



Graven Hill, MOD Bicester, Oxfordshire

Archaeological Building Recording

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Graven Hill, MOD Bicester, Oxfordshire

Archaeological Building Recording

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007)

Issue	Date	Prepared by	Checked by	Approved by
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Comments



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Contents

1. Introduction

- 1.1. This scheme of archaeological building recording has been undertaken by Waterman Infrastructure & Environment Ltd (Waterman) for Graven Hill Village Development Company. This scheme of building recording pertains to structures at Graven Hill, MoD Bicester, Oxfordshire (herein referred to as the 'Site' or 'Study Area').
- 1.2. The Site is located 1.5 km to the south of the centre of Bicester. The Site location is noted on Drawing 1 in Appendix G. The northern Site boundary is formed by the A41 and the west boundary the main (Oxford to Bicester) railway line. Relatively flat agricultural land is located to the south and the village of Ambrosden is located to the south-east. The Site is centred on National Grid Reference SP 58829 20334.
- 1.3. This scheme of archaeological building recording has been undertaken to satisfy Conditions 69 and 70 on a planning application granted by Cherwell District Council (Application Number: 11/01494/OUT) which states:

Condition 69:

"No development shall take place on Graven Hill until the applicant, or their agents or successors in title, has secured the implementation of a programme of recording in accordance with a written scheme which has been submitted to and approved by the Local Planning Authority.

Reason: To secure the proper recording of buildings which are of national significance, forming part of the former Central Ordnance Depot, to comply with Government advice contained in the National Planning Policy Framework."

Condition 70:

"No development shall be occupied Graven Hill until the programme of recording as set out in condition 69 has been completed and the provision made for publication and dissemination of the results and archive deposition has been secured.

Reason: To secure the proper recording of buildings which are of national significance, forming part of the former Central Ordnance Depot, to comply with Government advice contained in the National Planning Policy Framework."

2. Methodology

Methodology

- 2.1. The scope for this scheme of archaeological building recording was outlined in the Written Scheme of Investigation¹ (WSI), located in Appendix H. The WSI was submitted to and approved by Rose Todd, Senior Conservation Officer at Cherwell District Council.

Aim

- 2.2. The aim of this programme of recording is to provide a long-term sustainable record of the buildings, within the Site, prior to their demolition and the Site's redevelopment. This will secure the proper recording of buildings which are of national significance, forming part of the former Central Ordnance Depot, to comply with Government advice contained in the National Planning Policy Framework.
- 2.3. The scheme of building recording aims to provide:
- Detailed documentary research of local and national archives as well as any consultation of any accessible historical documentation held at the Site;
 - Provide an outline history of the buildings and the wider Site, including the identification of chronological building phases and uses;
 - A Level 1 record of all (military) buildings within the Site;
 - A Level 2 record of structures D2, D3, D7, D0, E1, E2, E5, E14, E15, the Garrison Theatre and the Ordnance Support Unit Complex; and
 - A Level 3 record of the six air raid shelters adjacent to building D2;
- 2.4. The buildings selected for Level 2 and Level 3 recording were as a result of an English Heritage assessment of the Site. The assessment is found in Appendix A of *Technical Note 1 Redevelopment of MOD Bicester: Historic Environment*, by AMEC (October 2012). The assessment stated that "the level of detail for the recording would reflect the nature and significance of the individual building".

Scope of Historic Building Recording

- 2.5. The scope for the scheme of building recording includes Levels 1-3 as outlined in English Heritage (now Historic England) publication *Understanding Historic Buildings: A Guide to Good Recording Practice* (2006). The level of survey and the buildings which are included in each level are outlined further below and noted on a plan (Drawing 2, Appendix G).
- 2.6. A detailed history of the Site has been provided as part of this scheme of building recording. Although record Levels 1-3 require varying levels of historic background to structures, the main historical background (sourced from archival and documentary research) considers all structures in consistent detail which is commensurate with Level 3. As such the levels of archival and documentary research will not be outlined separately below.

Documentary Research

- 2.7. A programme of documentary research was undertaken to provide an understanding of the Site's history and chronological development. Whilst earlier occupation of the Site may be referenced, the documentary research focuses on the twentieth century and military occupation of the Site.

¹ Waterman, 2014

- 2.8. An overview history of the Site is provided in Environmental Statement Volume 2: Main Report, produced by Amec in September 2011, and *Technical Note: Redevelopment of MoD Bicester – Historic Environment* by Amec in October 2012. The information in these documents was enhanced and supplemented with additional research and historical information.
- 2.9. Local and National archives were consulted which will include, but not limited to:
- The National Archives, Kew;
 - Imperial War Museum Archive; and
 - The National Monuments Record, Swindon.
- 2.10. The aim of the documentary research is to provide:
- An understanding of the Site's twentieth century history;
 - An understanding of the Site's chronological development, including building phases; and
 - An understanding of historical uses of individual buildings.

Level 1 Record

- 2.11. A Level 1 record has been produced of all of the (military) buildings within the Site. This record forms the basis of the whole scheme. This is provided as a baseline gazetteer of the structures (Appendix C). This record is also available as a layered GIS output.
- 2.12. The record for each building includes:
- Building Name/Unique ID;
 - Building location and NGR;
 - Statutory and non-statutory designations;
 - The date of the record and names of the recorders;
 - Age (date/phase of construction);
 - Known history from research;
 - Type;
 - Form; and
 - Photograph(s). Exterior photography of each building are produced as a minimum.

Level 2 Record

- 2.13. The Level 2 record supplements the Level 1 gazetteer and pertains to buildings D2, D3, D7, D9, E1, E2, E5, E14, E15, the Garrison Theatre and the Ordnance Support Unit Complex. Buildings E14 and the Garrison Theatre were not internally accessible for health and safety reasons.
- 2.14. The Level 2 record comprises:
- A general view or views of the buildings (in their wider setting or landscape);
 - The buildings' external appearance. Typically a series of oblique views shows all external elevations of the building, to provide an overall impression of its size and shape. Where an individual elevation embodies complex historical information or a number of phases, views at right angles to the plane of the elevation have been shown;

- The overall appearance of the principal rooms and circulation areas (where accessible);
- Any external or internal detail, structural, functional or decorative which is relevant to the building's design, development or use and which does not show adequately on general views.; and
- Any dates or other inscriptions, any signage, makers' plates or graffiti which contribute to an understanding of the building or its fixtures or machinery.

2.15. The written account includes:

- The buildings' location, as a NGR and in address form;
- A note of any statutory and non-statutory designations;
- A date of the record, the name(s) of the recorder(s) and, if an archive has been created, its location;
- A summary of the buildings' form, function, date and sequence of development. The names of architects, builders, patrons and owners are provided (if known);
- An account of the buildings' overall form (structure, materials, layout) and their successive phases of development, together with evidence supporting this analysis; and
- An account of the past and present uses of the buildings and their parts, with the evidence of these interpretations. An analysis of any circulation pattern or decorative, iconographic or liturgical scheme. An account of any fixtures, fittings, plant or machinery associated with the buildings, and their purposes.

Level 3 Record

2.16. A Level 3 scheme of historic building recording was undertaken of the six air raid shelters which are located adjacent to building D2.

2.17. The Level 3 record of the air raid shelters includes all elements of the Level 2 survey outlined above and also enhanced detail of the following:

Level 3: External Record

2.18. All elevations of the building have been photographically recorded. Where necessary, detailed photographs have been taken of features of heritage or aesthetic merit. The external record also details general character features such as windows, doors and building fabric.

Level 3: Internal Record

2.19. Each interior space within all the raid shelters was photographed. General descriptions are provided for each room/space.

Measured Survey

2.20. A measured survey of an air raid shelter was produced (all shelters are of a single type of standard build). Drawings include elevations and a floor plan (Drawing 4, Appendix G).

Photographic Record

- 2.21. A high quality digital record was made using a digital SLR camera. Photographs were taken at 12 million pixel resolution and deposited as a JPEG file.
- 2.22. An appropriate flash and tripod was used in poor lighting conditions within the buildings. A photographic scale of appropriate size was included in detailed views where appropriate.
- 2.23. All photographic views have been recorded on site on photographic registers which, as a minimum, give the direction of the view and a brief description of the subject, date, photographer and site reference (Appendix D). The location of general views across the Site have been noted on a plan (Drawing 6, Appendix G)
- 2.24. A selection of the photographic record is used to illustrate this report to provide an understanding of the Site/buildings, their historic use and context.
- 2.25. The full photographic record, together with copies of the annotated plans and the photographic gazetteer will be included in the site archive.

3. Report and Archive

Report

- 3.1. This written report provides a description of the site and buildings (including scale and massing, construction, materials, layout and architectural detail), their history and heritage significance.
- 3.2. This report is produced to guidance set out within *Understanding Historic Buildings, A guide to good recording practice* (English Heritage 2006).
- 3.3. This report will be provided as a bound copy with an appended CD containing the archive and report in .pdf format. Copies of the report will be submitted to Cherwell District Council, Oxfordshire History Centre and any other depositories subject to consultation and detailed WSI.

Archive

- 3.4. An archive of this scheme of building recording contains raw data from the on-site investigation. The OASIS reference for this project is waterman2-205672.
- 3.5. The archive will include:
 - Digital photographic record and register;
 - Drawings and drawing register;
 - GIS database
 - Site plan annotated with the locations of selected photographic views; and
 - A digital copy of the report and WSI.

