

**Appendix C**  
**Chadwell Heath Anti-aircraft Gun Site**  
**Conservation Area Appraisal**

Figure 1 view of Chadwell Heath Anti-aircraft Gun Site showing the remains of the gun  
implacements (source: the writer)

Regeneration and Economic Division,  
London Borough of Barking and Dagenham,  
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# 1 Introduction

## 1.1 The Purpose of a Conservation Area Character Appraisal

Historic areas are now extensively recognised for the contribution they make to our cultural inheritance, economic well being and quality of life. Conservation areas are a means of preserving or enhancing such areas. The Act defines a conservation area as:<sup>1</sup>

‘an area of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance’.

There are four conservation areas in Barking and Dagenham. This conservation area appraisal is focused on the Chadwell Heath Anti-aircraft Gun Site Conservation Area. This was designated in September 1990.

The Act imposes a number of duties on local authorities with regard to conservation areas:

- To review the overall extent of designation and if appropriate designate additional areas<sup>2</sup>
- From time to time, to draw up and publish proposals for the preservation and enhancement of conservation areas and to consult the local community about these proposals<sup>3</sup>
- In exercising their planning powers to pay special attention to the desirability of preserving or enhancing the character or appearance of conservation areas<sup>4</sup>

Consequently the Council has prepared conservation area appraisals for each of its conservation areas in line with these responsibilities.

Conservation area appraisals have a number of benefits in particular they are important in guiding the form and content of new development in partnership with the Development Plan and as educational and informative documents for the community. It is important in this respect to recognise that change is inevitable in most conservation areas, the challenge is to manage change in ways that maintain and if possible reinforce an area’s special qualities, and this is the key role of the appraisal.

Therefore the aim of this conservation area appraisal is to preserve and enhance the character of the Chadwell Heath Anti-aircraft Gun Site Conservation Area and to provide a basis for making sustainable decisions about its future through the development of management proposals.

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<sup>1</sup> Section 69 (1) of the Planning (Listed Buildings and Conservation Areas) Act 1990

<sup>2</sup> Section 69 (2) of the Planning (Listed Buildings and Conservation Areas) Act 1990

<sup>3</sup> Section 71 of the Planning (Listed Buildings and Conservation Areas) Act 1990

<sup>4</sup> Section 72 of the Planning (Listed Buildings and Conservation Areas) Act 1990

The format and content of this conservation area appraisal follows the guidance provided by English Heritage in their publication:

‘Guidance on conservation area appraisals’ published in February 2006.

## **1.2 Policy Context**

This Conservation Area Appraisal provides a firm basis on which applications for future development will be assessed within the Chadwell Heath Anti-aircraft Gun Site Conservation Area, and therefore must be read in conjunction with Barking and Dagenham’s Local Development Framework (LDF).

Policy CP2 in the pre-submission Core Strategy identifies that although the borough has a rich history relatively few heritage assets remain, and for that reason particular care will be taken to:

- Protect and wherever possible enhance the borough’s historic environment
- Promote understanding of and respect for our local context
- Reinforce local distinctiveness
- Require development proposals and regeneration initiatives to be of a high quality that respects and reflects the borough’s historic context and assets.

It emphasises that the borough’s heritage assets will be used as an integral part of the borough’s regeneration, and because today’s developments will be tomorrow’s heritage to use them in the bid to secure the highest standards of new design and architecture.

More detail on the implementation of CP2 is provided in the Council’s Pre-Submission Borough Wide Development Policies. Policy BP2 covers Conservation Areas and Listed Buildings, and BP3 Archaeology. BP2 emphasises that the Council will provide up to date character appraisals and management proposals for each of the Borough’s four conservation areas for the reasons already given.

The appraisal will be adopted by the Council and reviewed every five years in line with advice from English Heritage.

There are mineral deposits at Warren Farm and the farm is in the Green Belt. Most of the farm is designated a mineral extraction site. Policy BR6 ‘Minerals’ allows permission to be given to extend the area of gravel extraction at Warren Farm providing there is no adverse affect on the gun site and archaeological sites, and that the area is restored to Green Belt uses. Policy LDF CM3 ‘Green Belt and Public Open Space’ aims to protect and maintain the borough’s green belt in line with national policy. BP2 Conservation Area and Listed Buildings aims to preserve or enhance the special character of appearance of the borough’s conservation areas and

operates a general presumption in favour of the preservation of Listed Buildings. More detail is provided in Appendix 4.

### 1.3 Definition (or Summary) of Special Interest

The Chadwell Heath Anti-aircraft Gun Site Conservation Area is a World War II anti-aircraft gun site located on an area of relatively high ground in the north of the borough. The conservation area is located at the highest point on the hill and overlooks the Thames Valley. The natural gravel deposits that form the area of high ground are being excavated leaving the conservation area in the middle of the quarry. The key characteristics of the conservation area to be preserved and enhanced are listed below:

- The Inner Artillery Zone (IAZ) was a ring of protective air defences around London. ZE1 is the only remaining eight gun site of the north-east IAZ gun sites that survive and has the most complete assembly of structures. Places for military defences were limited due to the built up nature of London so many were located in public places such as parks and golf courses. ZE1 is important because it survived the war and the decommissioning of London's air defence network. Most of the sites were dismantled after the war and returned to their former use.
- This is one of the few defensive structures that was used in enemy action. Many defensive structures were built but never used. The Chadwell Heath gun site and the battery in Barking Park played a considerable part in the defence of London during World War II which (WWII) broke out on 3 September 1939. The industry and docks on the Thames were a target for the Germans. The Chadwell Heath gun site was said to have been in action for seventy six consecutive nights during the Blitz.<sup>5</sup> This was a series of air raids against civilian targets during World War II to prepare for a German invasion of Great Britain between September 1940 to May 1941 and focused on London towards the latter part of this period.<sup>6</sup>
- Architectural and historic interest- It is a good surviving example of a specific type of military structure and this been acknowledged by its listing status. There is one group of Grade II listed structures within the conservation area. The listing status is conferred on the main part of the conservation area where the where the anti-aircraft guns were sited (see Appendix 3).
- Forest boundary markers in the vicinity of the gun site- the Marks Stones, Warren Stone, and Forest Bounds Stone date from 1642 and marked the boundary of Hainault Forest. The Forest of Hainault was part of the larger Forest of Waltham that also included Epping Forest and stretched from Colchester to Bow Bridge in London. The Forest determined the use of the land and employment in the area at that

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<sup>5</sup> Clifford, T. Abnett, K. and Grisby, P. (1990) *On the Home Front Barking and Dagenham in World War II* London: London Borough of Barking and Dagenham page 69 information for the Romford Observer September 19<sup>th</sup> 1990 page 10

<sup>6</sup> Evans.J, (2007) *British History* London: Star Fire The Foundry Creative Media Company Ltd page 184

time. The gun site is located on what was the boundary of Hainault Forest. The stones are Grade II listed.

