

COSMIC+ RISK ASSESSMENT OF ARCHAEOLOGICAL SITES ON OLD MANOR FARM, ASHTON UNDER HILL



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COSMIC+ Risk assessment of archaeological sites on Old Manor Farm, Ashton under Hill, Worcestershire

Richard Bradley

1 Background

1.1 Sites at risk

This assessment considers the risk of cultivation and related factors to known archaeological sites at Old Manor Farm, Ashton under Hill, Worcestershire (Figure 1). The assessment is based on a model initially developed for Natural England by Oxford Archaeology (COSMIC: OA 2006) and modified by Worcestershire Historic Environment and Archaeology Service for Natural England (COSMIC+: WHEAS 2010).

The assessment is intended to inform a management plan and an application for Higher Level Stewardship (HLS) which the agricultural holding is currently considering entering into with Natural England. While HLS aims to address wildlife, historic environment, landscape, access and resource protection objectives across a whole farm, Natural England need to be satisfied that any HLS Scheme satisfactorily addresses the management needs of environmental features of national significance, such as Scheduled Ancient Monuments, as well as sites recorded on County Historic Environment Records (HERs) and Sites of Special Scientific Interest. As part of the HLS Scheme it is therefore necessary to ensure that the most vulnerable archaeological sites are taken out of cultivation, or that the depth of damaging cultivations is reduced through minimum tillage or direct drilling where this offers a suitable level of protection.

The assessment initially covered ten fields, most of which contain archaeological sites known from cropmarks identified as a result of aerial photography (Figure 2). The archaeological features in question are of probable Iron Age and Roman date, as well as of potential earlier prehistoric origin. All of the known sites are recorded in the Worcestershire Historic Environment Record (HER) and within the Selected Heritage Inventory for Natural England (SHINE).

Overall, the main aims of the assessment were: to define the areas of risk to archaeological deposits in each field; to identify the main risk factors; and to recommend appropriate management options to reduce or remove this risk. Within this broader outline, six key objectives were highlighted:

- to identify and define areas of regionally and potentially nationally significant archaeological deposits across the holding where damage is arising from current cultivation regimes;
- assess within each land parcel the level of threat to any significant archaeological site, or area of site, from the current cultivation regime;
- identify the way in which the archaeological site is managed that determines this level of threat, including where it is offering protection, in any given land parcel;
- determine the impact of cultivations on the significance of those archaeological deposits where substantial protection is not being offered;
- sample the nature and depth of archaeological deposits in key locations where substantial protection is not offered by the current cultivation regime, to determine its impact on the site's significance;
- where appropriate, provide recommendations as to the 'safe' depth and frequency of cultivation for each archaeological site and land parcel, and list those sites by their priority for management within the Higher Level Stewardship Scheme.

1.2 Archaeological context

Ashton under Hill is a small village on the eastern slopes of Bredon Hill, around five miles south-west of Evesham, and has developed in a broadly linear form along the Beckford to Elmley Castle road (VCH 1968, 245). It has late Saxon origins and land at Ashton is known to have belonged to the bishopric of Worcester in 991 (VCH 1968, 247). Domesday records identify four hides held by Gerard, who himself had one plough as well as two villagers with a plough on the estate, the value being 40 shillings (Moore 1982, 163d). The village developed throughout the medieval period and 32 households were in existence by 1563. Many of the buildings surviving today were built by the early 18th century, mostly being 16th and 17th century timber-framed structures, but an additional feature of the village area is the number of 17th and early 18th century farmhouses (VCH 1968 246). As a result, there are a considerable number of historic buildings in the village, including a grade II* listed 12th century church (WSM 00554) and 30 grade II listed 16th to 18th century buildings, along with a Scheduled Ancient Monument (SAM 1015967) in the form of a 15th century stone cross (WSM 01442). Old Manor Farm itself contains a grade II listed 17th century farmhouse (WSM 44948), a barn of similar date and designation (WSM 44949), as well as a grade II listed dovecote and granary building, also from the 17th century (WSM 07654). Formerly part of Gloucestershire, the parish was transferred to Worcestershire in 1931 (VCH 1968, 245). Since 2006, the historic core of the village of Ashton Under Hill has been designated as a Conservation Area and the farm is located at the southern end of the medieval village (Bradley 2012).

Away from the medieval settlement, the surrounding landscape is rich in earlier archaeological remains. There is evidence for human occupation from the Early Mesolithic through to the Roman period within the area, mainly identified as a result of cropmark evidence. As noted above, a number of the fields in the assessment contain archaeology located in this way; these will be discussed further on a field by field basis in the results section below (Section 2). In broader terms however, it is apparent that the Carrant Brook valley, which runs through the south-east part of the holding, has been a prominent settlement location for a considerable period of human history. Cropmarks along this valley are largely visible as enclosures in various forms (rectangular, sub-rectangular, irregular), a pattern common to the West Midlands more generally and typical of early rural settlement in the region. Bronze Age, Iron Age and Romano-British finds, both recorded and anecdotally referenced, are frequently found in the area. The potential of these cropmark sites along the valley has been demonstrated by a series of excavations around Beckford during gravel extraction, approximately 1.3km south-west of the holding. Significant occupation was identified from the Bronze Age to Romano-British period, including an extensive mid to late Iron Age settlement and a scattered Romano-British cemetery.

Sites on Bredon Hill in close proximity to the holding also add to the archaeological significance of the area. Around 2km west of the farm and lying on the south facing slopes of the hill is Conderton Camp, an Iron Age hillfort and a Scheduled Ancient Monument (SAM 1005327). Excavations here dated this to around the 5th century BC and identified extensive occupation within the defended area until the 2nd century (Thomas 2005). Further to the north, the hill is also defined by the presence of Kemerton Camp, another Iron Age hillfort and Scheduled Ancient Monument dated to around the 3rd or 2nd century BC (SAM 1005331). The entrance was excavated in the 1930's and a 'massacre level' was identified, with skeletal remains demonstrating evidence of trauma, a burnt layer and associated weapon finds discovered. These were recently dated to an episode of conflict in the mid-2nd to mid-1st century BC (Western and Hurst 2014, 161-184). COSMIC+ projects undertaken by Worcestershire Archaeology on and around Bredon Hill have also assessed a multitude of cropmark sites across this area. This work demonstrated the presence of a large number of farmstead enclosures and field systems, particularly examples of Romano-British date, in the vicinity (see Miller 2010a-d and 2010f).

1.3 Current management regime

The farm holding is subject to mixed agricultural use at present, involving arable cultivation and pasture grazing for stock, and has been run by the same family since 1919. Where cultivated, the

fields are under continuous cultivation. The soils across the holding are consistently sandy/silty clays.

Current management is broadly consistent across the holding and follows a three crop rotation. This involves either wheat being grown in two successive cycles, followed by linseed or beans, or wheat then followed by linseed and beans successively. In each field, the crops are established by minimum tillage using a light tine drill cultivator to a reported depth of about four inches (10cm). Inversion ploughing is inconsistently undertaken, as and when required. This ranges from once every ten years to once every four or five years and is power harrowed to a reported depth of around eight inches (20cm).

Subsoiling has not taken place for at least fifteen years, but may happen again in the near future, and when it did take place was undertaken with a flat blade to a reported depth of around eighteen inches (45cm). No field requires frequent drainage work, but land drains are present across the holding and include a stone culvert in one field. The crops are harvested by machine, with minimal soil loss. Soil and stubble from previous crops is reworked into each field.

All of these factors are relevant to the risk assessment, and are considered alongside intrinsic (topographical) factors and archaeological factors.

1.4 Assessment methodology

The assessment proceeded in five stages broadly following a detailed project design produced for this holding (Worcestershire Archaeology 2014):

The first stage comprised collation of HER and other background information about the holding into a project Geographical Information System (GIS), as well as general liaison with various parties involved in the management of the project;

The second stage was an interview with Mr Archer, the landowner, alongside a representative from Natural England (Helen Trapp), who provided detailed information on the fields and their current and past management;

The third stage involved a walkover survey to visually inspect all of the sites within the holding and to record topographical information about the fields in written and photographic form. This information was used to inform site selection and identification for inclusion or exclusion in further stages of work. At this stage of the project it was apparent that a series of the targeted fields on this farm were not under arable cultivation. These were rapidly assessed during stages 1-3 and will therefore be briefly discussed on an individual basis, but will not be subject to further management recommendations;

The fourth stage consisted of data gathering in the field. This began with the hand excavation of 26 test pits across five fields, all located so as to verify the depth of cultivation soil and any associated buffer deposits overlying the interface with natural deposits at which archaeological features are liable to survive. Test pits were arranged to cover areas where the cropmarks indicated a site could be present, rather than across a field as a whole. Further data collection was undertaken by a specialist sub-contractor (Stratascan) in the form of a geophysical survey using a gradiometer. This took place across the same five fields over twenty-five 30m² grids;

The fifth stage involved additional investigation of the sites, as informed by the results of the geophysical survey and the test pitting. Six evaluation trenches were machine excavated to provide further information on the character and preservation of archaeological deposits in areas where test pit data allied to topographical location indicated they might be most at risk to the impact of arable cultivation, or to check buffer deposits and data from the test pitting phase.

The fieldwork provided consistent data on slopes, soil types, and depths of cultivation as well as extents, character, survival and depth of archaeological deposits.

The information was then assessed, using a modified version of the original COSMIC model. For each site, the likelihood of truncation of archaeological deposits was established by scoring a

range of management and intrinsic factors. The consequences of truncation were assessed in terms of the survival, quality, and significance of each site. The combined scores for each set of factors were weighted to acknowledge particular combinations. Final risk scores were calculated and related to broader risk levels.

Finally, the results were reviewed to take account of certain anomalies felt to be present in the original model. These have become apparent after several applications of the model in Worcestershire, Staffordshire, Shropshire and Lincolnshire (Miller 2010a-g; Jackson *et al.* 2013). Once checked and reviewed the results were used to identify appropriate management options.

2 Summary of results

The results of the assessment are summarised on Figures 3-5 and in Tables 1-3. The detailed results are presented in Appendix 1, except for the results of the geophysical survey which are summarised below but presented in full in a separate report (Richardson 2014). Information relating to each field is presented together, for ease of reference. Each field is shown on a large-scale plan which shows the best available plot of the cropmarks and the location of test pits (exaggerating their size). Where appropriate, the plans also show geophysical survey plots and sample trenches. In addition, for each field there is a sheet summarising the results of the test-pitting and an assessment sheet, showing how each site was scored. Where sample trenches were excavated, there is also an illustrative photograph and a trench summary record.

Field	Final risk scores and risk levels				
	Serious	High	Moderate	Low	Minimal
	60+	50-59	40-49	30-39	0-29
	Current rotation with ploughing		Current rotation under minimum tillage		
Groaten	34.5		21		
Lower Beckford Way	56.5		34.5		
Broadham	32		21		
West Meadow	54		27.5		
West Meadow: Catherine's Meadow	55.5		29		

Table 1: Final risk scores

Field	Management factors		Intrinsic factors	Archaeological factors	Final risk score	
	Ploughing	Minimum tillage			Ploughing	Minimum tillage
Groaten	18 out of 50	4.5 out of 50	6 out of 30	10.5 out of 20	34.5	21
Lower Beckford Way	40 out of 50	18 out of 50	6 out of 30	10.5 out of 20	56.5	34.5
Broadham	21 out of 50	10 out of 50	6 out of 30	5 out of 20	32	21

West Meadow	37.5 out of 50	11 out of 50	6 out of 30	10.5 out of 20	54	27.5
West Meadow: Catherine's Meadow	37.5 out of 50	11 out of 50	6 out of 30	12 out of 20	55.5	29

Table 2: Breakdown of final risk scores

2.1 Paris Bank (land parcel 1985)

Cropmark evidence, from aerial photographs taken in 1990, indicated the presence of ridge and furrow earthworks aligned broadly north to south, and two sides of what was interpreted as a prehistoric or Roman enclosure in this land parcel (WSM 12177). These features were also visible on a Google Earth aerial image of the field taken in 1999. When transcribed and considered alongside 1st edition Ordnance Survey mapping however, it was clear that the two sides of the enclosure were actually the remains of a post-medieval field boundary, since removed.

Following the interview stage with the landowner, plus the subsequent walkover survey to check the field, it was apparent that this land parcel was too steeply sloping to be efficiently ploughed and so was under permanent pasture for sheep grazing. As such, it was not included in any further stages of the assessment.

2.2 Church Close (land parcel 5375)

As with Paris Bank, aerial photographs taken in 1990 had identified ridge and furrow earthworks and further cropmarks in this field; these were also clearly identifiable on a Google Earth photograph from 1999 (WSM 12178). The cropmarks appeared to show drainage ditches, a trackway or droveway, an enclosure and a possible platform which could tentatively be ascribed to the medieval period based on the proximity of the medieval village and the church. Walkover survey confirmed the presence of a number of these features, as well as verifying the information provided by the landowner that this land parcel was steeply sloping and unsuitable for arable cultivation. As a result, no further assessment took place on this land parcel.

2.3 Boss Close (land parcel 4563)

Ridge and furrow earthworks aligned north-west to south-east were known in this field from aerial photography in 1990 and 1999, as with the other two adjacent fields, and during the walkover survey these were clearly visible (WSM 35912). This field was under pasture, as identified by the landowner, who considered it unlikely that it will be used for arable cultivation in the future. Because of this, and as with Paris Bank and Church Close, no further assessment took place on this land parcel.

2.4 Groaten (land parcel 9157)

At the outset of this survey, the field named Groaten was known to include a probable Roman settlement, perhaps with associated trackway or droveway. This had been identified by cropmarks, initially thought to be of prehistoric date, visible on aerial photographs taken in 1959, 1986, 1987, and 1990. These showed the corner of an enclosure at the south-west edge of the field, with easterly projections of features, and a double-ditched trapezoidal enclosure with associated cropmarks in the northern part (WSM 08656; see Appendix 1). A reported excavation is also known to have taken place in Groaten prior to World War II, from which Roman pottery and coins were recovered (WSM 07578). These have recently been assessed and broadly dated to the mid 1st/2nd to the 3rd/4th century (Evans *et al.* 2008). Finds collected from the walkover of the field in stage 3 of the assessment included a number of Roman pottery fragments dated as late 2nd to 3rd century in origin.