Project Management and Staffing

Personnel

- 3.6. The scheme of building recording was managed and undertaken by a buildings archaeologist from Waterman's core staff:

Tim Murphy BA PG Dip MCI/A IHBC: Principal Heritage Consultant/Buildings Archaeologist

Waterman staff also involved in the undertaking of this scheme of investigation include:

Susana Parker BA MA ACI/A AIEMA: Senior Archaeologist and Heritage Consultant

Naomi Hughes BA MA PCI/A: Graduate Archaeologist and Heritage Consultant

4. Historical Baseline and Analysis

Designated Heritage Assets

- 4.1. No listed buildings or other statutory designated heritage assets are located within the study area.

Non-Designated Heritage Assets

- 4.2. COD Bicester was one of the most important logistical centres of World War Two and has continued to function as a stores and logistical support for the British army in the twentieth and twenty first century. Many of the buildings at Graven Hill derive from the original phase of World War Two construction. Whilst none of the buildings are statutorily listed, as individual structures, or as a group, they are considered significant non-designated heritage assets as a survival of wartime construction and the association the site has with significant events of World War Two and the later twentieth century.

Historical Overview

Origins and Development

- 4.3. The Central Ordnance Depot at Bicester was established as a result of a War Office decision for requirement of a depot in the Oxford area. In the late 1930s the authorities realised that existing ordnance depots were inadequate and would not be able to support a wartime army. Only five Central Ordnance Depots (C.O.D.'s) existed, each dealing with their own particular type of equipment. The depots included Branston (clothing store), Chilwell (motor transport and spares), Didcot (general stores), Weedon (small arms and machine guns) and Woolwich (artillery, engineers and signal stores). Chilwell was the only depot which was considered to be up-to-date at the time with the other four considered insufficient in terms of handling and transportation equipment².

Figure 1: Two Cruiser Mk IIA tanks, a Valentine and two Matilda MkII at the Central Ordnance Depot at Chilwell, August 1940

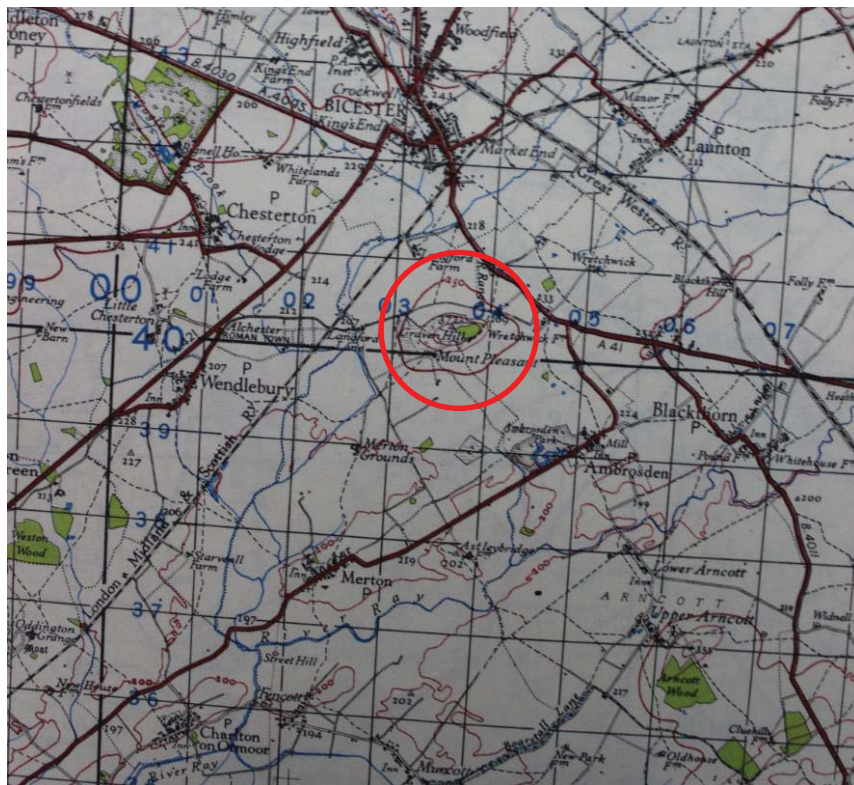


Source: © IWM (H 3086) <http://www.iwm.org.uk/collections/item/object/205197257>

² Lawton, E.R & Sackett, Major M.W. 1992. *The Bicester Military Railway and the Army's Central Railway Workshops*, Oxford Publishing Co.

- 4.4. When war broke out in 1939 there was a greater and sudden need for additional storage and supply depots to service the rapidly increasing army. Construction of a new depot in Donnington, Shropshire had begun, and a number of temporary sites were requisitioned. It was quickly realised that a new large depot was required and that this would need to be strategically placed in southern England.
- 4.5. A project was started to put together the plans for a new depot. The project was codenamed 'X Depot'. At the beginning of 1941 the Director of Warlike Stores, Major General L.H. Williams, nominated Colonel (later Major General) G.W. Palmer as Commandant of the 'X Depot' project. Palmer's remit was to plan the new depot's location and layout. Palmer was also Commandant of the COD Bicester until June 1945³.
- 4.6. Colonel Palmer, and a small team of staff, commenced their work at offices in Beeston, near Chilwell, Nottinghamshire. They examined eight potential sites considering transport infrastructure, mains and power supply, proximity to aerodromes and requirement of a labour force from a nearby sizable town. The final choice for the new depot was land to the south of the town of Bicester in Oxfordshire. The site was based around two hills; Graven Hill and Arcnott. The War Office Edition Ordnance Survey (Figure 2) shows the area of Graven Hill at the south of Bicester at the time when the site was selected.

Figure 2: Ordnance Survey, War Office Edition, 1941



Source: National Archives

³ Lawton, E.R & Sackett, Major M.W. 1992. *The Bicester Military Railway and the Army's Central Railway Workshops*, Oxford Publishing Co.

- 4.7. The précis of a lecture, given by Palmer, entitled “Planning a New Depot” is located in Appendix A⁴ of this report. The lecture notes that many sites were assessed for suitability in the Oxford area, with several branches of government consulted including Finance; Railways; Ministries of Agriculture, Labour and War Transport; and the R.A.F.
- 4.8. The site at Bicester was selected for a number of reasons which made it adequate as an ordnance depot. The close proximity to Oxford and Aylesbury was considered to be very beneficial as two labour centres. The site could also be linked into an extension of existing water and power supply systems. Existing infrastructure around the site was deemed to be more than adequate with the London, Midland and Scottish Railway (L.M.S.) located to the north-west and the Great Western Railway (G.W.R.) located to the north-east, both were also existing double line tracks. The road infrastructure was also considered adequate and although there were many local narrow roads, they were found to have sufficient grass verges that could be widened for heavy traffic without destroying existing hedges or treelines.
- 4.9. The selection of Graven Hill and Arncott was also considered to have benefits for concealment and defence from potential aerial attack. The dispersion of the buildings around the two hills allowed for a layout which minimised impact from aerial bombardment and restrict the possibility of low level enemy aerial attack. The wide spread of dispersed buildings also eased traffic loading to the Site as it was not all focussed in one location.
- 4.10. One of the downsides of the selection of the Bicester site was that it was located, geologically, in an area of Oxfordshire clay which was not considered good construction land, especially for drainage. However, this factor did have its advantages in a period when the Ministry of Agriculture required all the best plough soil available and as such the depot was not deemed to spoil good quality agricultural land.
- 4.11. Construction of the site commenced in 1941 and by 1943 the depot was able to assume its role as the main support base in Europe and as an Army Mobilisation Centre. During the post-war period the depot was intended to be the premier depot of the Royal Army Ordnance Corps (R.O.A.C.). The building project, which cost over £6.5 million, included⁵:
- 3.5 million square feet of heated store sheds with road and rail access;
 - 34 miles of road;
 - 40 miles of railway; and
 - 21 miles of perimeter fencing.
- 4.12. The depot’s construction also resulted in additional building projects in the wider environs such as a new 660-wagon capacity railway yard at Swanbourne to relieve overloading on the existing yard at Bletchley. With the associated infrastructure the depot, at the time, was described as the largest single military project ever launched in the United Kingdom⁶.
- 4.13. ‘X Depot’ was named the Bicester Central Ordnance Depot. The installation was divided into six sub-depots which were later reduced to five. These included:

⁴ National Archives Reference: WO 305_3614

⁵ National Archives Reference: WO 305_3614

⁶ Lawton, E.R & Sackett, Major M.W. 1992. *The Bicester Military Railway and the Army’s Central Railway Workshops*, Oxford Publishing Co.

Current Depot Name	Wartime Name/Description	Location
A Site	Signals and Wireless	Arncott
B Site	Engineering Stores	Arncott
C Site	Motor Transport (spares and tyres)	Arncott
D Site	Armaments	Graven Hill
E Site	Small Arms	Graven Hill

- 4.14. Chief Royal Engineer (Lt Col. J.P. Haugh) was appointed to supervise the construction of the depot. The construction work was carried out by military labour supplemented with civilian specialists for specific tasks such as the erection of steel work and construction of roads. Around one thousand Italian Prisoners of War (PoW) were also eventually employed in the construction work.
- 4.15. By July 1941 the War Department Land Agent had served requisition notices to several land owners, organisations and companies. The Compensation (Defence) Act 1930 provided the means to acquire land for strategic wartime needs. The setting out of building locations commenced soon after and by August 1941 a 2.6 mile railway loop had been pegged out to encircle Graven Hill. There were hold-ups to the railway works as a result of available materials; the railway had used concrete railway sleepers until Operating Officer Lt W.H. Mounsey noted, after flying over the site, that the concrete provided a vivid outline which would aid easy identification by German bombers, resulting in a quick reversion to the use of traditional wooden sleepers.
- 4.16. By the end of 1941 1,500 Royal Engineers, 607 Royal Pioneers Corps and 550 Italian PoW were involved in the construction of the depot and its rail network.
- 4.17. This completed site dispersed over an area of 12.5 square miles.