- Archaeology-the conservation area is within an Area of Archaeological Significance. Warren Farm is an ancient landscape and one of the most important archaeological sites in north-east London with some parts of the site described as being of national importance<sup>7</sup>.
- Positive features-the location of the gun site in its elevated position on the hill in the Green Belt has the potential to become an attractive open space area; it is an important historical feature and whilst it is in a poor state there is potential to use it for educational purposes.

Figure 2 a number of factories and industries in Barking and Dagenham were producing products for the war effort, for example Fords were building armoured vehicles and the gun site was situated in a position to defend them (source: Clifford, T. Abnett, K. and Grisby, P. (1990) *On the Home Front Barking and Dagenham in World War II* London: London Borough of Barking and Dagenham page 89)

## **2 Assessing Special Interest**

### **2.1 Location and Setting**

The London Borough of Barking and Dagenham (LBBD) is located on the north bank of the Thames to the east of the City of London. The borough is divided into three geographical areas, Flood Plain Alluvium, the River Terrace Gravels, and the London Clay. There are three terraces of gravels. The two older ones (formerly known as the Boyn Hill and Taplow Terraces) in the north and a younger one previously called the Flood Plain Terrace covering the centre. They were laid down by the River Thames and River Roding at various stages during the last inter-glacial and into the post-glacial. The capping of gravel covering the clay at Marks Gate is the highest point in the borough at about forty five metres above sea level. It slopes towards the east draining into the River Rom which forms the borough boundary with Havering<sup>8</sup>.

The Chadwell Heath Anti-aircraft Gun site Conservation Area is located at Marks Gate approximately two hundred and fifty metres to the east of Whalebone Lane North and close to the boundary of the London Borough of

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<sup>7</sup> Passmore Edwards Museum Trust *Warren Farm Project: Archaeological Investigations at Marks Warren Farm, Hainault and Romford from 1988 onwards* report and map appended to a letter dated 21 December 1989 from the Passmore Edwards Museum Trust in relation to planning application no. P 1836.88 (London Borough of Havering). The report was written in response to the proposed gravel extraction. At the time of writing the report the landscape was intact. The gravel extraction has taken place since which may mean the area has lost some of its significance. The Museum of London report dated 2004 revisits PEM report which was pre Planning Policy Guidance 16 (PG16) conditions and provides more up to date interpretation of the findings and less certainty that the prehistoric enclosure is an Iron Age Hillfort.

<sup>8</sup> London Ecology Unit (1992) *Nature Conservation in Barking and Dagenham Ecology Handbook* 20 pages 3 to 4

Havering. It is approximately eight hundred metres to the north of the A12. The location of the gun site was more about function than aesthetics unlike that of some other listed buildings or structures.

Chadwell Heath is the nearest centre to the conservation area and located approximately two kilometres to the south west of the gun site. Barking is the main settlement in the borough and located about six kilometres to the south west. Dagenham Village is historically the other main settlement in the borough and located approximately four and half kilometres to the south east of the conservation area.

Figure 3 aerial photograph of Chadwell Heath Anti-aircraft Gun Site Conservation Area taken 11 October 1946 showing the rural setting of the gun site and its layout with the eight gun pits towards the top of the picture, the barrack accommodation by Whalebone Lane North, and the octagonal radar area to the south of the gun pits. The Warren Farm is to the south east of the radar (source: National Monuments Record RAF/CPE/UK/1786 V frame 5131)

## **2.2 Context**

The part of the conservation area where the anti-aircraft guns were located was formerly part of the London Borough of Havering. The access road which led to the guns was in LBBDD. The Havering part of the conservation area was transferred to LBBDD following local authority boundary changes in 1994. There was a planning application for gravel extraction which was refused and upheld on appeal, but the Secretary of State concluded that there were no objections to the principle of mineral extraction so long as a scheme of restoration was prepared to show how the landscape setting of the gun site would be restored which would adequately preserve the historical context of the gun site, satisfy the Council's environmental policies, and that the archaeological significance of the area had been examined and provision made to preserve it in accordance with the relevant government guidance. The Secretary of State recognised the importance of the military structures and they were Grade II listed as a result. The conservation area was designated in September 1990 and extended in January 1991 by Havering and went to LBBDD committee on 29<sup>th</sup> January 1991. They were listed on 2 February 1991.

As part of the planning permission to mitigate against the loss of amenity in the Green Belt the quarry operators have to enhance the historical and archaeological features, recreate public access where footpaths will be diverted, restore the excavated parts of the site and be responsible for aftercare for five years following the restoration. The quarrying is being undertaken in phases and will continue until 2012. The site is designated a mineral extraction site on the LDF proposals map (although the quarry area is more extensive than the area shown and includes most of Warren Farm as far as the A12). The farm is within the Green Belt which is part of the Dagenham Corridor a Strategic open space opportunity identified in the East

London Green Grid. There is also a protected view in the vicinity of the gun site looking in a south easterly direction towards the Thames Valley<sup>9</sup>.

### 2.3 General Character and Plan Form

The character and design of the buildings reflects its function as a purpose built military structure. The main part of the conservation area is rectangular in shape reflecting the roughly fan shaped arrangement of the guns and the associated buildings located in the vicinity. The guns were laid out in two groups of four (a troop) in an outward facing position. The access route from Whalebone Lane North is perpendicular to the main part of the gun site. The conservation area includes the remaining ancillary buildings on Whalebone Lane North at the former entrance to the gun site.

