

**CPAT Report No 1128**

**Twentieth Century Military Airfields**

**SCHEDULING ENHANCEMENT PROGRAMME**



THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

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February 2012

Report for Cadw



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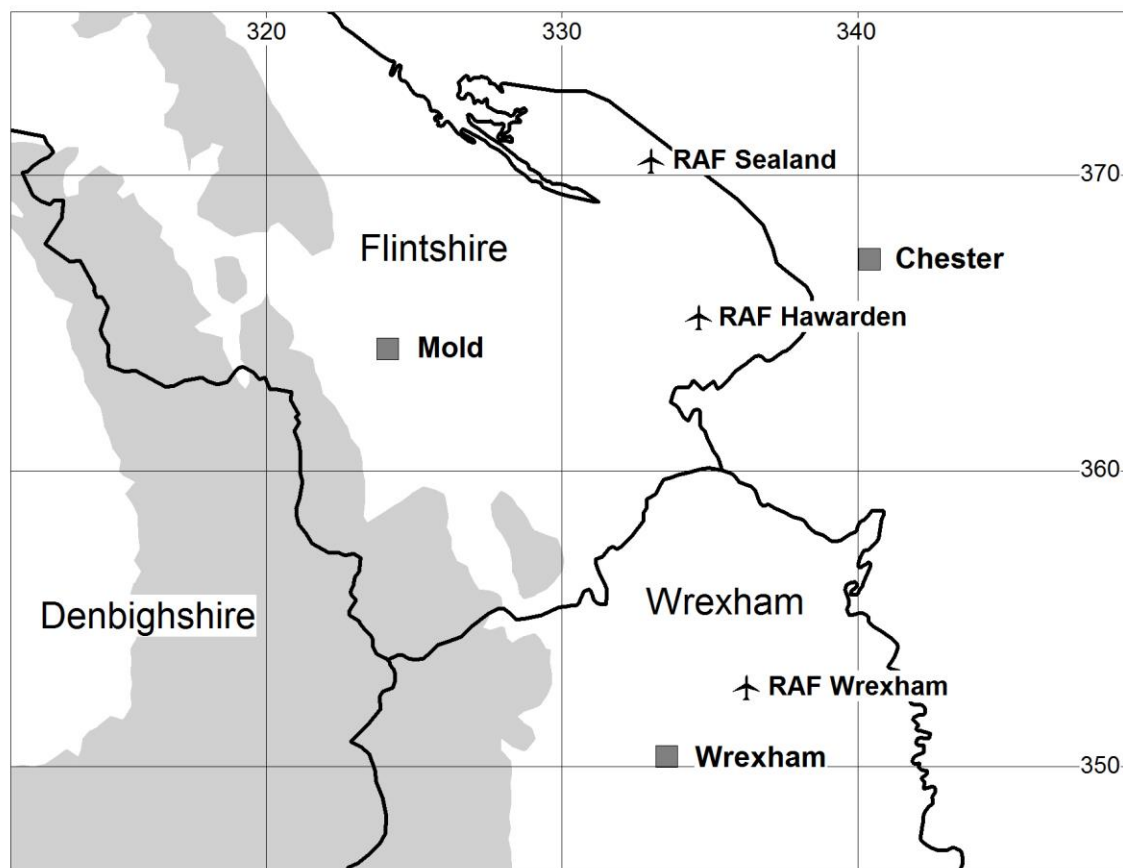
Cover photo: The former RAF Hawarden, now the site of the Airbus UK factory at Broughton

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## 1 INTRODUCTION

- 1.1 This report describes the results of a thematic study of military airfields in east and north-east Wales funded by Cadw as part of a pan-Wales project. It was undertaken by CPAT between November 2011 and March 2012 with field visits carried out in December 2011 and February 2012.



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Fig. 1: The location of the sites in this study.

## 2 BACKGROUND

- 2.1 This report on twentieth-century military airfields falls within a further phase of the scheduling enhancement programme undertaken by the four regional trusts in Wales since the mid-1990s. It also follows on from work carried out between 1995 and 2002 under the auspices of the Council for British Archaeology's Defence of Britain project, which identified more than twenty thousand sites of Second World War date. Partly as a result of this increased interest, the Twentieth-Century Military Sites Working Group for Wales was set up in 2003. The group helps Cadw to identify the most important sites in Wales and works to make the public more aware of their significance. More recently, Cadw published their *Caring for Military Sites of the Twentieth Century* booklet in 2009, where the need to conserve the surviving resource of these sites is highlighted. A necessary part of the conservation process is the recognition and recording of the existing remains to determine which sites, or elements thereof, are worthy of protection by statutory designation. This report details one aspect of military activity in north-east and east Wales and it is anticipated that this will be followed by future programmes of assessment on other aspects.

- 2.2 Contrary to popular belief, Wales was not a quiet backwater during the conflicts of the twentieth century. Its position, distant from the Continent, made it ideal for the manufacturing, maintenance and storage of armaments, and also for military training and research and development, including weapons testing. Fighter stations defended the industrial towns and the docks, which were targets for German bomber planes. In the Second World War, Wales was in the front line in the Battle of the Atlantic and the coast was defended against a possible German invasion from Ireland (Cadw 2009, 4).
- 2.3 Against this backdrop, the military aviation sites in Wales form an important group. They developed distinct functions and purposes, often forming parts of wider operational, training or storage networks. A few sites were established to protect the coast and shipping during the First World War. These functions were greatly expanded during the Second World War, the latter part of which saw some sites developed into transport hubs for transatlantic flights. The function and development of each site has added to its own unique character and has given weight to the view that they are important historical and archaeological monuments in their entirety, each comprising a plethora of functionally distinct elements that contribute to their status.
- 2.4 This project does not seek to rewrite the histories of each airfield, which are available elsewhere. Instead it seeks to understand the significance of each site and to identify which elements embody that significance and those which are of national and regional importance. This understanding of the significance of each site will be underpinned by legislative frameworks and the guidance enshrined in the 2011 Cadw document *Conservation Principles*, and will where possible also highlight priorities for future research and recording work.

### 3 PROJECT METHODOLOGY

- 3.1 The project on twentieth century military airfields commenced with a desk-top assessment, utilising the Historic Environment Record (HER), National Monument Record (NMR) and various documentary, cartographic and aerial photographic sources. Following this, a start was made on fieldwork, although various difficulties of access meant that this could not be completed, primarily as significant elements of some of the airfields are still in use for either military or civilian operations of a sensitive nature. At this stage, the work has been focussed on the flying fields and their associated instructional, storage, technical and administrative buildings, which formed the core of an airfield. No attempt has been made to assess the environs of each airfield, including such features and structures as off-site domestic buildings, dispersed storage areas or other features that were designed to complement their day-to-day running or protection.
- 3.2 The way in which this project has been approached mirrors that of previous scheduling enhancement projects undertaken by the Welsh Archaeological Trusts with grant-aid from Cadw. Each site is assessed using documentary sources prior to undertaking field visits in order to build an understanding of the site and to ascertain fieldwork priorities. A database is produced and accompanying new point- and polygon-based GIS data compiled as a result of the research. Recommendations for designation are submitted to Cadw in a separate volume and information is fed back into the regional Historic Environment Records in order to contribute to our understanding of the turbulent nature of the 20<sup>th</sup> century through surviving military structures and provide a basis for heritage management and development control.
- 3.3 The four Welsh Archaeological Trusts are working to agreed guidelines. In order to deliver key information to Cadw, the studies primarily focus on the flying field and technical areas

of aviation sites, as identified on the Second World War era Air Ministry Plans, with the focus being on the most significant elements of the sites which detail their function and development.

## **4 SCOPE OF THE WORK**

- 4.1 This report provides information on the military airfields of east and north-east Wales, that is Powys and the old county of Clwyd (now eastern Conwy, Denbighshire, Flintshire and Wrexham Maelor). In practise, all of the sites lie within north-east Wales, specifically Flintshire and Wrexham Maelor, and there are none in Powys.
- 4.2 There are three relevant airfields in the study area: RAF Wrexham, RAF Hawarden and RAF Sealand. Each has its own distinctive character, largely owing to its location, previous history, and subsequent use. These aspects will be considered further in the text that follows.
- 4.3 Throughout this report any numbers in brackets, except where they relate to written references, refer to the Primary Record Numbers (PRNs) assigned to the site, and which feature (or will feature) in the Historic Environment Record. Numbers are assigned both to the airfield as a whole, and to individual elements of the site infrastructure.

## **5 SOURCES OF DATA**

### **5.1 *The Historic Environment Record (HER)***

The HER records were the initial source of information for the project. General information was gathered for all of the airfields and some detail was obtained for buildings that had been recorded in the past. The three airfields were different in this regard as Wrexham has been subject to a number of archaeological assessments in the past owing to its modern use; and as far as we can establish, a comprehensive record of the surviving site structures and features is therefore available. Things are very much more patchy for Sealand, however, despite it being better understood from other general sources; the main information regarding the airfield is covered, but only four individual structures are recorded. Hawarden holds an intermediate position, in that its individual components are better recorded, but seemingly not in a comprehensive fashion.

### **5.2 *National Monument Record (NMR)***

The Royal Commission's records, accessed via Coflein, provide a useful overview of the background and history of the three airfields. However, the only information regarding the component parts of the airfields is very brief and contained in the general records, rather than being separately recorded. Owing to a lack of time and resources the paper files in the NMR were not examined.

### **5.3 *Military record maps***

The construction and alterations to an individual airfield were often accompanied by mapping, the work presumably having been carried out by specialist surveyors within the military establishment or associated civilian support agencies. The available records of this type vary widely for the three airfields, as Sealand has a comprehensive group of plans dating from its origins in the First World War up to 1990; Hawarden has a more limited range, with plans dated 1945 and 1954; and Wrexham is without any plans, these apparently having been destroyed at some point in the past (Mike Grant, pers. comm.).

#### 5.4 *Ordnance Survey and estate maps*

The Ordnance Survey mapping has not been used as Ordnance Survey maps omit any detail of military airfields, and even their presence, for obvious reasons. There is a single estate map relating to the sale of RAF Wrexham after the Second World War, which has been used in the absence of contemporary military mapping.

