Land off Cross Road, Deal
Archaeological Appraisal

A101291

Gladman Developments Ltd
Prepared on behalf of WYG Group Limited.
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Contents

1. Non-Technical Summary

An Archaeological Appraisal has been prepared to inform a development proposal for Land off Cross Road, Deal. Research was carried out using data received from Kent Historic Environment Record, archival materials and a site walkover. It has concluded that the development is situated within an area of archaeological potential, in particular for later Prehistoric remains.

2. Introduction

This Archaeological Appraisal has been prepared by Iain Bennett ACIfA, Archaeological Consultant, WYG on behalf of Gladman Developments to inform a development proposal for Land off Cross Road, Deal, Kent. A separate Heritage Statement considering built heritage has been completed by Daryl Page, Associate Heritage Consultant, WYG.

2.1 Aims and Objectives

This study examines the cultural heritage potential of the proposed development site and the surrounding area. The aim of the study is to:

- Identify recorded cultural heritage sites within the site boundary and located nearby with settings and significance affected by the proposal;
- Identify the potential for previously unrecorded sites to be present within the site;
- Identify potential impacts and mitigation strategies where appropriate; and,
- Make recommendations for further work where required.

The Historic Environment, as defined by NPPF, comprises all surviving remains of interaction between people and places through time; this includes all buried and upstanding archaeological remains, built heritage sites, historic and managed landscapes, and any other features that contribute to the archaeological and historic interest of the area, including their settings. Designated and non-designated heritage assets have been considered.

This baseline assessment considers the heritage potential within the site itself, the surrounding area and wider local and regional context. In terms of its archaeological content, this assessment does not attempt to plot and review every archaeological find and monument; rather, it aims to examine the distribution of evidence and to use this to predict the archaeological potential of the study area and the likely impacts of the development proposals on those remains.

This appraisal is not a comprehensive desk-based assessment as defined by the CIfA Standards and Guidance for Historic Environment Desk-Based Assessment (2014), as it does not include detailed consideration of all information resources, but the work has been completed in line with the principals of the guidance.

3. Site Location and Conditions

The proposed development area is set amid undulating open countryside on the southern border of Mill Hill, a suburb of Deal. The site is c.3.94 hectares and centres on grid reference TR 36240 50412 comprises a single open field currently planted with cereal crop, ranging from approximately 30m to 18m above Ordnance Datum (AOD). To the south is open countryside, characterised by large agricultural fields whereas to the north and east is additional development associated with the Coal Fields settlement housing, and subsequent expansion of Deal during the twentieth century. A site location plan can be seen in Appendix A.

The bedrock geology for the south of the development site is comprised of Seaford Chalk Formation, a sedimentary bedrock formed by warm chalk seas 84 to 90 million years ago, the north is formed of Margate Chalk Member a chalk bedrock formed 72 to 86 million years ago (NERC 2019). While no superficial deposits are recorded the soils are described as freely draining lime-rich loamy soils (www.landis.org.uk/soilscapes).

4. Methodology

Impact assessment has been carried out through the consideration of baseline conditions in relation to the elements of the scheme that could cause cultural heritage impacts. Baseline conditions are defined as the existing environmental conditions and in applicable cases, the conditions that would develop in the future without the scheme. In accordance with best practice, this report assumes that the scheme will be constructed, although the use of the word 'will' in the text should not be taken to mean that implementation of the scheme is certain.

WYG has developed its own heritage evaluation and assessment method using a combination of the Secretary of State's criteria for Scheduling Monuments (Scheduled Monument Statement, Annex 1), Design Manual for Roads and Bridges, Volume 11, Part 3, Section 2, HA 208/07 and Transport Analysis Guidance (TAG Unit 3.3.9, Heritage of Historic Resources Sub-Objective), details of which can be found in Appendix B. Professional judgment and good practice guidance including the values laid out in Conservation Principles (Historic England, 2008). Historic England's Conservation Principles (**Evidential**, **Historical**, **Aesthetic** and **Communal** values) is used in conjunction with these criteria to undertake the significance and impact assessment. The full assessment methodology is included as Appendix B.

4.1 Sources Consulted

A study area of 500m buffer around the application site has been examined to assess the nature of the surrounding cultural heritage sites and place the recorded assets within their local context. This study has taken into consideration the historical and archaeological background of the area. The sources consulted were:

- Kent Historic Environment Record (HER);
- Kent History and Library Centre;
- Historic England for designated sites;
- Local Planning Authority for designated and non-designated heritage assets;
- Historic mapping including early Ordnance Survey; and,
- Secondary research including, previously completed archaeological reports for the surrounding area, regional research frameworks and grey literature and journal articles, as appropriate.

In addition to the above resources, a site walkover survey was undertaken for a previous iteration of this assessment by Tudor Skinner, Consultant Archaeologist to assess the site for potential features of archaeological or historic interest, and suitability for mitigation measures. In 2017 Magnitude Surveys conducted a geophysical survey of land within the proposed development area, this identified anomalies suggestive of agricultural activity throughout the proposed development area.

5. Planning Policy Context

5.1 National Legislation and Guidance

5.1.1 Ancient Monuments and Archaeological Areas Act 1979

Scheduled Monuments are designated by the Secretary of State for Culture, Media and Sport on the advice of Historic England as selective examples of nationally important archaeological remains. Under the terms of Part 1 Section 2 of the Ancient Monuments and Archaeological Areas Act 1979 it is an offence to damage, disturb or alter a Scheduled Monument either above or below ground without first obtaining permission from the Secretary of State. This Act does not allow for the protection of the setting of Scheduled Monuments.

5.1.2 Planning (Listed Buildings and Conservation Areas) Act, 1990

The Act outlines the provisions for designation, control of works and enforcement measures relating to Listed Buildings and Conservation Areas. Section 66 of the Act states that the planning authority must have special regard to the desirability of preserving the setting of any Listed Building that may be affected by the grant of

planning permission. Section 72 states that special attention shall be paid to the desirability of preserving or enhancing the character or appearance of Conservation Areas.

5.1.3 National Planning Policy Framework 2019

The National Planning Policy Framework (NPPF) sets out the Government's national planning policies including those on the conservation of the historic environment. The NPPF covers all aspects of the historic environment and heritage assets including designated assets (World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Conservation Areas, Registered Parks and Gardens and Registered Battlefields) and non-designated assets of local historic value. The NPPF draws attention to the benefits that conserving the historic environment can bring to the wider objectives of the NPPF in relation to sustainability, social, cultural, environmental and economic benefits and place-making (para 185).

The NPPF states that the significance of heritage assets (including their settings) should be identified, described and the impact of the proposal on the significance of the asset should be assessed. The NPPF identifies that the requirements for assessment and mitigation of impacts on heritage assets should be proportional to their heritage importance, and the level of assessment should be sufficient to understand potential impacts of proposals upon the significant of the affected assets. Where assets or potential assets of archaeological interest are present, the planning application should include sufficient information to enable the impact of proposals on significance to be assessed: *this may include desk-based research and where necessary, field evaluation* (para 189).

The NPPF sets out the approach local authorities should adopt in assessing development proposals within the context of applications for development of both designated and non-designated assets. *Great weight should be given to the conservation of designated heritage assets and harm or loss to significance, irrespective of whether potential harms amounts to substantial harm, total loss of less than substantial harm to significance* (para 193). *Any harm to or loss of significance should require clear and convincing justification*. *Substantial harm to or loss of a Grade II Listed Building, Park or Garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably Scheduled Monuments, Protected Wreck Sites, Registered Battlefields, Grade I and II* Listed Buildings, Grade I and II* Registered Parks and Gardens, and World Heritage Sites, should be wholly exceptional* (para 194). Additional guidance is given on the consideration of elements within World Heritage Sites and Conservation Areas (para 201).

Where there is substantial harm to or loss of significance of a designated heritage asset, consent must be refused unless a number of criteria are met, including achieving substantial public benefits that outweigh the harm or loss (para 195). Where there is less than substantial harm, the harm should be weighed against the public benefits of the development (para 196). Balanced judgements should be made when weighing applications that directly or indirectly affect non-designated heritage assets (para 197). The NPPF also makes

provision to allow development which enhances World Heritage Sites and Conservation Areas (para 200). *Non-designated assets of archaeological interest that are of demonstrable equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets* (footnote 63).

Where loss of significance as a result of development is considered justified, the NPPF includes provision to allow for the recording and advancing understanding of the asset before it is lost in a manner proportionate to the importance and impact. The results of these investigations and the archive should be made publicly accessible. The ability to record evidence should not however be a factor in deciding whether loss should be permitted (para 199 and footnote 64) (Ministry of Housing, Communities and Local Government, 2019).

5.2 Local Policy and Guidance

The Dover District Proposals Map replaces the Local Plan proposals map (adopted 2002). In the Local Plan Written Statement, some of the policies remain 'saved', whilst some have now been superseded with the adoption of the Core Strategy. In built heritage terms, there are no saved policies that are considered to be relevant to the Site and any further development proposal.

Core Strategy (Dover District Council, February 2010)

The Dover District Local Development Framework Core Strategy, adopted in February 2010, sets out the planning and development priorities between 2010 and 2026. It superseded an earlier Local Plan, incorporating a number of earlier 'saved' polies. While it concerns Historic Parks and Gardens in the district, it otherwise defers all other policies related to the historic environment to The South East Plan, a Regional Spatial Strategy for the South East of England. The relevant policy directs the formulation of a local strategy, collated within the Dover District Heritage Strategy.

Dover District Heritage Strategy, 2013

The Dover District Heritage Strategy, adopted in 2013, was commissioned by Dover District Council and English Heritage in order to shape future regeneration, development and management decisions. The Heritage Strategy identifies a series of objectives. Objective 1, of direct relevance to the development, is detailed below, where relevant.

Objective 1 – Enabling and informing regeneration activities to secure better outcomes from sustainable growth.

R1 - The historic environment should be embraced as an important element in proposals for regeneration and new development to help develop a strong 'sense of place' and an identity for existing and new communities. Particular attention should be given to key gateways and routes to and through the District's towns and rural settlements.

R2 - The character and form of existing heritage assets should be used to help shape the character and form of new development. The historic environment should be considered and reflected in development master plans.

R3 - The sustainable and beneficial reuse of heritage assets, conserving them in a manner appropriate to their significance, should be encouraged in new development and given appropriate weight in making planning decisions.

R4 - Proposals for new development should include an appropriate description of the significance of any heritage assets that may be affected including the contribution of their setting. The impact of the development proposals on the significance of the heritage assets should be sufficiently assessed using appropriate expertise where necessary. Desk-based assessment, archaeological field evaluation and historic building assessment may be required as appropriate to the case.

R6 - The opportunities that the historic environment and heritage assets present and their vulnerability to change should be taken into account in considering the site allocations for the Core Strategy.

R7 - Improved guidance for compiling and the required content of Heritage Statements should be developed and made available to planning applicants. The methodology developed for checking proposals against the Heritage Strategy themes should be developed for use in Heritage Statements.

6. Baseline Data

Period	Description	Date range
Palaeolithic and Mesolithic	The Palaeolithic is divided into the Lower, Middle and Upper Palaeolithic, and is characterised by hunting practices and flint tools. The Mesolithic is often characterised by the microlithic flint industry and a gradual move towards cultivation and domestics.	Up to 4,000 BCE
Neolithic	A period typically associated with the appearance of large ritual and ceremonial monuments in the landscape, and a reliance on cultivation practices and domestics, as well as the first appearance of pottery in the archaeological record.	4,000 BCE to 2,200 BCE
Bronze Age	The period is subdivided into the Early, Middle and Late Bronze Age, and is typically characterised by the appearance of bronze metalworking in the archaeological record, a change in domestic and ceremonial architecture, and increased agricultural activity and land management.	2,200 BCE to 700 BCE
Iron Age	The Iron Age is characterised by increasing evidence for land management and the use of iron, as well as defensive monuments such as hillforts and oppida. There is also increased evidence for continental influences in the pre-conquest period.	800/700 BCE to 43 CE
Romano-British	Traditionally, the Romano-British period begins with the Roman invasion in 43 CE and ends with the emperor Honorius directing Britain to see to its own defence in 410 CE. The period is characterised by military operations, the establishment of central civitates for instance, while on a regional scale, vernacular architecture and traditions persisted.	43 CE to c. 450 CE
Anglo-Saxon/ early medieval	Following the breakdown of Roman rule, incoming Angles and Saxons established a series of kingdoms in England, including Northumbria and Wessex. The earlier part of the period was associated with paganism, with the emergence of Christianity and establishment of the church from the 5th century. By the 9th century, the manorial system was widespread.	450 CE to 1066 CE
Later medieval	The later medieval period commences with the Norman Invasion and culminates with the dissolution of the monasteries. Following the conquest, castles were established as a sign of power, and often provided the focus of royal and ecclesiastical centres. More and more marginal land was also exploited to support agriculture and expanded industry.	1066 CE to 1540 CE
Post-medieval	The post-medieval period is an age of transition between the medieval world and the Industrial and Agricultural revolutions of the 18th and early 19th century. The period is characterised by the expansion of economy and industry that contributed to the onset of industrialisation, although activity was typically centred on small workshops and 'cottage' industries. For many, ordinary life was disrupted by conflict culminating in the Civil Wars.	c. 1540 CE to 1750 CE
Industrial	The catalyst for the Industrial Revolution was steam and coal driven technology, and led to the establishment of large factories, foundries and works. The growing demand for resources such as coal also led to the establishment of canals to more effectively link mines to industrial centres,	1750 CE to 1900 CE

	while the 'Turnpike Acts' allowed new roads to be established. By the 19th century, the establishment of the railway further transformed the landscape, and as well as mineral resources, also carried passengers.	
Modern	Warfare is perhaps the most enduring image of 20th century Britain, bringing about major economic and social changes, as well as defensive and commemorative structures. Extant military structures and defence landscapes survive in many parts of the country	1900 CE onwards

6.1 Designated Sites

A study area of 500m buffer of the application site has been examined to assess the nature of the surrounding cultural heritage sites and place the recorded sites within their context.