Figure 4 map of Chadwell Heath Anti-aircraft Conservation Area (source: the writer)

### 2.4 Landscape Setting

The gun site is located in a naturally elevated position with an open aspect. The choice of a site for a gun site depends on *the target to be defended, the likely line of approach of enemy aircraft, and the availability of open space which gives as wide a field of fire as possible*<sup>10</sup>. The area comprised of reasonably level ground with sufficient space for the guns to operate. The guns needed to be thirty five to forty yards apart, and the instruments used to detect enemy aircraft needed to be thirty five to forty yards behind the guns so as to not be affected by the vibrations. Space was also needed for the ammunition stores, personnel shelters, and the command posts. The land naturally sloped away to the north-east, east, and south-east which was the direction of approach of enemy aircraft and there were no trees or buildings to obscure the view<sup>11</sup>.

Figure 5 the gun site was sited on a hill top location with an open aspect (source: Brett Lafarge leaflet)

Figure 6 the guns in position (source: Bretts leaflet)

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<sup>9</sup> Robert Brett and Sons Ltd (1995) *An Application for Planning Permission for the Extraction of Sand and Gravel from Marks Warren Farm Whalebone Lane North, Romford, Essex and Restoration to Agricultural Volumes 1, 2 and 3* held in Development Control at LBBB

<sup>10</sup> Gilman. M, (1991) *Evidence in respect of the Chadwell Heath Anti-aircraft Gun Site: on behalf of the Crown Estate Commissioners Public Enquiry into Objections to the Havering Unitary Development Plan* Prepared page 6 (In LBBB Planning File TP/552/88 Pt III)

<sup>11</sup> Gilman. M, (1991) *Evidence in respect of the Chadwell Heath Anti-aircraft Gun Site pages 1 and 7*

### 3 Historic Development and Archaeology

#### 3.1 Early Development

There is a long history of settlement in the area and archaeological investigations have identified evidence of periodic occupation from Mesolithic times through to the present. Archaeological evaluation of the quarry site by Passmore Edwards Museum in the 1980s identified two ancient enclosures considered to be of national significance which have been excluded from the area of extraction.

The earliest of these dates from the Late Bronze Age or Early Iron Age and may represent a settlement, possibly a hill fort, or it may have been for the control of livestock (number 3 on the plan below). A barrow, characteristic of Bronze Age burial traditions, unearthed by archaeologists during the gravel extraction in 2008 has now also been added to this archaeological area excluded from quarrying.

An early Roman period rectangular enclosure defined by three concentric ditches may represent a religious complex or sacred enclosure approached along a contemporary road with associated buildings (numbers 5, 6, and 7). The eastern boundary fence kinks around the Roman enclosure which helps to locate its approximate location on the ground.

Other features include two windmill sites (8 and 9, number 8 being medieval), a late medieval paddock with ridge and furrow (10), and a small late medieval settlement (11). These are all part of the Manor of Marks complex. The phased excavation for minerals has reached the area where these features are located and further archaeological investigation and recording is being undertaken. The gun site is located centrally to the archaeological features and is also excluded from the excavations.

Figure 7 map showing the archaeological sites as shown in 1989.

The gun site is shown at the centre of the plan.

Site no. 1 Mesolithic (circa 8000-6000 BC) flint implements and waste flakes;

Site no.2. Neolithic or early Bronze Age? (2000 BC) flintwork and pottery,  
site no.3. prehistoric enclosure (Early Iron Age fortified settlement possibly circa 600-500 BC),

Site no. 3a Early Iron Age feature possibly a ditch;

Site no. 4. Traces of field systems from the late Iron Age and early Roman period (1<sup>st</sup> centuries BC and AD);

Site no. 5 Early Roman road starting at the rectilinear enclosure;

Site no 6. Part of Roman building beside the road;

Site no.7 Rectilinear multi-ditched enclosure related to the Roman road but possibly first constructed in the late Iron Age;

Site no. 8. Medieval windmill;



Site no. 9. Windmill;  
Site no. 10. Paddock with ridge and furrow;  
Site no. 11. Small medieval settlement;  
Site no. 12. Medieval to modern track overlying Roman road (source: Passmore Edwards Museum report)

### 3.2 Development of the Gun Site

The location for the Chadwell Heath gun site was established mid 1935 as the preparation for war began.

*ZE1 was one of twenty three anti-aircraft batteries in the north-east sector of what was known as London's Inner Artillery Zone (IAZ), the sites for which were selected in 1935. The task of the guns in this sector was to cover the approaches to London from Cheshunt and Chigwell in the north to Creekmouth in the east. The site off Whalebone Lane, Chadwell Heath was chosen because it was on high ground, giving the guns a near-360 degree angle of fire. It was also close enough to the river to engage planes using it to navigate by, and close enough to Hornchurch aerodrome to protect an obvious target.*

*ZE1 had a full battery of eight guns with a battery hq, command post, Nissen huts, ammunition stores and workshops. By July 1942 ZE1 had achieved the status of 'master gun site' with its own radar and fire control responsibilities for adjacent sites.*

*Records show that in 1943 it was manned by a total of over 280 personnel – some 160 from the Royal Artillery, seven from the Royal Electrical and Mechanical Engineers and 117 women from the Auxiliary Territorial Service.*

*The Chadwell Heath gun site was involved in some of the most vigorous anti-aircraft defence actions in Britain. Its first recorded action was on 30<sup>th</sup> August 1940, when a Dornier 17 was seen off with a combination of fire from ZE1 and alone Supermarine Spitfire. Subsequently, ZE1 bore the brunt of intense enemy activity throughout the Blitz. On 31<sup>st</sup> August it engaged more than 50 Dornier 215s approaching from the South east. Later that day, an Me 109 fighter crashed into ZE1's compound, the pilot landing by parachute near Romford. Over the following three months ZE1 was responsible for bringing down seven enemy aircraft and was directly attacked with bombs and parachute mines on two occasions.*