At the time of the fieldwork, Groaten was cultivated with winter wheat. Five test-pits were excavated around the cropmarks which showed between 28cm and 33cm of ploughsoil over

subsoil (of 30cm average). The ploughsoil could be divided up into a current cultivation (the last minimum tillage) and a former cultivation (the last ploughing) in four of the five test pits; the current cultivation was averaged at 17cm in depth, or just over 6", which is slightly above the estimated 10cm (4") drilling reported as the current regime for this field.

According to this test pit data, and the average depths of cultivation noted above, minimum tillage under the current regime would leave a minimum buffer of 33cm, while ploughing would leave a 25cm minimum buffer. This is a substantial depth. However, the evidence from the sample trenches, described below, showed much less subsoil than that seen in the test pitting (17cm to 20cm).

The cropmarks across the field were investigated by magnetometer survey. The northernmost enclosure was surveyed in three adjacent grids (Grids 1, 2 and 3) and the features projecting from the southern enclosure (Grids 4 and 5). The evidence from the geophysical survey showed that, in the main, the cropmark evidence is very accurate for this field and it corresponds well with geophysical anomalies, particularly with the enclosure ditches. Also, however, further anomalies revealed by the geophysics, primarily inside the area of the enclosure and in the southern area, have not been mapped as cropmarks and these suggest that many more features exist and that this site is potentially quite complex.

In the final stage of fieldwork, two trenches were excavated to target features both in the northern part and towards the southern area of the field (Trenches 100 and 200). Both trenches picked up archaeological remains and these supported the cropmark and geophysical evidence and confirmed the suspected Roman dating of the site. They were also sealed by a subsoil layer, as identified in the test pits undertaken in this field. A number of ditch features were augered to test their level of survival and found to be between 0.19m to 0.35m in depth. A further ditch terminus was sample excavated and was 0.48m in depth. Diagnostic Roman pottery of late 2nd to late 3rd century date was recovered from features in Trench 100 and pottery of 1st to late 3rd century origin was found in Trench 200, although in Trench 100, positioned across the northern enclosure, this was not as abundant as might be expected from a settlement site of this date.

By exposing these features, the two trenches provided better evidence for assessing the risk of truncation. The archaeological features were found at 48cm (18") below the surface in both trenches. Relating this range to the average depths of ploughing observed shows that minimum tillage would leave a 31cm buffer (12"), and that ploughing would leave an 18cm (7") buffer over most features. This is slightly less than that demonstrated by only the test pit evidence, but is broadly comparable and results in a low risk to the archaeology. If subsoiling were to take place again (reported at around 45cm), then the archaeology would only be protected by a shallow 3cm buffer (1").

2.5 Lower Beckford Way (land parcel 5207)

Lower Beckford Way is a large field divided by the Carrant Brook and containing a substantial and significant number of cropmarks (WSM 05433; WSM 24026; see Appendix 1). These have been identified on a number of aerial photographs taken in 1958, 1962, 1986, 1987, 1996 and 1998, and the features are also visible on a Google Earth aerial image of the field taken in 2007. In the north-east of the field a square enclosure with internal features is recorded. Running south-west from this is a group of rectilinear enclosures sub-divided by internal boundaries and a number of circular or sub-circular features can be seen in and around these. To the south-west, a double-ditched cropmark can be seen and further linear features are visible in this area, some of which can be identified as field boundaries on historic mapping. The landowner has been aware of some activity in this field due to the large number of pottery and coin finds across the area. During the initial walkover, Roman pottery and a fragment of ceramic building material was recovered from the eastern part of the field.

During the fieldwork, as with Groaten, the field was mainly cultivated with winter wheat under minimum tillage. However, a portion of the field is used for experimental growth projects and had been recently ploughed. Twelve test pits were excavated, bracketing the cropmarks along the

length of the field. One of these (Test Pit 17) was undertaken in the area of ploughing. The profiles exhibited between 28cm and 39cm of ploughsoil over subsoil (of an average 20cm, although this was not present in two test pits), with current cultivation averaged at 19cm in depth, or around 7", which is above the estimated 10cm (4") minimum tillage drilling reported as the current regime for this field. The data here is slightly distorted by the test pit recorded in the ploughed area of the field, which had a current cultivation of 24cm, although when this figure is excluded for the rest of the field, the average depth for current cultivation is still at 18cm (7"). Iron Age and Roman pottery was recovered from a number of the test pits all across the field.

This data shows that with the average depths of cultivation recorded, minimum tillage under the current regime would leave a minimum buffer depth of 5cm in this field. The data is slightly variable across the field, but when ploughing takes place it leaves no minimum buffer (0cm) in places, but an overall average of a 20cm buffer. This was due to the variable observation of subsoil deposits, which could possibly reflect the presence of an historic cultivation layer, across the field. The evidence from the sample trenches showed limited subsoil in comparison with the test pits however, being between 6cm to 9cm in depth, and this did not cover any of the archaeological features recorded.

Using magnetometry, most of the cropmarks were targeted during the geophysical survey. Grids 15-18 covered the north-east part of the field, 19-22 the middle part and 23-25 the south-west. Geophysical anomalies were identified in all eleven grids and the majority of these tied in well with cropmark features. Multiple linear anomalies in the middle part of the field correlate with a number of different cropmark interpretations, suggesting that there was extensive re-establishment of the enclosures here over time rather than any errors in transcription. In the south-west area of the field the double-ditched cropmark was found to extend further than that previously mapped, probably because this part of the enclosure is masked by alluvial deposits resulting from the presence of the Carrant Brook in this area.

Three trenches were excavated to target specific geophysical anomalies (Trenches 400, 500, and 600). All trenches were abundant in archaeological remains and these correlated well with the cropmarks and geophysical evidence, particularly the linear anomalies. Other features revealed during the trenching included a north-south aligned grave with *in situ* human remains, plus a number of small gullies. Romano-British pottery was recovered from Trench 400, positioned across the square enclosure in the north-east of the field, and Trench 600, the double-ditched cropmark in the south-west, but pottery was noticeably absent in Trench 500 in the middle of the field. In Trench 4, the pottery was of a general 1st to 4th century date range, but also included a coin provisionally identified as a radiate and thus dated to the later Roman period. In Trench 4, diagnostic Severn Valley ware sherds were dated to the 2nd to 3rd century and the 3rd to 4th century. A number of ditch features were augered to test their level of survival and found to be between 0.40m to at least 1m in depth across the trenches, being better preserved in the south-west area than the north-east. Of particular note was evidence of scarring from deep ploughing or subsoiling across features in Trench 400, as well as damage to the human remains found here.

As with Groaten, the trenches provided better evidence for assessing the risk of truncation. The features were sealed only by ploughsoil. The uppermost feature was 26cm (10") below the surface (in Trench 500); others were 30cm to 37cm (12-14"). On this evidence, an average depth of current cultivation under minimum tillage would leave 7cm to 18cm (2-7") buffers across the area and an average depth of ploughing, when undertaken, would leave no buffer over most features and a maximum of 6cm (2"). The risk is therefore high when the field is ploughed. Should subsoiling take place (reported at around 45cm), then the archaeology would be at serious risk.

2.6 Broadham (land parcel 3015)

Parallel linear cropmarks of unknown origin are recorded by the English Heritage National Mapping Programme (NMP) in this field. These are aligned south-east to north-west and could represent a former droveway or trackway feature, although this is unclear (see Appendix 1).

Two test pits were excavated across this cropmark and the profiles were very similar, showing 25cm to 29cm of ploughsoil, the upper part of which averaged at 15cm (just under 6"). This is again slightly over the estimated minimum tillage depth for the holding, but leaves a minimum 17cm buffer when cultivated in this way. An underlying alluvial layer (11cm average) was also found however, which helps to provide a buffer of at least 7cm in this field if ploughing takes place.

The cropmark was targeted in the geophysical survey (Grids 12-14) but did not appear as expected, with poor definition on the feature. Potential discrete features were noted however. No trenches were excavated in this field and it remains unclear as to the nature of the original cropmark.

2.7 Little Broadham (land parcel 1424)

There are no cropmarks recorded for this field, but the linear features mapped as running through Broadham, immediately adjacent to the south-east, would appear to be of an alignment that could continue through this area. However, this field is very boggy and currently in use as a grassy wasteland, not having been cultivated in recent memory, so after the walkover survey it was not included in any further assessment.

2.8 Exchange (land parcel 5959)

This field is currently under cultivation with a winter wheat crop. There are no known cropmark features recorded within it, but anecdotal evidence of Bronze Age finds from here is noted. It was initially included in this work as the south-west corner is part of the Selected Heritage Inventory for Natural England (SHINE) dataset for this farm, a result of nearby features in close proximity. However, in the absence of cropmarks to target for testing and potential stewardship, plus the presence of the Carrant Brook which had flooded the field and made ground conditions unworkable, this field was not assessed further after the initial walkover survey.

2.9 West Meadow: Catherine's Meadow (land parcel 3548)

Extensive cropmarks representing a settlement site are known to exist to the north-west of this field (WSM 05503) and are thought to extend under the old railway line into this area (WSM 10117). These were located on aerial photographs from 1958, 1984, 1996 and 1998. However, the main evidence for buried archaeological remains here is resultant from evaluation trenching and field-walking that took place in 1991 ahead of proposed mineral extraction (Jackson 1991; WSM 29808). This work identified the presence of medieval, Roman and prehistoric deposits in a good state of preservation, most of which (particularly in the vicinity of the Carrant Brook) were seen to be protected by overlying alluvial deposits. The features indicated that Iron Age and Romano-British settlement extended into this area from the north-west, and continued across both sides of the brook. The landowner is aware of this work and the archaeological site that was identified.

At the time of the fieldwork, the field was cultivated with a bean crop under minimum tillage, although the north-east spur of this, in a much waterlogged area, was left as harvested stubble. Because of the previous trenching that had taken place here, only two test pits were excavated, purely to check that there had not been an evidential change in deposit depths since the previous trenching. These were positioned away from the brook and found a profile showing 26cm to 30cm of ploughsoil, an average of 17cm (6") of which was recorded as current cultivation. The overall ploughsoil was directly above natural in one test pit; in the other, a probable archaeological deposit was encountered below 12cm of a sealing historic cultivation layer. During the 1991 evaluation, the topsoil was found to be between 20cm and 35cm in depth away from the brook, so the findings from the test pits correlate well with the centre of this range and suggest that there has been little loss or addition of soil in this part of the field.

The data shows that with the average depths of cultivation, minimum tillage under the current regime in the area away from the brook would leave 10cm buffers above natural, while when ploughing takes place it leaves no minimum buffer (0cm) in places. However, the evidence from

the evaluation trenches shows that with the amount of alluvium present in part of the field, archaeological remains should be well protected in the area of the brook. It is therefore only the area along the boundary of the field, where the test pits were located, that is at any risk from cultivation. The assessment scoring of high risk when ploughing takes place relates to this area only (Figure 5 shows the specific are of archaeology at risk).

The area between the previous evaluation trenches was targeted during the geophysical survey (Grids 6-8). Geophysical anomalies were identified in the grids closest to evaluation Trench 1 of the 1991 work and appeared to show part of an enclosure. This had been picked up and recorded as a prehistoric ditch, re-cut in the earlier Roman period, during the previous archaeological work. This supports the conclusions of the evaluation and the interpreted cropmark evidence of features extending into this area from the north-west.

There was no need to excavate any trenches to target specific geophysical anomalies because of the previous evaluation work in this field. Alluvial deposits observed in these trenches sealed prehistoric and Roman archaeology, being up to 1m deep in some cases. The ploughsoil directly overlay the alluvial material.

2.10 West Meadow (land parcel 4731)

A pentagonal shaped ditched enclosure feature of unknown origin is recorded by the English Heritage National Mapping Programme (NMP) in this field. The area is also part of the Selected Heritage Inventory for Natural England (SHINE) dataset for this farm. The cropmark is positioned in the north-east area of the field on slightly rising ground away from the Carrant Brook and it was anticipated prior to the survey that was of prehistoric or Romano-British date (see Appendix 1).

Four test pits were excavated around the cropmark. The profiles showed between 28cm and 34cm of ploughsoil over natural stony clay. The upper part of the ploughsoil represented the last cultivation and had an average depth of 15cm, leaving a minimum buffer of 13cm based on this data. If ploughing takes place here, there would be no buffer present (0cm) according to the test pits. Sample trenching in this field, discussed below, found that the depths recorded in the test pits were slightly different, but also that the ploughsoil was directly above the natural substrate.

The cropmarks were targeted during the geophysical survey with three aligned grids covering the enclosure in a linear arrangement (Grids 9-11). Anomalies demonstrated the presence of the enclosure, though slightly off alignment from the cropmark interpretation, and the potential for internal features.

One trench was excavated to target the enclosure and features within it, as highlighted by the geophysical anomalies (Trench 300). The features observed matched those previously identified, although was much more complex in places, and found that the enclosure ditch has survived to a depth of around 0.70m. Pottery from the trench was of prehistoric (early Iron Age) and Romano-British date, but material recovered from the top fill of the enclosure ditch could be dated to the late Iron Age. Worked flint pieces were also recovered from this trench.

The trench provided supporting evidence for assessing the risk of truncation. The features were sealed by ploughsoil only, with no subsoil present, 0.34m (13") below the surface. On this evidence, an average depth of current cultivation under minimum tillage would leave 19cm (7") buffers and an average depth of ploughing, when undertaken, would leave a 6cm (2") buffer over most features. This is slightly above the depths produced in the test pitting, but still suggests that the field is at high risk when ploughed.

3 Discussion

The COSMIC model provides a reasonable basis for assessment and decision-making. It is not comprehensive, however, and after several applications, some weaknesses have become

apparent. It is therefore necessary to review the results before acting upon them, especially as any decisions are likely to be binding for the term of a Higher Level Stewardship agreement.

In the first place, the model ignores practices that reduce the risk to a site, e.g. replacing soil lost during harvesting and applying bulky organic manures. These practices are followed at Old Manor Farm.

Secondly, the model exaggerates the risk of soil loss through combine harvesting by scoring it as a medium risk, under site intrinsic factors. In reality, the risk is probably low, and should be scored accordingly. Moreover, the issue of soil loss during harvesting is clearly a management factor, not an intrinsic one.

Thirdly, even in the revised version used here, the model does not distinguish adequately between more and less significant sites. As a result, obvious differences in terms of known and potential information are not accounted for.