There are no World Heritage Site, Scheduled Monuments, Listed Buildings, Conservation Area or Registered Parks and Gardens or Battlefields within the development site.

The Upper Walmer Conservation Area is located to the south-east of the Site, separated from it by the course of the Dover to Deal branch line and the western extent of settlement in Upper Walmer. There are two Listed Buildings within the 500m study area of the proposed development site. Both the Grade II* Listed Church of St Mary the Blessed Virgin (1005142) and the Grade II Listed Walmer Court (1069860) are located within the Upper Walmer Conservation Area. Within the study area, within the Conservation Area is Scheduled Monument Old Walmer Court Manor House, former caput of the manor of Walmer (1005142). The upstanding remains consist of a roofless 12th/13th century manor house of flint with Caen stone dressings. It has a rectangular structure, enclosing two undercrofts and a first-floor hall. The Conservation Area, Scheduled Monument and Listed Buildings are considered within the separate Built Heritage Assessment prepared by WYG and are not dealt within further in this report. Details of the designated heritage assets can be seen in Appendix E and their locations can be seen in Figure 2.

6.2 Archaeological and Historic Background

6.2.1 Archaeological Background and Non-Designated Heritage Assets

The Historic Environment Record holds details for 53 recorded archaeological monuments and findspots (excluding designated assets), as well as 6 non-designated buildings and farms and settlements, and 33 archaeological events, within the 500m study area. The details of sites can be seen in Appendix D and on Figures 3, 4 and 5.

6.2.2 Prehistoric

Across Britain, the main evidence for the Palaeolithic period are stone tools. Sites are typically recognised from lithic scatters, often found within river gravels and terraces. The geography of known remains is often highly regionalised, as sediments from the period have often been destroyed or reworked by natural processes. Unlike more northerly parts of the British Isles, hominin habitation is known from the south coast of England during inter-glacial periods, as demonstrated by the stone told from Pakefield (c. 700,000 years old) flint tools found at Southfleet Road elephant butchery site at Ebbsfleet (Wenban-Smith et al. 2006; Wenban-Smith 2008). Indeed, Kent boasts the highest concentration of Palaeolithic material in England. Some of the earliest hominin remains are also found in this region, such as Swanscombe in Kent. However, there is comparatively little evidence for Upper Palaeolithic activity in Kent, especially prior to the end of the last Ice Age. A flint core of either Palaeolithic or Mesolithic date was found near Mayers Road to the south of the proposed development area, although it is not clear whether this was of Palaeolithic or Mesolithic date (MKE91510).

Like the Palaeolithic period, the Mesolithic is characterised by ephemeral traces of activity, and sites are principally recognised from concentrations of lithics, as the temporary settlements used by these communities left little other trace in the landscape. It is very rare to find *in situ* evidence for Mesolithic settlement sites. Some of the earliest evidence for post-glacial re-settlement of the British Isles comes from Kent, including flint points from Oare, near Faversham (Palmer 2008a). Mesolithic archaeological assemblages are known for their wider variety of smaller microliths, and in Kent these are known from places such as Chiddingston and Harrietsham. More tools are known from Finglesham and High Rocks. At Horton Kirby some of the only evidence for pre-Neolithic cereal cultivation has been identified. In the study area, apart from the possibly Mesoltihic flint core found near Mayers Road (MKE91510) no other finds have been identified, although further north-west on St Richard's Road a larger assemblage of worked flint was identified that may date to the period.

Throughout the region, a range of Neolithic site survive. The Neolithic was a period of increasingly permanent human occupation, although seasonal mobility and the exploitation of wild resources continued throughout the period. Mortuary monuments, along with the introduction of pottery domesticates and arable farming practices mark the beginning of the Neolithic period, and the construction of large ceremonial monuments arguably marks a clear change in ideology form the preceding Mesolithic period. Common Neolithic ceremonial monuments in Britain include long barrows, henges, causewayed enclosures, cursus and stone circles. Long barrows are known from the Medway and Stour Valleys, while a number of causewayed enclosures have been discovered on the Isle of Sheppey and near Ramsgate (Palmer 2008b). The chalk landscape of East Kent is particularly rich in Neolithic flint assemblages.

Neolithic activity is present throughout the study area, within which a concentration is found on the crest of May Hill. Early Neolithic pits were identified during excavations off St Richard's Road (MKE7373), with continuity visible with Later Neolithic activity demonstrated by a pit identified during works on Cross Road itself (north of the proposed development). This contained worked flints, burnt shell, bone pins, and Grooved Ware pottery (MKE15359). Worked flints have been found more widely, both in specific evaluations and as casual finds (MKE17744 & MKE90880), with evidence of ephemeral activity extending south, represented by findspots in the Coldblow Farm area (MKE6653 & MKE7358).

The Bronze Age period is characterised by significant changes in material culture, and domestic and ceremonial architecture. The introduction of bronze metalworking is traditionally associated with the appearance of Beaker culture. Mortuary ceremonies also change emphasis in this period, with a shift from the large communal complexes and inhumations of the Neolithic, to individual cremations and round barrow cemeteries. Across Britain, the Bronze Age is also associated with increased agriculture activity and enclosures, associated with improved cultivation techniques, particularly in the Middle and Late periods. The Isle of Thanet was a focus of settlement at this time, as was Mill Hill in Deal, immediately adjacent to the proposed development area.

Occupation, whether continuous or episodic, continued into the Bronze Age. An Early Bronze Age burial accompanied by sherd of Food Vessel Ware was excavated immediately south of St Richard's Road (MKE7384). More mortuary evidence of the Bronze Age is evident in monumental form, cropmark evidence immediately west of the current Mill Hill settlement suggests there may be a Bronze Age barrow used as an early medieval mortuary focus (MKE39769). A ring ditch exposed during an intervention on Waterworks Road may represent another barrow (MKE7357). The most substantial evidence from the region comes just to the north of the study area within Mill Hill where a Late Bronze Age enclosed settlement was excavated by W.P.D Stebbing in the late 1920s and early 1930s. It comprised a sub-circular enclosure, around 50m in diameter, on the seaward side of the hill, with causewayed access from the southeast. A number of hearths were identified, associated with Later Bronze Age pottery, pot boilers, quern fragments and daub, presumably from hut linings. A quern stone from the site has subsequently been incorporated into the front elevation of a house on Quern Road (MKE7405). Aside from this, worked flint of potential Bronze Age date has been identified immediately north-east of the proposed development in the course of earlier construction work on Mill Hill (MKE17744 & MKE90880).

By the Iron Age period, the landscape saw increasing evidence for field systems and defended sites, and much stronger evidence for continual influences than earlier periods. The period is also marked by evidence for the appearance of iron technology in the archaeological record. Kent is known for the relatively late appearance of hillforts in the archaeological record, comparative to the rest of the county (Palmer 2008c).

Examples include Oldbury and Bigbury. Extensive late Iron Age settlement centres, known as *oppida*, have been proposed at Canterbury, Rochester and Quarry Woods. Mill Hill is again a prominent site in the Iron Age, known for large-scale high-status burials, covered in more detail immediately below.

May Hill, immediately north of the proposed development area, is an important focus of Iron Age settlement and mortuary practice in Kent. Excavations at Dossett Court revealed a multi-period complex of postholes, pits, ditches and gullies associated with occupation in the Early Iron Age, Middle Iron Age and Romano-British periods (MKE7374). Later interventions towards St Richard's Road indicated that Early and Middle Iron Age occupation continued to extend to the south-west (MKE7375 & MKE43005). The wider extent of settlement can be gauged by the number of Iron Age ditches, pits and gullies that have been encountered in the course of groundworks throughout the Mill Hill Area (MKE17724 & MKE44075), alongside residual finds of pottery (MKE7361, MKE17744 & MKE65847). While no focus of Later Iron Age settlement has been identified, numerous ancillary pit features have been found (MKE7355 & MKE7401), including one set of pits associated with a Late Iron Age La Tène fibula, a type of brooch (MKE17357). A further La Tène brooch found to the south-west of May Hill and the development site may indicate some continuation of activity in that area (MKE7390).

These indicators of Iron Age activity are joined by a more remarkable feature, a ritual shaft dug into the chalk (MKE7373). It was over two metres in depth, with a side chamber featuring a rectangular niche. It also contained a chalk figurine, now known as "The Deal Man", presumably designed to fit into the niche. It is through that this feature was a shrine to a local deity. The shaft is dated typologically and stylistically to the Later Iron Age, although the backfill was characterised by Roman-British pottery of the 1st and 2nd centuries AD.

The Mill Hill crest is also known as the site of a large number of Later Iron Age burials. A Late Iron Age urnfield was discovered in the north of the study area in 1898, associated with dress-fittings and toilet sets dating to the 1st century BC (MKE7353). It is apparent that the large early medieval cemeteries that covered Mill Hill were partially co-extensive with zones of Later Iron Age inhumations (MKE7369). This included one isolated inhumation of Middle Age date, known as "The Deal Warrior". This inhumation, aligned northwest-southeast, in many ways adopts the pose of a weapon burial, more frequently associated with early medieval burial practice. However, it is also notable for the crown placed on the head of the deceased, suggesting that this was a high-status burial. More Pre-Roman graves had been reported from the site in 1925, though further details about this are sparse (MKE7356).

It is evident that Mill Hill was a significant and regionally important focus for settlement throughout the later prehistoric period. Outliers of broadly dated later prehistoric burnt and work flint have also been identified in

the south-east of the study area (MKE91074), indicating that the concentration of activity is by no means limited to the hill crest north of the proposed development area.

6.2.3 Romano-British

Kent was one of the earliest places to experience Roman influence, first within networks of cross-channel and continental trade, and later as one of the earliest conquests during Roman invasions of Britain. The Roman army itself probably landed at Richborough and within a short time much infrastructure had been built up along the course of Watling Street (running from Richborough to London) and in older centres of settlements such as Canterbury and Rochester in what had been the tribal territory of the Iron Age Cantiaci (Dover District Heritage Strategy 2013). While roundhouses continued to comprise the majority of vernacular architecture, local elites quickly adopted stone in building works and villas emerged in the British landscape, including at Sandwich and Ebbsfleet Farm. Indeed, while the chalk of East Kent is noted for the concentration of settlement in the Romano-British period, there is a comparative paucity of high-status sites east of Canterbury. Kent remained militarised throughout the time of the Roman presence in Britain and it appears this was heightened from the third century onwards, as evidence by the appearance of the Saxon Shore Forts on the coast, including at Dover and Richborough.

Romano-British settlement continues the pattern found in the later prehistoric archaeological record, clustering on the crest of Mill Hill. The earlier settlement focus of Dossett Court continued into the Romano-British period, where some of the pits, postholes and ditches were associated with pottery of the era (MKE7374). Further evidence was identified of a field system that had gone out of use in the 3rd century AD (MKE43006). A rubbish trench containing material of 1st to 3rd century AD date was also located in this part of Mill Hill (MKE7354). Given the rich variety of the associated assemblage, the excavator proposed that this may have been waste disposal associated with a nearby Roman villa. Further pits, gullies and postholes have been identified in the course of various archaeological works in the immediate vicinity of this concentration of Romano-British occupation evidence, immediately north-east of the proposed development area. The pottery from the backfill of the ritual shaft mentioned above dated to the 1st century and 2nd centuries AD (MKE7373). Pottery of the same date was recovered from pits identified during a watching brief on Cross Road (MKE54761) and from an evaluation immediately west of Lydia Road (MKE17744). Further evidence from Romano-British pottery has been reported from Mill Hill at the turn of the 20th century, associated with Samian Ware and Upchurch urns (MKE7353). More cremations were discovered more recently near to the ritual shaft (MKE7373). These were dated to the 2nd century AD. Finally, further Romano-British burials were reported during the cutting of the Dover to Deal branch line in the later 19th century to the north-east of the proposed development (MKE7359).

Romano-British material, like the prehistoric material discussed above, is heavily concentrated on the crest of Mill Hill, as least within the study area, known findspots, include a late 3rd century coin hoard found within an urn (MKE7330). Further isolated coin finds have been identified to the south of the proposed site near Coldblow Farm (MKE101756 & MKE101843) indicating that the concentration of activity is by no means limited to the hill crest north of the proposed development area.