*Throughout late 1940 and early 1941, ZE1 was in constant action. On one night in January 1941 it fired 298 rounds. Raids continued throughout early 1941 as ZE1 played a front line role in the successful defence of London. The latter part of the war saw ZE1 largely employed in supporting coastal batteries and RAF fighters in defence against the German V1 'Doodlebugs' flying bombs.*

*Eight 4.5 inch guns made the Chadwell Heath battery a tactical unit with a powerful punch. The guns were adapted from naval use and could fire high explosive, shrapnel or armour-piercing shells. The shells weighed nearly 55lbs and had a range of six miles. Each gun could fire eight rounds per minute, giving ZE1 a potential rate of fire of 64 rounds per minute. In May 1942, four of the 4.5 inch guns were replaced with lighter 3.7 inch guns, giving it the flexibility to engage targets at different heights.*

*Gordon Miller was 16 year old air raid messenger when war broke out and has vivid memories of ZE1.*

*'We used to call the site Whalebone Annie and it was generally recognised that we all had a lot to thank old Annie for,' he recalls. On a clear night you could hear the sergeant giving the 'fire' order over a mile away and there was a thundering crack when all eight guns went off.'*<sup>12</sup>

After the war the sites were decommissioned and the guns removed. The buildings and structures remain. The site has suffered unofficial dumping, vandalism and graffiti since. Brett Lafarge (then trading as Brett Redland) undertook a major cleanup in 1988 on behalf of the Crown Estate Commissioners as part of an agreement to extract the gravel from Warren Farm.

Figure 8 a Heinkel brought down by ZE1. The Heinkel 111 was a used as bomber and the main aircraft used by the Luftwaffe or German airforce (source: Brett Lafarge leaflet)

Figure 9 German aerial photograph of Dagenham taken 25<sup>th</sup> October 1940 the area was a target Fords is bottom right with the various working areas of the motor works numbered on the photo (source: Clifford, T. Abnett, K. and Grisby, P. (1990) *On the Home Front Barking and Dagenham in World War II* London: London Borough of Barking and Dagenham page 2 and 32)

### **3.3 The Current Situation**

At the time of writing the gun site is in effect an island in the centre of the quarry. Remediation plans were submitted with the planning application and are to restore the land levels and return the land to its former use as agricultural land. Brett Lafarge currently maintain the gun site on behalf of the Crown Estate Commissioners in terms of maintaining boundary fencing and cutting the grass. Despite this, security measures and the reduced access to the site however, there has been considerable vandalism and of graffiti of structures within the site.

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<sup>12</sup> Copied from the Brett Lafarge Redland Aggregates leaflet

In the summer 2008 a World War II bomb was uncovered by a digger during excavation works at the quarry. It is likely the gun site was the target. The bomb was safely diffused by bomb squad officers<sup>13</sup>.

Brett Lafarge have reached the final phase of the gravel extraction in the area covering the original 1995 permission and applied for a new planning permission to extend the area by 2.2 acres. Permission has been granted. There are main gas and water supply pipes in the extended area. Bretts Lafarge are in discussion with the gas and water supply companies about whether to excavate or not as this would mean moving the supply pipes. The pipes are unlikely to be moved and Bretts are negotiating compensation for loss of the gravel deposits.

Figure 10 table showing the summary of the site history (source: page 2 Wardle Armstrong (1993) *Archaeological Survey*)

### **3.3 Archaeology**

The conservation area lies within an Area of Archaeological Significance reflecting the ancient settlements of the area where important archaeological remains relating to the areas development have been found.

## **4 Spatial Analysis**

### **4.1 Character and Interrelationship of Spaces**

The conservation area is the smallest of the conservation areas in the Borough. It encompasses the eight gun emplacements and associated buildings such as the ammunition stores and the remaining Nissen Huts on Whalebone Lane. The palisade fence that now encloses the site follows the boundary of the main part of the conservation area. The area has a neglected and remote feel. It is not immediately apparent what the area is or how it was used on arrival as the low lying concrete structures are partly hidden by earth mounds and the structures and pathways are becoming overgrown.

### **4.2 Key Views and Vistas**

Clear views are available of all of the surrounding area from the location of the gun site with the high rise blocks of Romford about a mile and half away to the east, and the landmarks QE2 Bridge at the Dartford Crossing to the south east and Canary Wharf to the west visible in the distance.

The topography of the area generally has been changed by the quarrying activity that surrounds it. An earth bund has been constructed around the

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<sup>13</sup> Derelict London website <http://www.derelictlondon.com/id1490.htm> and verified by Bretts 20.2.09

perimeter of the site to screen the quarrying operations from Whalebone Lane North and the A12.

Figure 11 view towards Fords and the River Thames from the gun site (source: the writer)

## **5 Character Analysis**

### **5.1 Definition of Character Areas or Zones**

The conservation area is very small it is more appropriate to view the site as a whole, although there are distinct components within it.

### **5.2 Activity and Prevailing or Former Uses and Their Influence on the Plan Form and Buildings**

The original use of the site ceased at the end of the war. Additional structures were constructed after the war between 1947 and 1960<sup>14</sup> because of the perceived threat from the Cold War. The gun site is no longer in any active use. The gun site is currently not accessible to the general public as access from Whalebone Lane North, shown on Ordnance Survey maps is not available and has been severed by quarrying activity. The site is owned by the Crown Estates Commissioners and managed on their behalf through an agreement with Brett Lafarge. At present formal access to the site can only be gained via the by arrangement through the quarry manager at Brett Lafarge. Footpath 107 and 108 follow existing tracks across Warren Farm to link up with Footpath 62 to the north which provides a link to Collier Row, although sections of path are inaccessible at present due the excavations.

