

20th Century Military Airfields in Gwynedd

Part 1: Report & Gazetteer



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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20th CENTURY MILITARY AIRFIELDS IN GWYNEDD

PART 1: REPORT AND GAZETTEER

Summary

Gwynedd Archaeological Trust (GAT) has been grant-aided by Cadw to identify and examine the 20th century military airfields in Gwynedd, to assess their condition and, where appropriate, to recommend sites for Scheduling and Listing. The project has identified sites that fit the criteria laid down, through archive, cartographic, documentary and aerial photographic research. Those sites showing potential as sites suitable for Scheduling were visited in the field. The sites identified are within a fairly tightly defined date range, the militarily threatening years between the mid 1930s to the 1960s, although the project examined sites relating to the whole of the 20th century. A database was created recording each of the components within the airfields with a unique site number. It is clear from the work carried out on this project that the quantity of data and potential for research on airfield sites is vast. RAF Valley was not visited as part of the programme. Ten sites were identified, six of these were considered worthy of Scheduling as Ancient Monuments, and four as listed buildings.

1. INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been grant-aided by Cadw to identify 20th century military airfield sites in Gwynedd; to assess their condition; and, where appropriate, to recommend sites for designation. This was to be based on criteria laid down by Cadw, which is noted below, and a database of all known airfield sites and components within them was to be created. The study forms part of a pan-Wales initiative to identify and record the most significant elements of twentieth century military architecture across the country and to inform designation and management priorities.

1.1 Acknowledgements

Matt Rimmer is particularly thanked for his help in assisting with fieldwork at the former airfield sites in Merionydd. The provision of his extensive background knowledge and general help and advice has proved to be very valuable.

Additionally, Jon Berry (Cadw) provided information and support for the project and Roger Thomas (English Heritage) gave invaluable advice and information.

1.2 Overview

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, but also for military training and research and development, including weapon 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).

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, during the latter part of which 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.

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.

2. METHODOLOGY

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. Maps, plans and aerial photographs are consulted and map regressions produced for each site. A database is produced and accompanying new point- and polygon-based data compiled as a result of the research. This information is fed back into the regional Historic Environment Records in order to contribute to our understanding of the turbulent nature of the 20th century through surviving military structures and provide a basis for heritage management and development control, while recommendations for designation are submitted to Cadw in a separate volume.

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 within this. At the discretion of the project staff the studies may diverge from this principle, only where the most significant and functionally distinct elements of each site fall outside this defined zone.

2.1 Desktop Study: Air Ministry Plan, HER, RCAHMW, and Aerial Photograph search

Wartime Air Ministry plans were obtained from the Royal Air Force Museum London for those identified airfields, and these were overlain on modern maps and aerial photographs to identify what still remains on the ground. The technical area of the airfields was identified from these plans, and this was the area used to define the limits of the study area. The Gwynedd Historic Environment Record (HER) and Royal Commission on the Ancient and Historic Monuments of Wales (RCAHMW) data, using the *Coflein* online database, were queried to provide additional information about known airfield sites in Gwynedd.

2.2 Desktop Study: Sources

Airfields dating from 1939-1945 have been well-studied both in Wales and further afield, and these sources were used extensively to inform the project (Chambers-Jones, R. 2008; Jones, I. 2008; Delve 2007; Air Ministry 1956; Spencer, J. 2002).

Wartime Air ministry plans of airfield sites, where available, were obtained from the archives at RAF Hendon, and a wide range of aerial photographs from the *Central Register of Aerial Photography for Wales*, dating from 1941 to modern times.

2.3 Desktop Study: Categorisation

Military airfields in Wales have not been previously studied in depth by archaeological organisations and as such there is no standardised methodology for assessment in place. English Heritage (2003) produced conservation management guidance for Historic Military Aviation Sites as part of a thorough review of England's twentieth-century military heritage and identified a number of key aspects to consider when managing historic airfields in order to preserve and enhance their special character and inform priorities (*ibid.* 2). The key points arising from this can be summarised as follows:

- Comparatively few aviation sites remain in recognisable form
- Adaptation is usually necessary to ensure the vitality of the buildings
- Management guidelines can assist in defining site significance and framing developments
- On sites with coherent groups of surviving historic buildings it is desirable to maintain scale and density of original development and of views/vistas around the site
- The cohesive 'campus' character (derived from open layout, consistency of building materials and provision of grass and trees) may warrant conservation area status to ensure that development preserves/enhances character
- Consistent landscaping policy if favoured due to distinctive coordinated yet restrained approach to colour, signage and materials
- Architecture is characterised by simple detailing and consistency which should be respected by new development (*ibid.*).

Roger J. C. Thomas undertook a study of military sites in his 1994 unpublished report *Survey of 19th and 20th-century military buildings of Pembrokeshire*. In addition to establishing a detailed methodology that included the placement of advertisements in the local press to glean further information from local residents, he undertook to make a record of purpose-built military or civil authority-constructed structures (rather than adapted/requisitioned sites) using standardised recording forms based on Sites and Monuments Record (SMR) data and Fortress Study Group proforma. He made a photographic record of each site where vegetation/access allowed and where military authorities permitted recording, making recommendations for designation and depositing the data with the local SMR (now HER) (Thomas 1994)

Following his study, Thomas concluded that "Military aviation structures are very diverse and as such, pose a major problem of assessment. Certain structures are unique, or rare

and warrant protection in their own right... Other buildings are, however, relatively common if nevertheless threatened, either through neglect, indifference or the selection of many airfields as industrial estates. Where a site is relatively complete and in good condition it may be feasible to treat the whole site, or a portion of it, as a conservation area, plus the listing of the more significant structures" (*ibid.*, 69).

Whilst having local resonance, national designation is only appropriate for a selection of sites given the huge numbers of standardised types. An English Heritage thematic survey focussed on identifying the key sites associated with the development of military aviation from 1910 to 1945, and those which represent the functionally distinct airfield types. The relationship of built fabric to flying field, character & development has been fundamental to selection process (*English Heritage* 2007). Beyond this, only groups and individual examples of strong intrinsic or associational importance (especially those associated with key episodes of WWII) are recommended for protection (*ibid.*). Selection principles include rarity, technical or structural interest, group value with related structures, and operational importance. Certain non-adaptable structures have been scheduled in England (eg blast pens/bomb stores). The totality of an airfield cannot be captured through designation alone and other approaches such as conservation areas may be appropriate (*ibid.*).

Recommendations for Listing are based on the guidelines issued in England, but modified to allow for significance to be applied in a Welsh context.

2.4 Designation Criteria

The following designation criteria were provided by Cadw in June 2011.

