

CULTURAL HERITAGE ASSESSMENT

St Joseph's Convent Preparatory School, Gravesend, Kent

JAC28981
St Joseph's Convent
Preparatory School
Gravesend
DA12 1AR
Kent
30 November 2023

CULTURAL HERITAGE DESK BASED ASSESSMENT

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EXECUTIVE SUMMARY

The site of St Joseph's Convent Preparatory School, 46 Old Road East, Gravesend Kent, DA12 1NR has been assessed for its Cultural Heritage potential.

The development proposals comprise a residential development, along with the creation of a new doctor surgery, associated access and landscaping. It is also proposed to demolish the modern extensions to the existing three-storey Victorian building forming the St Joseph's Convent Preparatory School, which will be retained and converted into residential flats.

In accordance with relevant government planning policy and guidance, a Cultural Heritage Assessment has been undertaken to clarify the archaeological potential of the study site. The report also assesses the potential impacts on relevant built heritage assets in accordance with paragraph 194 of the NPPF.

Archaeology

In terms of relevant designated archaeological heritage assets, no World Heritage Sites, Scheduled Monuments, Historic Battlefields, Registered Parks and Gardens or Protected Wreck sites lie within the site or in its proximity.

Based on current evidence, the study site is considered to have a low potential for all period of human activity, except for evidence of Post Medieval land division/agricultural activity, tree cultivations and deneholes (chalk extractions shafts).

The site is likely to have lain within open agricultural land until the 18th century when part of the site became an orchard within the grounds of Parrock Farm. By the second half of the 19th century the whole site was densely planted and only after the erection of the existing three storey Victorian building, the orchard clearance slowly commenced until all trees were removed in the 1950s when the school was open.

The available LiDAR data for the site has picked up some possible archaeological anomalies, very likely associated with Post Medieval land divisions and deneholes, also known from local records, but not recorded in the KHER (Craig 1960).

No negative impact on heritage assets from the proposed development is anticipated within areas of existing buildings or proposed demolition as any potential underlying remains are likely to have already been removed by previous construction activity. Limited potential for the survival for archaeology is expected within areas of hardstanding. If present, any archaeological remains are expected to be localised within areas of open space at the southern end of the site.

Any such remains, if encountered, are likely to be of Post Medieval date and considered to be of local significance.

Based on available evidence, as archaeological assets that might preclude development or material consideration are not anticipated to be present at the site, it is considered that a proportionate response would be that any archaeological works that may be required by the Local Planning Authority, could follow the granting of planning consent and be secured by an appropriately worded condition.

Built Heritage

In accordance with paragraph 194 of the NPPF, the report has also considered impacts on any potential built heritage assets resulting from the proposed development. A search of the Kent Historic Environment Record (KHER), the National Heritage List for England (NHLE) and a site visit revealed that the study site does not lie within a conservation area and does not contain any listed buildings.

A pre-application response received from Gravesham Borough Council in July 2022 (PRE20220155) confirmed that the study site does not lie within the setting of any listed buildings. Gravesham Borough Council has not published a local list and the pre-application response did not identify any buildings of local interest that may be affected by the proposals.

The existing Victorian building within the study area, which has served as the main building of St Joseph's Convent Pre-School, will be retained and converted into flats. The pre-application response welcomed the retention of this building and advised that *any redevelopment of the site should seek to respect the building line of Old Road East and take into account the land level difference through the site and the surrounding build form*. As a result of these findings, it was concluded that the proposals would not have the potential to affect the significance of any built heritage assets. As such, built heritage was scoped out from more detailed assessment.

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1 INTRODUCTION AND SCOPE OF STUDY

- 1.1 This Cultural Heritage Impact Assessment has been prepared by RPS Consulting Services on behalf of Galliard Homes Limited.
- 1.2 The subject of this assessment comprises the site of St Joseph's Convent Preparatory School, 46 Old Road East, Gravesend Kent, DA12 1NR, hereafter referred to as "the study site". The site includes the St Joseph's Convent Preparatory School, which occupies a three storey, late-19th century building inclusive of modern extensions and portacabins, as well as an area of hardstanding to the west/north-west and a large area of green space at the south of the site (Figure 1 and Plates 1 -10).
- 1.3 The study site measures circa 1.6ha in extent and is centred at TQ 65393 72893 within the administrative boundaries of Gravesham Borough Council. The site is currently vacant following the closure of the school at the end of the 2020 / 2021 school year. The site has a frontage of around 40m onto Old Road East. Coombe Road on the south-western boundary of the site runs up to the site, but there is no direct access.
- 1.4 Galliard Homes Limited has commissioned RPS Consulting Services UK Ltd to assess the archaeological and built heritage potential of the study site and provide guidance on ways to address any archaeological or built heritage constraints identified.
- 1.5 The development proposals comprise a residential development, along with the creation of a new doctor surgery, with associated access and landscaping. The existing three-storey Victorian school building will be retained and converted into residential flats, the modern extensions to the school building are proposed for demolition.
- 1.6 In accordance with the relevant government and local policy and guidance on archaeology, built heritage and planning, and in accordance with the 'Standard and Guidance for Historic Environment Desk-Based Assessments' (Chartered Institute for Archaeologists, 2021) this assessment draws together the available archaeological, topographic and land-use information in order to clarify the archaeological potential of the Study Site.
- 1.7 This Cultural Heritage Assessment comprises an examination of evidence on the Kent Historic Environment Record (KHER), and other sources, including the results of a comprehensive map regression exercise.
- 1.8 In terms of built heritage, this report satisfies the requirements of paragraph 194 of the National Planning Policy Framework (NPPF), which requires applicants to describe the significance of any heritage assets affected by an application, including any contributions made by their setting. The assessment was carried out in accordance with the methodologies set out in Historic England's '*Historic Environment Good Practice Advice (GPA2)* in Planning Note 2; '*Managing Significance in Decision-Taking in the Historic Environment*' (March 2015) and GPA3: '*The Setting of Heritage Assets* (2017). The report should be read in conjunction with other planning documents submitted as part of this application, including the planning statement and Design and Access Statement.
- 1.9 This document seeks to clarify the Cultural Heritage potential of the study site, together with its likely significance, and to consider the need for design, civil engineering, and built heritage or archaeological solutions to any constraints identified.

2 PLANNING BACKGROUND AND DEVELOPMENT PLAN FRAMEWORK

- 2.1 National legislation regarding archaeology, including scheduled monuments, is contained in the Ancient Monuments and Archaeological Areas Act 1979, amended by the National Heritage Act 1983 and 2002, and updated in April 2014.
- 2.2 The relevant Built Heritage legislation in this case extends from section 16 of the 1990 Planning (Listed Buildings and Conservation Areas) Act which states that special regard must be given by the decision maker, in the exercise of planning functions, to the desirability of preserving or enhancing listed buildings and their setting.
- 2.3 The meaning and effect of these duties have been considered by the courts in recent cases, including the Court of Appeal's decision in relation to Barnwell Manor Wind Energy Ltd v East Northamptonshire District Council [2014] EWCA Civ 137.
- 2.4 The Court agreed within the High Court's judgement that Parliament's intention in enacting section 66(1) was that decision makers should give 'considerable importance and weight' to the desirability of preserving (i.e. keeping from harm) the setting of listed buildings.
- 2.5 In March 2012, the government published the National Planning Policy Framework (NPPF), and it was last updated in July 2021. The NPPF is supported by the National Planning Practice Guidance (NPPG), which was published online 6th March 2014 and is regularly updated (<https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>).
- 2.6 The NPPF and NPPG are additionally supported by three Good Practice Advice (GPA) documents published by Historic England: GPA 1: The Historic Environment in Local Plans; GPA 2: Managing Significance in Decision-Taking in the Historic Environment (both published March 2015). The second edition of GPA3: The Setting of Heritage Assets was published in December 2017.

National Planning Policy

- 2.7 Section 16 of the NPPF, entitled Conserving and enhancing the historic environment provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 16 of the NPPF can be summarised as seeking the:
- Delivery of sustainable development;
 - Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
 - Conservation of England's heritage assets in a manner appropriate to their significance; and
 - Recognition that heritage makes to our knowledge and understanding of the past.
- 2.8 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term. Paragraph 194 states that planning decisions should be based on the significance of the heritage asset and that level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient to review the potential impact of the proposal upon the significance of that asset.
- 2.9 Under 'Considering potential impacts' the NPPF emphasises that 'great weight' should be given to the conservation of designated heritage assets, irrespective of whether any potential impact equates to total loss, substantial harm or less than substantial harm to the significance of the heritage assets.

- 2.10 Paragraph 201 states that where a development will result in substantial harm to, or total loss of, the significance of a designated heritage asset, permission should be refused, unless this harm is necessary to achieve substantial public benefits, or a number of criteria are met. Where less than substantial harm is identified paragraph 202 requires this harm to be weighed against the public benefits of the proposed development.
- 2.11 Paragraph 203 of the NPPF that where an application will affect the significance of a non-designated heritage asset, a balanced judgement is required, having regard to the scale of harm or loss and the significance of the heritage asset.
- 2.12 *Heritage Assets* are defined in Annex 2 of the NPPF as: a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. They include designated heritage assets (as defined in the NPPF) and assets identified by the local planning authority during the process of decision-making or through the plan-making process.
- 2.13 Annex 2 also defines *Archaeological Interest* as a heritage asset which holds or potentially could hold evidence of past human activity worthy of expert investigation at some point.
- 2.14 A *Designated Heritage Asset* comprises a: World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area.
- 2.15 *Significance (for Heritage Policy)* is defined as: The value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.
- 2.16 *Setting* is defined as: The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
- 2.17 In short, government policy provides a framework which:
- Protects nationally important designated Heritage Assets;
 - Protects the settings of such designations;
 - In appropriate circumstances seeks adequate information (from desk based assessment and field evaluation where necessary) to enable informed decisions;
 - Provides for the excavation and investigation of sites not significant enough to merit *in-situ* preservation.
- 2.18 The NPPG reiterates that the conservation of heritage assets in a manner appropriate to their significance is a core planning principle, requiring a flexible and thoughtful approach. Furthermore, it highlights that neglect and decay of heritage assets is best addressed through ensuring they remain in active use that is consistent with their conservation. Importantly, the guidance states that if complete, or partial loss of a heritage asset is justified, the aim should then be to capture and record the evidence of the asset's significance and make the interpretation publicly available. Key elements of the guidance relate to assessing harm. An important consideration should be whether the proposed works adversely affect a key element of the heritage asset's special architectural or historic interest. Additionally, it is the degree of harm, rather than the scale of development, that is to be assessed. The level of 'substantial harm' is considered to be a high bar that may not arise in many cases. Essentially, whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the NPPF. Importantly, harm may arise from works to the asset or from development within its setting. Setting is defined as the

surroundings in which an asset is experienced and may be more extensive than the curtilage. A thorough assessment of the impact of proposals upon setting needs to take into account, and be proportionate to, the significance of the heritage asset and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it.

Local Planning Policy

- 2.19 The Gravesham Local Plan Core Strategy was adopted September 2014, and contains the following policy relevant to the historic environment:

Policy CS20: Heritage and the Historic Environment

The Council will accord a high priority towards the preservation, protection and enhancement of its heritage and historic environment as a non-renewable resource, central to the regeneration of the area and the reinforcement of sense of place. Particular attention in this regard will be focused on those heritage assets most at risk through neglect, decay or other threats. Securing viable, sustainable and appropriate futures for such assets at risk will need to be reconciled with the sensitivity to change that many present.

Proposals and initiatives will be supported which preserve and, where appropriate, enhance the significance of the Borough's heritage assets, their setting where it contributes to the significance of the asset and their interpretation and enjoyment, especially where these contribute to the distinct identity of the Borough.

These include:

- **Gravesend Town Centre, its development as a heritage riverside town, and its setting.**
- **The Borough's urban and rural conservation areas; and**
- **Surviving built features and archaeology relating to the Borough's maritime, military, industrial and transport history.**
- **When considering the impact of a proposed development on a designated heritage asset, the weight that will be given to the asset's conservation value will be commensurate with the importance and significance of the asset. For non-designated assets, decisions will have regard to the scale of any harm or loss and the significance of the heritage asset.**

Relevant Designations

- 2.20 In terms of relevant designated archaeological heritage assets, no World Heritage Sites, Scheduled Monument, Historic Battlefields, Registered Parks and Gardens or Protected Wreck sites lie within the site or in its proximity.
- 2.21 The study site does not lie within a conservation area and does not contain any statutorily or locally listed buildings. The study site includes the St Joseph's Convent Preparatory School, which includes a three storey, late-19th century building inclusive of modern extensions. This building was extensively modernised since it was converted for educational use in the late 1940s and therefore, holds a very limited degree of architectural or historic interest, which is discussed in more detail in section 6 of this report.
- 2.22 There are three listed buildings located 150m north of the study site (Figure 2a): Parrock Hall, Grade II Listed Building (List Entry 105477); Old Manor Parrock Manor, Grade II Listed Building (List Entry: 1366609) and a Granary in grounds of the Old Manor to the North-West of the house (List Entry: 1341487). It is considered that the study site does not fall within the settings of these listed buildings and therefore, these heritage assets would not have the potential to be affected by the proposals.