### **5.3 Qualities of Key Buildings and their Contribution to the Conservation Area to edit**

A point to note is that the gun site was purely functional therefore the construction of the buildings and their siting was simply about the purpose that they had to fulfill. There was no aesthetic consideration in terms of the design or layout as is usually the case in conservation area designations. The main sources of information provide detailed descriptions and accounts of the gun site and how it was constructed and used. The buildings are all in a state of disrepair which detracts from the quality of conservation area. Some of the key points derived from the information available are noted below:

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<sup>14</sup> Wardell Armstrong Mining, Minerals, Engineering & Environmental Consultants (1993) *Chadwell Heath Anti-aircraft gun site Marks Warren Farm Romford Essex Archaeological Survey* page 9 and 10

*The [conservation] area lies to the East of Whalebone Lane at Marks Warren Farm and comprises a complex of structures which are the substantial remains of a World War II anti-aircraft battery with pits for eight guns, in two groups of four, and associated structures which are largely concrete or brick....[and regarding the extension to the area in 1991] included are the access road, cottages and other outbuildings including one in use as a farm shop<sup>15</sup>.*

The site is essentially comprised of two command posts, one to the north and one to the south of the site linked by a concrete road. The southern group of four guns (a troop) was built first in October 1939 with the northern troop being built in November 1940<sup>16</sup> on a similar layout with some modifications and improvements<sup>17</sup>. Inside each command post were four guns placed in a semi-circle. The northern troop focused on an area from the north-west to the south east, and the southern troop focussed on an area from the north-east to the south-west. The structures that remain within the conservation area consist of:

- *The circular concrete bases for the individual guns with their holdfast bolts.*
- *A ring of ammunition stores around each gun position built of concrete, some still containing the timber racking for the rounds.*
- *A concrete access road forming an inner ring road linking each group of four gun positions.*
- *A command post in the centre of each group consisting of a number of rooms built of concrete and brick, part sunken, and protected by earth banks from enemy gunfire or bombs.*
- *Machine gun posts on the perimeter, in the form of concrete-lined sunken pits with a roof.*
- *A large ammunition store, in brick and concrete, with its protective blast wall.*
- *The remains of shelters, projecting from the gun positions, built of corrugated iron and protected by earth, which housed the men on watch duty and limber gunners and,*
- *The remains of subsidiary buildings near the entrance from Whalebone Lane North<sup>18</sup>*

A feature that is no longer in existence is the radar. This was a net spread out over the octagonal area that is shown on the aerial photograph (figure 3 above). It served other anti-aircraft batteries in the area. The area where the radar was located was ploughed up in 1951<sup>19</sup>. Radar equipment was available from 1941 and enabled targets to be engaged at night and individual targets to be engaged rather than by firing barrages of fire<sup>20</sup>.

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<sup>15</sup> fax from London Borough of Havering schedule of area and buildings regarding boundary changes & extension of the conservation area in 1994

<sup>16</sup> Gilman. M, (1991) *Evidence in respect of the Chadwell Heath Anti-aircraft Gun Site* page 15 and 16

<sup>17</sup> Wardell Armstrong (1993) *Archaeological Survey* pages 2 to 5

<sup>18</sup> Gilman. M, (1991) *Evidence in respect of the Chadwell Heath Anti-aircraft Gun Site* page 10

<sup>19</sup> Wardell Armstrong (1993) *Archaeological Survey* page 20

<sup>20</sup> Gilman. M, (1991) *Evidence in respect of the Chadwell Heath Anti-aircraft Gun Site* page 14

- 5.4** There are several structures identified as contemporary within the gun site which were added post war as a response to the Cold War threat. These include a double garage, and a second structure to the north-east existing now as concrete base, built on the southern turning circle between 1947 and 1951, another structure to the south west of the northern command post, two further structures built between 1951 and 1955 and a roadway built 1955 and 1960<sup>21</sup>.

Figure 12 plan showing the two groups of gun placements and phasing of the gun site (source: Wardle Armstrong (1993) *Archaeological Survey* drawing 2)

## **5.5 Unlisted Buildings**

The remaining ancillary buildings at the entrance are not listed.

## **5.6 Local Details**

The two command posts are partially surrounded by a grassed earth bund which would have been constructed to help protect the gun operators and gives the site an overall green appearance. The predominant material of the structures is concrete and cast iron. There are some parts of the site, for example the long ammunition store by the northern command post, where the original cast iron doors remain intact. Here it is possible to get an idea of their robustness, construction and the way in which the original structure might have been used.

The inside of the command posts are grey, brown and rusty coloured. The metal rods within the reinforced concrete is corroding and the concrete expands and contracts in extremes of temperature and is beginning to break away. Some interesting detailing of cast iron doors and shutters etc, which would be typical of this type of structure and use can be seen in the inner compound areas and buildings.

In contrast to the more natural colours and textures of the command post structures is the spray paint graffiti on prominent walls in the site. This is particularly visible and noticeable especially on the main concrete vehicle store at the entrance to the site.

The palisade boundary fencing is also quite a dominant feature of the site. Whilst this provides some security and protection, the current island nature of the site and surrounding quarry pits and gravel piles make the fencing more prominent.

Figure 13 southern troop built October 1939 (source: Wardle Armstrong (1993) *Archaeological Survey* drawing 2)

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<sup>21</sup> Wardell Armstrong (1993) *Archaeological Survey* pages 9 and 10

Figure 14 northern troop built about 1940 (source: Wardle Armstrong (1993) *Archaeological Survey* drawing 2)

## **5.7 Prevalent and Traditional Building Materials and the Public Realm**

There are no prevalent traditional materials as such as the site was purpose built as a defence post and the main building material was concrete.

There are no public realm areas as such within the gun site due to the nature, state and accessibility levels afforded to the site at present although there is public access into Warren Farm. The ground surface consists of a mixture of concrete and grass. The concrete areas have broken up in many areas following years of weathering and natural decay.

Figure 15 showing a close up of the concrete structures and metal fittings (source: the writer)

## **5.8 Contribution Made to Green Spaces and Biodiversity**

Warren Farms Green Belt designation, open aspect, and the remote nature of the gun site provide opportunities for wildlife. There are no trees on the site at present. Natural succession is taking place with bramble and scrub establishing which provides some shelter and food for wildlife. The earth bunds have meadow grass and wildflowers growing on them in summer. The structures may provide shelter for bats. The water in the areas that have been excavated for the gravel have filled with water and provide a habitat for birds. Sand martins nest in the steep banks of the excavations alongside Whalebone Lane North. An assessment of the habitats should be undertaken. The quarry restoration plan includes landscape proposals which will enhance the environment and habitats for wildlife.

