

## BUILDING RECORDING REPORT

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# World War II Defences on The Swale, Brightwell Heath, Ipswich MRM 140



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World War II Defences: Type 23 Pillbox with Adastral Park (behind)

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## Acknowledgements

The survey was commissioned by ENVIRON UK Ltd as agent for and funded by BT Ltd, at the request of John Ette (English Heritage) and background information was provided on-site by Roger Thomas (English Heritage). The project was monitored by William Fletcher (Suffolk County Council Archaeological Service Conservation Team).

The fieldwork was lead by Mo Muldowney and carried out with the assistance of Sabra Hennessy, Jonathon Van Jennians and Anna West from Suffolk County Council Archaeological Service, Field Team. Additional thanks go to Abby Antrobus for post-excavation assistance.

## Summary

An RCHME Level 2 survey of World War II structures on land known as The Swale (Fig. 1) was carried out in advance of proposed development on land adjacent to Adastral Park, Martlesham, Ipswich. The structures recorded comprise a Type-22 and Type-23 pillbox, a heated room, a Lewis gun-emplacement, a Radar Tower and associated octagonal (embrasure) pillbox, a Generator Hut and two shafts. Most, if not all, are structures built for the Defence of Britain from 1940 onwards.

## HER information

Planning application no.	C/09/0555
Date of fieldwork:	28th to 30th October 2008
Grid Reference:	TM 2498, 4464
Funding body:	ENVIRON UK Ltd as agent for BT Ltd
OASIS Ref	suffolkc1-54004

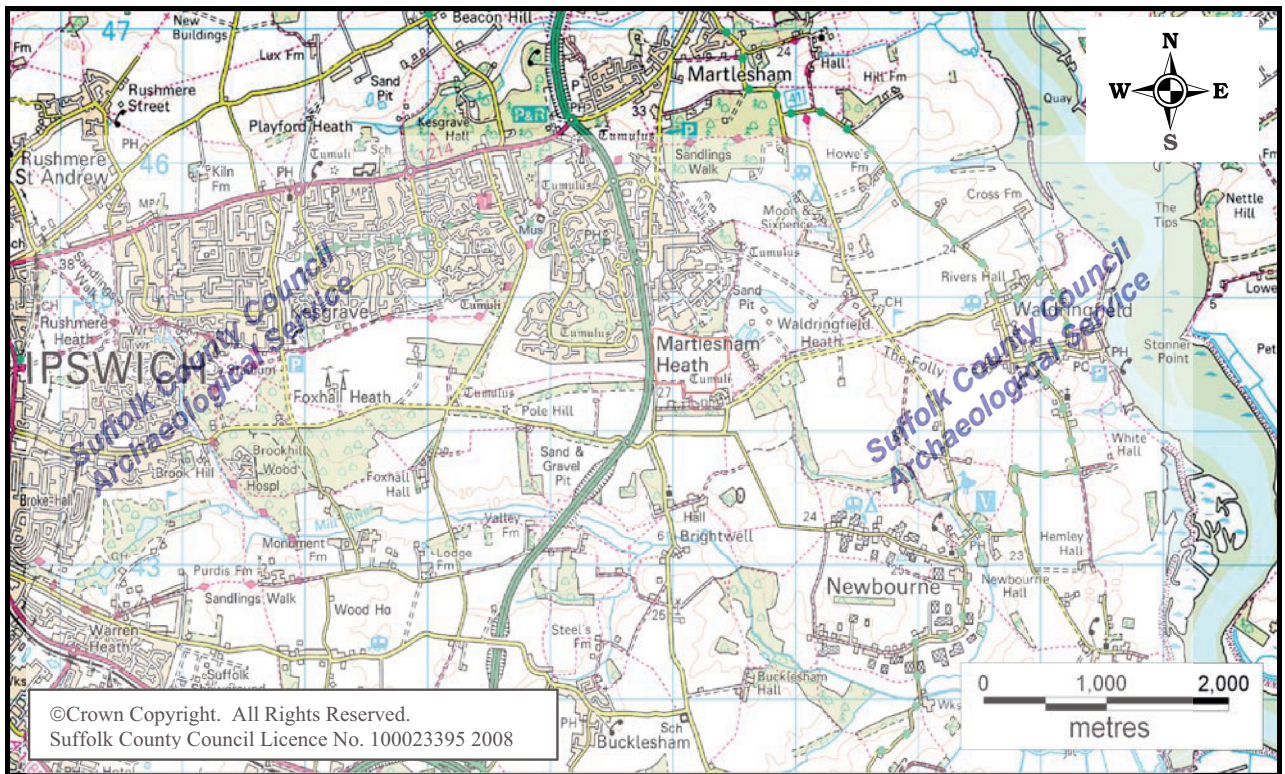


Figure 1. Site location (outlined red)