6.2.4 Early medieval/Anglo-Saxon

Following the departure of Roman power in the early 5th century, there is little in the documentary record concerned with the region's history until the writings of Bede. However, Kent is notable for the very large number of early Anglo-Saxon cemeteries in the region, exemplified by sites such as Finglesham and Buckland in eastern Kent (Thomas 2013). The complex array of influences evident in these mortuary assemblages cautions against the old culture-historical distinctions of Jutes and Saxons. At the turn of the 7th century the area was described as part of the kingdom of Kent, ruled over by Aethelberht. He was the potentate who met with the Roman envoy Augustine, first on the Isle of Thanet, before agreeing to convert to Christianity and thus heralding the beginning of a longer process of Christianisation throughout Anglo-Saxon England. Settlement evidence in East Kent has tended to be concentrated in earlier foci, such as Dover and Richborough, although a trading wic site was present at Sandwich from the mid-7th century. More recent excavation at Lyminge, further to the southwest, has evidence of occupation from the 5th century and timber halls from the 7th century prior to the construction of a monastery in the 8th century. In the 8th century more coastal trading settlements emerged, such as Fordwich, although Kent's power in the country was gradually eclipsed, dominated first by Mercia, and then by Wessex, and was incorporated within the latter kingdom by the end of the 9th century in response to the Viking incursions further north. Notwithstanding this, Canterbury, still the centre for Christianity in England, remained one of the major towns in England in the 10th and 11th centuries.

In contrast to the preceding later prehistoric and Romano-British periods, there is very little evidence for Mill Hill as a focus of settlement in the early medieval period. A sherd of early medieval pottery has been reported from the area, as has an 8th century coin, dating to the time of Offa of Mercia (MKE7394 & MKE76459). Instead, it appears to have functioned as a focus of burial, particularly in the 6th and 7th centuries. Chalk extraction and development in the early 20th century had revealed a number of early medieval burials on the crest of Mill Hill. Some of these inhumations were furnished, accompanied by necklaces, disc brooches, and weapons (MKE7369, MKE7353, MKE7395). Extensive excavations conducted between 1986 and 1989 revealed that these were part of a larger early medieval cemetery dating to the 6th and 7th centuries AD, split into four discernible cemetery sites across the hill crest. No less than 76 burials were clustered around an older Bronze Age barrow, including some which had been inserted into the monument itself.

6.2.5 Medieval

The Norman Conquest provides a firm date for the commencement of the later medieval period across England. The South Coast is a particularly rich area for studying the medieval period, as the region's location between London and the Continent led to a number of especially impressive buildings, and the area has always been important for overseas trade, coastal trading, and for cross-channel shipping routes. Walmer, the nearest settlement to the proposed development area, receives no mention in Domesday Book. However, the site itself is located at the former eastern limit of the parish of Great Mongeham in the hundred of Cornilo, which is recorded in the survey of 1086. This reveals that it remained a possession of the abbey of St Augustine, Canterbury, both before and after the Norman Conquest, although latterly part of the land had been leased to one Wadard of Cogges, who held various tracts of land across northern Kent. Otherwise the land is reckoned as one of mixed use, with arable and wood pasture. It was also fairly populous, in possession of a mill and a church.

These settlements were ancillary to Deal, not one of the cinque ports proper but rather an ancillary limb of the cinque port of Sandwich further to the north. As such it was tied into various trade and military obligations in relation to the crown. Otherwise, the economy of the local area was dominated by mixed agriculture on the chalkland of East Kent.

The archaeological record for the later medieval period within the study area is comparatively sparse in relation to earlier periods, notwithstanding the extant remains of Walmer Court Manor House to the east of the proposed development area (Listed Building 1069860 & MKE26079). As mentioned above a later medieval pit was recorded on Cross Lane adjacent to the development area itself (MKE15550). In the west of the study area later medieval ditches were identified during a watching brief to the south of Walmer Court, dating to the 13th century (MKE91075), but other than this, there is very little evidence for later medieval settlement in the study area. There is a larger group of findspots, scattered throughout the study area and surrounding area. These range from pottery assemblages, coins, keys, strap ends and seals, but this attests to no more than movement through what was an open agricultural landscape (MKE7396, MKE63480 & MKE64840).

6.2.6 Post-medieval, Industrial and Modern periods

Saxton's 1579 map of Kent depicts the settlements close to the proposed development, without offering any immediate detail, a situation repeated by Symonson's 1596 map, which does include certain routeways. Dury and Herbert's map of 1769 shows no specific detail for the area but does indicate that there was no direct road link between Great Mongeham and Walmer at the time. This suggests that Ellens Road is a comparatively recent insertion, supported by its superimposed appearance over the field systems depicted on the 1841 tithe map of Great Mongeham (see below). This road must have been inserted in the latter part of the 18th century as it does appear, along with Cross Road, on the 1798 and 1799 early Ordnance Survey mapping for St

Margaret's Bay and Canterbury. This also shows the south-east field within the site to be partially enclosed and the area now known as Mill Hill characterised by an extraction pit next to a small enclosure, possibly for a residence.

From the early-nineteenth century, with the threat of invasion from the French during the Napoleonic Wars, a series of developments occurred in the Deal area. This included the addition to the barracks site at Walmer, the turnpike road through Deal to Sandwich, and construction of windmills to increase local agricultural production (East Kent History 2010). A number of courtyard farms representative of this agricultural focus are (or were) located within the study area, including Walmer Court Farmhouse immediately east of the development area (MKE87103), Coldblow Farm to the south (MKE88039) and an outfarm of Church Farm on the southwest perimeter of the development site itself (MKE87039). A number of limekilns are also reported from the study area (MKE16206 & MKE16833).

The tithe map for Great Mongeham circumscribes the proposed development area. It is most striking for the clear impression it gives of a new road network superimposed over a series of earlier field systems, whose own regular form hints at enclosure in the 18th or 19th century. Combined with the evidence from the earlier Dury and Herbert map, it appears that the landscape was extensively redeveloped in the later 18th century. While some of the longer, thinner enclosures may hint at earlier open-field furlongs, the tithe map does not depict anything of any great antiquity. The field names are not particularly informative. Land ownership is divided among numerous tenants-in-chief, while the parcels of land have been leased to fewer, but still numerous, tenants.

Parcel No	Landowner	Occupier	Name and description of lands and premises	State of cultivation	Quantities in statute measures (Acres/Rods/Perches)
16	Elizabeth Lee Lade	William Bushell	Road Field	Arable	4/0/11
16a	William Wellard	William Bushell	Sams Garden	Arable	3/2/25
18	John Noakes	John Noakes and others	Fourteen Acres	Arable	4/3/14
20	Dean and Chapter of Canterbury & William Watt, Lessee	Israel Wellard and others	The Acre	Arable	1/2/5
21	Charles Chaplin	David Denne	Middle Shot Field	Arable	1/0/5
22	George Leith	James Leith	Lower Road Field	Arable	2/2/32

The Buckland Junction and Deal Railway was constructed in 1881, located immediately west of the development area and bisecting the study are on a north-east/south-west slant (MKE56553). This linked Dover with Deal, and was accompanied by Walmer Railway Station, also constructed in 1881 (MKE56551). In 1885 the original post mill at Upper Deal was replaced with an octagonal smock mill, set on a stage, with three pairs of stones. This was one of the last mills to be built in Kent. It was demolished in 1929 when Mill Hill was purchased by the Snowdown & Betteshanger Tenants Ltd. to make way for miners housing after the Kent coalfields had opened at Betteshanger, located to the north-west of Deal. This development comprised 950 houses and social and sport facilities (MMKE97810). In the years since 1929 the area of Mill Hill has been absorbed into Deal's town boundaries. Second World War defences within the study area are represented by the remains of a Fougasse Flame Trap, positioned on St Richard's Road (MKE42036).

Coal extraction in Kent proved to be a costly endeavour, however, as the resource was perhaps the most difficult to extract due to mine shafts constantly being flooded and putting miners' lives at risk. Despite the entire industry being nationalised in 1947, the National Coal Board started closing the Kent collieries as early as 1960, all of which were then closed in the county by the late-1980s. Despite the downturn in local industries such as the coal mining, fisheries and agriculture, areas around Deal, including Mill Hill, underwent further residential expansion in to the twenty-first century.

The first edition 25-inch Ordnance Survey (Kent LVIII.8 & LVIIIA.5, surveyed 1871, published 1873), depicts the crossroad set in open land, except for the areas immediately north-east and south-east, which are partially enclosed. Mill Hill itself is composed of a waterworks, limekilns and windmill. The second edition 25-inch Ordnance Survey (Kent LVIII.8 & LVIIIA.5, revised 1896-7, published 1898) indicates that industrial premises on Mill Hill have expanded, and of course the Deal to Dover branch line has since been inserted to the east of the proposed development area. The third edition 25-inch Ordnance Survey (Kent LVIII.8 & LVIIIA.5, revised 1905, published 1906) indicates further industrial expansion including a brickworks to the south at Coldblow Farm (MKE 16224), and the earmarking of land immediately west of the site for residential housing, though ultimately this was not to be. The fourth edition (Kent LVIII.8 & LVIIIA.5, revised 1938, published 1943) indicates the start of residential development on the hill crest, while the development site comprises two fields divided by Cross Road.

7. Geophysical Survey

A geophysical survey was undertaken within the majority of the application site in order to identify potential remains of archaeological and historical significance and to assist with the preparation of this appraisal. The full geophysical report (Magnitude Surveys, 2017) has been reproduced in Appendix G and the initial results are summarised here. The geophysical survey identified extensive evidence for agricultural activity, likely modern in date, alongside a number of larger anomalies reflective of either the local geology or former chalk workings. No anomalies suggestive of significant archaeological deposits or features was identified.

The survey was undertaken by Magnitude Surveys 27-31 March 2017, covering an area of approximately 11.9 hectares. The Cross Road site encompasses two large fields of arable to the south of the proposed development area and two smaller fields of untended grass to the north-west. Survey was not possible on the edge of the south-west arable field as this was occupied by a tree plantation at the time of the survey.

The survey identified anomalies suggestive of agricultural activity throughout the proposed development area. In the present arable fields this likely reflects modern regimes, although the responses of likely agricultural origin in the northern fields do not appear to reflect recent activity. A number of large sub-circular and amorphous anomalies throughout the southern part of the survey area likely reflect natural variation in the geology, although it is possible that they represent former chalk workings, formerly found throughout the locality. Several further curvilinear and linear anomalies have been identified on the site, although it is thought that these again reflect natural variation in the soils and/or geology. Finally, ferrous anomalies have been identified around the perimeter of the survey area.

8. Landscape Characterisation

8.1 Historic Landscape Characterisation

Historic Landscape Characterisation data was provided by the Kent Historic Environment Record (Munby 2001). The data can be seen on Figure 5. Almost all of the proposed development area is coextensive with land classed as prairie fields, a result of the loss of 19th century boundary features and the consolidation of earlier field systems. The exception to this is the scrubland at the very northern tip of the proposed site, which has instead been assessed as part of the later spread of the Mill Hill settlement area. This prairie zone continues to the north-west and the south-east, forming a boundary between the later settlement at Mill Hill and regular parliamentary enclosures to the south-west of the proposed development area. These forms of boundary tend to be associated with the late enclosure of downland and low lying land in the 19th and 20th centuries.

9. Site Walkover Survey

A site walkover survey was undertaken in March 2017 by Tudor Skinner for an earlier iteration of this assessment. The weather was bright and sunny. A selection of site photographs is included in Appendix B. No features of archaeological interest were identified during the walkover survey. The majority of the development site is in arable cultivation and therefore it would not be expected to identify earthwork features.

10. Heritage Potential and Impacts

One undesignated heritage asset is located directly adjacent to the proposed development area. This comprised later medieval pottery recovered in chalk pits off Cross Road, within the two arable fields on the south side of the site (MKE15550). In addition, note should be made of a watching brief on pipeline works at the south-west edge of the site which reported struck flints (EKE4973). The geophysical survey has identified few anomalies of potential archaeological character within the proposed development area. Nonetheless, the site is set within a rich and dense archaeological landscape, therefore there is a **moderate** potential for previously unrecorded archaeological remains to be present on the site. The application site is in an area boasting proximate material of national, regional and local importance and therefore may contain previously unrecorded archaeological remains of **high**, **medium** and **low** heritage value. Where archaeological material of certain periods is particularly likely to be present on the site, this is summarised below.

Ephemeral Neolithic material is found throughout the study area. As such it is plausible that archaeological evidence related to the occupation and exploitation of the landscape in this time lies *in situ* within the proposed development area. Due to the largely ephemeral nature of the material there is a **moderate** potential for Neolithic archaeological material to be present on the site. This will likely be of local importance and should be considered of **low** heritage value.

The Mill Hill area, immediately north of the proposed development area, was a focus for settlement and monumental mortuary structures of the Bronze Age period. However, the geophysical survey indicates that settlement did not extend south into the proposed development area. There is a **moderate** potential that unrecorded Bronze Age archaeological features and artefacts are located within the proposed development area. The archaeology is of regional importance and should be considered of **medium** heritage value.

