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# HOO PENINSULA, KENT SECOND WORLD WAR STOP LINE HOO ST WERBURGH TO HIGHAM MARSHES

ARCHAEOLOGICAL REPORT

Krystyna Truscoe



REMOTE SENSING



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## HOO PENINSULA, KENT

# SECOND WORLD WAR STOP LINE HOO ST WERBURGH TO HIGHAM MARSHES

Krystyna Truscoe

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## **SUMMARY**

The Second World War stop line between Hoo St Werburgh and Higham Marshes is a notable surviving example of anti-invasion defence. It is the northern section of the Newhaven-Hoo General Headquarters (GHQ) Line where it crosses the Hoo Peninsula in Kent between the rivers Medway and Thames. It is an important remnant of the Second World War defended landscape of the peninsula and is a well-preserved example of this type of defence, which is part of a major chapter in the national story. The surviving remains form a coherent pattern of defence linked to the local topography and connect our perceptions of the current landscape with the fear of invasion experienced by a previous generation. The line was part of a national network of defences and was constructed in July and August 1940 to hinder invading forces from the Kent and Sussex coast. The defensive line used natural and manmade obstacles connected by sections of anti-tank ditch. The line was heavily defended and included pillboxes, anti-tank gun emplacements and road blocks. The surviving parts of the stop line, including buried and surface remains of the anti-tank ditch, provide a coherent and legible picture of how these defences were intended to work. The stop line was identified for further work during the English Heritage Hoo Peninsula Historic Landscape Project. This report describes the elements that make up the line on the Hoo Peninsula, recorded principally from 1940s aerial photographs, and includes an assessment of current survival from recent aerial photographs and field visits.

## **CONTRIBUTORS**

Report and research was carried out by Krystyna Truscoe. Aerial investigation and mapping by Cathy Stoertz and Fiona Small. Field visits by Sarah Newsome and Krystyna Truscoe. Helen Winton edited the report and produced the plans of the stop line.

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## INTRODUCTION

This report describes the elements that make up the northern section of the Second World War Newhaven-Hoo General Headquarters (GHQ) Line. This part of the stop line was identified for further assessment during the English Heritage Hoo Peninsula Historic Landscape Project (Carpenter et al, 2013). The line was recorded principally from aerial photographs dating between 1941 and 1947. An assessment of current survival was based on recent aerial photographs and field visits.

The Newhaven-Hoo General Headquarters (GHQ) Line was constructed in July and August 1940 by Eastern Command of the Home Forces to hinder the progress of anticipated invasion from the beaches in Kent and Sussex. It was 128km in length and extended between Newhaven, on the East Sussex coast, to the River Thames in Kent. The Hoo Peninsula section of the Newhaven-Hoo GHQ Line stretches from the northern bank of the River Medway, near Hoo St Werburgh, to Higham Marshes, near Cliffe, on the southern bank of the River Thames. It was partly intended to protect Chatham dockyards from possible enemy landings on the Isle of Grain or Allhallows and to reinforce the defences around the Lodge Hill and Chattenden ordnance depots. Where possible it used natural and manmade obstacles such as woodland, quarries and drainage ditches and elsewhere comprised sections of anti-tank ditch. It was heavily defended on its west side, to counter an attack from the east, by closely spaced infantry pillboxes and anti-tank gun emplacements and road blocks.

Parts of linear anti-invasion defences have national designations for reasons of historic interest, group value and rarity. Along the route of the Hoo Peninsula section of the Newhaven-Hoo GHQ Line, six pillboxes and a line of anti-tank cubes are listed and there is one Scheduled Monument, Lodge Hill Anti-Aircraft Battery. Examples of designated stop line structures elsewhere include two pillboxes by Benham Bridge on the Kennet and Avon Canal, Wiltshire, part of Southern Command's GHQ Line Blue, and 14 Grade II listed pillboxes on the Coquet stop line, which used the River Coquet in Northumbria as an obstacle to invading forces.

The stop line on the Hoo Peninsula is remarkable because of the range of different elements that still form a legible pattern of defence. These include buried and earthwork remains of the anti-tank ditch, a number of anti-tank cubes, part of a concrete roadblock, and most of the pillboxes which protected the line of the anti-tank ditch. The stop line represents a defensive strategy that was only in favour for a matter of months during the Second World War and helps to document the rapid changes in development of anti-invasion defences in this period. The area is considered important 'not only in terms of the number of defence works of different types that it contains, but also in the way it still forms a coherent pattern of defence linked to its topography' and that the hedgerows concealing defence works still remain as an integral part of the defence landscape (Foot 2006, 412).



## Location

The Hoo Peninsula is part of north Kent, 50km east of central London (Fig 1). It is bounded by the River Thames to the north and the river Medway to the south and east. This strategically important position meant the Hoo Peninsula was the focus of military activity from the medieval period through to the 20<sup>th</sup> century. During the Second World War, the peninsula was in a vulnerable position from invasion and in the path of air raids directed at London. The munitions depots, military installations and industrial sites made it a prime target for raids. The land and air defence for the peninsula comprised the natural obstruction of the tidal mud and marshland, either side of a central ridge, supplemented by manmade installations such as pillboxes, gun emplacements, concrete anti-tank obstacles and anti-aircraft batteries (Carpenter et al, 2013, 9).



**Figure 1** Location of the Hoo Peninsula and the route of the Newhaven-Hoo stop line (after Dobinson, 1996, 57). Background based on lidar data © Environment Agency copyright 2013

The route of the stop line passes through the parishes of Hoo St Werburgh, High Halstow, Cooling, Cliffe and Cliffe Woods, and Higham (Figs 2-3). The route passed north from the Medway to the east of the defended village of Hoo St Werburg which had a garrison of 63 men from the 14th (Hoo) Battalion Kent Home Guard (Foot 2006, 408). The stop line crossed the Ratcliffe Highway to the east of Deansgate crossroads and the defended locality of Kingshill camp, then turned north-west, skirting the Lodge Hill Ordnance Depot, where it incorporated blocks of woodland. Here the higher ground provided a line of sight across Cliffe and Cooling marshes (Alexander 1999, 75). The line then extended from Cliffe Woods towards the Hoo Junction and Port Victoria railway (then mainly used for freight). It continued north-west and incorporated flooded quarries or drainage ditches, before finishing at Higham Creek (Carpenter et al 2013, 75-6).



Figure 2 The route of the anti-tank ditch (in purple) crossing the Hoo Peninsula. Background mapping ©Crown Copyright and database right 2014, all rights reserved. Ordnance Survey Licence number 100024900.

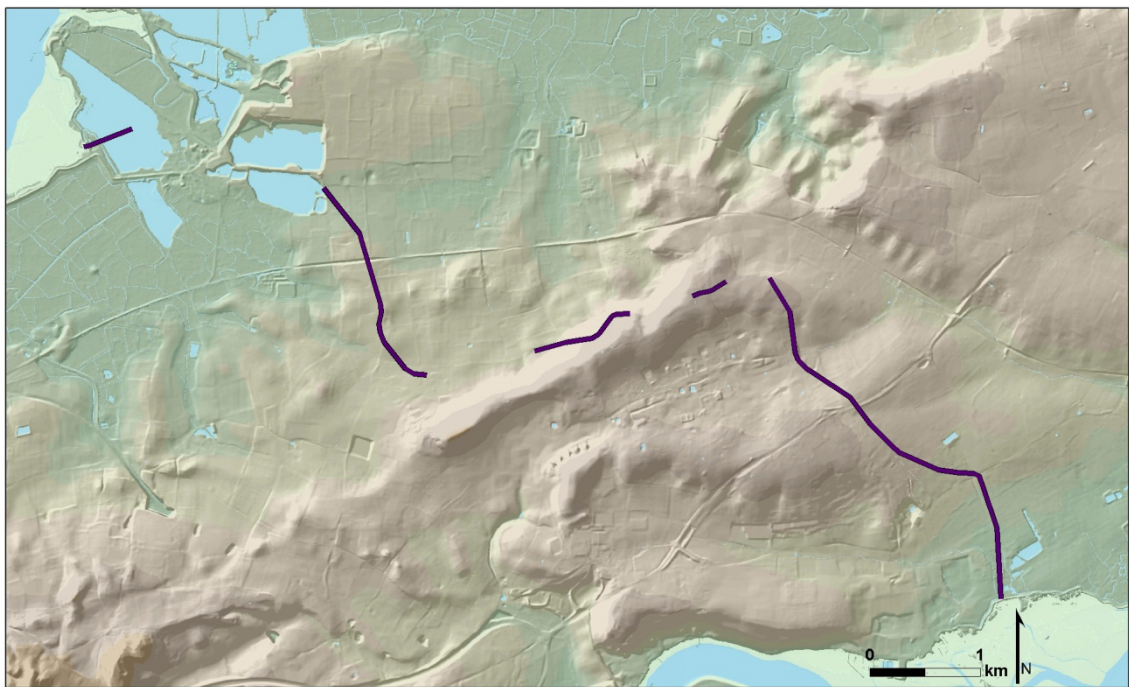


Figure 3 The route of anti-tank ditch (in purple) shown against the topography of the Hoo Peninsula. Background based on lidar © Environment Agency copyright 2013



## THE ANTI-INVASION DEFENCES OF BRITAIN FROM JUNE 1940

The Newhaven-Hoo General Headquarters (GHQ) Line, was part of a national network of anti-invasion defences constructed from June 1940. The development of these defences followed the fall of France and retreat of British forces from Dunkirk when fears of a German invasion were at their height. A review of Britain's defences by the Home Defence Committee identified over 1500 vulnerable points and noted that Home forces were dispersed across Britain, able to provide only a thin line of defence (Alexander 1998, 8). General Sir Edmund Ironside was appointed as Commander-in-Chief Home Forces at the end of May 1940. He planned the construction of a full system of anti-invasion defences. On the 30th May 1940, he issued orders for the strengthening of coastal defences, including the extension of landing ground obstructions to a distance of five miles from the coast and the protection of vulnerable beaches by linear layouts of pillboxes (Dobinson 1996, 26).

On the 15th June 1940, plans were issued for the construction of inland anti-tank systems which would give depth to the beach defences (ibid, 27). Ironside was particularly concerned with halting the movement of Panzer and motorised forces following a successful landing (Alexander 1998, 8), since the rapid advance of German forces had been a decisive factor in the fall of Holland and Belgium. Ironside intended to reorganise existing mobile columns and to add static defences, consisting of fortified nodal points and linear 'stops', which would curtail the progress of tanks and create zones within which an enemy could be contained (Dobinson 1996, 31). A stop line was in essence 'a prepared battlefield' with defences formed of infantry field fortifications such as pillboxes and fire trenches (Foot 2006, 9). A network of Command, Corps and Divisional stop lines were constructed behind the coastal crust defences, generally utilising existing obstacles, such as waterways or railway embankments. The GHQ line was envisaged as the final position of resistance and was initially planned to run from Bristol to Maidstone, then to turn to the north up the east coast to Northumberland (Alexander 1998, 16-18).

### Construction of the Hoo section of the GHQ Line

The defences of southeastern England came under XII Corps, who were responsible for the whole of Eastern Command south of the Thames. Three divisions were established in the forward areas, with the Hoo Peninsula area falling under either I (London) Division, who covered north and east Kent, or 45 Division of XII Corps, who covered Sussex and western Kent. I (London) Division seems more likely, although the division's own orders have not been traced (Dobinson 1996, 56-8). Hoo was in Eastern Command until February 1941 when South-Eastern Command was created (ibid, 4). From then on Eastern Command covered East Anglia and the counties bordering it to the west, while South-Eastern Command was responsible for the area south of the Thames. The clear split was considered necessary as the Commands were two separate geographical areas with different issues (ibid, 56).

The GHQ Newhaven-Hoo Line extended from the coast at Newhaven East Sussex to the Thames via the rivers Ouse and Medway. It was hoped that, in the event of an invasion, the line would delay forces landing on the beaches in Kent and Sussex long enough to send reinforcements (Alexander 1999, 64). Mowlem and Co Ltd were chosen to build all defences in the XII Corps area during the second week in June 1940. They used local contractors to carry out the simultaneous construction of the hundreds of pillboxes, but oversaw the work and the supply of materials (Alexander 1999, 66). The whole extent of the Newhaven-Hoo GHQ Line was 128km in length. It had 47 anti-tank gun positions, over 140 pillboxes, 17 railway blocks and at least 50 road blocks (ibid, 74).

The northern part of the stop line followed the River Medway through Penshurst, Maidstone and Rochester, then turned to the north-west and crossed the Hoo Peninsula. An anti-tank ditch was dug between the Medway and the Thames, finishing at the marshes on Cliffe (Foot 2006, 407). Reconnaissance plans dated pre-24 June 1940 do not appear to include the Hoo Peninsula stretch of the GHQ line (TNA: PRO WO199/55), possibly suggesting that plans on where to end the northern part of the Newhaven-line evolved over time. The Hoo Peninsula section of the line was intended to protect Chatham dockyards to the south from possible enemy landings on the Isle of Grain or Allhallows. It was heavily defended on its west side by closely spaced pillboxes and anti-tank gun emplacements and by blocks where its route crossed roads and tracks (Foot 2006, 408).

In July 1940, the plan was to arm the GHQ Newhaven-Hoo line with 47 6-pounder guns in 44 locations. These were to be installed and operated by the 5th Royal Artillery Medium Regiment for XII Corps. The priority of order of installation was from north to south, in order to command the most direct approaches to London from the beaches in east Kent. 15/16 Battery of the 5th Medium Regiment were to operate 18 guns on the most northerly sections of the stop line, including at Hoo St Werburgh, Kings Hill, Mortimers, Dean Gate, Ladies Copse and Buckland (Alexander 1999, 70; TNA: PRO WO166/1919).

Cliffe Fort, at the northern end of the line on the Thames, was used by the Royal Naval Auxiliary Patrol whose role was to report and buoy mines and defend the river from seaborne and airborne attack. The fort also provided a berth for a merchant ship armed with a 12-pounder gun (TNA: PRO WO199/2479 and Newsome & Williams forthcoming). The evolving relationship between the fort and the stop line is not entirely clear. The naval Flag Officer in Charge acknowledged the fort's 'important position' on the flank of the stop line in a letter to the Commander in Chief of Eastern Command on 18 August 1940 and was concerned that the Auxiliary Patrol should be able to continue to occupy the fort in the event that it is requisitioned (TNA:PRO WO199/2478). By late 1940 the fort had been provided with machine guns for its defence to be manned by the Royal Naval Volunteer Reserve and possibly the Home Guard. A letter from the Flag Officer in Charge, London, dated 31 January 1941, states clearly that the Navy have responsibility for defending the river itself but that the banks are the responsibility of the



military. He highlights the importance of defending vulnerable points on the lower reaches of the river, including Cliffe Fort due to its role in covering the Lower Hope Reach Boom (TNA: PRO WO199/2479). However, it is unclear from aerial photographic information whether a boom was constructed in this area. It may have been part of a plan of defence, which was altered before being put into action.

The 11 Gloucestershire Regiment were responsible for defence in the Hoo sector during late 1940 and early 1941. Operation Instruction No 9 for the regiment states that one of their 'Tasks in Particular' is 'Occupation of the GHQ stop line'. Units of the 14th Battalion Kent Home Guard were split into three companies and tasked with occupation of the pillboxes. C company covered the area from the left bank of the River Medway to Fenn Street, Chattenden. B company covered from Fenn Street, Chattenden, to road junction 191925 (position now unknown) and A company from road junction 191925 (position now unknown) to the right bank of the River Thames (TNA: PRO WO166/4297).

## **Abandonment and Decline of the GHQ Line**

Ironside's planned system of fortified nodal points and linear 'stops' was not completed due to changing views on the nature of Britain's anti-invasion defences. General Sir Alan Brooke was appointed as Ironside's successor in August 1940 and ordered that construction work on the GHQ Line was to cease, with only projects already underway to be completed. The Line was to be maintained but not developed (Dobinson 1996, 41). Brooke favoured a more mobile defensive approach concentrating on expanding the system of defended nodal points, rather than using linear defences (Alexander 1998, 31-32).

On 8 August 1940, Southern, Aldershot and Eastern Command received the order not to develop the GHQ line any further and to complete all work currently in hand (Alexander 1999, 31). All GHQ positions were downgraded to third priority defence lines, behind beach defences and forward stop lines. A large proportion of the 6-pounder guns were removed from sections of the line and placed in beach defences. By late November 1940, all 6-pounder guns on the Newhaven-Hoo section had been surrendered and arranged into three defence batteries, one being 921 Defence Battery at Hoo (ibid, 71). However, the line was to be maintained and sufficient work had already been carried out in Eastern, Southern and Aldershot Commands to ensure that the Newhaven-Hoo line was fully fortified (Dobinson 1996, 41). Responsibility for the stop line was transferred to smaller Local Area and Sub Area Headquarters during the winter of 1940. The GHQ Line was divided into sections manned by a skeleton force of Area HQ troops and Home Guard units (Alexander 1998, 31).

Britain's static anti-invasion defences came close to seeing operational service for the only time during the war early in September 1940. Between August and September 1940, there was an increase in German air attacks, which formed the first phase of Operation Sea Lion, the plan for the invasion of Britain. The plan had been to first target airfields in

order to gain air superiority, but on 7 September 1940, the attacks switched to London. The signal for 'invasion imminent' was sent out to units in the field and for two days, the anti-invasion defences were readied for use (Dobinson 1996, 41-42).

Entries in the British Army Gravesend Sub Area War Diary for February 1941 note that 14 Battalion Home Guard was struggling to fulfil its commitments on the line, although they were still manning the central area of the line in March 1941 (TNA: PRO WO166/1286). Kent and Sussex came under the control of South-Eastern Command from February 1941 and Lieutenant General Bernard Montgomery became the new commander of XII Corps. In the May of that year he issued a 'Plan to Defeat Invasion' that involved almost no role for static defences and the emphasis put on 'mobility, concentration of forces and offensive thinking' (Dobinson 1996, 63). By the summer of 1942 virtually all of the inland anti-invasion system was based on the defence of nodal points (ibid, 51).

A letter of 14 May 1941 from Brigadier Davenport, Commander of Kent Area, to HQ SE Command demonstrates that within a year of construction the anti-tank ditch had not been maintained and that it was 'no longer a tank obstacle throughout its length'. He also notes that the woods which form part of the obstacle 'are not 100% tank proof'. Davenport felt that a potential enemy invasion was more likely to come from airborne troops than from beach landings and that the stop line was unable to deal with a threat of this type. Given the limited number of troops available the stop line could not be defended and therefore should be abandoned in favour of 'static locality defence' manned by men from the Home Guard, Pioneer Corps and 8th Battalion East Surrey Regiment. 5 Commando were to be maintained on 'Action Stations', in case of an airborne attack. Davenport proposed that they should be located on the Peninsula itself, in the area of Great Chattenden Wood (TNA: PRO WO166/1216).

