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SECOND WORLD WAR OIL QF BOMBING DECOY ALLHALLOWS, MEDWAY, KENT

Fiona Small



REMOTE SENSING



ENGLISH HERITAGE

**SECOND WORLD WAR
OIL QF BOMBING DECOY
ALLHALLOWS,
MEDWAY, KENT**

Fiona Small

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SUMMARY

The Second World War QF P-series oil decoy located in Allhallows Marshes on the Hoo Peninsula, Kent was established between 1940 and 1941 as part of a national programme of homeland defences to draw enemy attack away from fuel storage facilities. The Allhallows decoy was one of eleven specialised oil QF sites in Britain and was constructed to protect the oil storage depots on the Isle of Grain located between the Thames and Medway rivers. Only two of this type of decoy are known to survive – the Allhallows site and Shell Haven, Fobbing in Essex which is scheduled. All the remaining sites appear, from analysis of maps and aerial photographs, to have been removed or destroyed by development. The Allhallows decoy was mapped and recorded from aerial photographs during the Hoo Peninsula Historic Landscape Project undertaken by English Heritage between 2009 and 2012. This report provides details of the surviving elements, history and national context of the decoy.

CONTRIBUTORS

Survey and research by Fiona Small

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DATE OF SURVEY

2014

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CONTENTS

FIGURES	4
INTRODUCTION	1
LOCATION OF SITE	3
DESCRIPTION OF SITE	4
DECOYS FOR OIL INDUSTRY	5
OIL STORAGE AND REFINERIES ON THE HOO PENINSULA	9
SECOND WORLD WAR DECOYS	10
PETROLEUM BOARD DECOY INITIATION AND EFFECTIVENESS	11
ASSESSMENT	13
National Context	17
BIBLIOGRAPHY AND REFERENCES	17

FIGURES

Figure 1 Hoo Peninsula with names of settlements.....	2
Figure 2 Location of Allhallows Oil QF bombing decoy in relation wartime oil storage facilities.	3
Figure 3 Location of the Allhallows Oil QF decoy site within the marshes with an extract of aerial photographic mapping of the bombing decoy.....	4
Figure 4 The Allhallows QF oil decoy site.....	5
Figure 5 Layout of the Allhallows QF oil decoy.....	6
Figure 6 Allhallows oil QF decoy. The channels that held the burning fuel oil, their shapes helping to create the impression that storage tanks were alight. A narrow ditch and bank surround these features acting as firebreaks.....	7
Figure 7 Illustration of the typical layout of an oil QF bombing decoy..	8
Figure 8 View of the MOSCO oil refinery and Admiralty Oil Depot.....	9
Figure 9 Soil covered oil tanks on Grain camouflaged during the Second World War..	10
Figure 10 Allhallows decoy structures visible as vegetation marks.....	13
Figure 11 Remains of the remote control building with projecting blast walls and ancillary store or generator building.....	14
Figure 12 General view looking west with the decoy structures in the foreground and control builings centre-right.	15
Figure 13 The decoy structures.....	16
Figure 14 The control buildings.	16

INTRODUCTION

This report describes the remains of a Second World War QF P-series oil decoy located in Allhallows Marshes on the eastern end of the Hoo Peninsula, Kent. The Hoo Peninsula lies between the Thames and Medway rivers east of London (Fig 1) and was the location of a number of oil storage facilities throughout the 20th century on the Isle of Grain and the main peninsula. During the Second World War the Hoo Peninsula lay in the path of air raids directed at London and was a major front for potential invasion. The munitions depots, military installations and industrial sites on Hoo also made it a prime target for raids. Areas of tidal mud and marshland formed a natural defence from coastal invasion but the more vulnerable beaches at Allhallows-on-Sea and the Isle of Grain were secured by lines of obstructions and defences. A second layer of defences inland from the coast included pillboxes and gun emplacements. A large number of heavy (HAA) and Light Anti-Aircraft (LAA) batteries supported by searchlights were sited at regular intervals across the peninsula.

As a response to threats of aerial bombardment a national programme of homeland defences was established in the early months of the Second World War including the construction of decoy and dummy sites to draw enemy attack away from towns, airfields, factories and fuel storage facilities across Britain. The Allhallows decoy was one of eleven specialised oil QF sites completed between 1940 and 1941 (ten in England and one in Scotland) built specifically to protect oil storage facilities. This site was constructed to draw enemy raids from the extensive oil storage depots 2 km to the south on the Isle of Grain which is separated from the rest of the peninsula by the Yantlet Creek. The decoy site is recorded in documentary sources and details of the form and extent were mapped from 1940s and modern aerial photographs during the Hoo Peninsula Historic Landscape Project undertaken by English Heritage.

Only two of this type of decoy are known to survive – the Allhallows site and Shell Haven, Fobbing in Essex (Scheduled Monument 1020489). All the other decoy sites appear, from analysis of maps and aerial photographs, to have been removed or destroyed by development. The scheduled area and description for the Shell Haven decoy appears to only include the night shelter and associated storage buildings, but no mention is made in the listing of any decoy structures at the site suggesting that either they don't survive, or have not been identified.

Aerial photographs taken in September 2013 and March 2014 suggests that all the main structures of the Allhallows decoy, including oil pools and associated structures and the remote control buildings, are still extant, in varying states of preservation.

The Allhallows decoy therefore appears to be the only surviving near complete Oil QF decoy remaining in England.