- 2.23 In line with relevant planning policy and guidance, this desk-based assessment seeks to clarify the Cultural Heritage potential of the study site and the likely significance of that potential and the need or otherwise for additional mitigation measures.

3 GEOLOGY AND TOPOGRAPHY

- 3.1 The site includes the St Joseph's Convent Preparatory School, which occupies a three storey, late-19th century building inclusive of modern extensions and portacabins, along with an area of hardstanding to the west/north-west and a large area of green space to the south of the site (Figure 1 and Plates 1 -10).
- 3.2 The site is located *circa* 800m south of Gravesend town centre, within a residential area where ground levels raise gradually to 32m above Ordnance Datum (AOD). There are no natural watercourses located in the immediate vicinity of the study site; the closest recorded is the River Thames at *circa* 1.5km.
- 3.3 Currently there is no detailed geotechnical information available for the study site, but the British Geological Survey (BGS Online 2023) indicates that the site's bedrock geology comprises deposits of Thanet Formation - Sand. There is no information in the BGS on the site's superficial deposits, but from nearby excavations and HER records, these are likely to belong to the Lewes Nodular Chalk Formation (see Paragraph 4.6).
- 3.4 The practice of "chalking the land" in an endeavour to improve poor or impoverished soil has been known and practised since at least the Roman times, if not earlier. Heavy clay lands and acid peaty soils considerably benefit from the addition of chalk, therefore, it became a common practice, especially during the 18th and the 19th century, to excavate shafts, also known as "deneholes", with the purpose of extracting chalk for agricultural purposes (Craiger 1960; Appendix 1). At ground level, such shafts normally look like wells, below ground they radiate in a number of underground chambers (Appendix 1, Fig 1).
- 3.5 A series of chalk extraction shafts or "deneholes" are known from the 1km radius study area and the KHER locate them in close proximity of the site (TQ 67 SE 19; TQ 67 SE 359; TQ 67 SW 12; Figure 2b; see Paragraph 4.6). Based on Craiger's records, deneholes have also been exposed south of the study site during woodland clearance for the creation of the school's playground in the 1950s, but these were not examined and are currently not mentioned in the KHER.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND WITH ASSESSMENT OF SIGNIFICANCE

Timescales used in this report

Prehistoric

Palaeolithic	900,000 -	12,000 BC
Mesolithic	12,000 -	4,000 BC
Neolithic	4,000 -	2,500 BC
Bronze Age	2,500 -	800 BC
Iron Age	800 -	AD 43

Historic

Roman	AD 43 -	410
Saxon/Early Medieval	AD 410 -	1066
Medieval	AD 1066 -	1485
Post Medieval	AD 1486 -	1799
Modern	AD 1800 -	Present

Introduction

- 4.1 This chapter reviews the available Cultural Heritage information for the study site and the archaeological/historical background of the general area, and, in accordance with NPPF, considers the potential for any as yet to be discovered archaeological evidence to be present within the Study Site.
- 4.2 What follows comprises a review of known archaeological finds within a 1km radius of the Study Site (Figure 2a), referred to as the study area, held on the Kent Historic Environment Record (KHER), together with a historic map regression exercise charting the development of the study site from the 18th Century until the present day.
- 4.3 The Kent Landscape Characterisation Data (Figure 3) illustrates the study site as comprising post-1810 settlement.
- 4.4 A site visit of the study site was also carried out on Thursday 18th of May 2023 (Plates 1 to 10).
- 4.5 Chapter 5 subsequently considers the conditions of the study site and whether the proposed development will impact the archaeological and built heritage potential identified below.

Previous Archaeological Investigations

- 4.6 There has been little previous archaeological investigation undertaken within the study area during recent years (Figure 2b). The closest, *circa* 500m north-east to the study site, is an archaeological evaluation undertaken at St. John's Roman Catholic Comprehensive School in 2008 (**EKE19663**; Figure 2b). This revealed deep deposits of made ground in two trenches which may represent infilled clay quarries associated with a 19th-century brick making. No evidence of significant earlier archaeological occupation or activity was seen within the site. Natural deposits were formed of Palaeocene Thanet Beds (sands) overlain by Palaeocene Upper Chalk.

- 4.7 This phase of work at the site was followed by a watching brief in 2009 which observed no further archaeological evidence (**EKE16748**; Figure 2a).
- 4.8 As for the study site, no archaeological investigations or geotechnical works have been undertaken at the site to date. The KHER contains no records of any archaeological assets within the study site, however, Craiger mentions that in the 1950s, during woodland clearance for the creation of a school's playground two possible deneholes were exposed to the south of the site, near Coombe Road (Caiger 1960, Appendix 1).
- 4.9 Further evidence of deneholes within the 1km study area can be observed at 30 Whitehill Road, circa 50m west of the site (TQ 67 SE 359; Figure 2; Rod Legear 2012); to the rear of The Echo Pub on Whitehill Road (TQ 67 SE 360, Figure 2b) and near Singlewell Road, circa 500m west of the site (TQ 67 SW 12; Figure 2b).

Undated Archaeological Evidence

- 4.10 A watching brief on ground reduction and excavation of service trenches at the site of the former 1970s Wimborne House, circa 1km south of the site, revealed presence of undated archaeological features (EKE14851; Figure 2b). These features cut through the underlying natural chalk and consisted of an east-west aligned narrow linear ditch, a shallow sub oval pit and a possible pit/ditch terminus. The depth of the archaeological remains was approximately between 0.10m to 0.60m below ground level. A single fire cracked flint was found in one of the features, but without any further dating evidence, the origin and function of the features remains inconclusive.

Prehistoric

- 4.11 The presence of Palaeolithic material can be notoriously difficult to predict and is typically dependent upon the presence of an appropriate underlying geology sequence, as well as suitable topography and access to nearby resources and water.
- 4.12 Antiquarian discoveries, along with more recent studies and investigations carried out across the Lower Thames Valley over the past 50 years, have been able to establish that River Terrace and Sand deposits between the confluence of the River Cray (Crayford) and Northfleet have high potential to contain evidence of Palaeolithic stratified sequence, along with faunal and lithic artefacts (Wessex River Project 1999, Vol 1; MAP 11. Lower Thames Valley: Crayford–Northfleet).
- 4.13 The study site is located in area of higher ground where the geological Lewes Chalk Formation rises and seals the deposits of Thanet Sands. The KHER contains only a few records for the Palaeolithic period for the 1km study area (Figure 2b). These include two Palaeolithic handaxes recovered from Windmill Hill, circa 600m north-east of the study site (TQ 67 SW 435) and a further handaxe (along with a possible flake-tool) from an unknown location circa 700m north-east of the site (TQ 67 SE 279; Figure 2).
- 4.14 From around 4000 BC, the mobile hunter-gathering economy of the Mesolithic gradually gave way to a more settled agriculture-based subsistence. The pace of woodland clearance to create arable and pasture-based agricultural land varied regionally and locally, depending on a wide variety of climatic, topographic, social and other factors. The trend was one of a slow, but gradually increasing pace of forest clearance.
- 4.15 There is no evidence of any activity or finds in the KHER associated with the Mesolithic, Neolithic and Bronze Age periods.
- 4.16 As for the Iron Age, the KHER contain evidence of a possible denehole (chalk extraction shaft) of this period based on the recovery of two lithic implements from shaft's backfill (TQ 67 SW 12; Figure 2b). Fragments of Roman tiles were also recovered, suggesting that all finds were more likely to be residual.

- 4.17 Based on the available evidence, it is concluded that the study site has an overall low archaeological potential to contain any evidence from the Prehistoric periods.

Roman

- 4.18 Very limited evidence relating to the Roman period is contained in the KHER for the 1km study area.
- 4.19 Four cremation burials and associated vessels were discovered in the 1930s during ground excavations at 27 Kings Drive, *circa* 800m south of the study site (TQ 67 SE 6; Figure 2b).
- 4.20 Further evidence includes a badly worn coin of the Emperor Domitian found in an allotment garden, *circa* 1km south-west of the study site (TQ 67 SW 32; Figure 2) and fragments of residual Roman tiles found in a twin-chambered denehole, near Singlewell Road, *circa* 500m west of the site (TQ 67 SW 12; Figure 2b).
- 4.21 As noted in Section 4.14 above, Roman tiles were recovered from the fill of a denehole, but are likely to be residual (TQ 67 SW 12; Figure 2b).
- 4.22 No more evidence of Roman activity is recorded within the study area, therefore, a low potential for any remains this period it is predicted for the study site.

Saxon-Early Medieval and Medieval

- 4.23 The town of Gravesend is recorded in the Domesday Book (1086), clearly indicating its existence by the Late Saxon period. During the Saxon and the Medieval periods the site is likely to have lain within open ground, outside any main settlement area, which is later confirmed by the historic map records (Figures 5 and 6)
- 4.24 For the Saxon period, the KHER contains records of four inhumations from the grounds of St Mary's Roman Catholic Church, *circa* 1km north-east of the study site (TQ 67 SE 100; Figure 2b). Known remains of the Medieval church, which is also mentioned in Domesday Book, date back to the 12th century and are now incorporated into the existing Church's building erected in the early 20th century (TQ 67 SE 1100; Figure 2b).
- 4.25 There is no more evidence for the Saxon period within the study area and as for the Medieval period, the only evidence in the KHER relates to a possible 14th century beacon (TQ 67 SW 9, Figure 2b). This is located *circa* 600m north-east of the study site and according to the HER data, 52 beacons were recorded in the Medieval period in Kent until the whole system fell out of use after 1640.
- 4.26 Therefore, based on limited evidence for both the Saxon and the Medieval period in the study area, a low potential is predicted at the study site for any archaeological remains of these periods.

Post Medieval & Modern (including map regression exercise)

- 4.27 A number of the HER records within the study area refer to Post Medieval and Modern archaeological remains which are not discussed in detail here - unless relevant to the study site.
- 4.28 During the later Post Medieval and Modern periods, our understanding of settlement, land-use and the utilisation of the landscape is enhanced by cartographic and documentary sources, which can give additional detail to data contained within the HER.
- 4.29 The 1769, Andrews, Dury and Herbert 'Map of the County of Kent' (Figure 4) shows the study site within open land and partially, within an orchard plantation, fronting onto a road which largely reflects the current Old Road East. The town of Gravesend lies further to the north, on the shore of the River Thames.

- 4.1 This land use for the study site appears to have remained unchanged throughout the late 18th century and the early 19th century (Figures 5 to 7), as later confirmed by the 1840 Tithe Map (Figure 8) and associated Tithe Award (Table 1). The study site then lay within the land of Parrock Farm and was partially used as arable fields and orchards

Land Parcel	Landowner	Occupant	Description	Land Use/Cultivation
9	Alexander Raphael	Thomas Colyer	Parrock Farm	Orchard
10	Trustees of London	Thomas Colyer	-	Arable

Table 1: 1840 Tithe Apportionments, Milton next Gravesend - Kent

- 4.2 By 1866, as illustrated on Figure 9, Parrock Villa had been erected within a plot of land immediately west of the study site. Paths ran from Old London Road across the western section of the study site in a north-south direction. This section of the site also included two small buildings, which may have been used for agricultural purposes. The study site continued to be used as planted orchards and agricultural land.
- 4.3 By 1897 (Figure 10) extensive development had occurred along the former Old London Road, which by this time, had been renamed London Road East. These new buildings predominantly comprised large suburban villas with large gardens on the southern side of the road. Smaller semi-detached properties and short rows of terraces had also been constructed to the west along Whitehill Road. The study site then included a large, detached villa with service wing and several greenhouses to the rear. A large garden extended to the south. The remainder of the site appears to have been in separate ownership at the time with the eastern section of the site still comprising orchards.
- 4.4 The 1909 OS map (Figure 11) shows that additional residential development had occurred on the north side of London Road East and Coombe Road (south-west of the site) had been constructed.
- 4.5 By the 1936 OS map (Figure 12), the area to the south of the site had been taken over by residential development, which included Laurel Avenue and Hollybush Road. Christ Church, which was situated on the north side of London Road East (directly opposite the study site) had been constructed in 1935 neo-Gothic style (TQ 67 SE 1025; Figures 2 and 12). This building was based on the old Christ Church in Parrock Street, which had been dismantled and rebuilt on Old Road East. Additional buildings had been constructed to the east of the church. The study site is shown largely unchanged.
- 4.6 The 1953 OS Map (Figures 13) shows the study site in use by the St Joseph's Convent Preparatory School. The school's origins date back to 1899 when the Roman Catholic order, the Sisters of Mercy, opened a school based on religious principles. The school moved to Old Road East in 1943. The 1953 map shows that the former Victorian villa had been extended to the rear. Historic planning records reveal that planning permission was given for an extension of the school premises in 1948 (ref. 19480214). The remainder of the site was used as playing fields and a small pavilion lay along the site's southern boundary. No. 48 Old Road East, adjacent to the site, was at this time used as the vicarage for Christ Church.
- 4.7 This configuration remained extant to the 1960 aerial photo, which shows that both land parcels were under the auspices of the preparatory school, apparently in use as playing grounds (Figure 14). Planning records show that between 1975 and 2003, various extensions and erections of temporary classrooms were granted planning permission, as well as other applications relating to the educational use of the site (Figure 15). This is reflected in the late 20th century aerial imagery, which shows numerous extensions and outbuildings to the rear of the original late Victorian villa building (Figures 15 and 16; Plates 1 to 10).
- 4.8 As mentioned in Section 3 of this report, the practice of using chalk to improve soil fertility was known since the Roman times but increased exponentially during the Post Medieval period. Therefore,

chalk wells/shafts or “denehole” can be often found in Kent, especially in Gravesend (Caiger 1960; Appendix 1).