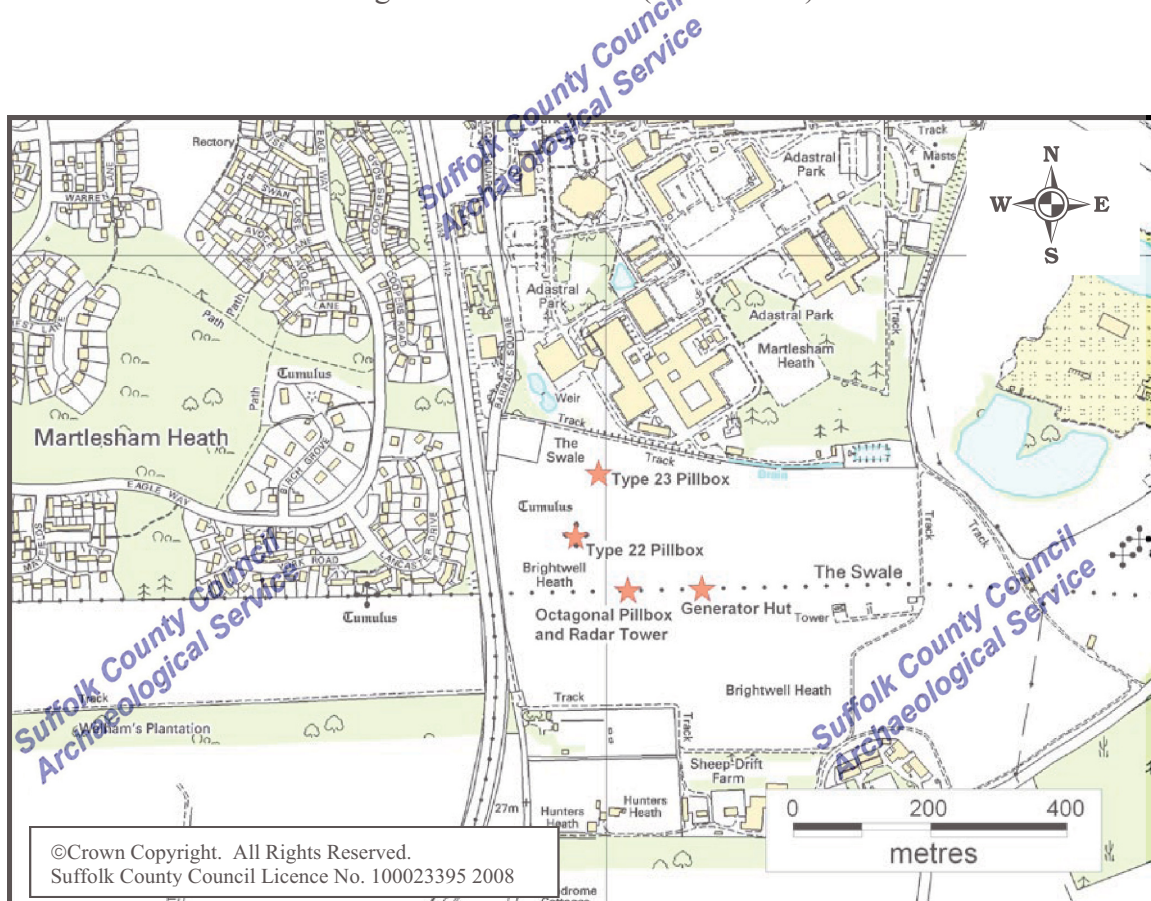


Figure 2. World War II structure locations (excluding shafts)

## Methodology

The Level 2 historic building survey consisted of a comprehensive photographic record of all the structures, primarily externally, but also internally where appropriate or possible and was carried out in accordance with current English Heritage guidelines (English Heritage 2006). This was accompanied by a metric survey carried out using a Leica 700 Series GPS and a Leica Total Station Theodolite. All photographs are included on the accompanying disc.