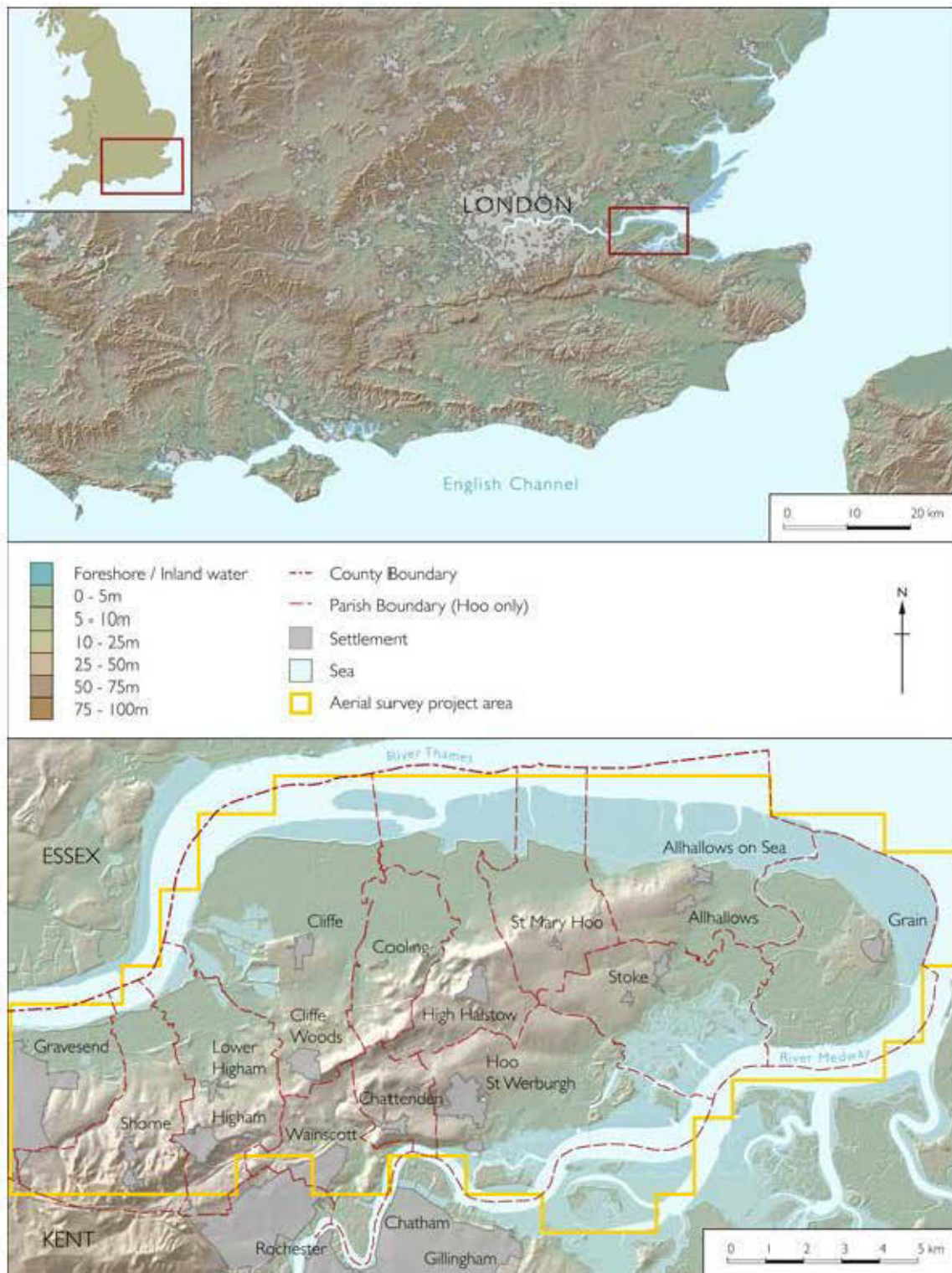


Figure 1 Hoo Peninsula with names of settlements. Top based on 90m SRTM Topography data courtesy of the CGIAR, <http://srtm.csi.cgiar.org>; Bottom based on lidar © Environment Agency copyright 2013. All rights reserved; both contain Ordnance Survey data © Crown copyright 100024900

LOCATION OF SITE

The main decoy structures are located to the east of Allhallows village at TQ 8567 7736 and lie within fields to the south-west of the Yantlet Creek. The land here is low-lying marsh at c.3m OD which has been reclaimed and heavily drained. The remains of former seawalls from various phases of reclamation from the medieval to the present day can be seen enclosing areas of former marsh. The control or shelter buildings for the decoy are located some 300m to the west of decoy on slightly higher ground behind the bank of a former sea wall.

The area is still heavily drained with open ditches between adjacent fields. This open undeveloped land was in close proximity to the major oil storage facilities to the south-east on the Isle of Grain and was an ideal for the location a decoy site (Fig 2). The decoy lies across three fields with the main decoy structures located in a single field centred at TQ 8567 7736, and the remains of the generator building and reinforced control buildings are located some 300m to the west where the ground rises slightly (Fig 3). These buildings were placed some distance from the decoy to reduce the chance of receiving a direct hit from a bomb intended for the decoy.



Figure 2 Location of Allhallows Oil QF bombing decoy (magenta) in relation to the former location of wartime oil storage facilities (green). Background mapping © Crown copyright and database right 2014, all rights reserved. Ordnance Survey Licence number 100024900.