- 4.9 In his article on chalk extraction practices and in relation to the study site, J. Caiger states: *“The existence of two other chalk wells is known in the immediate neighbourhood at Combe Road and these, too, were accidentally discovered during the work of clearing away woodland for a school playing field in June 1950, but unfortunately they were not examined”*. A sketch plan and section of a denehole observed by Caiger at Gravesend (not on the study site) is reproduced in his article and shows a fairly typical three-chambered chalk well with a shaft (Caiger 1960 in Figure 1; Appendix 1).
- 4.10 Caiger also adds *“these chalkwells were sited on lands belonging to the old Manor of Parrock and it is possible that the chalk was mined and used for building material”* (Caiger 1960, pp.88).
- 4.11 Therefore, if chalkwells are indeed present at the study site, we can assume that they are associated with agricultural or building activity within Parrock Farm and likely to be of Post Medieval date. These are not mentioned in the KHER, but their existence is known from 1960s records (Caiger 1960 in Figure 1; Appendix 1).
- 4.12 Based on the available evidence, we can conclude that the study site is likely to have lain within open agricultural land until the 18th century when part of the site became an orchard within the grounds of Parrock Farm. By second half of the 19th century the whole site was densely planted, for except for a small central section. Only after the erection of the existing three storey Victorian building, the orchard clearance slowly commenced until all trees were removed in the 1950s, by which time the St Joseph School had taken possession of the site and playing fields were created. Based on this, the site is believed to have low potential the Post Medieval period, except for evidence of land divisions, tree cultivations and deneholes (chalk extraction shafts) which are likely to be associated with the activity within Parrock Farm.

LiDAR Plot

- 4.13 The available LiDAR data (Light Detecting and Ranging; Figure 4) illustrates that the study site is likely to have undergone widespread, below ground impacts within the footprint the existing buildings located at the north/north-western end of the site. However, anomalies of potential archaeological origin can be spotted within undeveloped areas south of the site and may be associated with 18th-19th century land divisions as seen on the Ordnance Maps (Figures 5 to 11) and evidence of possible Post Medieval deneholes. On the LiDAR data, the outline of the chalk extraction shafts may be represented by those small circular depressions picked up across the south-southern end of the site (Figure 3).

Assessment of Significance (Non-Designated Archaeological Assets)

- 4.14 Existing national policy guidance for archaeology (the NPPF as referenced in section 2) enshrines the concept of the ‘significance’ of heritage assets. Significance as defined in the NPPF centres on the value of an archaeological or historic asset for its ‘heritage interest’ to this or future generations.
- 4.15 Based on current evidence, it is concluded that the study site has a low potential for all period of human activity, except for evidence of Post Medieval land division/agricultural activity, tree cultivations and deneholes (chalk extraction shafts).
- 4.16 The significance of any archaeological remains which may be present would be derived from their evidential value and contributions that could be made towards local and regional research agendas.

- 4.17 Whilst it is possible that archaeological remains could be present within the site, on the basis of the above, it is likely that any remains, should they occur on the study site, would in the context of the Secretary of State's non-statutory criteria for Scheduled Monuments (DCMS 2013) be of local significance.
- 4.18 As identified by desk based work, archaeological potential by period and the likely significance of any archaeological remains which may be present is summarised in table form below:

Period:	Identified Archaeological Potential and Likely Significance (if present):
Prehistoric	Low potential; Low (Local) Significance;
Roman	Low potential; Low (Local) Significance;
Saxon- Early Medieval- Medieval	Low potential; Low (Local) Significance;
Post Medieval & Modern	High potential for 18 th - 19 th land division/agricultural activity, tree cultivation activity and deneholes. Low (Local) Significance.

5 SITE CONDITIONS, THE PROPOSED DEVELOPMENT & REVIEW OF POTENTIAL DEVELOPMENT IMPACTS ON ARCHAEOLOGICAL ASSETS

Site Conditions

- 5.1 The site includes the St Joseph's Convent Preparatory School, which occupies a three-storey, late-19th century villa building inclusive of modern extensions and portacabins, an area of hardstanding to the west/north-west and a large area of green space at the south of the site (Figure 1 and Plates 1 to 10).
- 5.2 Based on available evidence, the site is likely to have lain within open, arable land until the 18th century when part of the site became a formal planted orchard within the grounds of Parrock Farm. By the second half of the 19th century the whole site was densely planted, except for a small central section. Therefore, it can be concluded that the use of the site as an orchard plantation is likely to have had a negative, widespread, but fairly shallow impact on any potential earlier archaeological remains within its footprint. However, a cumulative, negative impact would have been caused by the grubbing and removal of trees across the southern end of the site in the 1950s for the creation of the prep school's playing fields.
- 5.3 Localised below ground impacts on any potential underlying archaeology would have been caused by erection of the existing three storey Victorian building, along with associated 20th century extensions. The creation of areas of hardstanding at the front is also likely to have truncated, but maybe not completely removed, any archaeology within its footprint.
- 5.4 Based on the above, the site is believed to have no potential for archaeological survival within the footprint of the existing buildings, excluding the portacabins which do simply sit on the ground. A good potential of archaeological survival is anticipated within the southern end of the site, where no development has occurred to date and a limited potential within the areas of hardstanding at the front. However, based on the available evidence, none of the archaeological remains is likely to pre-date the Post Medieval period and if present, they will mostly be associated with evidence of land divisions/agriculture, tree cultivation and deneholes for chalk extraction.

Proposed Development

- 5.5 The development proposals comprise a residential development, along with the creation of a new doctor surgery, with associated access and landscaping. The existing three-storey Victorian school building will be retained and converted into residential flats, the modern extensions to the school building are proposed for demolition (Figure 17).
- 5.6 Based on the available information, the proposed development will not have a negative impact within the footprint of existing buildings or areas of proposed demolition, but a negative impact is expected within the area of open space at the southern end of the site. However, based on the available evidence, none of the archaeological remains is likely to pre-date the Post Medieval period and if present, they will mostly be associated with evidence of land divisions/agriculture, tree cultivations and deneholes.
- 5.7 If encountered, any such remains would be considered of low (local) archaeological significance and value.

Review of Potential Development Impacts on Archaeological Assets

- 5.8 The study site has been identified as having a low archaeological potential for all periods of human activity, except for evidence of Post Medieval land division/agricultural activity, tree cultivations and deneholes (chalk extraction shafts). If present, such remains will be concentrated within the southern end of the site, outside the footprint of the existing building or areas of hardstanding to the north.
- 5.9 If encountered, any such remains would be considered mostly of low (local) archaeological significance.
- 5.10 Therefore, as archaeological remains which might preclude development or be a material consideration are not anticipated to be present at the site, it is considered that a proportionate response would be that any archaeological works, if required by the Local Planning Authority, could follow the granting of planning consent secured by an appropriately worded condition.

6 BUILT HERITAGE (ASSESSMENT OF SIGNIFICANCE)

Identification of Built Heritage Assets

- 6.1 A search of the Kent Historic Environment Record (KHER), 'The National Heritage List for England' (NHLE), a pre-application consultation with Gravesham Borough Council (PRE20220155) and a site visit, informed the identification of built heritage assets, which may have the potential to be affected by the proposed development. Gravesham Borough Council has not published a separate local list.
- 6.2 A search radius of 1km was chosen, which was considered proportionate to the size of the study site, the scale and nature of the proposed development and the sensitivity of the surrounding environment in terms of built heritage. The search radius, therefore, specified an 'area of search' around the proposed development within which it was reasonable to consider setting effects, thereby fulfilling requirements of GPA 3.
- 6.3 The results of this search are illustrated in Figure 2a. The search illustrated that the study site does not fall within a conservation area and does not contain any listed or locally listed buildings.
- 6.4 Three listed buildings lie within a 200m distance north of the study site, which include Parrock Hall, Old Manor Parrock Manor and the Granary in the grounds of the former Old Manor (all Grade II listed). Owing to the distance and intervening built form, it is considered that the site does not form part of the setting of these heritage assets and the proposals will not affect their significance. This was confirmed in the pre-application response received from Gravesham Borough Council in July 2022 (PRE20220155). As such, these listed buildings were not brought forward for further assessment.
- 6.5 The three-storey Victorian building contained within the study site, originally built between 1866-1897 as a suburban villa, does not underlie any statutory or local designation or classification and has undergone extensive refurbishment, alterations, and extensions since its conversion to a school in the 1940s. An external and internal inspection of the building showed that most of the original late 19th century internal fabric has been lost in order to accommodate the requirements of the building as a school (Plates 1-10). The very limited surviving elements include some original plasterwork around the cornice in some of the classrooms, internal window shutters and stained glass inserts around the front door. The overall heritage interest of these internal features is therefore very low and diminished by over 150 years of repurposing from its original construction as a semi-rural family home.
- 6.6 Externally, the building retains much of its 19th century front façade, including sash windows. The quality of design and craftsmanship is however modest and does not represent a rare or important examples of its type. Its heritage significance is therefore low. The building does have a limited amount of townscape value, predominantly derived from its raised position along Old Road East. As the building will be retained, including its front façade, its townscape interest would be preserved.
- 6.7 The pre-application response from Gravesham Borough Council welcomed the retention of this building and advised that '*any redevelopment of the site should seek to respect the building line of Old Road East and take into account the land level difference through the site and the surrounding build form*'.
- 6.8 The buildings to the rear of the three-storey Victorian building are late 20th century additions of poor architectural quality and are institutional in design. These building are not considered to have any heritage or townscape interest.
- 6.9 It is therefore considered that the proposals would not have the potential to affect the significance of any relevant built heritage assets.

7 SUMMARY AND CONCLUSIONS

- 7.1 The site of St Joseph's Convent Preparatory School, 46 Old Road East, Gravesend Kent, DA12 1NR has been assessed for its Cultural Heritage potential.
- 7.2 The development proposals comprise a residential development, along with the creation of a new doctor surgery, with associated access and landscaping. The existing three-storey Victorian school building will be retained and converted into residential flats, the modern extensions to the school building are proposed for demolition (Figure 17).
- 7.3 In accordance with relevant government planning policy and guidance, a Cultural Heritage Assessment has been undertaken to clarify the archaeological potential of the study site and assess any potential built heritage impacts.

Archaeology

- 7.4 In terms of relevant designated archaeological heritage assets, no nationally designated World Heritage Sites, Historic Battlefield, Scheduled Monuments, registered Parks and Gardens or Historic Wreck sites lie within the immediate vicinity of the study site.
- 7.5 The study site has been identified as having a low archaeological potential for all periods of human activity, except for some evidence of Post Medieval land division/agricultural activity, tree cultivations and deneholes. If present, such remains will be most probably concentrated within the southern area of the site, outside the footprint of the existing buildings and would be considered of local significance.
- 7.6 Based on available evidence, as archaeological remains which might preclude development or be a material consideration are not anticipated to be present at the site, it is considered that a proportionate response would be that any archaeological works, if required by the Local Planning Authority, could follow the granting of planning consent and be secured by an appropriately worded condition.

Built Heritage

- 7.7 Following a search of the Kent Historic Environment Record (HER), 'The National Heritage List for England' (NHLE), a pre-application consultation with Gravesham Borough Council (PRE20220155) and a site visit in May 2023, it was considered that the proposals would not have the potential to affect the significance of any relevant built heritage assets.
- 7.8 This report has been prepared in accordance with paragraph 194 of the NPPF and provides a proportionate assessment to enable the determination of the application.

Sources Consulted

General

British Library
Hampshire Historic Environment Record
The National Archive

Internet

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Domesday Online – <http://www.domesdaybook.co.uk/>
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Portable Antiquities Scheme – www.finds.org.uk
[The National Heritage List for England \(NHLE\) - https://historicengland.org.uk/listing/the-list/](https://historicengland.org.uk/listing/the-list/)
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Historic England Historic Environment Good Practice Advice in Planning: 3 The Setting of Heritage Assets December 2017 unpublished document.