'Any decision to designate part of a military airfield should be based upon a proper understanding of their special archaeological, architectural and/or historic significance. Military airfields are the prime sites on which to use complementary designation using both scheduling and listing.'

'It is unlikely that the totality of an airfield will be captured through statutory designation. There is a presumption that listing will be used to protect viable buildings capable of economic use or re-use with sympathetic adaption (hangars etc) and that scheduling will be used to protect earthwork features (entrenchments, blast pens etc) and ruinous or non-adaptable buildings.'

2.4.1 Principal designation interests for Wales

Runways, perimeter tracks and hard standings - Many survive, but few are complete. Some may have technical features worthy of individual protection.

Control towers - A number remain, although may be modified or adapted. More suited for listing than scheduling.

Training buildings - The scheduled gunnery dome at Pembrey is the outstanding example, but other training buildings may also survive and be worthy of protection.

Hangars - There are many different types. There is no national overview. The Seaplane hangars at Pembroke Dock and three pairs of hangars at Sealand are listed. More suited for listing than

scheduling. Many remain, although examples have been recently demolished at St Athan and Sealand.

Blast pens, fuel depots, magazines, barracks and guard rooms - These may merit protection on their own merits or as part of wider complex.

2.4.2 Scheduling Criteria

The scheduling criteria were devised by Cadw and form the elements used to inform those sites deemed suitable for scheduling.

2.4.2.1 Period

All types of monuments that characterize a category or period should be considered for preservation.

2.4.2.2 Rarity

There are some monument categories which in certain periods are so scarce that all surviving examples which still retain some archaeological potential should be preserved. In general, however, a selection must be made which portrays the typical and commonplace as well as the rare. This process should take account of all aspects of the distribution of a particular class of monument, both in a national and a regional context.

2.4.2.3 Documentation

The significance of a monument may be enhanced by the existence of records of previous investigation or, in the case of more recent monuments, by the supporting evidence of contemporary written records.

2.4.2.4 Group value

The value of a single monument may be greatly enhanced by its association with related contemporary monuments or with monuments of different periods. In some cases, it is preferable to protect the complete group of monuments, including associated and adjacent land, rather than to protect isolated monuments within the group.

2.4.2.5 Survival/condition

The survival of a monument's archaeological potential both above and below ground is a particularly important consideration and should be assessed in relation to its present condition and surviving features.

2.4.5.6 Fragility/vulnerability

Highly important archaeological evidence from some field monuments can be destroyed by a single ploughing or unsympathetic treatment. Vulnerable monuments of this nature would particularly benefit from the statutory protection which scheduling confers. There are also

existing standing structures of particular form or complexity whose value can be severely reduced by neglect or careless treatment and which are similarly well suited by scheduled monument protection, even if these structures are already listed historic buildings.

2.4.3.7 Diversity

Some monuments may be selected for scheduling because they possess a combination of high quality features, others because of a single important attribute.

2.4.3.8. Potential

On occasion, the nature of the evidence cannot be specified precisely, but it may still be possible to document reasons anticipating its existence and importance and so to demonstrate the justification for scheduling. This is usually confined to sites rather than upstanding monuments.

2.4.3.9 Listing

Given the character, large number and diversity of airfield sites and the degree of standardisation of structures, English Heritage's strategy for listing focused on the identification of the most complete, historically important and strongly representative sites. The assessment of groups (of buildings, fighter pens and defences) and individual structures outside these key sites rested on their intrinsic historical or architectural or associative importance, particularly those with key historical episodes of the Second World War for the latter).

In England, military airfields were assessed on the basis of the following criteria:

- Identification of the most complete sites and those which are most strongly representative of functionally distinct airbase types;
- Identification of buildings and sites which have strong associations with key historical episodes, particularly in the Second World War;
- Individual and well-preserved buildings and groups, of intrinsic architectural and/or historic merit;
- International context

Selection principles included rarity, technical structural interest, group value with related structures and operational importance.

Cadw are minded to agree with English Heritage on the guidelines for listing military structures, and sites are proposed accordingly.

2.5 Fieldwork

The desktop study, in association with the field visits, identified sites that could potentially conform to the designation criteria discussed above, within the technical area of the airfields themselves, as defined on the air ministry plans (Fig. 1). These sites were visited over a period of ten days between November 2011 and March 2012, and the airfields and associated buildings were examined in the field, as much as possible according to the above criteria. A photographic record was created and the sites were fully described on GAT *pro forma* designed for the

purpose. The recording forms were designed by GAT and in consultation with the other WATs, based on the scheduling criteria provided by Cadw. The information collected was entered onto an airfields database, *Microsoft Access* designed for the project and which maps to the HER and accepted ENDEX data standards. This contains the bulk of the information related to this study.

It was not possible to arrange a visit to RAF Valley for operational reasons and only a limited study of RAF Mona was carried out, although it is considered that it is important that this is done at a future date, and the Scheduling recommendations modified as a result, as the survey cannot be considered to be complete without this having been carried out.

2.6 Report

Once the fieldwork was complete, the results were drawn together to form the subject of this report.

The categories that were created as a result of the desktop study were updated in light of the fieldwork and to make them appropriate for appropriate Scheduling and Listing recommendations and also for integration into the Gwynedd HER. The importance of airfield sites and structures being recorded on regional HERs is well established, enabling their spatial, historical and cultural context to be curated and investigated in the same way as any other archaeological site (Brockman 2012, 13).

3. THE HISTORICAL BACKGROUND

3.1 Early 20th Century Military Airfields

Flying stations or aerodromes of the First World War proliferated throughout the United Kingdom, but these were often cleared and adapted for new uses. A good example of this within the study area is the airship station at RNAS Llangefni, which was totally removed after the war, and later the area was covered by RAF Mona. Similarly no structures remain at the WW1 flying field at Bangor, a situation common across the United Kingdom (Brown *et al.* 1995). From 1923, when the first phase of inter-war expansion commenced, air bases began to be built with permanent materials, and planned on dispersed principles, the result being linked units and hangars planned on arcs (Schofield (ed.) 2004, 27). No examples however of airfields of this early post WW1 type have been identified in Gwynedd. This was designed to reduce the potential losses to personnel and military hardware in the event of an attack, although no examples of this early date have been identified within the study area. From 1935, a period of re-armament and expansion, airfields increasingly had all-weather concrete runways, and components ranged from architecturally polite headquarters buildings, messes and guard houses, to functional hangars, control towers and technical blocks. Eighty-nine new airfields were built across Britain during this period (Brown *et al.* 1995, 107). The airfields were arranged around a circular or rectangular grass surfaced landing ground, which allowed a 1000m run in any direction. The hangars fronted onto the landing ground, with the remaining buildings in a compact layout behind the hangars. RAF Penrhos, dating from this era of expansion, is an example of this type. The improved design of buildings of this period was a product of an official request for the Air Ministry to liaise with the Royal Fine Art Commission over the issue of station design, as a result of fears over the impact of the new bases on the countryside (*ibid.*, 27). The

types of airfield varied according to their function (training/operational/home defence), and the buildings and their layouts vary accordingly. The expansion period was accompanied by the development of military air traffic control, and the building of structures associated with it, most notably the watch office for the duty pilot to control air traffic movements; this became more significant as wireless technology developed. An increased reliance on functionality and the use of concrete becomes apparent once war breaks out in 1939.