#### 5.5 *Aerial photographs*

Various aerial photographic sources have been utilised to provide additional detail of individual structures. The most useful for identifying airfield layouts range from oblique images of Sealand taken in the 1920s to vertical images taken of Wrexham in 1942 (we are grateful to Mr Derek Elliot and his team at the *Central Register of Air Photography for Wales* for by providing scans of wartime digital aerial photographs in support of this project). One of the authors has added his own images of Hawarden and Wrexham, taken from a Boeing 747 passing above the north Wales coast.

#### 5.6 *Written and Documentary Sources*

There are various written works that include information about the airfields, generally as part of wider-ranging synthetic studies of airfields in the region. David J. Smith's *Action Stations: Volume 3, Military Airfields of Wales and the North-West* of 1981 remains the best starting place for a study of this type, brought up to date and in places supplemented by Ivor Jones in his *Airfields and Landing Grounds of Wales: North* published in 2008. The 3 volumes of the *Wings Across the Border* series by Derrick Pratt and Mike Grant, subtitled *A History of Aviation in North Wales and the Northern Marches* and published between 1998 and 2005 provide important detail gathered from primary sources studied at the National Archives, and set the airfields in their regional context.

Each site had previously been the subject of an historical study by a local expert or experts. Aldon P. Ferguson wrote *A History of Royal Air Force Sealand* in 1978; David J. Smith produced *Hawarden: A Welsh Airfield 1939-1979* a year later and the history of RAF Wrexham was dealt with comprehensively in 2 articles by Derrick Pratt and Mike Grant published in the *Tarmac Papers* in 1999 and 2000.

In addition, several issues of *Airfield Review* the journal of the Airfield Research Group and *Rapide: The Magazine for the North-West Vintage Aviation Enthusiast* contain useful notes on specific parts of the sites or elements of their history, usually accompanied by previously unpublished photographs.

Lastly, several unpublished grey literature reports produced previously by CPAT in response to proposals for expansion of Borras Quarry on the site of RAF Wrexham were also consulted (see under *The Historic Environment Record (HER)* above).

## 6 THE AIRFIELDS

### a) **RAF Hawarden (PRN 85240)** (see Fig.2)

#### *History*

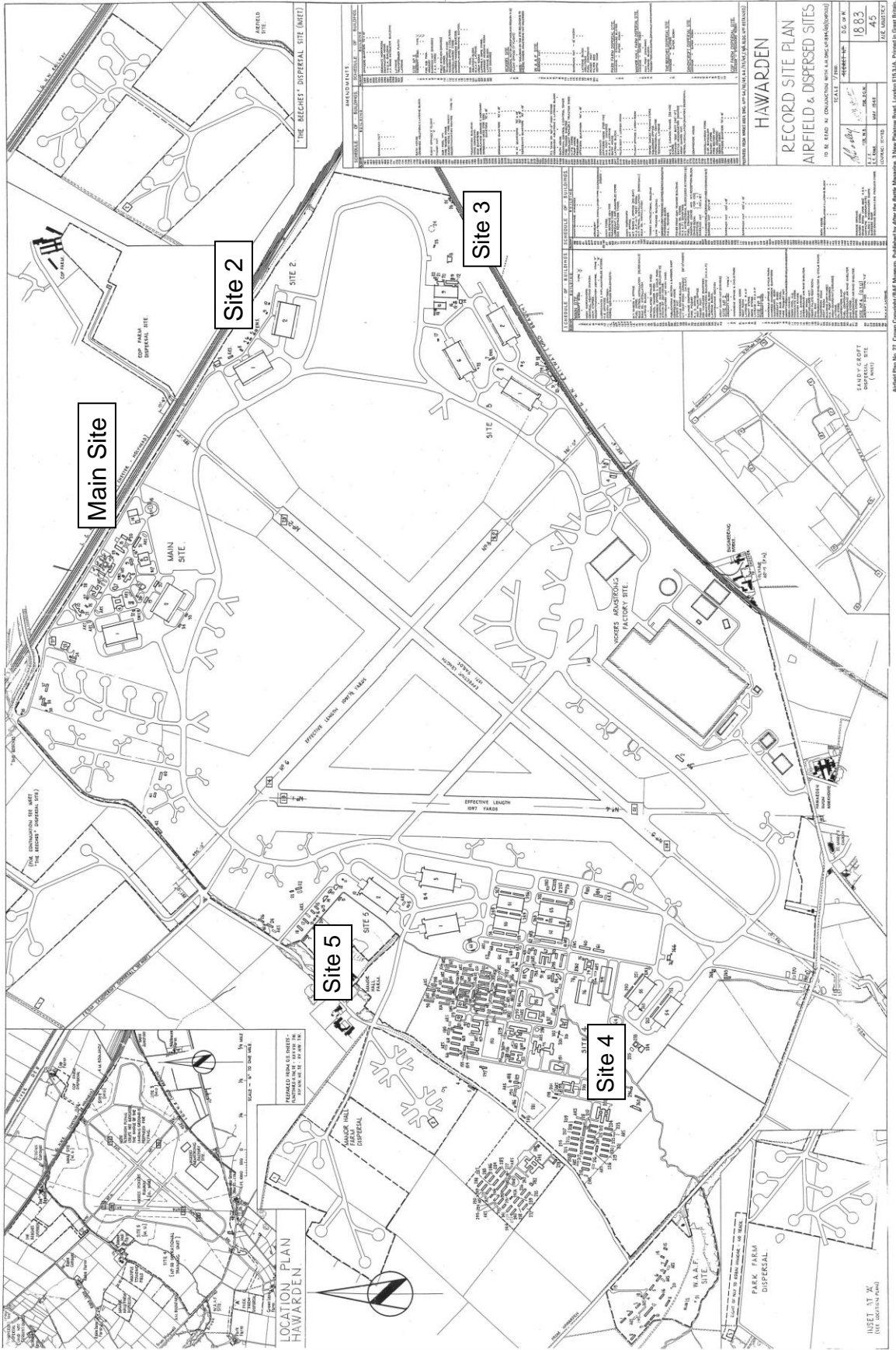
- 6.1 RAF Hawarden had its origins as a Relief Landing Ground for nearby RAF Sealand, but the commencement of work on a Vickers shadow factory for the production of Wellington bombers at the site in 1937 meant that adjoining land was requisitioned for an associated flying field. As well as the testing of Wellingtons produced in the factory, the airfield that resulted was, from March 1940, home to a Maintenance Unit and from June of that year was used intensively by several Operational Training Units (OTUs) for fighter and reconnaissance pilots, including future ace Johnnie Johnson. A notable development that took place in one of the huts on the OTU was the creation of an early form of flight

simulator, the *Hawarden Trainer*, which was soon adopted for all Spitfire and Hurricane OTUs (Smith 1980). The Air Transport Auxiliary (ATA) also had a presence at the base, providing civilian pilots for the ferrying of aircraft wherever they were needed. Amy Johnson the famous aviator, and her ex-husband Jim Mollison both served in the ATA and are known to have been frequent visitors to Hawarden (Smith 1979).

- 6.2 The outlying parts of the airfield were used for the dispersal of aircraft, but these were abandoned in mid-1945 when the airfield was reduced in scale, although it was still used for open storage and the breaking up of aircraft that were surplus to requirements at the end of the war. Plans suggest some new buildings were erected between 1945 and 1954, but the RAF station closed in 1959. The airfield continued in use for civil flying for a while; and for the production of aircraft by de Havilland, who had taken over the factory in 1948 after a phase in which it had been used for making pre-fabricated housing units. Later re-organisation of the British aircraft industry led to the factory becoming part of British Aerospace and it is now mainly used in the production of wings for *Airbus*.

*Layout, function and development*

- 6.3 RAF Hawarden was developed late in the RAF's Expansion Period, when it was clear that war was inevitable, and is therefore of what is termed 'temporary construction'. Swiftly constructed, the majority of buildings on the airfield were of brick with roofs of asbestos sheeting and were intended for use only for the duration of the war with no thoughts of long-term use or durability.
- 6.4 At the heart of the not inconsiderable airfield (even discounting the Vickers Armstrong factory site) was the flying field, consisting of 3 concrete runways (constructed in 1941 over 9 months *after* the airfield had become operational) arranged in the shape of a triangle with 2 extended sides, or a figure '4' set at an angle of about 45 degrees to north. The 'Vickers Track' predated them, having been constructed with an 'all-weather' surface in late 1940 to link the Vickers Armstrong factory and No. 5 site and as a runway. Taxiways linked the ends of the runways to an encircling perimeter track, to which were attached numerous hard-standings for the outdoor storage of aircraft. These were mostly arranged in pairs but also singly and in connected, branching clusters. They were of different shapes and sizes and there were also minor variations in detail.
- 6.5 Dispersed around the outside of the perimeter track were 5 distinct sites –
- a) Main Site – Comprising 42 buildings including 2 hangars (1 'J' type and 1 'K' type) and the majority of the technical and administration buildings such as the headquarters offices, main stores and main workshops, primarily for the use of Maintenance Units.
  - b) Site 2 – Composed of 10 buildings including 2 'K' type hangars and minor buildings such as stores, a rest room and latrines for Maintenance Units.
  - c) Site 3 – Comprising 33 buildings including 5 hangars (3 'L' types, a *Robin* and an extended *Bellman*), a cannon range, ferry pool headquarters, parachute store and minor buildings. Shared by Maintenance Units and the Air Transport Auxiliary.
  - d) Site 4 – A very large site comprising 252 buildings including 6 hangars of 'T2' type, the instructional, training, technical and administration buildings for the Operational Training Units and accommodation and welfare buildings such as the institute, messes, dining rooms and sick quarters.
  - e) Site 5 – Comprising 26 buildings including 3 'L' type hangars; technical and minor buildings for Maintenance Units and the buildings of the intriguingly named Camouflage Training School.



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Fig. 2: RAF Hawarden (plan of 1945).

- 6.6 In addition each site was provided with air raid shelters and emergency water supplies (essentially large open tanks) for fire fighting. Completing the RAF station were the WAAF accommodation site and 5 aircraft dispersal sites, which are outside the scope of the current study.
- 6.7 It would seem that some additional buildings for the ATA may have been added a little while after RAF Hawarden became operational, perhaps in the second half of 1941 (Smith 1979). An Air Ministry plan of 1954 shows that some buildings were added after the Second World War, numbering 9 at the Main Site, a single structure at Site 2, 17 each at Sites 3 and 4, and 9 at Site 5. These seem largely to have comprised minor technical buildings, but it is interesting to note that amongst them are several ground defence posts. These are likely to be a result of the contraction and updating of the wartime defensive perimeter as land on or beyond the airfield boundary was de-requisitioned and returned to private ownership.