## **5.9 Extent of Any Intrusion or Damage (negative factors) and the Existence of any Neutral Areas**

The main issue is the vandalism and graffiti that is affecting the integrity of the site. The weathering of concrete and iron fittings may exacerbate the integrity of the site and structures and compromise safety.

## **5.10 General Condition**

The conservation area can be described as being in a poor state. The gun site is in a vulnerable location being located at the centre of the quarry. The isolated nature of the site means the site is vulnerable to vandalism and the

constant damage is affecting the integrity of the listed structures. The access road has been excavated to obtain the gravel deposits beneath. There may be scope to recreate the access from Whalebone Lane as part of the restoration proposals. The listed structures continue to be included the Heritage at Risk List.

### **5.11 Problems Pressures and Capacity for Change**

The area's use and management needs to be established when the current agreement with Lafarge ends. There are a number of opportunities that could be explored that would need to be discussed and agreed with the current landowners. Issues and opportunities include:

- The site is isolated. It is hidden from view and in private ownership. It is not accessible to the public.
- Health and Safety and security, despite restricted access and boundary fencing people get in.
- There is poor awareness about the historical importance of this site, not many people know it exists or what it was used for
- There is no use for the site at present, it may have monumental/historic status only
- There is the potential to restore the landscape to set the gun site in its wider context in line with the quarry restoration plans and to find new uses for the site such as open days that bring the site to life and tell the history of the gun site. These ideas will be explored in more detail with local groups such as Friends of ZE1, Marks Gate Agenda 21, Chadwell Heath Historical Society, the Territorial Army, and veteran organisations.
- The site could be better linked to the other heritage features in the locality, for example the nearby archaeological sites and other historical features such as the Warren Farm Barn, the Marks Stones, and the site of Marks Hall.
- Access for all should be an integral part of the design and the Barking and Dagenham Access Group and English Heritage are involved to find the best solutions
- To undertake further research and archive recording to find out more about the history and use of the gun site
- To develop the gun site as an educational resource for local schools and colleges in connection with curricular studies
- To explore the availability of grants or funding to implement improvements

### **5.12 Community Involvement**

A targeted consultation was carried with a number of specific groups and organisations that have an interest in the historic environment. Meetings were held with stakeholders including English Heritage, and the Crown Commissioners, and Brett Lafarge and expert groups from the LDF consultation data base such as the Friends of ZE1 and Chadwell Heath



Historical Society. Groups were consulted on an earlier draft of the appraisal and the proposed management actions. The gun site is regarded by the local community as an important part of their area and a feature to be looked after. The comments received have been considered and the appraisal amended where necessary. The purpose of the consultation was to involve people in the conservation area appraisal process, to develop the management proposals and help to secure the long term future of the conservation area.

### **5.13 Summary of Issues**

The gun site is an important site in the history of the defence of London during the Second World War. The gun site contributes to the character of the area as a local feature and as such is highly valued by the local community. Vandalism and the isolated nature of the site is the main issue and continues to degrade the listed structures. The setting of the gun site will be restored as part of the restoration of the quarry. The challenge is in finding a suitable use for the gun site that enhances it as a heritage asset that is beneficial to the community.

## 6 Management Proposals

### 1. changes to conservation area boundary and designations

As part of the appraisal process the existing conservation area boundary was inspected and it is considered the boundary should remain the same. The significance of the prehistoric enclosure, the Roman Road and associated rectilinear enclosure are being considered by the Museum of London. These areas have been recognised as significant and further investigation will be carried out as part of the quarry's programme of development, excavation, landfilling and restoration.

Action: The council will work with English Heritage and the landowners to consider the significance of the archaeological sites (April 2009) and the landscape restoration.

### 2. loss of original architectural details, building maintenance and repair

The structures in the conservation area are being affected by vandalism. The sites remote location means it is difficult to deter persistent vandals despite the best efforts made by Brett Lafarge to secure it. Whilst the structures are robust, being mostly made of concrete, the more vulnerable elements such as the timber racks in the ammunition stores, metal doors, and the tarmac roofs are being damaged to an extent that it is destroying the integrity and character of the structure. The gun site continues to be included on the Heritage at Risk list because of the continued vandalism and vulnerable position in the quarry. The list is maintained by English Heritage. The importance of the gun site is recognised and its safeguarding and enhancement incorporated in the quarry's programme of development, excavation, landfilling, and restoration.

Action: the Council will work with English Heritage and the landowners to remove the gun site from the Heritage at Risk Register. Where the condition of a building gives cause for concern, appropriate steps will be sought to secure the future of the buildings, including the use of statutory powers. A Historic Building Repair Grant is available to assist owners of historic buildings with part of the cost of eligible repair work. The Council will encourage owners and occupiers of buildings to repair and maintain their buildings (April 2010).

### 3. setting, views and gateways

The setting of the conservation area is important as a hill top location. Once the minerals extraction is complete its strategic position will be reinstated along with the associated views visible from that location. The land will be restored to agricultural use considered appropriate in the Green Belt. The landscape scheme includes the planting of agricultural crops, the establishment of ditches, lakes and ponds for drainage, bunds for screening, and tree and hedgerow planting along footpaths and boundaries. The landscape scheme aims to encourage wildlife.

There is one identifiable arrival point or gateway to the west of the conservation area. This is the original entrance, currently the main entrance to the farm shop on Whalebone Lane North. The quarry restoration proposals include the restoration of the levels around the gun site and recreating the original public access by reinstating the access road. The public footpaths 107 and 108 across Warren Farm will also be reinstated. The restoration should include the reinstatement of the boundary stones.

Action: the Council will continue to work with Brett Lafarge and the landowners to ensure that the setting of the gun site and the restoration proposals are completed so that the setting of the gun site is restored and the aftercare is carried out.