Airfield size is closely linked to technological development; WW1 airfields in the east of England have been shown to average 167 acres (*ibid.*, 28), similar to that at RNAS Llangefni, increasing to about 400 acres in the 1930s and to 640 acres by 1945 (Blake 1984, 210). This is also due in no small part to the increasing attention being paid to the dispersal and shelter of aircraft from attack. The first airfields with hard runways and perimeter tracks were introduced in 1938 to ensure all-weather serviceability as aircraft were becoming heavier, a process accelerated by the outbreak of war in 1939.

3.2 Second World War Airfields in Gwynedd

A list of the operational airfields within Gwynedd during the Second World War is given below. This excludes sites that may be associated with airfields, such as the factory at Saunders Roe, Beaumaris, the bomb depot at Llanberis and areas of airfield defence which are associated with the airfields but lie outside the study areas. These will be studied as part of the airfield environs project due to be carried out during 2012-2013.

3.2.1 RAF Penrhos

The land for RAF Penrhos was purchased in 1935, with strong opposition from *Plaid Genedlaethol Cymru*. The site had achieved some notoriety following protests and demonstrations by local people at the compulsory purchase of several farms, not only at Penrhos but also at the airfield and gunnery range at Hell's Mouth. This culminated in an act of arson on the building contractor's property on 8th September 1936. The airfield opened March 1937 as No 5 Armaments Training Camp, with circular grass airfield raised above surrounding marsh. The establishment had two additional sections: Marine section (later No 51 Air Sea Rescue Marine Craft Unit) at Pwllheli, and bombing and Gunnery ranges at Hell's Mouth (Delve 2007, 225).

Luftwaffe attacks July and October 1940 caused death and damage. General opinion among aviation authors was that this training airfield was targeted due to publicity surrounding its construction and the subsequent over-estimation of the importance of the site by the German military intelligence (Spencer 2002, 13).

Although the airfield was always grass, there was a 50ft wide concrete perimeter track surrounding two-thirds of the circumference. There were three grass strips, the longest of which was 860 yards. Most of the buildings were concentrated on the north side, although they were scattered around the perimeter of the airfield. Hangar provision consisted of three Bellmans and one F-type in the main technical area and nine Blister hangars around the perimeter.

In May 1945 the airfield closed, and in June 1945 it went into care and maintenance status. No 21 Aircrew Holding Unit used the accommodation until this was disbanded in March 1946.

In 1947 the domestic sites, which were not dispersed, became a home for Polish servicemen who did not wish or were unable to return after the war, resulting in many of the site buildings remaining extant. The hangars are lost, however the concrete bases remain. The technical site is occupied by a large touring caravan camp, although some structures remain here also. Eventually much of the site sold back to former owner, Mr Edward Owen, and a caravan park was established over much of landing ground including over the bases.

3.2.2 RAF Hell's Mouth

The airfield and gunnery ranges at Hell's Mouth were built as a satellite to RAF Penrhos, enabling the effective capacity of the parent airfield to be increased without the expense of a fully equipped airfield. They covered a large area, involving the compulsory purchase of seven farms. Air to ground, air to air gunnery and bombing took place on regular occasions at the base. The use of the range by early 1940 had been reduced both by the weather, which could be a nuisance, and by a change in training techniques with large, faster aircraft coming into service (Delve 2007, 143). The small grass airfield was extended, three Bellman hangars and aprons were built on the south-east corner of the site and between these and the sea a large moving target railway was laid. By July 1940 the hangars and moving target railway were completed, but the extension to the airfield was not completed until May 1941.

Following the development of the new airfield and training station at Llandwrog in June 1942, RAF Hell's Mouth became obsolete, and the gunnery range closed in February 1943. The airfield still functioned as a relief landing strip for the whole duration of the war, and a lost P38 Lightning landed safely there on 25th September 1944.

Little now remains of the technical area of the airfield, although the concrete aprons and dividing walls can be identified. Partial demolition of the hangars and associated structures has taken place, although walls survive in places to about 1m in height. Rubble from the demolitions remains on the site. Substantial remains of the turret training facility survive, although now somewhat suffering from coastal erosion.

3.2.3 RAF Llandwrog

The site chosen for the RAF station at Llandwrog was on the small peninsula of Morfa Dinlle, which had formerly been a tank training ground. The airfield was very low lying, although a significant amount of levelling was probably required. The main contractor was *Sir Robert McAlpine*, although local builders carried out some of the work. Work began in September 1940 and was completed by May 1941 (Jones 2008, 61). This required the production of 10,000 tons of asphalt for the construction of the aerodrome surface (Chambers-Jones 2008, 187). The airfield consisted of three runways, the main east-west one being 100m by 50m, the north west – south east one 950m by 50m, and the north east- south west one 950m by 50m. All the runways were constructed of concrete and tarmac.

The RAF station at Llandwrog was intended as a fighter station in a forward position in the event of an enemy invasion of Britain from the Irish mainland, of which there was a considerable fear in 1940 (Spencer 2002, 16). It was also an airfield that would be useful in the interception of raiders attacking the industrial north-west from bases in north-west France. The German

invasion of the Soviet Union in late 1941 reduced the threat of invasion as the main German focus had turned eastwards, and Llandwrog became a training base, for observers, navigators and pilots. It had the advantage of being some distance away from the main area of enemy attacks, and with the main fighter bases being located on the east coast of Britain and required for combat duty, it provided a useful training facility.

The base was constructed in a 'dispersed' manner, with the service personnel accommodated in Nissan huts on the northern end of the main runway in order that they might be near the aircraft, whilst the trainees lived in huts on the coast road, close to the beach at Dinas Dinlle (*ibid*, 187). The technical, administration and hospital areas were on the south side of the runways (Fig. 4). A dyke was constructed around the perimeter of the airfield facing the sea.