On the basis of this review, and despite having qualified the results in this way, a valid assessment is still possible for this holding. It is not considered that the assessment is in any way undermined by the weaknesses inherent to the overall COSMIC model. The cropmark evidence, geophysical anomalies and the results of the trial trenches all show that the archaeology across this holding is extensive, has survived well and is relevant to county-wide research agendas. As a complex, a group of sites in such proximity can be demonstrated to be of regional significance. It is apparent that the depth of soil in most of the fields offers protection to this archaeology if the cultivation occurs under minimum tillage; all sites are at low or minimal risk if this takes place. The main risk identified is when ploughing takes place, particularly in Lower Beckford Way and West Meadow, including the Catherine's Meadow side of the brook. The lack of substantial buffers and the depths of ploughing observed suggest that the sites in these fields are at high risk, being in danger of destruction over an extended period if ploughing occurs. The areas where the archaeology is at most risk in these fields is illustrated on Figure 5. Should any subsoiling take place, which would be much deeper than ploughing, then these sites would be at very serious risk.

4 Management options

According to the COSMIC rationale, management options should be considered for all sites at moderate, high or serious risk. The assessment indicates that this includes three fields on this holding. The following table (Table 3) therefore sets out suitable options for protecting each site, based on the evidence presented above and in Appendix 1.

In the light of the discussion, fields are listed in order of priority for changes in management. Options available through Higher Level Stewardship are stated with the appropriate codes. The recommended restrictions on depths of ploughing have been calculated with reference to the shallowest features observed in sample trenches, or to the minimum depth of ploughsoil observed in test-pits. If adopted, they would ensure that most features would be protected by moderate or deeper buffers.

Field number	Field name	Main risk factors	Management options	Risk level after mitigation
SO 9937 5207	Lower Beckford Way	Any ploughing below 8" at around 10-12" (25-30cm), resulting in truncation or leaving only shallow buffers; archaeological deposits and features of regional significance.	Restrict depth of ploughing and any subsoiling to less than 8" (20cm)	Low
			Continue to establish combinable crops by reduced-depth (c. 15cm), non-inversion tillage with no subsoiling or mole-ploughing (HD3)	Low
			Establish combinable crops	Minimal

Field number	Field name	Main risk factors	Management options	Risk level after mitigation
			by direct drilling with no cultivation, subsoiling, deep ploughing or mole-ploughing (HD6)	
			Part-field or whole-field reversion (HD2 or HD7)	Nil
SP 0037 3548	West Meadow (Catherine's Meadow)	Any ploughing below 8" at around 10-12" (25-30cm), resulting in truncation or leaving only shallow buffers in area outside of alluvial layers; archaeological deposits and features of regional significance.	Restrict depth of ploughing and subsoiling to less than 8" (20cm)	Minimal
			Continue to establish combinable crops by reduced-depth (c. 15cm), non-inversion tillage with no subsoiling or mole-ploughing (HD3)	Minimal
			Establish combinable crops by direct drilling with no cultivation, subsoiling, deep ploughing or mole-ploughing (HD6)	Minimal
			Partial field reversion along the boundary area (HD2 or HD7)	Nil
SP 0037 4731	West Meadow	Any ploughing below 8" at around 10-12" (25-30cm), resulting in truncation or leaving only shallow buffers in area outside of alluvial layers; archaeological deposits and features of regional significance.	Restrict depth of ploughing and subsoiling to less than 8" (20cm)	Minimal
			Continue to establish combinable crops by reduced-depth (c. 15cm), non-inversion tillage with no subsoiling or mole-ploughing (HD3)	Minimal
			Establish combinable crops by direct drilling with no cultivation, subsoiling, deep ploughing or mole-ploughing (HD6)	Minimal
			Partial reversion of cropmark area of field (HD2 or HD7)	Nil

Table 3: Summary of main risk factors, management options, and predicted outcomes

5 Acknowledgements

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Worcestershire Archaeology: The project was managed by Robin Jackson and led by Richard Bradley. The fieldwork was undertaken by Richard Bradley, Peter Lovett and Michael Nicholson.

The report and the illustrations were produced by Richard Bradley, with contributions from Robin Jackson. Laura Griffin provided information on the finds recovered during the project and Elizabeth Pearson identified the animal bone.

The excavator and driver (Justin) were supplied by Ken Pink plant hire.

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7 Glossary and notes

Buffer: Soil between *current cultivation* and known or inferred archaeological deposits. The buffers identified in this assessment are provided by *former cultivation* and *subsoil*, but buffers can also include alluvium, colluvium, or made ground. In the COSMIC+ model, buffers are defined as shallow (less than 10cm), moderate (10-15cm), deep (15-25cm) or very deep (more than 25cm). The field summary sheets identify the minimum buffer in each field but also indicate both the range of values and the average (i.e. mean) value. Naturally, the depth of a buffer will vary according to the depth of cultivation (e.g. a buffer may be 20cm after ploughing for cereals but only 10cm after deeper ploughing for potatoes). Buffers can also decrease as a result of soil loss through wind erosion, water erosion, and harvesting.

Current cultivation: Soil inverted or reworked by the last cultivation. It can be identified in the field and distinguished from *former cultivation* on the basis of colour, texture, and compaction.

Former cultivation: Soil beneath *current cultivation*, evidently inverted or reworked, but not by the last cultivation.

Subsoil: Archaeological term for soil above natural, formed by a combination of weathering and leaching. A lack of subsoil between *former cultivation* and *natural* indicates deep ploughing at some time in the past.

Natural: Archaeological term for parent material. Over the eastern part of Old Manor Farm, the parent material consists of fluvioglacial silts and sands with common to abundant limestone gravels. In the western area, there is a limestone outlier of the Cotswold Hills, with an oolitic limestone cap.

Slope, soil groups, and water erosion: For each field, the model use slope categories and soil groups along with a figure for average annual rainfall to assess the risk of soil loss through water erosion. Slopes are categorised as steep (more than 7°), moderate (3-7°), or gentle (2-3°) and there is a separate category for level ground (less than 2°). In this connection, similar soils are classified as light (sand, loamy sand, sandy loam, sandy silt loam, silt loam); moderate (sandy clay loam, clay loam, silty clay loam, and silty clay); or heavy (silty clay and clay).

Soil type, soil groups and wind erosion: In assessing the risk of soil loss through wind erosion, the model identifies five different soil groups, namely peats, silts/sands (sand, loamy sand, silty loam), loams (sandy loam, sandy silt loam, sand clay loam, clay loam, silty clay loam), sandy clay/silty clay and clay.

Archaeological deposits: material remains and traces of past human activity, often associated with artefacts and plant or animal remains. The term covers both positive features, such as walls and banks, and negative features, such as ditches and pits.

Truncation, loss of information and significance: In the present context, truncation means direct damage to archaeological deposits as a result of ploughing, disc/tine cultivation, and/or subsoiling. Truncation constitutes a loss of information. The extent of the loss is proportionate to the significance of the deposits. In the model, significance is assessed in terms of the survival and character of deposits and their relevance to current research agendas.

