channels; medium packing density.

Pit 195b (see Map 1)

0-29 cm Dark greyish brown (10YR 4/2) medium clay loam; stoneless; moderately developed medium and coarse sub-angular blocky structure; friable; smooth gradual boundary to:

29-45 cm Brown (7.5YR 5/3) medium clay loam; stoneless; moderately developed medium sub-angular blocky structure; friable; medium packing density; smooth diffuse boundary to:

45-100 cm+ Brown (7.5YR 5/4) medium clay loam; stoneless; weakly developed coarse sub-angular blocky structure; friable to firm (plastic); medium packing density.

Pit 239 (see Map 1)

0-23 cm Dark greyish brown (10YR 4/2) medium silty clay loam with 5% distinct fine yellowish red (5YR 5/6) mottles; stoneless; moderately developed very coarse sub-angular blocky structure; friable; common fine fibrous roots; smooth gradual boundary to:

23-37 cm Greyish brown (10YR 5/2) heavy silty clay loam with 10% distinct fine yellowish brown (10YR 5/8) mottles; stoneless; moderately developed coarse and very coarse sub-angular blocky structure; friable; 1-2% fine and medium bio-pores; medium packing density; common fine fibrous roots; smooth gradual boundary to:

37-52 cm Grey (10YR 5/1) clay with 10% distinct fine yellowish brown (10YR 5/8) and strong brown (7.5YR 5/8) mottles and 2% fine black ferri-manganiferous concentrations; stoneless; weakly developed very coarse angular blocky structure; very firm; <0.5% macro-pores; high packing density; smooth gradual boundary to:

52-100 cm+ Reddish brown (5YR 5/3) clay with grey (5YR 5/1) ped faces and 2% fine black ferri-manganiferous concentrations; stoneless; weakly developed very coarse prismatic structure to structureless (massive); very firm; no macropores; high packing density.

Pit 226 (see Map 1)

0-27 cm Greyish brown (2.5YR 4/2) medium silty clay loam; stoneless; strongly developed medium and fine sub-angular blocky structure; friable; abundant fine fibrous roots; smooth gradual boundary to:

27-37 cm Greyish brown (2.5YR 5/2) medium silty clay loam with 20% distinct fine reddish yellow (7.5YR 5/8) mottles; stoneless; moderately developed medium sub-angular blocky structure; friable; medium packing density; common fine fibrous roots; smooth gradual boundary to:

37-82 cm Pale brown (2.5Y 7/3) clay with 20% distinct fine yellowish brown (10YR 5/8)) mottles and 5% fine black ferri-manganiferous concentrations; stoneless; weakly developed very coarse prismatic structure; very firm; no macro-pores; high packing density; few fine fibrous roots; smooth clear boundary to:

82 cm+ Weathering greyish siltstone; hard below 90 cm.

Pit 372 (see Map 1)

0-25 cm Dark greyish brown (10YR 4/2) medium silty clay loam; stoneless; moderately developed coarse sub-angular

blocky structure; friable; abundant fine fibrous roots; smooth gradual boundary to:

25-45 cm Pale brown (2.5Y 7/4) medium silty clay loam with 15% distinct fine and medium yellowish brown (10YR 5/8) mottles and light grey (10YR 7/1) ped faces; stoneless; moderately developed coarse sub-angular blocky structure; friable to firm; medium packing density; 1% fine bio-pores; common fine fibrous roots; smooth gradual boundary to:

45-100 cm+ Grey (10YR 6/1) heavy clay loam with 20% distinct medium strong brown (10YR 5/8) mottles and 2-3% black ferri-manganiferous concretions; stoneless; weakly developed very coarse sub-angular blocky structure firm; no macropores; high packing density; few fine fibrous roots.

4.0 References

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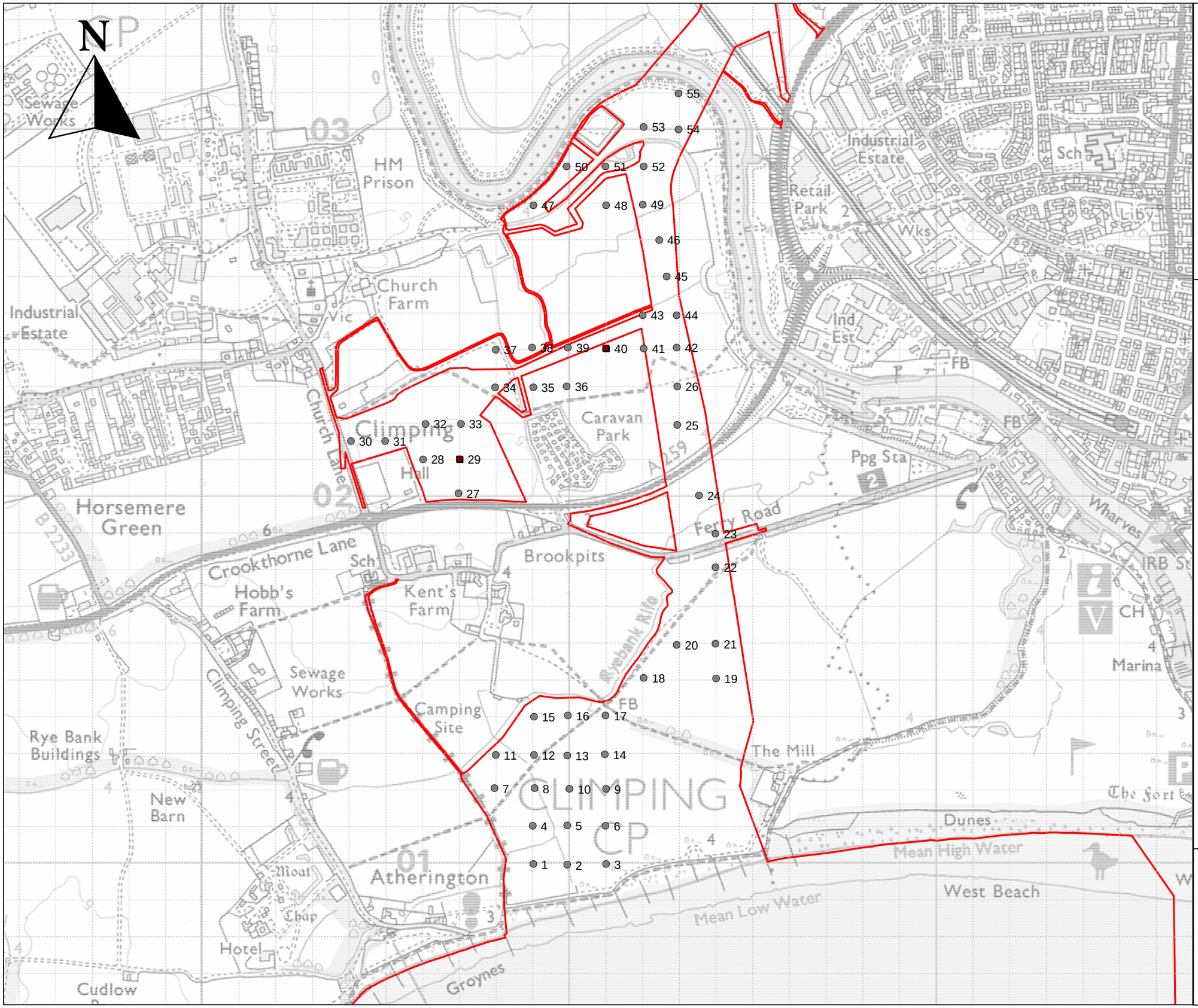


KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

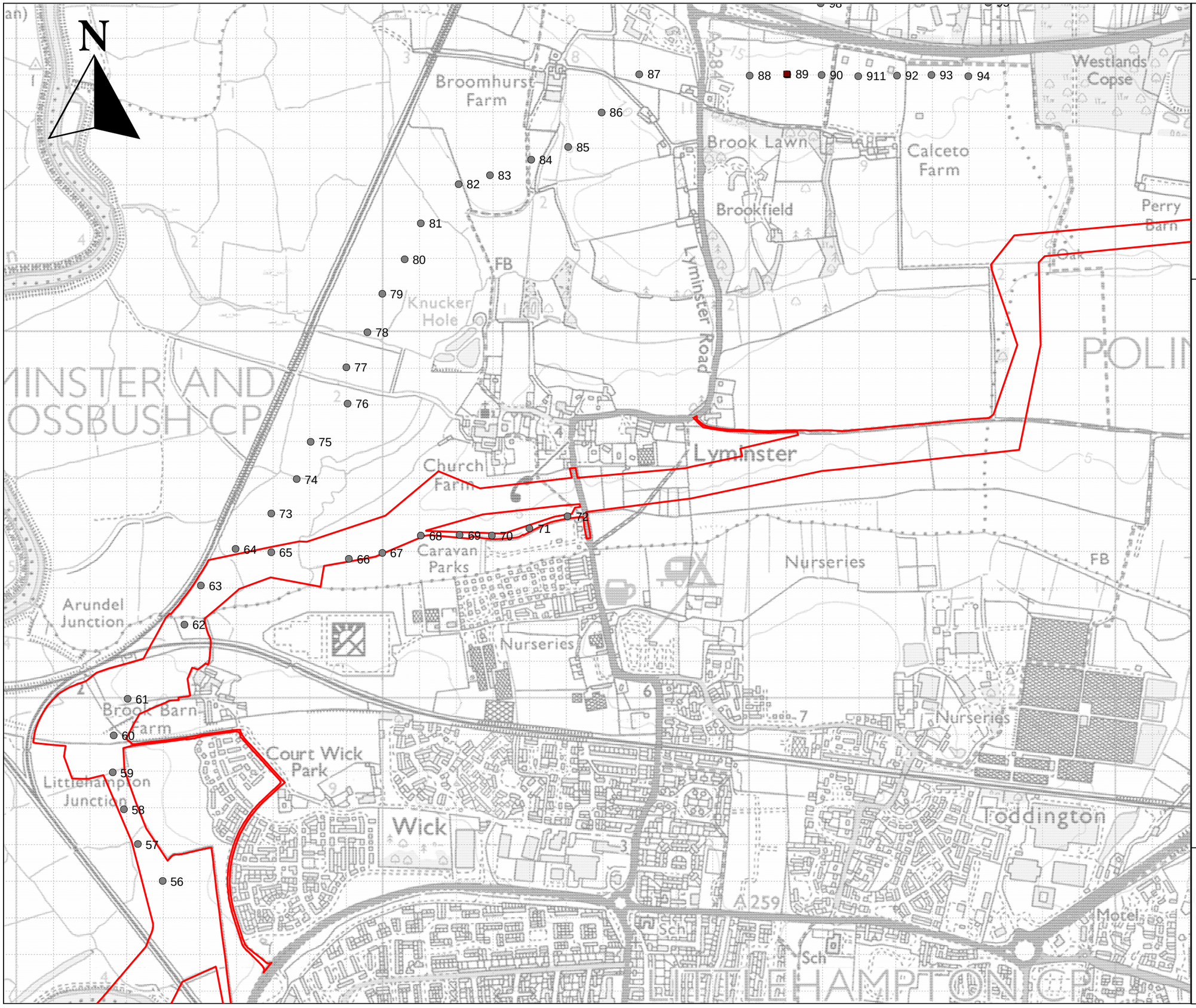
Map title:

Map 1A
Survey observations

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

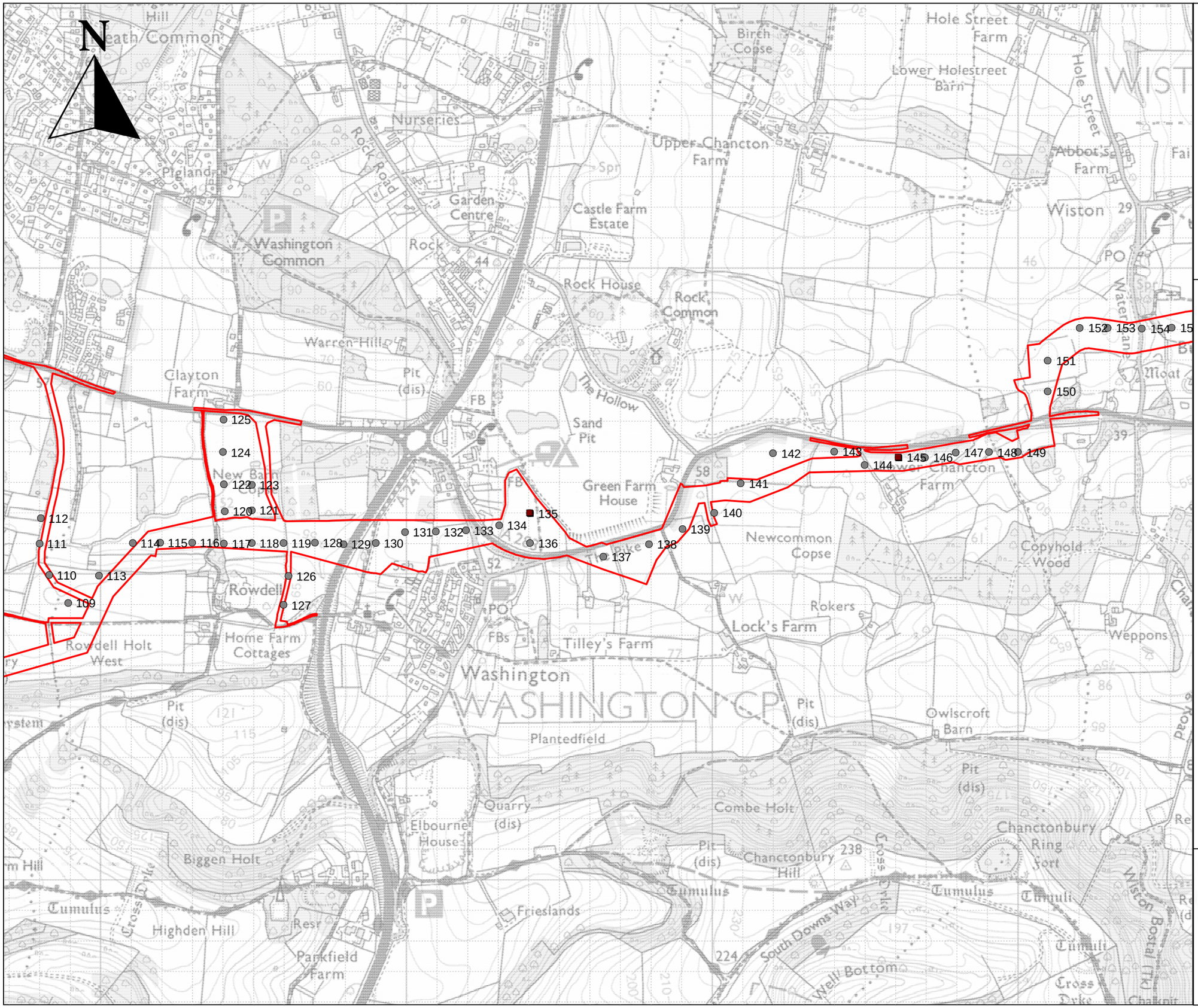
Map title:

Map 1B
Survey observations

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

Map title:

Map 1C
Survey observations

Land Research Associates
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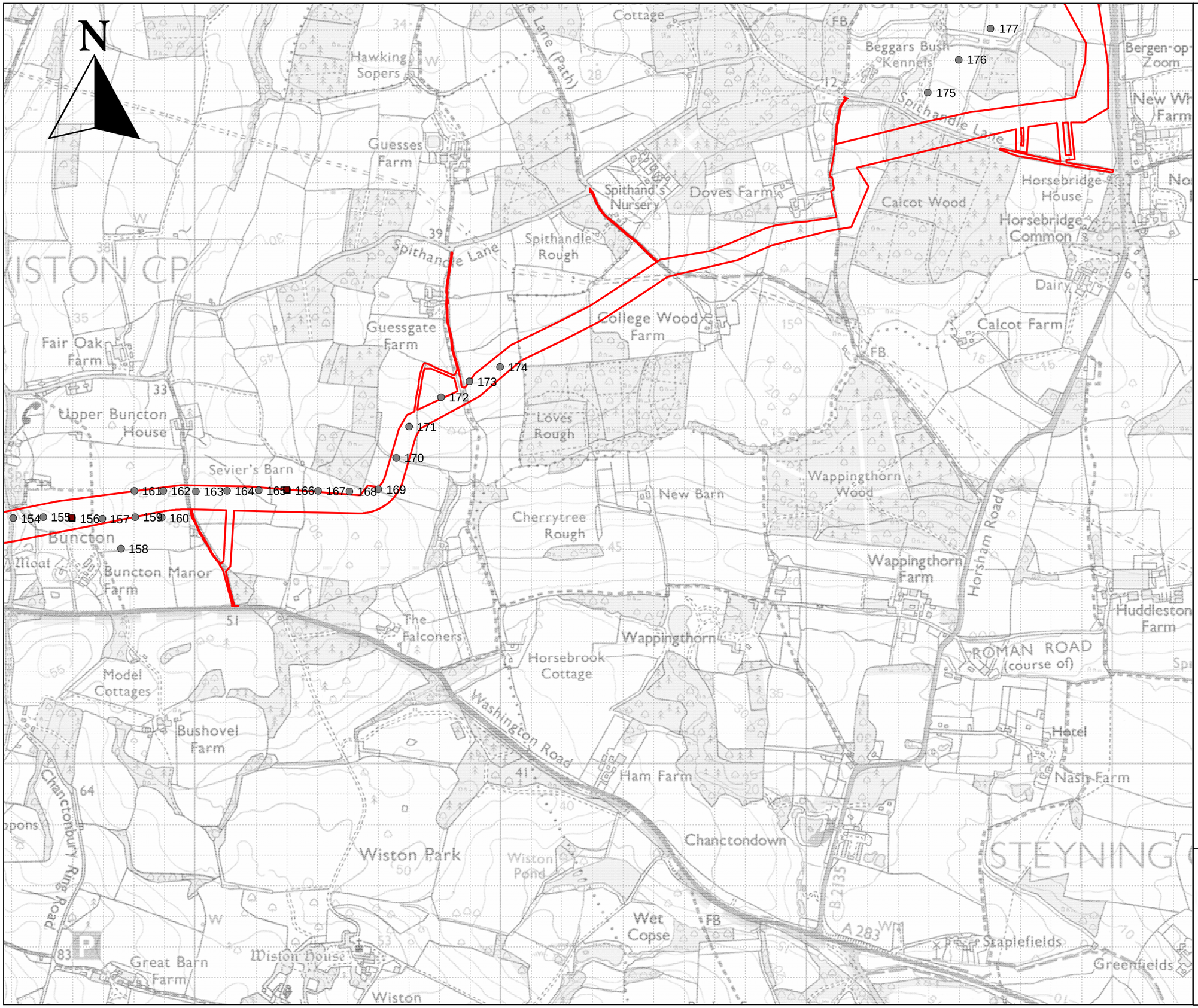
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

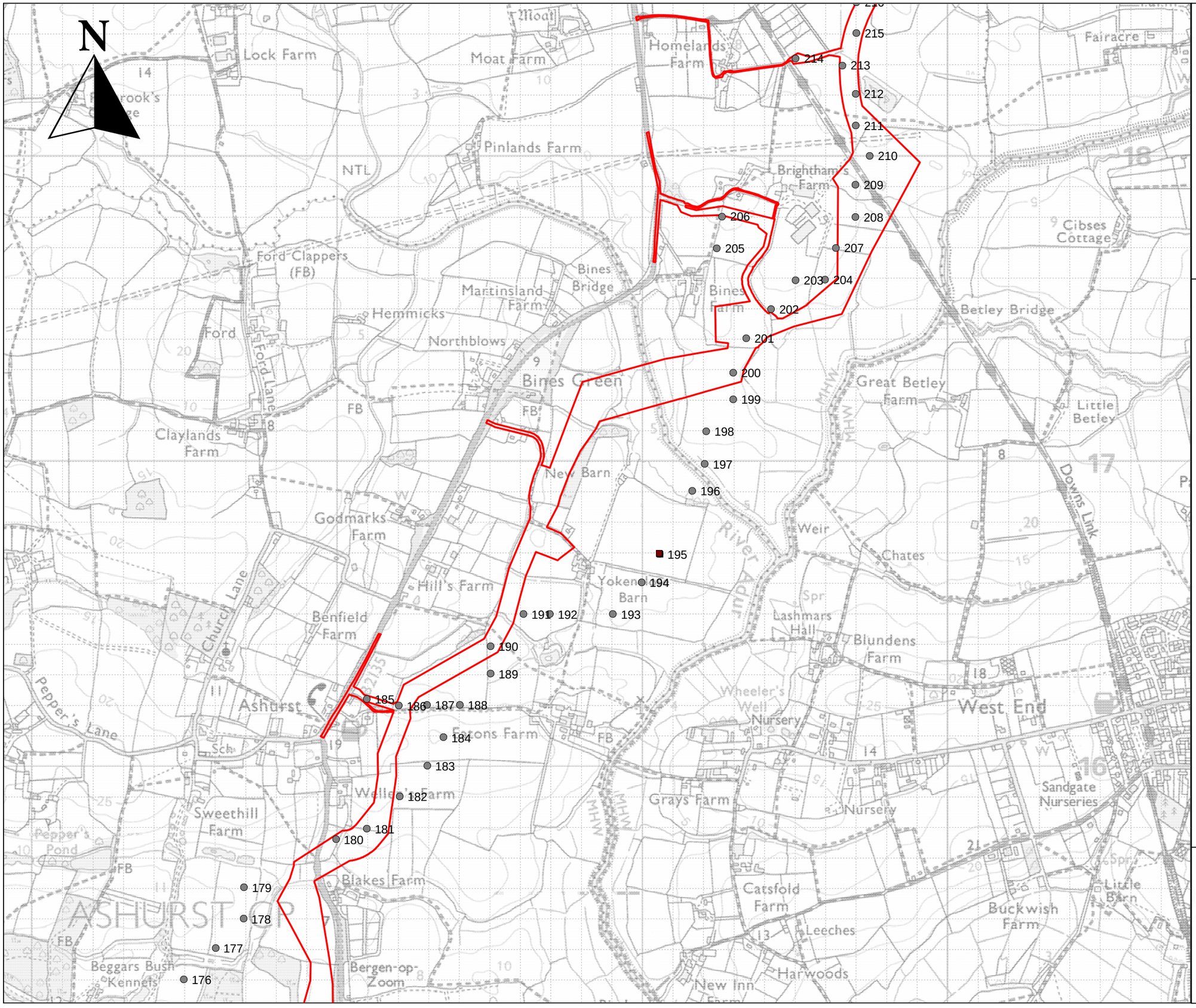
Map title:

Map 1D
Survey observations

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

Map title:

Map 1E
Survey observations

Land Research Associates
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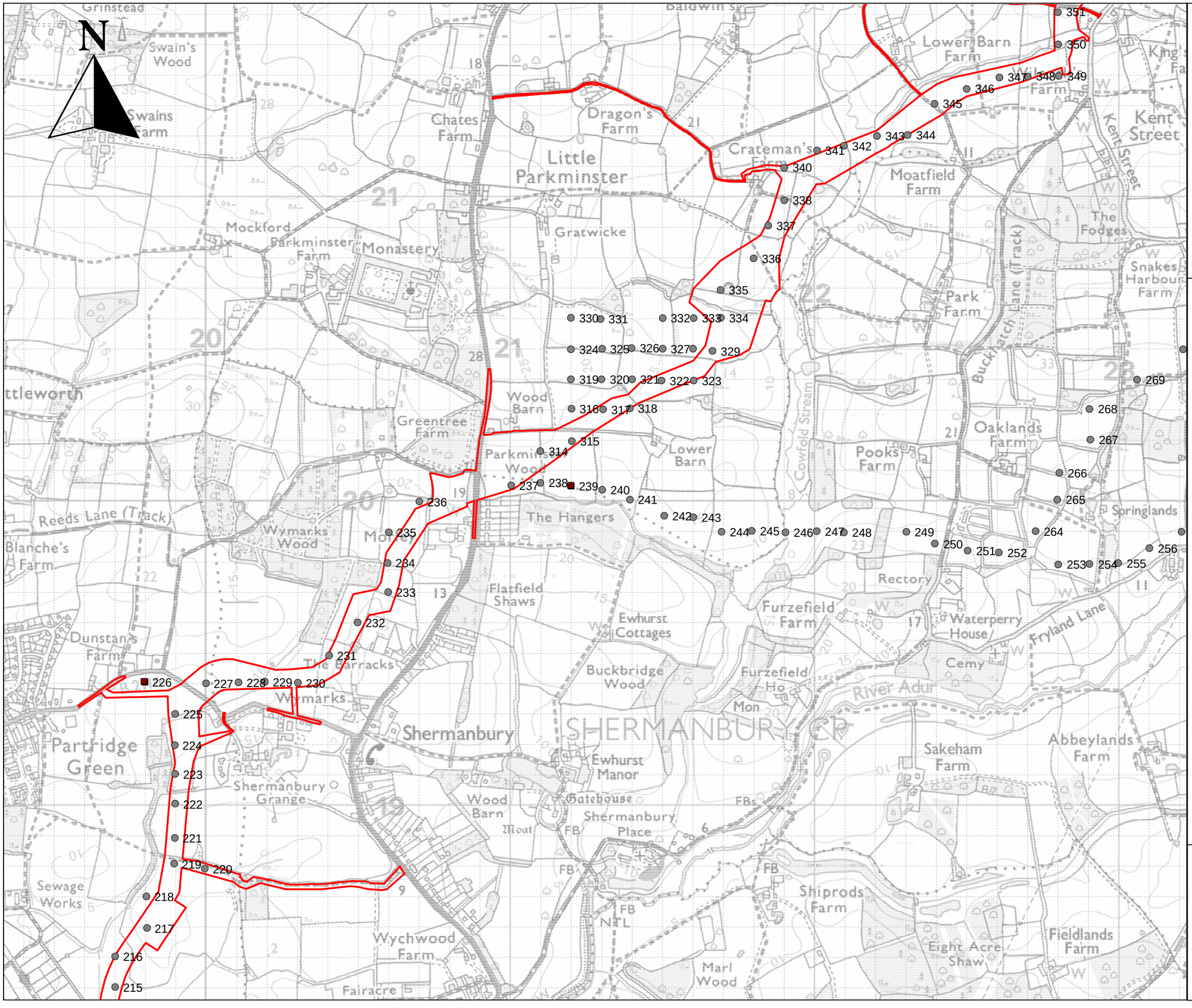
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

Map title:

Map 1F
Survey observations

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

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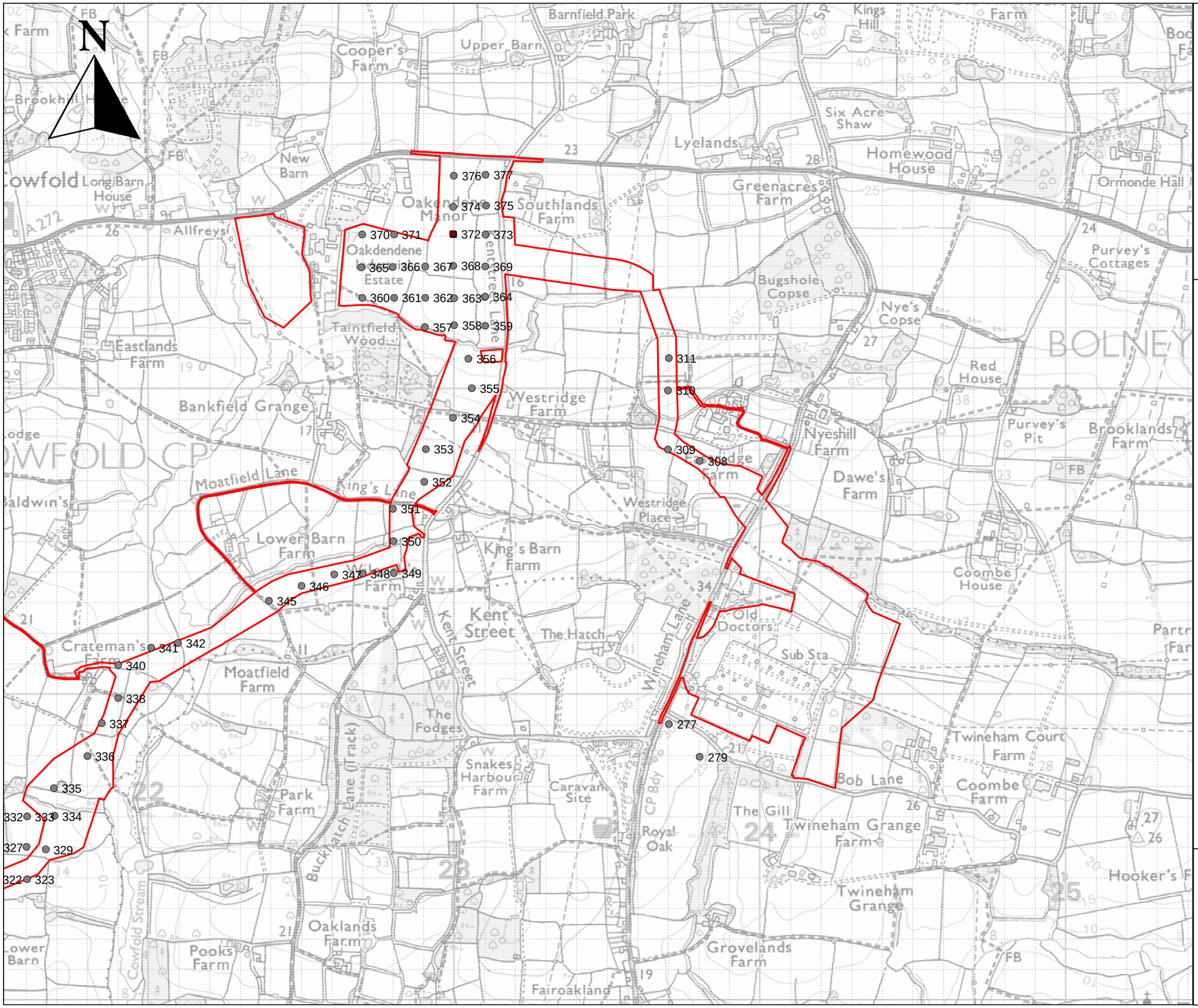