The Kent Area Operation Instruction 12 dated 11 June 1941 (TNA: PRO WO166/1216) confirms that the landing beaches and the GHQ line on Hoo are no longer to be defended and that the new strategy will involve locality defence 'based on the denial of road communications to the enemy' and a mobile reserve of troops. The War Diary for Gravesend Sub-Area also notes on 11 June 1941, 'Change of Defence Policy for Hoo Peninsula. In accordance with Kent Area Ops Instruction No 12, GHQ Stop Line is abandoned, defended localities are adopted' (TNA: PRO WO 166/1286). From this point on the new tasks of the Home Guard would be to defend their villages, man observation posts and provide guides for the regular troops. The 8th Battalion East Surreys would be based at the sector HQ at Chattenden to defend Port Victoria, Grain Battery and Whitehall Battery on the Isle of Grain and High Halstow village, Shomemead battery, Chequers Street and Rochester Bridge at Strood.

The Pioneer Corps were to supplement the Home Guard garrison at Lower Stoke. 5 Commando would be based at Silver Street, Frindsbury Extra, if there was a threat of imminent invasion (TNA: PRO WO166/1216). Full details of the defended localities on

Hoo, personnel and armament are recorded in *Gravesend Sub-Area Plan to Defeat Invasion*, dated 1 September 1941 (TNA: PRO WO166/1286). The villages of Lower Stoke, Hoo and Cliffe were to be protected; the Isle of Grain, Berry Wiggins, High Halstow, Kingshill Camp, Cliffe Fort, Chequers, Oak Street, Wainscott, Chattenden, Upnor/Royal Naval Armaments Depot (RNAD) were to become defended localities. The Plan to Defeat Invasion refers to the 8th Battalion Royal West Kents, rather than the 8th Battalion East Surreys discussed in TNA: PRO WO166/1216.

The *Gravesend Sub-Area: Plan to Defeat Invasion* produced on 1 September 1941 states that a seaborne invasion is possible on the Hoo Peninsula due to its location, but unlikely and that all troops are to be 'disposed in localities'. These were defined as any vulnerable point, aerodrome, defended village, or area which is placed under one definite commander. On 'Stand To' orders the Hoo Peninsula roadblocks were to be manned during the hours of darkness; and closed at 'Action stations'. Vulnerable points noted on Hoo included the Admiralty oil installation at Port Victoria, the light railway at Sharnal Street, the Berry Wiggins and Medway oil installations and Lodge Hill Ordnance Depot (TNA: PRO WO166/1286). The Hoo Peninsula is also included in the area from which holiday makers are banned in September 1941 (TNA: PRO WO199/2577).

By May 1943 discussions are underway to back-fill the anti-tank ditch which formed the stop line, particularly the Hoo-Cliffe-Higham section. South-East Command was happy for this work to go ahead as long as military labour was not used and a map enclosed in TNA: PRO WO199/55 shows the ditches to be filled in on the Hoo Peninsula. However, the Hoo Peninsula's defence remained a concern for the military. During the 1944 preparations for the D-Day landings, part of Operation Overlord, the peninsula was identified as being particularly vulnerable and troops were to be made available to the Commander of Gravesend Sub-District from regular and Home Guard troops if necessary (TNA: PRO WO166/14411).

## FORM OF THE HOO SECTION OF THE STOP LINE

The stop line mainly comprised pillboxes with interconnecting fields of fire covering an anti-tank ditch, angled in various directions, to the front (Smith 2011, 182). Infantry (small arms) Type 24 pillboxes or artillery (large weapons including anti-tank guns) Types 28 and 28a pillboxes were used (Fig 4). The line incorporated natural and existing manmade obstacles where possible, such as woodland, quarries and drainage ditches. Elsewhere, lengths of anti-tank ditches were excavated, generally to a depth of 6 feet (1.83m) and a width of 15 feet (4.57 m). Anti-tank ditches constructed during the Second World War were generally V-shaped or square in profile, designed to trap vehicles or to present them with an impossible to climb vertical face (Alexander 1999, 97). Excavation of a section of the back-filled anti-tank ditch at Kingsnorth revealed it to be 5.6m wide, 1.48m deep and 'in profile the feature displayed a marked "shoulder" with the relatively gentle slope of the upper sides of the ditch falling away sharply to near vertical sides and a flat base' (Marshall and Richmond 2011, 10).

Where the ground was too rocky or marshy to excavate ditches, rows of concrete anti-tank cubes were used. These were usually 5 feet (1.52 m) square, but there are examples of the less frequently used 'pimples' or 'dragon's teeth', high tapered blocks, in multiple rows, designed to rip the treads off tanks. Where the stop line crossed a road, concrete blocks on each side of the road formed a narrow defile (Fig 5). Movable metal rails were usually inserted into sockets in the centre of the road to complete the roadblock (Alexander 1999, 97-8).

The route of the stop line included a military training area that was in use from at least the First World War (NRHE 1548195). It was on Deangate Ridge above the northern boundary of the Lodge Hill depot, between Lodge Hill Wood and Wybarnes Wood. The area is identified as a "General Fieldworks Area" on a Royal Engineers plan of 1937 (420/SE/2/0508, in CgMs Ltd, 2009). There was a Second World War defended locality (NRHE 1546575) on Deangate Ridge which comprised a series of barbed wire enclosures and small weapons pits or gun emplacements.

The stop line passed through an area with a long history of military activity. The Lodge Hill Royal Naval Armaments Depot, was constructed after 1898 and complete by the First World War (National Record of the Historic Environment Monument/Pastscape Number (NRHE1077634). The depot occupied 125 hectares adjacent to the Chattenden Magazines (NRHE 1481790), with buildings and magazines, arranged on either side of a railway line which formed the spine of the establishment. During the Second World War, additional stores and support structures, including gun emplacements and air raid shelters, were added.





Figure 4 Type 28 artillery pillbox east of Bells Lane, Hoo St Werburgh (NRHE 1426745 )



Figure 5 Concrete blocks which were part of a roadblock on a track leading north from Stoke Road, Hoo St Werburgh (NRHE 1418717)

A sketch of the stop line in the *11 Gloucesters Operation Instruction No 9* from January 1941 (Fig 6) numbers the pillboxes manned by units of the 14th Battalion Home Guard as 678 to 756. In total, there are 60 infantry pillboxes (Type 24) and 17 artillery pillboxes (Types 28 and 28a) (TNA: PRO WO 166/4297). The Home Guard war diary noted that in February 1941 the Hoo Peninsula pillboxes were identified as 188901 to 153945 (TNA: PRO WO 166/1286).

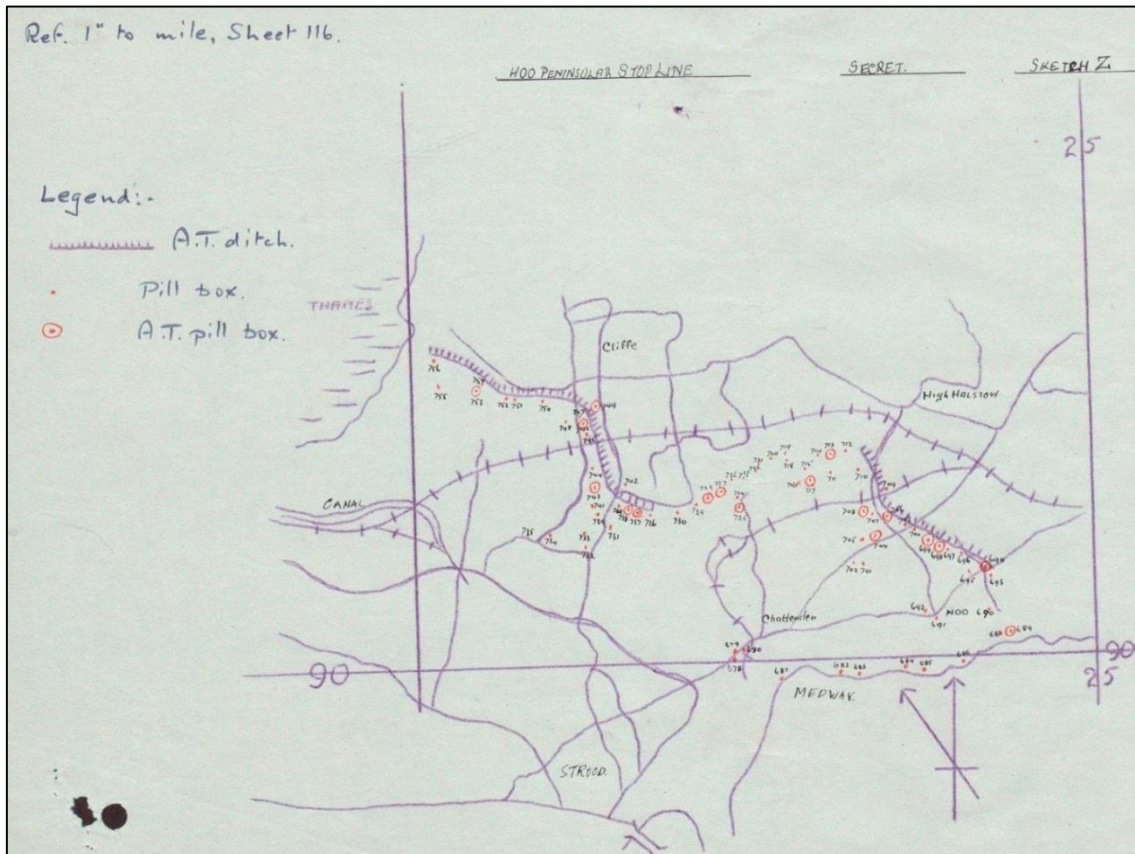


Figure 6 Sketch of the stop line in January 1941 with numbered pillboxes (TNA: PRO WO 166/4297 reproduced with permission from The National Archives)

The Type 24 pillboxes on the stop line around the defended locality of Lodge Hill Ordnance Depot have 'a distinctive appearance with the areas above each doorway and embrasure free of brick shuttering' (Foot 2006, 410). The areas free of brick shuttering may have contained woodwork used to form the concrete embrasures (Foot 2006, 410; S Newsome, pers comm). A pillbox at Kingsnorth Quarry, recorded prior to aggregates extraction, also displays this characteristic and it was thought that the absence of brickwork above the embrasures is a feature unique to this section of the GHQ line (Hart 2009, 12), suggesting a local construction technique.

## ASSESSMENT OF THE HOO PENINSULA STOP LINE

The stop line was recorded and mapped from aerial photographs during the Hoo Peninsula Historic Landscape Project using National Mapping Programme methods. Aerial photographs dating from the 1940s to the 2000s were systematically examined and the form and original extent of the stop line, and all other archaeological features seen from the air, were accurately transcribed. Descriptions of all archaeological features mapped, including sections of the stop line, were recorded in the English Heritage National Record of the Historic Environment (NRHE) and these are available on the PastScape website ([www.pastscape.org.uk/](http://www.pastscape.org.uk/)).

### The evidence for the stop line on aerial photographs

The components of the stop line were recorded on aerial photographs as structures, earthworks, or sub-surface features revealed as cropmarks. On the 1940s aerial photographs, the anti-tank ditch appeared to be flanked by a cleared area measuring about 40m across in total. This area was probably defined by barbed wire and further stretches of barbed wire and upcast from the ditch were recorded within it. Examination of wartime photographs provided strong evidence for where natural features were used instead of an excavated ditch, such as the woods on Lodge Hill.

Post-war maps and aerial photographs show where parts of the line were quarried away, such as at Cliffe Pools, or built over since the 1940s. Some structures were removed after the war, and the anti-tank ditch was backfilled in places. The cropmarks caused by the ditch, observed on recent aerial photographs, demonstrate that sub-surface features survive in places as they are affecting the appearance of the crops, or grass, growing above. Some demolished buildings or removed structures may also have a sub-surface element that potentially survives.

The maps below depict the remains of the stop line based on the form of remains (bank, ditch, structure) as seen on the best available aerial photographs which were usually those taken in the 1940s. Ditches are shown in green, banks in red, barbed wire and buildings or structures in purple. Information on the current condition of the components is described in the text.

### Description of sections of the stop line

The sections below describe the stop line from south to north with reference to the relevant National Record of the Historic Environment (NRHE) records and National Heritage List for England (NHLE) records – both data sets are available online.

In each section the anti-tank obstacle (ditch or concrete blocks) is described first, followed by any supporting defensive features (for example, pill boxes and gun



emplacements) which may have separate NRHE records. A statement on their current condition is based on 2013 aerial photographs and site visits in August 2014 and May 2015. Some additional information is included from the Defence of Britain project (accessed by the Archaeology Data Service) which was carried out between 1995 and 2001.

### **Northern bank of River Medway, Hoo St Werburgh, NRHE 1418690**

Ten concrete anti-tank cubes form the southern end of the stop line on the peninsula, where the ground was too marshy to excavate ditches (Figs 7-8). Aerial photographs of 1942 show them on the top of the river wall and on the mud flats for a distance of about 25m. Supporting features include a Type 24 and a Type 28 pillbox.

*Condition:* The six concrete cubes still in situ are Listed (Grade II). They extend to the south of the river wall for about 8m. The Defence of Britain project (1995-2001) recorded them as being in a very good condition and stable. They were recorded on aerial photographs in March 2011 (Fig 7) and observed on a site visit in summer 2014.



Figure 7 Anti-tank cubes and pillboxes at the southern end of the stop line on the river Medway to the south east of Hoo St Werburgh. NMR 26887\_047 08-MAR-2011



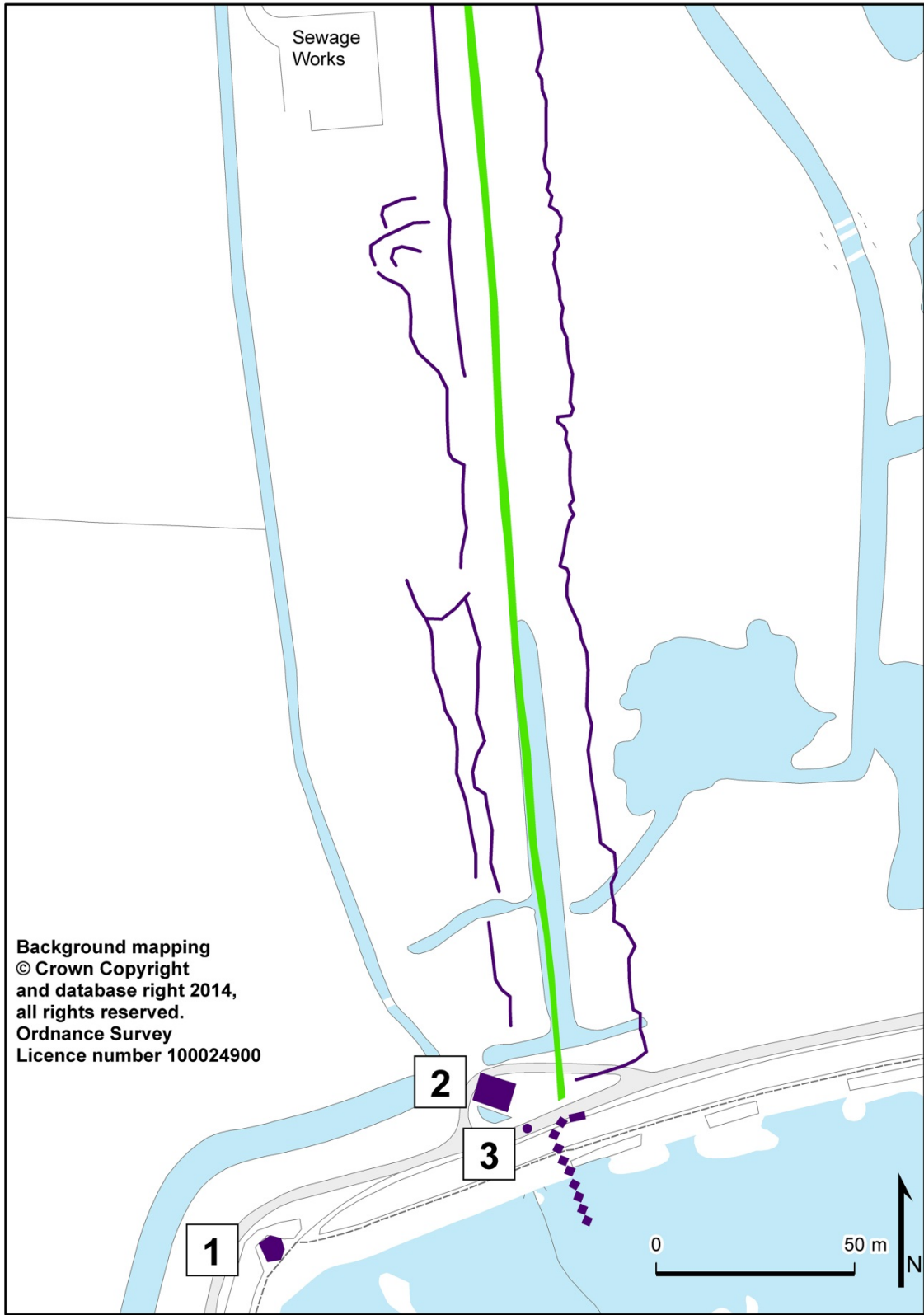


Figure 8 Air photo mapping of the stop line north from the River Medway. It comprises the anti-tank ditch (green) with flanking cleared area (extents defined by purple lines), anti-tank cubes and supporting features (purple). Numbers refer to the table below.

*Supporting defensive features northern bank of River Medway*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1	1418688	Second World War Type 24 reinforced concrete pillbox with brick shuttering constructed on the river wall on the north bank of the Medway, south east of Hoo St Werburgh; built to cover the foreshore, adjacent anti-tank casemate (NRHE1418689) and the open fields to the north.	The pillbox is visible on aerial photographs taken in May 1942 and clearly visible on aerial photographs of September 2013 (Google Earth). Seen during a field visit in Summer 2014. <b>Listed at Grade II NHLE I393815</b>	TQ 79186 71655
2	1418689	Second World War Type 28 reinforced concrete artillery pillbox, brick-shuttered, on the river wall on the north bank of the Medway, south east of Hoo St Werburgh. A 'Double' non-hexagonal pillbox, rectangular structure for mounting 2-pounder or 6-pounder Quick Firing naval gun. Internal dividing wall with smaller section of blockhouse for heavy machine gun	The pillbox is visible on aerial photographs taken in May 1942 and clearly visible on aerial photographs of September 2013 (Google Earth). Seen during a field visit in Summer 2014. <b>Listed at Grade II NHLE I393816</b>	TQ 79244 71694
3	1542799	A possible Second World War defence obstruction, on the river wall south east of Hoo St Werburgh, seen on aerial photographs taken in 1942 and 1952 at. The small structure appears to be an anti-tank cube or pimple associated with an adjacent row of anti-tank cubes (NRHE 1418690) and other components of the stop line.	A visit by English Heritage Assessment staff in Summer 2014 confirmed that this feature has been removed although it is possible that sub-surface remains survive.	TQ 7925 7168

## River Medway to Stoke Road NRHE I542610

Aerial photographs taken in 1942 show the line of the anti-tank ditch flanked by a cleared strip of ground (Fig 9) from the River Medway (at TQ 7925 7169) to the Stoke Road (at TQ 7904 7282) where it turned north-west towards Kingshill (at TQ 7827 7307).