Operation Bolero

- 4.18. The United States entered the war in December 1941. It became important to construct facilities to accommodate American troops and equipment in the United Kingdom, in anticipation of the invasion of the European continent. The Combined Chiefs of Staff called this 'Operation Bolero'. To assist in the facilitation of Bolero, new layouts were designed around the depot which were all serviced by road and the Bicester Military Railway (BMR). The 'Bolero Groups' comprised of a central track with spurs which led to groups of corrugated iron Romney huts. No complete Bolero Groups survive in Graven Hill but their form is likely to have been similar to the existing Romney huts in Ordnance Support Unit complex.
- 4.19. U.S. troops worked at the depot and were responsible for issues of supplies from the 'Bolero Stores' from buildings D30-35 and E30-32. These buildings were located in D and E Sites but have since been demolished leaving only the hardstanding which once formed the base of the structures. The only 'Bolero structure' to survive is a single Romney hut at E31. The locations of the former bolero groups are noted on Drawing 7 in Appendix G.
- 4.20. The Bolero groups of buildings were fundamental to logistical support of American forces and support for Operation Overlord (the Allied operation which launched the successful invasion of Western Europe). The equipment held in the Bolero stores arrived by rail from an Inland Sorting Depot (ISD)

at Kirkby, Liverpool; over 100,250,000 cases of stores on 14,000 wagon loads had been received at Bicester by May 1945⁷.

Figure 3: View of an American goods depot in England during World War Two.



This may be Bicester or a scene very similar to what have been viewed at the site with stores arriving by rail and road to the Romney huts.

Source: © IWM (D 17007) <http://www.iwm.org.uk/collections/item/object/205200531>

Figure 4: View of an American goods depot in England during World War Two.



This may be Bicester or a scene very similar to what have been viewed at the site.

Source: © IWM (D 17010) <http://www.iwm.org.uk/collections/item/object/205200532>

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http://www.pastscape.org.uk/hob.aspx?hob_id=1411454&sort=2&type=&rational=a&class1=None&period=43%7C410%7CROMAN%7C38%7C0&county=None&district=None&parish=None&place=Bicester&yearfrom=43&yearsto=410&recordsperpage=10&source=text&rtype=&number=#

Figure 5: American GI's arrange stores in a Romney hut somewhere in England.



Similar scenes would have been observed in the Bolero groups at Bicester.

Source: © IWM (D 17013) <http://www.iwm.org.uk/collections/item/object/205200534>

Bicester Military Railway

- 4.21. The Bicester Military Railway (BMR) formed the main arterial infrastructure of the depot, and still did so at the time of this assessment. The BMR served both Arcott and Graven Hill, linking them to the national rail infrastructure.
- 4.22. By 1943, 31 miles of track had been laid which was used by seven locomotives. The personnel of the BMR was formed of the Railway Operating and Maintenance Detachment of the Royal Engineers, which in 1943 consisted of 136 officers and men. The railway personnel resided at Number 3 Camp (this was located in Arcott), in poor conditions and overcrowded Nissen huts. Most of the BMR staff had been employed by the civilian railway lines. In addition to training at the Longmoor or the Melbourne Military Railways, the personnel also received basic military training in drill, weapons and explosives. The BMR was interesting as it resulted in the merging of staff from the then main four railway companies (LMS, LNER, GWR and Southern Railway).
- 4.23. The original BMR railway was considered an excellent achievement and a testament to the Corps of Railway Engineers, Royal Pioneers Corps, Royal Corps of Signals, the 3rd Non Combatant Corps

and the Italian PoW. The railway network was built quickly, and it performed very well for a heavy loading job. An extensive history of the rail network at the Site is provided in a published book⁸.

Wartime Operation

- 4.24. By 1944, over half of the country's total output of small arms were stored at Graven Hill; this included thousands of 9-mm Sten machine carbines (sub-machine guns) and the total output of 6-pounder anti-tank guns⁹. By 1944, some 20,000 troops and members of the Auxiliary Territorial Service (ATS) were employed at the depot and supporting garrison. Living accommodation for troops and personnel was provided in temporary hut structures; this was the situation until 1958 when two modern barrack blocks (St David's Barracks) were constructed. Historic aerial photography (Figure 6) shows the extensive layout of huts around the base of Graven Hill.
- 4.25. COD Bicester was a significant base of logistical support during the later stages of World War Two. The base supported the British and American army in theatres across the world, and was the main logistical support depot for 'Operation Overlord' (D-Day). A summary of the war diaries held at the national archives, is located in Appendix B, and provides a month-by-month summary of COD Bicester's operations until 1945.

Figure 6: Aerial photograph of Graven Hill, c.1945.



Note accommodation huts located around the base of the hill

Source: NMR Aerial photograph Library No: 6914 Frame No: 5033/5034

⁸ Lawton, E.R & Sackett, Major M.W. 1992. *The Bicester Military Railway and the Army's Central Railway Workshops*, Oxford Publishing Co.

⁹

http://www.pastscape.org.uk/hob.aspx?hob_id=1411454&sort=2&type=&rational=a&class1=None&period=43%7C410%7CROMAN%7C38%7C0&county=None&district=None&parish=None&place=Bicester&yearfrom=43&yearsto=410&recordsperpage=10&source=text&rtype=&number=#

Figure 7: 40mm Bofors Light AA guns on Mk II mountings lined up in a gun park at COD Bicester in preparation for D-Day.



This may be, or a scene similar, to the gun park at Graven Hill (now the container depot of Bicester International Freight Terminal)

Source: © IWM (H 37362) <http://www.iwm.org.uk/collections/item/object/205193096>

Prisoner of War Camps

- 4.26. Three groups of Bolero Stores (in the form of Romney huts) and two groups of accommodation huts were used post-war as PoW camps. PoW Camp 657 was located at Bolero Group D35 (now demolished). PoW Camp 1011 was located at Bolero Group D30 (now demolished). PoW camp 553 was spread out across Graven Hill, and it included Bolero groups E30-E31, the Ordnance Support Unit (OSU), together with former Nissen accommodation huts to the south of storage hangar E2, and to the north-west of storage hangar D6. The OSU buildings still exist and form part of this historic building record. The approximate location of former PoW camps and buildings noted above, which are now demolished, is shown on Drawing 7 in Appendix G.

Figure 8: A Nissen Hut in a German PoW



Camp in Britain similar to those at COD Bicester

Source: © IWM (D 26718)
<http://www.iwm.org.uk/collections/item/object/205195862>

Figure 9: German PoW's mending shoes in a Nissen hut at a PoW camp in Britain



Source: © IWM (D 26731)