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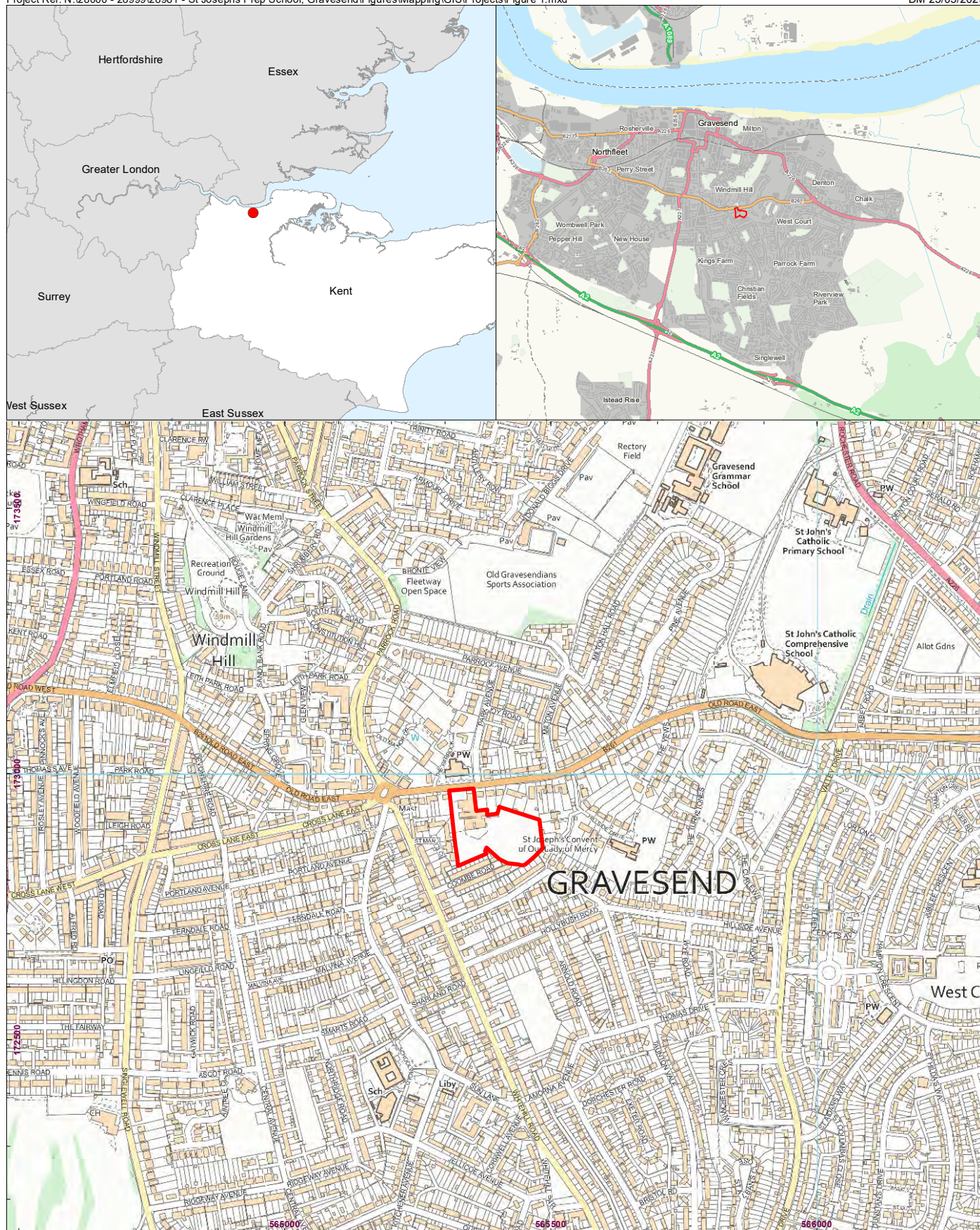
John Wymer 1999, *The Lower Palaeolithic Occupation of Britain*, Vol. 1 and 2; published 1999

Wessex Archaeology, 1993. *The Southern Rivers Palaeolithic Project, Report No.2: The South-West and South of the Thames* [Vol. I - text]

Cartographic

1769 Andrews, Dury and Herbert Map of Kent
1778 Thomas Hyde Page Plan of Tilbury Fort, Gravesend and parts adjacent
1805 Ordnance Survey Drawing
1826 Plan of the Town and Lands within the jurisdiction of Gravesend and Milton
1840 Milton next Gravesend Parish Tithe Map
1866 Ordnance Survey Map
1897 Ordnance Survey Map
1909 Ordnance Survey Map
1936 Ordnance Survey Map
1953 Ordnance Survey Map
1960 Google Earth Image
2003 Ordnance Survey Map
2022 Google Earth Image

Figures



 Site Boundary

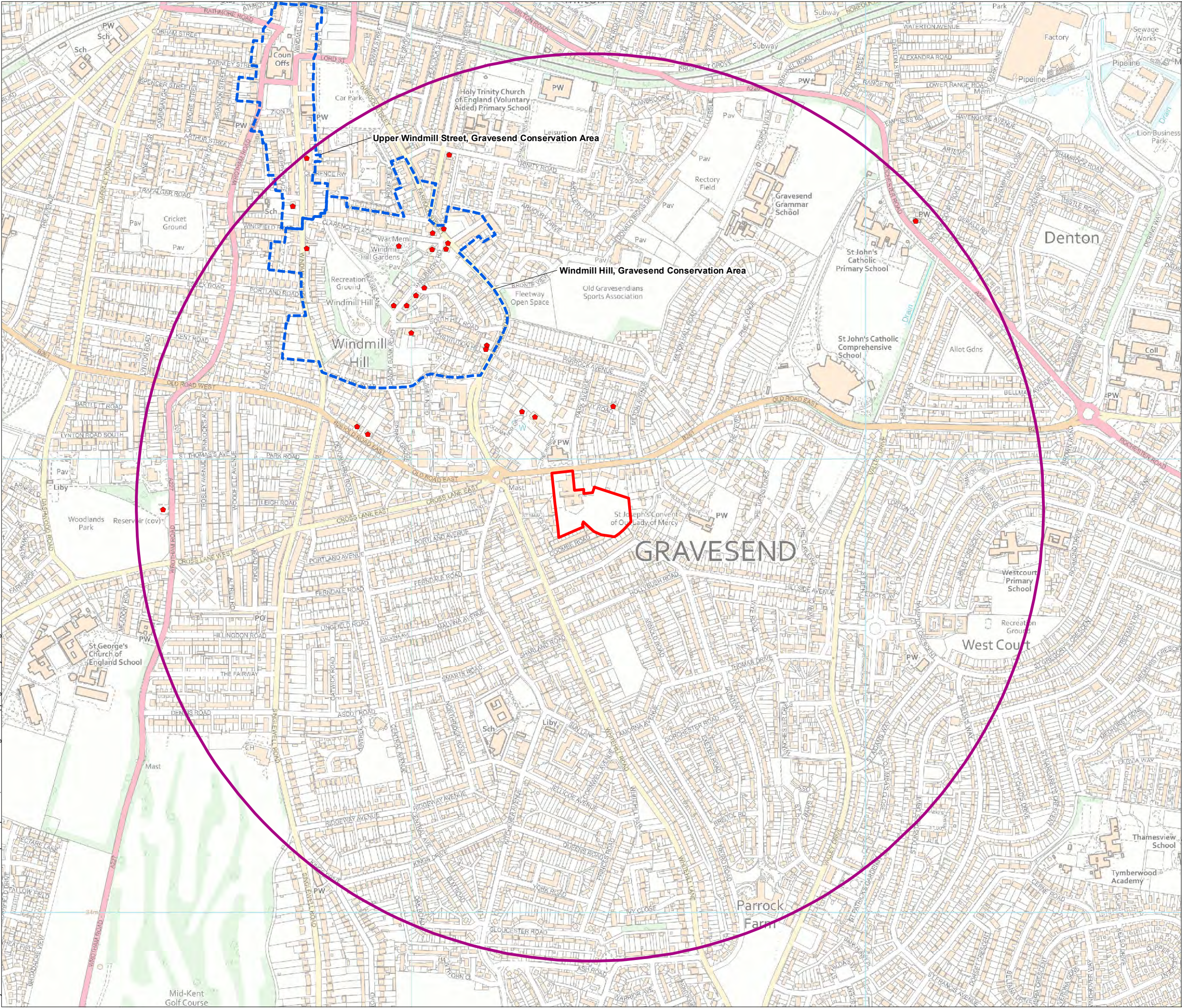


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Figure 1

Site Location



Legend

- Site Boundary
- 1km Search Radius

Designated Heritage Assets:

- Listed Buildings (Grade II)
- Conservation Areas

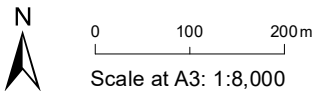
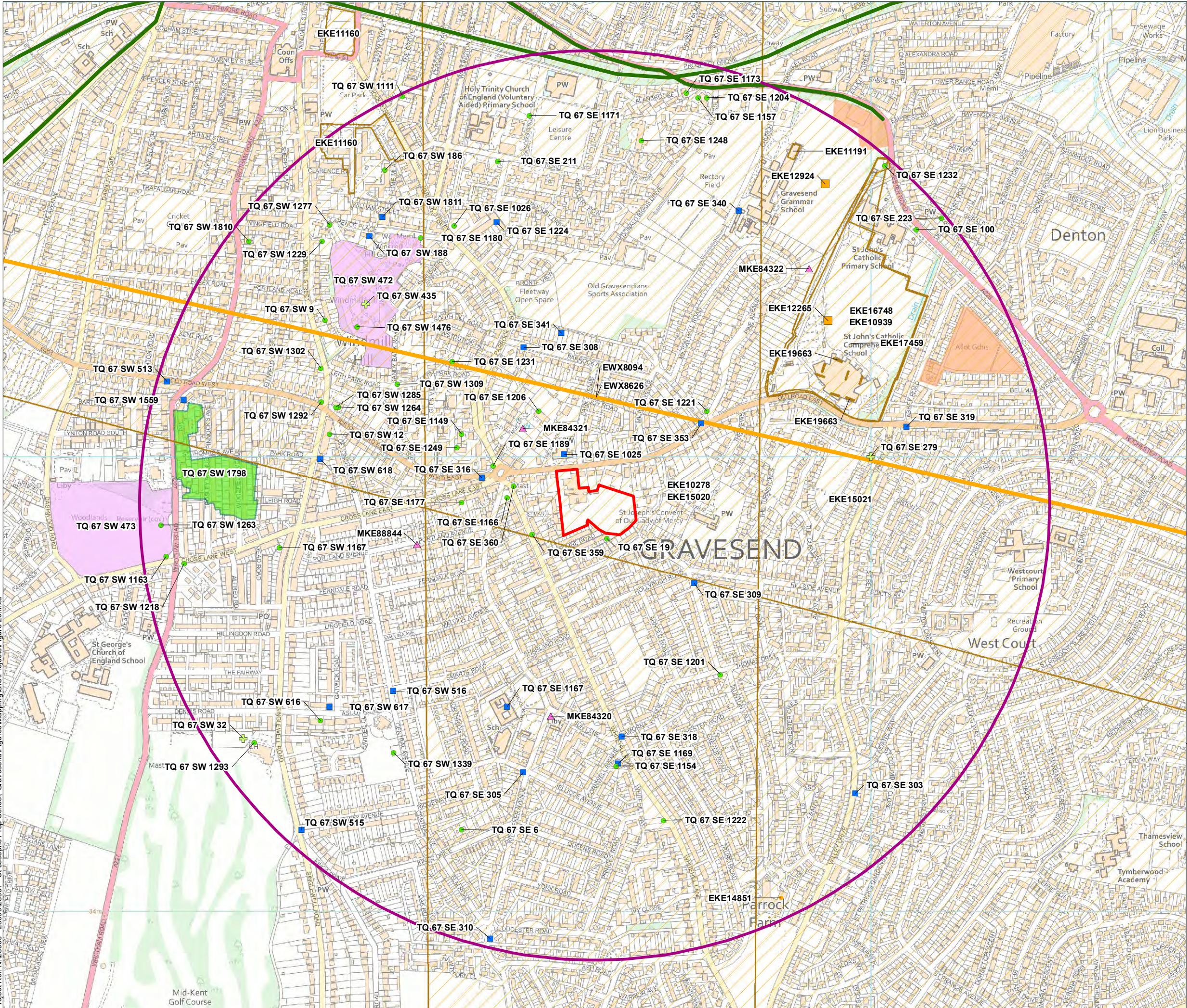


Figure 2a
Designated Assets Plot (data from
Historic England)



Legend

- Site Boundary
- 1km Search Radius

Non-designated Heritage Assets:

HER Data Points

- Monument
- Building
- Farmstead
- Find Spot

HER Data Lines

HER Data Polygons

- Monument
- Landscape
- NMP Polygons

Previous Archaeological Work:

- HER Event Points
- HER Event Lines
- HER Event Polygons

Note: Event EKE14761 covers the entire search area.