KEY

- Auger observation
- Soil description pit
- Survey area

Site:

Rampion II

Map title:

Map 1G
Survey observations

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

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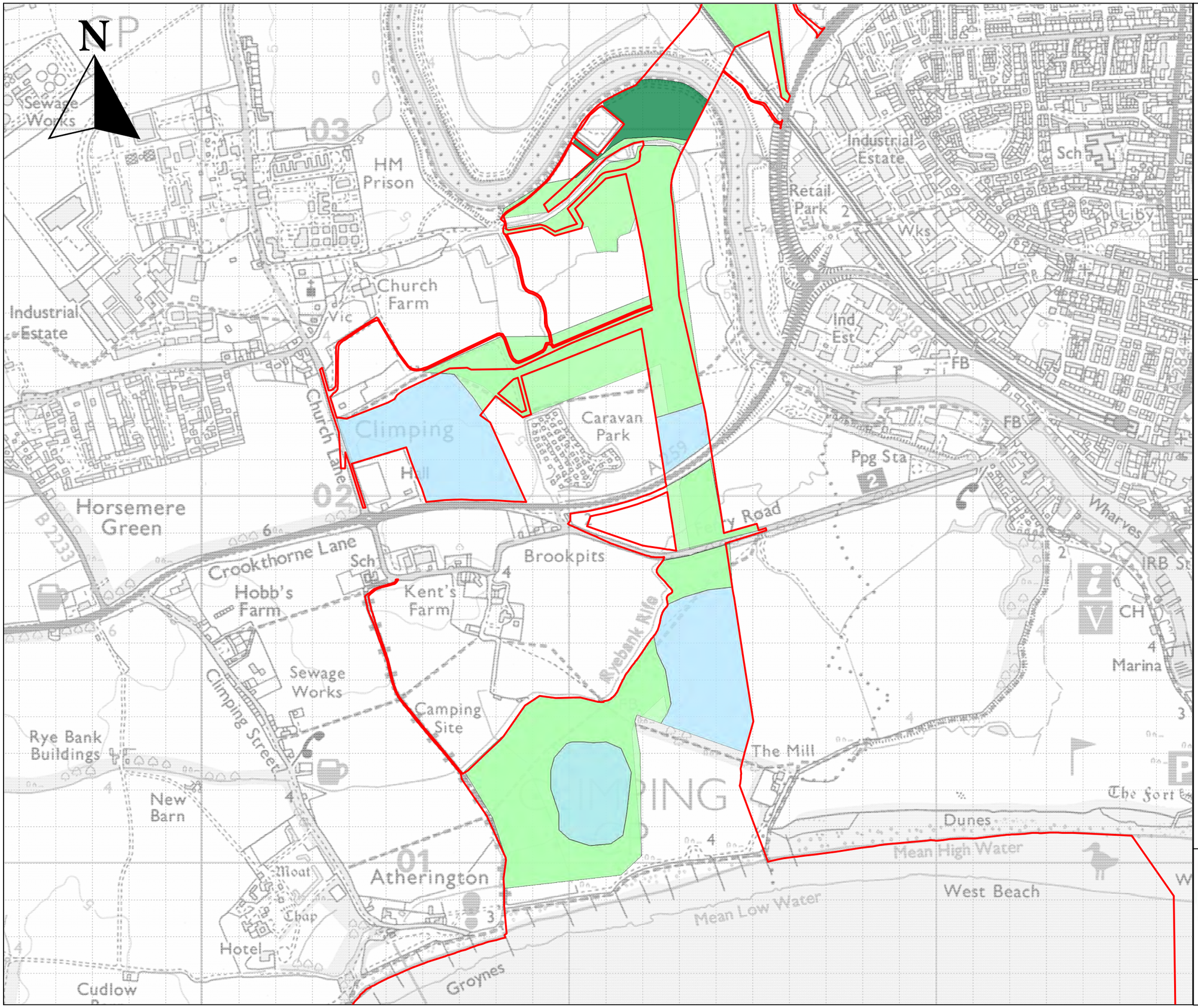

KEY

- Grade 2
- Subgade 3a
- Subgade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2A
Agricultural Land Classification