#### 4. monitoring and review

Action: In line with best practice the Council will seek to review this document every five years taking into account Government policy. It is intended the review will include the following:

- A survey of the conservation area and boundaries
- An updated heritage count comprising a comprehensive photographic building record
- An assessment of whether the management proposals detailed in this document have been acted upon, including proposed enhancements
- Survey to assess if the gun site should remain on the Heritage at Risk list in the future
- Public consultation on the review findings, any proposed changes and input into the final review
- Publication of an updated edition of management proposals (April 2014)

## Appendices

### 1 Bibliography

Clifford, T. Abnett, K. and Grisby, P. (1990) *On the Home Front Barking and Dagenham in World War II* London: London Borough of Barking and Dagenham

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Evans, J. (2007) *British History* London: Star Fire The Foundry Creative Media Company Ltd

Foley, M. (2005) *Frontline Essex* Stroud: The History Press Ltd

Gilman, M. (1991) *Evidence in respect of the Chadwell Heath Anti-aircraft Gun Site: on behalf of the Crown Estate Commissioners* Public Enquiry into Objections to the Havering Unitary Development Plan Prepared (In LBBD Planning File TP/552/88 Pt III)

Greenwood, P. Perring, D and Rowsome, P. (2006) *From Ice Age to Essex: A History of the People and Landscape of East London* London: Museum of London

Goldsmith, C. (1999) *A stroll through history in Chadwell Heath and Marks Gate* a paper prepared for Chadwell Heath Historical Society

London Ecology Unit (1992) *Nature Conservation in Barking and Dagenham* Ecology Handbook 20

Museum of London Archaeology Service (2004) *Understanding the East London Gravels a post-excavation assessment and updated project design Part 1a post excavation assessment* (draft)

Passmore Edwards Museum Trust *Warren Farm Project: Archaeological Investigations at Marks Warren Farm, Hainault and Romford from 1988 onwards* report and map appended to a letter dated 21 December 1989 from the Passmore Edwards Museum Trust in relation to planning application no. P 1836.88 (London Borough of Havering)

Robert Brett and Sons Ltd (1995) *An Application for Planning Permission for the Extraction of Sand and Gravel from Marks Warren Farm Whalebone Lane North, Romford, Essex and Restoration to Agricultural Volumes 1, 2 and 3*

Wardell Armstrong Mining, Minerals, Engineering & Environmental Consultants (1993) *Chadwell Heath Anti-aircraft gun site Marks Warren Farm Romford Essex Archaeological Survey*



## 2 Sources of Further information

Brett Lafarge Redland Aggregates Ltd *Guns that Saved London The Story of One of the Anti-aircraft Batteries that Beat off the Luftwaffe* leaflet produced by Brett Lafarge with assistance from the Crown Estate Commissioners, Michael Gilman, historic buildings consultant, the Imperial War Museum, Peter Watt (author of *Hilter v Havering*), Richard Clements, local resident, and Keith Langridge Friends of ZE1 (undated)

Planning (Listed Buildings and Conservation Areas) Act 1990 Department for Communities and Local Government (DCMS)

[http://www.opsi.gov.uk/acts/acts1990/Ukpga\\_19900009\\_en\\_1](http://www.opsi.gov.uk/acts/acts1990/Ukpga_19900009_en_1)

Planning Policy Guidance 15: Planning and the Historic Environment (PPG15) Department of Culture Media and Sport (DCMS)

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/142838.pdf>

Planning Policy Guidance 16: Archaeology and Planning (PPG16) Communities and Local Government (DCMS)

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/156777.pdf>

Government Circular 01/01: Arrangements for handling heritage applications-notifications and directions to the Secretary of State Department of Culture Media and Sport (DCMS)

<http://www.communities.gov.uk/publications/planningandbuilding/circulararrangements>

Government Circular 09/05: Arrangement for Handling Heritage Applications-Notifications to National to Amenity Societies Direction 2005 Department of Culture Media and Sport (DCMS)

<http://www.communities.gov.uk/documents/planningandbuilding/pdf/147534.pdf>

Local Studies Library and Archives, Valence House Museum, Becontree Avenue, Dagenham, Essex RM8 3HT tel. 0208 227 6896.

National Monuments Record, English Heritage, Kemble Drive, Swindon SN2 2GZ tel. 01793 414700 [www.english-heritage.org.uk](http://www.english-heritage.org.uk)

Archive Photo Gallery [www.barking-dagenham.gov.uk](http://www.barking-dagenham.gov.uk)

Access to the gun site can be arranged by contacting the Quarry Manager, Brett Lafarge Limited on 0208 597 3774 or 0208 597 7131.

Heritage at Risk <http://www.helm.org.uk/server/show/nav.19627>

### 3 Listed Buildings

Grade II

*Anti-aircraft Site at TQ 48738975, Whalebone Lane*

Listed 2 February 1991.

Anti-aircraft gun site. 1935 –1939. Brick with concrete render and reinforced concrete; felting to roof and some walls of accommodation blocks. All buildings single storey.

Two command posts each with 4 gun emplacements set in a semi-circle on eastward side and linked by concrete roads; between each pair of placements, on outer side, is an ammunition store with blast walls; to Southwest of northern command post are three detached blocks (probably 2 ammunition stores and a vehicle store) and another one to the south-east of southern grouping near to southern grouping (near to 2<sup>nd</sup> emplacement in anti-clockwise direction and probably for vehicle store).

The command posts are comprised of clustered semi-subterranean accommodation blocks and walling; the southern one having a circular brick gun base. The gun emplacements are octagonal; each having 2 opposed entrances that on the inner side were formerly gated and on the outside of the emplacement had 1 or 2 ammunition stores; the outer entrances have screening walls and next to each was a subterranean corrugated iron shelter of which only fragments now remain. Within each emplacement are 6 small ammunition stores having opposed metal doors and inside, crude poles forming racks (the doors and poles are now removed from a number of stores); in the centre of each emplacement is the former gun position marked by holdfast bolts sunk in the concrete base.

The larger ammunition stores (each serving 2 emplacements) are of 5 bays, defined by pilaster buttresses, with windows and metal doors alternating (a number of windows are now blocked and doors removed); inside are 5 cells, some with shelves, connected by front corridor; around each store are blast walls; the store at the south-east corner of the northern grouping has a watch tower.