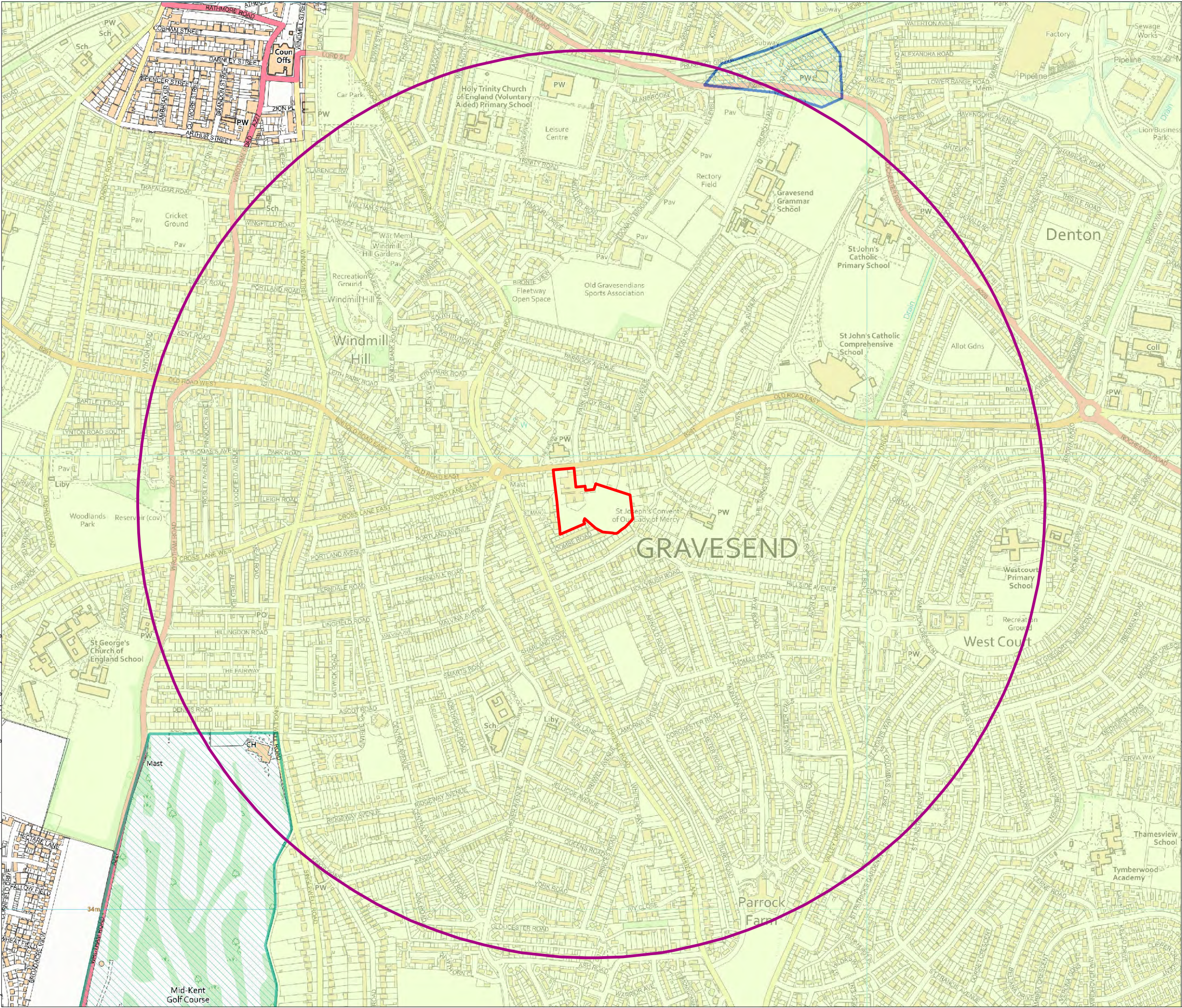


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Figure 2b

HER Plot (data from the Kent
Historic Environment Record)



Legend

- Site Boundary
- 1km Search Radius

Historic Landscape Characterisation:

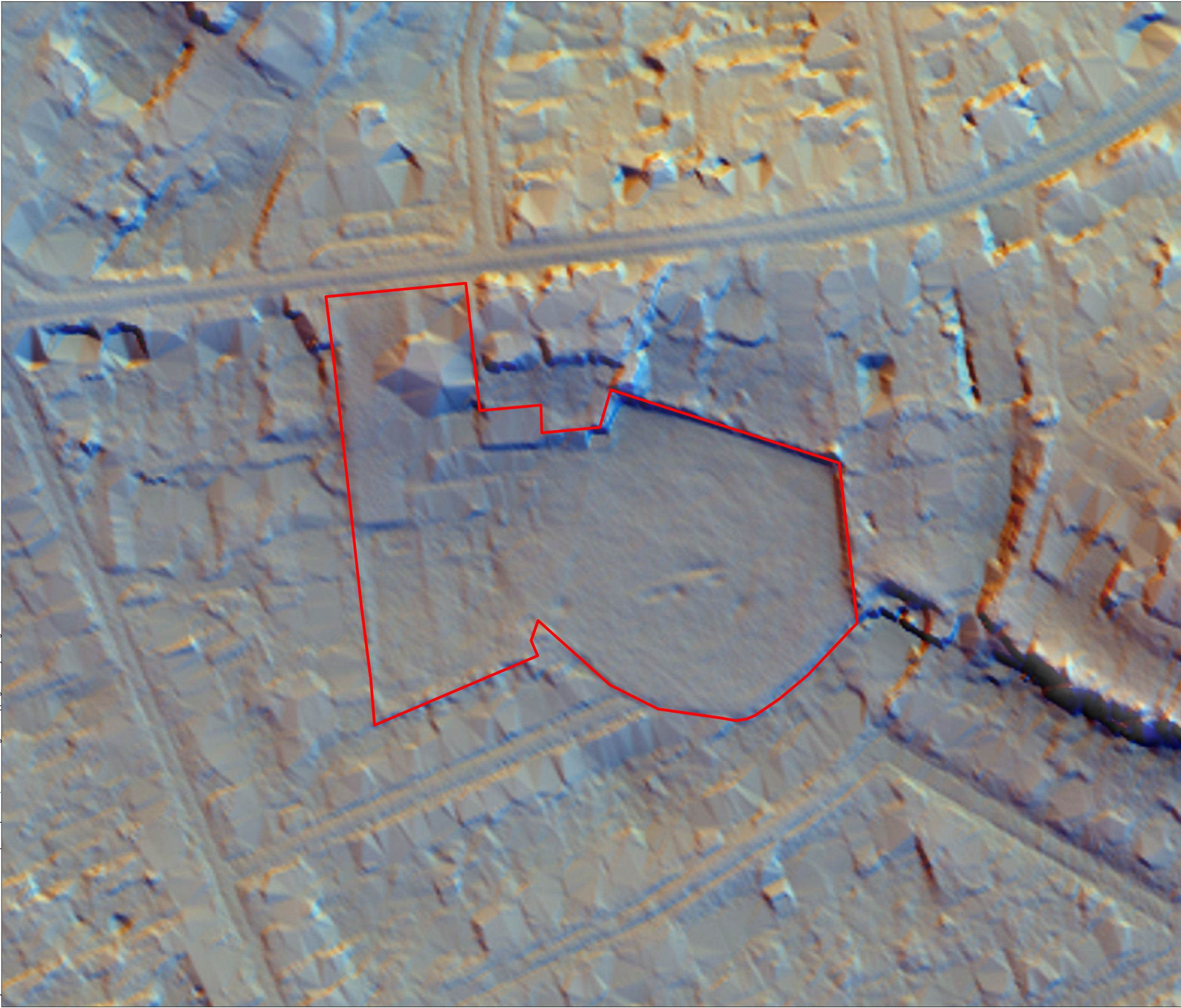
- Golf Courses
- Post 1810 settlement (general)
- Town & city 1810 extent



0 100 200m
Scale at A3: 1:8,000



Figure 2c
HLC Plot (data from the Kent
Historic Environment Record)