*Condition:* Aerial photographs indicate parts of the anti-tank ditch were backfilled by May 1944 (Fig 10). The line of the ditch, where it meets the bank of the Medway, corresponds to an open trench for about 125m (Fig 8). Cropmarks indicate the sub-surface remains of the ditch to the north and south of Abbot's Court Cottages on 2011 (Fig 11) and 2013 (Google Earth) aerial photographs. A section of the line to the north of Stoke Road was observed on a site visit in 2014. It comprised a back-filled ditch visible as a low earthwork with parchmarks delineating the banks on either side an earthwork (Fig 12).

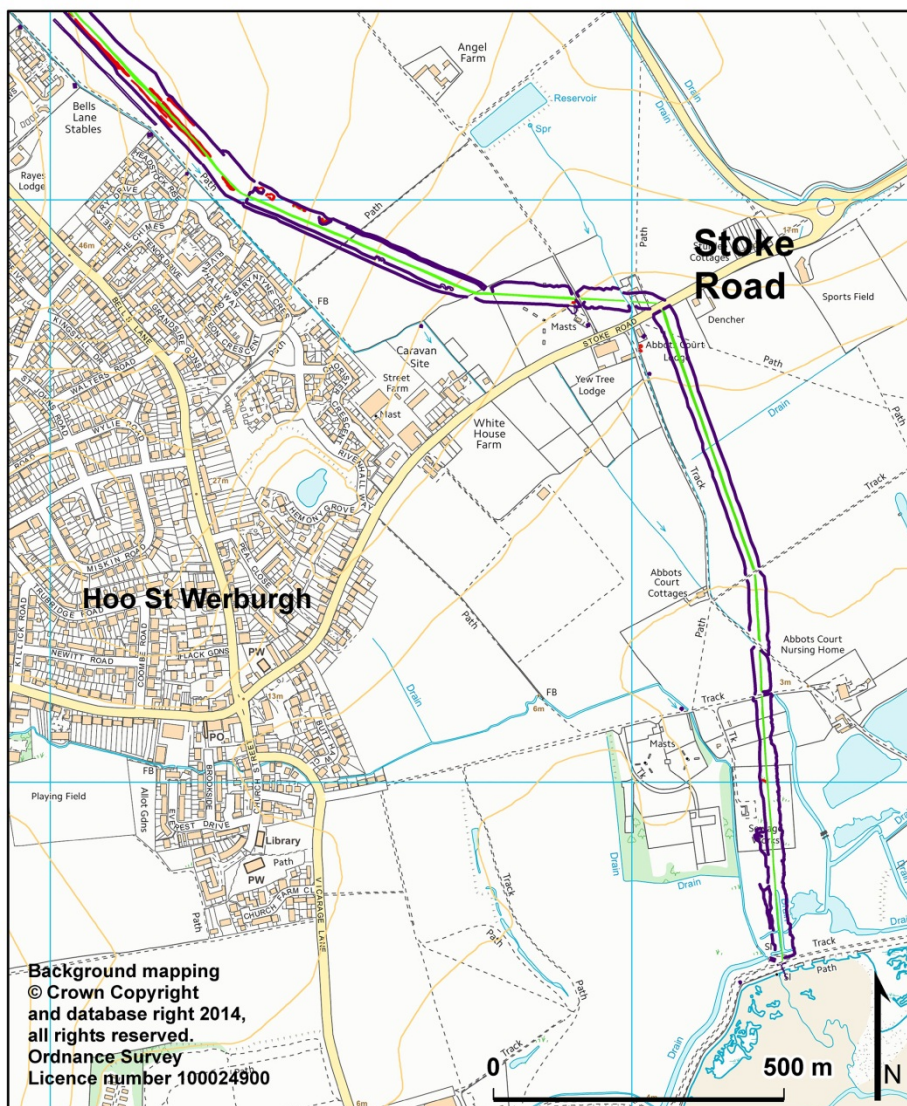


Figure 9 The route of the stop line from the River Medway to north-east of Hoo St Werburgh

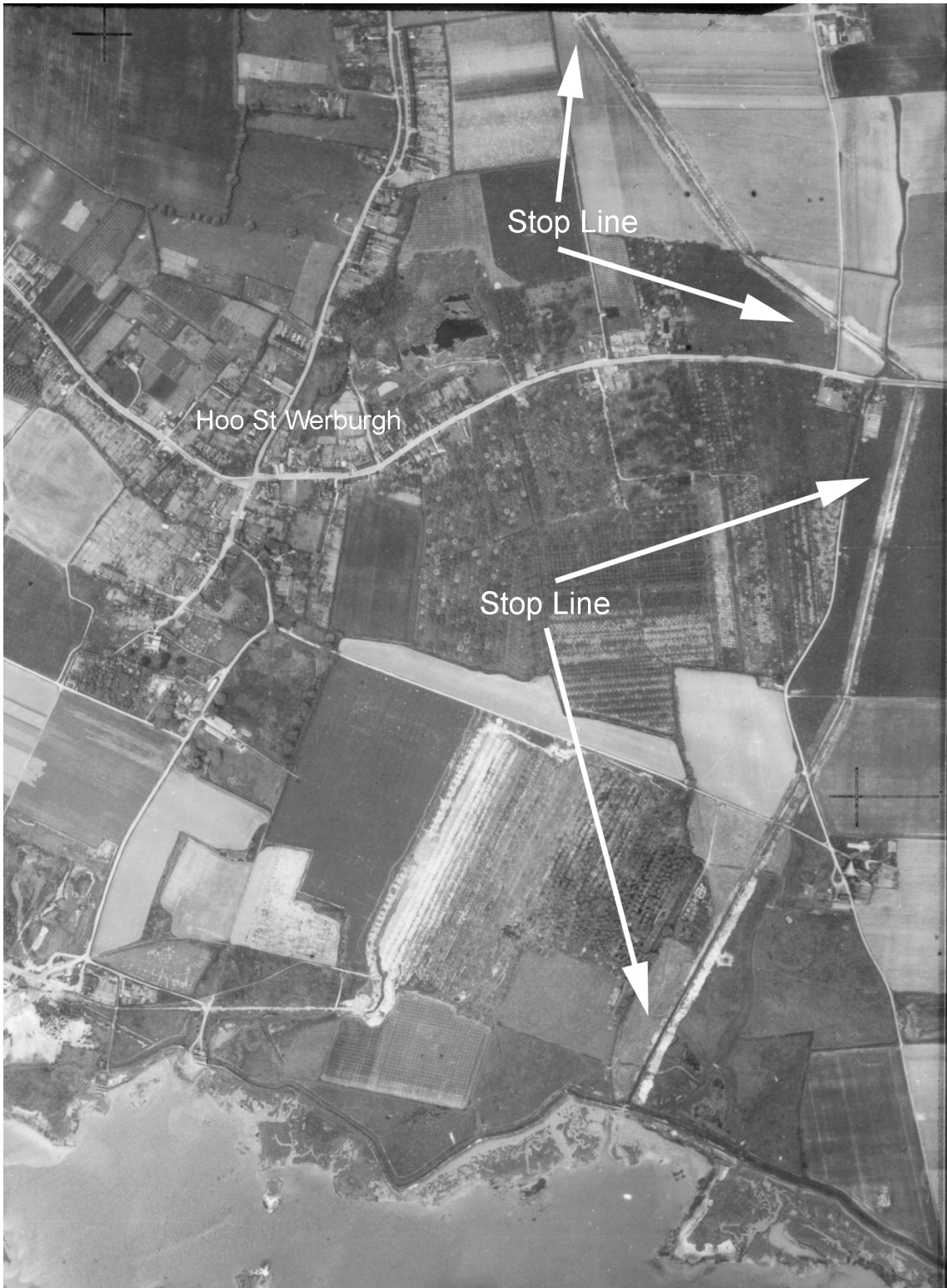


Figure 10 The stop line in 1942 extending north from the bank of the River Medway to the east of Hoo St Werburgh. RAF/HLA/542 2067 18-MAY-1942 English Heritage RAF Photography



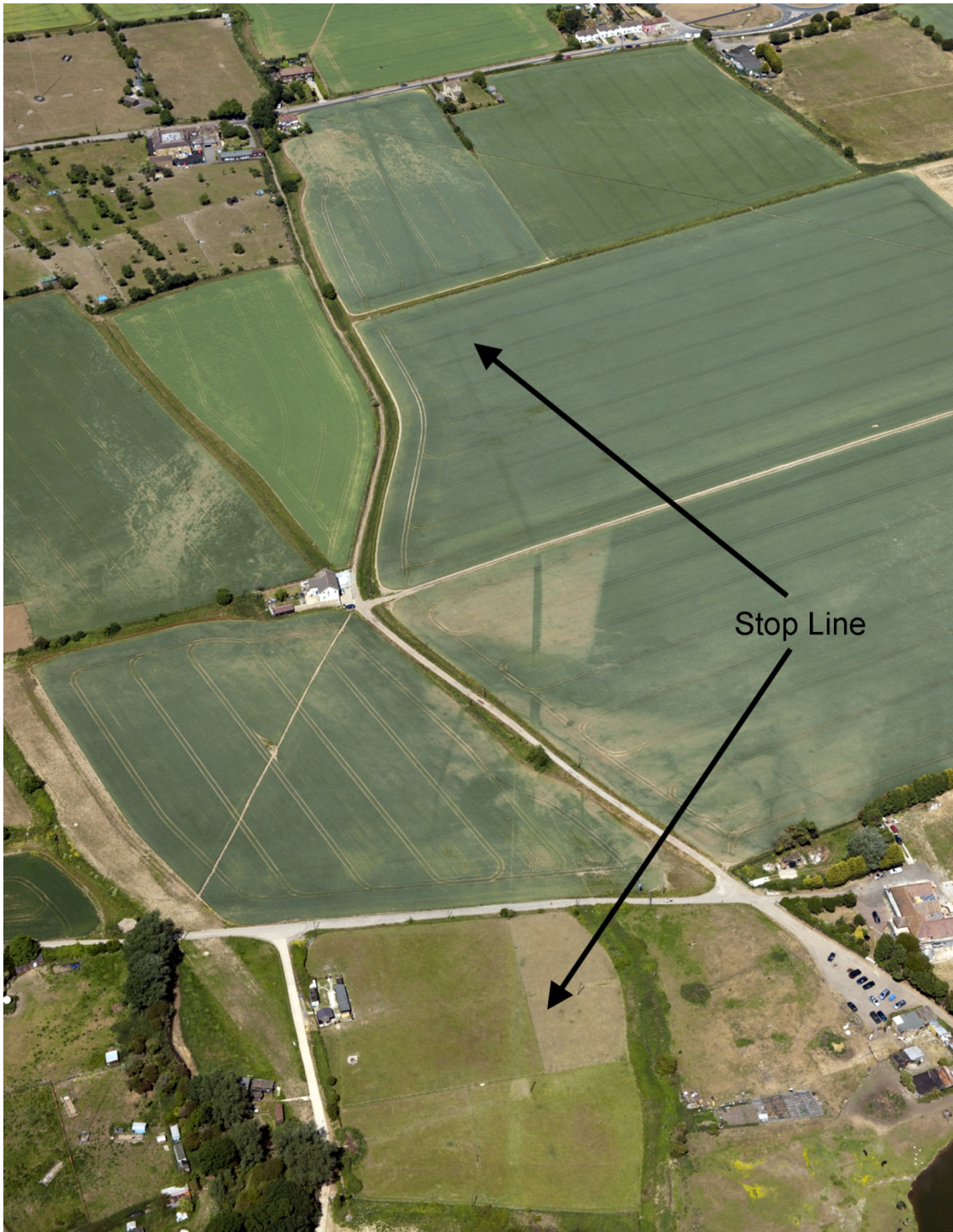


Figure 11 Sub-surface remains of the anti-tank ditch indicated by cropmarks near Abbot's Court Cottages, to the east of Hoo St Werburgh NMR 26975\_003 16-JUN-2011





Figure 12 The anti-tank ditch visible as a low earthwork to the north of Stoke Road.



Figure 13 NRHE 1418686 Hexagonal pillbox south of Abbots Lodge (No. 2 on Fig 14 and table below).

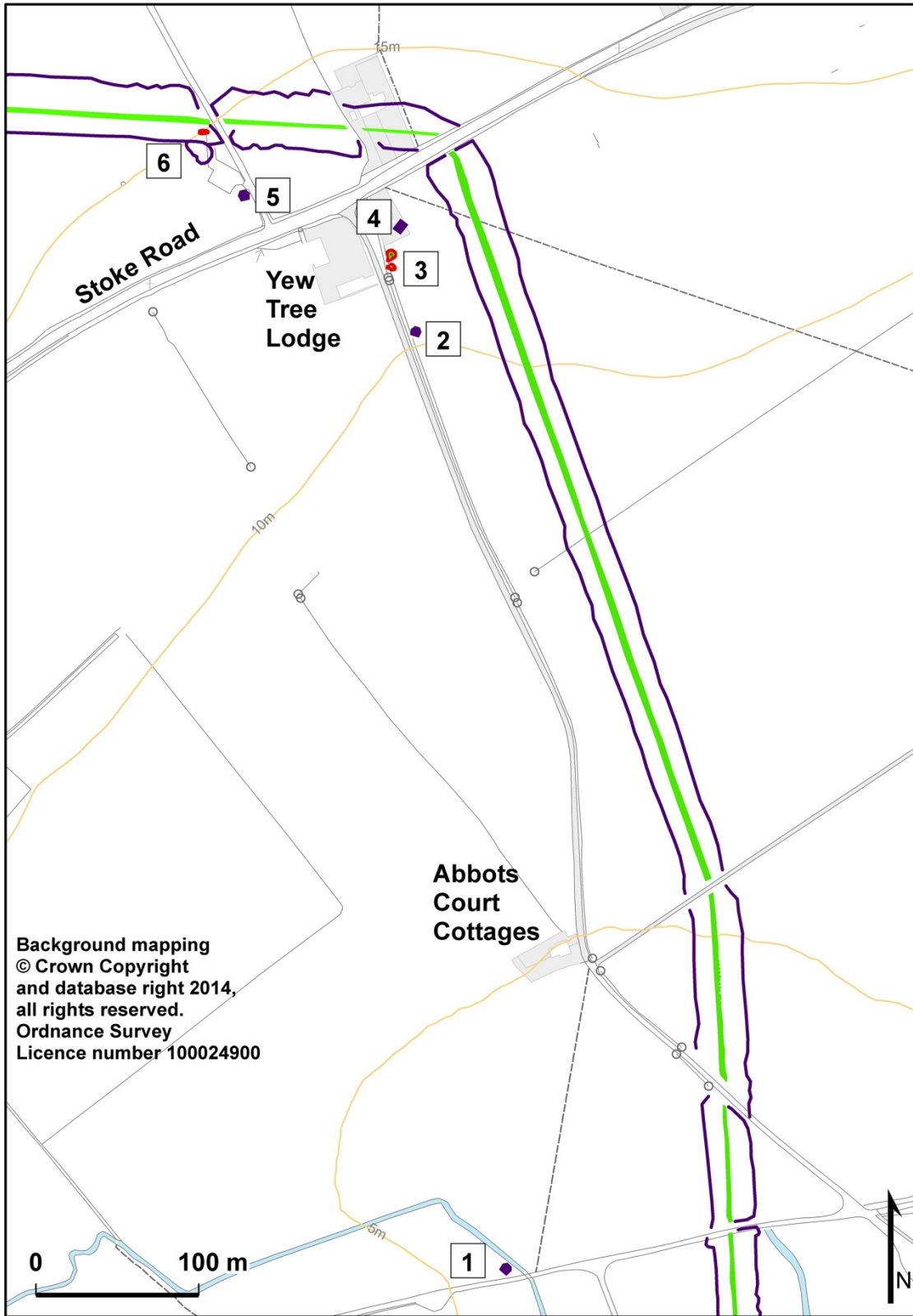


Figure 14 Air photo mapping of the stop line east of Hoo St Werburgh. It shows the line of the anti-tank ditch (green), with flanking cleared area (extents defined by purple lines) and supporting features (earthwork banks in red, structures such as pillboxes in purple). Numbers refer to the table below.

*Supporting defensive features River Medway to Stoke Road*

Feature Number	NRHE Number	Description	Survival	Grid Reference
1	1418687	A Second World War reinforced concrete Type 24 pillbox, narrow wall version in a field 300 m west of Abbot's Court Farm, north of a farm road.	Recorded on aerial photographs taken in May 1942 (RAF) and 2011 (English Heritage).	TQ 79087 72125
2	1418686	Second World War hexagonal pillbox located 73m south of Abbots Lodge. Concrete with brick-shuttering, but without recessed embrasures.	Recorded on 1942 (RAF) and 2013 (Google Earth) aerial photographs. The pillbox was seen on a field visit in 2014 (Fig 13).	TQ 79031 72699
3	1544409	Two Second World War weapons pits, east of Hoo St Werburgh alongside a narrow lane or footpath, just south of Abbots Court House.	Recorded on 1942 aerial photographs but obscured by vegetation after 1973. Not seen on a 2014 field visit so are probably backfilled but sub-surface remains may survive.	TQ 7901 7274
4	1418713	Second World War rectangular brick-shuttered, adapted, type 28, anti-tank gun emplacement with double embrasures immediately behind Abbots Lodge house.	Recorded on 1942 and 2007 aerial photographs. Seen on a field visit in 2014, reused as a shed (Fig 15). Blast wall by the entrance removed.	TQ 7902 7276
5	1418685	Second World War reinforced concrete pillbox with brick shuttering, with recessed embrasures, to the east of Hoo St. Werburgh, by a farm track off the north side of the Stoke Road.	Recorded on 2007 aerial photographs (PGA) but under tree cover by 2013 (Google Earth). Appeared to be complete on a 2014 field visit but is surrounded by dense vegetation.	TQ 78924 72785
6	1418717	Parts of a Second World War roadblock located either side of a track north from the Stoke Road, east of Hoo St Werburgh. The roadblock comprised two concrete blocks which once held a horizontal rail.	The concrete blocks were noted by Foot in 2003 (Foot 2006). Visible on 2007 aerial photographs (PGA). Seen on a field visit in 2014, very overgrown but with signs of corrugated iron shuttering on the surface of the concrete.	TQ 78907 72826
7 (not on Fig 14)	1544420	A small hexagonal concrete structure, possibly a Second World War pillbox Located north east of the centre of Hoo St Werburgh.	Recorded from 1942 aerial photographs but appears to have been destroyed by quarrying by on 1946 aerial photographs.	TQ 7846 7258





Figure 15 NRHE 1418713 Type 28 artillery pillbox near Abbots Court Lodge (No.4 in Fig 14 and table above). Photographed with the permission of the owners Daniel and Julia Pearce.