Land Research Associates
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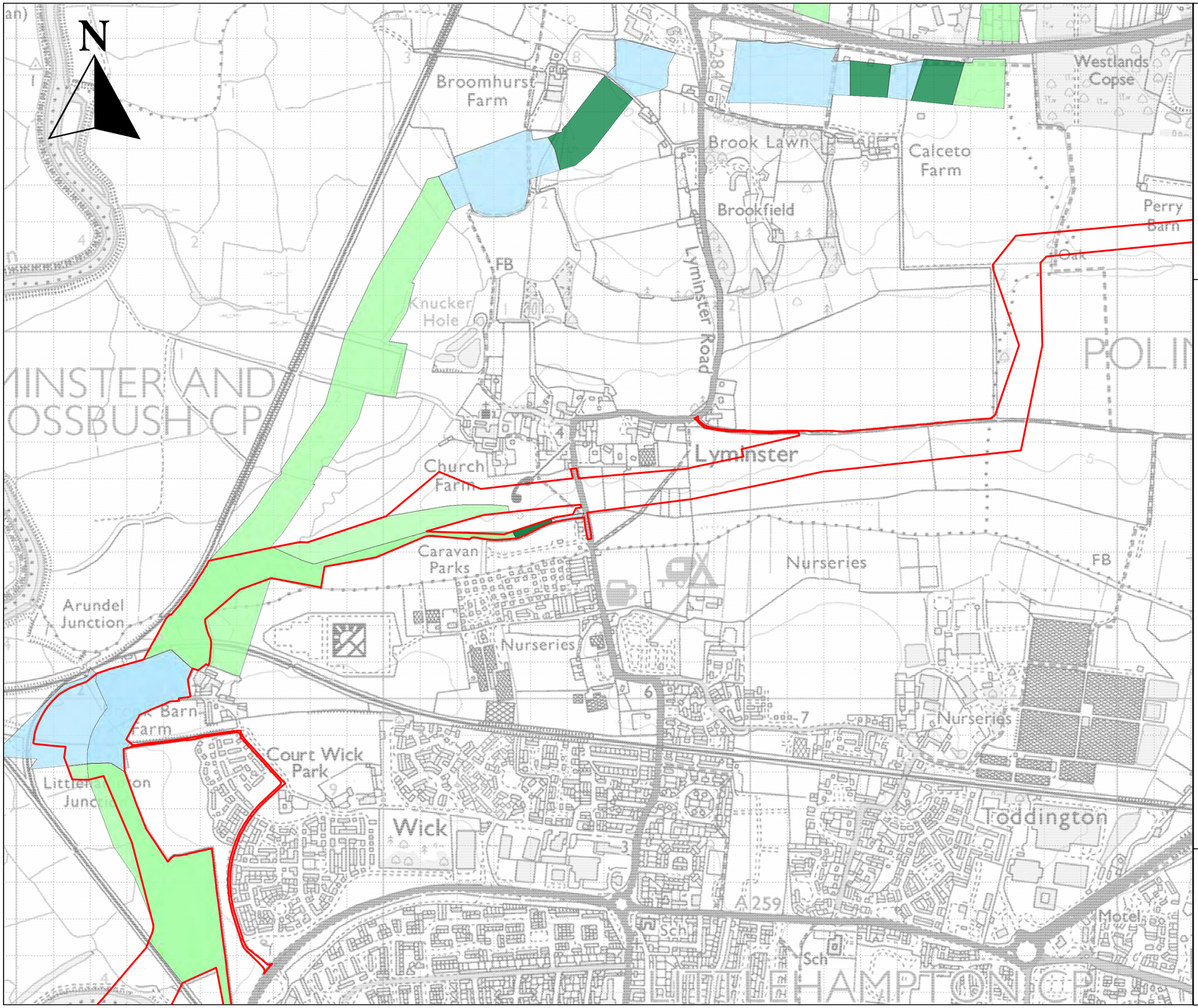
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Grade 2
- Subgade 3a
- Subgade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2B
Agricultural Land Classification

Land Research Associates
Lockington Hall
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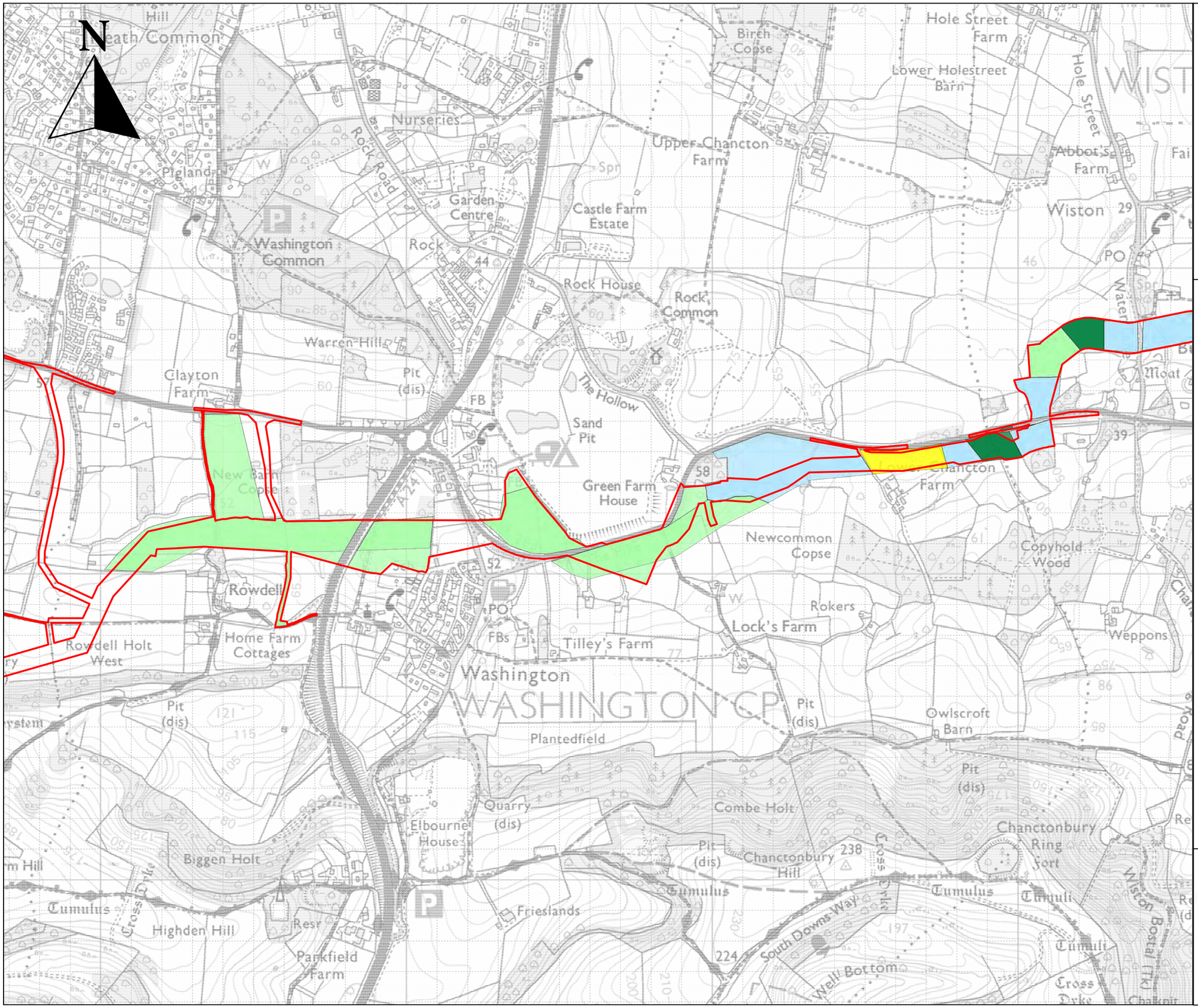
Derby DE74 2RH
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Grade 2
- Subgade 3a
- Subgade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2C
Agricultural Land Classification