The evidence for Romano-British settlement at Mill Hill is also considerable. The evidence for consumption outweighs the evidence for occupation, suggesting the nearby presence of a significant building or buildings. However, the geophysical survey indicates that settlement did not extend south into the proposed development area. There is a **moderate** potential for Romano-British archaeological features to be present on the site. This is of regional importance and should be considered of **medium** heritage value.

The hill crest was a focus for early medieval inhumation cemeteries, evidence for which may be coextensive with the application site. However, the geophysical survey indicates that activity did not extend south into the proposed development area. There is a **moderate** potential that unrecorded early medieval archaeological remains are located within the proposed development area. Despite the large number of such cemeteries found in Kent, this element of the archaeological record remains of regional importance and should be considered of **medium** heritage value.

Finally, the hill crest was also a focus for Iron Age settlement and mortuary practice. This includes a number of high status burials and a rare ritual shaft cut into the chalk. However, the geophysical survey indicates that settlement did not extend south into the proposed development area. There remains a **moderate** potential that Iron Age activity extends on to the proposed development area. The Iron Age archaeology associated with Mill Hill is of national importance and should be considered of **high** heritage value.

The development of the site for residential use could result in the removal of any previously unrecorded archaeological remains. The Framework Development Plan demonstrates that impacts to buried remains may occur across almost the whole of the development site, either as a result of construction of the residential areas, or through the construction of paths and green infrastructure, although the depth of groundworks will be less in these areas.

The impact of development on previously unrecorded assets can be mitigated. This mitigation could take the form of targeted archaeological evaluation trenches to identify and excavate archaeological remains in a manner proportionate to their significance. The requirement for any further archaeological assessment or mitigation will be identified during the determination of the planning application.

The development site does not contain any designated heritage assets. It is anticipated that it will contain previously unrecorded archaeological remains. Any previously unrecorded archaeological remains are likely to be of low, medium or high significance depending on their complexity and survival.

11. Mitigation Recommendations and Conclusions

11.1 Archaeological Remains

Any further archaeological work should be undertaken in accordance with the standards and guidance from the Chartered Institute for Archaeologists, Dover District Council, and a Written Scheme of Investigation agreed in advance with the Kent County Council Archaeologist. It is considered that a secured programme of archaeological investigation, recording and publication would satisfy the NPPF (2019) requirement for the significance of heritage assets to be lost (wholly or in part) to be recorded in a manner proportionate their importance and the impact, and to make this publicly accessible, and would further enable the significance of non-designated heritage assets within the site to be understood and hence balanced against the scale of loss. Assuming appropriate archaeological mitigation is secured, the proposal is also considered to comply with local policy.

Legislation, Policies and Guidance

- Ancient Monuments and Archaeological Areas Act 1979. London: HMSO.
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- Dover District Council (2010). Dover District Local Development Framework. Core Strategy.
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- Planning (Listed Buildings and Conservation Areas) Act 1990. London: HMSO.
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- Wenban-Smith, F.F., Allen, P., Bates, M.R., Parfitt, S.A., Preece, R.C., Stewart, J.R., Turner, C. and Whittaker, J.E. (2006) 'The Clactonian elephant butchery site at Southfleet Road, Ebbsfleet, UK', Journal of Quaternary Science, Vol. 21 pp. 471–483

Maps, Drawings and Manuscripts

- Christopher Saxton – Cantii, Southsexiae, Surriae et Middlesexiae comitat, 1579.
- Symonson – Map of Kent, 1696
- Dury and Herbert 1769 – A Topographical-map of the county of Kent, 15
- Ordnance Survey 1798 – St Margaret's Bay (OSD107, Pt1)
- Ordnance Survey 1799 – Canterbury (OSD107)
- Tithe map for the parish of Great Mongeham, 1841 (Reference EK/U725/P26)
- The Ordnance Survey First Edition map (scale twenty-five inches to one-mile), surveyed 1871, published 1873 (Kent LVIII.8 & LVIIIA.5)
- The Ordnance Survey Second Edition map (scale twenty-five inches to one-mile), revised 1896-7, published 1898 (Kent LVIII.8 & LVIIIA.5)
- The Ordnance Survey Third Edition map (scale twenty-five inches to one-mile), surveyed 1905, published 1906 (Kent LVIII.8 & LVIIIA.5)
- The Ordnance Survey Fourth Edition map (scale twenty-five inches to one-mile), surveyed 1938, published 1943 (Kent LVIII.8 & LVIIIA.5)

Appendices

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Appendix A – Site Location Plan

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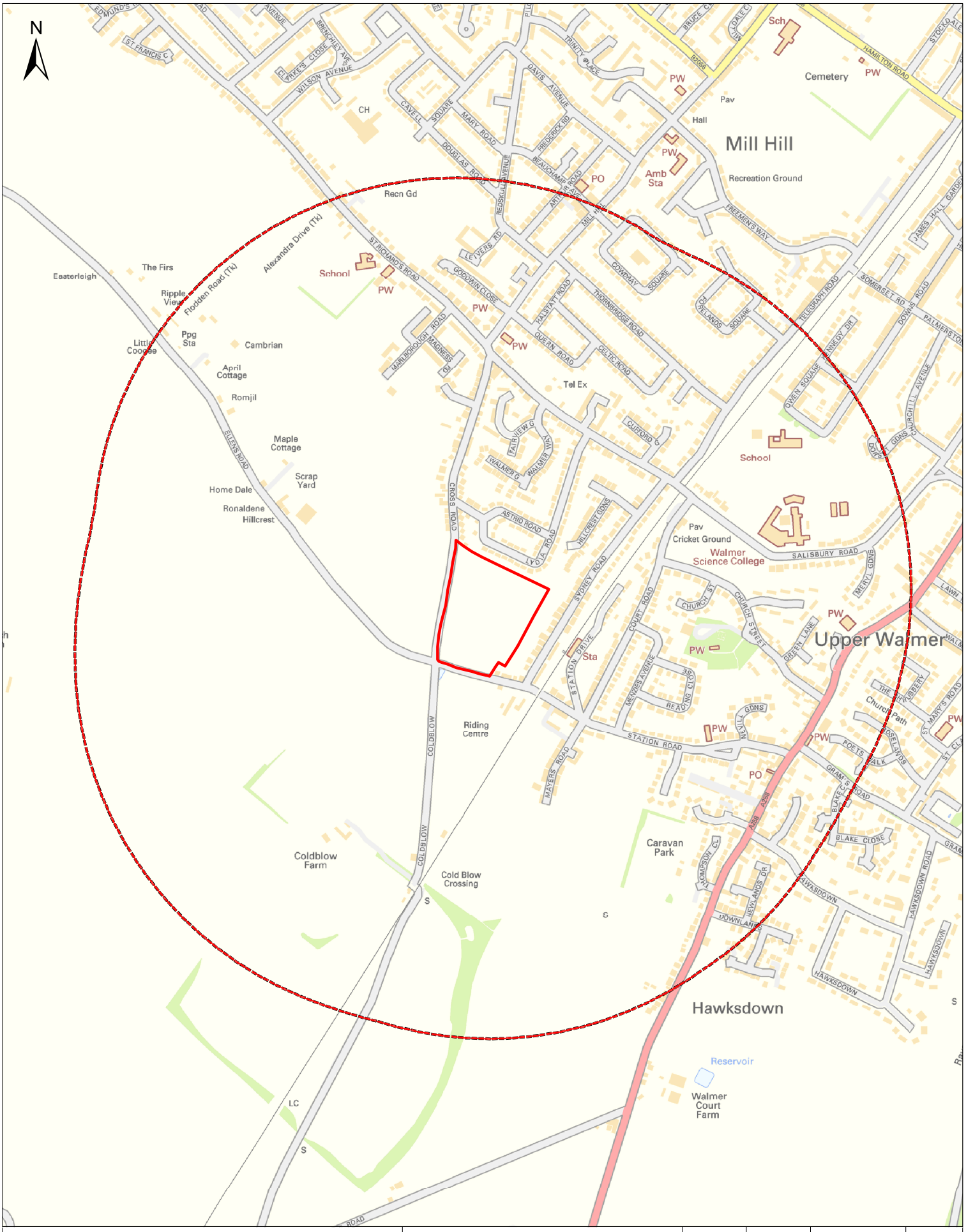

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Metres

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Created:	Checked:	Date:	Version:

Sheet Size: **A4** Scale of Original: **1:10,000**

Client: Gladman Developments Ltd

Project: Cross Road, Deal

Title: Site Location Plan

Office:	Project No:	Figure No:
4154	A101291	1

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Appendix B – Assessment Methodology

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Historic Environment Impact Assessment Methodology

WYG's evaluation and assessment criteria have been developed using a combination of the Secretary of State's criteria for Scheduling Monuments (Scheduled Monument Statement, Annex 1), Design Manual for Roads and Bridges, Volume 11, Part 3, Section 2, HA 208/07 and Transport Analysis Guidance (TAG Unit 3.3.9, Heritage of Historic Resources Sub-Objective). Professional judgement is used in conjunction with these criteria to undertake the impact assessment, as well as complimentary good practice guidance including Historic England's Conservation Principles (**Evidential**, **Historical**, **Aesthetic** and **Communal**).

Value

The table below provides guidance on the assessment of significance for all types of heritage assets, including archaeological sites and monuments, historic buildings, historic landscapes and other types of historical site, such as battlefields, parks and gardens. The table considers both designated and non-designated heritage assets.

Value	Examples
Very High	World Heritage Sites, Scheduled Monuments of exceptional quality, or assets of acknowledged international importance or assets that can contribute to international research objectives. Grade I Listed Buildings and built heritage of exceptional quality. Grade I Registered Parks and Gardens and historic landscapes and townscapes of international sensitivity, or extremely well preserved historic landscapes and townscapes with exceptional coherence, integrity, time-depth, or other critical factor(s).
National/ High	Scheduled Monuments, or assets of national quality and importance or assets that can contribute to national research objectives. Grade II* and Grade II Listed Buildings, Conservation Areas with very strong character and integrity, other built heritage that can be shown to have exceptional qualities in their fabric or historical association. Grade II* and II Registered Parks and Gardens, Registered Battlefields and historic landscapes and townscapes of outstanding interest, quality and importance, or well preserved and exhibiting considerable coherence, integrity time-depth or other critical factor(s).
Regional/ Medium	Designated or undesignated assets of regional quality and importance that contribute to regional research objectives. Grade II Listed Buildings of modest preservation or integrity. Locally Listed Buildings, other Conservation Areas, historic buildings that can be shown to have good qualities in their fabric or historical association. Grade II Registered Parks and Gardens and Registered Battlefields of poorer preservation or integrity. Designated or undesignated special historic landscapes and townscapes with reasonable coherence, integrity, time-depth or other critical factor(s).

Value	Examples
	Assets that form an important resource within the community, for educational or recreational purposes.
Local/ Low	Undesignated assets of local importance. Assets compromised by poor preservation and/or poor survival of contextual associations but with potential to contribute to local research objectives. Historic (unlisted) buildings of modest quality in their fabric or historical association. Historic landscapes and townscapes with limited sensitivity or whose sensitivity is limited by poor preservation, historic integrity and/or poor survival of contextual associations. Assets that form a resource within the community with occasional utilisation for educational or recreational purposes.
Negligible	Assets with very little or no surviving cultural heritage interest. Buildings of no architectural or historical note. Landscapes and townscapes that are badly fragmented and the contextual associations are severely compromised or have little or no historical interest.

Impact

The magnitude of the potential impact is assessed for each site or feature independently of its significance. Magnitude is determined by considering the predicted deviation from baseline conditions. The magnitude of impact categories are adapted from the Transport Assessment Guidance (TAG Unit 3.3.9) and Design Manual for Roads and Bridges, Volume 11, Part 3, Section 2, HA 208/07.

Impact	Typical Criteria Descriptors
Substantial	Impacts will act to damage or destroy cultural heritage assets; result in the loss of the asset and/or quality and integrity; cause severe damage to key characteristic features or elements; almost complete loss of setting and/or context of the asset. The assets integrity or setting is almost wholly destroyed or is severely compromised, such that the resource can no longer be appreciated or understood. (Negative). The proposals would remove or successfully mitigate existing damaging and discordant impacts on assets; allow for the restoration or enhancement of characteristic features; allow the substantial re-establishment of the integrity, understanding and setting for an area or group of features; halt rapid degradation and/or erosion of the heritage resource, safeguarding substantial elements of the heritage resource. (Positive).
Moderate	Substantial impact on the asset, but only partially affecting the integrity; partial loss of, or damage to, key characteristics, features or elements; substantially intrusive into the setting and/or would adversely impact upon the context of the asset; loss of the asset for community appreciation. The assets integrity or setting is damaged but not destroyed so understanding and appreciation is compromised. (Negative).

Impact	Typical Criteria Descriptors
	Benefit to, or restoration of, key characteristics, features or elements; improvement of asset quality; degradation of the asset would be halted; the setting and/or context of the asset would be enhanced and understanding and appreciation is substantially improved; the asset would be bought into community use. (Positive).
Slight	Some measurable change in assets quality or vulnerability; minor loss of or alteration to, one (or maybe more) key characteristics, features or elements; change to the setting would not be overly intrusive or overly diminish the context; community use or understanding would be reduced. The assets integrity or setting is damaged but understanding and appreciation would only be diminished not compromised. (Negative). Minor benefit to, or partial restoration of, one (maybe more) key characteristics, features or elements; some beneficial impact on asset or a stabilisation of negative impacts; slight improvements to the context or setting of the site; community use or understanding and appreciation would be enhanced. (Positive).
Negligible / No Change	Very minor loss or detrimental alteration to one or more characteristics, features or elements. Minor changes to the setting or context of the site. No discernible change in baseline conditions (Negative). Very minor benefit to or positive addition of one or more characteristics, features or elements. Minor changes to the setting or context of the site No discernible change in baseline conditions. (Positive).