The front at Dinas Dinlle was accessible to the public for only a certain distance along the coastal road towards the airfield and sentries and barricades were placed to prevent anyone going further. The seaside was defended by coils of barbed wire which extended all the way from one end of the beach to Fort Belan, with occasional gaps. The barbed wire served to both inhibit any possible invasion and to prevent anyone straying into the mines laid along the shore, and the coastal sand dunes. Four parallel lines of close-set pits running generally north-south for some 400m may be the vestiges of a wartime minefield protecting the airfield (NPRN 408629). These were recorded during RCAHMS aerial reconnaissance (image ref: AP_2006_0452). The sand dunes were overrun with rabbits, which provided a welcome supplement to the diet of those serving on the base (*ibid*. 191).

The main runway was west east, which caused a number of accidents during training, as an aircraft that overshot the runway could end up either in the sea or be wrecked in the mountains to the east.

The airfield eventually had ten hangars, seven of which were Blister type that were mainly situated on the north side. The technical area was on the south side, and the communal sites were to the south-east.

The airfield was of great significance in the development of the RAF Mountain Rescue Service, where many of the methods and techniques were devised by Flt. Lt. Des Graham and the staff of the station sick quarters (Delve 2007, 192). Little evidence survives on the ground to show the significance of this, although the airfield remains associated with Mountain Rescue service based at RAF Valley.

Llandwrog airfield was officially closed on 29th July 1945 until it re-opened for civilian use as Caernarfon Airport in 1975.

Many of the original RAF buildings survive and some have been converted to later use. At Blythe farm they have been converted to light industrial use, and further former RAF buildings form part of *Parc Busnes Llandwrog*. The airport is now known as Caernarfon Airport, managed by *Caernarfon Airport Ltd.* and provides flying instruction and pleasure flights.

3.2.4 RAF Llanbedr

RAF Llanbedr was constructed from the middle of 1940 to 1941 in a coastal area with sand dunes on three sides of the airfield, and the mountains and village of Llanbedr to the east. It was intended as a forward base for fighter squadrons defending the Irish Sea area, although it later became a training base. It consisted of two runways northeast-southwest and northwest-southeast. Originally here were Blister Hangars around the perimeter track and very few other buildings (Jones 2008, 21). The infrastructure of the station, which included a Bellman Hangar and a developed technical area, expanded with many other structures being built in 1943 as a result of the airfield being used as a hub for the transatlantic delivery of the four-engine bombers and transport aircraft that were being delivered from the United States. These were situated to the north of the runways.

From autumn 1943 to February 1945 Llanbedr was home to two armament practice camps, and it became a major training facility visited by large numbers of fighter squadrons, carrying out intensive training. This role of providing target facilities continued after the Second World War.

As the airfield has been in use until 2004, a significant proportion of the buildings, including the wartime and post-war hangars survive on the site and the airfield retains much of its integrity.

3.2.5 RAF Morfa Tywyn (Towyn)

The earliest edition Ordnance Survey map of 1837/1864 (Smith 2004: Fig. 3) shows the area of the RAF airfield before extensive drainage was carried out. A description of early 19th century Tywyn said that 'At this time Towyn was a harbour or it may not inappropriately be called a sea port because the tide did not ebb or flow at Gwalia.

In the 20th century, following a period when much of Morfa Tywyn was in use as a golf course, the main changes to the area were a result of the Second World War. Approval was given August 1939 for acquisition of land at Morfa Towyn for the construction of a landing ground for use by the Anti-Aircraft Practice Camp at Towyn, SSE of Tonfanau gunnery range. The airfield opened September 1940, with accompanying camp buildings. The RAF base was an army co-operation unit that towed targets for artillery practice. The base was operational between 1941 and 1945 when it was taken over by the army (*ibid*: 4). The runways have disappeared from view, although the area remains levelled, but many of the buildings are still extant.

Much of the technical area at RAF Morfa Towyn survives, now used for storage and light industrial purposes, although the hangars have been demolished in recent times. The dispersed structures which formerly surrounded the airfield survive only at foundation level.

3.2.6 RAF Bodorgan

The site of RAF Bodorgan was requisitioned at the end of 1939 from the Bodorgan Estate, and consisted of an area of 200 acres. A certain amount of demolition work and levelling of hedges and ditches was carried out, completed by the summer of 1940, and the airfield opened under the name of Aberffraw. The grass landing strip eventually had three runways, all of around 1000 yards, along with two Bellman hangars associated with the technical site and one Blister Hangar

isolated on the south western perimeter of the airfield near to Penrhyn Farm. Hurricanes and Martinets were the main types of aircraft in use in the latter period of the base's occupation.

The airfield closed to flying in August 1945, used as a maintenance depot until the end of the year, after which the land returned to the Bodorgan Estate and agricultural use. A number of the former airfield buildings remain in use both for agricultural storage and as part of the estate office, and the concrete apron and access tracks remain in place on the technical site, giving a good indication of the layout of the site. A significant number of structures from the domestic accommodation area also survive.

3.2.7 RAF Mona

RAF Mona began its life as an RNAS station during WW1, where it operated as an airship station, carrying out anti-submarine and maritime patrols over the Irish Sea. The station accommodated two airships, with a large shed, 120 by 318 ft, plus various huts, which included workshops, stores and gas production units, which were built either of corrugated iron and wood (Phillips 2010, 144). The domestic accommodation was on the east side of the airfield. The airfield was probably abandoned in 1919, after which the buildings on the site were used as an isolation hospital, known as *The Druid* after a nearby farm. The site remained unoccupied for military purposes until early 1940 when a relief airfield was established. The old airship station buildings had become dilapidated by this time. The land for the airfield was requisitioned in 1941 and the building of the airfield went on into 1942, with Air Ministry being forced to relocate the hospital into Llangefni, demolishing the old buildings (Jones 2008, 97). The three runways, of concrete, were constructed during 1943 along with the connecting perimeter track, and by late 1944 it had three T1 hangars and 17 Blister hangars, all in a somewhat unusual arrangement of two groups- one on the west side and one on the east side. The communal sites were located just west of the airfield, where some buildings remain, although much of the wartime technical site has been cleared.

In the early 1950s RAF Mona became used as the relief landing ground for RAF Valley. This resulted in the maintenance of one single hangar on the airfield (now used by the civilian *Mona Flying Club*), and the extension of southeast-northwest runway eventually to 2000 yards and the abandonment of the other two.

3.2.8 RAF Valley

The requisitioning of land for Valley began in July 1940, the site between the beach and the main railway line gave a large flat area that would prove easy to develop. The base opened on 5th March 1941 and was renamed Valley, and included concrete runways (Phillips 2010, 118). In November 1942 plans were put in place to extend the perimeter track and construct hard standings (Abraham 2001, 33). The airfield was given three surfaced runways, and by December 1944 the airfield had nine hangars, comprising four Blisters, three Bellmans and two T2s. An extra T2 was built at the end of the war. The main group of hangars was in the technical site on the north-east corner, with a further pair on the north-west side. The communal sites were widely dispersed to the north and east.