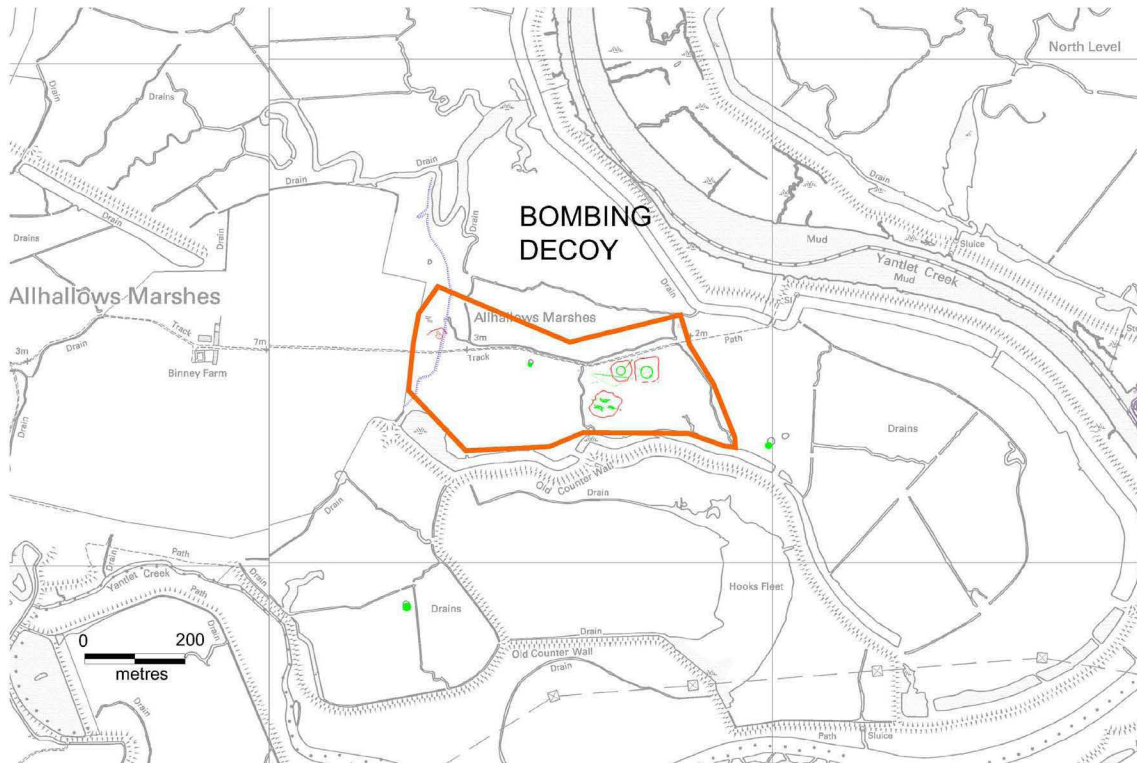


Figure 3 Location of the Allhallows Oil QF decoy site within the marshes with an extract of aerial photographic mapping of the bombing decoy © English Heritage. Background mapping © Crown copyright and database right 2014, all rights reserved. Ordnance Survey Licence number 100024900

DESCRIPTION OF SITE

This decoy site differs slightly from the standard layout (Fig 7) and has two circular oil rings differing slightly in size, a pair of mirrored oil crescents, and a small irregular shaped oil pool. The oil pools are contained within enclosures with a narrow ditch and bank or bund presumably to act as firebreaks. Oil sumps for each pond are located outside the enclosures linked to the pools by channels containing the electrical charge wires or oil balancing pipes. A small building could be seen on earlier photographs located immediately to the west of the decoys in the adjacent field towards which at least two of these channel ditches appear to head. This could be associated with the electrical ignition or oil supply to the site.

The remains of the reinforced control building are located to the west of the main decoy site. This has a flat roof and a pair of blast walls protecting the north-west facing entrance (facing away from the decoy), and has a square structure in the south-east corner which is probably the roof observation hatch. The control buildings were typically either sunken structures or surrounded by earthen banks to offer additional blast protection from a stray bomb. The levelled remains of the banks around the Allhallows example seem to

extend around the building. To the north-west is an ancillary building, probably for the generator, which appears to only survive as a floor (probably concrete) with the vestiges of the end walls and two parallel inner walls which divided the structure into three rooms. Generator buildings were usually parabolic structures similar to air raid shelters (Brown et al 1996, 64).