Figure 16 NRHE 1418680 Type 28 artillery pillbox, now on the edge of Hoo St Werburgh, (No. 11 in Fig 21 and table below) with a garden on top. Photographed from an adjacent road.



## Stoke Road to Lodge Hill, NRHE I542630

This section ran north east of Hoo St Werburgh, Kingshill Camp, and east of Lodge Hill Royal Naval Armament Depot (NRHE I077634) (Fig 17).

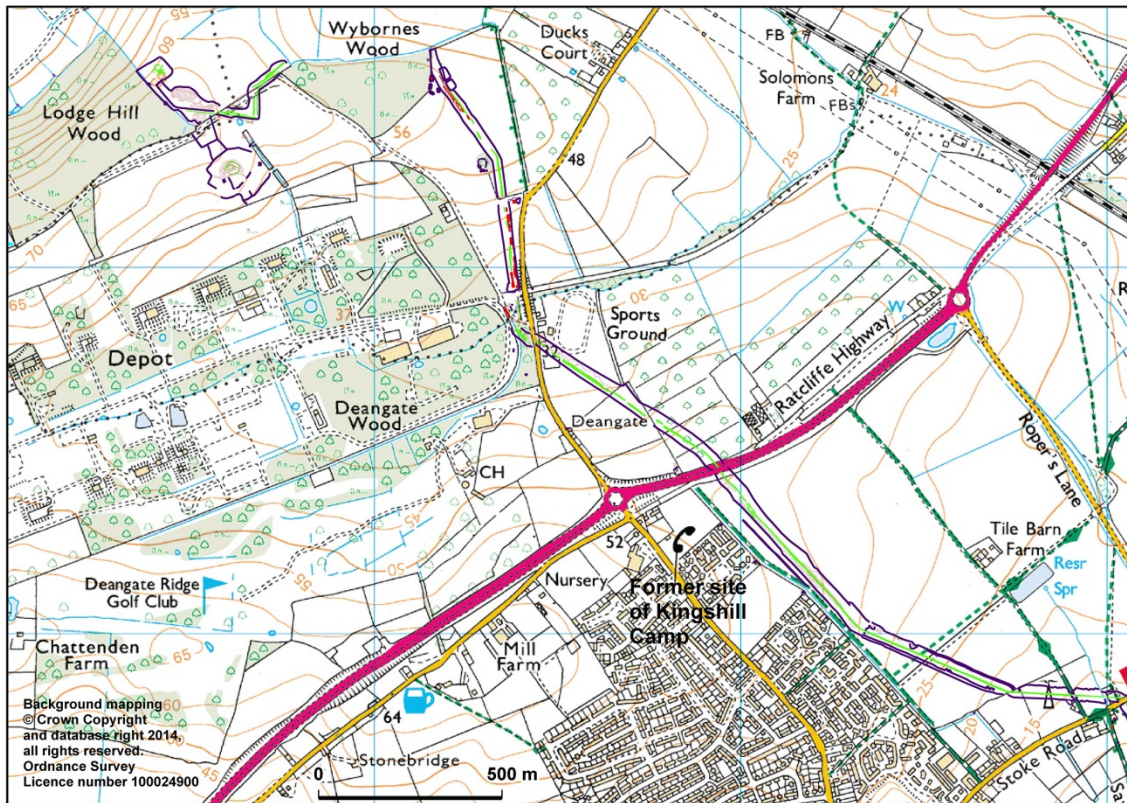


Figure 17 Route of the Stop Line from Stoke Road to Lodge Hill.

*Condition:* The first aerial photographs of this section, taken in 1944, show the anti-tank ditch as already out of use and being backfilled, with mounds of earth visible alongside the former ditch (Fig 18). Parts of the sub-surface remains of the anti-tank ditch are indicated by cropmarks on aerial photographs of 1944 and 2013 north and south of the Ratcliffe Highway (Fig 19). Sub-surface remains of sections of the ditch were indicated by cropmarks in fields under pasture, seen on 2003 aerial photographs, to the south of Deangate Ridge Sports Ground (Fig 20).

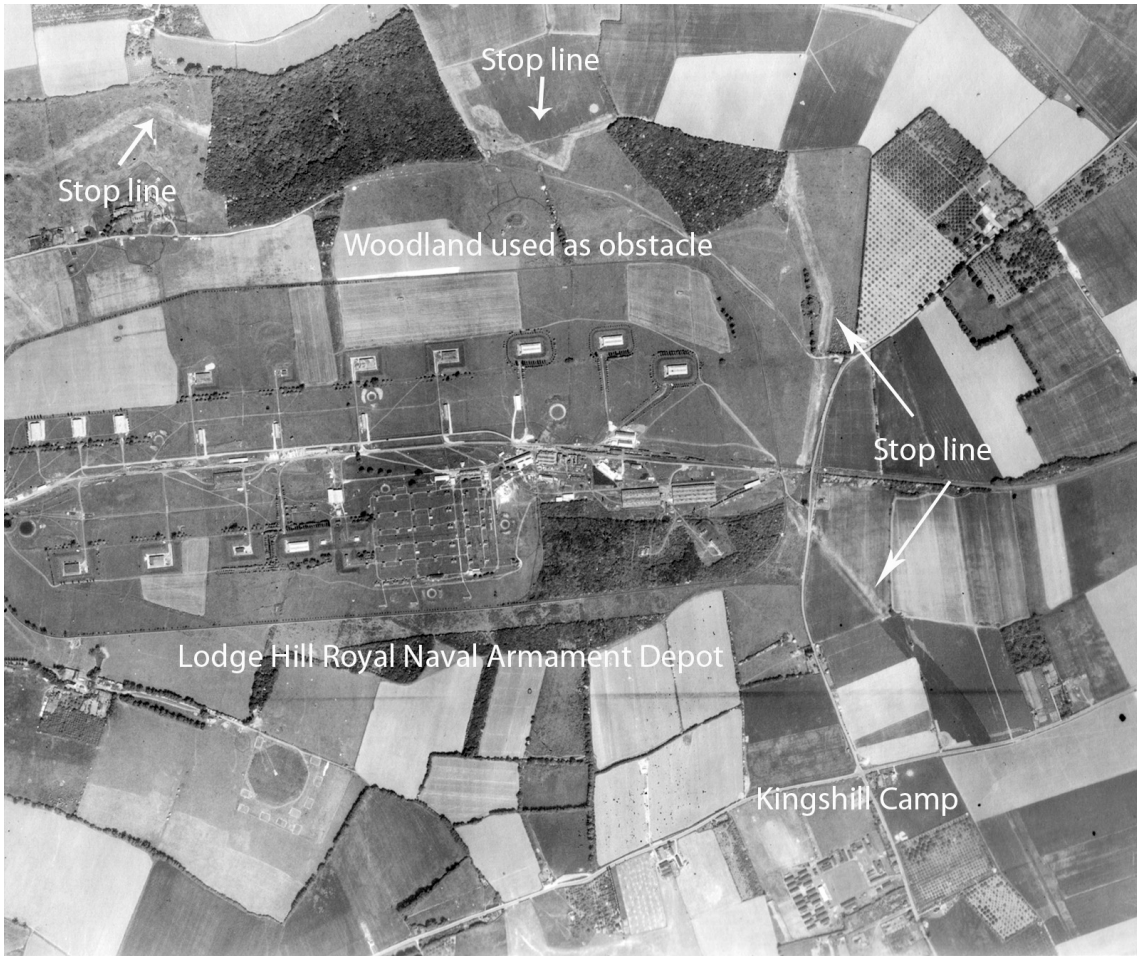


Figure 18 Aerial Photograph showing the stop line in 1944 to the north of Kingshill Camp. US 7GR/LOC/348 2065 27-MAY-1944 English Heritage USAAF Photography.





Figure 19 Part of the line of the anti-tank ditch visible as a cropmark, east of Bells Lane, south of the Ratcliffe Highway. © Google Earth 07-SEP-2013.



Figure 20 Buried remains of the stop line ditch show as a cropmark to the south east of Deangate Ridge Sports Ground. Next Perspectives PGA Tile Ref: TQ7773 14-AUG-2003. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.



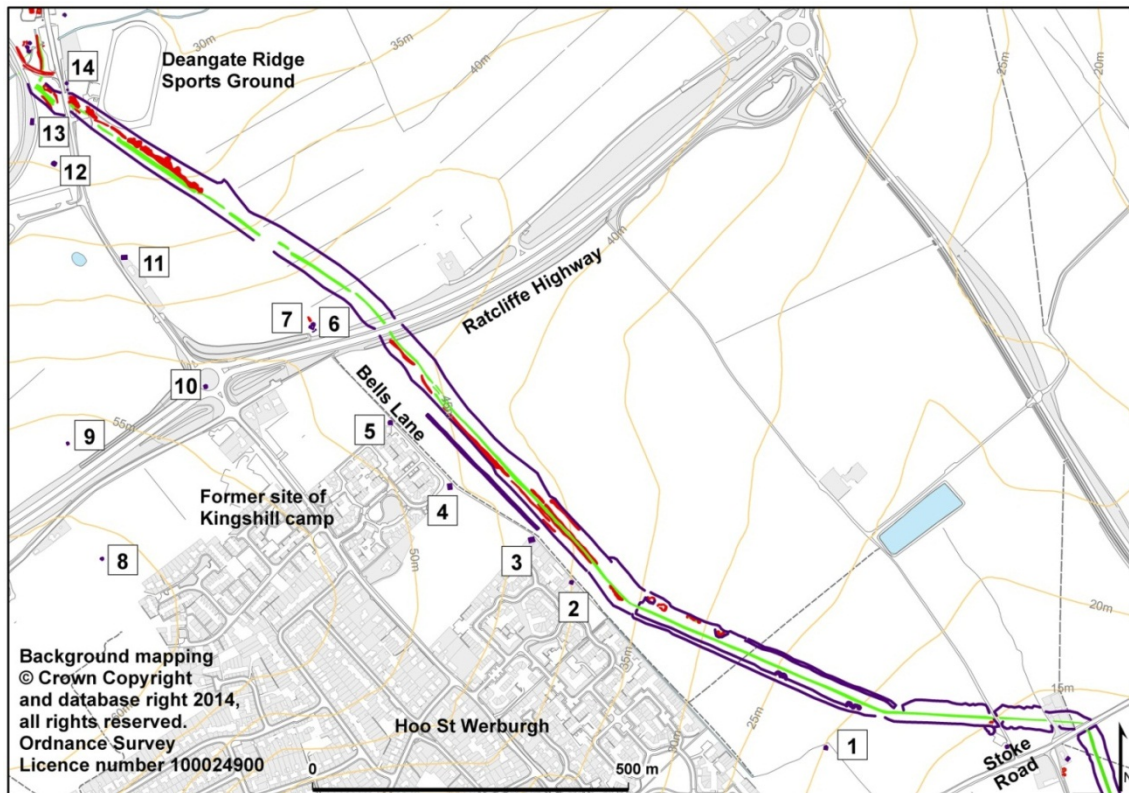


Figure 21 Air photo mapping of the stop line from Stoke Road to Deangate Ridge Sports Ground. It shows the line of the anti-tank ditch (green), with flanking cleared area (extents defined by purple lines) and supporting features (earthwork banks in red, structures such as pillboxes in purple). Numbers refer to the table below.

*Supporting defensive features Stoke Road to Lodge Hill*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1	1426022	Second World War reinforced concrete Type 24 pillbox facing east located in an orchard north of the Stoke Road, east of Hoo St. Werburgh.	The structure was visible on aerial photographs of 2007 but is under tree cover on recent aerial imagery (September 2013 Google Earth).	TQ 78638 72783
2	1418684	A Second World War reinforced concrete Type 24 pillbox with brick shuttering is located to the east of Bells Lane and south of Ratcliffe Highway, on the east side of Hoo St Werburgh. The pillbox is a narrow wall version with a brick skin, with	The pillbox survives as an extant structure and is listed at Grade II, NHLE 1391937. The pillbox was located during a field visit in 2014.	TQ 78234 73045

		the irregularity of no brickwork above the embrasure.		
3	1418683	A Second World War reinforced concrete Type 28 artillery pillbox with brick shuttering to the east of Bells Lane and south of Ratcliffe Highway, on the east side of Hoo St Werburgh. Rectangular anti-tank gun emplacement for 2-pounder or 6-pounder First World War naval gun.	The pillbox survives as an extant structure and is listed at Grade II, NHLE 1391937. The pillbox was seen on a field visit in 2014, surrounded by a fence on private land. The roof has a chamfered edge. Contains plaque: "1940- Hell's Corner- BY BEF".	TQ 78171 73109
4	1426745	A Second World War reinforced concrete Type 28 artillery pillbox with brick shuttering to the east of Bells Lane and south of Ratcliffe Highway, on the east side of Hoo St Werburgh. The pillbox served as a gun emplacement for a 2-pounder or 6-pounder Quick Firing gun. The roof features chamfered edges. The structure has flat embrasures, possibly a feature of the Type 28 pillbox in this area.	The pillbox is visible on aerial photographs of 2013. It is listed at Grade II, NHLE 1391937 (Fig 4).	TQ 78041 73193
5	1418711	A Second World War Type 24 infantry pillbox, constructed of reinforced concrete and brick shuttering, to the east of Bells Lane and south of Ratcliffe Highway, north east of Hoo St Werburgh. It has no brickwork above the embrasures.	The pillbox was visible on aerial photographs of 2013 and seen on a field visit in 2014. It is in fair condition and is listed at Grade II, NHLE 1391937.	TQ 77947 73296
6	1418681	Second World War Type 24 reinforced concrete pillbox with brick shuttering on the north side of Ratcliffe Highway (A228), north of Hoo St Werburgh. The structure is visible on aerial photographs taken in May 1944. An associated earth	The pillbox was visited during the Defence of Britain survey and was found in a fair condition. It is visible, although partially under tree cover, on aerial photographs of 2007 (Google Earth).	TQ 77825 73452

		covered air raid shelter immediately to the north of the pillbox was visible on aerial photographs until 1952, but had been removed by 1961.		
7	1548001	Second World War military support buildings, possibly representing ammunition stores, adjacent to and associated with a pillbox (NRHE 1418681) on the north side of Ratcliffe Highway	The structures are visible on photographs taken in 1944 and 1952, but it cannot be seen on aerial photographs of 1961 so had apparently been removed by this date, although it is possible that sub-surface remains survive	TQ 7782 7344
8	1545645	Second World War hexagonal pillbox, located on a field boundary south of Ratcliffe Highway.	Kent HER records that it was examined between 2001 and 2006. It is not visible on the most recent aerial photographs available to the project (PGA 2007 and Google Earth 2013) as the site is hidden beneath a hedgerow.	TQ 7749 7308
9	1426744	Second World War brick and concrete type 24 pillbox, located on a field boundary north of Ratcliffe Highway.	The pillbox was visible on PGA aerial photographs taken in 2007. It could not be located during a field visit in 2014 due to tree cover, but may still be extant	TQ 77437 73264
10	1418716	Second World War Type 24 reinforced concrete pillbox with brick skin was located on the north-west corner of the junction between Ratcliffe Highway and the road to Deangate (Bells Lane).	The pillbox was mapped from aerial photographs as part of the English Heritage: Hoo Peninsula Historic Landscape Project, and was recorded by field survey in 1995. It was visible on aerial photographs in 2003, and was destroyed by road widening after that date.	TQ 77654 73355
11	1418680	Second World War rectangular reinforced concrete artillery pillbox, Type 28, is located in the	The pillbox survives, although part of the house garden has been laid out on top of it. The pillbox	TQ 77527 73558

		garden of Deangate, on the east side of Deangate Road, north of Hoo St Werburgh	was located during a field visit in 2014 and appeared (from the road) to be in good condition (Fig 16).	
12	1441600	Second World Type 24 hexagonal pillbox lies within scrubby woodland at the south-east corner of the Lodge Hill Royal Naval Armament Depot and was part of its defended perimeter. It also overlooked the course of the line.	The pillbox was visible on aerial photographs until at least 2003, and was examined by the Medway Military Research Group on a field visit in 2006, when it was found to be in good condition but overgrown. The pillbox was not recorded during a Built Heritage Baseline Assessment undertaken in 2009 in advance of possible development of the Lodge Hill Depot site (CgMs Ltd 2009). The area is under tree cover on aerial photographs of 2007 and 2013, so its present condition is unknown.	TQ 77415 73706
13	1545475	Second World War rectangular artillery pillbox, located at the south east corner of Lodge Hill Royal Naval Armament Depot. The pillbox was part of the perimeter defences of the Armament Depot, and also overlooked the course of the line.	The structure was surveyed as part of a Built Heritage Baseline Assessment (CgMs Ltd 2009), in advance of development of the Lodge Hill Depot site.	TQ 77380 73772
14	1549971	Two possible Second World War circular Type 25 pillboxes, situated near the eastern gate of Lodge Hill Ordnance Depot. They were aligned along the road, 10m apart and had diameters of 3.6m and 4.3m.	The structures described in this record were only visible on photographs taken in 1944. Current survival or condition unknown.	TQ 77436 73823 and 77435 73833



## Lodge Hill to Wybornes Wood, NRHE 1542646

This section skirted the east side of Lodge Hill Ordnance Depot (NRHE 1077634) from the east gate of the depot at TQ 7739 7382 to the north eastern corner of Wybornes Wood at TQ 7715 7459, for a distance of 715m (Fig 22). Aerial photographs of 1944 show Wybornes wood was used as part of the defensive line. There is no evidence of significant tree felling or re-growth before 1944 suggesting there was no anti-tank ditch through Wybornes Wood. Pillboxes were placed along the northern edge of the wood, overlooking the marshes. Several small gun emplacements and weapons pits were located at the edge of the cleared strip around the anti-tank ditch.