The airfield has remained in use since the war, most notably as a flying training school since 1951. In 1956 the main runway was extended to 7500 ft in length with the construction of an

additional section at the south-east end, and a new 'Gaydon' type hangar built (*ibid.* 34). During the cold war it became, like Llanbedr, a 'V' bomber dispersal base. In recent years Hawk Trainers, formerly Gnats were used. Other than some areas of hard standing, and a number of new or modified buildings, much of the wartime structure is still in place.

The Station is the base operational Search and Rescue (SAR) operations with C Flight of 22 Squadron and SAR Training carried out by the SAR Training Unit (SARTU), flying Griffin and Augusta AW139 Helicopters.

3.2.9 Discussion of the wartime airfield role

Although limited in scope, during the First World War the area provided airship bases at Bangor and Llangefni to patrol the waters off Merseyside and the Irish Sea. In the Second World War, thousands of RAF aircrew, many from Commonwealth and other countries, trained at airfields in this region, which provided all stages of the training, making north Wales a very significant location for the provision of training, a role that has continued in post-war years. There were also a number of air gunnery training ranges, for both air to ground and ground to air training. The area also provided the day and night defence of north-west England. Cold war era modifications to airfields are limited to RAF Valley and the former RAF Llanbedr.

3.2.10 Airfields and their use during the cold war

Some Cold War sites were purpose-built but it was more common to adapt existing defence sites (*English Heritage*, 11), as at RAF Llanbedr. A significant amount of new building was undertaken; Cold War and Post-Cold War architecture is distinguished by severely functional appearance, and construction largely of concrete, steel and earth. Many buildings have a very innovative form, but standardised types were built across the country (*ibid.*). Airfields formed a large part of the Cold War era military estate. During the 1950s and 1960s the airborne nuclear deterrent was carried by the "V-force" aircraft, largely based in SE England, where existing airfields were adapted to include longer runways, hard-standings and other features such as concrete walls (Cocroft and Thomas 2003). Elements of these can be seen at RAF Valley and RAF Llanbedr, which were prepared to provide aircraft dispersal sites. Later Hardened Aircraft Shelters for the protecting/servicing of the aircraft themselves were built. Related to this were bomb stores and ballistic missiles, which left distinctive buildings (*ibid.*, 12).

In 1951 the Royal Aircraft at Farnborough began to use the facilities at RAF Llanbedr, using the airfield as an unmanned target development airfield, and the site became known as RAE Llanbedr. This activity was connected with cold war developments. A new long runway of 7500ft was built in 1955 running roughly north-south to accommodate these drones, but could also serve for large cold war aircraft if necessary. Two new T2 hangars were erected with workshops and laboratories in the annexes, which were associated with cold war activities. Technical areas were developed to the west of the new runway, and a new air traffic control building and radar surveillance to the south. This use of the airfield, in various guises and under various subsequent authorities, continued until 26th October 2004 when the base closed (Delve 2007, 186).

From September 1946 until late 1955 the now closed airfield at RAF Llandwrog housed a secretive maintenance unit, known as No.277MU. Between these years the base received 9,000 tons (71,000 bombs) of enemy chemical weapons (Sloan 1998). Under 'Operation Sandcastle',

the weapons were brought from Germany to a channel port, then shipped to the docks at Newport and then driven up to Llandwrog. After some (currently unknown) form of processing, probably carried out in the large number of now demolished hangars built on the former runway (Jones 2008, 66; lower figure) they were driven to Fort Belan along a newly constructed road, where a jetty had been built. The material was eventually loaded onto a ship and dumped in a deep part of the Atlantic Ocean. It is not known why such a complex procedure involving much loading and unloading of dangerous material was required (Jones 2008, 68-9). The foundations of one of the hangars survive on a disused runway, and some relict evidence of some of the others.

3.2.11 Summary of Airfield Function

The table below lists the airfield sites included in the study and indicates their primary role and military significance.

TABLE 1

<i>PRN</i>	<i>Site</i>	<i>Main Periods of activity</i>	<i>Function/role/significance</i>	<i>Significant elements</i>	<i>Linked sites</i>
32309	Bodorgan	WWII	Anti-Aircraft Base Later satellite Landing Ground	Hangars/ technical site	Ty Croes Range
29445	Hells Mouth	1930s, WWII	Interwar offensive training facility Mobile Turret Trainer Local Opposition	Hangar base/MTR	Penrhos Harlech Range Llandwrog
7267	Llanbedr	WWII - 2004	Fighter base Training establishment Long term use – UAV development/deployment Cold War evidence	Hangars/ runways/ technical buildings	Valley Aberporth Tywyn
7864	Llandwrog	WWII – today	Fighter base Training facility Post War chemical weapons storage Mountain rescue Civilian airfield Significant multi-phase use	Triple trainer/ Bellman bases/ runways	Penrhos
29448	RNAS Anglesey/ Mona	WWI – today	One of only 2 RNAS bases in Wales (one of 13 in UK) Some evidence for WWI fixed wing flight (linked to Bangor/Glan y Mor Isaf) Training facility Fleet Air Arm operated Skuas in 1944	Any trace of WWI activity (fuel stores appear evident on APs see mapinfo tab rnas trace) Hangars/runway	Valley Pembroke Malahide (Dublin) Bangor

			RLG for Valley Flying Club Base Significant multi-phase use	/technical site	
7863	Penrhos	1930s, WWII	Interwar offensive training facility Training/Gunnery school Polish settlement Welsh Nationalist activity Site bombed – fatalities Well-preserved upstanding remains	Technical site /training buildings	Hell Mouth Llandwrog
7288	Tywyn	WWII - 1980s	Training facility, target towing Diverse range of aircraft used Aberystwyth University Air Squadron used site Well-preserved upstanding remains Important relationship to town/requisitioned buildings	Technical site	Tonfanau range Llanbedr
29449	Valley	WWII – today	Fighter station – combat Transatlantic hub/Ferry Command Air Sea Rescue/Search and Rescue Training role, especially post war - target towing/missile practice camp/air-to-air Strike Command Helicopter base ?Good wartime preservation	Technical site/runways/training buildings	Llanbedr Aberporth ?Ty Croes

4.0 SURVEY RESULTS

The aim of this project is to identify 20th century military airfield sites suitable for statutory protection. Cadw provided criteria to guide the identification of sites of national importance, and these are noted in Section 2.4.2. A total of 82 sites were recorded at the seven sites surveyed, although a number of these include different elements. A full list of airfields and associated structures identified in Gwynedd is given in the gazetteer below. This, and the associated database, provides an archive output which will be used for HER enhancement, in addition to the designation recommendations.