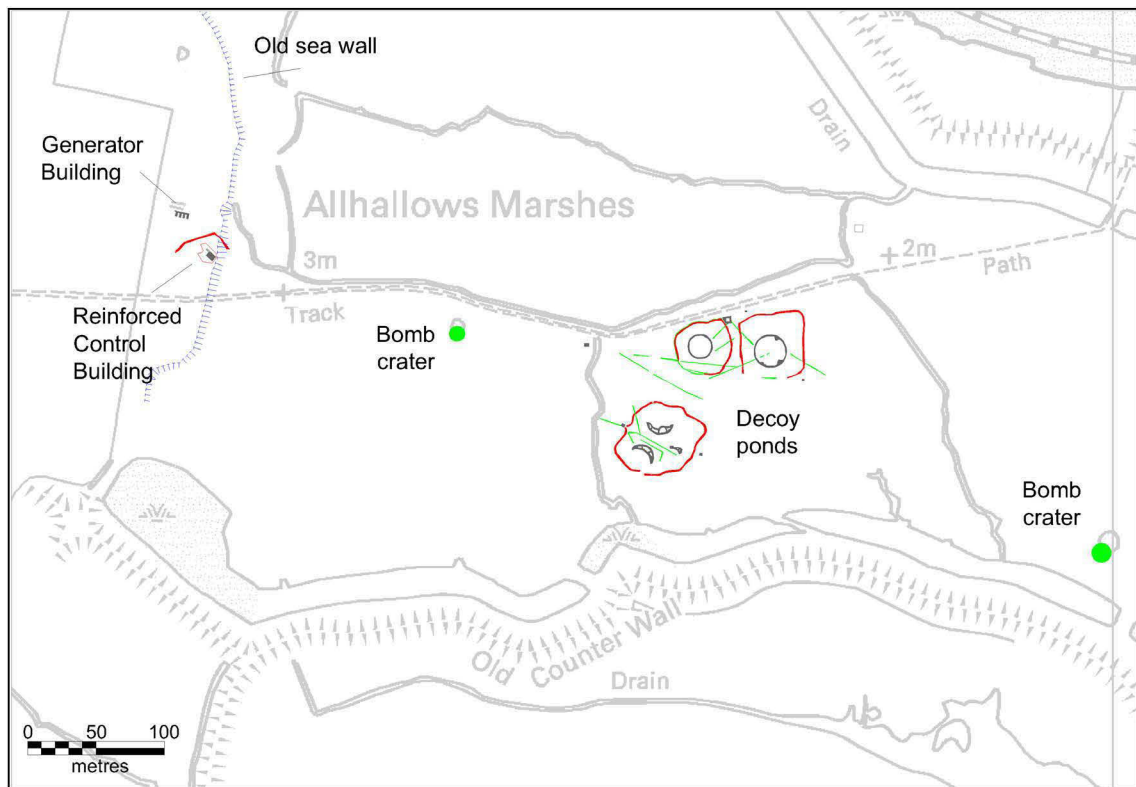


Figure 4 The Allhallows QF oil decoy site. Background mapping © Crown copyright and database right 2013, all rights reserved. Ordnance Survey Licence number 100024900

DECOYS FOR OIL INDUSTRY

The Petroleum Board was the official wartime body for the oil industry (based at Shell-Mex House on the Strand) which handled the distribution and rationing of petroleum products during the war. This was overseen and advised by the Ministry of Fuel and Power (Petroleum Division) TNA AIR 2/4772. The Petroleum Board was tasked with responsibility of overseeing the camouflaging of commercial oil tank farms and setting up and running a series of controlled fire bombing decoys to protect their sites. This specialised group of oil QFs classified as 'P' series (Petroleum Board) decoys were developed between 1940 and early 1941 were built specifically to deflect bombing away from major fuel oil storage sites. These decoys were designed to burn large quantities of fuel oil in a variety of brick or clay lined pools and channels variously shaped to simulate burning fuel storage tanks and installations targeted by bombs when seen from the air.

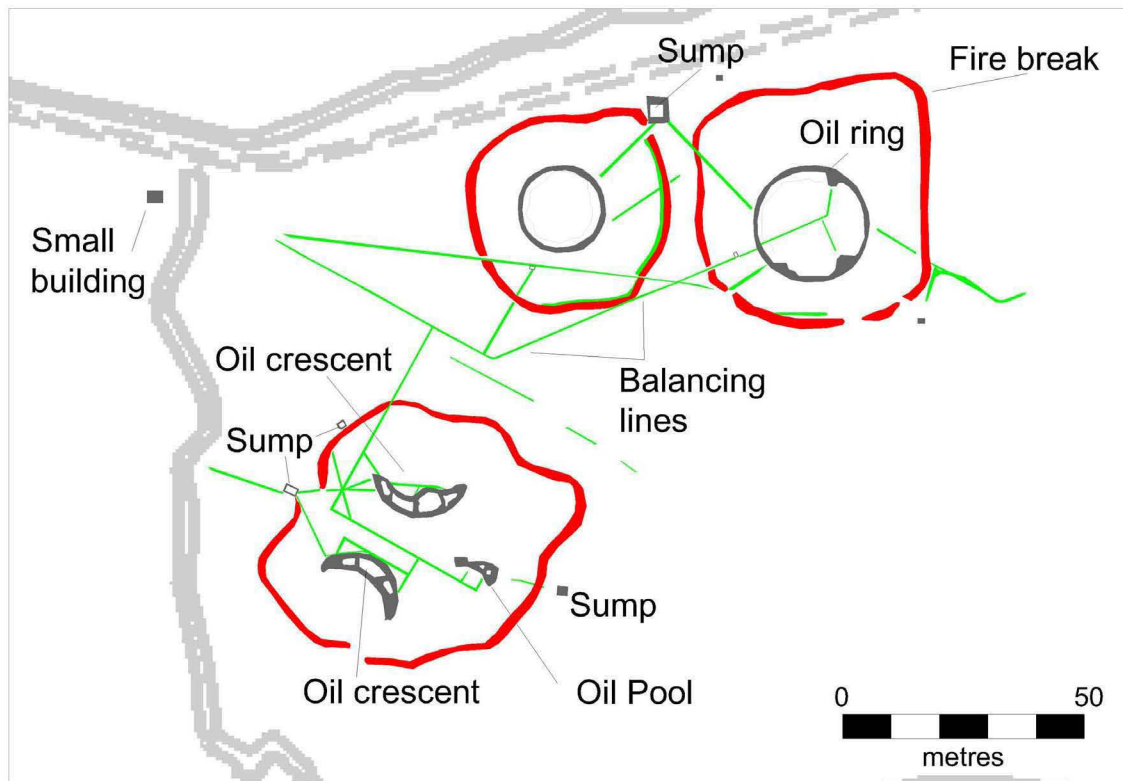


Figure 5 Layout of the Allhallows QF oil decoy showing detail of the oil ponds and crescents with channels (green) for associated oil pipes and electric cabling. Background mapping © Crown copyright and database right 2013, all rights reserved. Ordnance Survey Licence number 100024900

Typically each site included three basic types of pool - a circular oil 'ring', a crescent and an irregular elongated pool or channel, a design arrived at from experimentation at a test site on Boscombe Down (TNA AIR 2/4772 26a). The oil rings and crescents were constructed from a double skin of bricks packed with creosote soaked wood shavings fed with oil through a system of buried pipes and valves from a storage tank. The levels of oil were kept level through a network of balancing lines. Fire clay linings were used early on, but may have been replaced at a later stage. Additional Starfish-type boiling oil fire installations were linked to the outside of the oil ring (Dobinson 1996 62). The site was manned and controlled remotely using electrical ignition from a sheltered control building some distance away (Dobinson 2000, 147, 149).