Legend

 Site Boundary

LiDAR DATA

Source:
Environment Agency

Data Type: DTM

Resolution: 1m

Date Captured:
29/01/2018

Processing:
Multi-direction Hillshade overlaid on
simple Local Relief Model



0 25 50 m
Scale at A3: 1:1,200



Figure 3

LiDAR Plot



Approximate Site Location



Not to Scale:
Illustrative Only



Figure 4

1769 Andrews, Dury and Herbert
Map of Kent



 Site Boundary



Not to Scale:
Illustrative Only



Figure 5

1778 Thomas Hyde Page Plan of
Tilbury Fort, Gravesend and parts
adjacent



 Site Boundary



Not to Scale:
Illustrative Only



Figure 6

1805 Ordnance Survey Drawing

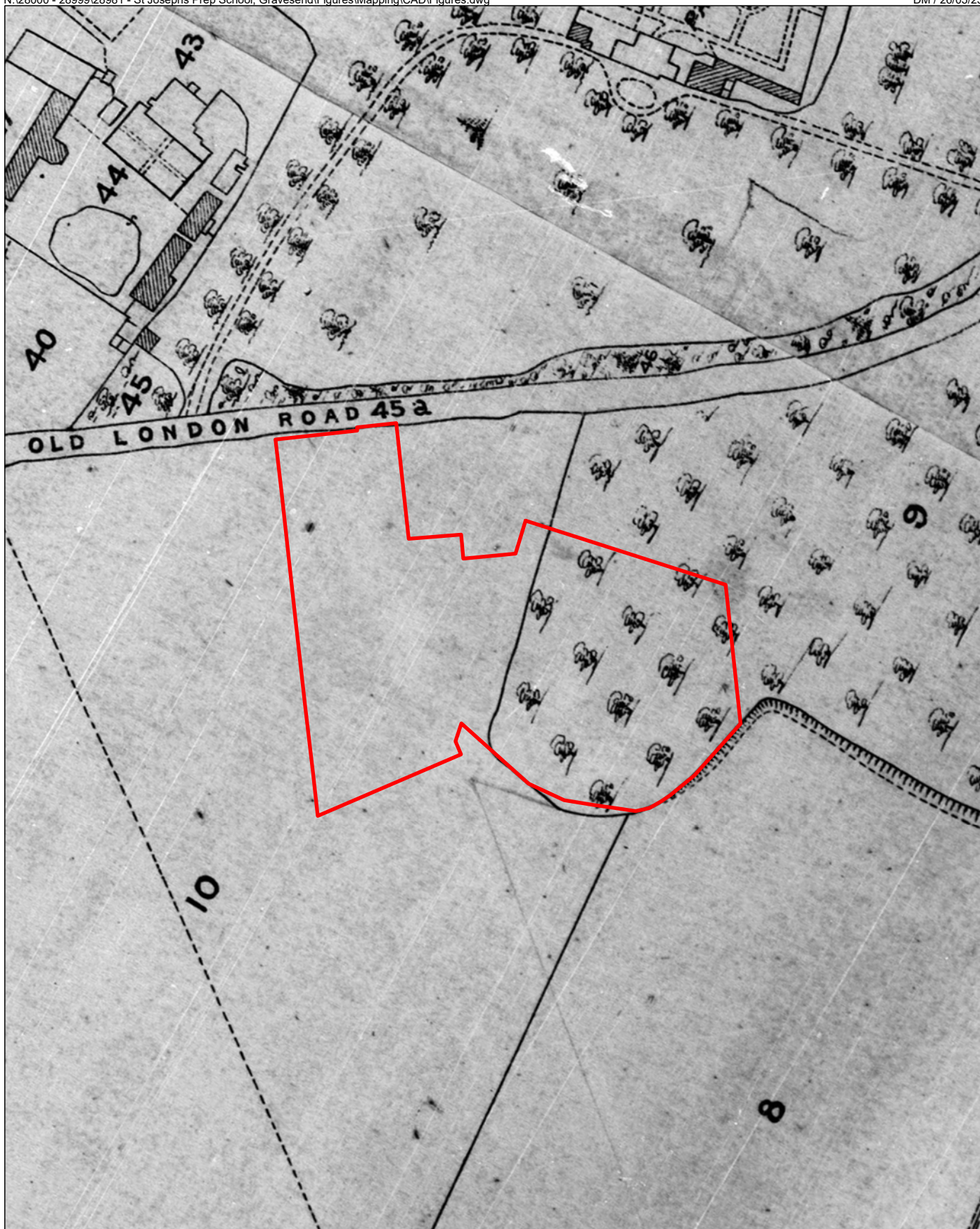


Not to Scale:
Illustrative Only



Figure 7

1826 Plan of the Town and Lands within
the jurisdiction of Gravesend and Milton



 Site Boundary

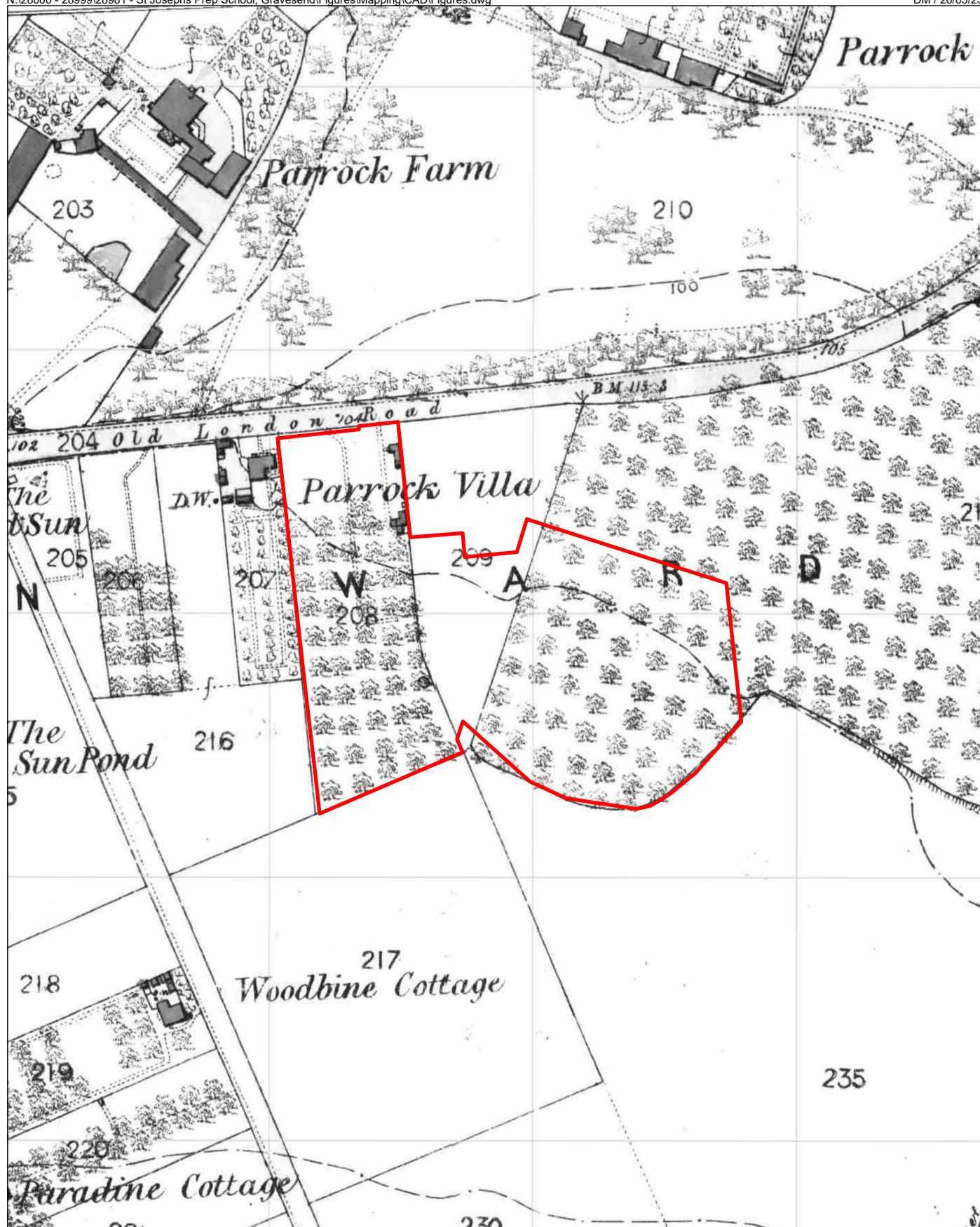


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Scale at A4: 1:2,000

rps
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Figure 8

1840 Milton next Gravesend
Parish Tithe Map



 Site Boundary

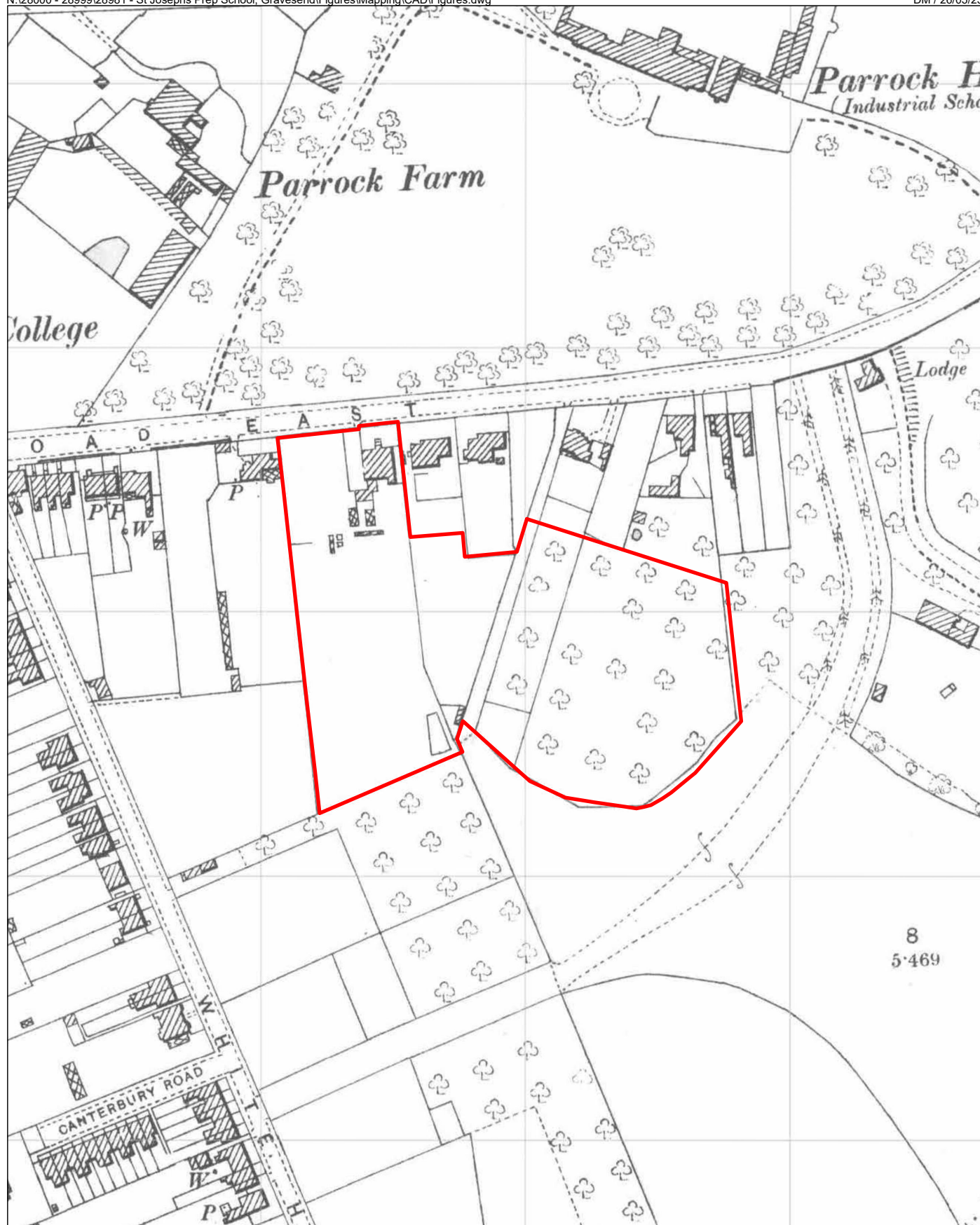


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Scale at A4: 1:2,000

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Figure 9

1866 Ordnance Survey Map



 Site Boundary

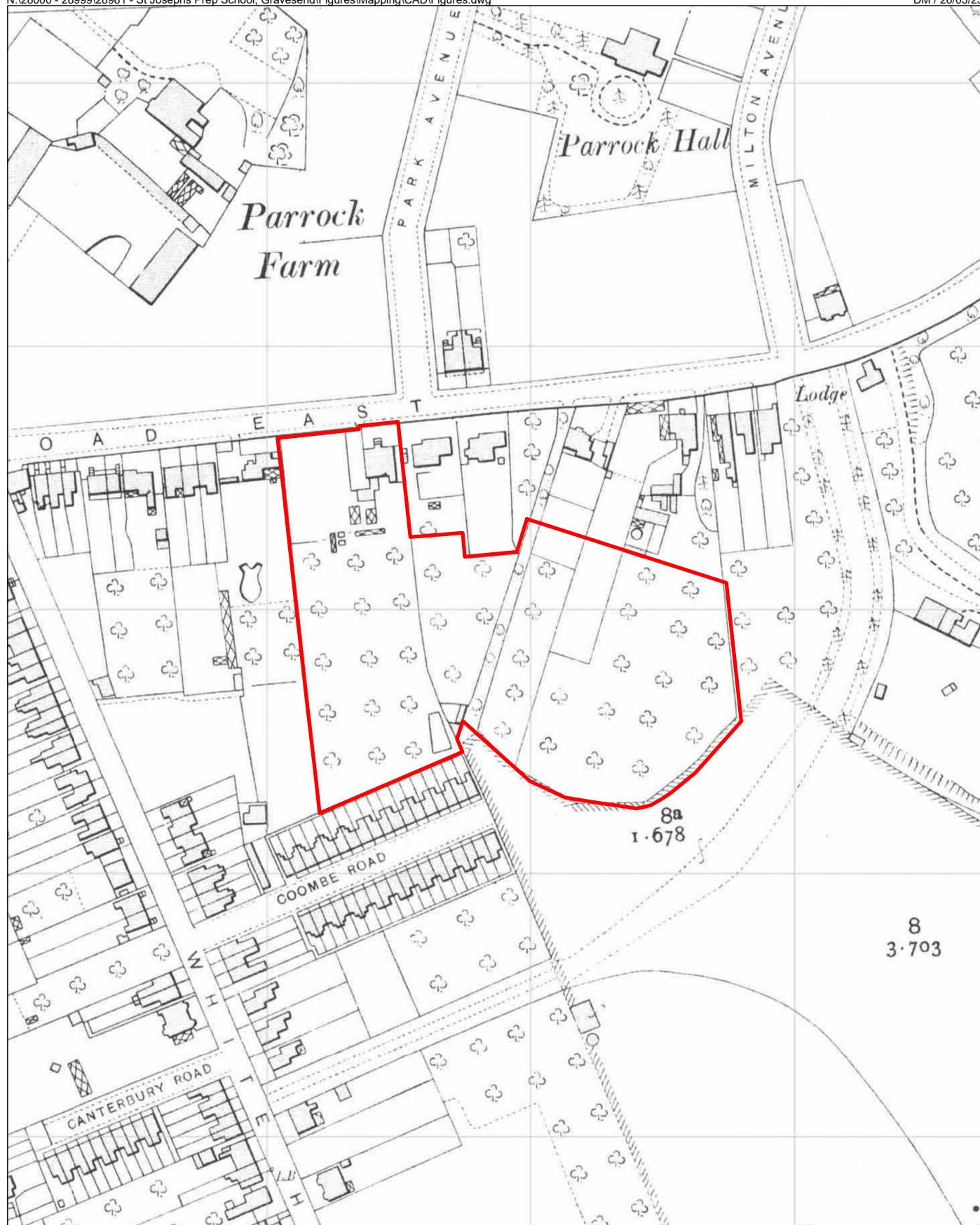


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Scale at A4: 1:2,000

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Figure 10

1897 Ordnance Survey Map



 Site Boundary



0 25 50m
Scale at A4: 1:2,000

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Figure 11

1909 Ordnance Survey Map



 Site Boundary

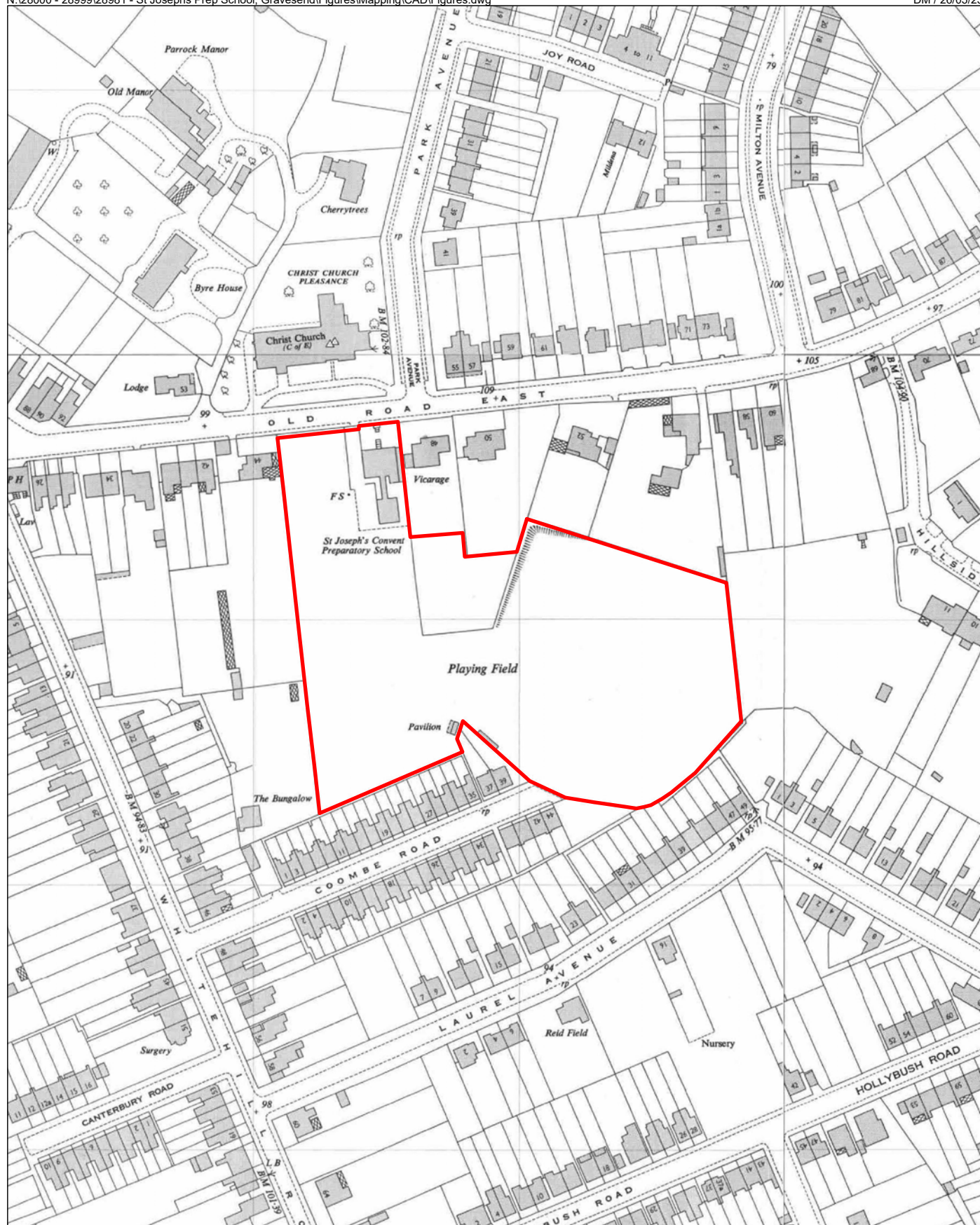


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Scale at A4: 1:2,000



Figure 12

1936 Ordnance Survey Map



Site Boundary



0 25 50m
Scale at A4: 1:2,000



Figure 13

1953 Ordnance Survey Map



 Site Boundary



0 25 50m
Scale at A4: 1:2,000

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Figure 14

1960 Google Earth Image



 Site Boundary



0 15 30m
Scale at A4: 1:1,500



Figure 15

2003 Ordnance Survey Map



 Site Boundary



0 15 30m
Scale at A4: 1:1,500

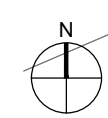


Figure 16

2022 Google Earth Image



PROPOSED SITE PLAN @ 1:500



0 5 10 20 30M

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P0 Planning Submission JH 13/10/2023
P1 General Amendments as per comments received PA 23/11/2023