<http://www.iwm.org.uk/collections/item/object/205202282>

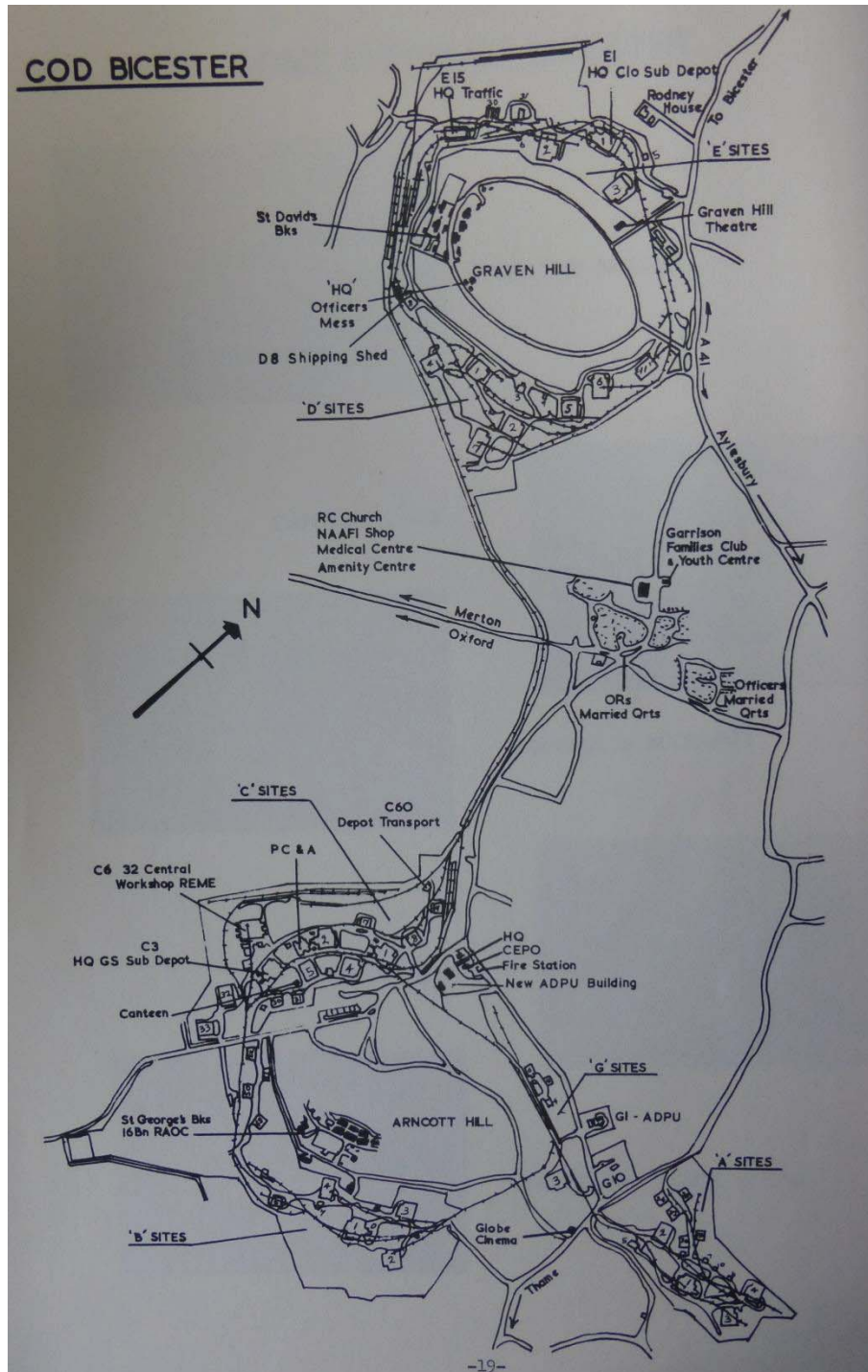
Post War Operations

- 4.27. There is little accessible documentary information pertaining to the post-war operation of COD Bicester. It is likely, because of the nature of their content, that documents will be declassified in the future which, on their release, will provide further information about this period.
- 4.28. Immediately after the war and into the 1950s, the depot at Bicester functioned to support operations at depots in Chilwell and Donnington, as well as the vehicle organisation of the Royal Army Ordnance Corps (RAOC). St David's Barracks were built on the south west side of the hill in 1958, replacing much of the hutted accommodation built in the war.
- 4.29. The depot was significantly reorganised by 1961 to support the 'Regular Army' which had reduced in scale as a consequence of the end of National Service. Bicester assumed the responsibilities of general stores from COD Didcot and clothing from COD Branston. This new responsibility involved the handling of 150,000 tons of stores with an increase number of staff and facilities to cope with the new demand. This also resulted in the MoD subsidising, in conjunction with the Urban District Council in Bicester, the construction of 810 houses for a civilian workforce¹⁰.
- 4.30. A publication for Queen Elizabeth's visit to the site in 1965 notes that COD Bicester had provided, in recent years, RAOC units for emergency operations in British Honduras, Borneo, Aden, Bahrein and Cyprus.
- 4.31. Bicester's role since the 1960s has been the ordering, stocking and issuing of clothing and general ordnance stores, a role within the army that has changed very little with time. As the army has reduced in size, the Site and its storage hangars have gradually been rationalised up until the current process of decommission.

10 WO 305_3614:

The Royal Visit to Central Ordnance Depot Bicester, 10th May 1965

Figure 10 : An outline plan of COD Bicester contained in a 1960s induction booklet for the Site.



During this period the Site employed over 1,100 civilians and contained over three million square feet of covered and heated storage space.

Source: National Archives WO 305_3614

Site Assessment

The Site

- 4.32. The Site is located around Graven Hill and separated into two principal sections, D Site and E Site. Both D and E Site are connected, contemporary, and similar in general form. The separation derives from the original purpose of storing different types of logistics. During World War Two D Site stored armaments and E Site small arms.
- 4.33. Additional areas, outside of D and E Site, are located at the north and north-east side of the overall Site. These include a container depot (known as the Bicester International Freight Terminal), the Ordnance Support Unit Complex (OSU) and the Rodney House complex. All of the Site, which has been recorded as part of this scheme, is located within the Central Ordnance Depots original World War Two curtilage.
- 4.34. The various areas of the Site are accessed via a main perimeter road and rail lines.
- 4.35. Drawing 3 in Appendix G outlines the locations of individual areas, within the Site, which are described further below.

D Site

- 4.36. D Site was originally constructed as an armaments depot. The area forms the south side of Graven Hill, accessed via E Site at the west, and Pioneer Road at the north-east. The section of road leading from Pioneer Avenue, to the depot, was renamed Anniversary Avenue in 1992 to commemorate the 50th year of Bicester Garrison.
- 4.37. D Site retains most of its original structures, albeit in an altered state. The principal buildings are accessed via road and rail. The original layout of buildings using a dispersal method, to limit damage from aerial bombardment, is still clearly discernible with large areas of grassland between structures.
- 4.38. All of the original World War Two storage hangars and good sheds have survived and comprise buildings D1, D2, D4, D5, D6, D7, D8, D9 and D10. Detached air raid shelters were located adjacent to Buildings D1, D2 and the training block (D3). All shelters have survived with the exception of three adjacent to Building D1 which retain only a concrete base plate.
- 4.39. All original eight emergency water ponds have survived in the Site with no alteration to their plan. Other additional buildings in D Site include a modern fire station, guard houses, electrical substation and a railway headquarters (D99).

E Site

- 4.40. E Site is located on the north side of Graven Hill, originally built as a small arms depot. The area is accessed from Anniversary Avenue (Via the A41) at the north, and D Site at the south. Similar to D Site, E Site retains all of its principal buildings from the wartime construction.
- 4.41. All storage hangars, from the wartime construction, were noted in the Site including Buildings E1, E2, E3, E5 and E15. For reasons unknown, only Building E1 was afforded detached air raid shelters. Historic aerial photograph shows that the building once had six, now demolished, detached air raid shelters.
- 4.42. E Site retains only one of its original Romney Huts (Building E31). The single Romney was once part of three groups of six huts which were located on hardstanding to the north and east of Building E2.

- 4.43. All three of the original emergency fire ponds are still located within the Site. Additional buildings include guard blocks at the entrance, a locomotive depot (E16), a modern storage shed (E17), a boiler house (E14) and a modern administration block (E25).

Ordnance Support Unit Complex

- 4.44. The Ordnance Support Unit (OSU) is located on the north side of Westacott Road. The complex represents the most complete collection of unaltered and original World War Two buildings at Graven Hill.
- 4.45. The complex comprises eight Romney huts, four Nissen huts, two prefabricated offices, two brick ablution blocks, a brick quartermasters store and a water tank. The complex is serviced by a railway siding on the south side. All the buildings in the OSU are original to the site's 1940s construction and have been subject to very minor alteration and subsequent addition.
- 4.46. The exact use of the OSU has not been revealed through research. The type of buildings suggest that this would have been used for stores, administration offices and the presence of ablutions blocks suggests this may have also been garrisoned at some time. There is also reference that the OSU was used as a Prisoner of War camp in c.1945.
- 4.47. Interestingly, the OSU is one of the only areas of the Site, containing World War Two Stores, which does not appear to have been afforded any form of protection from air raids.

Figure 11: Aerial Photograph of the OSU in 1970



Source: NMR Aerial photograph Library No: 10537

Figure 12: General view of OSU from west



Rodney House Complex

- 4.48. The Rodney House complex is located to the north east of Building E5. The complex was constructed during World War Two. It was originally accessed from a drive via from the A41 and was used as the Civil Service Social Club (CSSC) until the early twenty first century. Buildings located in the Rodney House Complex, at the time of recording, include two long prefabricated single storey huts and a service/plant building with water tower (Figure 13).
- 4.49. The original use of the Rodney House Complex is unknown but may have always functioned as a social club, this would account for why it has its own entrance and is separated from E Site at the south. Aerial photography taken at the end of World War Two shows that the complex was originally much bigger than existing at the time of recording, which only accounts for about 25% of the original buildings. A road extended to the south of the existing buildings with an 'in and out' drive which serviced four detached huts. A football pitch was also located on the east side of the complex. The 1966 National Grid (Figure 12) shows the complete Rodney House Site in plan.

Figure 13: National Grid 1966 showing Rodney House



Figure 14: View of Rodney House from south-west



Container Depot

- 4.50. The container depot, known as the Bicester International Freight Terminal, is located to the north of D9 and south east of the OSU. This is believed to be the original location of the Graven Hill Gun Park (Figure 6) which would have been used to store artillery on the large area of hardstanding. The depot, which is accessed via Pioneer Road, today comprises a large area of hard standing, a Romney hut, prefabricated hut and later office accommodation. Aerial photography suggests that the Romney hut and prefabricated office are the only buildings surviving, in this area, from the World War Two construction.

Types of Structure

- 4.51. The descriptions below provide an overview of some of the common structures located around the site. Drawing 8 in Appendix G shows the phasing of the structures in the Site noting the buildings which are original to the Site's World War Two construction.

Romney Hut

- 4.52. Romney huts, which derive from World War Two, are located throughout the Site. Romney huts were developed during World War Two to supplement the Nissen hut, which had been developed in World War One, and supersede the Iris hut in 1941 as these were not found to be structurally robust.
- 4.53. The huts were of simple pre-fabricated construction. A frame of tubular steel was set into concrete and clad with corrugated metal. The huts have an offset entrance in their gables with a large single sliding door for goods access.
- 4.54. A total of eleven Romney huts are located around the site, each have been altered to suit their original or later use. The largest collection of the huts is the eight (in two groups) located in the Ordnance Support Unit Complex (OSU) (Figure 15). The two groups, of three and five, are connected via flat-roofed brick links which provide internal access and also contain plant. The Romney huts in the OSU are believed to have been used for storage with road access on both sides and an adjacent railway siding. The western hut of the group had been internally partitioned to create offices which resulted in the addition of dormer windows to the west elevation.
- 4.55. A single Romney hut is located in E Site (Building E31). This hut is of standard build with the addition of three roof vents. This hut would have originally been part of a group of five which have since been demolished. Groups of five Romney huts were located in both D and E sites called E30-32 and D30-35. The huts were known as the Bolero Groups and later formed part of prisoner of war camps. With exception of the single Romney hut at E31 all that remains of the others are areas of hardstanding (highlighted on Drawing 7 Appendix G).
- 4.56. A single hut is located in D Site (Building D98). The hut has been altered to provide a cover for a buffer-stop of a railway siding (Figure 16). It is not known whether the hut's location is original or was reused from elsewhere in the Site.
- 4.57. A single Romney huts is located in the container depot, this is believed to be original to the Site's World War Two construction, forming part of the Graven Hill gun park, and has now been altered to accommodate staff lockers and small vehicle storage.