8 Figures

Figure 1: Overall holding and fields investigated

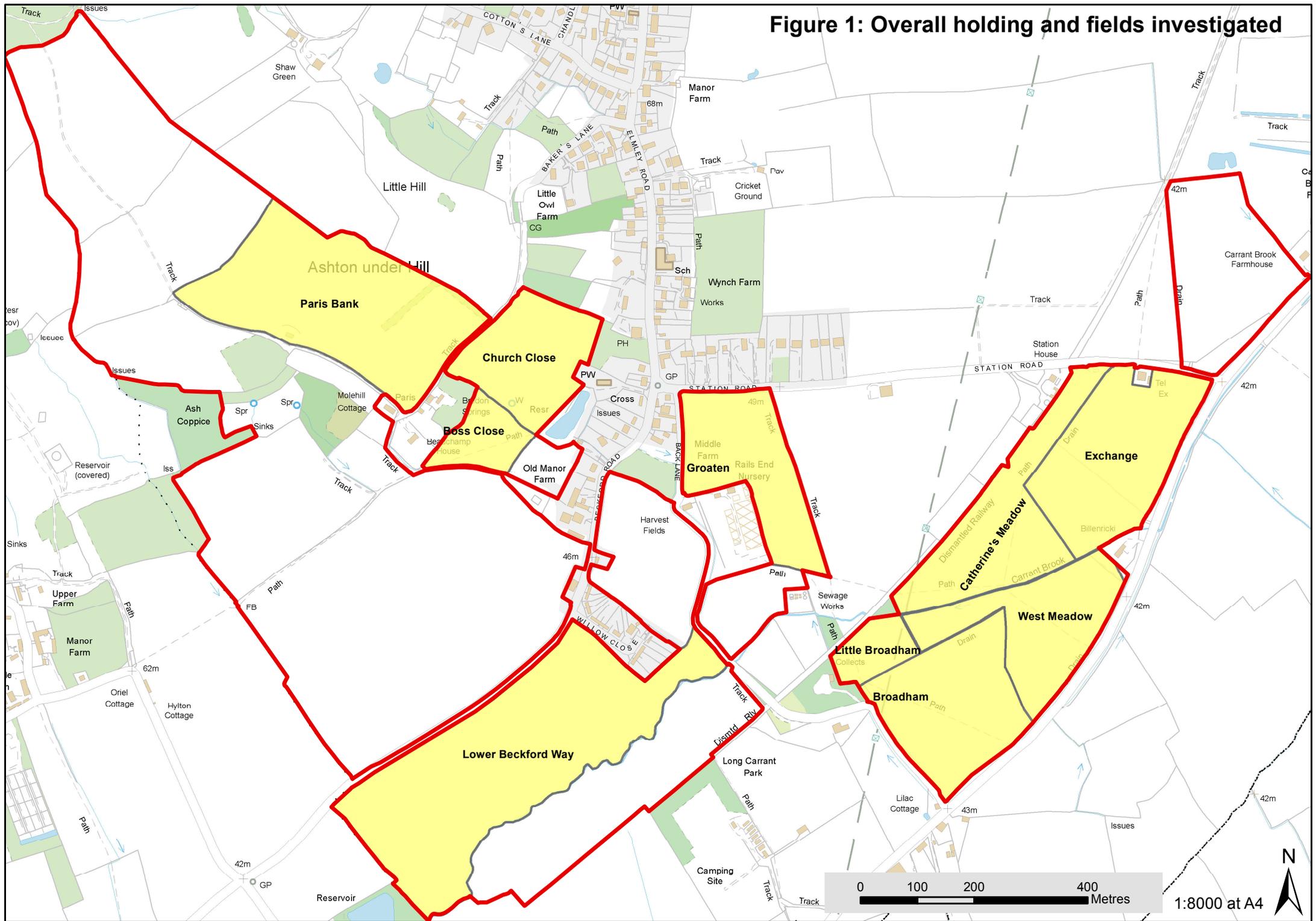


Figure 2: Cropmark interpretations across holding

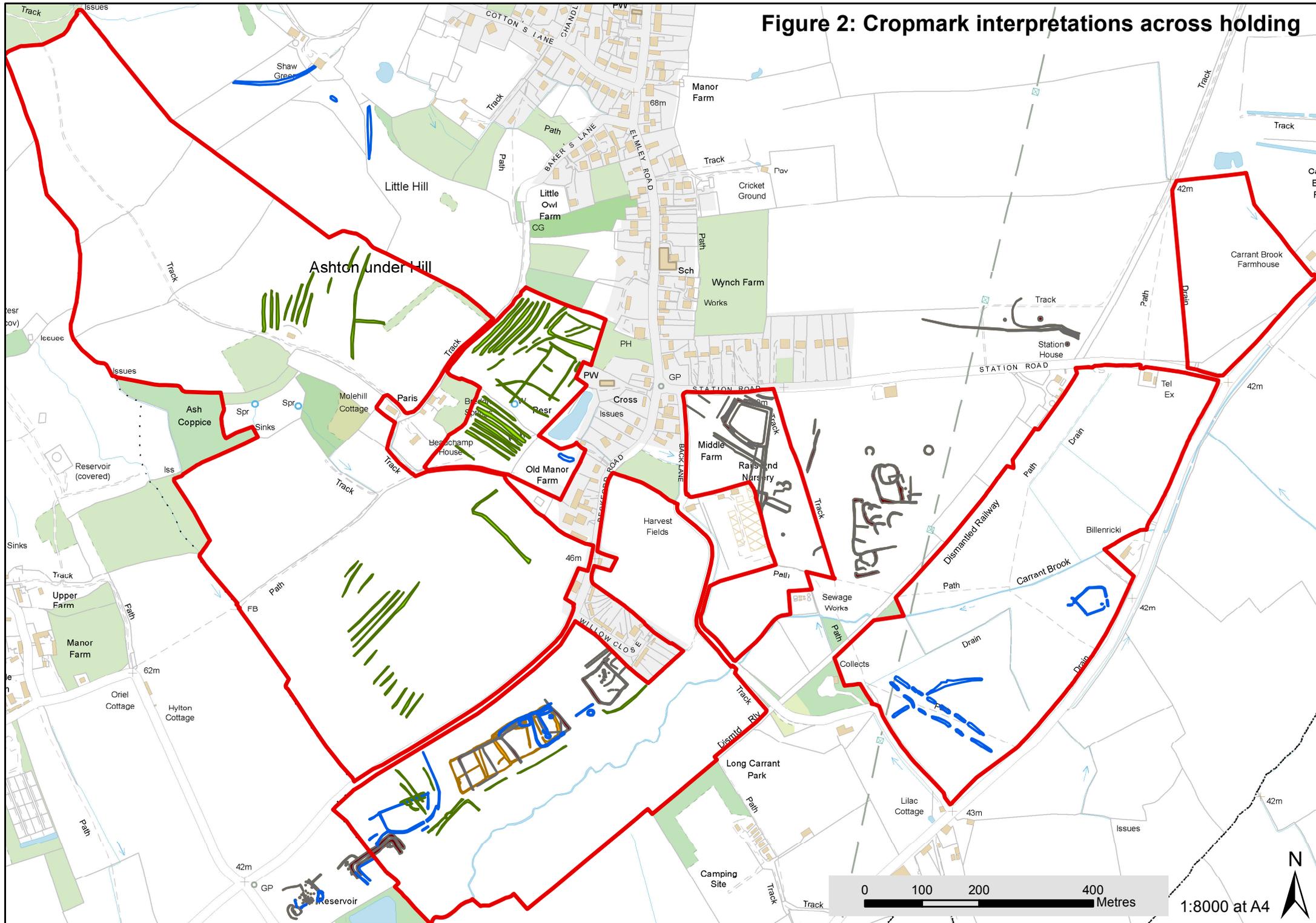


Figure 3: Risk levels when ploughed

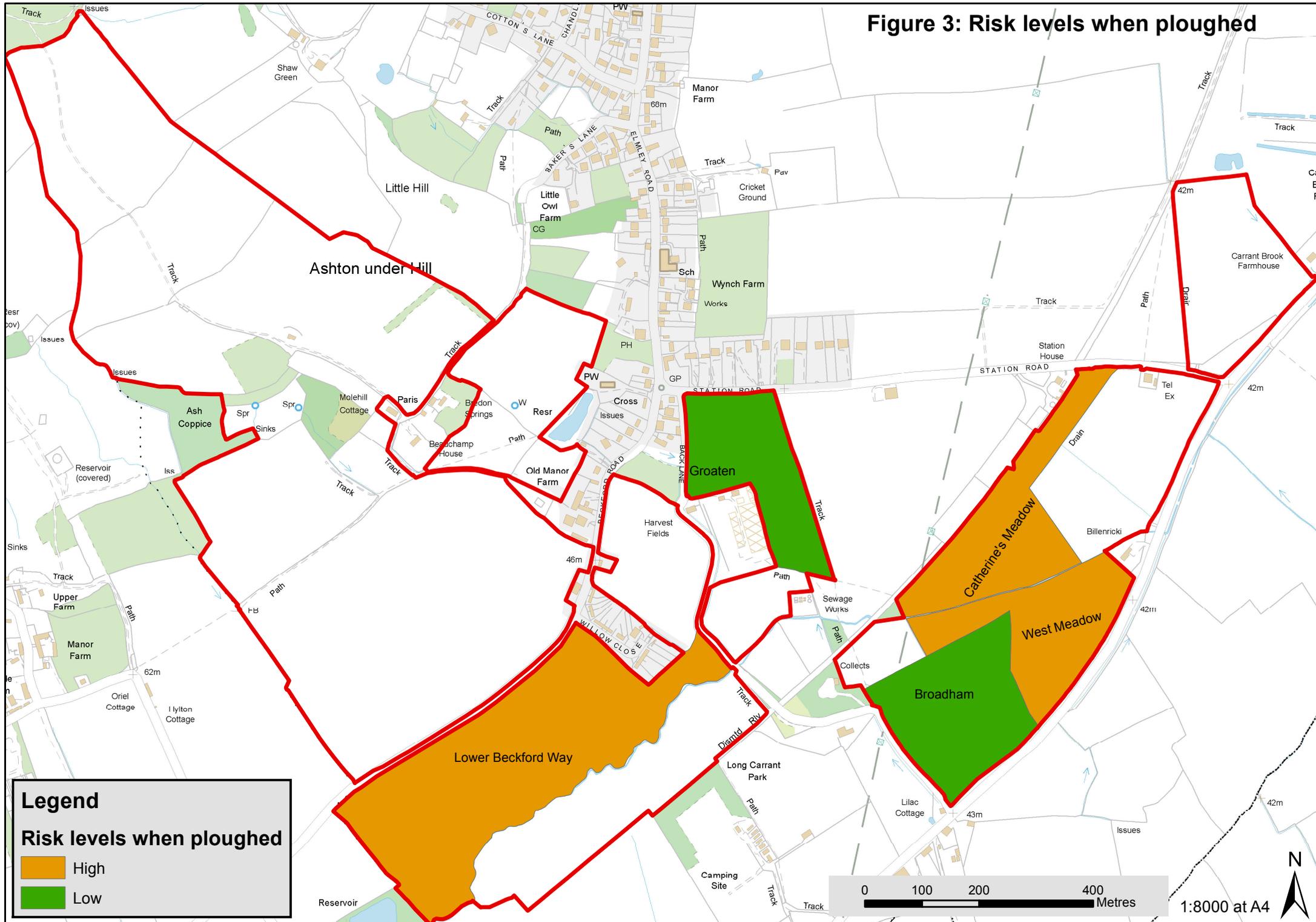
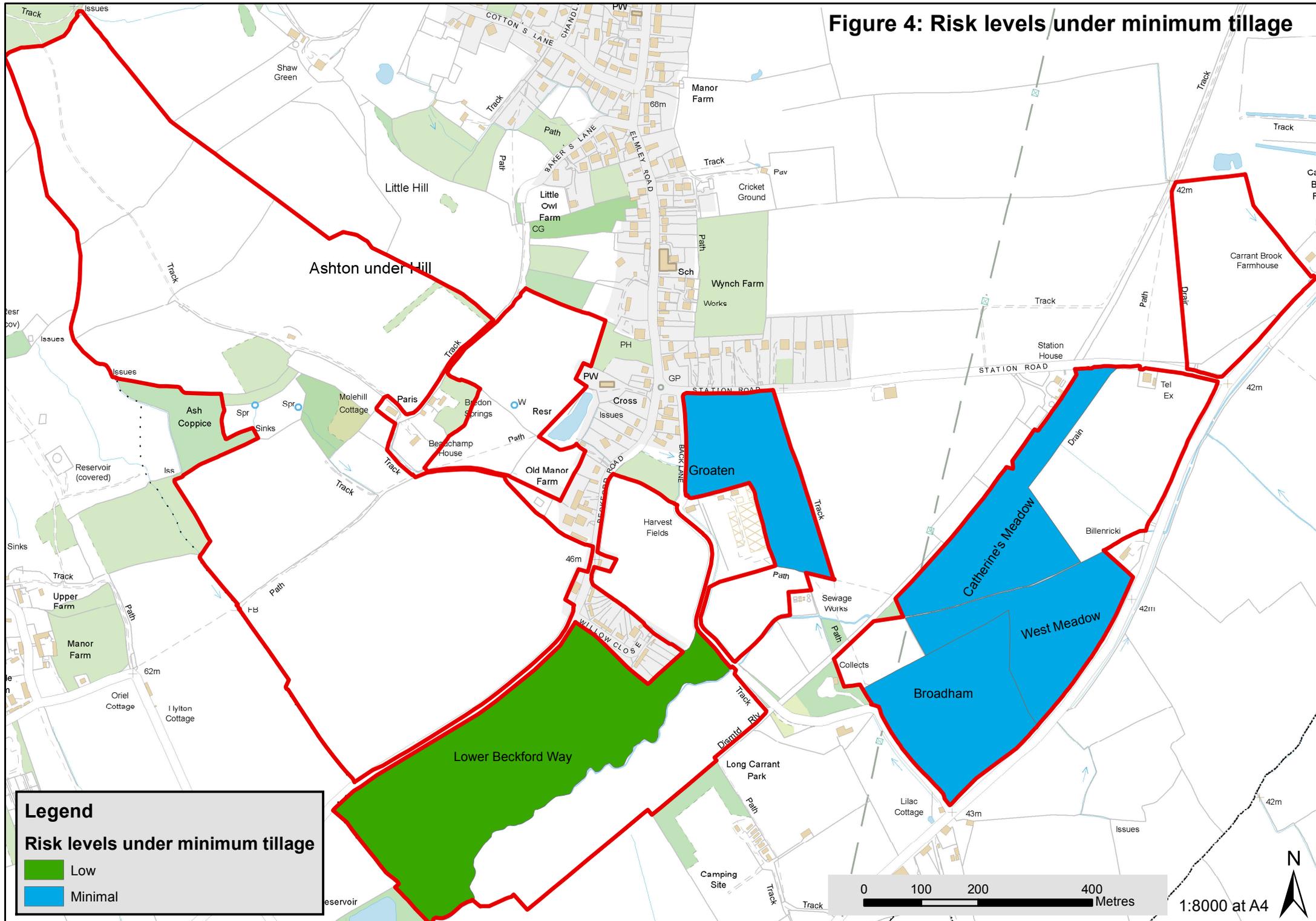


Figure 4: Risk levels under minimum tillage



9 Appendix 1

Groaten (land parcel 9157)*Test pit data:*

Field: Groaten								
Test Pits	1	2	3	4	5	Range		Average (mean in metres and inches)
						Min	Max	
Current cultivation	0.15m	0.32m*	0.20m	0.18m	0.15m	0.15m	0.20m	0.17m (6 ⁵ / ₈ "
Former cultivation	0.15m		0.08m	0.12m	0.18m	0.08m	0.18m	0.13m (5 ¹ / ₈ "
Subsoil/historic soil cultivation	0.25m	0.34m	0.34m	0.30m	0.25m	0.25m	0.34m	0.30m (11 ⁷ / ₈ "
Natural	Unexc	Unexc	>0.03m	Unexc	Unexc			
Slope:	1.85°							
Buffer if ploughed (minimum):	0.25m							
Buffer at minimum tillage (minimum):	0.33m							
Notes:	*No clear division, but likely to be similar to other test pits as depth is comparable. Not included in average.							

*Trench data:***Trench 1**

Maximum dimensions: Length: 11.30m

Width: 1.6m

Depth: 0.48m

Orientation: NW-SE

Context	Classification	Description	Depth below ground surface
1000	Current cultivation	Light grey silty clay with occasional small limestone brash fragments and frequent bioturbation.	0.00-0.16m
1001	Former cultivation	Light grey silty clay with occasional limestone brash fragments and rare sandstone fragments.	0.16-0.28m
1002	Subsoil	Light grey brown silty clay with frequent small and medium limestone brash fragments.	0.28-0.48m
1003	Natural	Firm, mid orange yellow clays with limestone brash.	0.48m
1004	Fill	Fill of [1005]. Dark greyish black silty clay with abundant charcoal flecks and occasional limestone brash fragments.	0.48-0.78m
1005	Cut	Large linear ditch feature at NW end of trench.	0.48-0.78m

Context	Classification	Description	Depth below ground surface
1006	Layer	Mid brown silty clay with frequent fragments of limestone brash. Possible spread of material or disturbed natural.	0.48m
1007	Fill	Fill of [1008]. Mid greyish brown silty clay with occasional limestone brash and sandstone fragments.	0.48m+
1008	Cut	Terminus of curvilinear feature.	0.48m+
1009	Fill	Fill of [1010]. Mid greyish brown silty clay with frequent limestone brash fragments and occasional charcoal flecks.	0.48m+
1010	Cut	Linear ditch feature orientated NE-SW.	0.48m+
1011	Fill	Upper fill of [1012]. Mid greyish brown silty clay with frequent sub-angular and sub-rounded gravels and occasional charcoal flecks.	0.48-0.70m
1012	Cut	Ditch terminus with steep, slightly convex sides, sharp break at top, moderate break to flattened base.	0.48-0.80m
1013	Fill	Fill of [1014]. Light brown silty clay with occasional limestone brash fragments.	0.48m+
1014	Cut	Linear feature orientated NE-SW, parallel to [1016].	0.48m+
1015	Fill	Fill of [1016]. Mid brown silty clay with occasional limestone brash fragments.	0.48m+
1016	Cut	Linear feature orientated NE-SW, parallel to [1014].	0.48m+
1017	Fill	Lower fill of [1012]. Soft mid yellowish brown silty clay with frequent sub-angular pebbles.	0.48-0.80m

Trench 2

Maximum dimensions: Length: 11.30m

Width: 1.6m

Depth: 0.48m

Orientation: W-E

Context	Classification	Description	Depth below ground surface
2000	Current cultivation	Mid brown silty loam with occasional small limestone brash fragments and frequent bioturbation.	0.00-0.15m
2001	Former cultivation	Mid brown silty clay with frequent small and medium	0.15-0.31m

Context	Classification	Description	Depth below ground surface
		limestone brash fragments and sub angular stones.	
2002	Subsoil	Light brown silty clay with frequent large and medium limestone brash fragments.	0.31-0.48m
2003	Fill	Fill of [2004]. Mid brown silty loam with occasional small sandstone and limestone brash pieces. Roman pottery recovered.	0.48m+
2004	Cut	Linear ditch or gully at eastern end of trench.	0.48m+
2005	Fill	Fill of [2006]. Mid brown silty loam with occasional limestone brash fragments and rare charcoal flecks. Roman pottery recovered.	0.48-0.83m
2006	Cut	Large linear feature orientated NE-SW.	0.48-0.83m
2007	Fill	Fill of [2008]. Mid brown silty loam with occasional limestone brash and medium stones. Rare charcoal flecks and Roman pottery.	0.48-0.67m
2008	Cut	Large linear feature orientated NE-SW.	0.48-0.67m
2009	Fill	Fill of [2010]. Light brown silty loam with occasional limestone brash and small stones. Rare charcoal flecks.	0.48m+
2010	Cut	Linear feature, not clearly defined.	0.48m+
2011	Natural	Firm, mid yellowish brown silty clays with limestone brash.	0.48m

Finds summary:

Walkover survey

material class	material subtype	object specific type	count	weight(g)	start date	end date	period
ceramic	earthenware	pot	11	93	L2C		Roman
slag	slag(Fe)	pot	3	262			

All material from this field was Roman with diagnostic pottery indicating a date of late 2nd-3rd century. Pottery fabrics were primarily of local production, although two sherds of Black-burnished ware 1 were also identified.

Test Pits

Test pit 3

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
302	metal	iron	nail	1	1			?Roman
302	ceramic	earthenware	pot	4	11	M1C	4C	Roman
302	bone	animal bone		1	1			

Material from this test pit was Roman in date and consisted of locally produced Severn Valley ware and an iron hobnail.

Evaluation Trenches

Trench 1

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
1004	ceramic	earthenware	pot	1	17	L2C	L3C	Roman
1011	ceramic	earthenware	pot	1	1	M1C	4C	Roman
1011	bone	animal bone		2	3			
1011	ceramic	earthenware	pot	1	1			??

All material from this trench was of Roman date. A single diagnostic sherd of Severn Valley ware from context 1004 could be identified as coming from a wide-mouthed jar form dating to the late 2nd-late 3rd century.

Animal bone consisted of a sheep/goat molar and an indeterminate fragment (L Pearson pers comm).