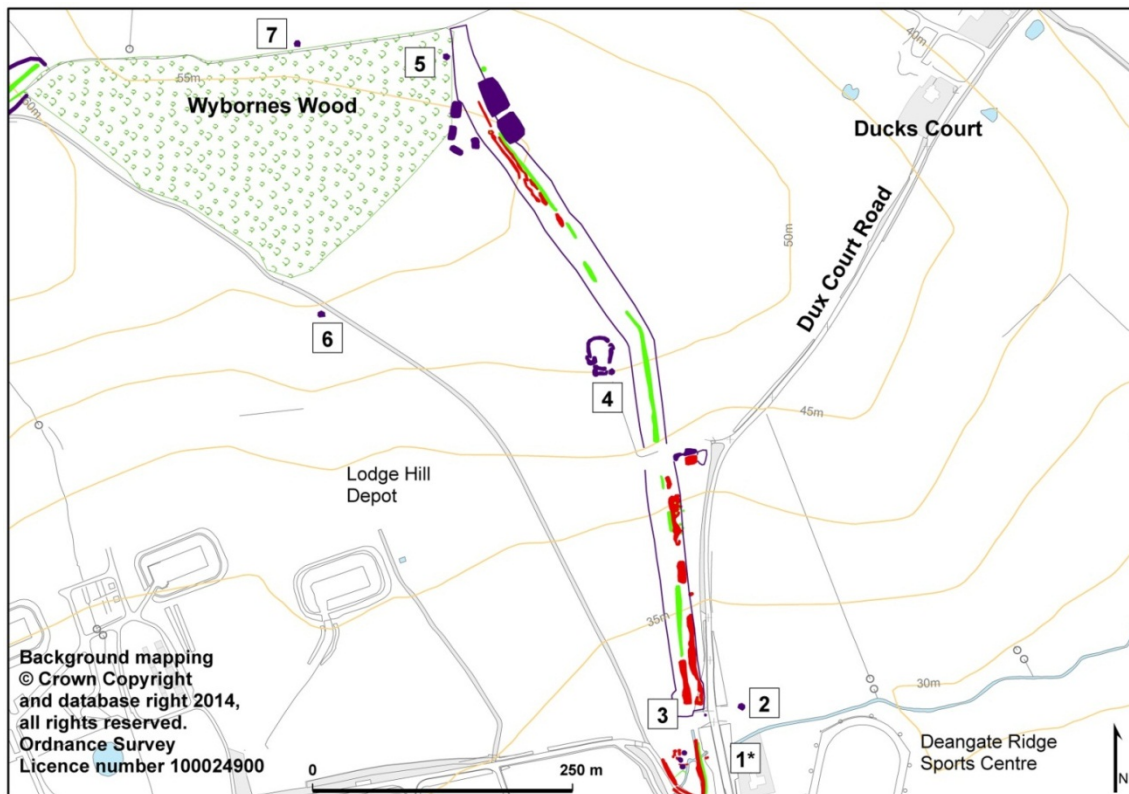


Figure 22 Air photo mapping of the stop line south of Wybornes Wood. It shows the line of the anti-tank ditch (green), with flanking cleared area (extents defined by purple lines) and supporting features (earthwork banks in red, structures such as pillboxes in purple). Numbers refer to the table below.

*Condition:* The earliest aerial photographs, taken in 1944, show this section of anti-tank ditch was already out of use and being backfilled, with mounds of earth visible alongside the former ditch (Fig 23). Sub-surface remains of sections of the ditch were indicated by cropmarks in pasture on aerial photographs of 2003 to the south of Wybornes Wood (Fig 24). There is intermittent evidence of a spread ditch in the area between the south east corner of Wybornes Wood and the First World War redoubt and pillbox to the south (observation from field visit in May 2015).



Figure 23 The anti-tank ditch from the east entrance of the Lodge Hill Ordnance Depot north to Wybornes Wood. US 7GR/LOC/348 2065 27-MAY-1944 English Heritage USAAF Photography.

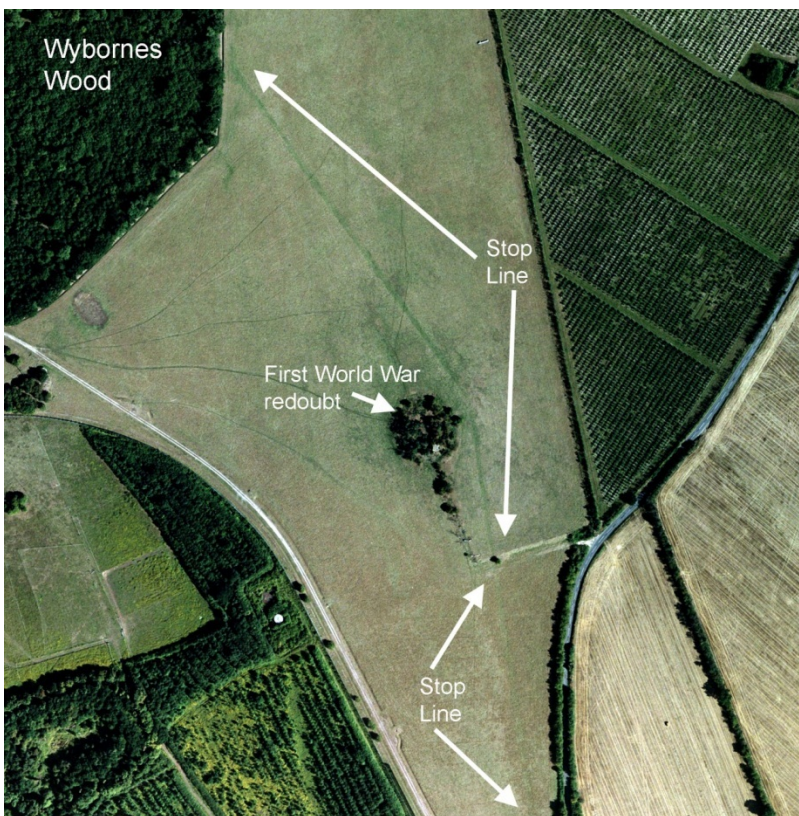


Figure 24 Remains of the anti-tank ditch revealed as cropmarks and low earthworks in pasture to the east and south of Wybornes Wood. Next Perspectives PGA Tile Ref: TQ7774 14-AUG-2003. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.

*Supporting defensive features Lodge Hill to Wybornes Wood*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1* Not mapped	1441601	Site of a Second World War pillbox on Dux Court Road, east of the Lodge Hill military depot and south of a dismantled military railway	Nothing identified on aerial images during the Hoo Peninsula Historic Landscape Project.	TQ 7742 7389
2	1544248	Second World War hexagonal pillbox north of a disused military railway, east of Lodge Hill Royal Naval Armaments Depot.	Visible on aerial photographs taken between 1944 and 1969 but obscured by vegetation on later photos. Reported in 2006, to the Kent HER, as in good condition. This may be the pillbox NRHE 1441601.	TQ 7743 7394
3	1426742	Anti-tank 'pimples' by the military railway track, west of a bridge, to the north of Hoo St Werburgh, adjacent to the entrance of Lodge Hill Ordnance Depot.	Noted by the Defence of Britain Project. A small round concrete structure was mapped from aerial photographs from 1944 and 2007. Current condition is unknown as obscured by trees on recent aerial photographs.	TQ 77397 73933
4	1426121	Second World War reinforced concrete Type 24 pillbox, constructed at the edge of a First World War redoubt (NRHE 1546157). The pillbox is a narrow wall version with a brick skin. The pillbox would have provided protection for the depot, and is also an element within the supporting defences of the stop line.	Visible on 2013 Google Earth aerial photographs, within the southern half of a First World War redoubt. See also Fig 23. The pillbox was seen during a site visit in May 2015, within the substantial redoubt earthwork. The door and embrasures are blocked.	TQ 7730 7427
5	1426114	Second World War reinforced concrete Type 24 pillbox where the anti-tank ditch meets the edge of Wybornes Wood. The pillbox is a narrow wall version with a brick skin.	The pillbox is visible on 2007 Google Earth aerial photographs. Seen on a May 2015 field visit with a blocked entrance and embrasures.	TQ 7714 7456



6	1426123	Second World War reinforced concrete Type 24 pillbox, located at the north east corner of Lodge Hill Royal Naval Armaments Depot. It probably also formed part of the defences of the stop line.	Recorded on aerial photographs taken in 1944 (RAF) and 2007 (PGA)but partially obscured later by a tree. Seen on a May 2015 field visit with a blocked entrance and embrasures (Fig 25). Rubble against the western side is possibly the remains of another pillbox but its original location is unclear (see Fig 24)	TQ 7702 7432
7	1426124	Second World War reinforced concrete Type 24 pillbox, constructed on the north-west edge of Wybornes Wood, High Halstow, near the north-eastern corner of Lodge Hill Royal Naval Armaments Depot	It appeared as an extant structure on Google Earth aerial photographs taken in 2007, but is under tree cover on aerial photographs of 2013 so current condition is unknown.	TQ 7699 7457



Figure 25 NRHE 1426123 Type 24 pillbox (No. 6 in Fig 22 and the table below) with adjacent rubble, possibly from a demolished pillbox. Photographed in May 2015.

## Wybornes Wood to Lodge Hill Wood, NRHE I542665

Here the stop line followed a sharply angled course on the north facing slope of Deangate Ridge, between Wybornes Wood and Lodge Hill Wood (TQ 7675 7455 to TQ 7646 7443) for a total distance of 396m (Fig 26). There were small gun emplacements and weapons pits near the edge of the cleared strip around the anti-tank ditch. Wybornes Wood and Lodge Hill Wood were used as part of the defensive line and pillboxes were placed along the northern edge of both woods, looking north over the marshes.

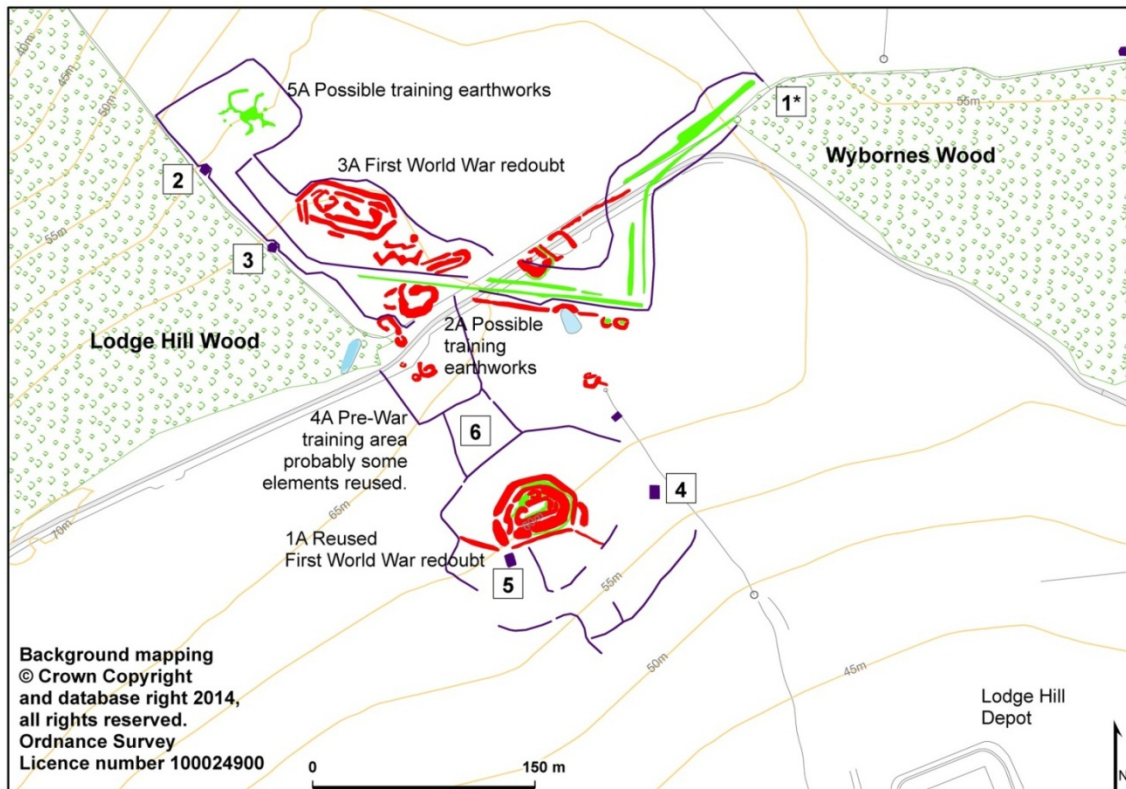


Figure 26 Air photo mapping of the stop line and the defended area on Deangate Ridge and earlier military features. It shows the line of the anti-tank ditch (green), with flanking cleared area (extents defined by purple lines), barbed wire enclosures (purple lines) and supporting features (banks in red, structures such as pillboxes in purple). Numbers refer to the tables below.

Condition: The earliest aerial photographs, taken in 1944, show the ditch is backfilled, with mounds of earth visible alongside (Fig 27). It is visible as a vegetation mark on aerial photographs of 2003 (Fig 28). A 2015 field visit confirms the ditch survives as a very low earthwork adjacent to Lodge Hill Wood and where it turns at a sharp right angle (Fig 29).





Figure 27 The angled part of the stop line between Wybornes Wood and Lodge Hill Wood in 1944. US 7GR/LOC/348 2065 27-MAY-1944 English Heritage USAAF Photography.



Figure 28: A section of the angled anti-tank ditch, visible as a vegetation mark, between Wybornes Wood and Lodge Hill Wood. Next Perspectives PGA Tile Ref: TQ7674 14-AUG-2003. Aerial Photography: Licensed to English Heritage for PGA, through Next Perspectives™.





Figure 29 NRHE I542665 The V-shaped section of anti-tank ditch seen in Fig 26 surviving as a low earthwork indicated by the reeds, photographed in May 2015.

*Supporting defensive features Wybornes Wood to Lodge Hill Wood*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1*	1426117	Second World War reinforced concrete Type 24 pillbox on crest line facing north.	Not identified on aerial photographs. The Defence of Britain Project notes it is in a hedgerow at the north-west corner of Wybornes Wood.	TQ 7677 7454
2	1426724	Second World War reinforced concrete Type 24 pillbox, on the east edge of Lodge Hill Wood.	Seen on a May 2015 field visit and appears to have used plank shuttering and has no gaps above the embrasures (Fig 30).	TQ 7638 7449
3	1426725	Second World War reinforced concrete Type 24 pillbox. Overlooked the anti-tank ditch from the east edge of Lodge Hill Wood.	Seen on a May 2015 field visit and appears to have used plank shuttering and has no gaps above the embrasures	TQ 7643 7444
4	1426109	A concrete anti-tank Type 28 pillbox facing east - part of the defences for Lodge Hill Royal Naval Ordnance Depot and the stop line.	Recorded on 2011 aerial photographs but under partial tree cover by 2013 (Google Earth). The entrance and embrasure are blocked.	TQ 7668 7428
5	1426099	A concrete anti-tank Type 28 pillbox facing west - part of the defences for Lodge Hill Royal Naval Ordnance Depot and the stop line.	Recorded as a roofless structure on 2011 (English Heritage and 2013 (Google Earth) aerial photographs. Seen on a field visit in May 2015. There is a metal base plate for a gun emplacement on one of the embrasures (Fig 31).	TQ 7659 7423
6	1546575	Second World War defended locality with barbed wire enclosures, small weapons pits or gun emplacements, pillboxes 4 and 5 above and a possible First World War redoubt (1A below). A similar defended locality is 800m to the west (1546483, below). A 1940 German map shows a barbed wire entanglement about here.	Mapped from aerial photographs taken in 1944 and 1947. First World War redoubt was seen as a very low earthwork on a May 2015 field visit. The field due east of Wybornes wood was under plough at the time of the field visit and no earthworks could be observed.	TQ 7660 7424





Figure 30 NRHE I426724 Type 24 pillbox (No. 2 in the table above) with blocked embrasures, photographed in May 2015.



Figure 31 NHE I426099 Type 28 pillbox (No. 5 in the table above) surviving as a roofless structure photographed in May 2015. A gun emplacement is located within the embrasure in the centre of the photograph.



*Possible Associated Features Wybornes Wood to Lodge Hill Wood*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1A	1546125	First World War redoubt, within a Second World War defended locality (1546575 above ), possibly reused for the stop line.	Field visit in May 2015 observed the redoubt as a very low earthwork.	TQ 7660 7426
2A	1549853	Military earthworks on the north edge of Deangate Ridge may relate to First World War training and/or the stop line.	Recorded on 1944 aerial photographs but not visible on 2013 Google Earth.. A buried hatch seen on a May 2015 field visit could be associated (Fig 32).	TQ 7652 7443
3A	1546196	First World War redoubt adjacent to the stop line, appears abandoned by the Second World War but may have been reused.	Recorded on 1944 aerial photographs but not visible on Google Earth 2013. Not seen on a May 2015 visit as field in arable.	TQ 7648 7447
4A	1548195	Pre-Second World War military training area possibly re-used in the Second World War.	Features on 1944 aerial photographs not visible on Google Earth 2013. May be sub-surface remains.	TQ 7646 7427
5A	1549858	A large pit with ditches radiating from could relate to First World War training and/or the stop line.	Recorded on 1944 aerial photographs but not visible on Google Earth 2013. Current condition is unknown.	TQ 7641 7454



Figure 32 NRHE 1549853 Buried hatch seen on a field visit in May 2015. It is probably associated with military earthworks on the north edge of Deangate Ridge (No. 2A in table above).

## Lodge Hill Wood to Berry Court Wood, NRHE 1542687

This section of the stop line was positioned mid-slope on the north side of Deangate Ridge (Figs 33-35), beyond the north boundary of Lodge Hill Ordnance Depot (NRHE 1077634). It followed a sharply angled course for 714 m between Lodge Hill Wood and Berry Court Wood (TQ 7591 7425 to TQ 7529 7402). The anti-tank ditch is between 40m and 45m above Ordnance Datum (OD) downslope from the highest point (70 m above OD) where there was a Second World War defended locality, on the site of Lodge Hill First World War anti-aircraft battery. It is clear from the 1944 aerial photographs that the anti-tank ditch did not continue through either Lodge Hill Wood or Berry Court Wood. The woods were therefore part of the defensive line and pillboxes were placed along their northern edges, overlooking the marshes and lowland to the north. Small weapons pits were located near the east end of this part of the line (at TQ 7576 7423 and TQ 7572 7417).



Figure 33 The stop line between Lodge Hill Wood (right) and Berry Court Wood (left). US 7GR/LOC/348 2065 & 3062 27-MAY-1944 English Heritage USAAF Photography.

*Condition:* The earliest photographs, taken in 1944, show the backfilled anti-tank ditch and there are mounds of earth lying alongside (Fig 33). However, the route of the stop line is still discernible as a vegetation pattern on 2003 Google Earth aerial photographs (Fig 34). Later aerial photographs show the scrubby trees are denser but you can still make out an earthwork. A concrete pathway seen on a field visit in 2014, in Berry Court Wood, may be a military track.