*Surviving buildings and structures*

- 6.8 From studying modern aerial photographic coverage it would appear that all 3 runways of RAF Hawarden survive, although all have been altered to some extent. Sections of runways 01/19 (85271; SJ34416489) and 14/32 (85269; SJ34676540) have been lost to the expansion of the Vickers Armstrong/Airbus factory and to the construction of the *Airbus A380* factory on the north-west part of the site. Runway 05/23 (85270; SJ34556477) has been extended to become the main runway, the taxiways connecting it to the perimeter track being removed in the process. The perimeter track (85263; SJ34396576) is largely intact and many aircraft hard-standings survive, although those at the north of the site have again suffered owing to the construction of the *A380* complex and its infrastructure. The 'Vickers Track' (85272; SJ34556502) survives virtually unscathed.
- 6.9 The Main Site is still in use for aviation and is occupied by *Hawarden Air Services* and other small companies. Survival of original buildings here is not high; the 'K' type hangar (85563; SJ34916598) still serves its original purpose, the main workshops (121017; SJ35006598) are a classic car business, both having been altered in the process, and a derelict ablutions block (121021; SJ34716619) and latrine (121022; SJ34696619) are still standing near the entrance to the site. Concrete rafts indicate the positions of demolished buildings and 3 relatively complete *Stanton* air raid shelters (121018; SJ34976605, 121019; SJ35046603, 121020; SJ35056602) are also to be seen.
- 6.10 Unfortunately, the public relations department of *Airbus*, which owns the flying field and Sites 2 and 3 (currently occupied by *Hawker Beechcraft* and *Hawker* private jets respectively) was unable to support a visit by CPAT and access to these parts of the former RAF Hawarden was denied. Study of Air Ministry plans, modern digital mapping and vertical aerial photography suggests that the 2 'K' type hangars (85561; SJ35636561 & 85562; SJ35766552) on Site 2 survive in use and all 5 hangars (85565; SJ35666504, 85566; SJ35756492, 85567; SJ35566487, 121035; SJ3580365108 & 121036; SJ3584265091) plus the parachute store (121037; SJ3586865076) have been retained and are in use on Site 3 as is the pair of semi-detached former married wardens' quarters (121028; SJ35326462), one of which also served for a year or so as the ferry pool headquarters.
- 6.11 Site 4 has been virtually obliterated by industrial estates, succumbing to redevelopment as Hawarden Industrial Park and a research and technology park. A plethora of businesses now operate from the former OTU site. However, one or two airfield buildings lurk amongst the more recent replacements and additions. The largely intact sick quarters (121024; SJ33636476) forms part of a discount electronics business, the gunnery and crew procedure centre where airmen would practise their various roles in an actual aircraft until it was converted into the station cinema and gym (121025; SJ33866485), photographic block (121026; SJ33886489) and a surviving wing of the instructional centre



Plate 1: Fire Tender Shelter (L) and Control Tower at the former RAF Hawarden.  
Photo CPAT 3391-0121

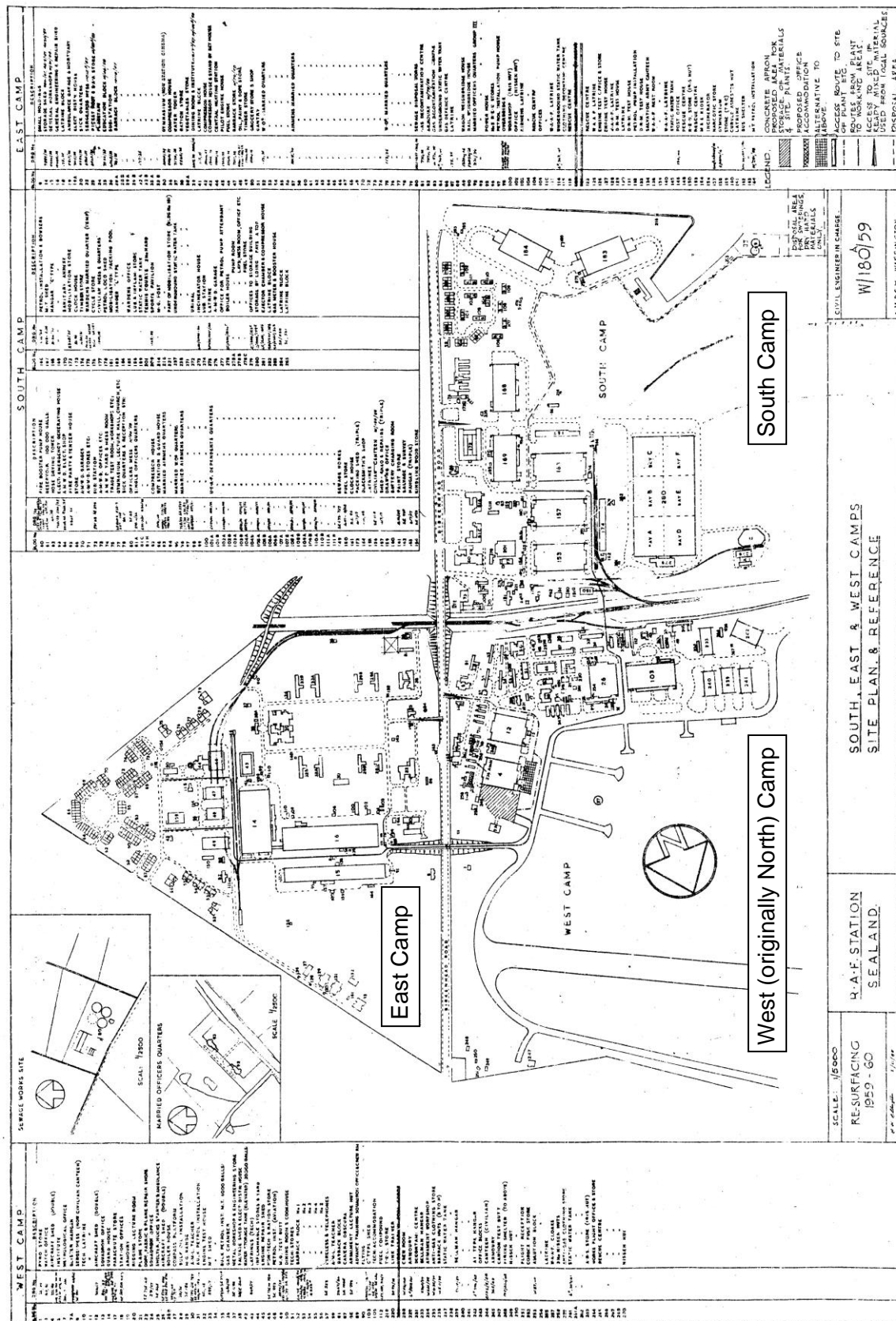
(121031; SJ3381364860) have been altered and are occupied by a metal coatings company. Two barrack huts (121033; SJ3372465096 & 121034; SJ3373765093) form part of a car sales business, having been modified. At the extreme east of Site 4 beside the perimeter track, the control tower (85560; SJ3417564794) and fire tender shelter (121030; SJ3417464810) have been re-clad, but are still in use by the airfield: the control tower for its original purpose with the addition of a 'glasshouse' to the roof affording a 360 degree view. A disused but apparently intact bulk aviation fuel installation (121027; SJ33926414) lies close to the end of runway 05/23. Lastly, a single-storey building (121032; SJ3369765034) erected between 1945 and 1954 stands on the western periphery of Site 4 on an Air Cadet Corps or scout site, but its original purpose has not been ascertained.

- 6.12 All 3 'L' type hangars (85576; SJ34076510, 85574; SJ34166528 & 85575; SJ34206511) survive on Site 5; at least one appears to be in use, but the others are currently available to lease. A pair of semi-detached houses at 17 and 18 Brook Lane (121023; SJ34166543) are the former married wardens quarters; one is largely unchanged other than having had its windows replaced, while the other has been rather more heavily altered.

**b) RAF Sealand (PRN 37875) (see Fig.3)**

*History*

- 6.13 RAF Sealand began its life as two adjoining stations divided by a railway line and known initially as Shotwick and Queensferry, later to become North and South Shotwick, respectively. These had been created by the takeover of a civilian airfield during the First World War, and the northernmost of the two was occupied by the RAF for flying training by 1917. It had been intended that the southern site become an Aircraft Acceptance Park for US aircraft but the war ended before this happened. The base became RAF Sealand in 1924 and seems to have been significant as it was subject to considerable rebuilding and additions in the 1920s, at a time when military flying was markedly reduced from wartime levels. In 1926, an airman from the base became the first RAF pilot to escape from an aeroplane by parachute, a notable event that marked the end of the refusal by the RAF to



Every effort has been made to find the originator of this plan. If a reader believes it falls within their copyright we would be pleased to hear from them and happy to amend this report accordingly