Magnitude (scale of change) is determined by considering the predicted deviation from baseline conditions. Quantifiable assessment of magnitude has been undertaken where possible. In cases where only qualitative assessment is possible, magnitude has been defined as fully as possible.

Any embedded mitigation is considered in the impact assessment and this is clearly described in this section (cross referring the development description). Therefore, the magnitude of the impacts described in the impact assessment will be considered stated before and after additional mitigation has been taken into account.

Impacts may be of the following nature and will be identified as such where relevant:

- Negative or Positive.
- Direct or indirect.
- Temporary or permanent.
- Short, medium or long term.
- Reversible or irreversible.

- Cumulative.

For the purposes of this Heritage Impact Assessment, substantial negative impacts are considered to amount to 'substantial harm' to designated heritage assets in National Planning Policy Framework (NPPF) terms. Moderate-slight negative impacts to designated heritage assets are considered to be 'less than substantial harm' in NPPF terms. Negligible negative impacts/no change are not considered to amount to any material harm to designated heritage assets.

Appendix C – Site Photographs

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Photograph 1: View of proposed site, looking west

Photograph 2: View of proposed site looking east

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Appendix D – Recorded Heritage Assets

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Designated Heritage Sites (Historic England/ Kent Historic Environment Record)

Identifier	Record Type	Grid Reference	Description	Period
Designated Heritage Assets				
1005142	Scheduled Monument	TR 36720 50371	Old Walmer Court Manor House. The ruins of a 12th/13th-century manor house of flint with Caen stone dressings. It consists of a roofless rectangular structure, enclosing two undercrofts and a first-floor hall.	Medieval
1251215 & MKE26835	Grade II* Listed Building	TR 36696 50342	Church of St Mary the Blessed Virgin. 12th-century church of Norman and Early English style probably built as a chapel for Tile Castle. The south doorway is Norman. The nave is of flint, with a piscina on the south wall. There are traces of wall paintings on the chancel wall, which is of Early English style.	Later Medieval
1069860 & MKE26079	Grade II Listed Building	TR 36643 50385	Walmer Court. An 18th-century three storey stuccoed building with a slate roof and bow windows. It has a lower east wing of two storeys with a roof sloping to the west. The back door is of 17th-century date.	Post-Medieval
Upper Walmer	Conservation Area	TR 36838 50187	The Conservation Area circumscribes the core of the original village of Walmer.	Medieval

Non-designated recorded Heritage Assets (Kent Historic Environment Record)

Identifier	Record Type	Description	Period
Recorded Heritage Assets (by period)			
MKE91510	Findspot	Palaeolithic/Mesolithic flint core/pick found near Mayers Road	Palaeolithic/Mesolithic
MKE15359	Monument	A Late Neolithic pit was identified on Cross Road containing struck and burnt flints, shell, animal bone, bone pins and Grooved Ware.	Neolithic
MKE6653	Findspot	Findspot of flint implements including a plano-convex knife and flint flakes. Pottery fragments and pot boilers have also been reported from this location, possibly those listed as 'Cold Blow' in Deal Town Hall.	Neolithic
MKE7358	Monument	Flint flakes, simple tools, pot boilers and coarse pottery were identified in a brick-earth pit at Coldblow Farm.	Neolithic
MKE90880	Findspot	Neolithic and Bronze Age flints were identified during excavations in St Richard's Road, Deal.	Neolithic/Bronze Age
MKE17744	Monument	A pit and four parallel gullies were identified during an archaeological evaluation. The pit is associated with a sherd of late Iron Age or early Romano-British date, but also contained lithics of broad Neolithic/Bronze Age date.	Neolithic/Bronze Age/Iron Age/Romano-British
MKE7373	Monument	A chalk shaft with an oval side chamber was identified at St Richard's Road, Upper Deal. A chalk figurine was located in the chamber. The shaft was backfilled with chalk rubble associated with Romano-British debris of the 1st and 2nd centuries AD. It has been identified as a Late Iron Age ritual shaft. An early Neolithic pit was identified nearby as were Romano-British postholes, ditches and 2nd-century cremations.	Neolithic/Iron Age/Romano-British
MKE7384	Monument	A Bronze Age burial accompanied by Food Vessels was discovered in Upper Deal.	Bronze Age
MKE7405	Monument	An Later Bronze Age quern discovered during nearby excavations has been incorporated in a wall on Quern Road, Mill Hill.	Bronze Age
MKE7357	Monument	A circular V-shaped ditch was identified on Waterworks Road, containing Early Iron Age pottery accompanied by slag. Another ditch exposed during the works may have been a barrow circle.	Bronze Age/Iron Age

Identifier	Record Type	Description	Period
MKE39769	Monument	Cropmarks of a barrow and Saxon cemetery, west of Marlborough Road, Deal	Bronze Age/Early medieval
MKE17724	Monument	Possible Iron Age pit, 42 Quern Road, Deal	Iron Age
MKE43005	Monument	An Iron Age settlement was identified during an archaeological evaluation at St Richard's Road, Upper Deal. It consisted of pits, ditches and postholes, some relating to hut structures, largely of Early Iron Age date.	Iron Age
MKE65847	Findspot	Iron Age copper alloy coin	Iron Age
MKE7355	Monument	A V-shaped pit was identified at Mill Hill containing sherds of late Iron Age pottery (1st century AD).	Iron Age
MKE7356	Monument	Pre-Roman graves and pottery reported from this location in 1925. No further details.	Iron Age
MKE7361	Findspot	Iron Age pottery	Iron Age
MKE7375	Monument	Middle Iron Age pits, postholes gullies and ditches, associated with the Dossett Court Complex	Iron Age
MKE7401	Monument	A later Iron Age rubbish pit was identified at Mill Hill in 1947 associated with animal bone, a human skull and wheel-turned pottery.	Iron Age
MKE7390	Findspot	A La Tène brooch is reported from Deal.	Iron Age
MKE7374	Findspot	A multi-period complex of postholes, pits, ditches and gullies was identified at Dossett Court associated with Early Iron Age, Middle Iron Age and Romano-British pottery.	Iron Age/Romano-British
MKE17357	Monument	An unpublished excavation near Cross Road identified pits associated with Iron Age and Romano-British pottery. A La Tène fibula was also recovered.	Iron Age/Roman-British
MKE7353	Monument	Iron Age, Romano-British and early medieval burials found at Mill Hill. A late Iron Age urnfield was found during chalk workings, associated with bronze spoons, five fibulae, three brooches among other goods, dating to the 1st century BC. A 1st century AD butt-beaker was also identified. A Late Iron Age inhumation was also found more recently nearby, orientated northwest/southeast, with an iron sword, bronze brooch and shield mounting. Further east an unfurnished potential Romano-British inhumation was encountered, near to a number of Romano-British cremations associated with	Iron Age/Romano-British/Early medieval

Identifier	Record Type	Description	Period
		Samian ware, Upchurch urns and bow-shaped fibulae. Three early medieval inhumations were also identified at the chalk working, associated with a necklace, disc brooch and other grave goods.	
MKE91074	Monument	A later prehistoric pond was encountered during a watching brief on Pond Pasture, containing burnt flints and charcoal.	Later prehistoric
MKE44075	Monument	Two post holes of later prehistoric date, associated with struck flints, were identified during an evaluation on Lydia Road, Deal, near a tree throw containing a sherd of later medieval pottery. A post-medieval boundary ditch was also located during this evaluation.	Later prehistoric/Medieval/Post-medieval
MKE43006	Monument	An early Romano-British field system was found near St Richard's Road Deal. It had gone out of use by the early 3rd century AD.	Romano-British
MKE54761	Monument	Three intercutting Roman pits were identified during a watching brief on Cross Road. The pottery recovered was of late 1st- and early 2nd-century date.	Romano-British
MKE7330	Findspot	A Roman urn containing 25 copper coins of Carausius was found in a field near Upper Deal in 1834.	Romano-British
MKE7354	Monument	A 1st- to 3rd-century Romano-British rubbish trench, characterised by diagnostic pottery and red deer antlers. Potentially indicative of nearby Roman villa.	Romano-British
MKE7359	Monument	Romano-British graves reported from the railway cutting at Walmer Station. No further details reported.	Romano-British
MKE101756	Findspot	Base Silver COIN	Romano-British
MKE101843	Findspot	Copper alloy COIN	Romano-British
MKE7369	Monument	Anglo-Saxon Cemetery at Mill Hill, Deal	Early Medieval
MKE7394	Findspot	A sherd of early medieval pottery is reported from Upper Deal.	Early medieval
MKE7395	Findspot	An early medieval blue glass jar was found on St Richard's Road, Deal, associated with a grave pit.	Early medieval
MKE76459	Findspot	Anglo-Saxon silver penny, Upper Deal	Early Medieval
MKE101880	Findspot	Copper alloy UNIDENTIFIED OBJECT	Early medieval

Identifier	Record Type	Description	Period
MKE15550	Monument	Chalk cut pits associated with later medieval pottery.	Medieval
MKE64380	Findspot	13th-century copper alloy casket key found in the Mill Hill area.	Medieval
MKE64840	Findspot	14th-century copper alloy seal matrix showing a female figure, located in Deal parish.	Medieval
MKE7396	Findspot	A later medieval Bronze key, of probable late 14th-century date, was found in a garden in Manor Road, Upper Deal.	Medieval
MKE91075	Monument	Later medieval and post-medieval ditches were identified during a watching brief at Pond Pasture. 13th-century pottery was recovered from one of the ditches.	Medieval/Post-medieval
MKE16206	Monument	Site of Post-Med Lime Kiln, St. Richard's Road, Deal	Post-Medieval
MKE87103	Farmstead	Walmer Court Farmhouse represents the surviving fabric of a former courtyard farmstead. Recorded in the 18th century.	Post-medieval
MKE95358	Findspot	Coin of Elizabeth I, identified in Deal parish.	Post-medieval
MKE101570	Findspot	Silver SEAL MATRIX	Post-medieval
MKE101879	Findspot	Lead Alloy TOKEN	Post-medieval
MKE101912	Findspot	Gold FINGER RING	Post-medieval
MKE16833	Monument	A limekiln was depicted at this location in the later 19th century.	Industrial
MKE56551	Building	Walmer Railway Station, opened in 1881 on the Dover-Deal branch line.	Industrial
MKE87039	Farmstead	Outfarm formerly located northeast of Church Farm, recorded in the 19th century.	Industrial
MKE88039	Farmstead	Coldblow Farm, a courtyard farmstead recorded in the 19th century.	Industrial
MKE104333	Monument	Site of former Methodist Chapel, Station Road, Walmer, Dover	Industrial

Identifier	Record Type	Description	Period
MKE56553	Monument	Buckland Junction & Deal Railway	Industrial
MKE16224	Monument	A Brickworks was depicted at this site in 1907.	Modern
MKE42036	Monument	Second World War Fougasse Flame Trap	Modern
MKE91781	Building	Plaque at 20 St Richard's Road, home of First World War poet Richard Aldington.	Modern
MKE97810	Monument	Mill Hill Miners village	Modern
MKE17326	Monument	An undated gully and postholes were identified off St Richard's Road, Mill Hill	Undated

Recorded Archaeological Events (Kent Historic Environment Record)

Identifier	Description	Record Type
EKE13277	CgMs consulting undertook a DBA on land at Station Road Walmer in 2013.	Desk-Based Assessment
EKE14810	Canterbury Archaeological Trust report no archaeological remains from an evaluation on Cross Road.	Evaluation
EKE14811	Canterbury Archaeological Trust report no archaeological remains from an evaluation on Cross Road.	Evaluation
EKE4197	A multi-period complex of postholes, pits, ditches and gullies was excavated by Canterbury Trust at Dossett Court associated with Early Iron Age, Middle Iron Age and Romano-British pottery.	Evaluation
EKE4970	An unpublished excavation near Cross Road identified pits associated with Iron Age and Romano-British pottery. A La Tene fibula was also recovered.	Excavation
EKE4973	Dover Archaeological Group reported struck flints during a pipeline watching brief in Ripple parish.	Excavation
EKE5206	Thanet Archaeology report no archaeological remains from an evaluation of Cross Road.	Evaluation
EKE5531	Dover Archaeological Group reported a pit associated with Iron Age pottery on Quern Road.	Watching Brief
EKE5591	A pit and four parallel gullies were identified during an archaeological evaluation by Dover Archaeological Group. The pit is associated with a sherd of late Iron Age or early Romano-British date, but also contained lithics of broad Neolithic/Bronze Age date.	Evaluation
EKE9021	Dover Archaeological Group report no archaeological remains from a watching brief on Sydney Road.	Watching Brief