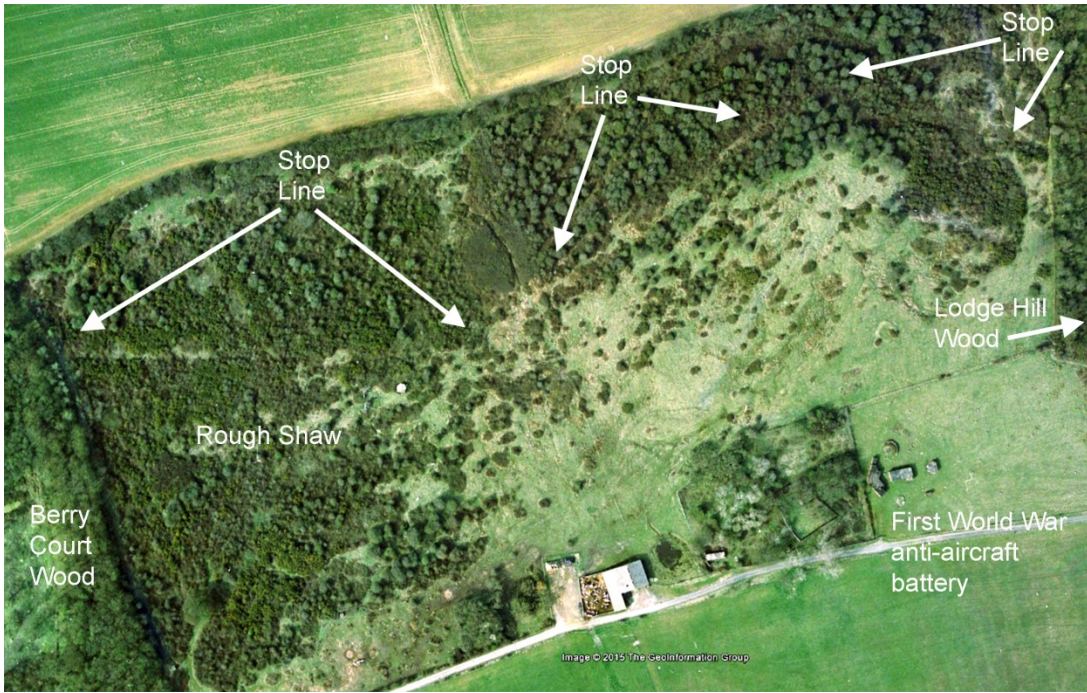


Figure 34 The route of the anti-tank ditch west of Lodge Hill Wood ©The Geoinformation Group

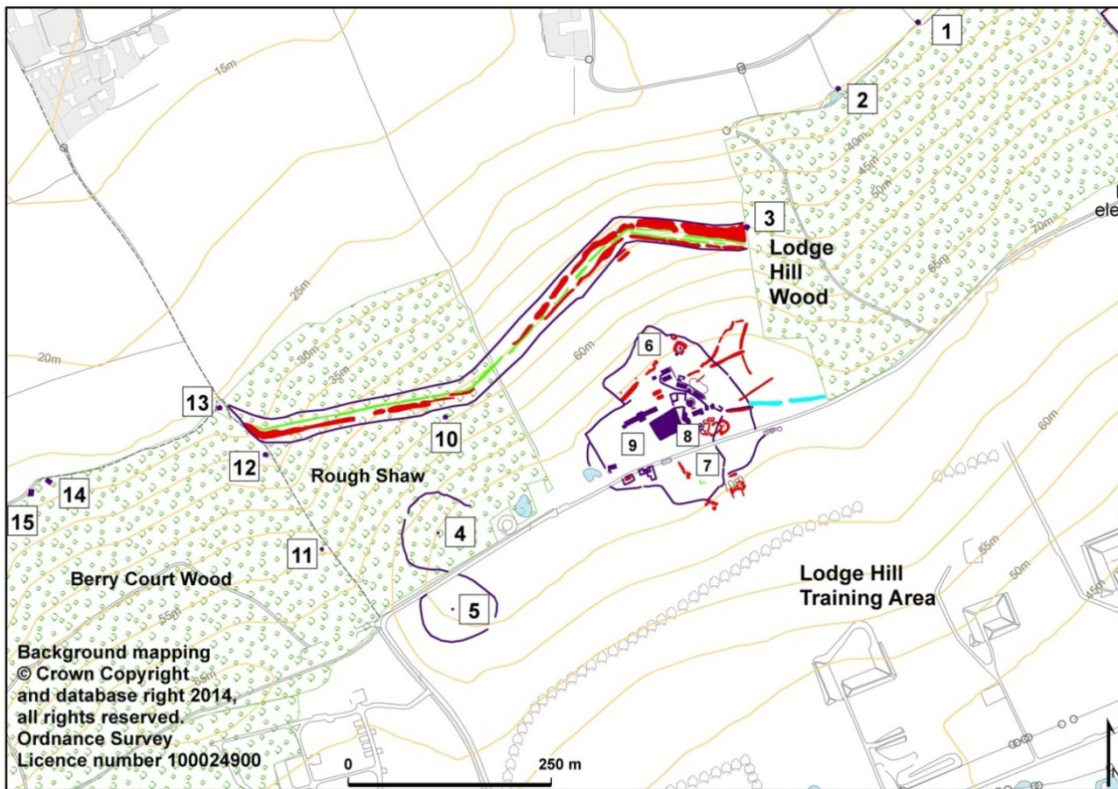


Figure 35 Air photo mapping of Lodge Hill Wood to Berry Court Wood. It shows the anti-tank ditch (green), with flanking cleared area (extents defined by purple lines) and other military features - barbed wire enclosures and pillboxes (purple) and earthwork banks (red). Numbers refer to the table below.

*Supporting defensive features Lodge Hill Wood to Berry Court Wood*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1	1426723	Second World War reinforced concrete Type 24 pillbox, constructed on the north edge of Lodge Hill Wood near the north side of Lodge Hill Royal Naval Armaments Depot	This structure was only seen on vertical aerial photographs taken in February 1953. The current condition is unknown.	TQ 7612 7452
2	1426722	Second World War reinforced concrete Type 24 pillbox, constructed on the north edge of Lodge Hill Wood near the north side of Lodge Hill Royal Naval Armaments Depot	It was recorded on aerial photographs of 1944 and 1953 only but its current condition is unknown. The pillbox was recorded as being in good condition during the Defence of Britain Project.	TQ 7602 7444
3	1543787	Second World War concrete Type 24 pillbox, constructed on the western edge of Lodge Hill Wood near the north side of Lodge Hill Royal Naval Armaments Depot. It is located on Rough Shaw, a north west facing slope, at the point where the anti-tank ditch meets the west side of Lodge Hill Wood.	This is recorded on aerial photographs taken in 1944 and 1953, but has not been identified on later photographs. Its current condition is unknown.	TQ 7591 7427
4	1418707	Second World War circular Type 25 pillbox, about 2 metres in diameter, situated near Lodge Hill Lane to the north of the northern perimeter of Lodge Hill Ordnance Depot. It was protected by a barbed wire enclosure on the downhill side.	The pillbox appeared as a standing structure on photographs taken in June 2011.	TQ 75535 73896
5	1546582	Second World War circular Type 25 pillbox. The pillbox is located on Deangate Ridge to the south of Rough Shaw, facing south overlooking Lodge Hill Ordnance Depot. It was protected by a roughly circular barbed wire enclosure about 40m in diameter.	The pillbox appeared as a standing structure on photographs taken in 1944 and 1970, but had been removed by 1973 although it is possible that sub-surface remains survive	TQ 75553 73802

6	1546494	Two conjoined rectangular platforms or enclosures, footings for an anti-aircraft battery, adjacent to the west of the northern part of the First World War Lodge Hill Anti-aircraft Battery (NRHE 1442424). These earthworks could date from pre-First World War through to Second World War and so could be part of the defences of both Lodge Hill Ordnance Depot or the stop line. It may have also formed part of a local strong point around Lodge Hill House (English Heritage forthcoming, 9). A German map of 1940 bears a machine gun or anti-aircraft gun symbol at roughly this location, but this could refer to the First World War site.	The earthworks appear as slight features on aerial photographs taken in 1944 but current condition is unknown. This area was surveyed in by English Heritage staff in March 2006 and is covered by the Scheduled area for Lodge Hill anti-aircraft battery NHLE 1401714.	TQ 7583 7412
7	1546546	A Second World War gun emplacement or light anti-aircraft battery on the north facing slope of Rough Shaw inside the northern perimeter of a defended locality (NRHE 1546483) centred on Lodge Hill First World War anti-aircraft battery (see NRHE 154694 above). The site comprised a concrete platform enclosed by a rectangular earthwork bank about 15m by 14.8m with a small concrete structure on its south western side.	The structures associated with this gun emplacement were removed by 1952. A survey of the structures and earthworks was carried out by English Heritage staff in March 2006. (English Heritage forthcoming). The earthworks survived at least until 2013, although encroached upon by scrubby vegetation. Covered by the Scheduled area for Lodge Hill anti-aircraft battery.	TQ 7588 7402
8	1546504	A gun emplacement or searchlight battery, of uncertain date, comprising three small circular emplacements. It is next to the southern gun emplacement of the First World War Lodge Hill anti-aircraft battery (NRHE	The earthworks appear as slight features on aerial photographs taken in 1944 but current condition is unknown. This area was surveyed in by English Heritage staff in March 2006. Covered by the Scheduled area for Lodge	TQ 7586 7403

		1442424). It could date from pre-First World War through to Second World War linked to the defence of Lodge Hill Ordnance Depot and/or the stop line.	Hill anti-aircraft battery NHLE 1401714.	
9	1546483	Second World War defended locality or military installation, centred on the remains of the First World War anti-aircraft battery at Lodge Hill. The site comprised several gun emplacements and military support buildings, probably associated with Light Anti-aircraft positions, within a roughly rectangular barbed wire enclosure covering an area of about 3 ha in total. It probably formed part of the defences of both Lodge Hill Ordnance Depot and the stop line. A similar defended locality, also occupying the space between Lodge Hill Depot and the stop line, is located about 800m to the east (NRHE 1546575). The military support buildings, some of which appear to have a First World War origin, comprise a row of six or seven temporary structures of various sizes, (see Fig 35). Additional small gun emplacements or weapons pits were located around the edges of the enclosure.	Recorded on aerial photographs dating to between 1944 and 1947. The most substantial gun emplacements were recorded separately (NRHE 1546494, 1546504 and 1546546). A field visit in May 2015, observed the following: a probable entrance to an air raid shelter by the road on the southern edge of the site; a First World War building with a look out turret, possibly reused for a generator during the Second World War when entrances were inserted (Fig 35); building platforms and concrete pathways to the north of the surviving buildings. Possible early post medieval wood banks extend east from the site. The field to the south was not accessible during the field visit, but low earthworks suggest buried remains of structures associated with the Lodge Hill battery. Partly covered by the Scheduled area for Lodge Hill anti-aircraft battery NHLE 1401714.	TQ 7583 7403
10	1426721	Second World War Type 24 pillbox, on Rough Shaw, a north west facing slope between Lodge Hill Wood and Berry Court Wood, near the north-west corner of Lodge Hill Royal Naval	This structure is visible on photographs taken in 1944 and was still visible on aerial photographs taken in 2013 (Google Earth).	TQ 7554 7403



		Armaments Depot		
11	1546783	Possible Second World War circular Type 25 pillbox, about 4.5m in diameter, near Lodge Hill Lane and the north-west corner of Lodge Hill Ordnance Depot. The pillbox is located on Deangate Ridge at the western edge of Rough Shaw and the eastern edge of Berry Court Wood.	The structure was recorded on aerial photographs taken between 1944 and 1950, but was not visible on aerial photographs taken in 1952 and it is possible that it was removed by this date. Current condition unknown.	TQ 7539 7387
12	1544162	A possible hexagonal Second World War pillbox is located on a north west facing slope near the north western corner of Lodge Hill Royal Naval Armaments Depot.	The pillbox is visible only on aerial photographs taken in 1944. The pillbox could not be located during a field visit in 2014.	TQ 7532 7399
13	1418703	Second World War reinforced concrete and brick shuttered Type 24 pillbox, located at the northern edge of Berry Court Wood, at the junction of two footpaths. The pillbox has recessed embrasures. This pillbox was constructed at the point where the Stop Line's anti-tank ditch met the edge of Berry Court Wood, which was incorporated as a defence obstruction. (Fig 36)	The pillbox was recorded during the Defence of Britain Project, but was only visible on aerial photographs of 1944 and 1953 during the English Heritage: Hoo Peninsula Historic Landscape Project. The pillbox was located and seen to be a complete structure during a field visit in 2014.	TQ 75264 74041
14	1544121	Second World War anti-tank gun emplacement or pillbox located near the foot of a north facing slope at the northern edge of Berry Court Wood.	Recorded on 1944 aerial photographs and partially on 2013 Google Earth photographs. A 2014 field visit confirmed the pillbox is concrete with no brick shuttering but evidence of wood shuttering was seen on the surface.	TQ 7505 7396
15	1544122	Second World War anti-tank gun emplacement or pillbox near the foot of a north facing slope at the northern edge of Berry Court Wood. The structure is 8.25m long by 6.5m wide.	Recorded on 1944 aerial photographs and partially on 2013 Google Earth aerial photographs. Could not be located due to dense vegetation during a field visit in 2014.	TQ 7503 7394



Figure 36 NRHE I546483 First World War military support building, at Lodge Hill anti-aircraft battery, reused in Second World War. It appears to have been defended originally but may have been a generator building during the Second World War



Figure 37 NRHE I418703 Type 24 pillbox at the northern edge of Berry Court Wood (photographed from an adjacent path)



## Deangate Ridge to Higham Marshes, NRHE 1542694 & 1545118

This section extended north from the lower slopes of Deangate Ridge towards Higham Marshes near Cliffe for 1466m (Fig 38). Its east end was 680m to the west of Berry Court Wood, just south of Merryboys Road near the junction with Town Road (TQ 7404 7371). It ran north west for 634m to Mortimers Farm (TQ 7363 7411), then followed Town Road north for 823m as far as Rectory Road, just north of the railway line (TQ 7351 7473). It continued (NRHE 1545118) to the north-west from Rectory Road for 545m and then cut down into the edge of a large quarry. The quarry formed a section of the anti-invasion obstruction (Fig 39).



Figure 38 The route of the stopline from Deangate Ridge/Berry Court Wood to the edge of Higham Marshes.

*Condition:* Aerial photographs taken on 20th June 1942 record the stop line near Cliffe Woods with the anti-tank ditch in place. The whole section was photographed in 1944, when the ditch was being backfilled, with mounds of earth lying alongside the former ditch (Fig 39). The buried remains of the anti-tank ditch were visible as a cropmark on aerial photographs of 1946. Aerial photographs taken in 2011 and 2013 suggest that the anti-tank ditch survives as a sub-surface feature, revealed as a cropmark between Mortimer's farm and the disused quarry (Figs 40-41). It has probably been destroyed by housing on the edge of Cliffe Woods village to the east of the B2000 road (Figs 38, 42).



Figure 39 The stop line between Cliffe Woods village and (now disused) Cliffe quarry. US 7GR/LOC348 3064 27-MAY-1944 English Heritage USAAF Photography.





Figure 40 The buried remains of the stop line ditch revealed as a cropmark along Town Road and north of the railway © Google Earth 07-SEP-2013.





Figure 41 The buried remains of the anti-tank ditch visible as a cropmark, to the north-east of Buckland Farm, leading to the (now disused) Cliffe quarry. EHA 26972/050 16-JUN-2011



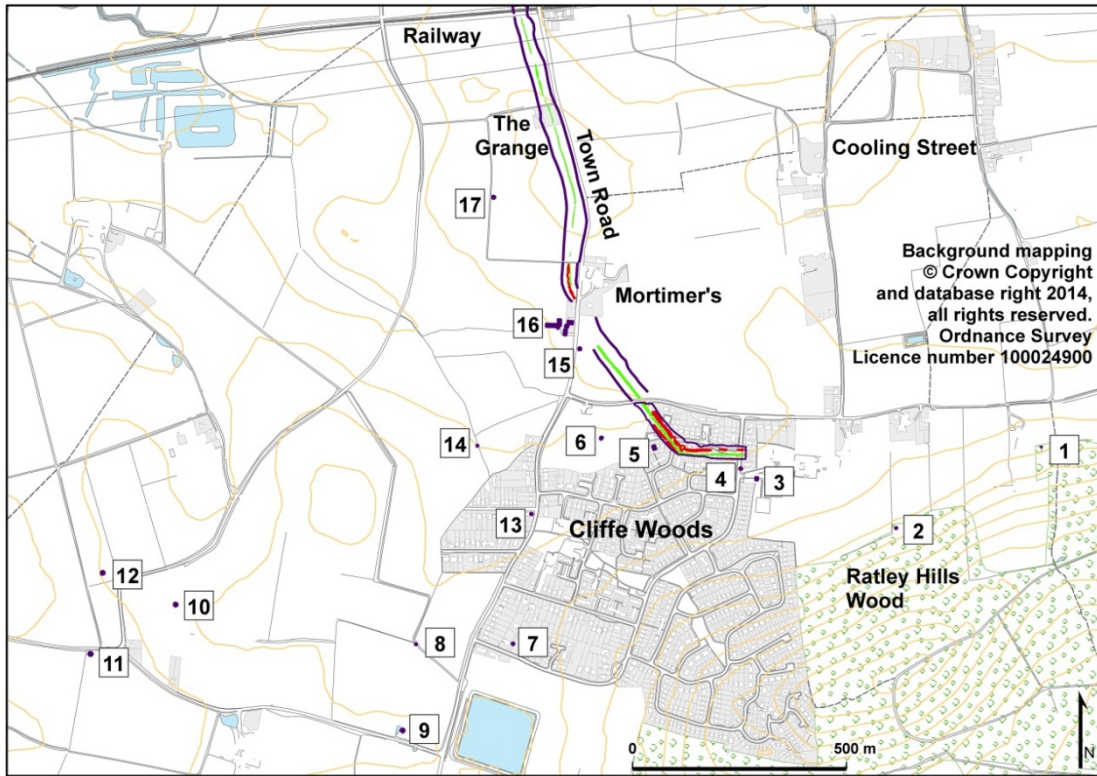


Figure 42 Air photo mapping of the stop line north from Deangate Ridge with the anti-tank ditch (green), flanking cleared area, pillboxes (purple and earthwork banks (red). Numbers in the table below.