The survey data, photographs and records have been archived in the main stores of Suffolk County Council Archaeological Service at Bury St Edmunds and with the County Historic Environment Record under the site code MRM 140. A copy of the report will be lodged with the OASIS on-line database (suffolkc1-54004).

## Description

### Type 22 pillbox

The Type 22 hexagonal pillbox is situated atop a Bronze Age burial mound (SAM 21267) and located at the west end of The Swale (Fig. 2). It is constructed primarily of brick with an external concrete 'skin' and all walls are approximately 0.3m thick by 1.8m long. It has a square-edged single loophole on the left-hand side of the entrance and the five other loopholes on each face are of the 'stepped splay' design.

On the roof of the pillbox there is a small, now eroded, mound of earth and grass which was a means of camouflage. Internally, the pillbox has a central brick anti-ricochet wall and two of the wooden shelf brackets below the loopholes, where the rifleman would rest his elbow and ammunition clips - still survive (Mathews 2001). Figure 3 shows the typical layout of a Type 22 pillbox, showing the position of the wooden shelves.

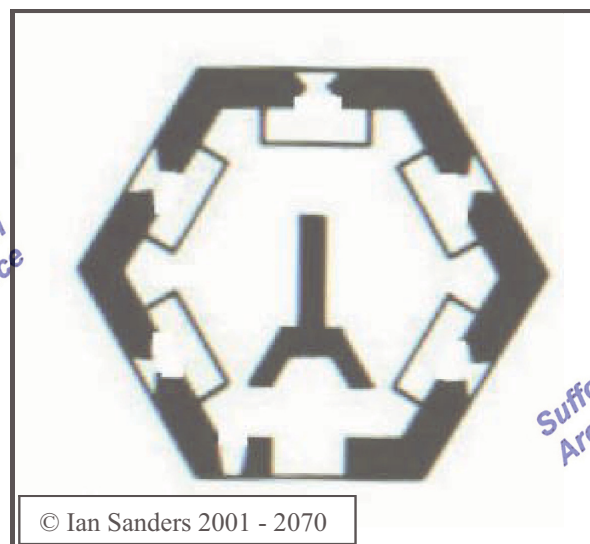


Figure 3. Typical Type 22 pillbox layout (no scale)

Additional internal features comprise a series of graffiti from both the Second World War and more recent years (see Plates on accompanying disc).

The top of a series of brick revetment walls can be seen on the south and south-east side of the pillbox set into the burial mound (Fig. 4). These walls are outworks to the pillbox and would have originally been open trenches acting as an additional defence mechanism. On the north and north east side there is one brick Lewis gun-emplacements. This was situated here in order to allow firing towards RAF Martlesham Heath in the event that it had been overtaken by invading forces.