Identifier	Description	Record Type
EKE5037	Canterbury Archaeological Trust identified a rectilinear enclosure formed by a ditch and a gully during a pipeline watching brief. Struck flint and Later Iron Age pottery was also identified.	Watching Brief
EKE10081	An Iron Age settlement was identified during an archaeological evaluation by Canterbury Archaeological Trust at St Richard's Road, Upper Deal. It consisted of pits, ditches and postholes, some relating to hut structures, largely of Early Iron Age date.	Evaluation
EKE10082	Neolithic and Bronze Age flints were identified during excavations by Canterbury Archaeological Trust in St Richard's Road, Deal.	Evaluation
EKE10511	Dover Archaeological Group report a negative watching brief from Sydney Road, Walmer.	Watching Brief
EKE10541	Two post holes of later prehistoric date, associated with struck flints, were identified during an evaluation and watching brief by Canterbury Archaeological Trust on Lydia Road, Deal, near a tree throw containing a sherd of later medieval pottery. A post-medieval boundary ditch was also located during this evaluation.	Evaluation
EKE15046	Two post holes of later prehistoric date, associated with struck flints, were identified during an evaluation and watching brief by Canterbury Archaeological Trust on Lydia Road, Deal, near a tree throw containing a sherd of later medieval pottery. A post-medieval boundary ditch was also located during this evaluation.	Watching Brief
EKE10600	Dover Archaeological Group report a negative watching brief from Hillcrest Gardens, Mill Hill.	Watching Brief
EKE10854	A Late Neolithic pit was identified on Cross Road by Dover Archaeological Group containing struck and burnt flints, shell, animal bone, bone pins and Grooved Ware. Three intercutting Roman pits were also identified. The pottery recovered was of late 1st- and early 2nd-century date.	Watching Brief
EKE13241	Later medieval and post-medieval ditches were identified during a watching brief by Canterbury Archaeological Trust at Pond Pasture. 13th-century pottery was recovered from one of the ditches. In addition, a later prehistoric pond was encountered, containing burnt flints and charcoal.	Watching Brief
EKE13276	Magnetometry survey at Station Road did not identify clear archaeological anomalies.	Geophysical Survey
EKE16353	WYG undertook an Archaeological Appraisal on Land off Cross Road, Deal	Archaeological Appraisal
EKE16354	Magnitude Surveys undertook a magnetometer survey on Land off Cross Road Deal, no anomalies suggestive of significant archaeological deposits or features were identified.	Geophysical Survey
EKE16355	WYG undertook a Heritage Statement on Land of Cross Road, Deal.	Built Heritage Statement
EKE4751	A chalk shaft with an oval side chamber was identified at St Richard's Road, Upper Deal by the Dover Archaeological Group. A chalk figurine was located in the chamber. The shaft was backfilled with chalk rubble associated with Romano-British debris of the 1st and 2nd centuries AD. It has been identified as a Late Iron Age ritual shaft. An early Neolithic pit was identified nearby as were Romano-British postholes, ditches and 2nd-century cremations.	Excavation

Identifier	Description	Record Type
EKE4887	Canterbury Archaeological Trust excavated an undated gully and postholes at Walmer Way, St Richard's Road, Deal.	Excavation
EKE4953	Dover Archaeological Group identified only modern features during excavation at Cross Road, Deal.	Excavation
EKE5508	Dover Archaeological Group report no archaeological remains from an evaluation on Lydia Road.	Evaluation
EKE5746	A pit and four parallel gullies were identified during an archaeological evaluation by Dover Archaeological Group. The pit is associated with a sherd of late Iron Age or early Romano-British date, but also contained lithics of broad Neolithic/Bronze Age date.	Watching Brief

Appendix E – Historic Mapping

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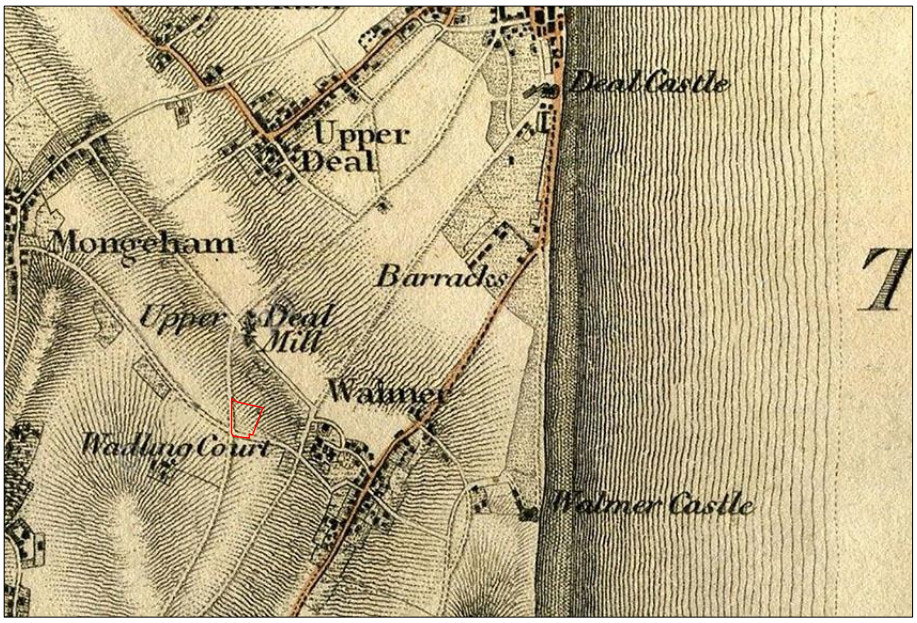

Plate 1: 1797 William Mudge Map. The Site boundary is outlined in red

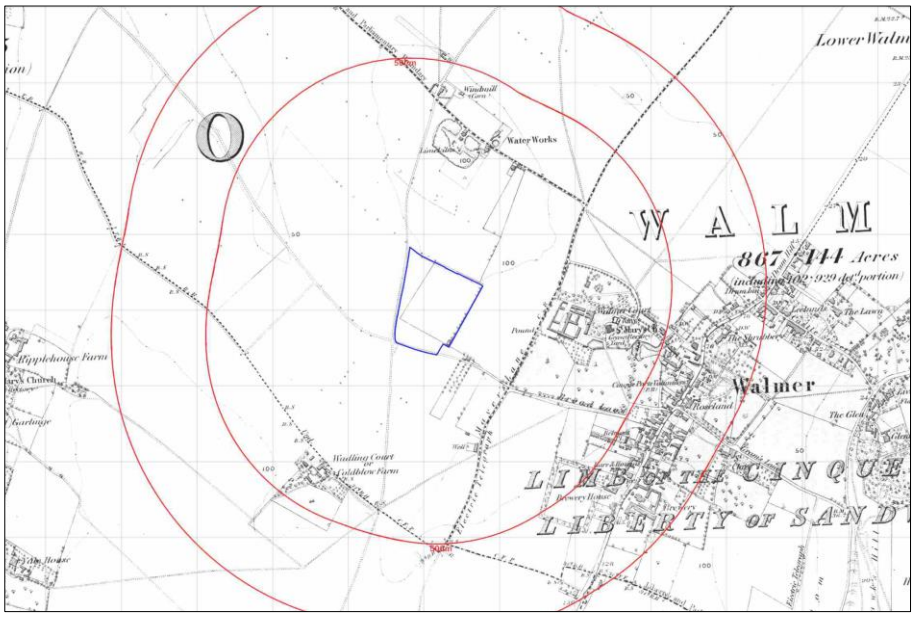

Plate 2: 1872 1:10,560 County Series OS Map

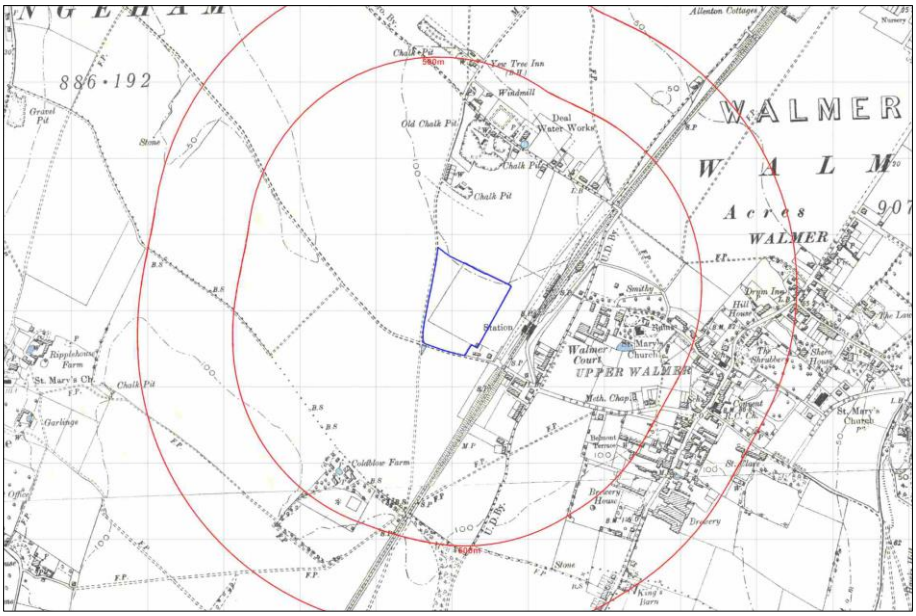

Plate 3: 1896-1897 1:10,560 County Series OS Map

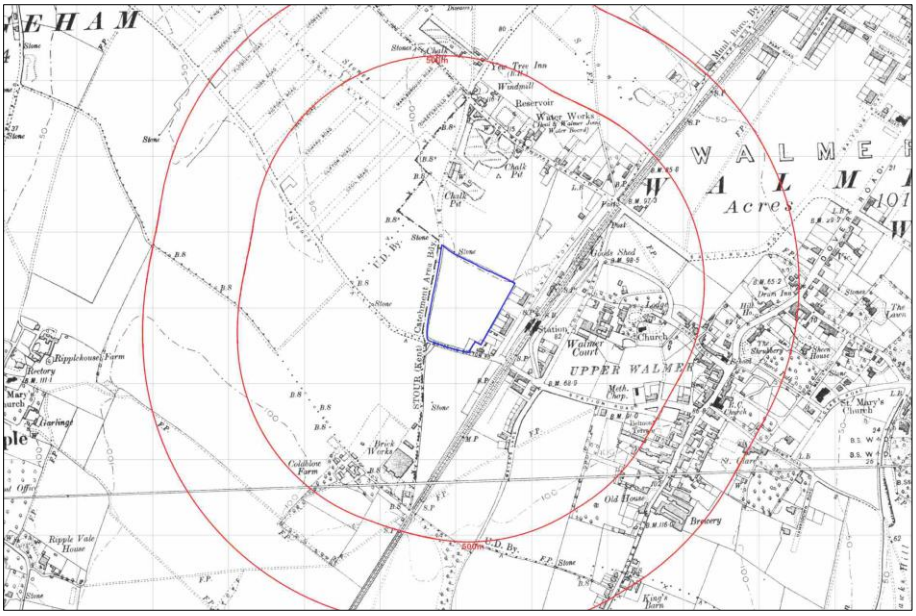

Plate 4: 1938 1:10,560 County Series OS Map

Appendix F – Report Conditions

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Archaeological Desk-Based Assessment, Land off Cross Road, Deal

This report is produced solely for the benefit of the **Gladman Developments Ltd.** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed by us in writing.

This report is prepared for the proposed uses stated in the report and should not be relied upon for other purposes unless specifically agreed by us in writing. In time technological advances, improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using reasonable skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted, and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented accordingly within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG by others, no independent verification of these has been made by WYG and no warranty is given on them. No liability is accepted, or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst reasonable skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal, budget and weather-related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

May 2019

WYG Environment Planning Transport Ltd

Appendix G – Magnitude Surveys Geophysical Survey Report, April 2017

magnitude surveys

Geophysical Survey Report

of

Land at Cross Road

Deal, Kent

For

WYG

On Behalf Of

Gladman Developments

Magnitude Surveys Ref: MSTR121

April 2017

Unit 17, Commerce Court

Challenge Way

Bradford

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Chrys Harris BA MSc PhD

Draft Issued:

06 April 2017

Abstract

Magnitude Surveys was commissioned to assess the subsurface archaeological potential of a *c.* 11.9ha area of land at Cross Road, Deal, Kent. A fluxgate gradiometer survey was successfully completed and no anomalies of probable or possible archaeological origin have been identified. The geophysical results primarily reflect agricultural activity and natural variations in the soil and geology. Modern activity is reflected in the form of ferrous responses and magnetic disturbance, most prominently visible around the perimeter of the survey areas on the boundaries with roads and modern housing.

Contents

List of Figures

1. Introduction

1.1. Magnitude Surveys Ltd (MS) was commissioned by WYG on behalf of Gladman Developments to undertake a geophysical survey on a *c*.11.9ha area of land off Cross Road, Deal, Kent (TR 3602 5055).

1.2. The geophysical survey comprised hand pulled, cart-mounted fluxgate gradiometer survey.

1.3. The survey was conducted in line with the current best practice guidelines produced by Historic England (David *et al*., 2008), the Chartered Institute for Archaeologists (CIfA, 2014) and the European Archaeological Council (Schmidt *et al*., 2015).