Figure 15: Romney huts in the OSU



Figure 16: Romney hut (Building D98)



Nissen Hut

- 4.58. A total of five Nissen huts are located around the Site. Four are located in the OSU and a single Nissen hut adjacent to building D14. None of the huts retain any fixtures and fittings, making their original specific use almost indiscernible. The huts located in the OSU are in close proximity to an ablutions block suggesting they may have either been barracks or used for storage.
- 4.59. Nissen huts were originally designed in World War One by Major Peter Norman Nissen of the 29th Company Royal Engineers. The examples at Bicester were constructed in World War Two by which time the patent had been released for mass production for the war effort.
- 4.60. The Nissen huts were constructed on a concrete base which provided a solid floor and a drainage channel around the exterior. The gables are for the most part constructed of brick laid in Flemish bond. Doors and metal framed windows are located in the gable elevations. The roof of the structures is constructed of three sections of curved corrugated asbestos sheet (believed to be asbestos but was heavily weathered, some other examples are known to be corrugated steel). Many of the structures, where accessed, were timber dry-lined internally. Drawing 5 in Appendix G shows a sketch of a Nissen hut in the OSU, showing its basic built form.

Figure 17: Nissen hut in OSU



Figure 18: Interior of Nissen hut in OSU



Storage Hangar

- 4.61. Large storage hangars are located throughout D and E Sites. Storage hangars include Buildings E1, E2, E3, E15, D1, D2, D4, D6, D7, D8 and D9. The buildings are original to the World War Two construction, although have been subject to significant alteration.
- 4.62. The hangars are constructed of brick, laid in English bond. The roofs are not original and replacements were installed in the second half of the twentieth century in the form of plastic coated corrugated metal sheeting. The exact original form of the roof structures is unknown. They may have either been the same in form except clad with corrugated asbestos cement sheeting or significantly different as vaulted concrete roofs, the former is more likely. The existing roofs are supported by an internal steel frame. The roofs of the larger storage hangars are generally 10 bays wide with depressed gables and lean-to cat-slide roof at the outer bays. The only hangar with a significantly different roof is Building D9 which is of three bays.
- 4.63. The hangars are internally open in plan (with exception of modern metal partitions installed in recent years), which is enclosed by the brick curtain. The construction would appear to have been designed so that should there have been an impact (such as bomb/blast damage) the adverse effect on structural integrity would have been localised within the hangar, this is achieved through the construction of an almost freestanding brick curtain within minimal attachment to the internal steel frame.
- 4.64. The hangars retain few early or original fixtures and fittings with exceptions of railway tracks, rail loading platforms and goods cranes (which have been upgraded). Much of the space inside the hangars is occupied by high racking for stores. All hangars have offices, toilets and staff rooms located within single storey, flat roofed, structures on the outer side of the principal brick wall on one or two elevations. The offices are accessed via designated walk areas in the interior of the hangar. In many cases the row of lean-to single storey structures are flanked by air raid shelters incorporated into each end, or in some cases single shelters are located separately on other elevations. Windows in the elevations and single storey buildings would have originally been steel framed Crittal windows, most of which have been replaced with UPVC.
- 4.65. Variations in hangar design have derived from their original intended uses. Hangars D1, D2, D4, D5, D8, E1, E2, E3 and E15 have large doors for road and rail access. The original rolling steel framed doors, clad in corrugated metal sheet, have been replaced with roller shuts and some have been blocked with a brick infill. Hangars D6, D7 and D9 are tall structures which enabled the use of heavy lifting equipment, these hangars also have combined road and rail access entrances. Most of the storage hangars are similar in plan. Hangars E15 and D8 have different floor widths and Hangar D9 has a different roof design and arrangement of glazing.
- 4.66. Hangar E1 is the largest in the Site. A return is located on west side of the building which contains offices. The south west corner of the return has been reinforced with metal window covers and internal sliding blast doors suggesting this area of the building was of importance. The same is noted at the north-west corner of administration Building D3.

Figure 19: View of storage hangar (Building D7) Figure 20: Interior of storage hangar



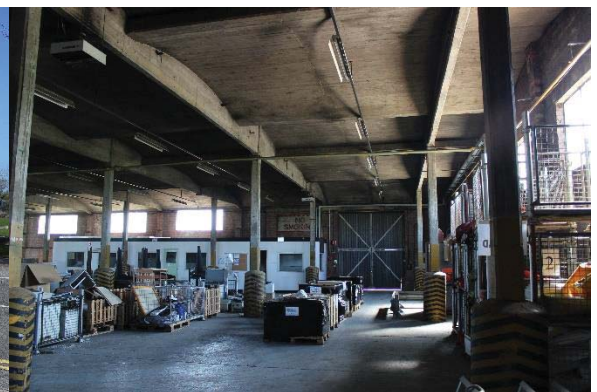
Vaulted Hangar

- 4.67. Three vaulted roof hangars were identified in D and E Site; Buildings E4, E5, and D10.
- 4.68. The vaulted hangars are smaller, in plan, than those discussed above, and the roofs may represent a type that was originally installed to the larger hangars.
- 4.69. Buildings E5 and D10 are the same in form. The five bay structures are of red brick construction, laid in English bond. The roof comprises of five arched concrete vaults which are supported by a reinforced concrete frame. The principal building elements are original to the building's World War Two construction. The buildings retain few fixtures and fittings with exception of corrugated metal sliding doors.
- 4.70. Building E4 is smaller in plan, of only three bays. The building has small high-set windows in the elevations. The concrete roofs indicate that these structures originally stored flammable materials, with the shell roofs providing additional protection against incendiary bombs.

Figure 21: Building E5



Figure 22: Interior of Building E5



Railway Structures

- 4.71. Few railway structures deriving from the Site's war time use have survived and many have been demolished.
- 4.72. A signal box is located in D Site to the west of building D8 (Figure 23). The building, known as 'Graven Hill Signal Box: A Cabin', was constructed post-war. The building is constructed of red brick,

laid in Flemish bond. An earlier 1948 structure was once located on the south side of the building, but is now demolished. The signal box (no longer in use) with a ground frame, is located in the floor in front of the building, used to change points.

- 4.73. Further up line (to the north) of the signal box is a Romney hut, discussed above, providing shelter to the buffers of two sidings; this may have originally been used as a workshop as was the case with railway Romneys in C Site at Arcott.
- 4.74. Building D99 was constructed in the second half of the twentieth century (probable late twentieth century date). The two storey building is constructed of red brick, laid in stretcher bond, with flat roof. This was originally used as the railway headquarters.
- 4.75. Only one platform (Figure 24) was found to survive within the Graven Hill site. This is located within the sorting sidings, located to the south west of building D99. The platform is constructed of concrete sleepers which have been stacked. The 'Queens Platform' (formerly called Graven Hill Station prior to Queen Elizabeth's visit on 16th May 1978) was located to the south-east of building D4 (see Drawing 7 Appendix G), this has been removed and no evidence was found to survive.
- 4.76. A small railway hut is located to the west of building E16. The building is constructed of brick, laid in Stretcher bond, with a corrugated sheet roof.
- 4.77. A small two bay hut is located adjacent to building D13. The building is constructed of red brick, laid in Stretcher bond, with a flat roof. The building contains a single room, with seating and tables, and a toilet. This building is believed to have been the level crossing keepers post, managing the crossing at Pioneer Road and entrance to D Site.
- 4.78. Building E72 is located at the north of the Site. The small brick building, similar in form to the guard posts around the Site, was constructed in the post war period. The building was used to control the entry and exit of rolling stock from COD Bicester to the mainline at the north. Down line, to the south-west, of E72 is a single bay brick hut which is believed to have been used by signalmen operating the ground frame, outside.
- 4.79. Building E16 was constructed as a locomotive shed in the post-war period. The building is constructed of yellow stock brick, laid in stretcher bond, with a later corrugated metal roof installed. The main central space in the workshop is flanked on either side by offices and smaller workshops. An annex extension to this building was constructed in the late twentieth century.

Figure 23: D Site Signal Box



Figure 24: Platform made of sleepers (D Site)



Garrison Theatre

- 4.80. The Garrison Theatre was constructed towards the end of World War Two as a provision for recreational facilities at Graven Hill. The building is located on Westacott Road between E Site and

the Ordnance Support Unit Complex (OSU). The building was externally inspected with limited internal inspection due to the asbestos risk present.

- 4.81. The building is constructed of red brick, laid in English bond. The pitched roof (hipped at south gable) is of concrete tile. The public entrance is located at the south of the structure (Figure 25) with stage access at the north. The building, from exterior inspection, appears to have been subject to minimal alteration.
- 4.82. The interior spaces, which were inspected, revealed few original fixtures and fittings. The stage is located at the north end. The floor steps up to towards the south to facilitate chairs (not fixed). Two bars, or recent derivation, have been fitted to the south wall of the auditorium. No original fixtures were noted, from limited inspection, with exception of doors in the foyer.