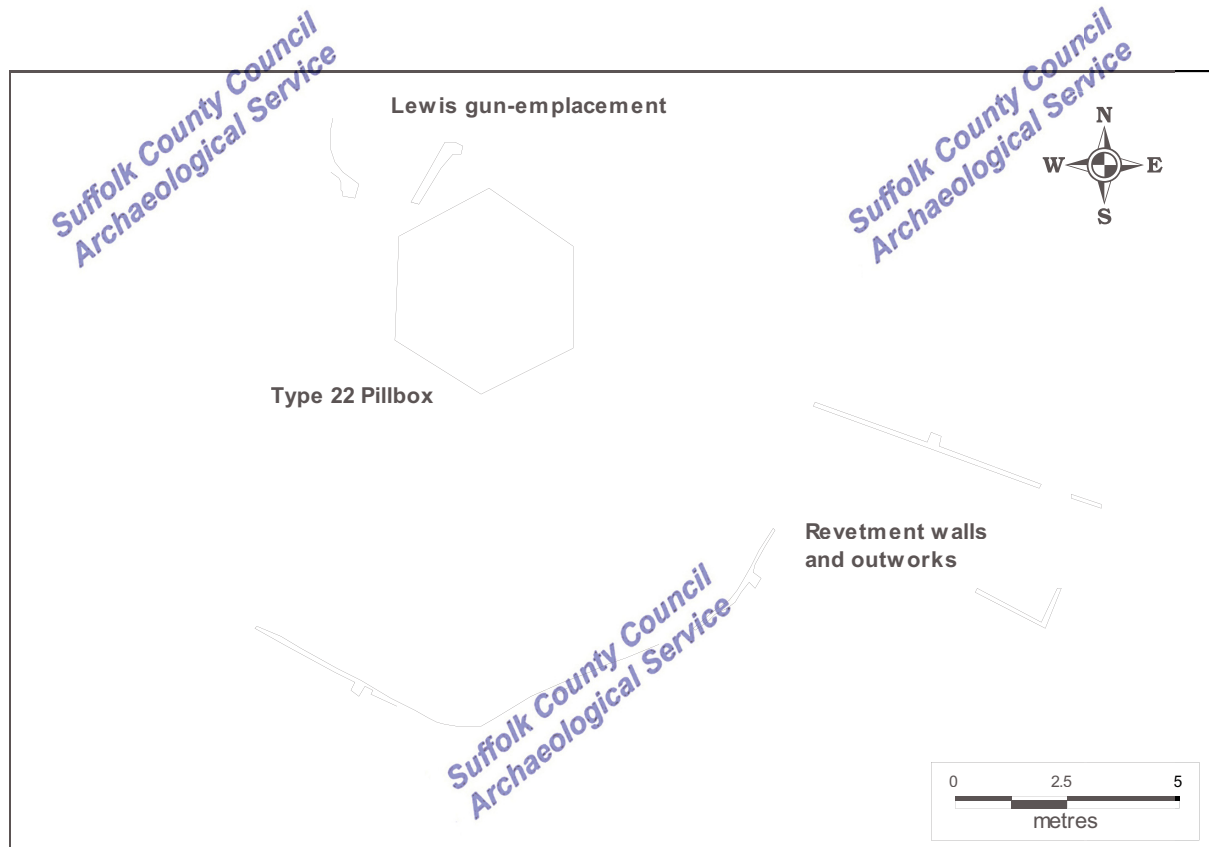


Figure 4. Location of Type 22 pillbox

### Octagonal pillbox, Radar Tower and Generator Hut

This pillbox (Fig. 5) is a probable Type 27 variant and is located on the boundary between two fields on The Swale (Fig. 2). It is an open structure with no roof and is constructed from brick in Old English bond. The walls are three bricks deep (0.3m) and at least 26 courses high, with an additional ‘capping’ course of bricks laid at right-angles to the main walls. All the walls are approximately 2.5m long, with the exception of the north-west facing wall, which is 0.93m and 1.36m long and angled to form a short concealed (and protected) entrance with the north wall (Fig. 5). There are small splayed loopholes on each wall, except the north and east-facing sides, which are solid. The loopholes are approximately 0.43m long by 0.1m high and splayed with a concrete sill’.

Internally, unlike the Type 22, this pillbox has no shelves for support under each loophole, although there is an iron rod attached to the east wall. The west wall retains an upright wooden 3”x1” bracket or strut to the left of the loophole – the right hand side bracket is absent – and the lower half of the wall (below the loophole) has been either whitewashed or painted white. This suggests that something was affixed to this wall, but it is not clear what this might have been.

The octagonal pillbox structure was an embrasure surrounding – and protecting – the base of the Radar Tower (see below) against bullet fire.