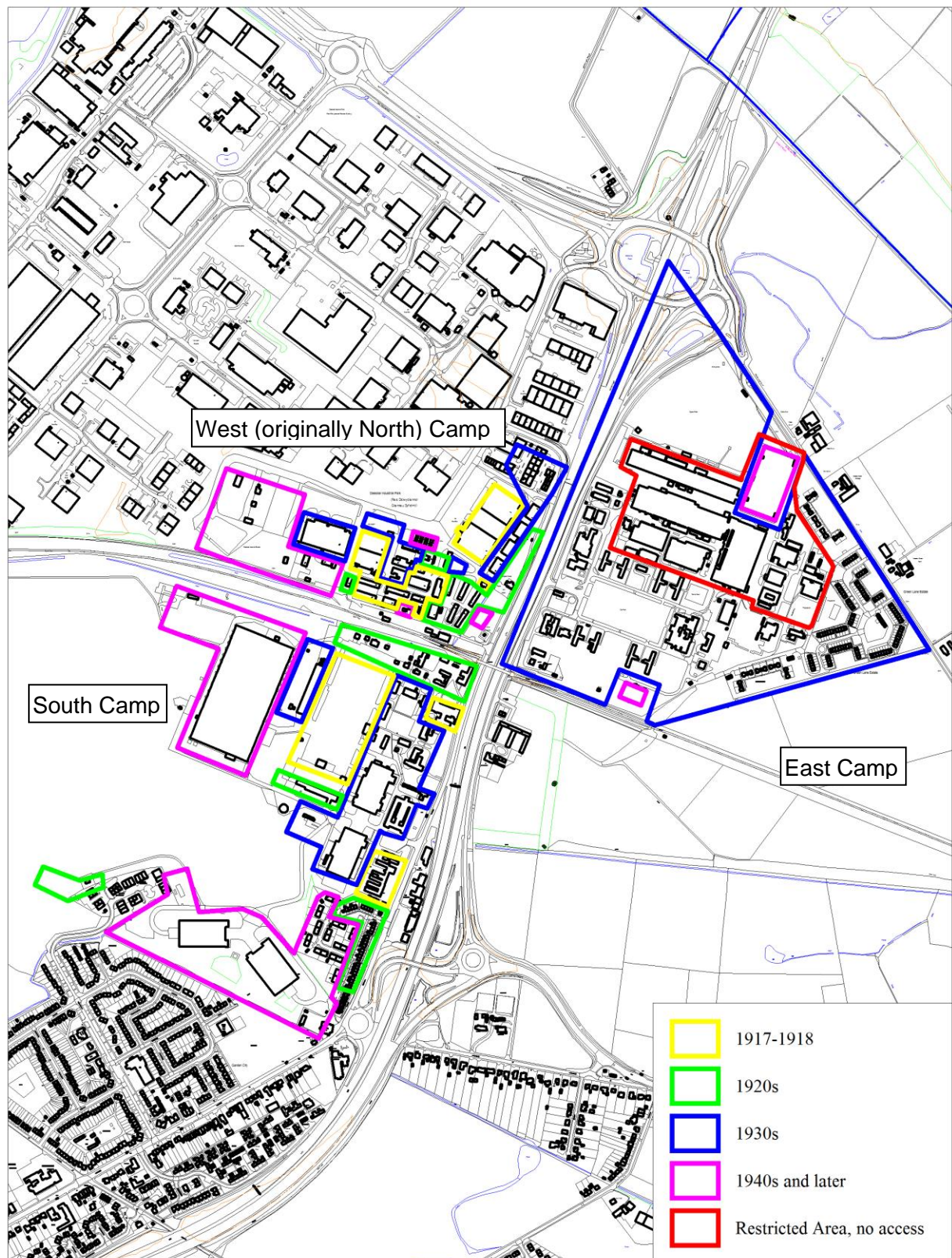
Fig. 3: RAF Sealand (plan of 1959).

provide a means of escape for their pilots in the event of aircraft problems or failure. The base was also visited by Charles Lindbergh in 1936, who stayed at the Officers Mess for a few days while waiting for bad weather to clear.

- 6.14 In the late 1920s, the southern part of the airfield became the base for the RAF Packing Depot, which was responsible for the crating and dispatch of aircraft overseas and it continued to be used for this purpose and for general aircraft maintenance and storage throughout the Second World War, housing Maintenance Units (MUs). The main function of the northern part of the airfield was as a base for training schools during the years preceding the Second World War and the war years themselves; high demand for pilot training led to the expansion of the base to the east, beyond the A550 road. This work began in 1937, the three sections being subsequently renamed East, West (formerly North) and South Camps. Both the flying fields retained their grass runways until about 1942 when a single, initially sand and tar runway, was laid at West Camp. In the immediate post-war period, Sealand was loaned to the United States Air Force, to be run in conjunction with their nearby base at Burtonwood until they left in 1957. Since that date, it has mainly been used as a technical site, rather than for flying, and the only part which survives under military control today is the East Camp, the remainder having been either redeveloped or reused for business premises. It was only relatively recently that the surviving buildings of the South Camp were levelled as part of an impending development.

*Layout, function and development*

- 6.15 The origins of RAF Sealand lie in the last years of the First World War before even the RAF was formed, and its long history (relatively speaking) develops through several phases to the present day. The station straddles the Expansion Period and this is reflected in several distinct styles of aerodrome architecture (Pratt and Grant 2002).
- 6.16 The first phase at North Camp (of 1917/18) consisted of 7 general service sheds (better known as Belfast Truss hangars) in 3 coupled pairs plus a single example; technical buildings for the maintenance and repair of aircraft, offices and instructional buildings for the training of airmen, all in brick. South Camp began life at the same time with 9 general service sheds coupled together in 3 blocks of three and a range of welfare, accommodation and technical buildings constructed both in timber and brick.
- 6.17 The 1920s saw the destruction by fire (in 1921) of the single Belfast Truss hangar on North Camp and the rather more planned replacement in 1926/27 of the instructional buildings in the south-east corner of the site by 5 two-storey, brick, barrack blocks. A headquarters building and other technical buildings including a parachute store were also added at this time. On South Camp 7 new blocks of 4 married airmen's quarters were built at the far south-south-west of the site and a variety of other buildings including a squash court, locomotive shed and pigsties were erected close to the railway line along the north-north-east boundary. A large new motor transport garage was added parallel to the southern end of the Belfast Truss hangars and a spur off the Great Central Railway saw lines being laid parallel to the north-west ends of the same hangars. A recreation ground was created on the eastern end of the flying field.
- 6.18 Upgrading of specific facilities took place in the first half of the 1930s at South Camp. The officers' quarters from the first phase of construction were replaced by 2 new buildings in the attractive 'permanent' style of the Expansion Period with ashlar stone around the entrances and windows. Further development at both North and South Camps occurred during the late 1930s with the erection of several late Expansion Period structures in 'permanent' brick, although not possessing such fine architectural qualities as those of the earlier part of the decade owing to realisation that war was increasingly likely. North Camp



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Fig. 4: RAF Sealand, main building construction phases (based on 1959 plan & modern mapping).

received a 'C'-type hangar and an extra group of offices, South Camp 2 'C'-types and a mobilisation store.

- 6.19 This period saw the expansion of RAF Sealand to a whole new site, East Camp, with construction beginning in 1937. Essentially a self-contained entity of a single phase in the brick 'permanent' construction of the Expansion Period, it comprised 3 large sheds, for storage, workshops and engineering and repairs, accompanied by suites of technical and communal buildings plus a considerable quantity of accommodation.
- 6.20 In the early years of the Second World War, Sealand was struck by a rash of hangars. To South Camp were added 2 'L'-types and North Camp received 4 *Bellmans*, 10 *Blister*, 5 larger *Over Blisters* and 1 *Double standard Blister* hangar, plus a single 'A1' hangar. A perimeter track was built to link them all along with a single hard runway. North Camp by this time had changed its name to West Camp.
- 6.21 Additions to both South and East Camps were made during the 1950s when the site was in USAF hands, notably several 'Dependents Quarters' and a massive storage building on South Camp. Once returned to British hands East Camp saw the addition of 2 or 3 new buildings, and the demolition of a similar number in the 1960s, 70s and 80s as the RAF downsized its presence at Sealand and civilian defence agencies took over more of the site.
- 6.22 The dispersed sites for WAAF personnel at Wepre Hall and married men at Mancot are not included in this project.

*Surviving buildings and structures*

- 6.23 Very little survives of South Camp after clearance work in 2011 preparatory to its sale for development. Three structures are still to be seen, however; an emergency electricity generator house (120785; SJ3318469982), emergency water pump house (120786; SJ3314569999) and the large motor vehicle garage (120787; SJ3304669697) of the mid to late 1920s. Ironically, the grass flying field (121040; SJ324698), usually the earliest feature to be built over, has remained open grassland to the present day.



Plate 2: Listed General Service Shed (Belfast Truss Hangar) at the former RAF Sealand.  
Photo CPAT 3391-0042

- 6.24 North Camp has fared rather better and while its runway and the flying field have succumbed to the inevitable industrial estates a stretch of perimeter track (120857; SJ32887036) survives at the south-west of the site and it displays groups of buildings from each of its phases of development. The Listing and re-use of the 1917 vintage Belfast Truss hangars (85590; SJ3340970263, 85593; SJ3336170191 and 85594; SJ3315270171) has ensured their survival and they are accompanied by a flight office (120990; SJ3332770214), a guardroom (120991; SJ3337670107) and several technical buildings of the same era; an

engine repair shop (121007; SJ3324670079) wood and metal workshops (121002; SJ3324870109 and 121008; SJ3320670092), a power house (121009; SJ3318670072) a pair of motor transport sheds (121010; SJ3314970109 and 121011; SJ3314070086) and three stores buildings (121003, 121005 and 120999).

- 6.25 The development phase of the 1920s is represented mostly by domestic buildings with all five of the 1926/27 barrack blocks surviving (120992 to 120996) plus one wing of the accompanying dining room (121004; SJ3327670054). Also standing are the office block, later to become the headquarters building (120998; SJ3327170155), a parachute store (120997; SJ3330270147) and an engine test house (121012; SJ3311070113). All helpfully bear date-stones, most of 1927 with that on the parachute store of 1928.
- 6.26 The 'C'-type hangar (85595; SJ3306370202), the dope, fabric and plane repair shop (121001; SJ3321270122), a possible armoury (121013; SJ3325170173) and what may be a salvage shed and electricity distribution house (121000; SJ3323370150) represent the Expansion Period of the 1930s while a block of office buildings (121014; SJ3325770193) and a latrine (121006; SJ3322870059) probably date to wartime.
- 6.27 Access to East Camp on the day of the visit was restricted, both in terms of the buildings we were permitted to record and the time made available to us to do so. However, all the major buildings survive. The three gigantic sheds, a general workshops building (120859; SJ3377170320), a storage shed (120858; SJ3388270168) and general engineering and repair shed (120860; SJ3376670248) which have always been at the heart of the working life of East Camp along with over 30 other buildings are on a secure site and have been retained by successive RAF units and defence contractors up to the current operator, the Defence Support Group, who are still responsible for repairs to aircraft equipment. Semi-detached houses and terraces for married Warrant Officers and airmen respectively form attractive estates (120822; SJ340702, 120854; SJ339699 & 120823; SJ34107015) at the east of the camp and are now private housing.
- 6.28 The third part of East Camp is disused but secure, accessible only being possible via the Defence Support Group site. The impressive site institute (120788; SJ33777001) and 8 airmen's barrack blocks of 2 slightly differing types; type 'B' (120801, 120802, 120793 and 120795) and type 'J' (120789, 120790, 120803 and 120804) stand around a parade ground. Surviving technical buildings include a central heating station (120810; SJ3393870016), a striking water tower (120806; SJ3380869946) and several structures for the generation and distribution of electricity all of which have flat 'protected' roofs designed to defend these vital hubs from German bombs. Like South Camp a spur railway line entered the site and, although somewhat marooned since the removal of the lines, a locomotive shed (120809; SJ3385469987) is still present. As well as the institute to provide for the health and welfare of servicemen, a mess building and two gymnasias still stand. The mess, originally that for sergeants, features a wall upon which is a mural of the London skyline during the blitz, probably painted in the 1940s. One gymnasium was converted into a cinema (120855; SJ3370170165) while the other may date from the use of the site by US forces (Colin Barber, pers. comm.) and is apparently still in use, now clad in sheet metal (120825; SJ3402270099). Of a more serious nature are an instructional block, later to become the headquarters of Maintenance Units (120797; SJ3349670029) and 2 gas decontamination centres in the event of a poisonous gas attack, one attached to the sick quarters (120799; SJ3348469972 & 120816; SJ3361570298). Groups of air raid shelters (120817; SJ3362870185 & 120856; SJ3356569962) still lie ready near the mess and barrack blocks.