Trench 2

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
2003	ceramic	earthenware	pot	3	73	M2C	L3C	Roman
2003	ceramic	earthenware	pot	1	18	1C	2C	Roman
2005	ceramic	earthenware	pot	1	28			Roman
2007	ceramic	earthenware	pot	2	16	M1C	4C	Roman

Once again, the material from this trench was of Roman date and local production. Diagnostic pottery included a Severn Valley ware wide-mouthed jar of mid 2nd- late 3rd century and the rim of a Malvernian ware tubby cooking pot of 1st-2nd century date. All sherds were well-preserved with little surface abrasion.

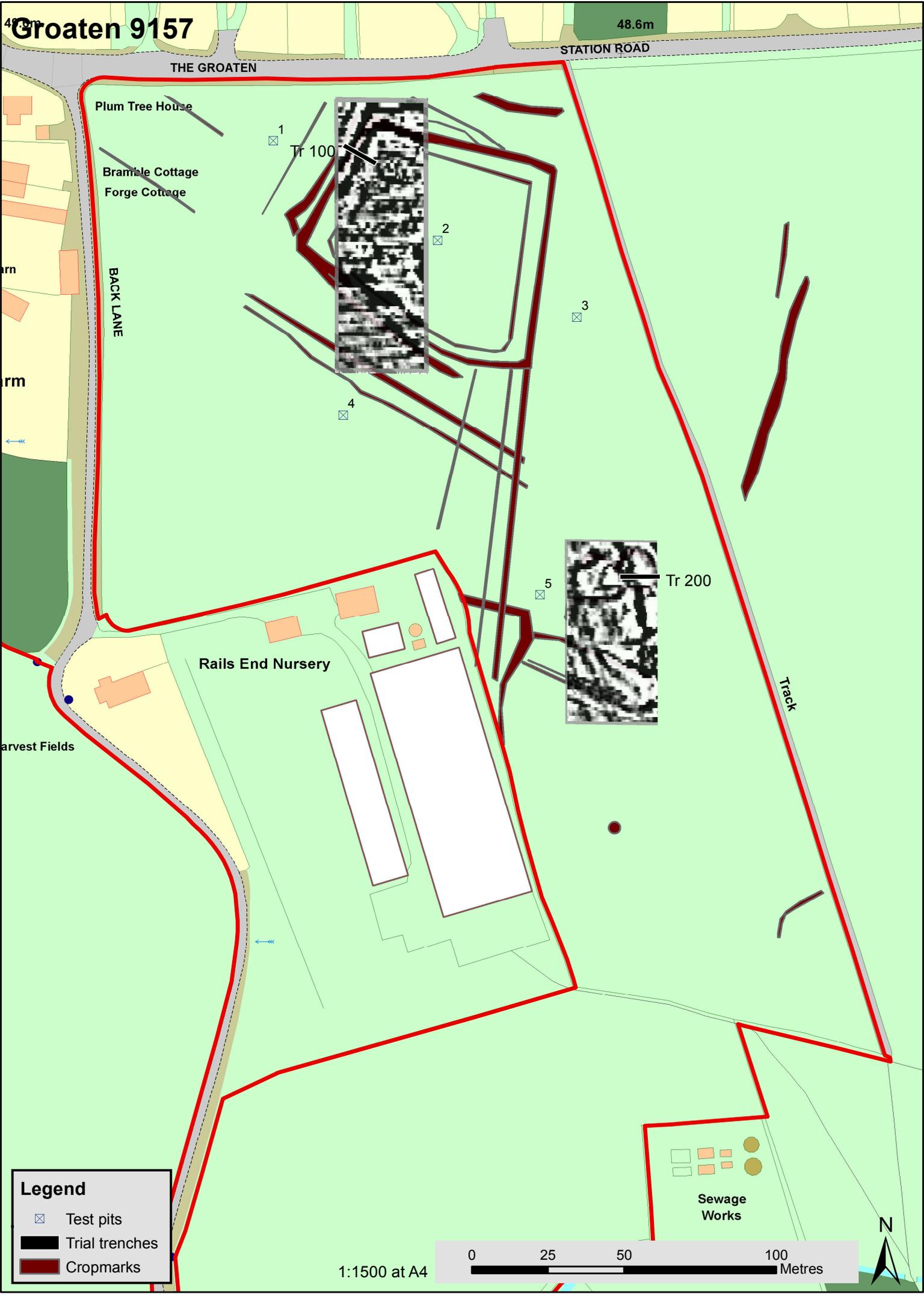


Section of Trench 100 in Groaten, showing buffer above archaeological deposits



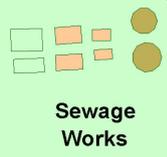
General view of archaeological features in Trench 100, Groaten

Groaten 9157

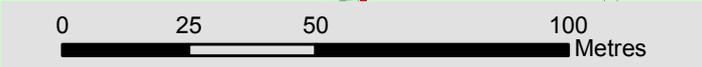


Legend

-  Test pits
-  Trial trenches
-  Cropmarks



1:1500 at A4



COSMIC+ assessment sheet Land parcel number:

9157

Field name:

Groaten

	Serious risk Score 5	High risk Score 4	Medium risk Score 3	Low risk Score 2	Minimum risk Score 1	Scores*	
						Ploughing	Minimum tillage
Buffer	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (15-25cm)	Very deep buffer (> 25cm)	A...2.... B..... C.....	A...1.... B..... C.....
Cultivation depth and method	Very deep ploughing (> 30cm)	Deep ploughing (25-30cm)	Normal ploughing (20-25cm)	Disc/tine cultivation or shallow ploughing (10-20cm)	Direct drilling (< 10cm)	A...4.... B..... C.....	A...2.... B..... C.....
Cropping	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley or set-aside (> 5 years)	A...3.... B..... C.....	A...3.... B..... C.....
Subsoiling	Frequent subsoiling (< 3 years)	Regular subsoiling (3-6 years)	Occasional subsoiling (7-15 years)	No subsoiling		A...3... B..... C.....	
Initial score						12	9
Weighting	Any at serious risk = 2.5 Any at high risk = 1.5 Any at minimum risk = 0.5					1.5	0.5
Initial score multiplied by weighting						A...18.... B..... C.....	A...4.5.... B..... C.....

*Graded A-C according to quality of evidence

Site intrinsic factors								
Susceptibility of cultivated soil to water erosion								
Average annual rainfall <800mm								
Slope & soil group	Steep (< 7°)		Moderate (3-7°)		Gentle (2-3°)		Level ground (< 2°)	Score*
	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A...1.... B..... C.....
Moderate soils	High Score 4	Medium Score 4	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility of cultivated soil to water erosion								
Soil group	Peats	Sands/silts	Loams	Sandy/silty clays	Clay	Score*		
	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A...2.... B..... C.....		
Risk of soil loss through harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops		Combinable crops	Scores*			
	Serious Score 5	High Score 4		Medium Score 3	Cereals A...3... B..... C.....			
Initial score					6			
Weighting	Any of above in grey-shaded box = 2				1			
Initial score multiplied by weighting					A...6... B..... C.....			

*Graded A-C according to quality of evidence

Archaeological factors					
Survival and quality of evidence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Score*
<p>[Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]</p>	<ul style="list-style-type: none"> - Upstanding earthworks/structures - Well preserved deposits relevant to national research agendas - Other evidence indicating deposits of national significance 	<ul style="list-style-type: none"> - Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to regional research agendas - Less well-preserved deposits relevant to national research agendas - Other evidence indicating deposits of regional significance 	<ul style="list-style-type: none"> - Negative features demonstrated by excavation - Negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to county research agendas - Less well preserved deposits relevant to regional research agendas - Dense or diagnostic ploughsoil scatters - Other evidence indicating deposits of county significance 	<ul style="list-style-type: none"> - Truncated negative features demonstrated by excavation - Truncated negative features indicated by other evidence - Diffuse or undiagnostic ploughsoil scatters - Other evidence indicating deposits of local significance 	<p>A...3.... B..... C.....</p>
Significance†	National significance	Regional significance	County significance	Local significance	<p>A...4.... B..... C.....</p>
Initial score					7
Weighting	For score of 9-10 use weighting factor 2; for score of 8-7 use weighting factor 1.5; for score of 6 use weighting factor 1.3; for score of 5-4 use weighting factor 1; for score of 2-3 use weighting factor 0.5.				10.5
Initial score multiplied by weighting					<p>A...10.5.... B..... C.....</p>

*Graded A-C according to quality of evidence

†Considered in relation to research agendas and/or current state of knowledge

Final risk scores

	Ploughing	Minimum tillage
Management factors (out of 50)	18	4.5
Site intrinsic factors (out of 30)	6	6
Archaeological factors (out of 20)	10.5	10.5
Final risk score (out of 100)	34.5	21

Risk levels

Total risk score	Risk level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-60	High risk
60+	Serious risk

Broadham (land parcel 3015)

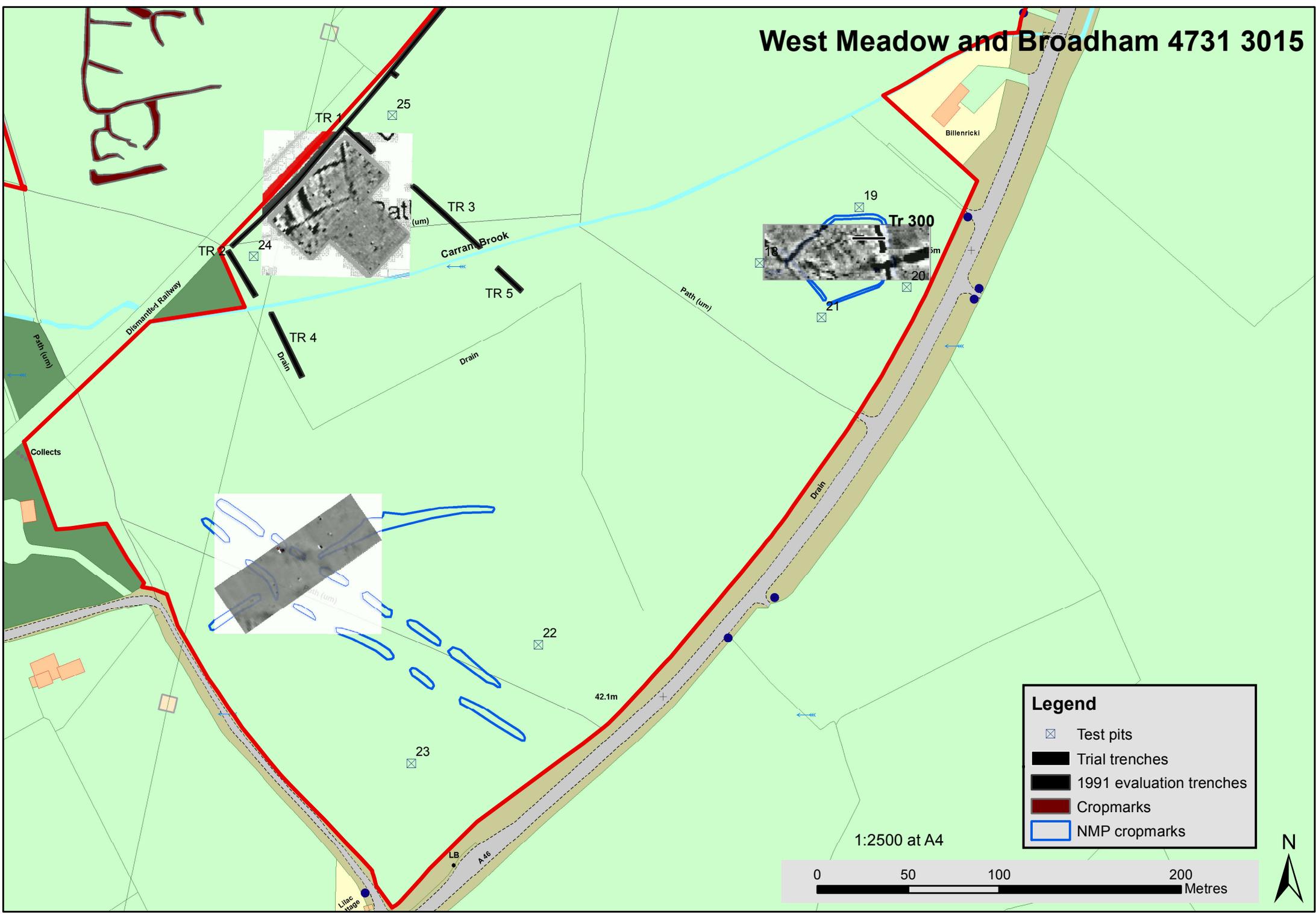
Test pit data:

Field: Broadham					
Test Pits	22	23	Range		Average (mean in metres and inches)
			Min	Max	
Current cultivation	0.15m	0.14m	0.14m	0.15m	0.15m (5 7/8")
Former cultivation	0.10m	0.15m	0.10m	0.15m	0.13m (5 1/8")
Subsoil/alluvium	0.15m	0.07m	0.07m	0.15m	0.11m (4 3/8")
Natural	>0.06m	Unexc			
Slope:	Level ground				
Buffer if ploughed (minimum):	0.07m				
Buffer at minimum tillage (minimum):	0.17m				



Test pit 22 in Broadham with alluvial deposit visible

West Meadow and Broadham 4731 3015



Legend

- ⊗ Test pits
- ▬ Trial trenches
- ▬ 1991 evaluation trenches
- ▬ Cropmarks
- ▬ NMP cropmarks



COSMIC+ assessment sheet Land parcel number:

3015

Field name:

Broadham

	Serious risk Score 5	High risk Score 4	Medium risk Score 3	Low risk Score 2	Minimum risk Score 1	Scores*	
						Ploughing	Minimum tillage
Buffer	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (15-25cm)	Very deep buffer (> 25cm)	A...4.... B..... C.....	A...2.... B..... C.....
Cultivation depth and method	Very deep ploughing (> 30cm)	Deep ploughing (25-30cm)	Normal ploughing (20-25cm)	Disc/tine cultivation or shallow ploughing (10-20cm)	Direct drilling (< 10cm)	A...4.... B..... C.....	A...2.... B..... C.....
Cropping	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley or set-aside (> 5 years)	A...3.... B..... C.....	A...3.... B..... C.....
Subsoiling	Frequent subsoiling (< 3 years)	Regular subsoiling (3-6 years)	Occasional subsoiling (7-15 years)	No subsoiling		A...3.... B..... C.....	
Initial score						14	10
Weighting	Any at serious risk = 2.5 Any at high risk = 1.5 Any at minimum risk = 0.5					1.5	1
Initial score multiplied by weighting						A...21.... B..... C.....	A...10.... B..... C.....