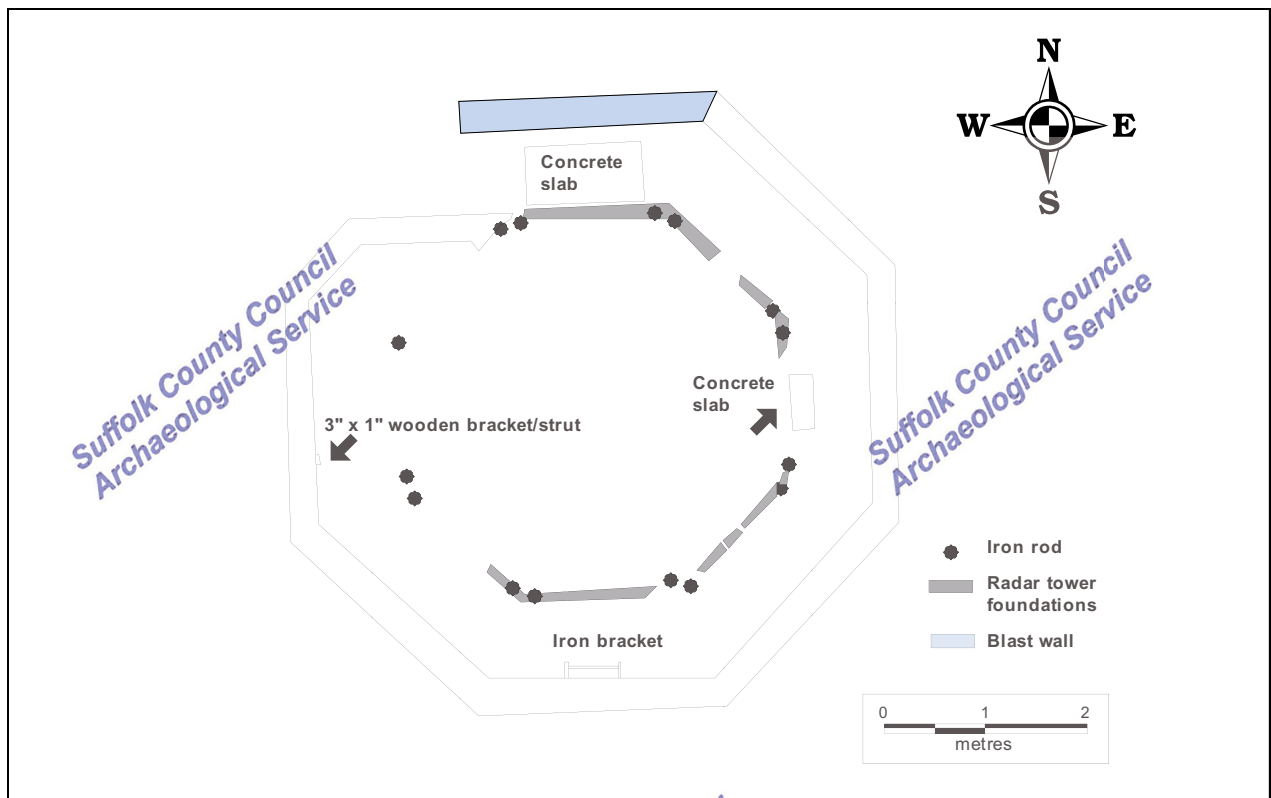


Figure 5. Octagonal pillbox and Radar Tower foundation

The condition of the pillbox is poor – part of the internal north wall is missing and there is a large crack at the corner of the east and south-east facing walls. In addition much of the brickwork itself is crumbling, both internally and externally and the topping bricks are also badly eroded.

The foundations of a Radar Tower lie within the Octagonal pillbox and comprise just over 5 visible sides of octagonal concrete footings with sawn-off iron reinforcing rods located at each change of angle. The remaining three sides of the foundations may still exist under the debris and vegetation on the floor, but no attempt was made to clarify this in order to minimise damage to this already vulnerable structure. The concrete foundations survived to between 0.10m to 0.15m wide and were approximately 1.6m long and the iron rods were approximately 0.03m in diameter. Two concrete slabs lie on the north and east sides of the Radar Tower foundations, within the octagonal embrasure but it is not clear to which structure they relate or what function they may have performed.

The Generator Hut is situated approximately 100m due east from the octagonal pillbox on the same boundary between fields (Fig. 2). It is a rectangular, brick-built structure primarily in stretcher bond, measuring 3.9m long by 2.7m wide with a now partial concrete render. It has a single four-over-four pane window on the east wall with a two-over-two cantilever window at centre top, and the doorway (now absent) is on the west wall. Externally, there are two 'buttresses' at the centre of each long wall and two equally spaced air vents just under the eaves on both sides. The south side also has two iron fittings of unknown type and function, halfway, and at the top of the wall and there are two circular holes, through which cables may have passed. There was a roof present on the structure, but all that remains today are the gable ends and occasional protruding nails.

Internally, the Generator Hut retains some of its original features, *albeit* in a poor state of repair. There is a low brick wall in the south-east corner of the building and a two cylinder radiator

attached to the south elevation. Two iron shelf brackets, a piece of timber-frame and a wall socket, including the wires and wire conduit are present on the north elevation, next to the doorway. Another wire conduit pipe runs along the base of the east elevation. Various electrical items can be seen on the floor, presumably related to the function of the generator (not present) as well as pieces of wood frame, which may be the remains of doorframe. Finally, there is a concrete plinth occupying much of the ground space, which has iron rods protruding from it. This is probably the base for the generator.