1.4. The survey was conducted in accordance with the method statement made available to WYG before survey commencement.

1.5. The survey commenced on 28th March and took 2 days to complete.

2. Quality Assurance

2.1. Project management, survey work, data processing and report production have been carried out by qualified and professional geophysicists to standards exceeding the current best practice (CIfA, 2014; David *et al*., 2008, Schmidt *et al*., 2015).

2.2. Magnitude Surveys is a corporate member of ISAP (International Society of Archaeological Prospection).

2.3. Director Graeme Attwood is a Member of the Chartered Institute for Archaeologists (CIfA), the chartered UK body for archaeologists, as well as the Secretary of GeoSIG, the CIfA Geophysics Special Interest Group. Director Finnegan Pope-Carter is a Fellow of the London Geological Society, the chartered UK body for geophysicists and geologists, as well as a member of GeoSIG, the CIfA Geophysics Special Interest Group. Director Chrys Harris has a PhD in archaeological geophysics from the University of Bradford.

2.4. All MS managers have postgraduate qualifications in archaeological geophysics. All MS field staff have relevant archaeology or geophysics degrees and supervisors have at least three years' field experience.

3. Objectives

3.1. The geophysical survey aimed to assess the subsurface archaeological potential of the survey area.

4. Geographic Background

4.1. The site is located on the southwestern fringe of Deal, northwest of Walmer railway station and is bisected by Cross Road, which runs north-south through the site (Figure 1). Survey was undertaken across three agricultural fields (Figure 2). An area of mature trees and vegetation on the western area of the site could not be surveyed. The site is bounded to the northeast and southeast by residential properties of Cross Road, Lydia Road and Sydney Road. Arable land continues beyond the site boundary to the southwest.

4.2. The underlying geology comprises Margate and Seaford Formation chalk. No superficial deposits are recorded (British Geological Survey, 2017).

4.3. The soils in the western part of site consist of freely draining lime-rich loamy soils; those in the east consist of freely draining lime-rich loamy soils (Soilscapes, 2017).

4.4. Survey considerations:

Survey Area	Ground Conditions	Further notes:
1	Under ankle-high winter wheat crop at time of survey. This area sloped down towards the south.	Bounded on three sides by banks with dense vegetation and on the northeastern side by wood and wire fencing. A footpath runs approximately parallel to the northeastern edge of the survey area.
2	Under ankle-high winter wheat crop at time of survey. This area sloped down towards the southwest.	Bounded on the west by an area of trees/vegetation. Wood and wire fencing runs along the northeastern edge. Two manholes are located on the southeastern edge of the field, close to the southern corner. A footpath runs around the perimeter. A line of telegraph poles run along Cross Road i.e. along the southeastern edge of the area.
3	This area is flat and under grass of varying length.	Divided in half on a northeast-southwest axis by wire fencing.

5. Archaeological Background

5.1. The following section summarises the archaeological background of the site and its surrounding landscape, based on an archaeological appraisal by WYG (Skinner, 2017) and a correlating map regression. Within the close vicinity of the survey areas, later Medieval pottery has been recovered in chalk pits off Cross Road (MKE15550). At the southwest edge of the site, a watching brief reported struck flints (EKE4973).

5.2. An early Prehistoric flint assemblage (MKE80552) was recovered during archaeological recording work on St Richard's Road to the north of the site; early Neolithic pits (MKE7373) were also identified in the same area. Later Neolithic activity is represented by pits containing various finds (MKE15359) on Cross Road (north of the survey area). Evidence of Bronze Age occupation is also known from the area adjacent to the northeastern extent of the site. Late Prehistoric occupation evidence in the Mill Hill and St Richard's Road areas includes a large number of pits, ditches, postholes and gullies (e.g. MKE7375; MKE43005; MKE17724), a multiperiod complex of such features (MKE7374), and residual finds of pottery (e.g. MKE7361; MKE17744). A chalk shaft (MKE7373) has been excavated to the northeast of site on St Richard's Road and contained a chalk figurine, the 'Deal Man'. Earlier occupation immediately northeast and east of the site appears to continue into the Romano-British period, with evidence for similar cut features and pottery finds (MKE54761; MKE17744) as well as part of a field system (MKE43006). Cremations from this period have been found in the Mill Hill area and close to the abovementioned chalk shaft (MKE7353; MKE7373).

5.3. Mill Hill appears to have served as a focus for mortuary activity rather than occupation during the Early Medieval period, with a large number of known burials recorded (e.g. MKE7369; MKE7395). Evidence for Later Medieval occupation in the area is scant, with a small number of findspots distributed in the vicinity of the site (e.g. MKE7396; MKE20492), in addition to the pottery find mentioned in Section 5.1. Walmer Court Manor House is located to the east of site and archaeological investigation revealed the presence of marl pits (MKE80551) to the north.

5.4. In the Post-Medieval period, a number of courtyard farms and lime kilns are recorded in the area surrounding the site. The Deal Railway was built to the south of site in 1881. The 1841 Tithe map shows a number of land divisions running across the site, dividing strips of land on a northeast-southwest axis. Cross Road is also marked, as is Allen's Road, which defines the southwestern extent of the site. By the time of the 1872 Ordnance Survey County Series map, most of these strips have been consolidated into larger fields, with a large rectangular enclosure retained in Survey Area 1. This map also depicts a chalk pit and associated lime kiln to the northeast of the site. The chalk pit complex increases in size until the early 20th century, when the survey area became surrounded by housing on the northwest, northeast and southeastern sides. An aerial photograph from 1940 indicates that the site was cultivated, with Area 2 being subdivided into two approximately equal areas on a northwest-southeast alignment and Cross Road running through a second field incorporating Area 1 and the southeasterly part of Area 2. By 1960 these subdivisions have disappeared; however, a small rectangular enclosure is located in the far western corner of Area 2 and a northwest-southeast division runs through Area 1 (Google Earth, 2017).

6. Methodology

6.1. Data Collection

6.1.1. Geophysical prospection comprised the magnetic method as described in the following table.

6.1.2. Table of survey strategies:

Method	Instrument	Traverse Interval	Sample Interval
Magnetic	Bartington Instruments Grad-13 Digital Three-Axis Gradiometer	1 m	200 Hz reprojected to 0.125 m

6.1.3. The magnetic data were collected using MS' bespoke hand-pulled cart system.

6.1.3.1. MS' cart system was comprised of Bartington Instruments Grad 13 Digital Three-Axis Gradiometers. Positional referencing was through a Hemisphere S321 GNSS Smart Antenna RTK GPS outputting in NMEA mode to ensure high positional accuracy of collected measurements. The Hemisphere S321 GNSS Smart Antenna is accurate to 0.008 m + 1 ppm in the horizontal and 0.015 m + 1 ppm in the vertical.

6.1.3.2. Magnetic and GPS data were stored on an SD card within MS' bespoke datalogger. The datalogger was continuously synced, via an in-field Wi-Fi unit, to servers within MS' offices. This allowed for data collection, processing and visualisation to be monitored in real-time as fieldwork was ongoing.

6.1.3.3. Rows of temporary sight markers were established in each survey area to guide the surveyor and ensure full coverage with the cart. Data were collected by traversing the survey area along the longest possible lines, efficient collection and processing.

6.2. Data Processing

6.2.1. Magnetic data were processed in bespoke in-house software produced by MS. Processing steps conform to Historic England's standards for "raw or minimally processed data" (see sect 4.2 in David et al., 2008: 11).

Sensor Calibration – The sensors were calibrated using a bespoke in-house algorithm, which conforms to Olsen et al. (2003).

Zero Median Traverse – The median of each sensor traverse is calculated within a specified range and subtracted from the collected data. This removes striping effects caused by small variations in sensor electronics.

Projection to a Regular Grid – Data collected using RTK GPS positioning requires a uniform grid projection to visualise data. Data are rotated to best fit an orthogonal grid projection and are resampled onto the grid using an inverse distance-weighting algorithm.

Interpolation to Square Pixels – Data are interpolated using a bicubic algorithm to increase the pixel density between sensor traverses. This produces images with square pixels for ease of visualisation.

6.3. Data Visualisation and Interpretation

6.3.1. This report presents the gradient of the sensors' total field data as greyscale images. Multiple greyscales images at different plotting ranges have been used for data interpretation. Greyscale images should be viewed alongside the XY trace plot (Figure 7). XY trace plots visualise the magnitude and form of the geophysical response, aiding in anomaly interpretation.

6.3.2. Geophysical results have been interpreted using greyscale images and XY traces in a layered environment, overlaid against open street mapping, satellite imagery, historic mapping and soil and geology mapping. Google Earth (2017) was consulted as well, to compare the results with recent land usages.

7. Results

7.1. Qualification

7.1.1. Geophysical results are not a map of the ground and are instead a direct measurement of subsurface properties. Detecting and mapping features requires that said features have properties that can be measured by the chosen technique(s) and that these properties have sufficient contrast with the background to be identifiable. The interpretation of any identified anomalies is inherently subjective. While the scrutiny of the results is undertaken by qualified, experienced individuals and rigorously checked for quality and consistency, it is often not possible to classify all anomaly sources. Where possible an anomaly source will be identified along with the certainty of the interpretation. The only way to improve the interpretation of results is through a process of comparing excavated results with the geophysical reports. MS actively seek feedback on their reports as well as reports of further work in order to constantly improve our knowledge and service.

7.2. Discussion

7.2.1. The geophysical results are presented in consideration with satellite imagery (Figure 5) and historic mapping (Figure 6).

7.2.2. The fluxgate gradiometer survey has responded well to the survey area's environment, detecting a range of weak and strong responses from a number of different origins. Agricultural activity is evident across the site in the form of ploughing regimes. Modern activity is represented by strong ferrous responses, both broad dipolar responses and areas of disturbance around the perimeter of survey areas and smaller discrete anomalies scattered across the site. The survey has detected a number of anomalies natural in origin; although, in light of historic mapping evidence for chalk pits/lime burning in the site's wider landscape, some of the large irregularly shaped areas may be the result of similar activities.

7.3. Interpretation

7.3.1. General Statements

7.3.1.1. Geophysical anomalies will be discussed broadly as classification types across the survey area. Only anomalies that are distinctive or unusual will be discussed individually.

7.3.1.2. **Undetermined** – Anomalies are classified as Undetermined when the anomaly origin is ambiguous through the geophysical results and there is no supporting or correlative evidence to warrant a more certain classification. These anomalies are likely to be the result of geological, pedological or agricultural processes--although an archaeological origin cannot be entirely ruled out. Undetermined anomalies are generally not ferrous in nature.

7.3.1.1. **Ferrous (Discrete/Spread)** – Discrete ferrous-like, dipolar anomalies are likely to be the result of modern metallic disturbance on or near the ground surface. A ferrous spread refers to a concentrated scattering of these discrete, dipolar anomalies. Broad dipolar ferrous responses from modern metallic features, such

as fences, gates, neighbouring buildings and services, may mask any weaker underlying archaeological anomalies should they be present.

7.3.2. Magnetic Results - Specific Anomalies

7.3.2.1. **Agricultural –** Parallel, linear anomalies have been detected across all survey areas that are consistent with agricultural activity. Those in Area 1 are aligned on a sub north-south alignment, those in Area 2 on a predominantly northeast-southwest alignment, and those in Area 3 are identifiable on two distinct alignments. The nature and dimensions of these ephemeral responses suggest they reflect relatively modern agricultural events. Indeed, evidence of cultivation on these alignments in Areas 1 and 2 are visible on recent satellite imagery (Figure 5; Google Earth, 2017), but none are visible for Area 3. The trends in Area 3 are unique in comparison to Areas 1 and 2, as they do not conform to alignments parallel with any modern or historic field divisions. Ploughing trends have been indicatively interpreted in Areas 1 and 2 for clarity of interpretation.

7.3.2.2. **Natural and Undetermined –** Four large, strongly magnetic amorphous anomalies [**1a & 2a**], each approximately 35-40m in length, have been detected in Areas 1 and 2 and have been categorised as "Natural" in origin. Faint crop marks are visible coinciding with these anomalies on recent satellite imagery (Google Earth, 2017). [**1a & 2a**] are likely to represent natural variations within the underlying chalk or soil. An anthropogenic intrusion is considered possible given the presence of 'chalk pits' and lime kilns recorded in the vicinity on historic mapping (Figure 6). These responses could therefore represent the effect of further chalk excavation, but former pits and quarries are typically identifiable as an area of "Ferrous (Spread)/Magnetic Disturbance" due to the deliberate refill of mixed material. A series of enhanced linear and curvilinear responses [**1b**] extending northwards from [**1a**] occur in-line with agricultural activity and may reflect the extension of enhanced material along the line of ploughing.

Numerous small, discrete anomalies have been detected across the site and are characteristic of superficial natural variations. These responses have been indicatively classified as "Natural (Strong)" with concentrated areas classified as "Natural (Spread)". It is conceivable some of these responses have an anthropogenic origin; however, these would appear indistinguishable in the magnetic results from those responses produced by natural geology. The small, discrete responses classified as "Undetermined (Strong)" are considered more likely to reflect modern or agricultural processes.