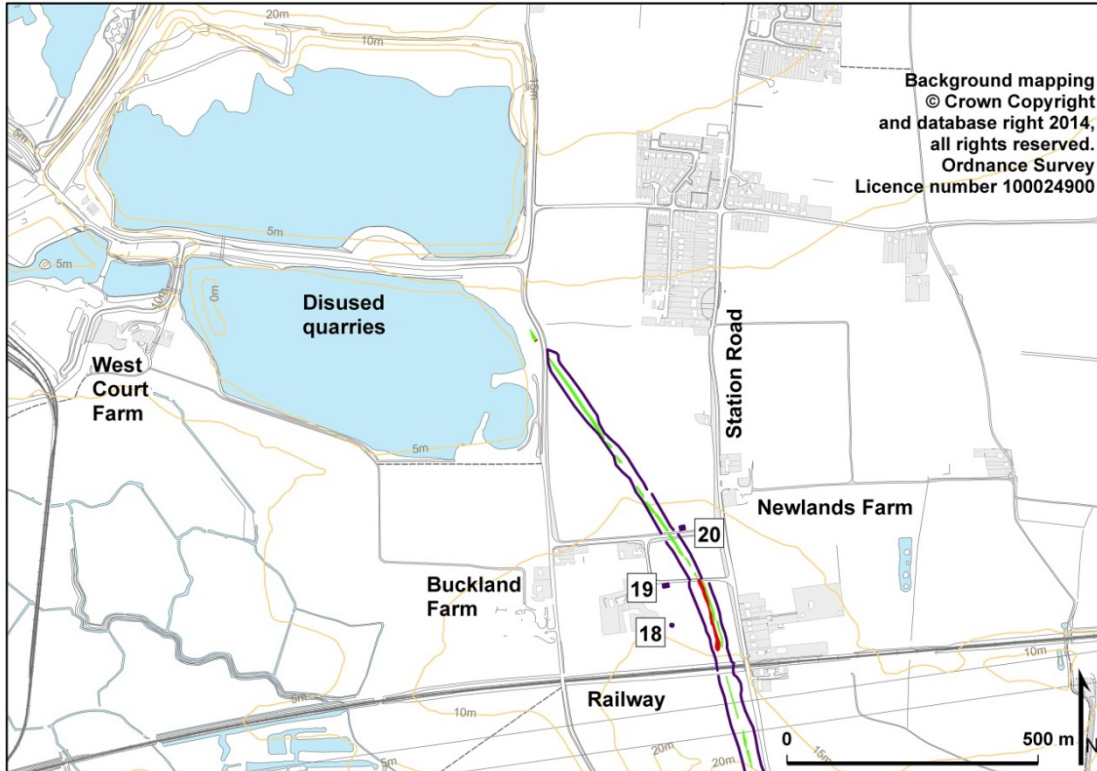


Figure 43 Air photo mapping of the stop line north from the railway. Conventions as above.



*Supporting defensive features Deangate Ridge to disused Cliffe quarry*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1	1418676	Second World War Type 24 pillbox in good condition, located about 100m due south from the junction of Cooling Common and Cooling Street, Cooling, at the edge of Berry Court Wood, near the foot of a north west facing slope, overlooking an apparent gap between the wood and a section of the Stop Line's anti-tank ditch.	It was recorded on 1944, 1953 and 2007 aerial photographs. It was seen to be in good condition from a public footpath during a 2014 site visit. Recorded in good condition during the Defence of Britain Project.	TQ 7473 7374
2	1544089	A probable Second World War anti-tank gun emplacement or pillbox is located at the edge of Ratly Hills Wood, on the lower part of a north west facing slope near Cliffe Woods. It overlooks a gap in the stop line.	The feature was recorded on aerial photographs taken between 1942 and 1961, but was no longer visible on photographs taken in 1992. Current condition unknown.	TQ 7439 7354
3	1544086	A probable Second World War anti-tank gun emplacement or pillbox is located near the end of this section of the anti-tank ditch.	Recorded on 1942 aerial photographs but not after 1961. This area is now the site of a school.	TQ 7406 7366
4	1544032	Second World War pillbox in a hedge adjacent to the eastern end of this section of the anti-tank ditch on the northern edge of Cliffe Woods.	The pillbox last appeared on aerial photographs taken in 1947. This area has been developed for housing.	TQ 7403 7368
5	1544018	A rectangular structure, probably a Type 28A Second World War pillbox, or, an anti-tank gun emplacement, to the west of the anti-tank ditch.	The pillbox is recorded on aerial photographs until at least 1961, but is not visible on 1992 photographs. This area has been developed for housing.	TQ 7383 7373
6	1544029	A Second World War Type 24 pillbox on the northern edge of Cliffe Woods to the west of the anti-tank ditch.	The pillbox was visible on aerial photographs up to 1961 but was removed before 1992. Sub-surface remains may survive.	TQ 7370 7375

7	1418669	Second World War Type 24 pillbox with brick shuttering. The pillbox is a narrow wall version, facing north. The pillbox overlooked the road from Frindsbury to Cliffe and was located to the south west of the stop line.	The pillbox was faintly visible on aerial photographs taken in 1944 and could be seen on photographs taken in 2003, but had been removed by 2007. It was located in garden of private house 150m east of Town Road at side of a farm road, Cliffe.	TQ 73500 73275
8	1418668	Second World War concrete Type 24 pillbox located adjacent to a track at the edge of an orchard, to the west of Town Road, Cliffe Woods. The pillbox is a narrow wall version, with a brick skin.	Recorded on 2007 aerial photographs (PGA) and partially on 2013 aerial photographs (Google Earth).	TQ 7327 7328
9	1426710	Second World War reinforced concrete Type 24 pillbox adjacent to pond in field, on north side of Lille Church Road, facing north.	Recorded on 2013 aerial photographs (Google Earth).	TQ 73242 73074
10	1423402	Second World War concrete type 24 pillbox within an old hedge line, between Buckland Road and Lillechurch Road.	Recorded on 1947 aerial photographs but is under tree cover on later photographs. Recorded during the Defence of Britain Project.	TQ 72712 73368
11	1423401	Second World War reinforced concrete Type 24 pillbox, located within the corner of a field to the south of Gore Green Rd, Faces North-East to cover Buckland Road from Cliffe.	Recorded on 1947 and 2007 aerial photographs. Observed during May 2015 field visit.	TQ 72512 73252
12	1543707	A possible Second World War pillbox seen to the north-west of Buckland Road at the southern edge of the orchards of Little Oakleigh.	Recorded on 1947 aerial photographs but May 2015 field visit suggests it has been removed.	TQ 72541 73442
13	1544096	Second World War concrete pillbox on the western edge of Cliffe Woods. Located 360m to the south west of the anti-tank ditch and faced north along Town Road amid	Recorded on aerial photographs taken between 1942 and 1961, but had been removed by housing development by 1970.	TQ 7354 7357

		the bungalows of a pre-War housing estate.		
14	1418719	Second World War Type 24 pillbox, reinforced concrete. Faces north east and is fronted by a small drainage ditch. Narrow wall version with brick skin.	Recorded on 2007 aerial photographs and marked on recent OS 1:2500 scale map, at edge of orchard off footpath from B2000.	TQ 73420 73738
15	1418675	Second World War reinforced concrete Type 24 pillbox with brick shuttering, near Eastcroft Farm, on the east side of Town Road, Cliffe. It is a narrow wall version with brick skin, and faces north and is located to the west of the anti-tank ditch.	Recorded on 1944 and 2013 (Google Earth) aerial photographs. Appeared in good condition during a field visit in 2014.	TQ 73655 73964
16	1418674	Two Second World War reinforced concrete artillery pillboxes (brick-shuttered), at right angles to each other but not apparently interconnected. 20m west of Town Road to the north of Cliffe Woods and to the west of the anti-tank ditch. Aerial photographs taken in May 1944 show the pillboxes within a military installation, with five military support buildings.	The support buildings were removed by January 1947, while the two pillboxes were visible on aerial photographs until at least April 2007. Buildings were constructed on the site by September 2013 (Google Earth). A May 2015 field visit, from the public highway, confirmed that a pillbox, one of the buildings, and a row of garages seem to remain.	TQ 73610 74011
17	1418670	Second World War reinforced concrete Type 24 pillbox, located at the edge of field to the west of Town Road, Cliffe, approximately 184 m to the west of the anti-tank ditch. The pillbox faces west and is a narrow wall version with a brick skin. It is situated on cultivated land at the western edge of a field.	The pillbox is visible as an extant structure on recent aerial imagery (Google Earth 2013).	TQ 7346 7432
18	1543680	A probable type 24 Second World War pillbox located in the southern end of the garden of The Old Rectory. This pillbox was mapped from	Neither of the removed pillboxes could be seen on the aerial photographs taken in 1946 when the pillbox in the south of the	TQ 7341 7484



		1946 aerial photographs. It is possible that this pillbox may be one of the two removed pillboxes described as being located within the orchard to the north of this, just behind the hedge on Rectory Road (NRHE 1418671 and 1418672).	orchard could clearly be seen. No access was possible during a field visit in May 2015 and the pillbox could not be observed.	
19	1418672	Second World War Type 28 reinforced concrete artillery pillbox with brick shuttering located within an orchard immediately to the south of Rectory Road. It was recorded to the west of the anti-tank ditch, partially concealed by trees, on aerial photographs taken in 1946 and 1947.	The area is under tree cover on recent aerial imagery (eg PGA 2003, Google Earth 2013) but a field visit in May 2015 confirmed that it is still extant, although obscured by vegetation.	TQ 7340 7491
20	1544006	A Second World War artillery pillbox was recorded from aerial photographs dating to between 1944 and 1947. The pillbox is located adjacent to the east side of the anti-tank ditch and is probably part of its supporting defences. A shed extension has been added to this structure at a later date.	This structure is visible on Google Earth aerial photographs in 2010 and it can still be partly seen on the 2013 coverage. A field visit in May 2015 confirmed that it is still extant. The pillbox is located adjacent to the road with the shed extension to the rear.	TQ 7343 7503
21 Not illustrated	1418671	The site of a Second World War reinforced concrete rectangular artillery pillbox recorded during the Defence of Britain survey.	No pillbox could be identified at this grid reference during the Hoo Peninsula Historic Landscape Project, although an artillery pillbox of very similar description was recorded about 22m to the west (NRHE 1418672, No. 19 above) and a hexagonal pillbox was recorded about 70m to the south (NRHE 1543680, No. 18 above)).	TQ 73419 74909

## Cliffe Quarries to the south bank of River Thames, NRHE 1418715, 1418664

The quarries, for the cement works at Cliffe, were used as part of the stop line to the north and west of Buckland Farm (Fig 44). Eighteen anti-tank blocks of a moveable type were positioned near West Court Farm, Cliffe at TQ 724 756 (Defence of Britain Project, accessed via Archaeology Data Service) but were not seen on aerial photographs. An anti-tank ditch and other features were constructed at the western end of the stop line to bridge the gap between the quarries and the Thames estuary. This final section of the stop line was formed by widening and deepening a drainage ditch (TQ 7120 7586) for 420m from the quarry to the sea wall (Fig 45). Six concrete anti-tank pillars were placed across the sea wall, to the River Thames (Figs 45-46). One pillar has names inscribed in concrete, 'F.C. Gomar, 'S. Barnard', 'R. Lucas' (Defence of Britain Project, accessed via Archaeology Data Service).

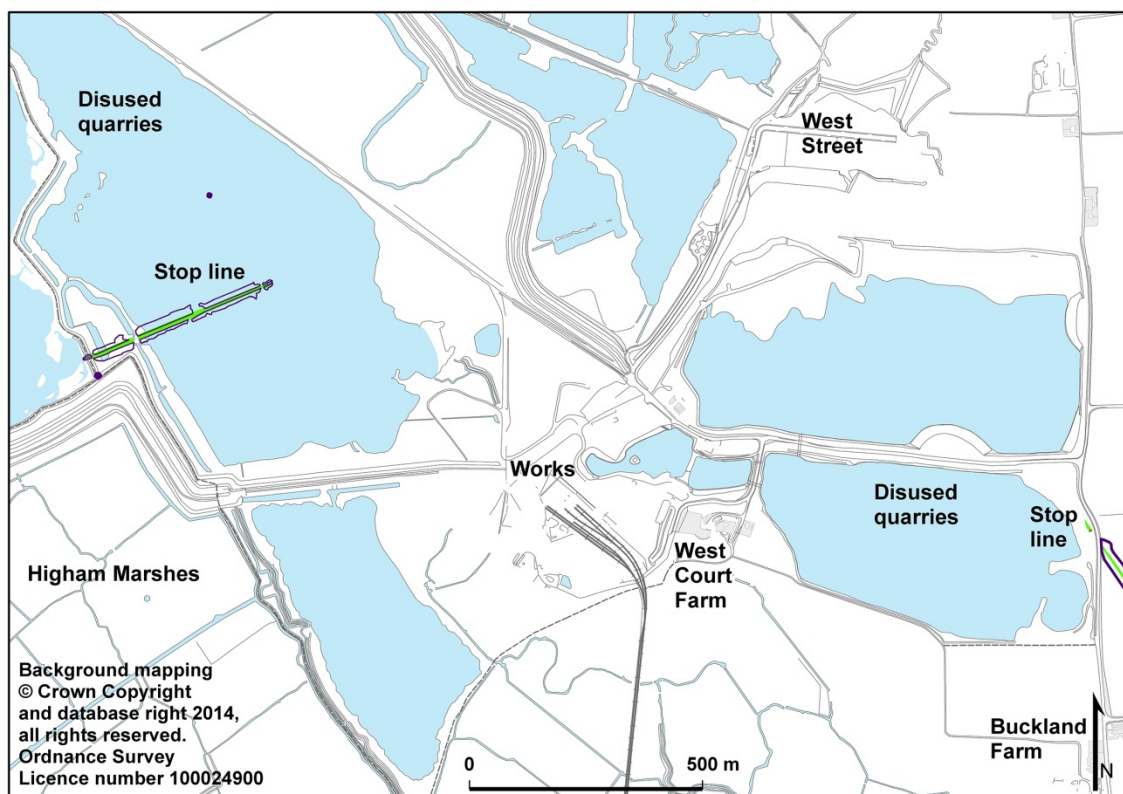


Figure 44 The area around West Court Farm showing how the quarries were used as part of the stop line to the north and west of Buckland Farm. An anti-tank ditch and other features, now partly quarried away, were constructed at the western end of the stop line to bridge the gap between the quarries and the Thames estuary,

*Condition:* The anti-tank blocks at West Court Farm, identified on the ground by the Defence of Britain project, require a site visit. Recent aerial photographs (Google Earth 2013) show a large section of anti-tank ditch was quarried away but the pillbox and concrete pillars are still in place (Figs 45-47).

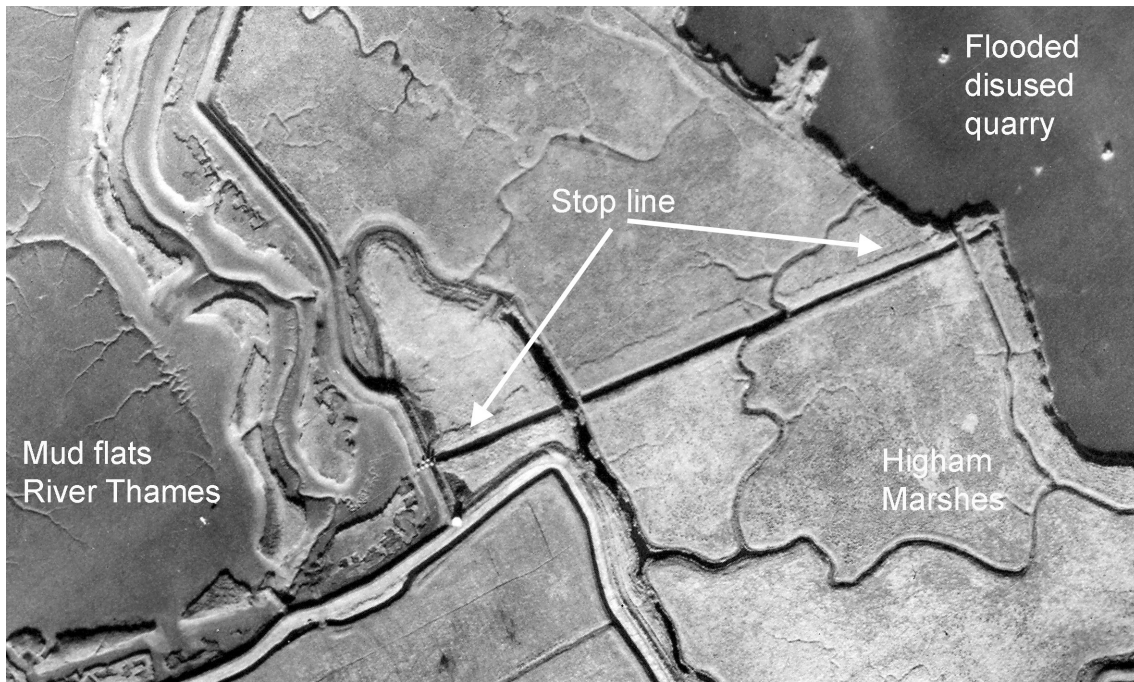


Figure 45 The anti-tank ditch crossing Higham Marshes from a flooded quarry to the bank of the River Thames. NMR RAF/CPE/UK/1923 4042 16-JAN-1947 English Heritage RAF Photography.