Obviously modern objects have been omitted from this description.

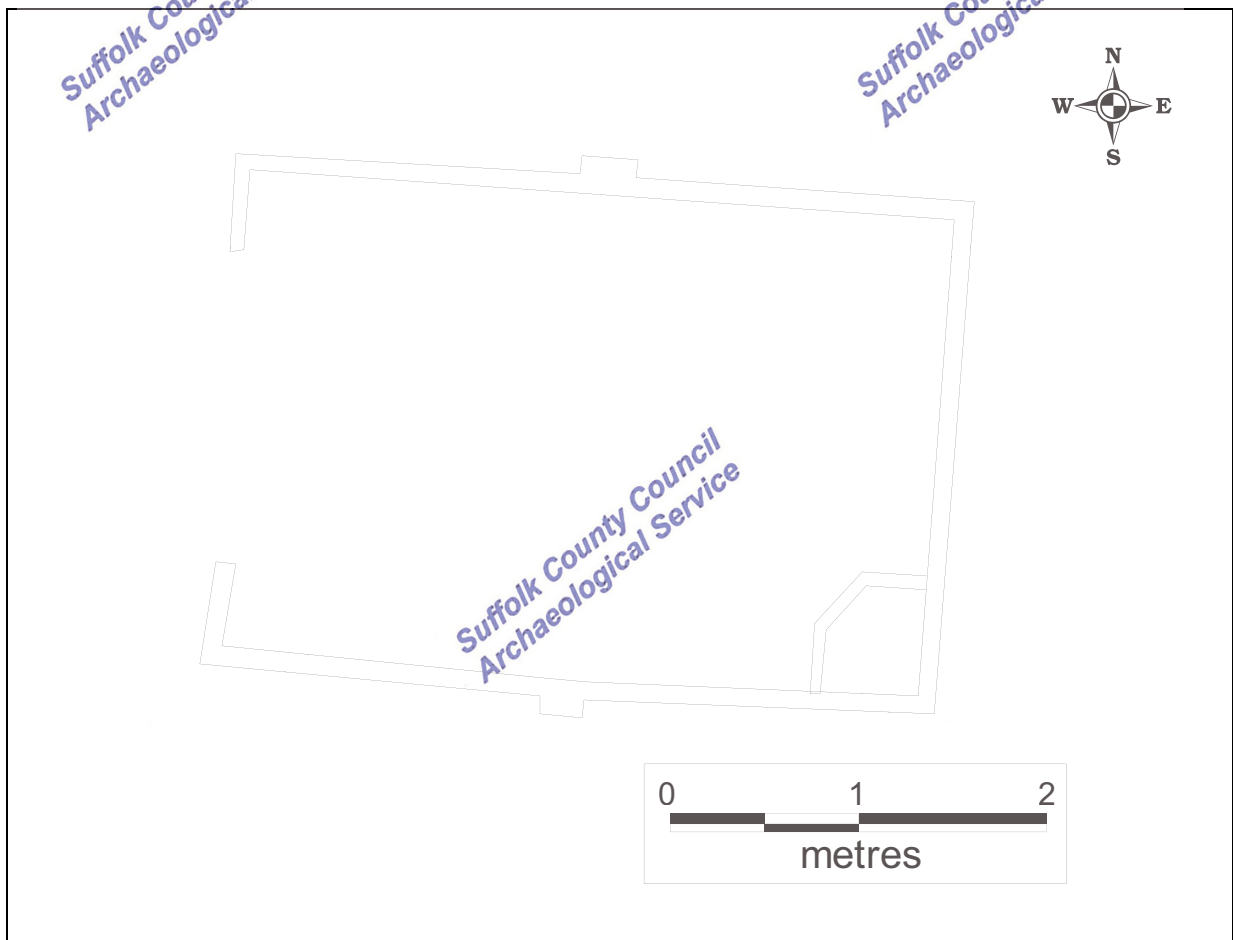


Figure 6. Generator Hut

### Type 23 Pillbox and heated room

The northernmost of the defence structures on The Swale (Fig. 2) comprises a Type 23 pillbox, a heated room and a Lewis gun pit. All three structures were partially set below the existing ground surface and had the upcast spoil set around them as protection from blasts. Strewn about the surface of the mound are a number of moulded concrete roof sections (Fig. 7), and iron rods (not shown) which Roger Thomas postulated may have derived from another as yet unidentified pillbox nearby (location unknown).