4.1 Site Gazetteer

ID no	1
Airfield	Llanbedr
PRN	7267
NGR	SH56902650
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Second World War airfield, in use. <1> Constructed during mid-1940 to 1941, RAF Llanbedr opened on 15 June 1941. Intended as a forward base for fighter squadrons defending the Irish Sea area and was controlled by RAF Valley. The station consisted of two runways, six single-engine type pens, one Bellman hangar and four Blister hangars during wartime. A long runway was constructed in c.1955. <2>

ID no	2
Airfield	Tywyn
PRN	7288
NGR	SH58000150
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	1A-52
Description	<p>The site of RAF Tywyn, operational between 1941 and 1945. <1></p> <p>A small grass airfield built for the purpose of flying targets for the anti-aircraft gunnery practice needed by the Royal Artillery Anti-Aircraft School at nearby Tonfanau. The airfield consisted of two Bellman hangars, two Blister hangars, two Bessoneau canvas hangars, control tower and technical site buildings including a Dome Trainer. None are extant. <3></p> <p>The main airfield site is located south of the airfield off Sandlands Road. Most of the buildings survive with the exception of the two Bellman hangars (1A and 1B) to the north of the site demolished recently, the wireless masts to the south and huts 2a, 26 and 32 to the east of the site. There has been some alteration to the buildings, but the group remains remarkably complete, as shown on the MOD plan. Access was not possible within the airfield site itself, which is now let as storage units.</p>

ID no	3
Airfield	Penrhos
PRN	7863
NGR	SH33503363
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>RAF Penrhos opened 1 Feb 1937 as an armament training station. It was roughly circular in plan with a 20ft drop to the surrounding marshy coastal ground and was of grass throughout its existence. Many people at RAF headquarters considered it dangerous and unsuitable for training. Indeed, the small grass airfield was to see a lot of accidents as faster and heavier types of aircraft were used. The site consisted of grass runways, an old seaplane shed which was the main hangar, three Bellman hangars, nine Blister hangars, a single storey control tower/watch office and domestic buildings. There are numerous air-raid shelters, strong points, ack-ack posts and the Battle HQ on the high ground behind the airfield to the NE still extant today, including some of the RAF technical site buildings. The Hangar bases are also still to be seen. <2></p>

ID no	4
Airfield	Llandwrog
PRN	7864
NGR	SH43505885
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>At one time the most heavily defended airfield in Wales during WWII. Site history well documented. Home of the mountain rescue. <1>RAF Llandwrog was intended as a fighter station in a forward position in advent of an enemy invasion from the Irish mainland. However when RAF Llandwrog opened in 1941 the need for fighter defence bases had lessened, and so Flying Training Command took over the site. It consisted of three runways of concrete and tarmac, two TI, one Bellman, five Over Blister and one double Blister hangars and control tower with watch office alongside. All original hangars have been demolished. The site is still used by private light aircraft. <3></p>

ID no	5
Airfield	Hell's Mouth
PRN	29445
NGR	SH270285
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>The RAF needed bombing and gunnery ranges for the Armament Practice Station at Penrhos. Construction of Hell's Mouth airfield began in 1936 after the compulsory purchase of seven farms, the bay and seven miles of beach. Targets consisted of canvas sheets with rings for gunnery training and offshore rafts for bombing practice. By the early 1940s the grass landing strip was extended and Bellman hangers with adjoining concrete aprons were built. A moving target railway was also laid at this time. The airfield was closed in 1945 and its structures demolished by 1947. The air-raid shelters and a blockhouse remain, as well as a section of the perimeter track. The concrete bases of the Bellman hangers can also be seen today and the remains of the moving target range. <1></p>

ID no	8
Airfield	Mona/Llangefni
PRN	29448
NGR	SH415760
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>Originally the site of a WWI Royal Naval Airship Station, the buildings were subsequently used as an isolation hospital. The land was requisitioned in 1941 and RAF Mona was opened in 1942. Flying ended in May 1945, and the airfield remained dormant until the early 1950s when it was used as the relief landing ground for Valley. The private 'Mona Flying Club' is based at the airfield today. RAF Mona consisted of ten dispersed sites including the technical and airfield. The airfield had three runways; N-S, NW-SE and NE-SW and there were three T1 hangars and seventeen Blister hangars. The main runway was extended in the 1950s and the shorter two were closed. The control tower and one of the T1 hangars remain and are still in use today.</p> <p><1></p>

ID no	9
Airfield	Valley
PRN	29449
NGR	SH305755
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Originally called RAF Rhosneigr, the airfield was built in 1941 as the Fighter Command Sector Station to defend Liverpool, Manchester and the Mersey. <1>

ID no	10
Airfield	Bodorgan
PRN	29450
NGR	SH385685
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Originally called RAF Aberffraw, it was a simple grass airfield opened in 1940 to provide a base for the aircraft performing Anti-Aircraft Co-operation work in the area. It later evolved into a satellite landing ground. There were two Bellman hangars on the technical site and one Blister hangar. A few war time buildings remain on the site. <1>

ID no	11
Airfield	Glan y Mor Isaf
PRN	27310
NGR	SH62207231
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A small irregular airfield was laid out between the railway and the coast...with runs of around 1,500ft. In use 1918-1919. <1> <2>

ID no 12

Airfield

PRN 32226

NGR SH566610

Period Modern

Date of

On Air Ministry

Drawing No

Description

ID no	13
Airfield	Penrhos
PRN	32241
NGR	SH33679340
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Concrete track originating at junction with main road from Pwllheli and covered with tarmac in places.

ID no	14
Airfield	Penrhos
PRN	32242
NGR	SH33706341
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Concrete crossing for track over stream with iron railings. Appears to be contemporary with road to married quarters. Culvert below covered with prefab float visible in road.

ID no	15
Airfield	Penrhos
PRN	32243
NGR	SH33743429
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Terraced housing constructed for married airmen. Permanent; still in use. Now likely to be private housing although all have identical upvc windows and pebble dash.

ID no	16
Airfield	Penrhos
PRN	32244
NGR	SH33784343
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Now Lavender House (period/pine/gift shop). 3-bay building with corrugated asbestos roof. 2 corrugated iron eastern bays appear more recent, western section shown on plan, smaller southern section also on plan and of timber construction with corrugated asbestos roof.

ID no	17
Airfield	Penrhos
PRN	32245
NGR	SH33820343
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Currently in use, houses built on living accommodation. Appear to be higher status than married quarters. Now privately owned? (has same upvc as married quarters). Covered in pebble dash (presumed original). Concrete track continues to the front.