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Project | St. Josephs
Old Road East
Client | Galliard Homes
Title | Proposed Site Plan
Status | Planning

Scale | A1 | 1:500 Date | October 2023 Drawn | SA Chk'd | MP

Project Number Drawing Number Revision
22.112 040 P1
Bm Number

Plates



Plate 1: St Joseph's Convent Preparatory School, view of three storey late - 19th century building fronting onto Old Road East (looking south)



Plate 2: St Joseph's Convent Preparatory School, view of one of the ground floor former classrooms within the late-19th century building (looking north)



Plate 3: St Joseph's Convent Preparatory School, view of one of the former classrooms at the 1st floor within the late-19th century building (looking north)



Plate 4: St Joseph's Convent Preparatory School, view of one of the former classrooms at the 2nd floor within the late-19th century building (looking north)



Plate 5: St Joseph's Convent Preparatory School, view of the staircase and main entrance on the 1st floor within the late-19th century building (looking north)



Plate 6: St Joseph's Convent Preparatory School, view the 2nd floor landing within the late-19th century building (looking north/north-west)



Plate 7: St Joseph's Convent Preparatory School, view of the school's modern extensions and playing fields at the back (looking south)



Plate 8: St Joseph's Convent Preparatory School, view of the school's modern extensions (looking north-east)



Plate 9: St Joseph's Convent Preparatory School, view from three storey late-19th century building onto Old Road East (looking north-west)



Plate 10: St Joseph's Convent Preparatory School, playing grounds at the back of the school (looking south)

Appendix 1



<http://kentarchaeology.org.uk/research/archaeologia-cantiana/>

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SOME EARLY CHALKWELLS IN N.W. KENT

By JOHN E. L. CAIGER

THE custom of marling or chalking the land in an endeavour to improve poor or impoverished soil has been known and practised since very early times. Heavy clay lands and sour peaty soils considerably benefit from the addition of chalk, whilst friable soils generally benefit by the addition of clay and chalk, i.e. marl.

The Belgae were credited by the elder Pliny (A.D. 70) with the art of using chalk for agricultural purposes, which he states they obtained from deep wells.¹

Old Norman leases sometimes contained covenants to ensure that marl was applied to the land.

Agricultural writers in the seventeenth century such as Gervase Markham and Walter Blith² advocate the application of chalk for soil improvement, the latter writer uses the term "chalking".

The practice of sinking chalkwells, or draw-pits as they were sometimes called, to obtain agricultural chalk can be said to have reached its peak during the eighteenth and nineteenth centuries when woodland was being extensively grubbed up by farmers eager to place more land under cultivation for oats and root crops. Chalk was applied to this newly-tilled heavy soil on a most lavish scale, amounts between 40-80 tons per acre being quite commonly used quantities. The greater proportion of the chalkwells noted in Kent, Surrey, Berks. and Hants. were sunk during this latter period, by farmers who required large quantities of chalk for dressing their fields. When the land bears a considerable upper layer of clay-with-flints the chalkwell method of extracting chalk has much to recommend it, since the minimum amount of superincumbent clay need be removed before the underlying chalk is reached.

Amongst farmers there was a strong preference for chalk obtained from a depth, it being asserted that this type of chalk was "fatter" or "stronger" than surface chalk and had the advantage that it readily powdered under the action of winter frosts. The traditional time to mine and spread it over the fields was late Autumn.

It is recorded from several sources³ that these chalkwells were dug by itinerant bands of men who followed it as a trade during the latter part of the eighteenth century.

¹ *Lib.* XVII. (8).

² *Survey of Husbandry*, 1649, 58.

³ *A Synopsis of Husbandry*. John Bannister, XVIII, 46.

SOME EARLY CHALKWELLS IN N.W. KENT

A method employed for extracting chalk in Hertfordshire¹ in 1794 was briefly as follows :

A spot was fixed centrally to the area requiring chalking and a shaft 4-5 ft. diameter was sunk through to the chalk bed, perhaps 20 ft. beneath the surface. At the base of this shaft three separate horizontal headings or adits were driven by the pitman until enough chalk had been hewn to dress an area of approximately 6 acres. The men by custom would distribute the chalk over the surrounding land to a maximum distance of 330 ft. from the chalkwell but insisted on opening a new shaft if a larger area required chalking.

Three men formed the team. The pitman dug the chalk and his two companions wound it up the shaft by means of a windlass and then distributed it from a cart over the field.

The quantity of chalk used approximated to 60 tons per acre, hence by this recorded method each chalkwell yielded about 360 tons of chalk.

A noteworthy fact concerning certain chalkwells which have been examined by the writer in N.W. Kent, namely at Downe, Cudham and Birchwood is that they show a marked uniformity of pattern and size with those described above.

From the typical wages paid for this class of labour in 1790 a chalkwell cost the farmer about £10 but it yielded sufficient chalk to dress generously a six acre plot. Due to the very heavy expense incurred when land required chalking, farmers preferred to give their fields one heavy dressing of chalk at intervals of twenty years or more, rather than smaller amounts spread more frequently. Owing to high cartage costs and poor roads it was not an economic proposition to excavate the chalk very far away from the field that required dressing.

During the evening of September 5th, 1958, a severe and heavy rainstorm revealed the presence of many partly filled up shafts and underground excavations in the Dartford and Gravesend districts. In every case which the writer investigated the existence of the caves and shaft was unknown to the respective landowners and was only revealed by storm water washing away the shaft filling into the chambers below. Of the several subsidences inspected, four, namely three chalkwells and one denehole, are worthy of description.

THE DARENTH PARK HOSPITAL CHALKWELL

This subsidence was in the grounds of the above hospital and occurred within 30 ft. of one of the hospital blocks, location, N.G.R. TQ571730.

A shaft 5 ft. diameter had appeared at this spot which descended to a depth of nearly 20 ft., and at the base three chambers had been hewn leading off horizontally.

¹ *Report on Agriculture of Hertfordshire.* B.O.T. 1804, 158.

A CHALKWELL AT GRAVESEND.

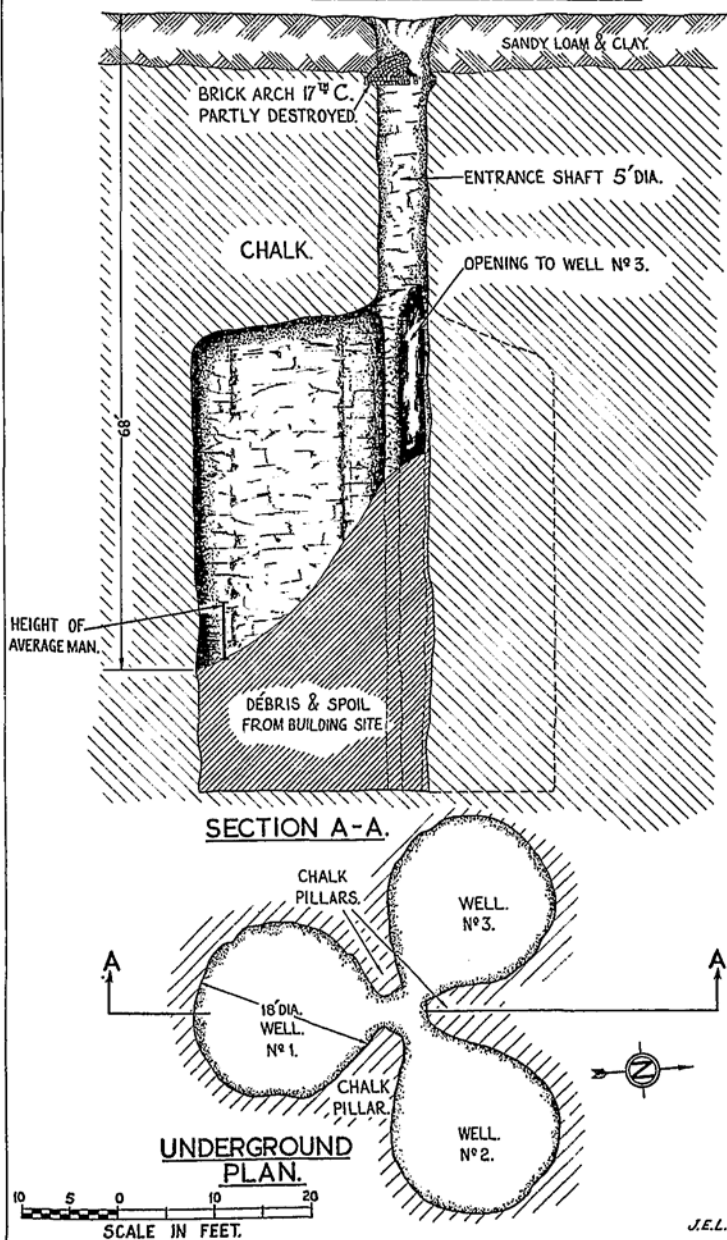
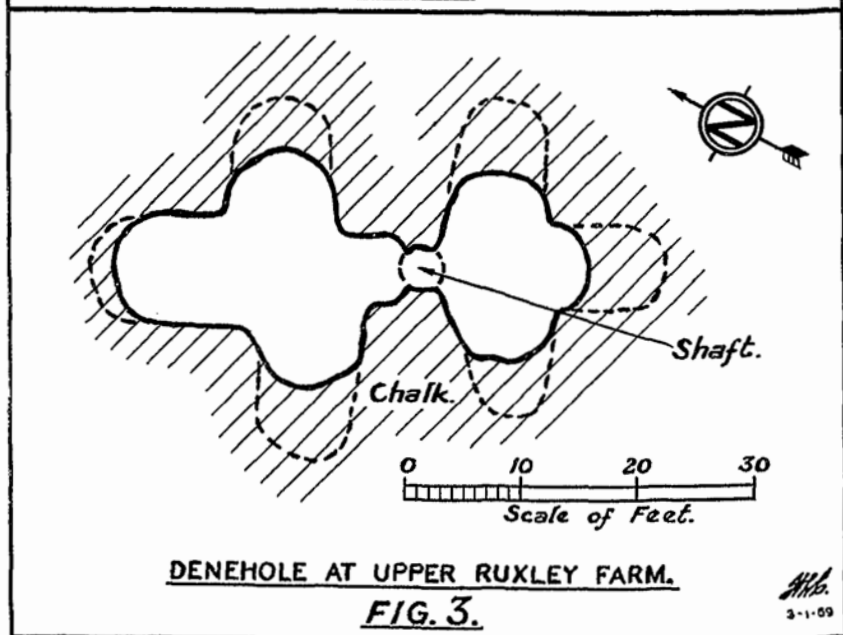
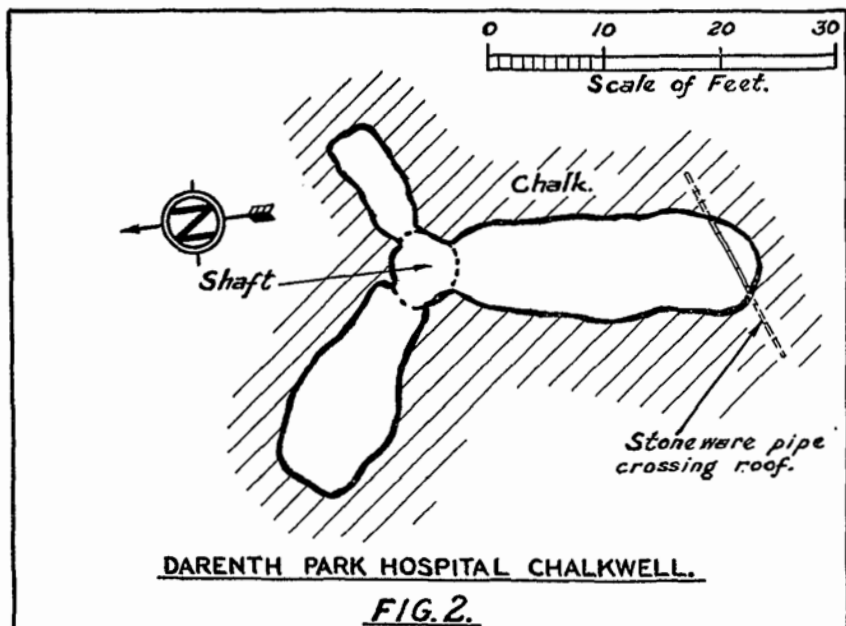


FIG. I.