The Type 23 Pillbox is a concrete rectangular structure, half-open, half-covered (Fig. 8). The open section was designed to allow access to the covered section and also to house a light anti-aircraft gun. Although not actually visible on this pillbox, access was usually over the wall of the open section by metal rungs set in the wall (Sanders 2008). Externally, the pillbox retains traces of its original green camouflage paint and a little earth mound remains on the top. There are three splayed loopholes on the north, east and west faces. Internally, the pillbox retains two



ammunition shelf brackets under the south loophole and bears traces of both the shelf and brackets under the north loophole. The walls have been either whitewashed or painted white and on the south and west elevations there are 'ladder' marks, indicating that something was fixed to the walls. There is no graffiti on this pillbox.

Slightly to the north-west of the Type 23 pillbox is a heated room - a square brick-built (Old English bond) structure covered by mound material almost up to its roofline – which housed a wood-burning stove. The building was designed to shelter and warm the personnel on duty in the pillboxes nearby. The roof comprises a flat concrete panel, which again has a small mound of earth upon it. Very few features are visible (or present) externally – there is a high window on the west side and a small circular hole at the middle top of the rear wall through which the flue for the heater passed. The doorway – with wooden lintel – is located on the north side. A small ammunition store is attached to the west side of the heated room. This is also of brick-construction and is built up to the level of the roof. There are no internal features, except for an unidentified rusting iron object in the south-east corner.

Immediately to the north-east of the heated room is another Lewis gun pit measuring approximately 3m by 3.3m in plan (Figure 7). This example is fully backfilled but the top of the corrugated shoring can be seen, marking out a roughly circular area.