**c) Wrexham (PRN 44422) (see Fig.5)***History*

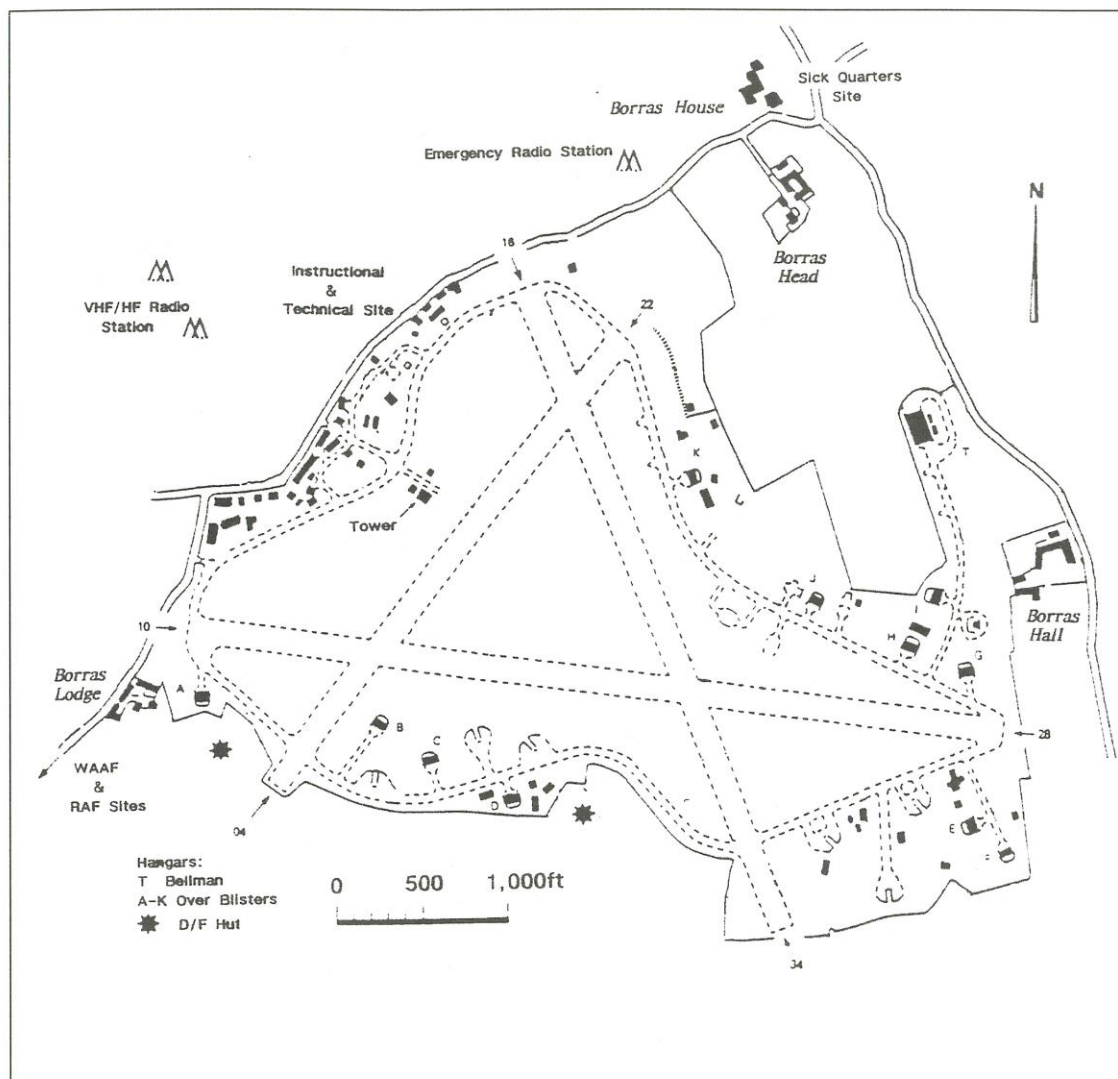
- 6.29 RAF Wrexham, also known unofficially as 'Borras' from the old township in which it lay, seems to have origins back as far as 1917-20, when fields at Borras Lodge were used by Nos. 4 and 51 Training Squadrons/Schools of the RFC/RAF based at Shotwick (Sealand) and Hooton Park for 'circuits and bumps' and to practice emergency landings (Owen and Silvester, 2005). The same fields were also used for regular flying by both the Lancashire Aero Club and the Liverpool and District Aero Club, and for a series of air displays during the 1930s (Pratt and Grant, 2002).
- 6.30 The site was taken over by the Air Ministry as a Relief Landing Ground in the winter of 1939-40, as a response to problems with waterlogged ground at RAF Sealand and RAF Hawarden. It was first occupied as a flying training school in mid-1940, when the runways were of grass; a *Bessoneau* and a *Bellman* hangar sufficed for aircraft storage and the watch office and accommodation (near Borras Head Farm) was initially in tents, then wooden huts (Pratt and Grant 2002). The more permanent runways and infrastructure were built between December 1940 and June 1941, when the airfield became a night-fighter base. It saw very little activity relating to its original purpose, owing to the scaling down of the Luftwaffe raids over north-west England. By mid 1943, the airfield was re-assigned to units involved in advanced pilot training and anti-aircraft co-operation and remained so until near the end of the war when it was used by an Airfield Construction Wing to assemble plant and machinery prior to its shipment overseas. The airfield subsequently went into care and maintenance and was eventually sold, in 1959, to the *Alfred McAlpine* company, under whose control it became a sand and gravel quarry. Ironically, the same company had been the contractors engaged for its permanent construction! The west corner of the airfield was compulsorily purchased in 1961 in order to build protected accommodation for Headquarters, No. 17 (North Wales) Group, Royal Observer Corps (Pratt and Grant 2002) and this building survives outside the boundary of the quarry. The airfield itself continues in use as a quarry to this day.

*Layout, function and development*

- 6.31 Built during the early months of the war, RAF Wrexham was of similar temporary construction to RAF Hawarden. The general layout of the airfield can be determined from the 1953 Ordnance Survey map, which shows three main runways and a surrounding perimeter track. A large group of buildings forming the main instructional and technical site were located on the north-west side of the airfield, beyond the perimeter track. The control tower is depicted on the opposite side of the track (its south-east) from the main site. The south and east sides of the airfield are believed to have been used for aircraft dispersal and a number of single and double blast pens to protect aircraft when on the ground are depicted on the 1953 map. Several hangars of the Over Blister type have also been recorded in these areas.
- 6.32 Four accommodation sites and an accompanying communal site for RAF personnel and accommodation and communal sites for members of the WAAF were constructed a little to the south-west of the airfield. Radio stations were erected to the north and north-west of the airfield, and the sick quarters site to the north also. All lie outside the scope of this study.
- 6.33 The lack of surviving Air Ministry plans hinders any interpretation of the phasing of the site, but it is unlikely that any of the buildings belonging to the early phases survive, bar the Bellman hangar that was relocated to its present position in 1942, having first been erected at the north-east of the Relief Landing Ground in 1940 (Jones 2000).

*Surviving buildings and structures*

- 6.34 Post-war quarrying of the land at the former RAF Wrexham for sand and gravel has destroyed a massive proportion of the airfield. It seemed that all of the structures on the instructional and technical site had been removed by subsequent quarrying activity, until an air raid shelter of the *Stanton* type (121016) was revealed at NGR SJ3590952925 during quarrying activities in 2007 (Hankinson 2008). This was recorded in detail in advance of the construction of a conveyor system and only a small part now remains. There seems to



RAF WREXHAM

Reproduced with the permission of Mike Grant  
Fig. 5: RAF Wrexham (as built 1941)

be little likelihood that any trace of the surface buildings will have escaped past quarrying activity, as the shelter had only been preserved by being buried beneath a protective bund thrown up around the quarry.

- 6.35 Only on the east side of the airfield is there any trace of surviving structures. On the north-east, there is a portion of the perimeter track (85412; SJ36675257) which acts as the modern quarry access road, the *Bellman* hangar (85407; SJ36925289) and the brick-built gunnery butts (85446; SJ36805259), originally used for aligning aircraft weaponry but now converted into a maintenance shed. On the south-east, there are five brick buildings of uncertain function (85441; SJ36755212, 85442; SJ36985226, 85444; SJ36885217, 85445;

SJ36825221 and 121029; SJ3698452226) and a sleeping shelter (85443; SJ37085220), now converted into a cowshed.

- 6.36 A small number of structures are known to survive just outside the immediate airfield perimeter, but these have not been considered at this stage of the assessment. This includes the post-war Royal Observer Corps headquarters building, on the western boundary of the airfield.