SOME EARLY CHALKWELLS IN N.W. KENT



SOME EARLY CHALKWELLS IN N.W. KENT

The chalk here lies only a few feet below ground level. Fig. 2 shows the underground plan of the chambers which were roughly hewn, for no attempt to dress off the chalk in a smooth fashion had been made. From the pick impressions left in the chalk walls and roof, it was noted that one pick was of a heavy square-section, whilst a second lighter pick had also been employed in cutting out the chalk.

The South chamber was longer and on a larger scale than the other two, and at the distant end of it a stoneware soil pipe obliquely crossed the chalk roof; the pipe would have been laid 70 years previously when this particular hospital block was erected and presumably the presence of these chambers was unsuspected during that period of construction and pipe-laying.

At no point was it possible to locate the original floor level as all three chambers contained large quantities of clay and chalk rubble, due to earlier attempts to fill them.

THE NURSTEAD CHALKWELL

The position of this excavation is N.G.R. TQ629685 in a corner of a field farmed by Mr. Farries, where the underlying chalk bears an upper layer of clay-with-flints some 6 ft. in depth.

The surface of the field had subsided at this spot into a shaft 4 ft. wide and some 14 ft. deep. At that depth two chambers had been cut into the chalk sides of the shaft leading off north and south approximately. The south chamber could not be entered due to soil entirely blocking the opening, the arching of its roof alone being visible. It was clear however, that the roof of this chamber had collapsed during the storm and a large depression on the field surface nearby was noted bearing testimony to this fact. By measurement the north chamber was found to be 14 ft. long and 6 ft. wide, the finish overall was very roughly executed. Large fissures were visible in the roof and it was apparent that this chamber too, was on the verge of collapse; it was almost filled with clay and rubbish, evidence of an earlier attempt to fill it up.

A similar excavation was examined on farmland at Southfleet in 1955 by members of The Gravesend Historical Society.¹ They found that this shaft had, like the Nurstead example, been deliberately filled. It is interesting to recall that John Bannister of Horton Kirby, writing in 1799,² describes the manner in which chalkwells were excavated in his time. Significantly Nurstead and Southfleet are only a few miles distant from Horton Kirby and therefore it would appear most likely that these two chalkwells were sunk during the latter part of the eighteenth century and in the lifetime of John Bannister.

¹ *Gravesend Historical Soc. Trans.* 1955-6.

² *A Synopsis of Husbandry.* John Bannister.

SOME EARLY CHALKWELLS IN N.W. KENT

The perilous nature of this work and the outlook of the men who performed it is aptly described by this eighteenth century writer who states : " Obstacles to this work sometimes fall out from the light contexture of the soil which does not infrequently give way to the destruction of the chalk drawer.

"These accidents render this profession extremely hazardous, but as the people who embark in it entertain but little thoughts of a future period, and since the chief end of their pursuits is the obtaining of a liberal supply of drink ; if this end be answered they bestow little attention to the hazards of their profession and for this reason there are never wanting a race of men for the performance of this perilous undertaking."

THE GRAVESEND CHALKWELL

During the course of clearing and excavating some ground adjacent to Whitehill Road, Gravesend, prior to the erection of a block of garages, an unusually large and very deep triple-chambered chalkwell was discovered.

The discovery was made by Mr. Whiting the contractor in charge of the building work who reported the facts to the Gravesend Borough Librarian.

The shaft lies at the junction of the Thanet Sand and Upper Chalk, N.G.R. TQ654728.

Footings cut by the contractors had revealed the presence of a ragged entrance shaft which formerly had, at a depth of some 6 ft. below ground level, been sealed off by a skew-arched brick cap set into the chalk. Soil erosion, due to rainwater seeping between the arch setting and shaft had caused part of the arch to collapse, leaving the shaft partly open. This fracturing of the arch must have occurred a considerable time ago, as the writer was informed by a nearby householder that he had been disposing of rubbish at this spot for 30 years, not realizing that a very deep pit-fall lay concealed in the brambles.

Unfortunately, before the shaft could be descended and thoroughly examined the contractors had dumped about 500 tons of site clearance spoil into the newly found shaft.

As the descent was considered to be somewhat hazardous, the Gravesend Civil Defence very kindly volunteered to arrange for this to be done by means of heavy rescue tackle with an expert lowering party at the surface. By this means the writer, his wife and Messrs. Whiting and Tilley were lowered singly in a rope harness on the evening of the 29th July, 1958.

After passing through the partly destroyed brick capping, the shaft was measured and found to be 5 ft. diameter and it descended vertically

SOME EARLY CHALKWELLS IN N.W. KENT

for a distance of 35 ft. At this depth three narrow openings only 2 ft. 6 in. wide and equally spaced had been hewn outwards from the central shaft. These three openings each gave access to separate wells which formed a cluster around the shaft but did not communicate with each other.

An enormous cone of sandy debris from the recent dumping sloped steeply downwards to the extreme end of each well but it was found possible to descend over this and down to the bottom of one of the wells. Fig. 1 shows details of this chalkwell both in section and in plan. The loftiness of the chambers can be judged by the vertical black line shown in the section, which represents the height of an average man.

The well which was examined was found to be nearly circular and 18 ft. in diameter. Despite the recent filling, measurements showed that the roof of this well was still over 30 ft. from the edge of the present spoil heap. By computation each well would originally have been at least 50 ft. deep, when a due allowance for the present known dumped spoil has been taken into consideration. From the dimensions of these three wells, it can be reasonably calculated that approximately 2,400 tons of chalk have been extracted from this chalkwell.

The tooling on the walls of the well was roughly executed and many impressions left by the picks were still visible. "Plasticine" casts of these impressions showed that at least two different types of small, square-section iron picks had been employed in winning the chalk.

Reference to Fig. 1 shows that the excavators of this chalkwell were experienced enough to ensure a good degree of stability and structural strength to their mining by leaving three large chalk pillars at the entrances to the wells and a generous camber to the roofs.

There is some evidence for approximately dating this Whitehill Road chalkwell. As previously stated, the entrance shaft had purposely been sealed by the construction of a skew-arched brickwork cap and it is quite apparent that this arch must have been set in position at some later period when chalk mining had ceased and the presence of the shaft would prove a dangerous pit-fall in its surrounding.

The bricks used in the arch were of a deep red colour, set in a strong brown mortar, and from their colour, size and setting, one may judge that the arch was constructed and the shaft sealed off in the seventeenth century.

The existence of two other chalkwells is known in the immediate neighbourhood at Combe Road and these, too, were accidentally discovered during the work of clearing away woodland for a school playing field in June 1950, but unfortunately they were not examined.

The general proportions of this Gravesend chalkwell resemble in some ways an excavation discovered on private property at Irene Road, Orpington, in 1953.

SOME EARLY CHALKWELLS IN N.W. KENT

In common with the Gravesend example this also had at an earlier period been sealed by the construction of a bricked dome near the top of the shaft upon which had been placed many thousands of chalk flints to consolidate the structure. Rainwater seeping down behind the brick dome and entering the shaft had undermined the structure to such an extent that it had ultimately collapsed into the shaft which was 70 ft. deep. At the base of this shaft three chambers were visible, one of which was estimated to be 16 ft. in width. The Borough Engineer of Orpington who examined the excavation was of the opinion that the brickwork dome had been constructed over the shaft some 200 years previously.

It has been previously stated that the amount of chalk extracted from the Gravesend chalkwell was at least 2,400 tons, and this tonnage alone is exceptionally high, but when the possible quantities of chalk removed from the two associated chalkwells at Coombe Road are also taken into consideration the combined amount is far in excess of; and quite contrary to, any recorded tonnages used by farmers for purposes of field dressing.

Bearing in mind that for economic reasons the chalk would be used in their immediate neighbourhood it would appear most unlikely that these three wells were all specifically dug for agricultural chalk alone.

The remote possibility that they were intermittently worked for chalk over a long period of time cannot of course be entirely precluded. Another and more likely explanation may be postulated however, as to their problematical use.

It is known that these chalkwells were sited on lands belonging to the old Manor of Parrock and it is possible that the chalk was mined and used for building material; such building chalk when used for this purpose is usually described as "clunch". Evidence is available that this material was not always obtained from open quarries for the practice of mining it from chalkwells is recorded at West Wycombe¹ as late as the middle of the nineteenth century. The record states that the block chalk was mined from wells sunk in the fields and drawn up by the aid of a windlass; it was then cubed and dried prior to using.

A late Mediaeval chalk-mine² was discovered at Thetford, Norfolk, in 1949 and had been used for excavating good quality chalk clunch. Pottery found in the chambers suggested that the mine was in use during the late fifteenth and early sixteenth centuries.

A DENEHOLE AT UPPER RUXLEY FARM

On the 6th September, 1958, a deep shaft suddenly appeared in an orchard at Upper Ruxley Farm, N.G.R. TQ496704.

¹ *Notes and Queries*. 2nd series. XI, 167.

² *Norfolk Archaeology*, XXX, 220.

SOME EARLY CHALKWELLS IN N.W. KENT

Less than half a mile to the north of this location lies Joyden's Wood, an area notable as formerly containing over a hundred of those deep excavations known as deneholes.

Their general proportions and degree of workmanship are of quite a different form to the chalkwells described above.

In this district these shafts with their underground caves were first noted by William Lambarde¹, writing in 1570.

A large proportion of them are grouped in a small copse known as Cavey Springs and an area formerly known as Stankey Wood which together once formed part of Joyden's Wood. The greater number of these shafts are now fallen in or have been deliberately filled up and exist only as depressions in the ground. There still remain, however, many deneholes scattered throughout the wood which are still open, and it is apparent that they are directly associated with the many earth works, lynchets, bank and ditch systems which abound within this wood.

A. H. A. Hogg in a paper published in *Archæologia Cantiana*² has shown that these earthworks belong to four distinct periods. Many of the deneholes have been sited at the corners and along the boundaries of the field systems which have been described by Hogg as belonging to Period III.

Recent excavations within the large square earthwork³ whose banks in certain cases overlie those of Period III and are therefore later, has revealed a complex of buildings dated between 1280 to 1330 A.D. This earthwork constituted Period IV and was probably the final medieval settlement in Joyden's Wood. From these facts it can be firmly established that these deneholes can be dated to a period earlier than 1280.

The existence of the denehole at Upper Ruxley Farm was entirely unknown to Mr. Woods, in whose family the farm has been for the past hundred years.

A narrow shaft just 3 ft. in diameter had been sunk through the Thanet Sand to a depth of 38 ft. At this level the usual Bull-head layer of flint which marks the junction of Thanet Sand and chalk was encountered. After continuing downwards for a further 4 ft. the shaft had been opened out into two sets of chambers. Arranged diametrically opposite down the shaft were roughly cut footholds in the Thanet Sand at 18 in. intervals. These footholds are a prominent feature associated with deneholes and are never seen in chalkwell shafts. The chambers, six in number, were of clover-leaf shape, three being grouped on either side of the shaft. It was quite apparent that this denehole had at some period been deliberately filled up, as all six chambers had a sandy

¹ *A Perambulation of Kent*. Ed. 1826, W. Lambarde, 401.

² *Arch. Cant.*, LIV, 10.

³ *Arch. Cant.*, LXXII, 18.

soil filling in them almost to roof level. Fig. 3 shows the arrangement of these chambers and their size. The dotted outlines indicate the probable maximum extent of the chambers. Due to the high soil level and lack of headroom it was impossible to examine closely the distant end of each chamber but an excellent degree of dressed finish was visible on the upper walls and the roof.

It is pertinent to note that John Dunkin¹ writing in 1844 specifically mentions the area of the farm as containing many deep underground pits which frequently subsided, to the consternation of the farmer and his ploughmen. Apparently the farmers of that period had no knowledge of their whereabouts or the purpose of these excavations. John Dunkin mentions that a ploughteam had passed over an unknown shaft in a pea field and a few days later the filling collapsed and revealed a shaft 60 ft. deep. He also mentions that other pits had been deliberately filled in "many, many years ago". From the same source it is recorded that farmers of his day attempted to fill up these shafts when they appeared in their fields and in one specific case he quotes that over 200 loads of soil were used in a vain endeavour to achieve this end. In view of John Dunkin's statement it seems likely that this denehole shaft may have received the major part of its huge infill during the early nineteenth century.

¹ *History and Antiquities of Dartford*. John Dunkin, p. XIX.