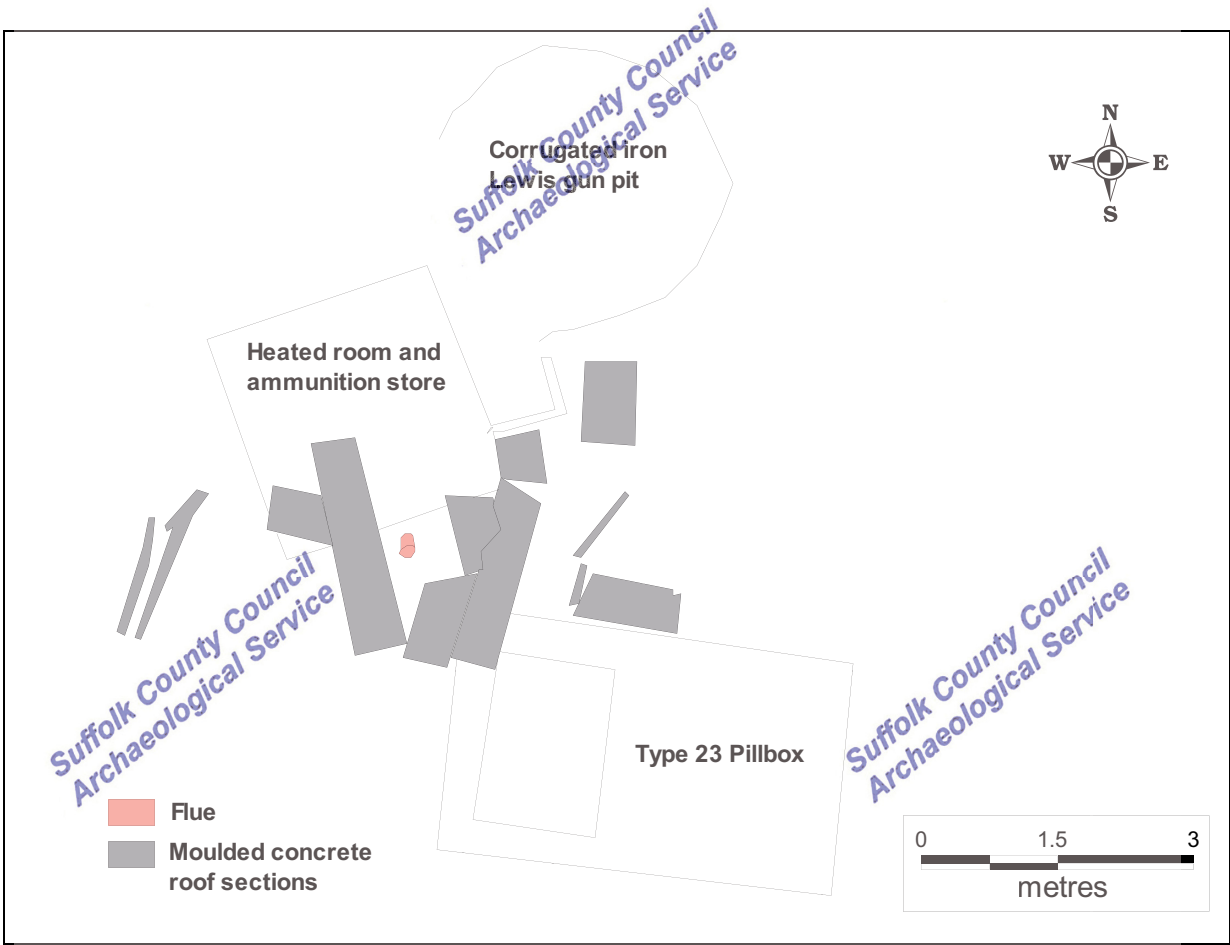


Figure 7. Type 23 pillbox with heated room and Lewis gun pit

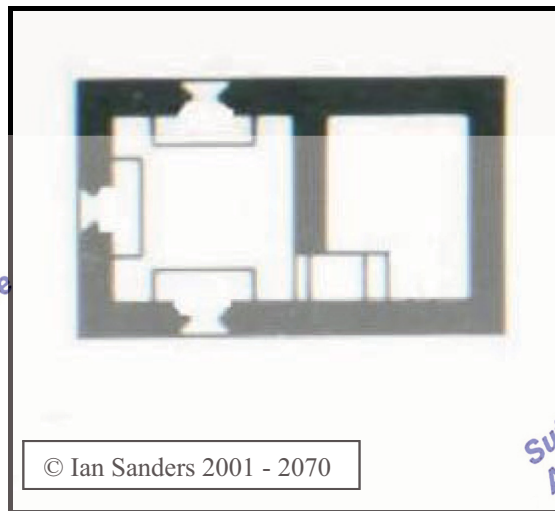


Figure 8. Typical Type 23 pillbox layout (no scale)

An additional Lewis gun emplacement (MRM 140), located to the west of the Type 23 Pillbox and almost completely hidden from view was observed during the site visit by Roger Thomas, but not included in this report as it could not be fully described nor measured sufficiently to provide an accurate account of its construction and character. Nevertheless it does form part of the defence of RAF Martlesham Heath and should be included in any future assessment or review of these structures.

## Shafts

Two shafts were observed in the field known as Grainger and situated to the north-west of the Generator Hut; the southernmost of the two was circular (dimensions unrecorded) and constructed from three rings sections of concrete, each with two squared metal foot rungs (manufacturer's name: Ellis). The foot rungs were located on the south-west side of the shaft and allowed access to what appeared to be a tunnel (although this was not verified as it was considered too dangerous to enter the shaft) which was observed to run north-eastwards. There is a small amount of damage to the north-east rim of the uppermost concrete ring, presumably from ploughing. No cover was observed.

The second shaft was rectangular (dimensions unrecorded) and of brick construction (English bond) with three 'D' shaped metal foot rungs on the south-facing internal elevation, of which only the top one is still complete. A large ceramic pipe can be seen at the base of the shaft, on the opposite elevation. A rectangular concrete rim (into which an iron plate would presumably have fitted, but is now lost) that may be the cover for the rectangular shaft was at the time of recording located next to the circular shaft. This shaft is probably a manhole.

## Conclusion

The buildings and gun emplacements described above are all structures constructed for the defence of RAF Martlesham Heath during the Second World War. They were used by the military to defend the base and the surrounding area from attack by invading enemy forces. It is very likely the buildings saw no development during their use as they were constructed for a single purpose. Together, the buildings are a good example of a range of defence structures used in conjunction and are a valuable asset to the study of Second World War defence structures

related to an airfield, particularly with the survival of camouflage paint on the Type 23 pillbox and the contemporary graffiti in the Type 22 pillbox.

Mo Muldowney  
February 2009

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