Plate 3: *Bellman* hangar at the former RAF Wrexham.  
Photo CPAT 900.9

## 7 DISCUSSION

### *Hawarden*

- 7.1 The construction of 'J', 'K' and 'L' type hangars at RAF Hawarden was typical of airfields housing Maintenance Units and the survival of the 'K' and 'L' types is an important feature of the site today. The airfield was shared with several Operational Training Units during the war and despite much clearance 2 buildings, a crew procedure centre and photographic block, that were integral to their functioning, remain relatively intact. Having an Air Transport Auxiliary pool based at the airfield also brought a rare dimension to the site with existing buildings being used by, and additional ones constructed for the use of, this civilian auxiliary service. RAF St Athan in the Vale of Glamorgan is the only other airfield in Wales associated with the ATA.
- 7.2 The retention in use of the airfield for flying has been instrumental in ensuring the survival of the control tower and fire tender shed, the tower in particular being an iconic feature. Indeed, suitability for continued or new use has been vital in ensuring the survival of several former airfield buildings, although the fuel installation at the far south of the former RAF Hawarden is the exception to this rule, sitting apparently forgotten at the end of a

runway under the noses of people pulling their cars over to watch the Airbus *Beluga* aircraft take off with another set of wings for the sister factory in Toulouse.

Original buildings constructed (discounting dispersed sites)	363
Air Raid Shelters and Emergency Water Supplies	68
Buildings added between 1945 and 1954	53
TOTAL	484
Surviving in 2012	30
Percentage surviving	6.2%

Table 1: RAF Hawarden, statistical summary.

#### *Wrexham*

- 7.3 At RAF Wrexham the provision of *Over Blister* hangars and blast pens are indicators of its original intended wartime use for night-fighters and the instructional site of its later role as a training base. Now though, only the *Bellman* hangar clearly attests the fact that the land here was ever used as an airfield. Structures such as the gunnery butts and sleeping shelter are a link to its use by night-fighters but other than these its association with military flying is now tenuous.

Original buildings constructed (discounting dispersed sites)	70
TOTAL	70
Surviving in 2012	9
Percentage surviving	12.9%

Table 2: RAF Wrexham, statistical summary (in the absence of any plans, the numbers of buildings are a minimum and the percentage surviving a maximum).

#### *Sealand*

- 7.4 RAF Sealand is unique. Starting life at the dawn of military flying in Wales, as two separate but linked sites with two flying fields, it developed into a complex spread over three distinct sites. The number and range of hangars and specialist buildings provided attest its joint roles of training base and centre for maintenance expertise. A key feature indicating the importance and longevity of RAF Sealand is the survival of groups of buildings from each different phase of its development. Particularly rare are the survival of a number of buildings of First World War vintage. The inter-war years are also well reflected, with distinctive styles of Expansion Period aerodrome architecture surviving. One can see the development of strategic thinking regarding airfield layout and the design of building types from a study of this RAF station; for example the barrack blocks of the late 1927s on North Camp are the progenitors of those of a decade later on East Camp.

Original buildings constructed (discounting dispersed sites)	60
Building added in the 1920s	50
Buildings added in the 1930 & 1940s	155
Buildings added in the 1950s	20
TOTAL	285
Surviving in 2012	100
Percentage surviving	35.1%

Table 3: RAF Sealand, statistical summary (all figures are approximate).

#### *General*

- 7.5 When comparing and contrasting the 3 sites, the plans of RAF Hawarden and RAF Wrexham are similar having been built in a single construction phase in the late-Expansion

Period and early war years. The surviving buildings tell the same story; their ‘temporary brick’ construction was intended to last only for the duration of the war. They also had a similar role, at least in part, which was to provide a home for Operational Training Units. Both Hawarden and Wrexham, due to the time at which they were built when the threat from enemy bombing was clear, are dispersed across the landscape in several distinct sites. Today, however, the remains of the former RAF Hawarden is a much more coherent site, despite what the above statistics suggest, so much having been lost to quarrying at Wrexham.

- 7.6 Despite having a similar role to both the other airfields in providing flying training, and also to RAF Hawarden in housing Maintenance Units, RAF Sealand is a very different site. Dating from the First World War and inter-war years it is a large yet compact site with all the buildings grouped together. Even when East Camp was added in 1937 it was built as a single, large group of buildings of all types, technical, domestic and communal, close to the existing North and South Camps making the whole station vulnerable to air attack.

	RAF Hawarden	RAF Sealand	RAF Wrexham
Flying field	Y	Y	N
Hangars	Y	Y	Y
Operational buildings (HQs, control towers etc)	Y	Y	N
Technical buildings	Y	Y	Y
Domestic buildings	Y	Y	N/A (dispersed)
Communal & welfare buildings	Y	Y	Y
Instructional buildings	Y	Y	N

Table 4: Features surviving at study sites.

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## 9 SOURCES

### *Published works*

Abraham, B., 2001. ‘Sealand’ in *Airfield Review: The Journal of the Airfield Research Group*, No. 90, April 2001, pp18.

Abraham, B., 2001. ‘More on Sealand’ *Airfield Review: The Journal of the Airfield Research Group*, No. 91, July 2001, pp51.

Abraham, B., 2001. ‘Satellite landing grounds’ in *Airfield Review: The Journal of the Airfield Research Group*, No.91, July 2001, pp58-63.

Abraham, B., 2001. ‘Satellite landing grounds II’ in *Airfield Review: The Journal of the Airfield Research Group*, No.92, October 2001, pp116-117.

Airfield Research Group, 2007. 'Hawarden Aerodrome' in *Airfield Review: The Journal of the Airfield Research Group*, No.115 June 2007, pp82.

ARP (Paul Francis), 2010, *Sealand - South Camp - An Overview*. Unpublished report.

English Heritage, 1998, *Monuments of War. The evaluation, recording and management of twentieth-century military sites*. London: English Heritage.

English Heritage, 2000, *Survey of Military Sites and Structures: Summary Report. Thematic Listing Programme*. London: English Heritage.

English Heritage, 2000, *Twentieth Century Military Sites*. London: English Heritage.

Ferguson, A.P., 1978, *A History of Royal Air Force Sealand*. Liverpool: Merseyside Aviation Society Publication.

Ferguson, A., no date, 'RAF Sealand' in *Rapide*, No.13, pp20-23.

Grant, I., and Jones, N. W., 2009, *Excavations at Borrás Quarry, Wrexham, 2008*, Unpublished CPAT Report 971.

Hankinson, R., 1995, *Proposed Quarry on the Holt Estate at Borrás, near Wrexham*, Unpublished CPAT Report 124.

Hankinson, R., 2008, *Borrás Quarry extension, Wrexham*, Unpublished CPAT Report 896.

Innes, G. B., 1995, *British Airfield Buildings of the Second World War*. Leicester: Midland Publishing Limited.

Innes, G. B., 2000, *British Airfield Buildings. Volume 2: The Expansion Period & Inter-War Periods*. Leicester: Midland Publishing Limited.

Jones, I., 2008, *Airfields and Landing Grounds of Wales: North*. Stroud: The History Press.

Jones, N., 2000, *Planning Application to Extend the Depth of Workings. Land at Borrás Airfield and Borrás Hall Farm, Borrás Quarry, Wrexham, Application Code CB3627*. Unpublished CPAT Report 343.1.

Jones, N., 2000, *Application for Determination of New Conditions. Land at Borrás Airfield and Borrás Hall Farm, Borrás Quarry, Wrexham, Application Code CB2180*. Unpublished CPAT Report 343.2.

Jones, N. W. and Hankinson, R., 2003, *Planning Application to extend Borrás Quarry, Land at Borrás Airfield and the Holt Estate, Borrás Quarry*, Unpublished CPAT Report 503.

Owen, W. J. and Silvester, R. J., 2005, *Planning Application to extend Borrás Quarry, Land at Borrás Airfield and the Holt Estate, Borrás Quarry*, Unpublished CPAT Report 503.1.

Pratt, D. and Grant, M., 1998, *Wings Across the Border: A History of Aviation in North East Wales and the Northern Marches Vol 1*, Wrexham: Bridge Books.

Pratt, D. and Grant, M., 1999. 'From Fighter Station to Gravel Pit: RAF Wrexham: I The early years' in *Tarmac Papers* 3, 1999, pp301-324.

Pratt, D. and Grant, M., 2000. 'From Fighter Station to Gravel Pit: RAF Wrexham: 2 The war years, 1942-46' in *Tarmac Papers* 4, 2000, pp137-168.

Pratt, D. and Grant, M., 2002, *Wings Across the Border: A History of Aviation in North East Wales and the Northern Marches Vol 2*, Wrexham: Bridge Books.

Pratt, D. and Grant, M., 2005, *Wings Across the Border: A History of Aviation in North East Wales and the Northern Marches Vol 3*, Wrexham: Bridge Books.

RAF, 1945, *Royal Air Force Airfields and Flying Boat Bases and Royal Naval Air Stations in the UK, Iceland and Gibraltar SD310*, Copy 58 2<sup>nd</sup> edition.

RAF, no date (1969?), *Summary of Facilities on RAF station and other locations in the UK CD1160*.

Smith, D. J., 1979, *Hawarden: A Welsh Airfield 1939-1979*. Wigan: David J Smith.

Smith, D. J., 1981, *Action Stations, 3: Military Airfields of Wales and the North-west*, Cambridge: Patrick Stephens.

Smith, D. J., no date, 'No 3 Ferry Pilots Pool-Hawarden', *Rapide*, No.11, pp20-23.