ID no	18
Airfield	Penrhos
PRN	32246
NGR	SH33835343
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Blister hangar, curved profile. Iron framing for roof with grey brick built elevations. Currently roofless. No windows. Small door to south elevation, larger door to northern. Vents evident to apex of curved roof in elevation. To south, air raid shelter entrances are visible, and to the east an upstanding wall of red brick construction remains from the centre block.

ID no	19
Airfield	Penrhos
PRN	32247
NGR	SH33635341
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>Former officers hut, now part of Polish accommodation. Timber construction with upvc cladding to long elevations, ?original felted roof and replacement timber double glazed windows to SW half. Concrete panel on which building sits is wider than building. Wider building to NE of pad is of timber construction, extension to SW clad in plastic, NW elevation in ?ply sheets. Replacement timber double glazed windows and ?Canadian profile corrugated asbestos sheeting roof. Louvred vent in apex roof to NE elevation, and modified opening to same. SW building has had later addition of verandah to W elevation.</p>

ID no	20
Airfield	Penrhos
PRN	32248
NGR	SH33643416
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	'Officers quarters 'B' Scale'. Long building (12 bays) now entirely upvc clad. Upvc replacement windows, and modern porch. Sits on original concrete pad, covering the entirety of it? Canadian asbestos roof.

ID no	21
Airfield	Penrhos
PRN	32249
NGR	SH33643420
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>Eight bay timber clad (tongue and groove) building on concrete pad. Original 'crittal' type windows, lateral doorway (in bay 3) is a more recent timber replacement. Corrugated asbestos roof (Canadian type?) Original cast iron plaque 'S.C. 4ft 6'. Original cast iron downpipes and guttering. Minor repairs to corners and doorway in SW gable. Other gable has lowered vent. Well preserved and substantially unaltered hut. 'No 41' plaque above lateral doorway.</p>

ID no	22
Airfield	Penrhos
PRN	32251
NGR	SH33603417
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Boiler house of timber tongue and groove above concrete (approx. 1.4m high). 'Crittall' type windows (2) on NE face of building, along with original louvred doors. On SW façade is adjacent tank and there is a brick boiler chimney to south corner.

ID no	23
Airfield	Penrhos
PRN	32250
NGR	SH33624206
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	All traces of this structure, with the exception of the ghost outline of the former concrete pad, have been removed. Now grassed over and trees planted.

ID no	24
Airfield	Penrhos
PRN	32252
NGR	SH33603414
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>Timber tongue and groove building on a concrete pad on a SE-NW alignment with three wings extending eastwards. The northern most one links to the boiler house (PRN 32251) with pipes. Louvred vents and 'critall' type windows. All set on a concrete pad. Original surviving plaques, including red 'FIRE POST - YOUR NU-SWIFT IS HERE SIGN' and fire hydrent. Upvc clad on western (front) façade, where there is an original porch at the southern end not clad beyond. Former mess forms large centre to officers quarters and ablutions blocks surrounding it. Now used as the library and hall. Brick chimney and covered skylights also present. A detached, now upvc clad building set on a concrete pad to the west, forms part of this complex. All roofs are corrugated asbestos. Some doors are original.</p>

ID no	25
Airfield	Penrhos
PRN	32253
NGR	SH33543422
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A rectangular brick enclosure, now converted into a walled garden. Former entrance to the N, with height of 1.2m. Southern wall partially rebuilt in grey brick. Iron ties within header and stretcher band.

ID no	26
Airfield	Penrhos
PRN	32254
NGR	SH34854416
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Former pupils ante-room, new chapel. Now rendered and with replacement windows. Difficult to see most original features, but retains shape and form, despite replacement windows with more 'ecclesiastical' form. Tower at east end recent. Roof replacement.

ID no	27
Airfield	Llanbedr
PRN	32255
NGR	SH56972533
Period	Modern
Date of	1950-1960
On Air Ministry	
Drawing No	
Description	<p>Air traffic control building, with associated outbuildings, consisting of single storey structure clad in rectangular panels with observation post above original casement windows and porch, and three doors on the eastern side. Surrounded by 2 A.G.S. portakabins, and a standby generator house (271) to the south. Air vents and plastic guttering and downpipes present, and external metalwork. Access not possible to internal areas by wire fence. Hardstanding parking area surrounds the building.</p>

ID no	28
Airfield	Llanbedr
PRN	32256
NGR	SH56942519
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Single storey pebble dashed building and brick, with small window openings. Flat roofed and joined by paths to redundant structures associated with the radar port (279 A + B, see Quinet Q plan), which survives as foundations only, connected by asphalt footpaths.

ID no	29
Airfield	Llanbedr
PRN	32257
NGR	SH56442554
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	1960's two block building with openings on three sides of the building with small lights at 1st floor level to the west within the taller block. Air vent on the roof, and small detached WC building to the east.

ID no	30
Airfield	Llanbedr
PRN	32258
NGR	SH56362559
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Two small three bay WW2 huts, of standard format with doors in western gables. No window openings since 165B was a smoke training room. 165A was a store room, but there is no appreciable difference between them on the ground.

ID no	31
Airfield	Llanbedr
PRN	32259
NGR	SH56442567
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A four bay hut used as a fuel store with entrances to both east and west; pedestrian access to the east and larger double door access to the west. Entrance of former fuel tank to the west doors, with surviving metal frame, with a small cupboard on west gable. Building new upvc clad.

ID no	32
Airfield	Llanbedr
PRN	32260
NGR	SH56382586
Period	Modern
Date of	1980's
On Air Ministry	
Drawing No	
Description	A brick and corrugated steel building. Appears to be modern in date, 1980's onwards.

ID no	33
Airfield	Llanbedr
PRN	32261
NGR	SH56372599
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Bulk fuel storage, with two large green tanks.

ID no	34
Airfield	Llanbedr
PRN	32262
NGR	SH56352631
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Water feature?

ID no	35
Airfield	Llanbedr
PRN	32263
NGR	SH56492620
Period	Modern
Date of	1960's
On Air Ministry	
Drawing No	
Description	ORP Vulcan bomber Cold War readiness position. Tarmac waiting positions on the runway.

ID no	36
Airfield	Llanbedr
PRN	32264
NGR	SH57162655
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Clad watch tower building, with upvc covering, but original window openings generally, but some modification. Window replaced with upvc. Possibly original door survives on porch. Most guttering and fittings replaced.

ID no	37
Airfield	Llanbedr
PRN	32265
NGR	SH57162655
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Three bay structure, with two large double doors which are probably original, north facing. Third (western) one converted into an office re-used railway sleepers used to hold open doors. Pedestrian door in west gable. Original corrugated roof, but now building clad in upvc. Possibly original windows to south of building (casement/critall type). Aircraft tie down block to south.