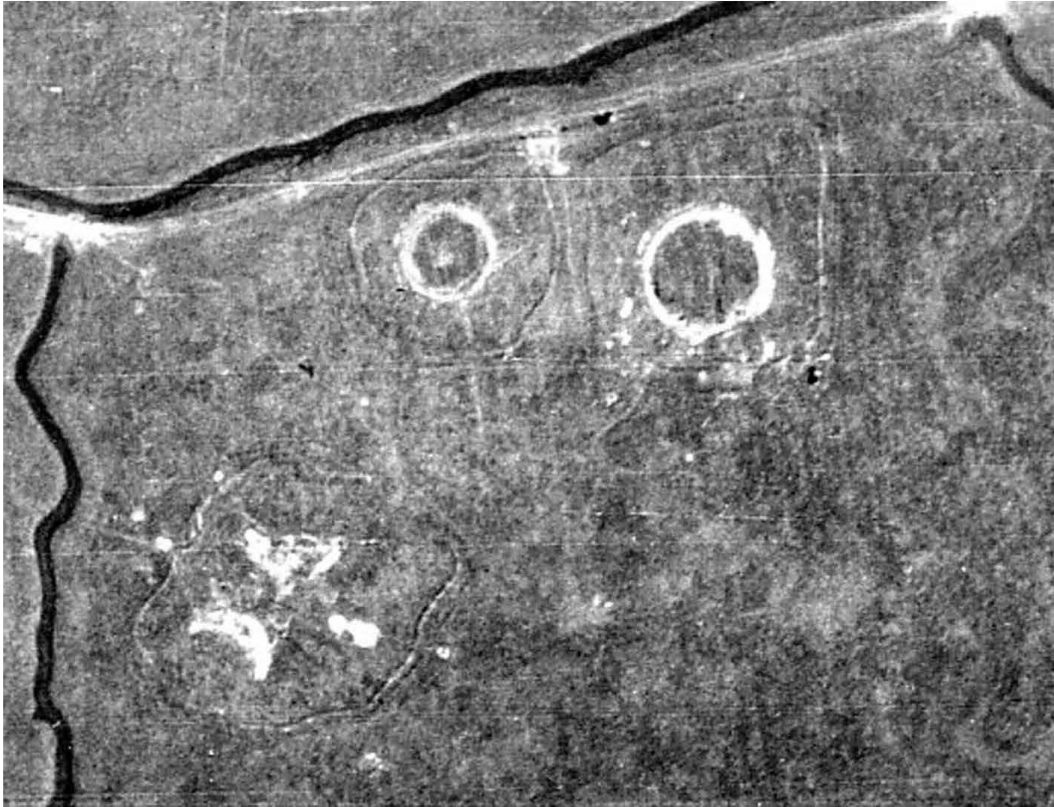


Figure 6 Allhallows oil QF decoy. The channels held the burning fuel oil, their shapes helping to create the impression of burning fuel storage tanks. A narrow bank surrounds each group acting as a firebreak. Detail of RAF I06G/UK/I444 4013 01-MAY-1946 English Heritage RAF Photography.

Eleven such P-series sites were planned for major commercial oil storage installations or tank farms around the Solent, Thames Estuary Bristol Channel, Humber and Liverpool. All but one located in England, the remaining site located at Grangemouth in Scotland.

Serial No	Parent Station	Decoy
P.1	Isle of Grain	Allhallows, Kent
P.2	Shell Haven	Fobbing
P.3	Thames Haven	Stanford-le-Hope, Essex
P.4	Grangemouth	Polmont
P.5	Stanlow	Ince
P.6	Preston	Clifton Marsh
P.7	Killingholme	East Halton
P.8	Salt End	Paull
P.9	Avonmouth	a) Sheepway b) Severn Beach
P.10	Fawley	Lynes Common
P.11	Hamble	Tichfield

(Dobinson 2000)