*Graded A-C according to quality of evidence

Site intrinsic factors								
Susceptibility of cultivated soil to water erosion								
Average annual rainfall <800mm								
Slope & soil group	Steep (< 7°)		Moderate (3-7°)		Gentle (2-3°)		Level ground (< 2°)	Score*
	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A...1.... B..... C.....
Moderate soils	High Score 4	Medium Score 4	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility of cultivated soil to water erosion								
Soil group	Peats	Sands/silts	Loams	Sandy/silty clays	Clay	Score*		
	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A...2.... B..... C.....		
Risk of soil loss through harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops		Combinable crops		Scores*		
	Serious Score 5	High Score 4		Medium Score 3		Cereals A...3... B..... C.....		
Initial score							6	
Weighting	Any of above in grey-shaded box = 2						1	
Initial score multiplied by weighting							A...6... B..... C.....	

*Graded A-C according to quality of evidence

Archaeological factors					
Survival and quality of evidence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Score*
<p>[Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]</p>	<ul style="list-style-type: none"> - Upstanding earthworks/structures - Well preserved deposits relevant to national research agendas - Other evidence indicating deposits of national significance 	<ul style="list-style-type: none"> - Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to regional research agendas - Less well-preserved deposits relevant to national research agendas - Other evidence indicating deposits of regional significance 	<ul style="list-style-type: none"> - Negative features demonstrated by excavation - Negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to county research agendas - Less well preserved deposits relevant to regional research agendas - Dense or diagnostic ploughsoil scatters - Other evidence indicating deposits of county significance 	<ul style="list-style-type: none"> - Truncated negative features demonstrated by excavation - Truncated negative features indicated by other evidence - Diffuse or undiagnostic ploughsoil scatters - Other evidence indicating deposits of local significance 	<p>A...3.... B..... C.....</p>
Significance†	National significance	Regional significance	County significance	Local significance	<p>A...2.... B..... C.....</p>
Initial score					5
Weighting	For score of 9-10 use weighting factor 2; for score of 8-7 use weighting factor 1.5; for score of 6 use weighting factor 1.3; for score of 5-4 use weighting factor 1; for score of 2-3 use weighting factor 0.5.				1
Initial score multiplied by weighting					<p>A...5.... B..... C.....</p>

*Graded A-C according to quality of evidence

†Considered in relation to research agendas and/or current state of knowledge

Final risk scores

	Ploughing	Minimum tillage
Management factors (out of 50)	21	10
Site intrinsic factors (out of 30)	6	6
Archaeological factors (out of 20)	5	5
Final risk score (out of 100)	32	21

Risk levels

Total risk score	Risk level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-60	High risk
60+	Serious risk

West Meadow: Catherine's Meadow (land parcel 3548)

Test pit data:

Field: Catherine's Meadow					
Test Pits	24	25	Range		Average (mean in metres and inches)
			Min	Max	
Current cultivation	0.16m	0.17m	0.16m	0.17m	0.17m (6 5/8")
Former cultivation	0.10m	0.13m	0.10m	0.13m	0.12m (4 5/8")
Subsoil/historic soil cultivation	0.12m	-	0.00m	0.12m	0.06m (2 3/8")
Archaeological feature/layer	>0.22m*	-			
Natural	Unexc.	>0.07 m			
Slope:	Level ground				
Buffer if ploughed (minimum):	0.00m				
Buffer at minimum tillage (minimum):	0.10m				
Notes:	*Deposit contained burnt bone and charcoal, so was not further disturbed.				



Test pit 24 in Catherine's Meadow with archaeological deposit partly exposed

Finds summary:

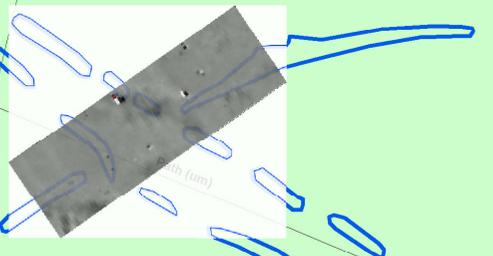
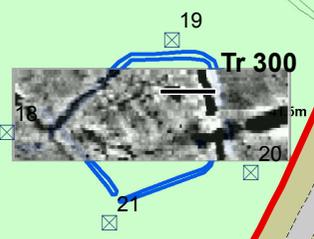
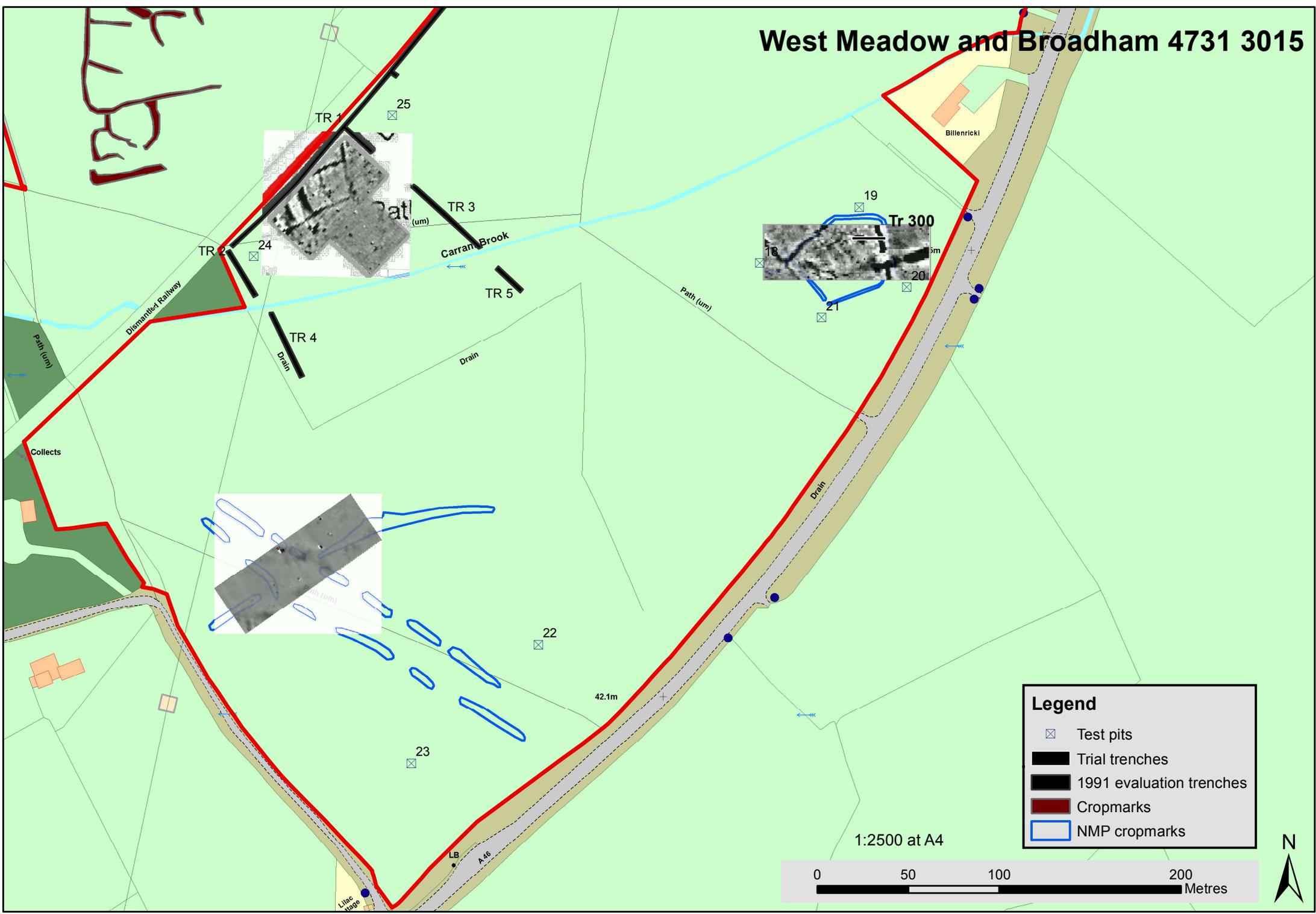
Test Pits

Test pit 24

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
2403	bone			4	1			
2403	ceramic	earthenware	pot	1	1	M1C	4C	Roman

Tiny fragments of material were retrieved from this test pit, including a Roman pottery sherd and burnt animal bone.

West Meadow and Broadham 4731 3015



Legend

- ⊗ Test pits
- ▬ Trial trenches
- ▬ 1991 evaluation trenches
- Cropmarks
- NMP cropmarks



COSMIC+ assessment sheet Land parcel number:

3548

Field name:

Catherine's Meadow

	Serious risk Score 5	High risk Score 4	Medium risk Score 3	Low risk Score 2	Minimum risk Score 1	Scores*	
						Ploughing	Minimum tillage
Buffer	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (15-25cm)	Very deep buffer (> 25cm)	A...5.... B..... C.....	A...3.... B..... C.....
Cultivation depth and method	Very deep ploughing (> 30cm)	Deep ploughing (25-30cm)	Normal ploughing (20-25cm)	Disc/tine cultivation or shallow ploughing (10-20cm)	Direct drilling (< 10cm)	A...4.... B..... C.....	A...2.... B..... C.....
Cropping	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley or set-aside (> 5 years)	A...3.... B..... C.....	A...3.... B..... C.....
Subsoiling	Frequent subsoiling (< 3 years)	Regular subsoiling (3-6 years)	Occasional subsoiling (7-15 years)	No subsoiling		A...3.... B..... C.....	
Initial score						15	11
Weighting	Any at serious risk = 2.5 Any at high risk = 1.5 Any at minimum risk = 0.5					2.5	1
Initial score multiplied by weighting						A...37.5.... B..... C.....	A...11.... B..... C.....

*Graded A-C according to quality of evidence

Site intrinsic factors								
Susceptibility of cultivated soil to water erosion								
Average annual rainfall <800mm								
Slope & soil group	Steep (< 7°)		Moderate (3-7°)		Gentle (2-3°)		Level ground (< 2°)	Score*
	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A...1.... B..... C.....
Moderate soils	High Score 4	Medium Score 4	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility of cultivated soil to water erosion								
Soil group	Peats	Sands/silts	Loams	Sandy/silty clays	Clay	Score*		
	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A...2.... B..... C.....		
Risk of soil loss through harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops		Combinable crops		Scores*		
	Serious Score 5	High Score 4		Medium Score 3		Cereals A...3.... B..... C.....		
Initial score							6	
Weighting	Any of above in grey-shaded box = 2						1	
Initial score multiplied by weighting							A...6... B..... C.....	

*Graded A-C according to quality of evidence

Archaeological factors					
Survival and quality of evidence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Score*
<p>[Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]</p>	<ul style="list-style-type: none"> - Upstanding earthworks/structures - Well preserved deposits relevant to national research agendas - Other evidence indicating deposits of national significance 	<ul style="list-style-type: none"> - Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to regional research agendas - Less well-preserved deposits relevant to national research agendas - Other evidence indicating deposits of regional significance 	<ul style="list-style-type: none"> - Negative features demonstrated by excavation - Negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to county research agendas - Less well preserved deposits relevant to regional research agendas - Dense or diagnostic ploughsoil scatters - Other evidence indicating deposits of county significance 	<ul style="list-style-type: none"> - Truncated negative features demonstrated by excavation - Truncated negative features indicated by other evidence - Diffuse or undiagnostic ploughsoil scatters - Other evidence indicating deposits of local significance 	<p>A...4.... B..... C.....</p>
Significance†	National significance	Regional significance	County significance	Local significance	<p>A...4.... B..... C.....</p>
Initial score					8
Weighting	For score of 9-10 use weighting factor 2; for score of 8-7 use weighting factor 1.5; for score of 6 use weighting factor 1.3; for score of 5-4 use weighting factor 1; for score of 2-3 use weighting factor 0.5.				1.5
Initial score multiplied by weighting					<p>A...12.... B..... C.....</p>

*Graded A-C according to quality of evidence

†Considered in relation to research agendas and/or current state of knowledge

Final risk scores

	Ploughing	Minimum tillage
Management factors (out of 50)	37.5	11
Site intrinsic factors (out of 30)	6	6
Archaeological factors (out of 20)	12	12
Final risk score (out of 100)	55.5	29

Risk levels

Total risk score	Risk level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-60	High risk
60+	Serious risk

West Meadow (land parcel 4731)*Test pit data:*

Field: West Meadow							
Test Pits	18	19	20	21	Range		Average (mean in metres and inches)
					Min	Max	
Current cultivation	0.15m	0.15m	0.16m	0.14m	0.14m	0.16m	0.15m (5 7/8")
Former cultivation	0.19m	0.13m	0.13m	0.15m	0.13m	0.19m	0.13m (5 1/8")
Natural	Unexc	>0.08m	Unexc	Unexc			
Slope:	Level ground						
Buffer if ploughed (minimum):	0.00m						
Buffer at minimum tillage (minimum):	0.13m						

*Trench data:***Trench 3**

Maximum dimensions: Length: 18.30m

Width: 1.6m

Depth: 0.34m

Orientation: W-E

Context	Classification	Description	Depth below ground surface
3000	Current cultivation	Soft yellowish grey brown silty clay.	0.00-0.22m
3001	Former cultivation	Firm mid yellowish brown silty clay.	0.22-0.34m
3002	Natural	Soft mid brownish yellow silty clay.	0.34m+
3003	Fill	Fill of [3004] Soft mid yellow brown silty clay.	0.34m+
3004	Cut	Large pit feature.	0.34m+
3005	Fill	Fill of [3006] Soft mid greyish brown silty clay with occasional bone fragments and charcoal flecks.	0.34m+
3006	Cut	Large pit feature.	0.34m+
3007	Fill	Fill of [3008] Soft mid greyish brown silty clay with occasional charcoal flecks.	0.34m+
3008	Cut	Pit/Posthole feature.	0.34m+

Context	Classification	Description	Depth below ground surface
3009	Fill	Fill of [3010] Soft mid yellowish brown silty clay with occasional charcoal flecks.	0.34m+
3010	Cut	Small pit feature.	0.34m+
3011	Fill	Fill of [3012] Soft mid greyish brown silty clay with occasional bone fragments and charcoal flecks	0.34-0.64m
3012	Cut	Large pit feature.	0.34m+
3013	Fill	Fill of [3014] Soft mid greyish brown silty clay with occasional sub-rounded cobbles and charcoal flecks.	0.34m+
3014	Cut	Small pit feature.	0.34m+
3015	Fill	Fill of [3016] Soft mid yellowish brown silty clay with occasional charcoal flecks and animal bone fragments.	0.34-1.04m
3016	Cut	Large linear, orientated N-S. Part of a larger enclosure feature.	0.34m+
3017	Fill	Fill of [3018] Soft light greyish brown silty clay with occasional cremated bone.	0.34m+
3018	Cut	Posthole/ small pit	0.34m+
3019	Fill	Fill of [3020] Soft mid greyish brown silty clay with occasional charcoal flecks.	0.34m+
3020	Cut	Large sub-rectangular pit feature.	0.34m+

Finds summary:

Evaluation Trench

Trench 3

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
3001	stone	flint		1	1			
3001	ceramic	earthenware	pot	1	2			?EIA
3001	ceramic	earthenware	pot	1	38			Roman
3001	ceramic	earthenware	pot	2	3	M1C	4C	Roman
3001	bone	animal bone		2	1			
3011	ceramic	earthenware	pot	1	1	M1C	2C	Roman
3011	stone	flint		1	1			

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
3015	ceramic	earthenware	pot	3	4			late Iron Age

Material from this trench was of more varied date range and included two pieces of worked flint as well as pottery of Early Iron Age date onwards. The Early Iron age pottery (context 3001) was represented by a small sherd of a shell-tempered fabric similar to that previously identified at Clifton Quarry, Worcestershire (Griffin forthcoming). Further sherds of this date are known from the Carrant Brook area, making this single sherd of particular significance (R Jackson pers comm.).