7.3.2.3. **Undetermined –** Several curvilinear anomalies and linear trends have been detected across the site. They are considered more likely to reflect agricultural and/or modern practices, or natural variations in the soil and geology. However, an archaeological origin cannot be entirely ruled out given the presence of archaeological activity in the wider landscape.

7.3.2.4. **Ferrous/Magnetic Disturbance –** Broad dipolar ferrous anomalies and strong magnetic disturbances were concentrated around the perimeter of the survey

areas, along the boundaries with modern housing and roads (Figure 5). Many of these responses can be attributed to features noted in Section 4.4, including wire fencing, telegraph poles, and manholes. Area 3 is bisected by a strong ferrous response [**3a**] that corresponds with the location of a wire fence. In Area 2, a large, discrete area of disturbance in the south-eastern end of site is indicative of the dumping of mixed refuse material. An even distribution of small, discrete ferrous anomalies has been detected across the site, which most likely reflect scattered metallic debris on or near the ground surface.

8. Conclusions

8.1. A fluxgate gradiometer survey has been successfully undertaken across the site. The results primarily reflect agricultural activity and natural variations within the soil and geology. Modern activity has been detected as well, but is primarily limited to the edges of the survey areas. No anomalies have been classified as having a probable or possible archaeological origin. However, the detection of a range of different types of anthropogenic and natural responses, weak and strong in magnitude, demonstrate the method has been effective across the site.

8.2. Agricultural activity is demonstrated by ploughing regimes detected on various alignments across the site. The nature of the anomalies suggests these to reflect relatively recent activities.

8.3. Variations in the soil and geology have been detected across the site. Four large, distinct responses are more clearly defined and stronger in magnitude than the surrounding material and could be the result of undocumented chalk pits; although the likelihood is that they reflect natural variations within the soil and underlying chalk.

8.4. Modern activity is represented by broad ferrous responses, mainly limited to the perimeter of the survey areas. Many of these responses correspond with the presence of items noted during survey, such as wire fencing, telegraph poles and manholes.

8.5. A number of curvilinear anomalies and trends of various magnitude have been detected that could not be ascribed a specific origin. These responses are considered to be resultant from a combination of agricultural, modern, or natural processes; although an archaeological origin cannot be entirely ruled out.

9. Archiving

9.1. MS maintains an in-house digital archive, which is based on Schmidt and Ernenwein (2013). This stores the collected measurements, minimally processed data, georeferenced and un-georeferenced images, XY traces and a copy of the final report.

9.2. MS contributes all reports to the ADS Grey Literature Library subject to any time embargo dictated by the client.

9.3. Whenever possible, MS has a policy of making data available to view in easy to use forms on its website. This can benefit the client by making all of their reports available in a single repository, while also being a useful resource for research. Should a client wish to impose a time embargo on the availability of data, this can be achieved in discussion with MS.

10. Copyright

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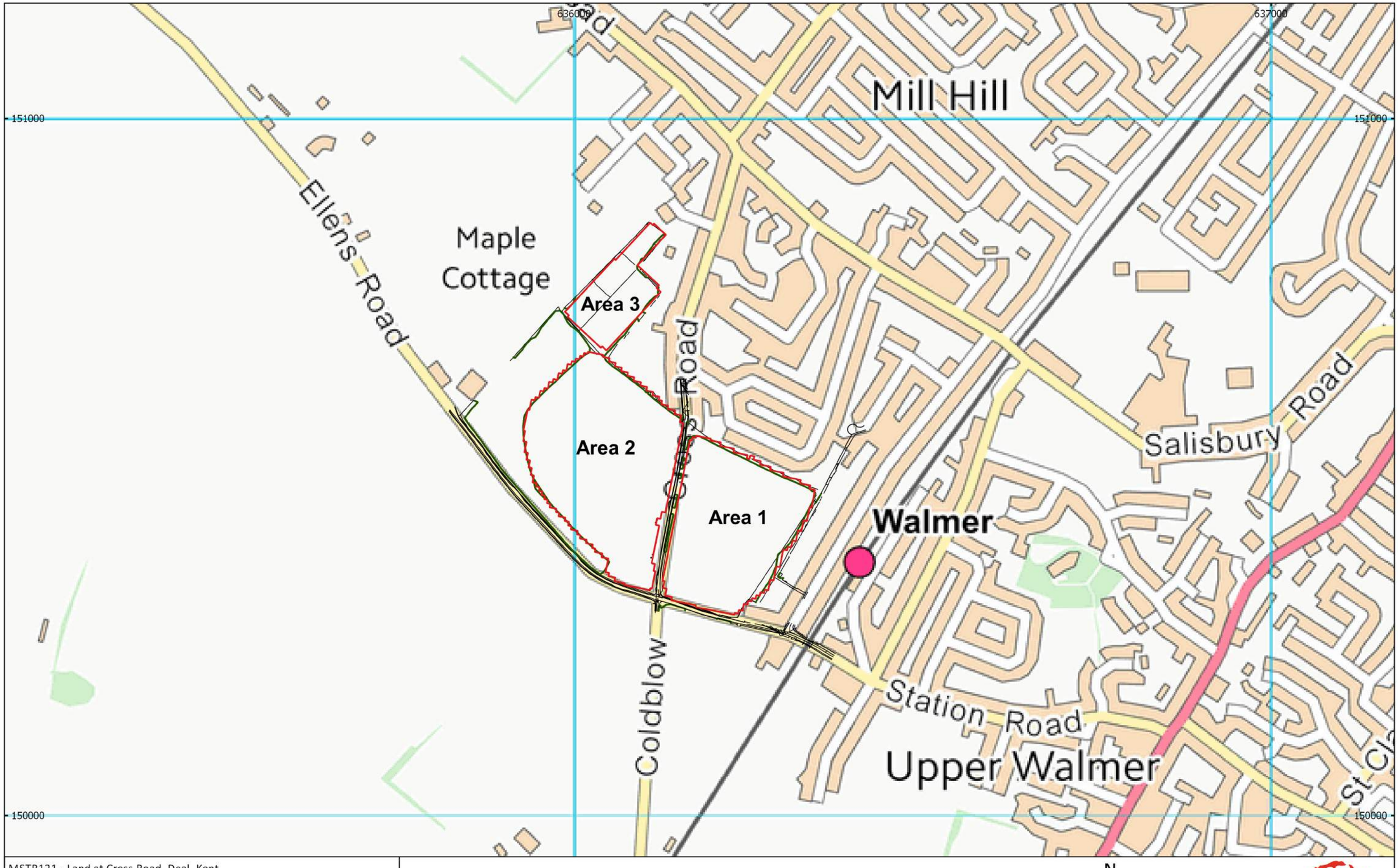
MSTR121 - Land at Cross Road, Deal, Kent
Figure 1 - Site Location
1 : 25,000 @ A4

Site Boundary

magnitude surveys



MSTR121 - Land at Cross Road, Deal, Kent
Figure 2 - Location of Survey Areas
1:5000 @ A3

Survey Extent
Vegetation

N

0 100 200 300 m

magnitude surveys

635700 635800 635900 636000 636100 636200 636300 636400 636500 636600

150800 150700 150600 150500 150400 150300

Area 3

Area 2

Area 1

MSTR121 - Land at Cross Road, Deal, Kent
Figure 3 - Magnetic Greyscale
1:2500 @ A3

-1 nT 2

N

0 50 100 150 m

magnitude surveys

635700 635800 635900 636000 636100 636200 636300 636400 636500 636600

150800 150700 150600 150500 150400 150300

Area 3

3a

Area 2

2a

2a

Area 1

1a

1b

1a

MSTR121 - Land at Cross Road, Deal, Kent
Figure 4 - Magnetic Interpretation
1:2500 @ A3

- Agricultural (Trend)
- Undetermined (Trend)
- Natural (Strong)
- Natural (Weak)
- Natural (Spread)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Undetermined (Strong)
- Undetermined (Weak)

N

0 50 100 150 m

magnitude surveys

635700 635800 635900 636000 636100 636200 636300 636400 636500 636600

150800 150700 150600 150500 150400 150300

Area 3

3a

Area 2

2a

2a

Area 1

1a

1b

1a

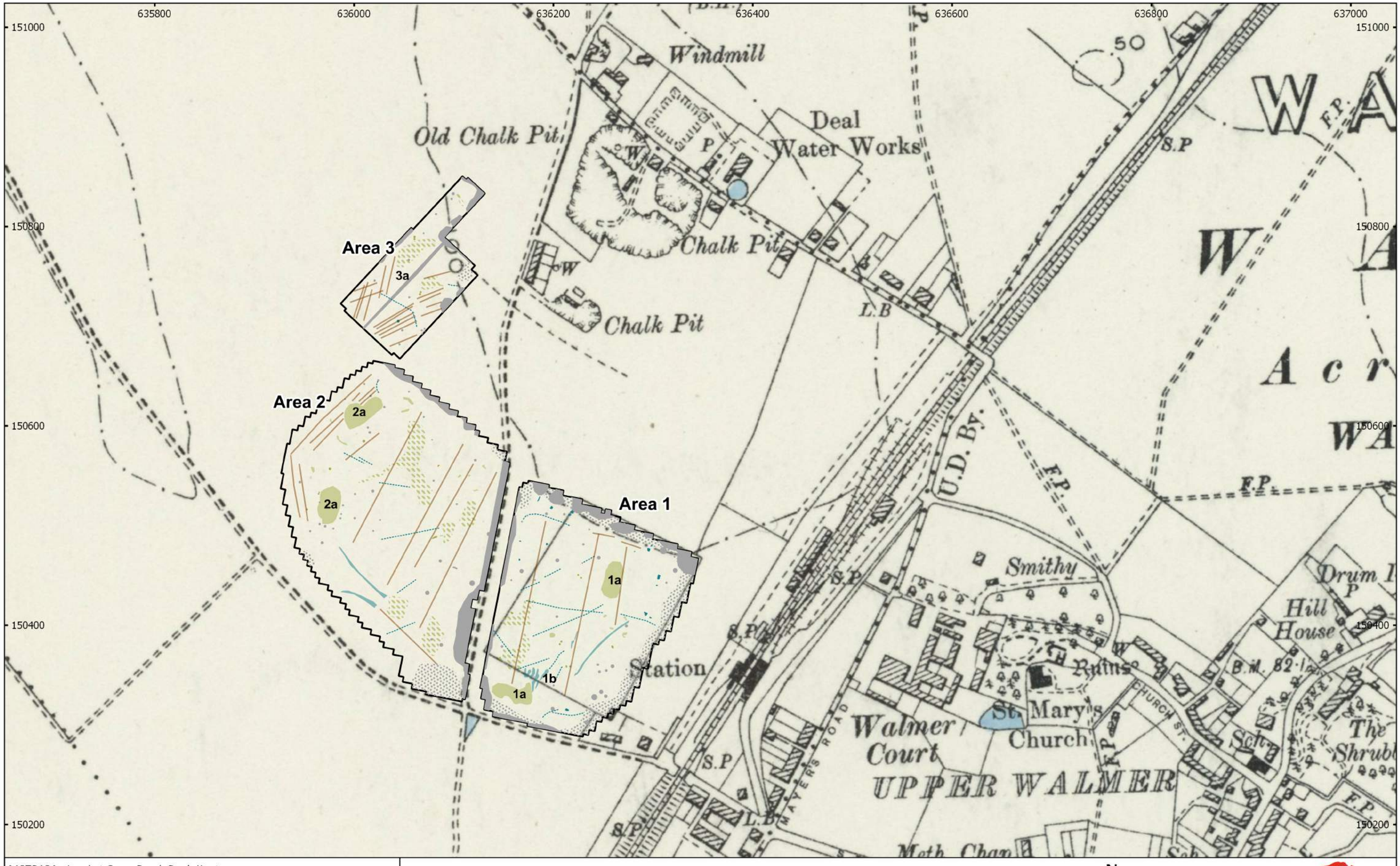
MSTR121 - Land at Cross Road, Deal, Kent
Figure 5 - Magnetic Interpretation over Satellite Imagery
1:2500 @ A3

- Agricultural (Trend)
- Undetermined (Trend)
- Natural (Strong)
- Natural (Weak)
- Natural (Spread)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Undetermined (Strong)
- Undetermined (Weak)

N

0 50 100 150 m

magnitude surveys



MSTR121 - Land at Cross Road, Deal, Kent
Figure 6 - Magnetic Interpretation over Historic Mapping
1:3500 @ A3

Contains historic mapping: Ordnance Survey, 6" 2nd edition c. 1882-1913 © National Library of Scotland

- Agricultural (Trend)
- Undetermined (Trend)
- Natural (Strong)
- Natural (Weak)
- Natural (Spread)
- Ferrous (Dipolar)
- Ferrous (Spread)/Magnetic Disturbance
- Undetermined (Strong)
- Undetermined (Weak)

N

0 50 100 150 m

magnitude surveys

635700 635800 635900 636000 636100 636200 636300 636400 636500 636600

150800 150700 150600 150500 150400 150300

Area 3

Area 2

Area 1

MSTR121 - Land at Cross Road, Deal, Kent
Figure 7 - XY Trace Plot
50nT/cm at 1:2500 @ A3

N

0 50 100 150 m

magnitude surveys