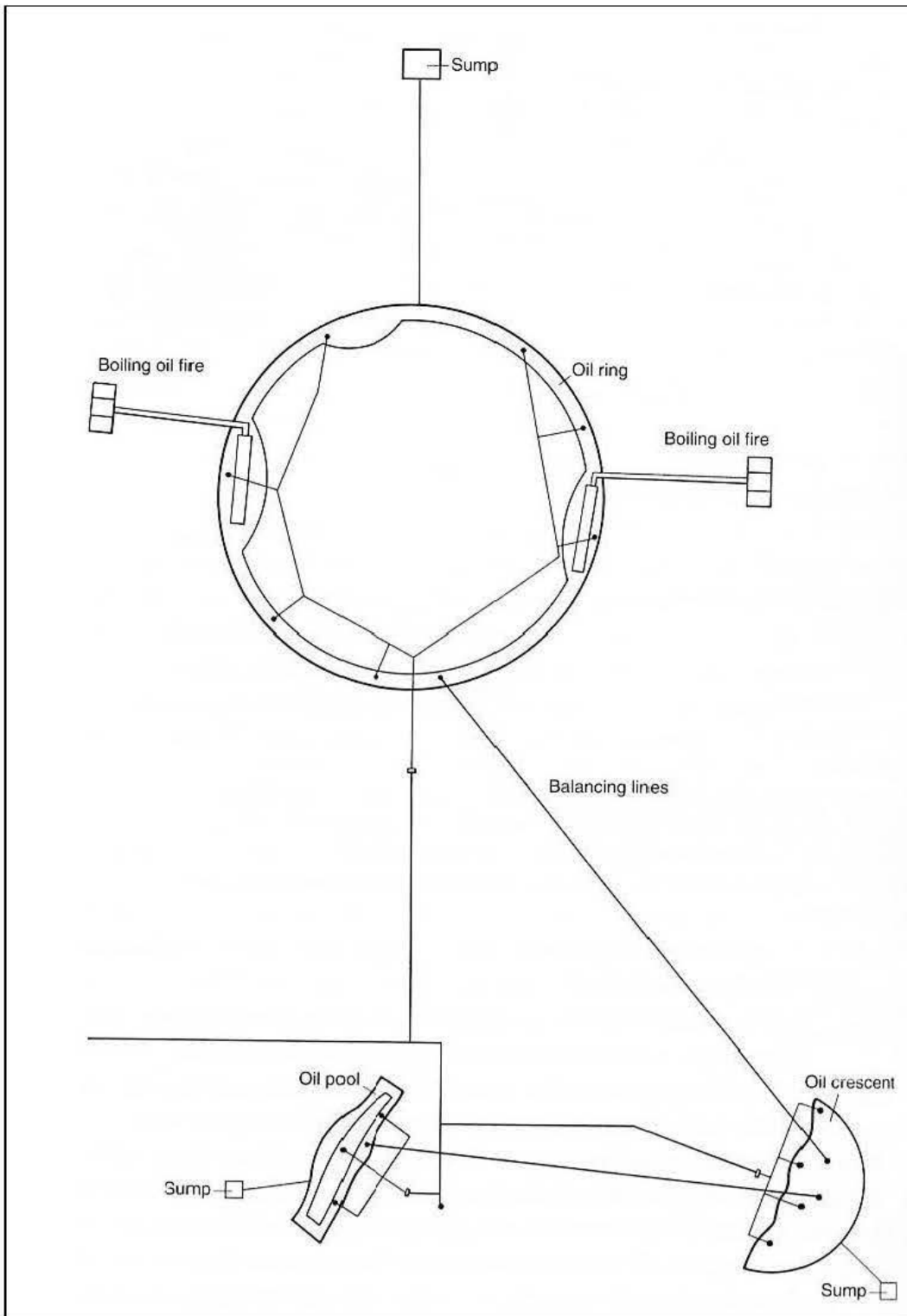


Figure 7 Illustration of the typical layout of an oil QF bombing decoy. © English Heritage 2000, as published in Dobinson C, 2000, 148. Fields of Deception. London Methuen.

OIL STORAGE AND REFINERIES ON THE HOO PENINSULA

Hoo had become an important location for oil storage and refining following the Navy's move from coal to oil as a fuel at the turn of the 20th century and their establishment of fuel oil storage on the peninsula in 1908. Oil offered the Royal Navy a more efficient fuel source which enabled ships to travel faster and further, and with the ability to refuel at sea were no longer tied to the coaling yards at the Naval dockyards. A further advantage was that ships burning oil produced relatively little smoke and were less likely to be spotted while at sea.



Figure 8 View of the MOSCO oil refinery (left) and Admiralty Oil Depot (right) with the Yantlet Creek and edge of Allhallows Marshes in the far distance. RAF 540/393_20_30-JUL-1950 English Heritage RAF Photography.

The Admiralty oil storage was established on the Medway coast of the Isle of Grain where it utilised a deep water anchorage away from the naval dockyard (MacDougall 1980, 156). The site was eventually incorporated into the BP refinery that was built on Grain in the early 1950s and demolished when the refinery closed in the early 1980s. In

the interwar period three separate commercial oil installations were established on Hoo concerned with storage and refining – the Medway Oil and Storage Co and the Britannic Oil Storage Co. on Grain, and Berry Wiggins & Co. further west on the site of the former RNAS station at Kingsnorth.

In the early years of the Second World War a group of 22 storage tanks was built on Grain and buried under mounds of soil in an attempt at camouflage. These tanks were connected to the network of oil pipelines established across Britain during the war (and connected to PLUTO – Pipe Line Under The Ocean – a top-top secret plan that eventually delivered a million gallons of fuel a day across the Channel to the Allied troops as they advanced across France and Belgium and into Germany from the beginning of 1945).



Figure 9 Soil covered oil tanks on Grain camouflaged during the Second World War. They were later incorporated into the BP refinery built there. RAF 540/393 PO-28 30-JUL-1950 English Heritage RAF Photography.

SECOND WORLD WAR DECOYS

Prior to the outbreak of the Second World War the threat of air attack had been anticipated with a number of counter measures planned. By the early months of the war the enormity of the threat of aerial bombardment was realised. Air attack was countered actively with AA batteries and through passive methods including camouflage, aircraft obstructions and decoy sites.

Colonel John Fisher Turner, a retired Royal Engineer, was taken on to head the Air Ministry's decoy programme. This programme aimed to establish a network of sophisticated bombing decoys across the country designed to draw enemy bombing raids

away from major urban, industrial and military targets. (Dobinson 2000). Various ingenious methods were employed to deceive the enemy: for daytime raids fake airfields with dummy tents and cut-out planes (Q sites), and to mislead night raids there were decoys with lights simulating depots, towns and airfields (QL sites), and controlled fires (QF sites) simulating burning buildings from bomb damage. Special Fire (SF) sites, also known as Starfish decoys, simulated a range of fires. After the bombing of Coventry in November 1940, all major towns were provided with decoys to draw fire (ibid).

PETROLEUM BOARD DECOY INITIATION AND EFFECTIVENESS

The programme's progress suffered from the outset, largely because, unlike all other Air Ministry decoys, they were to be built and manned by the oil companies themselves. There was considerable resistance from the companies which stalled construction amid uncertainty of their effectiveness and a reluctance to provide the sufficient manpower necessary to operate them. (Dobinson 2000, 149) Effective operation at some sites appears to have been hampered on four fronts by construction/structural problems, supply of manpower to operate them, provision of sufficient oil and problems with the chain of command.