Figure 25: Front (south) elevation



Figure 26 : View from south east



Air Raid Shelters

- 4.83. One type of air raid shelter was identified within the site, although installed in a variety of locations both as a standalone structure and incorporated into the hangers. The surface shelters were built above ground, usually due to wet ground conditions. Each shelter was built to accommodate 50 people either seated or standing in two rows.
- 4.84. The structures are built of 350 mm thick brick walls, laid in English bond, set upon a concrete floor plate. The roof is constructed of reinforced concrete which, in most cases, had been cast on a corrugated material providing a rough ceiling finish. Entrances are typically located (in the detached examples) in opposing corners. The shelters are not believed to ever have included doors as no evidence of hinges were found. Unusual splayed loop-holed windows are located in each of the long elevations of the rectangular plan. The absence of a door suggests the loop holes were not designed to be defensive, rather the splayed opening was installed to limit entry to the shelter of material from ordnance. A 350 mm thick blast wall protects one end of the interior of the shelter. The opposing end also has a blast wall which forms a party wall with two small rooms; these may have been used as lavatories (afforded a chemical latrine or a bucket). No fixtures and fittings were found in any of the shelters accessed; fixtures would have most likely been removable and minimal such as wooden benches.
- 4.85. The small number of shelters suggests that they would have been cramped during air raids and also would have provided little refuge, especially as they appear to have never been afforded any additional cover such as earth to the side and roof as would have been common with types found on airfields.

- 4.86. A complete set of six free standing air raid shelters is located adjacent to the east side of hangar building D2 (Figure 27) some of which retain their original painted 'Air Raid Shelter' sign on the exterior. Three of the original six shelters (concrete base for all six survives) are found adjacent to hangar building D1. Two shelters are located on either side of building D3. No other buildings within the Site are known to have had been afforded freestanding air raid shelters with exception of building E1, now demolished, shown on historic aerial photography.
- 4.87. In addition to the free standing shelters most storage hangars had air raid shelters incorporated into their brick elevations (Figure 28). These were of the same design as the detached structures with the long elevation of the shelter forming the bottom of a hangar's external wall, the arrangements of entrances in the shelters varied to suit the position of the hangar they were attached to.
- 4.88. Drawing number 4 in Appendix G provides a measured survey of a detached shelter adjacent to Building D2.

Figure 27 : Air raid shelters adjacent to Building D2



Figure 28: Air raid shelter incorporated into Building D7



Prefabricated Huts

- 4.89. Single-storey prefabricated huts, constructed in World War Two, were noted throughout the Site. The hut walls are constructed of either brick or pre-cast concrete sections. The roof is constructed of corrugated sheet, possibly asbestos sheet.
- 4.90. The huts were likely used as office accommodation. Two huts are located in the OSU complex (Figure 29). A hut located on the east side of Building E31 (Figure 30) retains its original blast walls which protected the doors of the building. The largest collection of the huts is located in the Rodney House complex.

Figure 29 : Hut in OSU



Figure 30: Hut adjacent to Building E31



Emergency Water Ponds

- 4.91. Emergency water ponds are located throughout D and E Sites, generally adjacent to the storage hangars. They are original to the site's construction. They were originally installed to provide an emergency water supply (EWS) for the fire brigade should the mains water be disrupted by bomb damage. Building D14 (Nissen hut) is referenced as the former fire station prior to the construction of Building D11.
- 4.92. The ponds are constructed of reinforced concrete. They are square in plan, inset into the ground. The features have remained in use until present.

Figure 31 : Pond adjacent to Building E4



Figure 32: Pond adjacent to Building D4



Boiler House

- 4.93. Building E14 was constructed during the original phase and is the tallest building at Graven Hill. The building provided heating to the storage hangars via a system of insulated pipes supported on concrete posts; the network of concrete posts are still visible around the Site.
- 4.94. The building is constructed of brick with later plastic coated metal sheeting on the upper part of the elevation. Associated structures are located around the building (Figure 34) which likely derive from a 1980s upgrade when a British Rail automated coal unloading system was installed.
- 4.95. The interior was not accessed for health and safety reasons.

Figure 33 : View of boiler house from north



Figure 34: View of boiler house from south east



Training Block

- 4.96. The training block is constructed in the same form of the hangars, although smaller in plan. The gable-end building is constructed of brick with a replacement roof structure. Plastic coated metal corrugated cladding replaced an earlier asbestos cement cladding.
- 4.97. The interior of the structure is formed of a central open space with offices located on the outer sides, some within single-storey lean-to structures. Air raid shelters are accessed via internal doors in the south gable. The building has reinforced offices in the north-west corner with metal blast shutters to the windows, and a thick blast ceiling.
- 4.98. An original plan is located in the interior of the building dated 30th July 1945. The plan was by joint engineers Coode, Wilson, Vaughan, Lee and Gwyther; Mott Hay and Anderson; and W.T. Halcrow and Partners. The similar form of Building D3 to the other storage hangars around both D and E Site suggest that these engineers may have been involved in the design and construction of the whole Site. The plan notes that the building was designed for 150 men and 150 A.T.S personnel and originally used as the 'P&C Office'.
- 4.99. Comparison of the plan with the existing building shows the building has been subject to little alteration. The original arrangement of the rooms largely remains with the exception of an inserted office area at the southern end of the main central space. Building D3 is also one of the few structures in the Site to retain original internal doors. It is unknown when the building was converted into a training block.

Figure 35 : View of Building D3 from north west



Figure 36: Interior view of Building D3



Guard Posts

4.100. Guard posts are located at the entrances to D Site, E Site, St David's Barracks and Building E72 where the BMR meets the main rail line. The structures are not contemporary to each other but all of a similar brick and flat roof construction. The guard posts at entrances to D Site and E Site were the only buildings still in use at the time of survey. Additional guard houses (Figure 38) are also located adjacent to the guard blocks at entrances to D and E Site, these are believed to have been formerly occupied by the police.

Figure 37: Guard post at E Site entrance



Figure 38: Guard post at E Site entrance



Demolished structures

- 4.101. Graven Hill retains all of its principal structures from its original wartime construction. A number of buildings have however been demolished. Locations of demolished structures are noted on Drawing 7 in Appendix G.
- 4.102. Demolished buildings, within the Site, include Romney hut groups E30-32 and D30-35. These structures were part of the Bolero Groups and later used as prisoner of war camps in c.1945.
- 4.103. Nissen huts, to the south of E2 and north of D6, also formed parts of prisoner of war camps. These huts along with all the hut accommodation for staff around Graven Hill have been demolished, most prior to c.1960.
- 4.104. Graven Hill would have had at least two rail platforms which have been demolished. The principal platform was located adjacent to building D4. This was known as Graven Hill platform and later the 'Queens Platform'. A platform was also located adjacent to building D6.

5. Assessment of Significance

Significance Criteria

- 5.1. Significance is unique to each heritage asset can be defined as the sum of tangible and intangible values which make it important to society. This may consider age, aesthetic and the fabric of an asset as well as intangible qualities such as associations with historic people or events.
- 5.2. To assess the heritage significance of the Site this report has drawn guidance from English Heritage (now Historic England)¹¹ which recommends making assessments under the categories of: Evidential, Historical, Aesthetic and Communal Value.
- 5.3. The significance of the Site will be assessed using a number of significance ratings:
 - **High:** A feature, space or theme which is significant at national or international level. These will tend to have a high cultural value and form an important element of a building or site.
 - **Medium:** A feature, space or theme which is significant at a regional or national level. These will tend to have some cultural merit and form a significant part of the building or site.
 - **Low:** A feature, space or theme which is of local or regional significance.
 - **Neutral:** A feature, space or theme which has no cultural significance but is also not considered intrusive to heritage value.
 - **Intrusive:** A feature, space or theme which detracts from heritage value.

Statement of Significance

Evidential Value: Low-Medium

“Evidential value derives from the potential of a place to yield evidence about past human activity.”¹²

- 5.4. The main evidential significance is found in the group value of the Site. Graven Hill furthers our understanding of how a World War Two ordnance depot was designed and constructed both in terms of storage buildings and supporting infrastructure. Little has changed, in terms of Site layout, the original design principles of wide dispersal of structures and the linkage of road and rail is still very discernible. The Bicester Military Railway (BMR) is also considered to be of evidential value as a survival of Britain’s largest military railway. Whilst much of the track or the original network survives, all original associated buildings, such as signal boxes and platforms, are now demolished.
- 5.5. The large storage hangars also further our understanding of this particular type of structure, although the buildings have been subject to alteration which has detracted from understanding. Most early and original fixtures and fittings have also been removed making specific uses of individual spaces indiscernible.
- 5.6. Buildings, such as Romney and Nissen huts, which have been subject to minimal alteration are standard construction and are not considered to further our understanding of the past to a great extent. Their relationship, in terms of spatial placement and support to neighbouring buildings, is however considered significant.

¹¹ English Heritage, April 2008. *Conservation Principles, Policies and Guidance for the sustainable management of the historic environment*

¹² English Heritage, April 2008. *Conservation Principles, Policies and Guidance for the sustainable management of the historic environment*

- 5.7. The buildings as a group, and the supporting infrastructure, are of medium significance as one of the few examples of ordnance depots left in the United Kingdom from which we can understand the original design principles. Later changes to buildings and removal of original fixtures has however detracted from this significance and the extent we can learn about the early day-to-day function of the depot. The historic removal of structures, associated with Operation Bolero and the PoW camps, have also detracted from the understanding of Site's significant historical associations.