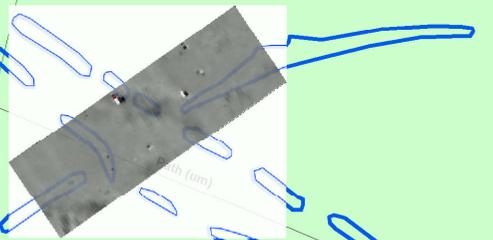
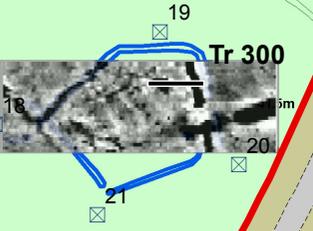
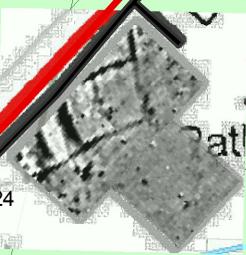
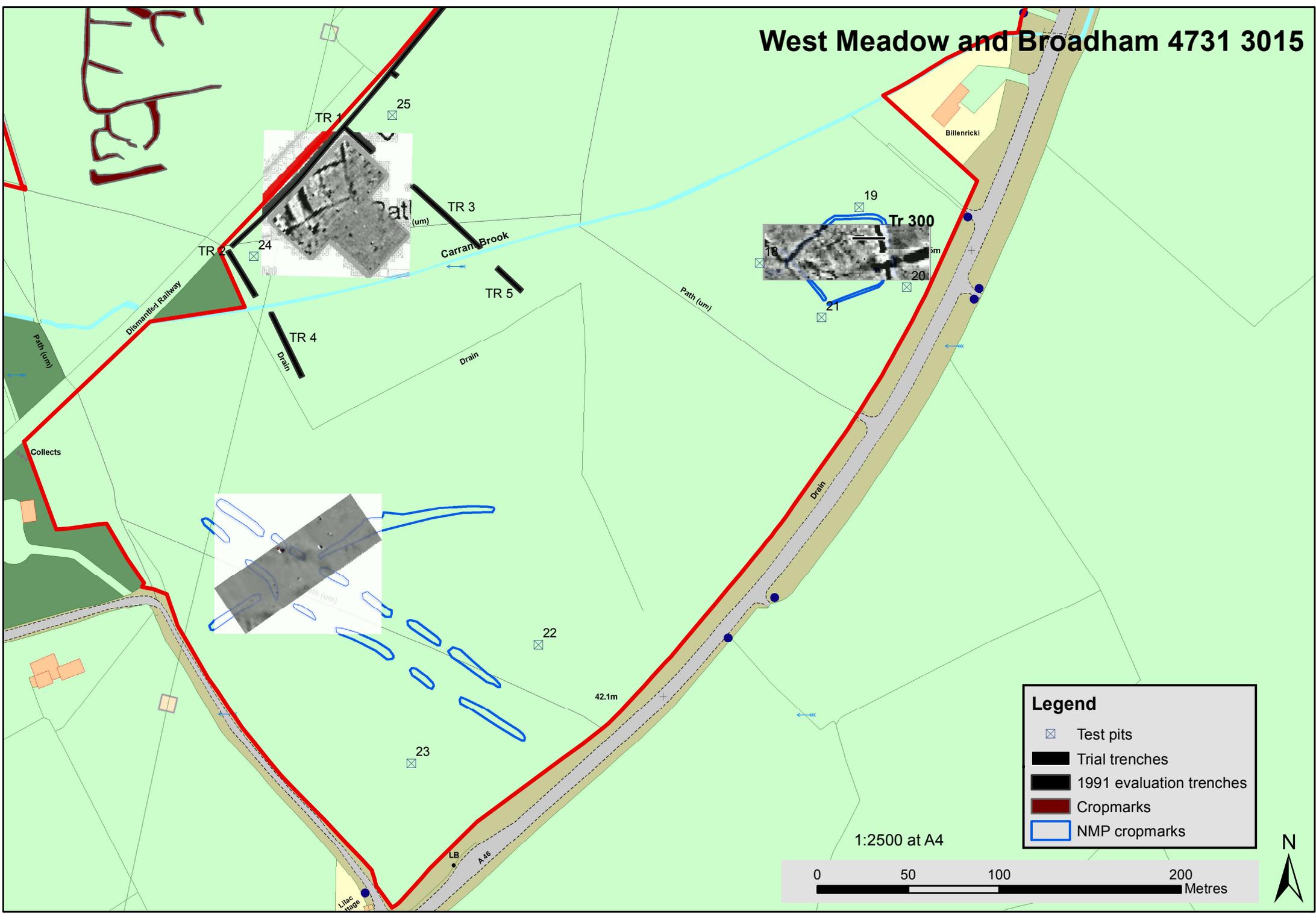
In addition, three sherds of Late Iron Age pottery were also identified (context 3015). These were small and abraded but identified as being of sandstone-tempered ware.

Remaining material was of Roman date and consisted of locally produced Severn Valley and Malvernian wares.



Trench 300 in West Meadow showing archaeological features

West Meadow and Broadham 4731 3015



Legend

- ⊗ Test pits
- ▬ Trial trenches
- ▬ 1991 evaluation trenches
- ▭ Cropmarks
- ▭ NMP cropmarks



COSMIC+ assessment sheet Land parcel number:

4731

Field name:

West Meadow

	Serious risk Score 5	High risk Score 4	Medium risk Score 3	Low risk Score 2	Minimum risk Score 1	Scores*	
						Ploughing	Minimum tillage
Buffer	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (15-25cm)	Very deep buffer (> 25cm)	A...5.... B..... C.....	A...3.... B..... C.....
Cultivation depth and method	Very deep ploughing (> 30cm)	Deep ploughing (25-30cm)	Normal ploughing (20-25cm)	Disc/tine cultivation or shallow ploughing (10-20cm)	Direct drilling (< 10cm)	A...4.... B..... C.....	A...2.... B..... C.....
Cropping	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley or set-aside (> 5 years)	A...3.... B..... C.....	A...3.... B..... C.....
Subsoiling	Frequent subsoiling (< 3 years)	Regular subsoiling (3-6 years)	Occasional subsoiling (7-15 years)	No subsoiling		A...3.... B..... C.....	
Initial score						15	11
Weighting	Any at serious risk = 2.5 Any at high risk = 1.5 Any at minimum risk = 0.5					2.5	1
Initial score multiplied by weighting						A...37.5 B..... C.....	A...11... B..... C.....

*Graded A-C according to quality of evidence

Site intrinsic factors								
Susceptibility of cultivated soil to water erosion								
Average annual rainfall <800mm								
Slope & soil group	Steep (< 7°)		Moderate (3-7°)		Gentle (2-3°)		Level ground (< 2°)	Score*
	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A...1.... B..... C.....
Moderate soils	High Score 4	Medium Score 4	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility of cultivated soil to water erosion								
Soil group	Peats	Sands/silts	Loams	Sandy/silty clays	Clay	Score*		
	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A...2.... B..... C.....		
Risk of soil loss through harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops		Combinable crops		Score*		
	Serious Score 5	High Score 4		Medium Score 3		Cereals A...3... B..... C.....		
Initial score							6	
Weighting	Any of above in grey-shaded box = 2						1	
Initial score multiplied by weighting							A..6.... B..... C.....	

*Graded A-C according to quality of evidence

Archaeological factors					
Survival and quality of evidence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Score*
<p>[Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]</p>	<ul style="list-style-type: none"> - Upstanding earthworks/structures - Well preserved deposits relevant to national research agendas - Other evidence indicating deposits of national significance 	<ul style="list-style-type: none"> - Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to regional research agendas - Less well-preserved deposits relevant to national research agendas - Other evidence indicating deposits of regional significance 	<ul style="list-style-type: none"> - Negative features demonstrated by excavation - Negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to county research agendas - Less well preserved deposits relevant to regional research agendas - Dense or diagnostic ploughsoil scatters - Other evidence indicating deposits of county significance 	<ul style="list-style-type: none"> - Truncated negative features demonstrated by excavation - Truncated negative features indicated by other evidence - Diffuse or undiagnostic ploughsoil scatters - Other evidence indicating deposits of local significance 	<p>A...3.... B..... C.....</p>
Significance†	National significance	Regional significance	County significance	Local significance	<p>A...4.... B..... C.....</p>
Initial score					7
Weighting	For score of 9-10 use weighting factor 2; for score of 8-7 use weighting factor 1.5; for score of 6 use weighting factor 1.3; for score of 5-4 use weighting factor 1; for score of 2-3 use weighting factor 0.5.				1.5
Initial score multiplied by weighting					<p>A...10.5... B..... C.....</p>

*Graded A-C according to quality of evidence

†Considered in relation to research agendas and/or current state of knowledge

Final risk scores

	Ploughing	Minimum tillage
Management factors (out of 50)	37.5	11
Site intrinsic factors (out of 30)	6	6
Archaeological factors (out of 20)	10.5	10.5
Final risk score (out of 100)	54	27.5

Risk levels

Total risk score	Risk level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-60	High risk
60+	Serious risk

Lower Beckford Way (land parcel 5207)

Test pit data:

Field: Lower Beckford Way															
Test Pits	6	7	8	9	10	11	12	13	14	15	16	17	Range		Average (mean in metres and inches)
													Min	Max	
Current cultivation	0.18m	0.23m	0.22m	0.17m	0.15m	0.20m	0.18m	0.20m	0.15m	0.15m	0.20m	0.24m	0.15m	0.24m	0.19m (7 3/8")
Former cultivation	0.17m	0.06m	0.17m	0.15m	0.17m	0.10m	0.12m	0.08m	0.15m	0.13m	0.10m	0.05m	0.05m	0.17m	0.12m (4 5/8")
Subsoil/historic soil cultivation	0.20m	0.31m	-	0.16m	0.30m	-	0.36m	0.29m	0.15m	0.13m	0.26m	0.24m	0.00m	0.36m	0.20m (7 7/8")
Archaeological feature/layer	-	-	>0.30m	-	-	-	-	-	-	-	-	-			
Natural	Unexc	>0.10m	Unexc	Unexc	Unexc	Unexc	Unexc	Unexc	Unexc	Unexc	Unexc	Unexc			
Slope:	1.33° – 1.90°														
Buffer if ploughed (minimum):	0.00m														
Buffer at minimum tillage (minimum):	0.05m														
Notes:															

*Trench data:***Trench 4**

Maximum dimensions: Length: 19m Width: 1.6m Depth: 0.37m

Orientation: NW-SE

Context	Classification	Description	Depth below ground surface
4000	Current cultivation	Firm mid brownish grey silty clay with occasional sub-angular pebbles and cobbles.	0.00-0.25m
4001	Former cultivation	Soft mid brownish grey silty clay with occasional sub-angular pebbles.	0.25-0.37m
4002	Natural	Soft light brownish yellow clay sands and limestone brash.	0.37m+
4003	Fill	Fill of [4004] Soft dark greyish brown sandy silt with moderate sub-angular stones, animal bone and pottery.	0.37-1.27m
4004	Cut	Large ditch orientated NE-SW.	0.37-1.27m
4005	Fill	Fill of [4007] Firm mid greyish yellow sandy clay with frequent sub-angular limestone pebbles. Grave backfill over skeleton (4006).	0.37m+
4006	Fill	Skeleton remains, good bone preservation observed.	0.37m+
4007	Cut	Grave cut, orientated N-S.	0.37m+
4008	Fill	Fill of [4009] Firm mid grey brown sandy clay with occasional sub-angular pebbles.	0.37m+
4009	Cut	Small pit feature.	0.37m+
4010	Fill	Fill of [4011] Soft dark yellow brown sandy clay with frequent sub-angular pebbles.	0.37-0.97m
4011	Cut	Large ditch, orientated NE-SW. Likely to represent a migration of ditch re-cuts	0.37-0.97m