A questionnaire to all sites requested by Col. Turner's department dated 31st July 1941 reported back on 18th August 1941 that seven sites were completed and ready to operate. Allhallows reported it was completed and permanently manned by 4 to 6 men, though puddling in the oil crescents was exhibiting cracking. A footnote to this report stated that the cracking in the clay lining and was also being experienced at the Grangemouth (P.4) decoy and at the experimental decoy oil crescents located on Boscombe Down. Here cracks of up to an inch across were reported in the clay puddling, the recommended solution being to damp the clay down between oil firings. (TNA AIR 2/4772, 26a and 26b) report on Oil QF condition 15 Aug 1941)

Of the four other sites, two (Fawley-P.10 and Hamble-P.11) were reported as unfinished and two (Shell Haven-P.2 and Thames Haven-P.3) were having difficulty obtaining sufficient personnel to man them. Three of those ready to operate were manned by existing Starfish detachments. This was possibly a simple matter of utilising an existing team from an adjacent Starfish, but could have been a result of suggested difficulties with commitment of the oil companies to release employees from the oil installations to man their decoys (TNA AIR 2/4772, 26a and 26b).

In a letter dated 2nd February 1942 to Col. Turner's department from the Petroleum Board that discussed testing and exercises for the decoy personnel, five sites are listed as being under military or navy control. These included Paull which was manned as noted in 1941 by the RAF (Starfish crew), East Halton by the Royal Navy, Shell Haven and Stanford-le-Hope, both short of adequate staff in 1941 were now under military control and Allhallows operated by the Royal Navy (TNA AIR 2/4772 80a 2nd February 1942).

A subsequent letter dated 6th May 1943 from Major Wood of the Ministry of Fuel and Power (Petroleum Division) to Squadron Leader Greensill of Col. Turner's department in the Air Ministry states that QF decoys P.1 (Allhallows (Grain)), P.9 (Avonmouth) and P.10 (Fawley) were to be taken over by Naval Authorities from 1st May 1943, possibly as a result of long running issues surrounding provision of men to run the decoys (TNA AIR 2/4772 63a). The adequate provision of oil and the questions on the chain of command authorising the firing of the decoys appear to have been further issues arising from these sites being in commercial hands rather than in direct control of the Air Department (TNA AIR 2/4772 47a, 48a, 52b and 54a April – June 1942). However, apart from what were essentially teething problems and issues with the manning of the sites, all decoys would appear to have been operational from the summer of 1941 throughout the war.

Of the three types of fire decoys employed during the war, Starfish decoys proved to be very effective at drawing raids away from their target. This success was largely due to the rapid response to reports of incoming raids through dedicated telephone lines between control and the decoy handled by 80 Wing RAF. In contrast, the Petroleum Board decoys appear to have been the least effective of the passive fire decoys, the problems with the chain of command and inability to provide a rapid response probably being a major contributing factor (Dobinson 1996 65). The oil QF decoys which were manned by Starfish or Naval personnel under direct command are thought to have been more efficient, but their overall effectiveness is questionable. Active starfish decoys could draw numerous raids, their sites peppered with bomb craters, but at Allhallows only a small handful of bomb craters have been noted in the marshes around the decoy, casting considerable doubt on the success of this decoy.

ASSESSMENT

Assessment of the Allhallows site from vertical aerial photographs taken in September 2013 (Google Earth) suggests that all the main structures of the decoy including oil pools and associated structures and the remote control buildings are still extant, be they in varying states of preservation. The outlines of the oil pools appear on recent aerial photographs highlighted by strong vegetation marks indicating that the oil pool structures are present beneath the turf, their linings intact enough to retain water, though the condition of the remains is uncertain. The traces of a number of narrow channels, probably those which contained the buried balancing lines and possibly the remote ignition wires can still be seen cutting across the site. It is possible that some of the piping and wires survive within these channels. At least one of the external oil sumps for the oil rings at the northern edge of the site can also be seen as an open square depression on the northern edge of the site.