Historical Value: Medium-High

"Historic value derives from the ways in which past people, events and aspects of life can be connected through a place to the present."¹³

- 5.8. Graven Hill at COD Bicester was constructed during World War Two. D and E Site formed around fifty percent of the depot with adjacent Arncott. The Site is of significance as being the main logistical support depot, in the United Kingdom, for the armed forces. It was also considered to be the largest wartime construction project in England.
- 5.9. During World War Two the depot provided logistical support to theatres of war across the globe. This historical association, although very much out of the public consciousness, is of national importance in understanding how Britain, and her allies, installed an infrastructure providing supply lines from the United Kingdom to the battlefield. The main historical significance of this period is drawn from COD Bicester's association with Operation Bolero and Operation Overlord.
- 5.10. Graven Hill, and Arncott, were both central points of logistical support for Operation Bolero. Bolero was the code name for the build-up of American troops in Britain in preparation for a cross-channel landing in Europe. This earlier landing was initially planned as 'Operation Round-up' (Round-up was mothballed to undertake 'Operation Torch'). COD Bicester was constructed and operating in time to support 'Operation Overlord' which included the D-Day landings in June 1944. Additional structures, many Romney huts, were construct at Graven Hill and Arncott to provide additional stores. The war diaries of Colonel G.W. Palmer (Appendix B) describe the operations of the depot throughout the later stages of the war and its support of D-Day which was fundamental to the operation's success.
- 5.11. The depot is considered to be of high historic significance as likely the most important logistical depot in Britain which undoubtedly contributed towards allied victory in World War Two.
- 5.12. During World War Two, and in the years immediately following, COD Bicester contained three prisoner of war camps¹⁴. Whilst there are little physical remains at the Site of these camps, recent studies are starting to reveal their largely forgotten history and their significance.
- 5.13. In addition to Graven Hill's World War Two association, historic significance is also drawn from the Site's operations post-war to present day, as a hub of Britain's logistical support infrastructure. COD Bicester is known to have provided support to the armed forces until present day although research has revealed little documentary resource pertaining to this period which may be due to the sensitive nature of the information. It is likely that in future, as more documents become declassified, that COD Bicester's significance as a base of military logistical support in the second half of the twentieth century, and early twenty first century, will be realised.

¹³ *Ibid*

¹⁴

http://www.pastscape.org.uk/hob.aspx?hob_id=1411454&sort=2&type=&rational=a&class1=None&period=43

Aesthetic Value: Low

“Aesthetic value derives from the ways in which people draw sensory and intellectual stimulation from a place.”¹⁵

- 5.14. The buildings within the Site are utilitarian in form and of little artistic merit. The design of the buildings has been led solely by their functional purpose and this assessment found that no additional effort had been made to artistically embellish or aesthetically enhance their form which is typical of these type of structures.
- 5.15. The main aesthetic significance of the Site is found in the appreciation of the group of buildings and how they are intentionally spread out, using the dispersal method, around the base of Graven Hill.
- 5.16. There is a limited appreciation of the large storage hangars which are very utilitarian in design and have been subject to extensive alteration.

Communal Value: Low

“Communal value derives from the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory”¹⁶

- 5.17. Due to the operations of the Site, it has always been subject to tight restrictions with regard to access. As such general communal interaction of the Site or knowledge of the collection of building stock is likely to be very limited. The Site does however retain a high percentage of its original buildings and those that access the Site, either as guests or employees, have the opportunity to enhance their understanding of ordnance depots in terms of their buildings and layout. This understanding is only provided to a relatively small number of people.
- 5.18. The main communal significance of the Site is revealed in its association with historic events. Whilst not widely in the public consciousness the Site enhances the understanding of logistical support to the armed forces since the mid-twentieth century. The most significant in this regard is logistical support to the armed forces during World War Two, particularly for both Operation Overlord (D-Day) and Operation Bolero.
- 5.19. As the Site is developed it is likely that communal significance will decrease as the link to the Site's past becomes less discernible. Whilst COD Bicester's early history is well documented the future communal significance is likely to be drawn from the nostalgia of those who worked at the Site and used its facilities such as the Civil Service Social Club in Rodney House. The Bicester Military railway will likely be the main element which remains in the public consciousness as the infrastructure stretched beyond Graven Hill into the public domain and elements of the railway will be retained for years to come at Arcott.

¹⁵ *Ibid*

¹⁶ *Ibid*

6. Overview & Summary

- 6.1. This report outlines the results of a scheme of historic building recording of Graven Hill at COD Bicester prior to its redevelopment. The record has been undertaken commensurate with levels 1-3 as outlined by Historic England and the Written Scheme of Investigation (WSI).
- 6.2. The methodology for recording, outlined in the WSI, has been completed with exception of internal inspection of buildings E14 and the Garrison Theatre which presented health and safety issues.
- 6.3. Research has revealed Graven Hill was constructed in World War Two as Britain's largest ordnance support depot. The depot was key to logistical support of Operation Bolero and Operation Overlord as well as other theatres of war across the globe. The Site's historical association is considered to be of high significance.
- 6.4. Most of the buildings within the Site derive from the depot's World War Two construction although many have been altered to service the ongoing requirements of the logistical support operations. The group of structures, road and rail are considered to be of some evidential significance and further our understanding of this type of Site and design of a 1940s ordnance depot using dispersal layout.
- 6.5. Historic significance may further be drawn from the Site in the future with further research. Little is documented about the social history of the COD Bicester in terms of the civilians, army personnel and prisoners of war who built the Site and over the past 70 years have worked here providing logistical support to Britain's armed forces.
- 6.6. This scheme of building recording points to two future research aims. Should there be an opportunity, efforts should be made to record the social history of COD Bicester. Graven Hill and Arncott form one of the largest and most historically significant depots in Britain. Research has revealed there is a dearth in the understanding of the day-to-day operation and social history associated with this Site which, in the years of operation, has employed thousands of civilians, military personnel and prisoners of war (during World War Two). As the operational manner of the British Army, and the infrastructure to support this, changes in years to come it is likely that depots such as Graven Hill will become less of a requirement. Where possible, research into the oral histories of past staff are taken, to record and further understand its operations thus further revealing its significance.
- 6.7. Should Arncott be decommissioned in the future it is recommended that the Site be subject to a scheme of archaeological building recording which can expand the existing Graven Hill record, providing a more holistic understanding of COD Bicester. Future assessment of Arncott may also enhance our understanding of the original roof structures to the storage hangars at Graven Hill which still needs to be accurately determined.
- 6.8. Future research questions may also include assessment of how a Site such as COD Bicester was made secure during World War Two. Research and site survey has revealed no features for landward defence in terms of pill boxes, bunkers or other types of fortified structure. This has led to conclusions that the Site was not defensible from any landward attack during World War Two, which is unusual considering the importance of its contents.

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APPENDICES

A. Précis of Lecture by Brigadier G.W.Palmer

Precis of Lecture by Brig.G.W.Palmer

When the Director of Warlike Stores wrote to me stating that he wished me to plan the layout and organisation of a vast new Central Ordnance Depot, I received the glad tidings on 13th January 1941, with the greatest satisfaction. A pioneer job is always of absorbing interest; but never before in my 29 years' service had there come so good an opportunity of seeing the result of my labours and of watching the buildings taking their shape; buildings which would be designed to fit the stores, and not, as invariably happens in peace time, making the stores fit into existing buildings.

The first step in the creation of the projected depot was to decide what we wanted, and to provide the Architect and Builder with a complete schedule of requirements. Accordingly I set up office at Beeston, adjoining Chilwell, with a Planning Officer, a Draughtsman and a Shorthand Typist.

Two sub-committees were formed, one at Chilwell, the other at Donnington, whose views were consulted on innumerable points, of which the principal were as follows:

- (i) The size of the Depot.
- (ii) How should it be divided into Sub-Depots?
- (iii) What was the best standard size for the Storesheds?
- (iv) **Road and Rail Access:** Should these be alongside or enter the sheds? If entering the Sheds should both road and rail be at each end.
- (v) **Provision and Control Offices.** Should these be centralised or decentralised and attached to the Storesheds?
- (vi) What ancillary buildings were required?
- (vii) **Workshops:** How many and what type? Heavy repair shops, or only to carry out modification and lists of changes? The decisions reached after considerations by the two Sub-Committees on these questions were:
 - (i) **Size of Depot.** A total covered storage of approximately 2,000,000 sq. ft. was the original estimate. This figure has since been increased to almost 5,000,000.
 - (ii) **Division into Sub-Depots.** The new Depot to consist of a Headquarters and five Sub-Depots – these five being for M.T., Small Arms, Armament, Engineering, Signals and Wireless.
 - (iii) **Size of Main Storehouses:** This aspect received considerable discussion. We considered that the buildings in Chilwell and Donnington (300/400,000 sq. ft. each), were of unmanageable size and offered too great a target from the air. We then visited an R.A.F Depot at Stafford whose storehouses were of 40,000 sq. ft. These we considered too small and too expensive in man-power. Eventually we chose the happy mean with standard sheds of about 100,000 sq. ft. each.
 - (iv) **Road and Rail Access:** This point was of vital importance to the efficiency of the Depot, and we decided that each main Detail Shed should be served by rail and road at each end within the shed, so conserving man-power by the elimination of much double handling, and by allowing the easy flow of stores from Receipts through the Storehouse to the Issue Area; Bulk Sheds, where the movement of stores is less frequent, should have road and rail access at one and only. Security reasons also influenced the decision that the railroads

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should enter the sheds, for this would enable part-loaded trucks to be locked in the sheds during silent hours.

(v) **Provision and Control Offices:**

(a) We had to consider whether there should be one Provision Office for the whole Depot at Headquarters, or a Provision Policy decided by Headquarters, but administered by a Provision Office on each site similar to the organisation of a B.O.D. We decided on the latter to permit closer contact with the stores, since my experience has been that centralised Provision does not allow proper control. Each Detail Shed was, therefore, to have its own Provision Office attached to it.

(b) For similar reasons, and to eliminate the use of unofficial stock records, it was decided that our Accounts system should be decentralised, each Detail Shed having its own office attached; and we understood that we should work on the Single Accounting System and Pre-posting.