#### *Cartographic sources*

##### *Hawarden*

1945 – plan *Hawarden: Record Site Pan 1883/45 plus Building Schedule 1884/45* (Royal Air Force Museum)

1954 – plan *Hawarden: Record Site Pan 3378/54 plus Building Schedule 3379/54* (Royal Air Force Museum)

##### *Sealand*

1917 – plan *Chester (Shotwick) Proposed Ground for Depot Station* (Flintshire Record Office D/DM/1107/247)

1917 – plan *North Shotwick Training Depot Station* (The National Archive)

1918 – plan *Shotwick Training Depot and Queensferry AAP Site Plan* (RAF Air Historical Branch, London - Air Ministry Dept. of Works file 10239/40)

1926 – plan *Sealand Site Plan 1688/26* (source unknown)

1927 – plan *Sealand: No.5 Flying Training School and Packing Depot: Lay-Out Plan 2044/27* (Royal Air Force Museum)

1930 – plan *Sealand. Site Plan 1111/30* (Royal Air Force Museum)

1938 – plan *Sealand. Site Plan 11671/38* (Royal Air Force Museum)

1959 – plan *RAF Station Sealand W 180A 59* (source unknown)

1969 – plan *MOD (Air) Sealand (East Camp) ALI\_1* (source unknown)

1986 – plan *RAF Station Sealand AL 1 1B* (source unknown)

1990 – plan East Camp AL 1 1 (source unknown)

Wrexham

1953 Ordnance Survey 1:2500 mapping

1959 Sale plan of Borrass Airfield (Flintshire Record Office D/E/2739)

### *Aerial photographs*

General

Next Perspectives 2006 vertical aerial photography

Sealand

Black & white oblique labelled 'Pre 1925' from Air Ministry Dept. of Works file 10239/40 held at the RAF Air Historical Branch, London and RAF Museum; taken 1921-22

Untitled and unlabelled black & white oblique from Air Ministry Dept. of Works file 10239/40 held at the RAF Air Historical Branch, London; taken 1928-30

Wrexham

NLA/53/1/PRU Nos 1019-1022, 2021-2022, 5026-5030; taken 13/11/1942 (Vertical).

## APPENDIX 1

### Airfield structures and features

#### RAF Hawarden (PRN 85240)

PRN	NGR	Name	Site type	Condition
85240	SJ34626520	RAF Hawarden	Military airfield	Damaged
85241	SJ34776526	Bretton Landing Ground (Bowers Landing Ground)	Military airfield	Destroyed
85258	SJ35086595	RAF Hawarden, Main Site	Military airfield site	Damaged
85259	SJ35706557	RAF Hawarden, Site 2	Military airfield site	Unknown
85260	SJ35646494	RAF Hawarden, Site 3	Military airfield site	Unknown
85261	SJ33976463	RAF Hawarden, Site 4	Military airfield site	Near destroyed
85262	SJ34126538	RAF Hawarden, Site 5	Military airfield site	Damaged
85560	SJ3417564794	RAF Hawarden, control tower	Control tower	Near intact
85263	SJ34396576	RAF Hawarden, perimeter track	Perimeter track	Unknown
85264	SJ34406565	RAF Hawarden, taxiway	Taxiway	Unknown
85265	SJ35346565	RAF Hawarden, taxiway	Taxiway	Unknown
85266	SJ35286483	RAF Hawarden, taxiway	Taxiway	Unknown
85267	SJ34396446	RAF Hawarden, taxiway	Taxiway	Unknown
85268	SJ34186436	RAF Hawarden, taxiway	Taxiway	Unknown
85269	SJ34676540	RAF Hawarden, runway 14/32	Runway	Unknown
85270	SJ34556477	RAF Hawarden, runway 05/23	Runway	Unknown
85271	SJ34416489	RAF Hawarden, runway 01/19	Runway	Unknown
85272	SJ34556502	RAF Hawarden, 'Vickers Track'	Runway	Unknown
85563	SJ34916598	RAF Hawarden, Main Site, Hawarden Air Services (No.1)	Hangar	Near intact
85564	SJ34996585	RAF Hawarden, Main Site, hangar II	Hangar	Destroyed
121017	SJ35006598	RAF Hawarden, Main Site, Cheshire Classic Cars Ltd (Building 4)	Workshop	Converted
121018	SJ34976605	RAF Hawarden, Main Site, air raid shelter I	Air raid shelter	Near intact
121019	SJ35046603	RAF Hawarden, Main Site, air raid shelter II	Air raid shelter	Intact
121020	SJ35056602	RAF Hawarden, Main Site, air raid shelter III	Air raid shelter	Near intact
121021	SJ34716619	RAF Hawarden, Main Site, Building 38	Ablutions block	Near intact
121022	SJ34696619	RAF Hawarden, Main Site, Building 39	Latrine	Damaged
85561	SJ35636561	RAF Hawarden, Site 2, hangar I	Hangar	Unknown
85562	SJ35766552	RAF Hawarden, Site 2, hangar II	Hangar	Unknown
85565	SJ35666504	RAF Hawarden, Site 3, hangar I	Hangar	Unknown
85566	SJ35756492	RAF Hawarden, Site 3, hangar II	Hangar	Unknown
85567	SJ35566487	RAF Hawarden, Site 3, hangar III	Hangar	Unknown
121028	SJ35326462	RAF Hawarden, Site 3, Airfield Villas 1 & 2, (Building 4)	Married quarters	Damaged
121035	SJ3580365108	RAF Hawarden, Site 3, Robin Hangar, (Building 10)	Hangar	Unknown
121036	SJ3584265091	RAF Hawarden, Site 3, Aircraft Shed, (Building 9)	Hangar	Unknown
121037	SJ3586865076	RAF Hawarden, Site 3, Parachute Store, (Building 12)	Parachute store	Unknown
85569	SJ33826448	RAF Hawarden, Site 4, hangar II	Hangar	Destroyed
85568	SJ33886456	RAF Hawarden, Site 4, hangar I	Hangar	Destroyed

85570	SJ34086493	RAF Hawarden, Site 4, hangar III	Hangar	Destroyed
85571	SJ34136491	RAF Hawarden, Site 4, hangar IV	Hangar	Destroyed
85572	SJ34056481	RAF Hawarden, Site 4, hangar V	Hangar	Destroyed
85573	SJ34116480	RAF Hawarden, Site 4, hangar VI	Hangar	Destroyed
121024	SJ33636476	RAF Hawarden, Site 4, Discount Domestics (Building 200)	Sick quarters	Near intact
121025	SJ33866485	RAF Hawarden, Site 4, Alkemi Metal Finishing Technologies (Building 85)	Military training site	Near intact
121026	SJ33886489	RAF Hawarden, Site 4, Alkemi Metal Finishing Technologies (Building 86)	Photographic block	Near intact
121027	SJ33926414	RAF Hawarden, Site 4, Building 270	Petrol station	Near intact
121030	SJ3417464810	RAF Hawarden, Site 4, Building 230	Fire engine house	Near intact
121031	SJ3381364860	RAF Hawarden, Site 4, Alkemi Metal Finishing Technologies (Building 260)	Military training site	Damaged
121032	SJ3369765034	RAF Hawarden, Site 4, Building 310?	Military training site	Damaged
121033	SJ3372465096	RAF Hawarden, Site 4, J. M. Motors Car Sales (Building 166)	Barracks	Damaged
121034	SJ3373765093	RAF Hawarden, Site 4, J. M. Motors Car Sales (Building 167)	Barracks	Damaged
85574	SJ34166528	RAF Hawarden, Site 5, hangar II	Hangar	Near intact
85575	SJ34206511	RAF Hawarden, Site 5, hangar III	Hangar	Near intact
85576	SJ34076510	RAF Hawarden, Site 5, hangar I	Hangar	Near intact
121023	SJ34166543	RAF Hawarden, Site 5, Building 14	Married quarters	Damaged

**RAF Sealand (PRN 37875)**

PRN	NGR	Name	Site type	Condition
37875	SJ3299870499	RAF Sealand	Military airfield	Damaged
70825	SJ332698	Queensferry Airfield	Airfield	Unknown
44420	SJ3303070610	RFC North Shotwick	Military airfield	Damaged
121039	SJ332704	RFC North Shotwick, flying field	Military airfield	Destroyed
85590	SJ3340970263	RFC North Shotwick, hangar I	Hangar	Restored
85593	SJ3336170191	RFC North Shotwick, hangar II	Hangar	Restored
85594	SJ3315270171	RFC North Shotwick, hangar III	Hangar	Intact
120990	SJ3332770214	RAF Sealand, North Camp, Building 13	Flight office	Intact
120991	SJ3337670107	RAF Sealand, North Camp, Building 57	Guardroom	Intact
120992	SJ3336070081	RAF Sealand, North Camp, Building 56	Barrack block	Near intact
120993	SJ3333370040	RAF Sealand, North Camp, Building 55	Barrack block	Intact
120994	SJ3331570050	RAF Sealand, North Camp, Building 53	Barrack block	Near intact
120995	SJ3333670095	RAF Sealand, North Camp, Building 54	Barrack block	Intact
120996	SJ3330970104	RAF Sealand, North Camp, Building 52	Barrack block	Intact
120997	SJ3330270147	RAF Sealand, North Camp, Building 17/35	Parachute store	Near intact
120998	SJ3327170155	RAF Sealand, North Camp,	Headquarters	Intact

		Geotechnical House (No 18)	building	
120999	SJ3325070136	RAF Sealand, North Camp, Hydroponic Corp (No 20)	Stores	Converted
121000	SJ3323370150	RAF Sealand, North Camp, building I	Salvage shed ?	Intact
121001	SJ3321270122	RAF Sealand, North Camp, Building 22	Plane repair shop	Intact
121002	SJ3324870109	RAF Sealand, North Camp, Unit 19, Jaguar House	Wood workshop	Intact
121003	SJ3328470095	RAF Sealand, North Camp, Building 51	Technical store	Converted
121004	SJ3327670054	RAF Sealand, North Camp, Building 50	Dining room	Damaged
121005	SJ3325070054	RAF Sealand, North Camp, building II	Guardroom ?	Damaged
121006	SJ3322870059	RAF Sealand, North Camp, building III	Latrine ?	Intact
121007	SJ3324670079	RAF Sealand, North Camp, Building 45	Engine repair shop	Near intact
121008	SJ3320670092	RAF Sealand, North Camp, Building 37	Metal workshop	Near intact
121009	SJ3318670072	RAF Sealand, North Camp, Building 38	Power house	Intact
121010	SJ3314970109	RAF Sealand, North Camp, Building 34	MT shed	Converted
121011	SJ3314070086	RAF Sealand, North Camp, Building 33	MT shed	Converted
121012	SJ3311070113	RAF Sealand, North Camp, Building 32	Engine test house	Converted
121013	SJ3325170173	RAF Sealand, North Camp, Building 19	Armoury ?	Converted
121014	SJ3325770193	RAF Sealand, North Camp, Building 243	Office blocks	Damaged
85595	SJ3306370202	RAF Sealand, North Camp, hangar I	Hangar	Intact
121041	SJ33037081	RAF Sealand, runway	Runway	Destroyed
44421	SJ3299069830	RFC South Shotwick	Military airfield	Near destroyed
121040	SJ324698	RFC South Shotwick, flying field	Military airfield	Unknown
120785	SJ3318469982	RAF Sealand, South Camp, Building 63	Generator house	Near intact
120786	SJ3314569999	RAF Sealand, South Camp, Building 60	Pump house	Near intact
120787	SJ3304669697	RAF Sealand, South Camp, Building 167	Garage	Near intact
121038	SJ337701	RAF Sealand, East Camp	Military camp	Near intact
120788	SJ33777001	RAF Sealand, East Camp, Building 39	Institute	Near intact
120789	SJ3376170104	RAF Sealand, East Camp, Building 32B	Barracks	Near intact
120790	SJ3372270114	RAF Sealand, East Camp, Building 32A	Barracks	Near intact
120791	SJ33857005	RAF Sealand, East Camp, Building 43	Generator house	Near intact
120792	SJ3384170076	RAF Sealand, East Camp, Building 89	Weighbridge	Near intact
120793	SJ3365170140	RAF Sealand, East Camp, Building 28B	Barracks	Near intact
120794	SJ3368870138	RAF Sealand, East Camp, building	Power generation site	Intact