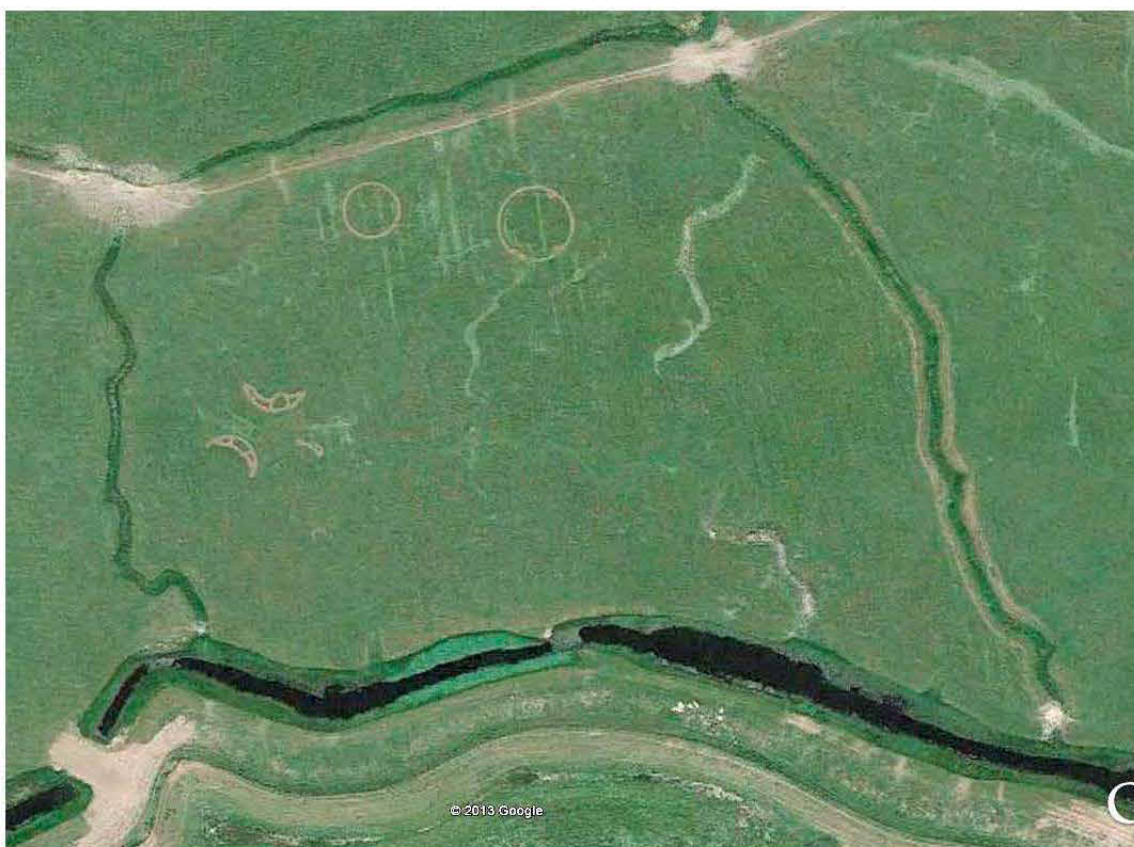


Figure 10 Allhallows decoy structures visible as vegetation marks (GOOGLE.EARTH.COM September 2013 accessed 14-MAR-2014)

The reinforced control building retains its flat roof and projecting blast walls which protected the main doorway, though the surrounding earthen embankment appears to have been removed and dispersed around the building. A second building, either the

generator building or a store, appears to have fared less well, with only the concrete floor and stubs of the end and two dividing walls remaining (see Figure 11).



Figure 11 Remains of the remote control building with projecting blast walls (middle) and ancillary store or generator building (top left) at Allhallows decoy. (GOOGLE.EARTH.COM 2013 accessed 14-MAR-2014)

The site currently lies across three low-lying fields which have remained under pasture since the time of the first available aerial photograph taken in 1946. Undoubtedly, this has helped to preserve the site so far, but recent photographs highlight poaching around the buildings by sheltering livestock which could pose a threat to the integrity of the buildings and any surviving earthworks. Recent photographs also highlight the potential damage to the site by vehicle tracks. A change of agricultural use from grazing to arable, as has occurred widely across the peninsula, would potentially disturb the buried remains of the decoy ponds and any development of the site could also pose a threat to the remains.

English Heritage aerial reconnaissance on 16th March 2014 confirmed the status of the site as seen on the September 2013 vertical photographs on GoogleEarth and revealed the remains of further elements of the site not evident on previous photographs. The English Heritage aerial photography provided an up to date record of the preservation of the site and all round cover including close ups and general views from various angles (Figs 12-14).



Figure 12 General view looking west with the decoy structures in the foreground and control buildings centre-right. EHA 27950_026 16-MAR-2014 © English Heritage



Figure I3 The decoy structures. EHA 27960_008 16-MAR-2014 © English Heritage



Figure I4 The control buildings (surrounded by cattle). EHA 27950_035 16-MAR-2014 © English Heritage

National Context

The locations of all eleven of the original Oil QF P series decoys completed for the Air Ministry's World War II decoy programme were listed with a six-figure grid reference (Dobinson 2000, 258). Assessment of each of these sites from aerial photographs (Google earth) in conjunction with the current Ordnance Survey mapping suggests that only two of the original eleven oil decoys survive in any form – one at Shell Haven, Fobbing in Essex which is scheduled (SM 1020489), and the Allhallows decoy. All the remaining sites appear to have been removed or destroyed by development.

The scheduled area and description for the Shell Haven decoy appears to only include the night shelter and associated storage buildings, but no mention is made in the listing of any decoy structures at the site suggesting that either they don't survive, or have not been identified. A brief analysis of recent photographs on Google Earth of the Shell Haven site could not identify any possible decoy structures in the vicinity of the scheduled buildings. This would suggest that the Allhallows decoy represents the only surviving near complete Oil QF decoy remaining in England.

The rarity and completeness of this site marks the Allhallows oil decoy out as a site of national importance. This also represents a site of local importance to the Hoo Peninsula, the historic home of the naval dockyards and Royal Ordnance depot at Chatham, and three oil storage facilities located at Kingsnorth and Grain.

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TNA: AIR 2/4772 25b 31/07/1941 (Request for information on readiness of Allhallows decoy)

TNA: AIR 2/4772 26a 15/08/1941 (Notes on conditions of all QF P-Series sites)

TNA: AIR 2/4772 29a 14/01/1942 (Memo regarding a fire at a parent installation)

TNA: AIR 2/4772 80a 02/02/1942 (Letter regarding initiation of exercises at sites)

TNA: AIR 2/4772 47a 15/04/1942 (Letter regarding the telephone connections to decoys)

TNA: AIR 2/4772 48a 18/04/1942 (Letter regarding telephone connections to civilian run decoys)

TNA: AIR 2/4772 52b 11/05/1942 (Memo regarding telephone control at QFs)

TNA: AIR 2/4772 54a 19/06/1942 (Memo regarding fuel supply and payment)

TNA: AIR 2/4772 45a

TNA: AIR 2/4772 63a 01/05/1943 (Notification of transfer of sites to naval control)

TNA: AIR 2/4772 64a 10/05/1943 (Memo regarding transfer of sites to naval control)



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