Land Research Associates
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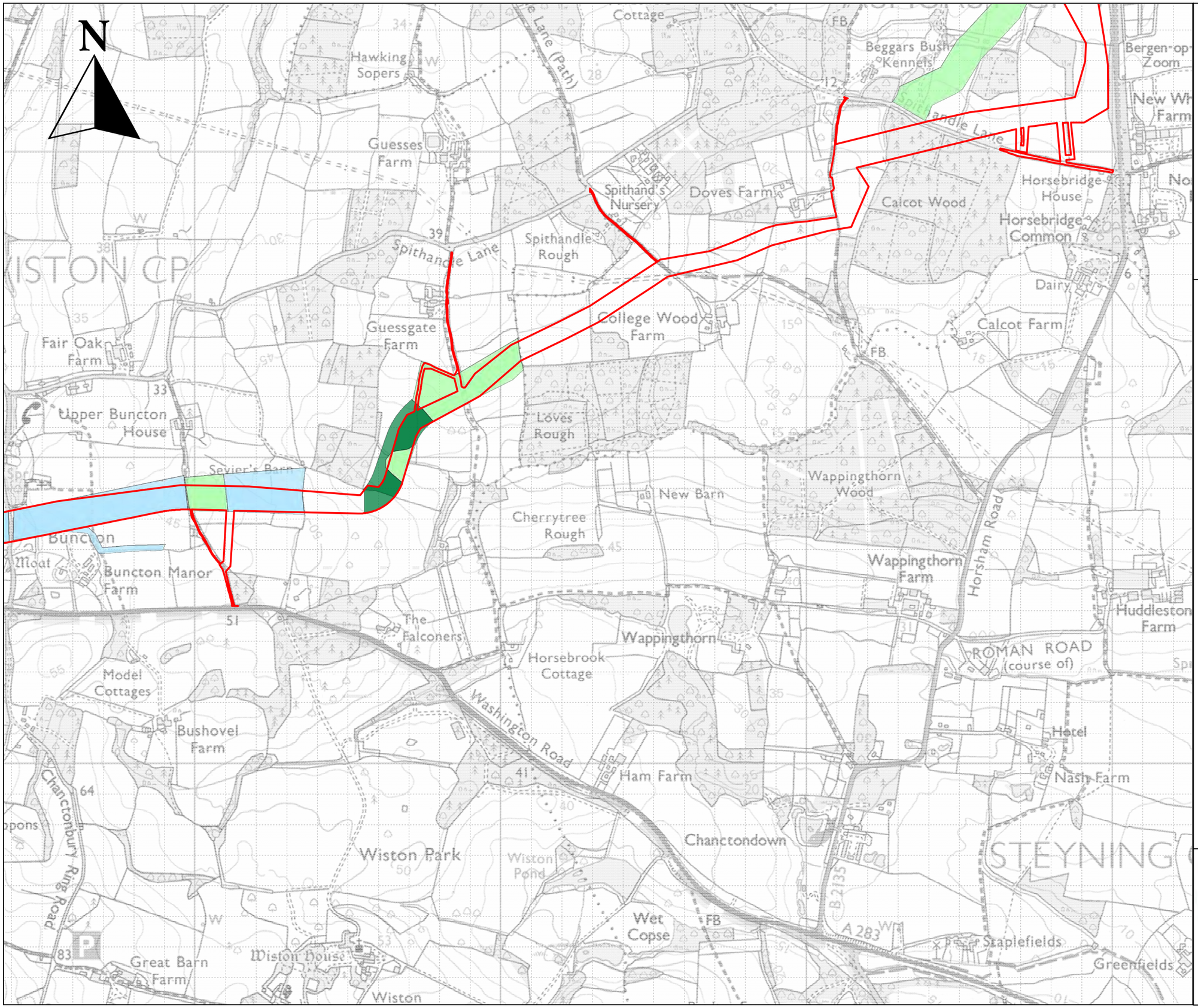
01509 670570

Scale: 1:12,000

Date: 14/07/2023



KEY

- Grade 2
- Subgade 3a
- Subgade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2D
Agricultural Land Classification

Land Research Associates
Lockington Hall
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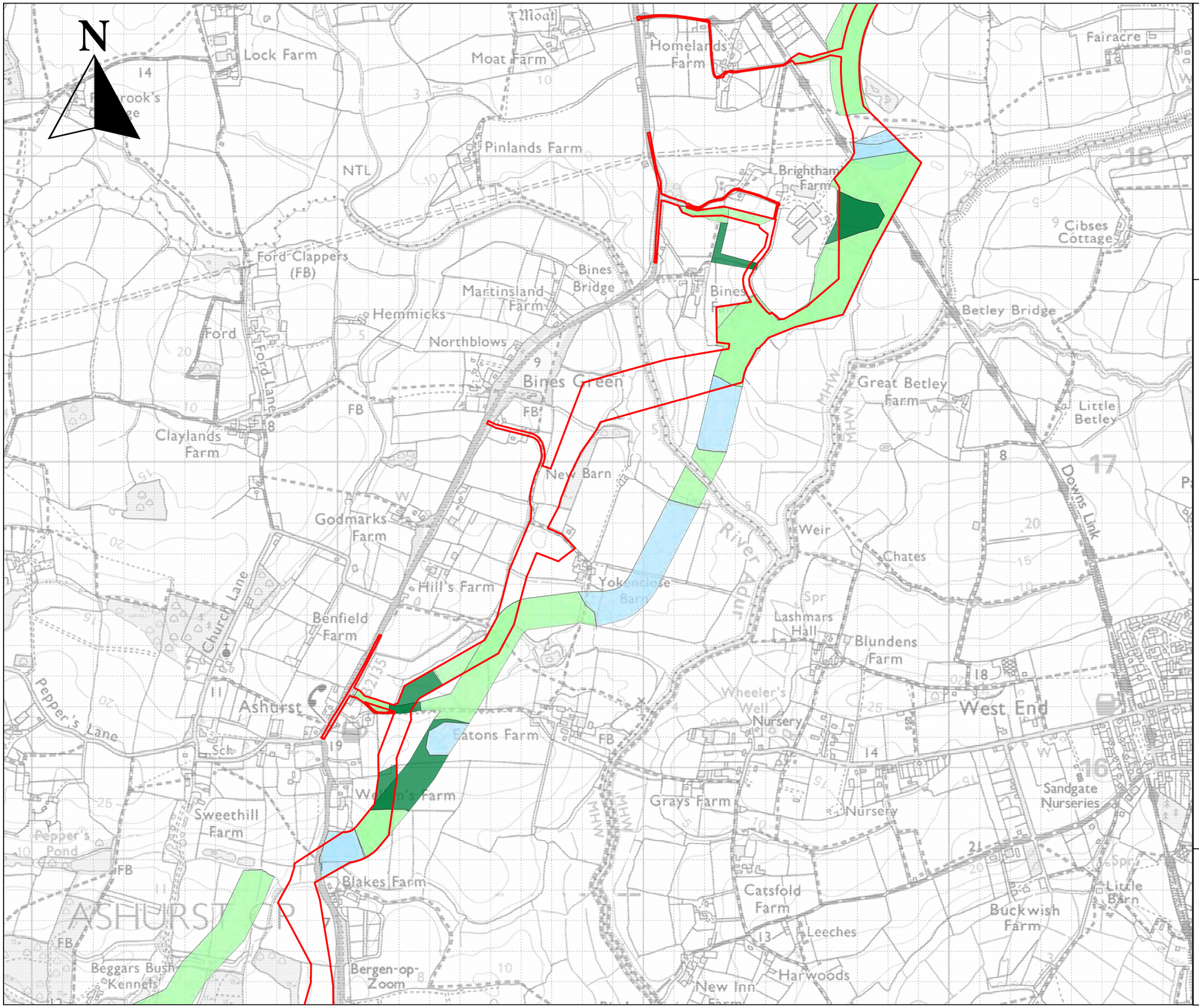
Date: 14/07/2023



KEY

- Grade 2
- Subgade 3a
- Subgade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2E
Agricultural Land Classification