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120795	SJ3361470154	RAF Sealand, East Camp, Building 28A	Barracks	Near intact
120796	SJ3352270089	RAF Sealand, East Camp, Building 23	Guardhouse	Near intact
120797	SJ3349670029	RAF Sealand, East Camp, Building 25	Military training site	Near intact
120798	SJ3347169954	RAF Sealand, East Camp, Building 26	Electricity sub station	Intact
120799	SJ3348469972	RAF Sealand, East Camp, Building 81	Decontamination building	Near intact
120800	SJ3349669945	RAF Sealand, East Camp, Building 172	Electricity sub station	Intact
120801	SJ3356170006	RAF Sealand, East Camp, Building 29A	Barracks	Near intact
120802	SJ3359869992	RAF Sealand, East Camp, Building 29B	Barracks	Near intact
120803	SJ3366769967	RAF Sealand, East Camp, Building 33A	Barracks	Near intact
120804	SJ3370569953	RAF Sealand, East Camp, Building 33B	Barracks	Near intact
120805	SJ3378569912	RAF Sealand, East Camp, Building 90	Weighbridge	Near intact
120806	SJ3380869946	RAF Sealand, East Camp, Building 37	Water tower	Near intact
120807	SJ3382169991	RAF Sealand, East Camp, Building 38	Food store	Near intact
120808	SJ3385670019	RAF Sealand, East Camp, Building 40	Pump house	Intact
120809	SJ3385469987	RAF Sealand, East Camp, Building 45	Engine shed	Intact
120810	SJ3393870016	RAF Sealand, East Camp, Building 44	Central heating station	Intact
120811	SJ3399370010	RAF Sealand, East Camp, Building 50	Food store/Shop	Near intact
120825	SJ3402270099	RAF Sealand, East Camp, Building 158	Gymnasium (Sports)	Near intact
120812	SJ3360269899	RAF Sealand, East Camp, Building 36	Compressor house	Intact
120813	SJ3367269890	RAF Sealand, East Camp, UNITER bunker	Telecommunication building	Intact
120814	SJ3356470191	RAF Sealand, East Camp, Building 22	Sergeants mess	Intact
120815	SJ3360770280	RAF Sealand, East Camp, Building 20	Sick quarters	Intact
120816	SJ3361570298	RAF Sealand, East Camp, Building 20	Decontamination building	Intact
120817	SJ3362870185	RAF Sealand, East Camp, Air raid shelters	Air raid shelter	Near intact
120818	SJ3364070267	RAF Sealand, East Camp, Building 19A	Electricity sub station	Near intact
120819	SJ3364470286	RAF Sealand, East Camp, Building 19	Ambulance station/mortuary	Near intact
120820	SJ3377570365	RAF Sealand, East Camp, Building 159	Storehouse	Intact
120821	SJ3368170413	RAF Sealand, East Camp, Building 166	Sports building	Intact
120822	SJ340702	RAF Sealand, East Camp, Buildings 52-56	Housing estate	Near intact

120854	SJ339699	RAF Sealand, East Camp, Buildings 75-79	Housing estate	Near intact
120823	SJ34107015	RAF Sealand, East Camp, Buildings 57-74	Housing estate	Near intact
120824	SJ3351669926	RAF Sealand, East Camp, Building 34	Gasmeter house	Intact
120855	SJ3370170165	RAF Sealand, East Camp, Building 30	Gymnasium (Sports)	Near intact
120856	SJ3356569962	RAF Sealand, East Camp, Air raid shelters	Air raid shelter	Near intact
120857	SJ32887036	RAF Sealand, East Camp, Perimeter track	Perimeter track	Near destroyed
120858	SJ3388270168	RAF Sealand, East Camp, Building 14	Shed	Unknown
120859	SJ3377170320	RAF Sealand, East Camp, Building 15	Engineering workshop	Unknown
120860	SJ3376670248	RAF Sealand, East Camp, Building 16	Shed	Unknown

**RAF Wrexham (PRN 44422)**

PRN	NGR	Name	Site type	Condition
44422	SJ3623052700	RAF Wrexham (Borras Airfield)	Military airfield	Near destroyed
85404	SJ35575245	Borras, Borras Lodge, landing ground	Airfield	Destroyed
85414	SJ35955293	RAF Wrexham (Borras Airfield), Instructional and Technical Site	Military airfield site	Destroyed
85416	SJ36055235	RAF Wrexham (Borras Airfield), southern dispersal area	Military airfield site	Destroyed
85417	SJ36925225	RAF Wrexham (Borras Airfield), south-eastern dispersal area	Military airfield site	Near destroyed
85418	SJ36705262	RAF Wrexham (Borras Airfield), north-eastern dispersal area	Military airfield site	Near destroyed
85413	SJ36065280	RAF Wrexham (Borras Airfield), control tower	Control tower	Destroyed
85408	SJ36105266	RAF Wrexham (Borras Airfield), runway 04/22	Runway	Destroyed
85409	SJ36305246	RAF Wrexham (Borras Airfield), runway 10/28	Runway	Damaged
85410	SJ36445263	RAF Wrexham (Borras Airfield), runway 16/34	Runway	Destroyed
85412	SJ36675257	RAF Wrexham (Borras Airfield), perimeter track	Perimeter track	Near destroyed
85415	SJ36985271	RAF Wrexham (Borras Airfield), taxiway	Taxiway	Intact
85407	SJ36925289	RAF Wrexham (Borras Airfield), 'Bellman' hangar	Hangar	Near intact
85424	SJ35675244	RAF Wrexham (Borras Airfield), 'Over Blister' hangar A	Hangar	Destroyed
85425	SJ35995239	RAF Wrexham (Borras Airfield), 'Over Blister' hangar B	Hangar	Destroyed
85426	SJ36075232	RAF Wrexham (Borras Airfield), 'Over Blister' hangar C	Hangar	Destroyed
85427	SJ36225227	RAF Wrexham (Borras Airfield), 'Over Blister' hangar D	Hangar	Destroyed
85428	SJ35965228	RAF Wrexham (Borras Airfield), dispersal pen I	Blast pen	Destroyed
85429	SJ36155236	RAF Wrexham (Borras Airfield),	Blast pen	Destroyed

		dispersal pen II		
85430	SJ36255233	RAF Wrexham (Borras Airfield), dispersal pen III	Blast pen	Destroyed
85431	SJ3700052180	RAF Wrexham (Borras Airfield), 'Over Blister' hangar E	Hangar	Destroyed
85433	SJ36765216	RAF Wrexham (Borras Airfield), dispersal pen IV	Blast pen	Destroyed
85432	SJ3707052130	RAF Wrexham (Borras Airfield), 'Over Blister' hangar F	Hangar	Destroyed
85434	SJ36875207	RAF Wrexham (Borras Airfield), dispersal pen V	Blast pen	Near destroyed
85435	SJ36925222	RAF Wrexham (Borras Airfield), dispersal pen VI	Blast pen	Destroyed
85436	SJ37005244	RAF Wrexham (Borras Airfield), 'Over Blister' hangar G	Hangar	Destroyed
85437	SJ36905250	RAF Wrexham (Borras Airfield), 'Over Blister' hangar H	Hangar	Destroyed
85438	SJ36955258	RAF Wrexham (Borras Airfield), 'Over Blister' hangar I	Hangar	Destroyed
85439	SJ36745258	RAF Wrexham (Borras Airfield), 'Over Blister' hangar J	Hangar	Destroyed
85440	SJ36525280	RAF Wrexham (Borras Airfield), 'Over Blister' hangar K	Hangar	Destroyed
85441	SJ36755212	RAF Wrexham (Borras Airfield), building I	Military building	Intact
85442	SJ36985226	RAF Wrexham (Borras Airfield), building II, station workshops?	Military building	Intact
85443	SJ3708052200	RAF Wrexham (Borras Airfield), building III, sleeping shelter	Shelter	Damaged
85444	SJ36885217	RAF Wrexham (Borras Airfield), building IV	Military building	Intact
85445	SJ36825221	RAF Wrexham (Borras Airfield), building V	Military building	Intact
121029	SJ3698452226	RAF Wrexham (Borras Airfield), building VI	Military building	Intact
85446	SJ36805259	RAF Wrexham (Borras Airfield), aircraft gunnery butts	Butts	Intact
121016	SJ3590952925	Wrexham airfield, Stanton shelter	Air raid shelter	Damaged

**APPENDIX 2**  
**Cadw draft project outputs document**

**Military airfields: Draft project outputs**

The military airfields project shall:

- Establish a common project method and methodology
- Create an airfield study of each airfield site to provide an explanation of the function and development of its constituent buildings and structures using existing primary and secondary sources
- Provide a narrative overview and statistical summary
- Develop a common methodology for assessing the condition and vulnerability of military airfields and their constituent buildings and structures
- Apply the agreed designation criteria and recommend examples of military airfield buildings and/or structures, or groups of buildings and/or structures where appropriate. The Trusts must act collectively in this aspect to ensure national coverage
- Enhance the Trusts' HER and GIS through the addition of military airfields' constituent buildings and structures so that the information can be used for DC work
- Share the project's data and results with Cadw, the RCAHMW and the MOD