Two of the detached blocks to the southwest of northern grouping have reinforced metal doors and ventilation holes at eaves; the larger one has 3 larger metal-louvred openings on the west side.

This anti-aircraft gun site formed part of the Inner Artillery Zone that surrounded London. It survives particularly well and is significant also in being a purpose built 8 gun site (most sites had only 4 guns). The site saw a considerable amount of action in 1940 - 1941. Information from report by M. Gilman. See also History of Anti-Aircraft Command Defence of Great Britain<sup>22</sup>.

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<sup>22</sup> English Heritage Listed Buildings Online <http://lbonline.english-heritage.org.uk/Login.aspx>

There are three other Grade II listed buildings/structures within the vicinity of the conservation area:

- Warren Farm Barn, Whalebone Lane North
- The Marks Stones, Whalebone Lane North
- The Warren Stone, Whalebone Lane North



## 4 Relevant Policies

The Unitary Development Plan (UDP) 1995 is being replaced by the Local Development Framework (LDF). Those UDP policies which have been saved are current until replaced by the LDF. Emerging Policy BP2 Conservation Areas and Listed Buildings retains the principle of conserving or enhancing the character of these areas and protecting listed buildings in line with current guidance. The LDF makes reference to the LBBB Heritage Strategy and list of Listed Buildings in terms of respecting the heritage when determining planning applications.

The objectives set out in Policy G6 of the Unitary Development Plan– Mineral Extraction Marks Warren Farm have been incorporated into the quarry restoration plan:

The Council will allow mineral extraction from the Marks Warren Farm site subject to provision being made for all of the following:

- i) The safeguarding or appropriate enhancements of the Chadwell Heath Gun Site Conservation Area and appropriate enhancement of the listed wartime structure within it;
- ii) The preservation of the other listed structures and the archaeological interest of the site either in situ or, if appropriate by record;
- iii) Access to the listed wartime structures during the extraction and restoration phases of mineral workings in order to carry out the preservation or enhancement work, and the facility for subsequent controlled public access, as appropriate;
- iv) The restoration of the site to a landscape setting approved in advance by the Council;
- v) Increased public access and upgrading of existing footpaths to include both through and circular routes, as appropriate, and;
- vi) The Council will require satisfactory reclamation and after care proposals for acceptable green belt uses as defined in Policy G2, and will expect the operator of the site to be responsible for it's aftercare for not less than 5 years following the satisfactory completion or any programme of restoration works.

### **In the LDF Policy BR6: Minerals states:**

Planning permission for extension to the existing mineral extraction site at Marks Warren Farm will only be granted if no significant adverse impacts are caused to the environment or human health. This includes ensuring:

- environmental disturbance for the periods of the operation are minimised by means of, for example, tree planting and land grading schemes, visual screens, acoustic baffles, siting of plant and buildings, limitation of working hours, direction of working and by relating excavation to progressive restoration to minimise the extent of the area open at any one time;
- subject to part 19 of the General Development Plan Order 1995,

ancillary buildings, structure, plant or equipment in the Green Belt are essential to the operation and preserve the open nature of the Green Belt, and that their materials are sympathetic to the landscape and their impact is minimised by appropriate siting and screening where necessary;

- there are no significant adverse effects on sites of protected or priority species or habitats in line with the Council's Biodiversity Action Plan; sites of historical, geological or archaeological importance; or the Chadwell Heath Gun Site Conservation Area;
- there are no significant long term adverse effects on the landscape;
- particle emissions meet EC and UK standards;
- there are no adverse noise and dust impacts with regard to Annexes 1 and 2 of MPS2: 'Controlling and Mitigating the Environmental Effects of Minerals Extraction in England-Noise';
- there is no significant adverse effect on safety and amenity from vehicular traffic. When considering the traffic implications the Council will not only consider the effect on roads, but also along routes leading to the site;
- the extension does not create land instability; and
- there is no significant adverse effect on ground or surface waters, flooding, and air quality.

Following completion of extraction, the site should be restored to the highest standards and secure a beneficial and acceptable use in line with Green Belt objectives. As Barking and Dagenham is not required to meet the London Plan apportionment for land won aggregates, permission will not be granted for the opening of further sites.

### **Reasoned Justification**

- 2.6.1 Barking and Dagenham is not one of the London Boroughs required by policy 4A.32 of the London Plan to meet an additional apportionment for land won aggregates. This policy will be reviewed if regional demand and policy changes.
- 2.6.2 The borough does, however, have an existing reserve outside of the apportionment – the Brett Lafarge site at Marks Warren Farm. Extension of this site, in accordance with Minerals Planning Statement 1: Planning and Minerals, should prevent or reduce, as far as possible, impacts on the environment and human health arising from the extraction, processing, management or transportation of minerals. Policy 4A.31 of the London Plan similarly identifies that DPDs should adopt the highest environmental standards for aggregates extraction.
- 2.6.3 Proposals for extension of this site should be submitted following discussions with the Council and other organisations whose interests may be affected.

## 5 Useful Addresses

Francesca Cliff,  
Principle Planner (Conservation),  
London Borough of Barking and Dagenham,  
Regeneration and Economic Development Division,  
3rd Floor Maritime House,  
1 Linton Road,  
Barking,  
Essex IG11 8HG.  
Tel. 0208 227 3910 (direct line)  
[www.barking-dagenham.gov.uk](http://www.barking-dagenham.gov.uk)

English Heritage,  
1 Waterhouse Square,  
138-142 Holborn,  
London EC1N 2ST.  
Tel. 0207 973 3000  
[www.english-heritage.org.uk](http://www.english-heritage.org.uk)

The Essex Records Office  
Wharf Road,  
Chelmsford,  
Essex CM2 6YT.  
Tel. 01245 244644  
[www.essexcc.gov.uk](http://www.essexcc.gov.uk)

Contact for Crown Commissioners:  
Rural Division,  
Cluttons LLP,  
26-28 Albion Place,  
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