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

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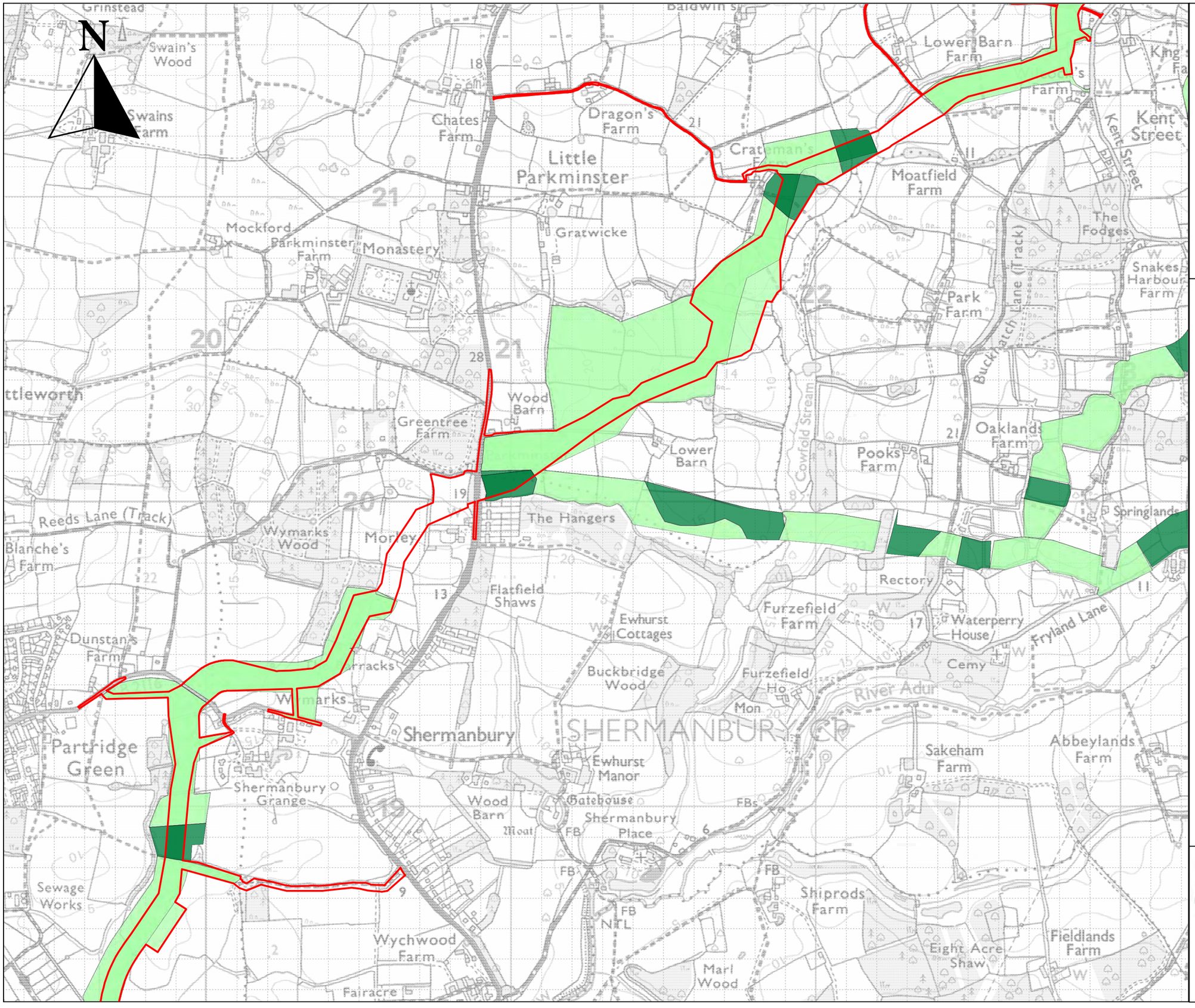

KEY

- Grade 2
- Subgade 3a
- Subgade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2F
Agricultural Land Classification

Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:12,000

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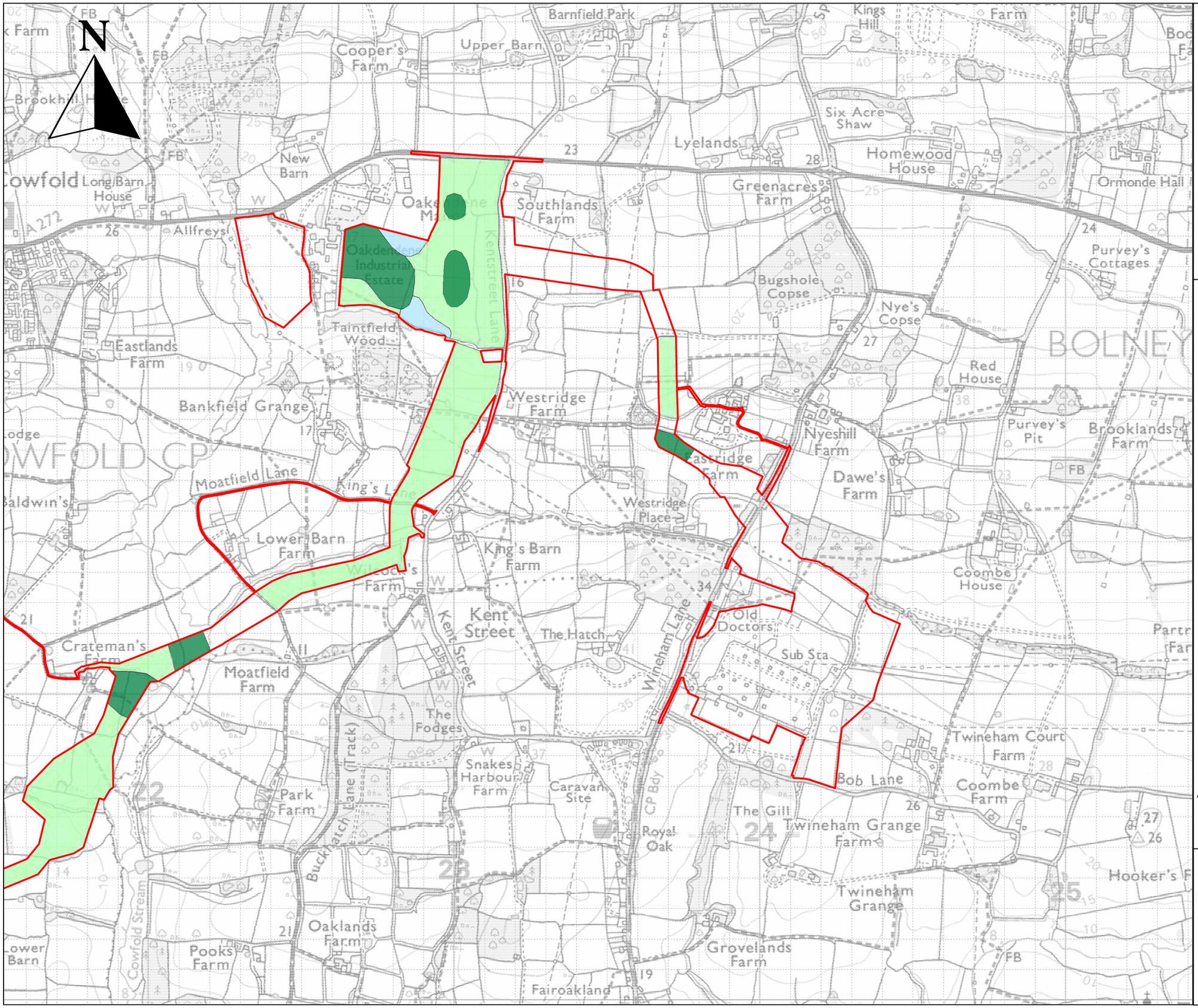

KEY

- Grade 2
- Subgrade 3a
- Subgrade 3b
- Survey area

Site:

Rampion II

Map title:

Map 2G
Agricultural Land Classification

Land Research Associates
Lockington Hall
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Derby DE74 2RH
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Scale: 1:12,000

Date: 14/07/2023

Rampion 2
WIND FARM