Figure 46 The remains of the anti-tank ditch, concrete pillars and pillbox on the bank of the River Thames © Google Earth 07-SEP-2013



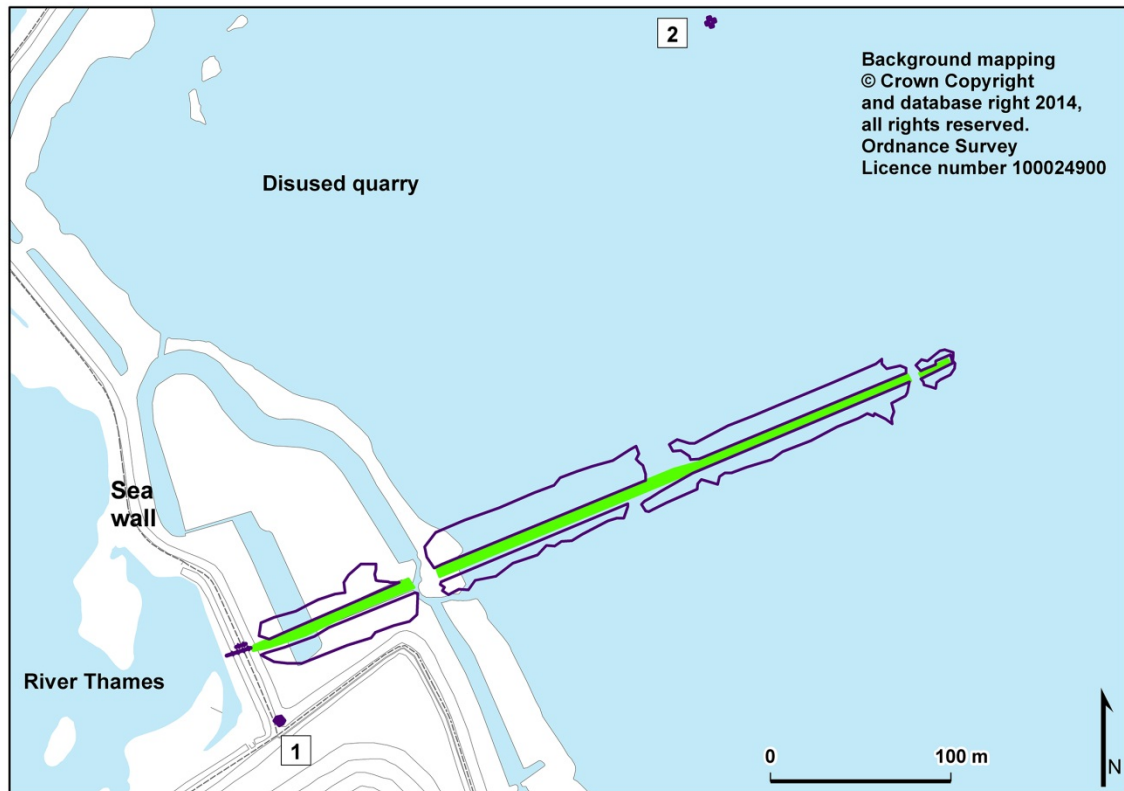


Figure 47 Route of the anti-tank ditch (in green) with numbered supporting defensive features (see table below) River Thames to the west, Cliffe Pools (former quarries) to the east.

*Supporting defensive features Cliffe quarries to south bank of River Thames*

Feature Number	NRHE Number	Description	Condition	Grid Reference
1	1418663	Second World War pillbox, possibly Type 24.	Visible recent aerial photographs (Google Earth 2013)	TQ 7101 7573
2	1545120	Four concrete blocks (each 1.2m) in a square arrangement 4.2m x 4.2m, 225m.	Recorded on RAF aerial photographs taken in March 1941. Removed during post war quarrying.	TQ 7125 7613

## DISCUSSION

The stop line on Hoo is a well preserved example of a short lived form of anti-invasion defence. The development of inland linear anti-tank systems was proposed in June 1940 by General Sir Edmund Ironside. However, it had fallen out of favour as a defensive concept by August 1940, when Ironside was succeeded by General Sir Alan Brooke. Construction of the Newhaven-Hoo section of the GHQ line was well advanced by this stage, which may account for the high number of hardened defences along its route and the number of more ephemeral features that survive. In contrast, for example, the line north of the Fenland boundary between Eastern and Northern Command was not provided with pillboxes or weapon emplacements in any great number (Dobinson 1996, 40).

The stop line is an important part of the story of military activity on the Hoo Peninsula. First World War structures were reused in its construction and it is adjacent to a number of other military sites, including, the Lodge Hill Ordnance Depot, in use from the late 19th century, and the First and Second World War Deangate Ridge training area. The stop line is therefore an important part of the defended landscape of the peninsula, but the range of features it encompasses mean that it is also an rare survival of a major chapter in the national story. These static defences represent 'the most intensive building programme ever undertaken by the army's Home Forces commands' (Dobinson 1996, 2). Together with other national Second World War anti-invasion defences, the Hoo stop line also has a European context.

Most defensive structures around towns and cities were removed shortly after the end of the war, but their survival is better in rural areas, particularly of hardened structures, where they tended to be removed only if they interfered with agricultural or amenity needs (Foot 2006, 1). Some defence works were removed before the end of the war for these same reasons. Many anti-tank ditches were filled in because they were an obstacle to agriculture (ibid, 3) and this was apparent during the aerial survey of the stop line. For example, photographs of 1944 of parts of the sections from Deangate Ridge to Higham Marshes and between Lodge Hill Wood and Berry Court Wood show that infilling work on the anti-tank ditch had already started. However, around a quarter of all elements, structures and earthworks, associated with the stop line are extant and approximately half of the features recorded as structures during the survey survive. This compares well with the national picture, as presented by Foot, of 24% of hardened field defences in England still being extant (ibid, 27).

The survival of the hardened defences along the Hoo stop line compares well with that of the Taunton stop line, which cut off the south west peninsula, and the GHQ Line Green, which formed the outer defence line for Bristol. Individual areas of these stop lines demonstrate a similar picture of the way the landscape was adapted to work with the defences, such as at Pawlett Hill (northern end of Taunton stop line near Bridgewater, Somerset) and Godney (GHQ Line Green, Somerset Levels). Natural features such as

rivers and woodland were exploited in all stop lines and this can be seen in the use of woodland and marshes on the Hoo Peninsula. The northern and southern ends extend into the marshy ground around the peninsula as a line of anti-tank cubes, into the River Thames and River Medway respectively. However, over a large part of the length of the defences an artificial anti-tank ditch had to be constructed. It is the survival of a variety of defensive features within the compact landscape of the Hoo Peninsula that enable a coherent picture of how these defences were intended to work to be gained.

An assessment of earthworks, which may survive as sub-surface remains, has rarely been a feature of surveys of extensive Second World War defensive structures. While anti-tank ditches might have been thought generally to have been filled in, the current survey has shown that sections of it survive as low earthworks and buried remains. This makes the Hoo section of the stop line unusual in Second World War studies because an assessment has been made of all the features associated with it.

Two areas of the stop line are of particular note:

The River Medway to Kingshill section demonstrates the variety of surviving features and illustrates how they worked within the landscape (Figs 9, 17). The anti-tank ditch survives here as a low earthwork, suggestive of further sub-surface survival, which can be seen crossing two fields either side of a track. Two concrete blocks, part of a roadblock, are positioned on either side of the track. Three Type 24 pillboxes and one Type 28 pillbox are also located along the line of the anti-tank ditch in this area. Two weapons pits recorded here during the aerial survey may survive as sub-surface features. The pillboxes have recessed embrasures that demonstrate the local variations that took place in the construction of national anti-invasion defences.

The stop line on Deangate Ridge demonstrates the incorporation of woodland (Wybornes Wood, Lodge Hill Wood and Berry Court Wood) into the defensive line and the reuse of earlier military structures. Between Wybornes Wood and Lodge Hill Wood (Fig 26), a Second World War pillbox was placed within a First World War redoubt. Between Lodge Hill Wood and Berry Court Wood (Fig 35), structures associated with the scheduled Lodge Hill First World War anti-aircraft battery were reused when a Second World War light anti-aircraft battery was placed in and around this area. The use of the local topography is also marked between Lodge Hill Wood and Berry Court Wood where the anti-tank ditch was constructed at a break of slope on a steep incline, below the plateau on which the anti-aircraft battery is located. The survival of features as low earthworks in both areas may indicate further sub-surface survival.

This type of monument represents a defensive strategy that was only in favour for a matter of months during the Second World War and, as such, helps to document the rapid changes in development of anti-invasion defences in this period. The fact that relatively ephemeral structures survive and that there is cropmark and earthwork evidence for the anti-tank ditch over much of its length helps to complete the picture of how these defences were intended to work. Referring to the defences around the Lodge



Hill Ordnance depot, Foot states 'It is clear that this was one of the most intensively defended areas of the South-East' and that there is 'a very good survival of hardened field defences within the area.' He also notes that it is a 'most interesting and important section of stop line' as it links known points of area defence and created extra defences for Lodge Hill on two sides (2006, 410). Foot concludes that the area is important 'not only in terms of the number of defence works of different types that it contains, but also in the way it still forms a coherent pattern of defence linked to its topography' and that the hedgerows concealing defence works still remain as an integral part of the defence landscape (ibid: 412). Foot makes this statement following the conclusion of the Defence Areas Project, a national study of anti-invasion landscapes commissioned by English Heritage (carried out from April 2002 to June 2004).

The evidence described in this report demonstrates how the stop line defences worked within and with the landscape. Individual elements have been protected through listing or scheduling (see Appendix 1), and the value of these individual features is increased when considered together with the other structures and earthworks of the Hoo stop line. Smith notes that the range of features that survive here, including pillboxes and obstacle blocks, is 'memorialising this line' (Smith 2011, 182). The features mapped from historic and modern aerial photographs add to the depth of that picture. The presence of the structures associated with the stop line in the landscape is a direct link between the present day and with the fear of invasion experienced by a previous generation.

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### ***Field Visits***

5 August 2014: Sarah Newsome and Krystyna Truscoe

13 May 2015: Sarah Newsome and Krystyna Truscoe



## APPENDIX I DESIGNATED ELEMENTS OF THE LINE

NRHE No	Description	Grade	List entry	Reason for listing
1418690	A line of ten concrete anti-tank cubes placed in a line across the Medway river wall to the south east of Hoo St Werburgh	II	1393814	<p>Historical interest: anti-tank cubes at the extreme south end of the stop line; a significant stop-line which could have been one of the front lines in the event of an invasion from across The Channel</p> <p>Group Value: with a Type 28 anti-tank gun emplacement and a Type 24 infantry pillbox, all of which reinforce the end of the line.</p>
1418688	Type 24 pillbox with brick shuttering on the river wall on the north bank of the Medway	II	1393815	<p>Historical Interest: a pillbox at the south end of the stop line, a significant stop-line which could have been one of the front lines in the event of an invasion from across The Channel</p> <p>Architectural Interest: a type 24 pillbox with a distinctive north Kentish form</p> <p>Group Value: with a Type 28 pillbox and anti-tank cubes, all of which reinforce the end of the line.</p>
1418689	Type 28 artillery pillbox, brick-shuttered, on the river wall on the north bank of the Medway, south	II	1393816	<p>Rarity: This is a pillbox type which is not particularly numerous nationally, and therefore has rarity value</p> <p>Historical Interest: a pillbox at the south end of the stop line; a significant stop-line which could have been one of the front lines in the event of an invasion from across The Channel</p> <p>Group Value: with a Type 24 pillbox and anti-tank cubes, all of which reinforce the end of the line.</p>
1418684	Type 24 pillbox with brick shuttering to the east of Bells Lane and south of Ratcliffe Highway	II	1391937	<p>Group Value: although pillboxes are one of the most common surviving types of structures from the Second World War this group is of special interest given the rarer form of</p>

				pillboxes here and has particular group value: the location of two gun emplacements in close proximity, flanked by and supported by infantry pillboxes, providing a clear demonstration of the perceived weakness of the stop-line at this point and the designs of the defensive planners. The group also demonstrates the interrelationship and function of a section of the principal GHQ (General Headquarters) stop-line allowing an understanding of the country's defence, as well as the interpretation of this particular defensive landscape, in 1940.
1418683	Type 28 artillery pillbox with brick shuttering is located to the east of Bells Lane and south of Ratcliffe Highway, on the east side of Hoo St Werburgh	II	1391937	See above
1426745	Type 28 artillery pillbox with brick shuttering is located to the east of Bells Lane and south of Ratcliffe Highway.	II	1391937	See above
1418711	Type 24 infantry pillbox with brick shuttering, is located to the east of Bells Lane and south of Ratcliffe Highway	II	1391937	See above
1546494	Lodge Hill Anti-aircraft Battery, constructed from late 1912 to early 1914, located at the Lodge Hill Ordnance Depot. Modified and re-armed during the Second World War	Scheduled	1401714	Rarity and early date: a rare First World War anti-aircraft battery which, with its partner site at Beacon Hill, are believed to be the earliest purpose-built anti-aircraft batteries in Britain;  Condition: a battery which survives very well given its early date although with some inevitable minor

				<p>losses;</p> <p>Archaeological potential: the associated earthworks have the potential to enhance our understanding of this rare site type and later re-defensive programmes</p> <p>Documentary potential/historic interest: the site has the potential to significantly enhance our understanding of the development and operation of anti-aircraft batteries during the First World War, a site type which was to be developed and used to particular effect in the Second World War</p> <p>Group value: with a group of Grade II listed sentry posts at Lodge Hill and Chattenden which are contemporary and therefore part of a scheme of First World War defence for the two ordnance depots. **See table below for sentry posts, not recorded during aerial survey.</p>
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\*\*Listed sentry posts referred to in Scheduled Monument description I401714, not recorded during aerial survey

Monument Name	Grade	List entry	Reason for Designation	Grid Reference
Building 67, First World War Sentry Post, Lodge Hill	II	I400879	<p>Early date: relatively few examples are known from the First World War and so this sentry post is a rare survival nationally</p> <p>Rarity: an example of a sentry post design which is believed to be unique to Royal Navy sites in the Medway area of north Kent. This particular post also has a crawl porch which is an unusual feature for this group</p> <p>Group value: with five other sentry posts at Chattenden/Lodge Hill built broadly to the same specification to reinforce the defences of this ordnance depot</p>	TQ 76016 73139



			militarised landscape.	
Building 106, WWI Sentry Post, Chattenden Ordnance Depot	II	1400882	<p>Early date: relatively few examples are known from the First World War and so this sentry post is a rare survival nationally</p> <p>Rarity: an example of a sentry post design which is believed to be unique to Royal Navy sites in the Medway area of north Kent</p> <p>Group value: with five other sentry posts at Chattenden/Lodge Hill built broadly to the same specification to reinforce the defences of this ordnance depot militarised landscape.</p>	TQ 75127 72684
Building 127, WWI Sentry Post, Chattenden Ordnance Depot	II	1400885	<p>Early date: relatively few examples are known from the First World War and so this sentry post is a rare survival nationally</p> <p>Rarity: an example of a sentry post design which is believed to be unique to Royal Navy sites in the Medway area of north Kent</p> <p>Group value: with five other sentry posts at Chattenden/Lodge Hill built broadly to the same specification to reinforce the defences of this ordnance depot militarised landscape.</p>	TQ 75562 73121
Building 219, WWI Sentry Post, Lodge Hill	II	1400888	<p>Early date: relatively few examples are known from the First World War and so this sentry post is a rare survival nationally</p> <p>Rarity: an example of a sentry post design which is believed to be unique to Royal Navy sites in the Medway area of north Kent</p> <p>Group value: with five other sentry posts at Chattenden/Lodge Hill built broadly to the same specification to reinforce the defences of this ordnance depot militarised landscape.</p>	TQ 77064 73837

## APPENDIX 2 COMPARABLE ENTRIES ON THE NATIONAL HERITAGE LIST FOR ENGLAND

The following are felt to be comparable sites in England and are not intended as an exhaustive list of scheduled and listed structures associated with stop line. They provide context for the Hoo section of the Newhaven-Hoo stop line in terms of survival and topographical setting.

*The Coquet Line of Defense, Northumbria.* Fourteen pillboxes constructed as part of the Second World War Coquet Line listed at Grade II. (1232564, 1232567, 1232568, 1232569, 1232571, 1236982, 1238457, 1277014, 1277015, 1370661, 1372337, 1372338, 1372339, 1372340)

*GHQ Line Blue, Southern Command.* Five pillboxes listed at Grade II located at: south east corner of Garston Lock, Burghfield Kennet and Avon Canal; one east and one west of Benham Bridge, Enborne Kennet and Avon Canal; one at the north west corner and one at the north east corner of Hamstead Bridge. (1117126, 1221049, 1290705, 122114, 122117). Listed for group value, as part of the Second World War anti invasion defences of Britain.

*Second World War anti-tank defences in Crown Meadow and in the gardens of Bryanston Cottage, Bethune and Nos 1-3 (consec) and 7 - 12 (consec) Parklands, Blandford Forum, Dorset.* A late 18<sup>th</sup> or 19<sup>th</sup> century brick and flint ha-ha re-enforced to create an anti-tank ditch, including a pill box as a component of the Blandford Forum anti-tank island created in 1940-1. (1403075) Listed at Grade II for the following reasons:

- Intactness: the structure has survived mostly intact
- Rarity: it is an unusual example of an adapted and re-enforced ha-ha in order to create an anti-tank trap
- Group value: it forms part of an important group of defensive structures known as the Blandford Forum Anti-Tank Island
- Historic interest: in being part of a key World War II military program of inland defence works it provides a poignant visual reminder of the impact of world events on Blandford Forum and the wider landscape of the Southern Command defence area.

*World War II Defences: anti-tank cubes and dummy pill box along River Mews and to walled garden south of the Crown Hotel.* erected in 1940-1 as part of the Blandford Forum Anti-Tank Island. (1403186) Listed at Grade II for the following reasons:

- Intactness: as good surviving examples of anti-tank defences, one of the most visible components of the Blandford Forum Anti-Tank Island.
- Rarity: as an unusual example of a hidden tank trap with 'dummy' pill box, created by adapting and re-enforcing an existing walled garden.

- Historical Association: as the remains of the World War II military program of inland defence works the blocks can be seen to provide a visual reminder of the impact of world events on Blandford Forum.
- Group Value: in forming part of an important group of other defensive structures known as the Blandford Forum Anti-Tank Island.

*Anti-tank pimples, Studland, Dorset:* situated in a gully to the north west of Middle Beach car park. (1411810). Listed at Grade II for the following reasons:

- Historic interest: they provide a visual reminder of the impact of world events on the area
- Group value: they represent an integral part of a significant group of listed Second World War anti-invasion defences which could have been one of the front lines in the event of a German invasion

*Pillbox and anti-tank pimple to west of Knoll Beach car park:* Erected in c.1940 as components of the anti-invasion coastal defences of Studland Bay. (1411821) Listed at Grade II for the following reasons:

- Historic interest: as part of the Second World War military program of coastal defences, the pillbox and anti-tank block provide a visual reminder of the impact of world events on the area
- Group value: they form an integral part of a significant group of listed Second World War anti-invasion defences which could have been one of the front lines in the event of a German invasion.

## APPENDIX 3 TABLE OF LAND USE

Section	1940s Land Use	Current Land Use
Northern bank of River Medway, Hoo St Werburgh	Under cultivation	Under cultivation
River Medway to Kingshill	Under cultivation	Under cultivation
Kingshill to Lodge Hill	Under cultivation	Pasture
Wybomes Wood to Lodge Hill Wood	Under pasture	North half under cultivation, south half under grass
Lodge Hill Wood to Berry Court Wood	Under grass with some scrub	Covered by trees and scrub
Deangate Ridge to Higham Marshes		
Cliffe Woods	Under pasture	Housing development at south western end
Cliffe Woods to The Old Rectory	Mix of cultivation and orchards	Mix of cultivation and orchards
The Old Rectory to Cliffe quarry	Mix of cultivation and orchards	Under cultivation
Near Westcourt Farm, Cliffe		Recent quarrying
Quarry, west of Cliffe, to southern bank of River Thames	Scrub covered marshy ground along length; marshy foreshore at western end.	Recent quarrying over area of eastern end; grass and scrub in centre; marshy foreshore at western end





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