Trench 5

Maximum dimensions: Length: 11.80m Width: 1.6m Depth: 0.32m

Orientation: NW-SE

Context	Classification	Description	Depth below ground surface
5000	Current cultivation	Firm mid grey brown silty clay with occasional limestone pebbles and charcoal flecks.	0.00-0.14m
5001	Former cultivation	Firm dark grey brown silty clay with moderate limestone pebbles and occasional charcoal flecks.	0.14-0.26m
5002	Subsoil	Soft light brown silty clay with frequent limestone pebbles.	0.26-0.32m
5003	Fill	Fill of [5005] Soft mid grey brown sandy clay with moderate sub-angular pebbles.	0.32-1.07m
5004	Fill	Fill of [5005] Soft light grey brown sandy clay with occasional sub-angular pebbles.	0.32m+
5005	Cut	Large linear orientated E-W	0.32m+
5006	Fill	Fill of [5006] soft mid grey brown sandy clay with occasional sub-angular pebbles and animal bone fragments.	0.32m+
5007	Cut	Ditch terminus feature.	0.32m+
5008	Fill	Fill of [5009] Soft light grey brown sandy clay with occasional sub-angular pebbles.	0.32m+
5009	Cut	Small linear feature orientated E-W	0.32m+
5010	Fill	Fill of [5010] Soft mid greyish brown sandy clay with frequent sub-angular pebbles and occasional charcoal flecks.	0.32-0.97m
5011	Cut	Large linear orientated NE-SW	0.32m+
5012	Natural	Soft mid orange yellow clay sand with moderate limestone brash.	0.32m+

Trench 6

Maximum dimensions: Length: 17.10m

Width: 1.6m

Depth: 0.39m

Orientation: NW-SE

Context	Classification	Description	Depth below ground surface
6000	Current cultivation	Firm mid brownish grey silty clay occasional sub-angular limestone pebbles.	0.00-0.16m
6001	Former cultivation	Firm mid greyish brown silty clay with occasional sub-angular limestone pebbles.	0.16-0.30m
6002	Subsoil	Firm light yellow brown sandy clay with moderate gravels.	0.30-0.39m
6003	Fill	Fill of [6004] Firm light yellow brown sandy clay with frequent gravels.	0.39-0.89m
6004	Cut	Large linear orientated NE-SW	0.39-0.89m
6005	Fill	Fill of [6006] Firm mid yellow brown sandy clay with frequent sub-angular pebbles.	0.39-0.89m
6006	Cut	Moderate linear feature orientated NE-SW.	0.39-0.89m
6007	Fill	Fill of [6008] Friable mid yellow brown sandy silt with frequent gravels.	0.39-1.39m
6008	Cut	Large linear feature. Orientated NE-SW.	0.39-1.39m
6009	Fill	Fill of [6010] Firm mid yellow brown sandy clay with frequent gravels.	0.39m+
6010	Cut	Small linear feature orientated NW-SE.	0.39m+
6011	Natural	Firm mid reddish brown sandy clay and brash.	0.39m+

*Finds summary:***Walkover survey***Lower Beckford Way*

material class	material subtype	object specific type	count	weight(g)	start date	end date	period
ceramic	earthenware	pot	3	14	M1C	4C	Roman
ceramic	stoneware	pot	1	1	18C	20C	post-medieval
ceramic	stoneware	tile	2	98		20C	modern

material class	material subtype	object specific type	count	weight(g)	start date	end date	period
ceramic	earthenware	brick	1	11	18C	20C	post-medieval/modern
ceramic	earthenware	tile	1	34	13C	18C	medieval
ceramic	earthenware	brick/tile	1	46			?Roman
ceramic	earthenware	pot	1	8	M1C	4C	Roman

The material from this field was of mixed date but included material of Roman date in the form of sherds of locally produced Severn Valley ware and one fragment of ceramic building material.

Test Pits

Test pit 7

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
701	ceramic	earthenware	pot	1	3	3C	4C	Roman

A single sherd of Severn Valley ware was retrieved from this test pit, which could be identified as from a 'pulley rim' jar form of 3rd-4th century date.

Test pit 8

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
802	ceramic	earthenware	pot	1	1	M1C	4C	Roman
802	slag	slag(Fe)		1	40			

Once more, material from this test pit was of Roman date and included a single sherd of Severn Valley ware and a large piece of iron slag.

Test pit 10

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
1002	ceramic	earthenware	pot	2	4			Iron Age

Two small, abraded sherds of sand tempered ware were retrieved from this test pit and could be dated to the late Iron Age.

Test pit 15

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
1502	ceramic	earthenware	pot	2	1	M1C	4C	Roman

Two undiagnostic sherds of Severn Valley ware were retrieved from this test pit.

Test pit 17

context	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
1702	ceramic	earthenware	pot	3	24	3C	4C	Roman

All material from this test pit was of Roman date and included a diagnostic sherd from a BB1 jar which could be dated from 3rd-4th century.

Evaluation Trenches

Trench 4

context	context2	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
4001	Eval trenches	shell	oyster shell		1	10			
4001	Eval trenches	bone	animal bone		2	24			
4001	Eval trenches	ceramic	earthenware	pot	2	71	M1C	4C	Roman
4003	Eval trenches	metal	copper alloy	coin	1	2	3C	?4C	Roman
4003	Eval trenches	metal	iron	nail	1	1			Roman
4003	Eval trenches	bone	animal bone		3	41			
4003	Eval trenches	ceramic	fired clay		2	14			
4003	Eval trenches	ceramic	earthenware	pot	3	60	M1C	4C	Roman
4003	Eval trenches	ceramic	earthenware	pot	1	24			Roman
4010	Eval trenches	ceramic	earthenware	pot	1	13	M1C	4C	Roman

All datable material retrieved from trench 4 was of Roman date. The majority of the pottery was of Severn Valley and Malvernian fabrics but no sherds were diagnostic. Metalwork consisted of a hobnail and a highly corroded coin which was provisionally identified as being a radiate based on size.

Once again, all animal bone was of sheep/goat and included a pre-molar and metapodial from context 4001 and a tooth, scapula and limb fragment from 4003 (L Pearson pers comm).

Trench 6

context	context2	material class	material subtype	object specific type	count	weight(g)	start date	end date	period
6005	Eval trenches	ceramic	earthenware	pot	24	255	2C	4C	Roman
6007	Eval trenches	ceramic	earthenware	pot	14	346	2C	3C	Roman

Material from this trench consisted of 38 sherds of Roman pottery, including a high proportion of diagnostic sherds. The pottery was well-preserved with very little surface abrasion.

The range of fabric types present was narrow, consisting of Severn Valley ware, Malvernian ware and Black-Burnished ware 1. Diagnostic sherds were all of Severn Valley ware and included a tankard and wide-mouthed jar of 3rd-4th century date from context 6005 and two further wide-mouthed jars and a bowl of 2nd-3rd century date from context 6007.



Trench 400 Lower Beckford Way, showing archaeological features with plough damage in foreground



Trench 400 Lower Beckford Way north-south aligned grave

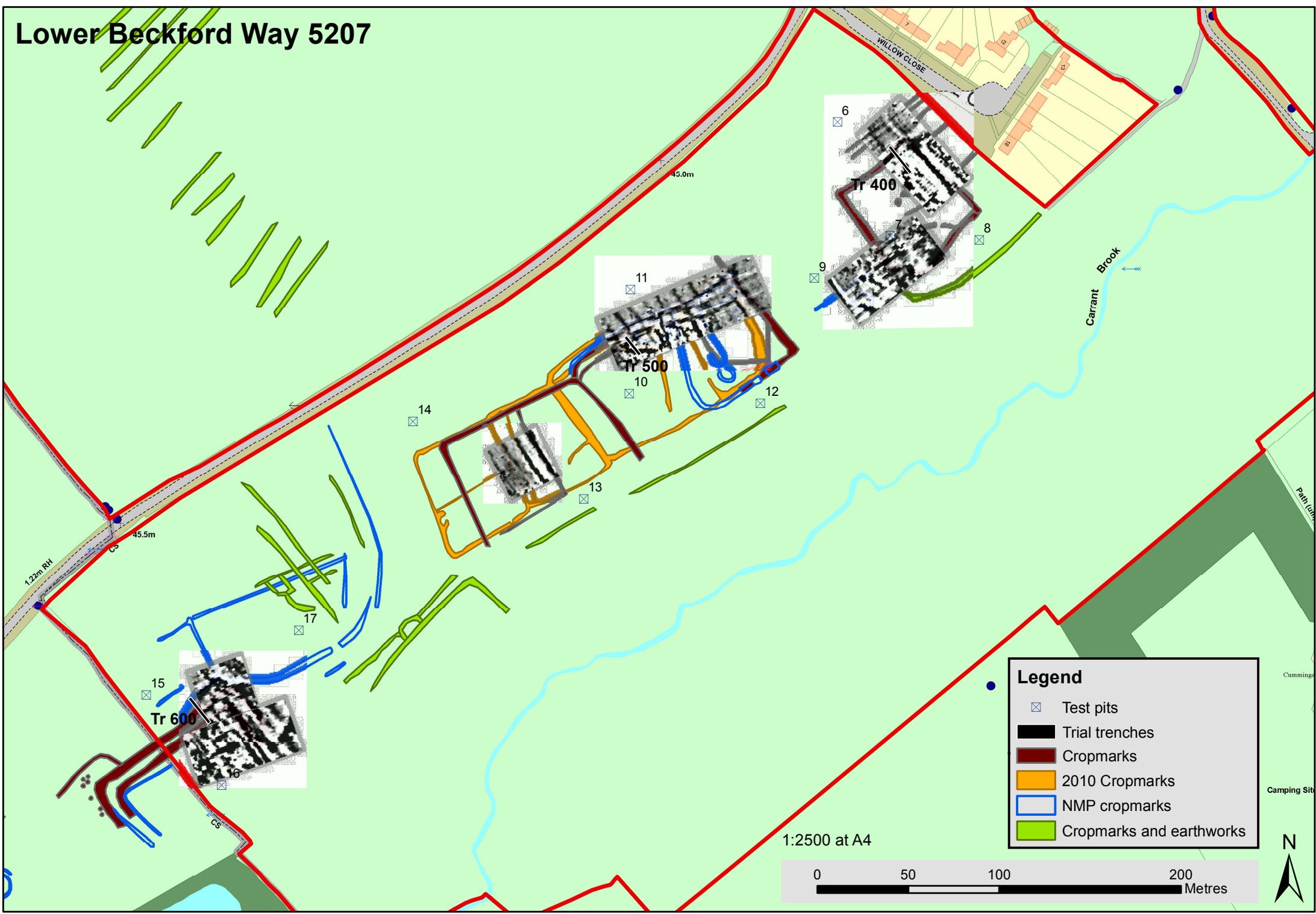


Trench 500 Lower Beckford Way, showing archaeological features



Trench 500 Lower Beckford Way showing ploughsoil above archaeology in section

Lower Beckford Way 5207



Legend

- ☒ Test pits
- ▬ Trial trenches
- ▬ Cropmarks
- ▬ 2010 Cropmarks
- ▬ NMP cropmarks
- ▬ Cropmarks and earthworks

1:2500 at A4



COSMIC+ assessment sheet Land parcel number:

5207

Field name:

Lower Beckford Way

	Serious risk Score 5	High risk Score 4	Medium risk Score 3	Low risk Score 2	Minimum risk Score 1	Scores*	
						Ploughing	Minimum tillage
Buffer	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (15-25cm)	Very deep buffer (> 25cm)	A...5.... B..... C.....	A...4.... B..... C.....
Cultivation depth and method	Very deep ploughing (> 30cm)	Deep ploughing (25-30cm)	Normal ploughing (20-25cm)	Disc/tine cultivation or shallow ploughing (10-20cm)	Direct drilling (< 10cm)	A...5.... B..... C.....	A...2.... B..... C.....
Cropping	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley or set-aside (> 5 years)	A...3.... B..... C.....	A...3.... B..... C.....
Subsoiling	Frequent subsoiling (< 3 years)	Regular subsoiling (3-6 years)	Occasional subsoiling (7-15 years)	No subsoiling		A...3.. B..... C.....	
Initial score						16	12
Weighting	Any at serious risk = 2.5 Any at high risk = 1.5 Any at minimum risk = 0.5					2.5	1.5
Initial score multiplied by weighting						A...40.... B..... C.....	A...18.... B..... C.....

*Graded A-C according to quality of evidence

Site intrinsic factors								
Susceptibility of cultivated soil to water erosion								
Average annual rainfall <800mm								
Slope & soil group	Steep (< 7°)		Moderate (3-7°)		Gentle (2-3°)		Level ground (< 2°)	Score*
	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm	Rainfall > 800mm	Rainfall < 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A...1.... B..... C.....
Moderate soils	High Score 4	Medium Score 4	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility of cultivated soil to water erosion								
Soil group	Peats	Sands/silts	Loams	Sandy/silty clays	Clay	Score*		
	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A...2.... B..... C.....		
Risk of soil loss through harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops		Combinable crops		Scores*		
	Serious Score 5	High Score 4		Medium Score 3		Cereals A...3.... B..... C.....		
Initial score							6	
Weighting	Any of above in grey-shaded box = 2						1	
Initial score multiplied by weighting							A...6... B..... C.....	

*Graded A-C according to quality of evidence

Archaeological factors					
Survival and quality of evidence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Score*
<p>[Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]</p>	<ul style="list-style-type: none"> - Upstanding earthworks/structures - Well preserved deposits relevant to national research agendas - Other evidence indicating deposits of national significance 	<ul style="list-style-type: none"> - Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to regional research agendas - Less well-preserved deposits relevant to national research agendas - Other evidence indicating deposits of regional significance 	<ul style="list-style-type: none"> - Negative features demonstrated by excavation - Negative features indicated by cropmarks/anomalies - Well preserved deposits relevant to county research agendas - Less well preserved deposits relevant to regional research agendas - Dense or diagnostic ploughsoil scatters - Other evidence indicating deposits of county significance 	<ul style="list-style-type: none"> - Truncated negative features demonstrated by excavation - Truncated negative features indicated by other evidence - Diffuse or undiagnostic ploughsoil scatters - Other evidence indicating deposits of local significance 	<p>A...3.... B..... C.....</p>
Significance†	National significance	Regional significance	County significance	Local significance	<p>A...4.... B..... C.....</p>
Initial score					7
Weighting	For score of 9-10 use weighting factor 2; for score of 8-7 use weighting factor 1.5; for score of 6 use weighting factor 1.3; for score of 5-4 use weighting factor 1; for score of 2-3 use weighting factor 0.5.				1.5
Initial score multiplied by weighting					<p>A...10.5.... B..... C.....</p>

*Graded A-C according to quality of evidence

†Considered in relation to research agendas and/or current state of knowledge

Final risk scores

	Ploughing	Minimum tillage
Management factors (out of 50)	40	18
Site intrinsic factors (out of 30)	6	6
Archaeological factors (out of 20)	10.5	10.5
Final risk score (out of 100)	56.5	34.5

Risk levels

Total risk score	Risk level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-60	High risk
60+	Serious risk