(vi) **Ancillary Buildings.** Many ancillary buildings are an essential part of the Headquarters, and of each Sub-Depot, i.e. Packing Case Repair Workshops, Transit Sheds, Sheds for General Stores, and for Depot Equipment etc. P.A.D. Buildings etc. To avoid the use of any of the main Storesheds for stores awaiting issue, Transit Sheds were planned, one for Headquarters of 90,000 sq.ft. situated in the Small Arms Sub-depot, and one of 45,000 sq.ft. in each of the remaining four Sub-Depots, making a total of some 270,000 sq.ft. for Stores in Transit – Traffic Control being located in offices at H.Q. Transit Shed.

(vii) **Workshops.** The original intention was that no Heavy Repair Shops should be built at the new Depot and the only facilities provided would be:-

- (a) Shops for the carrying out of modifications and lists of changes to Armaments.
- (b) Workshops for the repair of Depot Equipment.

These proposals have since been enlarged and with the advent of R.E.M.E., a Heavy Repair Shop has been planned at the M.T. Depot for the repair of Tanks etc.

4 The Schedule of requirements, then, was broadly as follows:-

(i) **Headquarters** to consist of:-

- (a) H.Q. Offices.
- (b) Mobilisation Store.
- (c) Two large Packing Case Stores.
- (d) Woodworking Shop.
- (e) General Store.
- (f) Fire Brigade Station.
- (g) Vehicle Hard Standing for Station Transport Coy.
- (h) M.T. Repair Shop. (approx. 250,000 sq.ft.)

(ii) **M.T. Sub-Depot** (Shadow to Chilwell) to consist of:-

- (a) 3 Detail Stores, complete with control offices for P.2.A., B and C. Stores.

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- (b) 3 Bulk Stores, one of these was to be a Heavy Lift Store, but was later designed as a Heavy Repair Shop for Tanks etc.
 - (c) 2 Tyre Stores, of approximately 50,000 sq.ft. each.
 - (d) 1 Transit Shed.
 - (e) 1 General Store, with ancillary buildings, e.g. Petrol Station, Inflammable Store etc. (approx. 700,000 sq.ft.)
- (iii) Small Arms Sub Depot (Shadow to Weedon) to consist of:-
- (a) 1 Detail Store with Control Office.
 - (b) 2 Bulk Stores.
 - (c) 1 Transit Shed and necessary ancillary buildings. (approx. 360,000 sq.ft.)
- (iv) Armaments Sub-Depot (Shadow to Donnington) to consist of:-
- (a) 2 Detail Stores.
 - (b) 1 Control Office common to both.
 - (c) 2 Bulk Stores.
 - (d) Heavy Lift Stores.
 - (e) Workshops.
 - (f) Transit Shed and ancillary buildings. (approx. 700,000 sq.ft.)
- (v) Engineering Sub-Depot (Shadow to Donnington) to consist of:-
- (a) 1 Detail Store with Control Office.
 - (b) 2 Bulk Stores.
 - (c) 1 Heavy Lift Store.
 - (d) Transit Shed and Ancillary buildings. (approx. 450,000 sq.ft.)
- (vi) Signals & Wireless Sub-Depot. (Shadow to Donnington) to consist of:-
- (a) 1 Detail Store with Control Office.
 - (b) 3 Bulk Stores.
 - (c) Transit Shed and ancillary buildings.
- (vii) These areas, including Workshops, totalled approximately 3 ¼ million square feet, a figure much in excess of the original 2 million estimate, the Depot being designed to act as a shadow to the other Vote 9 C.O.D's in the event of their being bombed, to serve the South of England generally, and to undertake any overseas issue role which might be allotted to it.
- 5 The next step was the finding of a suitable site. The broad lines of reference given to me by D.W.S had been:-
- (i) The Depot was to be situated within the area – Towcester, Warwick, Cheltenham, Swindon, Oxford, Aylesbury.
 - (ii) Within reasonable distance of a Labour centre for peace time.
 - (iii) Five miles from any aerodrome.
- 6 I began my search by calling on the Commander of the S.M. District of Oxford. The information he could give me was not encouraging – there were 17 aerodromes in this area, many others contemplated, and the area generally was choc-a-bloc with camps – but within 3 weeks of beginning my tour I had looked at 8 different places.

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The site I liked best, which seemed most adequately to fulfil the requirements of the terms of reference, and which I placed first in priority in my report to the War Office, was Bicester; and ultimately this was the one agreed upon by the Conference of experts convened at the War Office, after examining the project from every angle, and after innumerable Branches of Government had been consulted – Finance; Railways; the Ministries of Agriculture, Labour and War Transport; the R.A.F. etc.

7 The site chosen is situated well within the area prescribed by the terms of reference; it is reasonably near to Oxford and Aylesbury – two valuable labour centres in peace time, and although the northernmost point of the Depot is only 4 miles from Bicester Aerodrome, the greater part of the depot area is well outside the stipulated distance.

8 Many other important points regarding the site had to be considered:

(i) Water and Power Supplies:

Water was obtained from the Bucks Water Board by an extension of their system. Power was available from existing grids running both East and North-East of the area via Banbury, and North West of the area via Kidlington, near Oxford.

(ii) Rail and Road Communications:

The Bicester site was excellent in this respect. It is bounded on the North-West by the L.M.S. Railway, and on the North East by the G.W.R; both double line tracks. The present junction is with the L.M.S. but the G.W.R. is available for future development.

Existing roads were plentiful, and though some of them within the proposed area of the depot were rather narrow, the width of the grass verges in this part of the Hunting Country make their widening comparatively easy, without destroying hedges and trees.

(iii) Dispersion – Air Defence etc.

The depot is being constructed around two hills, approximately 3 miles apart, and the lay-out has achieved excellent dispersion and concealment. Unlike Chilwell and Donnington, where the buildings are concentrated in the centre and the camps lie out on the perimeter, the Sub Depots and buildings at Bicester are widely dispersed and the camps are sited between them, mainly on the high ground. I regard this dispersion as being of the first importance, and the risk of damage from high altitude air attack is considered to be less than 5%.

Another great advantage of this lay-out is the additional rail facilities obtained. Bicester will have a total rail length of over 40 miles, and in December 1942 we had 1,000 trucks under load in the Depot, in spite of its unfinished state, whereas Chilwell has ceased to be fluid at less than half that number.

A further advantage of this perimeter siting is that it allows comfortably for expansion without unduly sacrificing dispersion.

(iv) Concealment:

The depot buildings when completed and suitably camouflaged will be exceedingly difficult to detect from the air owing to their being built around the two hills, since from whatever angle a low altitude attack developed, every building would have a background.

(v) Sub-soil and Drainage.

The only point where Bicester does not come up to scratch is in its sub soil of Oxfordshire clay – one of the stickiest compositions in the world; but in days when the Ministry of Agriculture is requiring as much good land as possible for the plough, this feature has its advantages. There

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is a river valley between the two hills and in the opinion of the experts the draining would not prove an unsurmountable problem.

9 In any event there is no doubt that this vast Depot which will, when finished, be more than twice the size of any other C.O.D. in the country, has been placed both strategically and from the standpoint of communications, in the right position. And, in spite of the sub-soil, by last winter no less than 40 acres were under cultivation, this has been increased, and at least 100 acres are now under the plough, and it is envisaged that this acreage will be still further extended in the near future.

10 (i) As stated previously, the total area now planned is about 5,000,000 sq.ft. for with the arrival of the Americans, it was decided to add 440,000 sq.ft. to the M.T. Sub-Depot in Iris hutting as well as 160,000 sq.ft. to the Engineering Sub-Depot, and in 1943, to add a further 1,000,000 sq.ft. divided between all Sub-Depots.

(ii) Each Sub-Depot will be self-contained, with a Lt. Colonel in charge, and have its own perimeter fence, its own section of W.D.C. and so forth, with camps adjoining for their employees which, during war time, will be entirely military and A.T.S. The construction of these camps is proceeding satisfactorily and Camp Halls and full amenities are being provided in them. A temporary C.R.S has been established at Arncott serving the majority of the present camps, but owing to the dispersed lay-out of the Depot, an M.T. Room is also in operation at Graven Hill. In addition, medical facilities are provided in the A.T.S. Camp. A permanent C.R.S. is being provided for both military and A.T.S. in the centre of the site.

(iii) A camp for the employees of the civilian contractors engaged on the construction of the depot has also been built within the area.

11. Considerations in the Construction of the Buildings.

(i) The War Office Bulletin on wartime construction was followed in the building of the Depot. Buildings are sited irregularly or on an arc, as a precaution against dive-bombing. Storehouses for stores having a high fire risk such as timber, packing cases, inflammable stores, tyres etc. are constructed of reinforced concrete with a roof of at least 4 1/2 inches of reinforced concrete. Buildings are constructed with roof and supports entirely independent of the walls, the idea being that if a wall fell it must fall down through blast, it could do so without dragging the roof with it.

(ii) It was also agreed that floors, where necessary and where it would reduce excavation, should be built on a slant so arranged as to suit the flow of stores – a considerable saving in man-power.

12. Present position.

(i) Considerable progress has been made in the construction of C.O.D. Bicester. A priority list has been drawn up for the building programme, based on the relative needs of the parent depots for increased storage space; and the various sub-depots will come into operation according to this priority.

(ii) We have approximately 800,000 sq.ft. of storage in operation in the M.T. Sub-Depot, and about 12 acres of open storage. The production rate is about two large buildings a month, or their equivalent in Iris Hutting; and it is hoped that the whole project may be completed in about one year from the time the first sub-depot for M.T., is finished – and this we expect will be early in the summer of 1943.

13. Some facts and figures.

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