ID no	38
Airfield	Llanbedr
PRN	32266
NGR	SH57132655
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Shed with large north facing doors (double) with railway sleeper tie-back pins. Original roof, but walls upvc clad including buttresses. Roof of corrugated asbestos. Tied to building.

ID no	39
Airfield	Llanbedr
PRN	32267
NGR	SH57282662
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Upvc clad parachute drying shed, with modern addition to the south. Shaped roof to enable drying. Central door to north. Roof covering is a modern replacement. Buttressed. Some internal fittings survive.

ID no	40
Airfield	Llanbedr
PRN	32268
NGR	SH57232666
Period	Modern
Date of	1940's
On Air Ministry	
Drawing No	
Description	Six bay shed building. Standard design with buttresses and corrugated roof. Addition of lean-to on the south side of the building.

ID no	41
Airfield	Llanbedr
PRN	32269
NGR	SH57212669
Period	Modern
Date of	1940's
On Air Ministry	
Drawing No	
Description	Twelve bay hut with porch attached on south side in middle bay. Partially clad with upvc, with the exception of the buttresses. Some later additions to the north.

ID no	42
Airfield	Llanbedr
PRN	32270
NGR	SH57162669
Period	Modern
Date of	1940's
On Air Ministry	
Drawing No	
Description	<p>Eight bay shed with many surviving original features. Critalls windows (casement) and original cement render. Corrugated asbestos roof. Original porch at eastern end. Original roof vent. Windows blocked on two eastern bays on north side. Small door near porch with porches on south side of the building. One blocked and double door in the third bay from the east.</p>

ID no	43
Airfield	Llanbedr
PRN	32271
NGR	SH57062674
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>Pair of huts, eastern one (149) is a four bay and the western one is of two bays (148).</p> <p>148 - two south facing windows blocked-up, surviving windows of crill type. All north facing ones blocked. Gable entered between buttresses, otherwise of standard architectural type.</p>

ID no	44
Airfield	Llanbedr
PRN	32272
NGR	SH56992678
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Nissen type corrugated iron sheds with double entrance doors to the south and west. Blocked now on 128. Curved sheeting.

ID no 45

Airfield Llanbedr

PRN 32273

NGR SH56282599

Period Modern

Date of 1940'S

On Air Ministry

Drawing No

Description A former rifle range with back facing of brick of at least 40 courses high, built in English Garden Wall Bond (header/stretcher). Revetted on the west side with two buttressed bracing walls at 90 degrees to it and an earthen bank on the east side 2m high with small opening as an observation slit. Target butts also noted against the east face of the structure (photos 92-93). Buttressed on seaward side. A concrete platform lies to the west of the structure.

ID no	46
Airfield	Llandwrog
PRN	32274
NGR	SH43565838
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>Brick built structure with massive concrete plinth and lintels of reinforced concrete, with buttresses of brick. Three bays and openings to east to almost full height and smaller, but still large ones to west. Small doorways and windows now infilled with concrete. To west, concrete foundations and runners of unknown purpose. Air raid shelter to west. Small brick addition to the north. Roof purloins lost.</p>

ID no	47
Airfield	Llandwrog
PRN	32275
NGR	SH43495836
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	'H' shaped block of rendered brick and concrete. Middle section higher than rest of complex (possible second storey or larger). Butressed and with large gable end doors to east. Doorways and roof renewed.

ID no	48
Airfield	Llandwrog
PRN	32276
NGR	SH43445835
Period	Modern
Date of	
On Air Ministry	
Drawing No	146
Description	Concrete foundations. There appears to be a raised platform to the east on which other structures may formerly have stood. Concrete heads in a SW direction. The Air Ministry plan suggests this was formerly an intensively occupied area.

ID no	49
Airfield	Llandwrog
PRN	32277
NGR	SH43425833
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Concrete foundations. There appears to be a raised platform to the east on which other structures may formerly have stood. Concrete heads in a SW direction.

ID no	50
Airfield	Llandwrog
PRN	32278
NGR	SH43795901
Period	Modern
Date of	
On Air Ministry	
Drawing No	132
Description	Brick built target store, now used for farm impliment storage.

ID no	51
Airfield	Llandwrog
PRN	32279
NGR	SH43845899
Period	Modern
Date of	
On Air Ministry	
Drawing No	133
Description	The footprint and some of the superstructure survives of this Bellman hangar, now used for agricultural storage.

ID no	52
Airfield	Llandwrog
PRN	32280
NGR	SH43845900
Period	Modern
Date of	
On Air Ministry	
Drawing No	121
Description	The concrete pad for this building survives.

ID no 53

Airfield Llandwrog

PRN 32281

NGR SH43725935

Period Modern

Date of

On Air Ministry

Drawing No 126

Description

ID no	54
Airfield	Llandwrog
PRN	32282
NGR	SH43875852
Period	Modern
Date of	
On Air Ministry	
Drawing No	114
Description	A six-bay hut with partitions for offices. Appears to be offices for technical area to the south of the access road.

ID no	55
Airfield	Llandwrog
PRN	32283
NGR	SH43975827
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	An Allan Williams turret - possibly not in its original location.

ID no 56

Airfield Llandwrog

PRN 32284

NGR SH43435950

Period

Date of

On Air Ministry

Drawing No 112C

Description

ID no 57

Airfield Llandwrog

PRN 32285

NGR SH44255880

Period Modern

Date of

On Air Ministry

Drawing No 116D

Description

ID no 58

Airfield Llandwrog

PRN 32286

NGR

Period

Date of

On Air Ministry

Drawing No 123

Description

ID no 59

Airfield Llandwrog

PRN 32287

NGR

Period

Date of

On Air Ministry

Drawing No 128

Description

ID no	60
Airfield	Tywyn
PRN	32288
NGR	SH57490192
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A brick and concrete pill-box, with access/escape tunnel to the north and concrete roof.

ID no	61
Airfield	Tywyn
PRN	32289
NGR	SH57550151
Period	Modern
Date of	
On Air Ministry	
Drawing No	190
Description	Concrete foundations of former barrack block forming part of airmans accomodation, of six bays in length. Fragmentary remains suggest this mayhave been an ablutions unit. Within the yard of the former Morfa Tywyn farm.

ID no	62
Airfield	Tywyn
PRN	32290
NGR	SH57590152
Period	Modern
Date of	1940s
On Air Ministry	
Drawing No	
Description	Concrete foundations of barrack block of six bays, associated with airmans accomodation - an area formerly part of Morfa Tywyn farm.

ID no	63
Airfield	Tywyn
PRN	32291
NGR	SH57600150
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	Concrete foundations of a barrack block of six bays, associated with airmans accomodation - an area formerly part of Morfa Tywyn farm.

ID no 64

Airfield Tywyn

PRN 32292

NGR SH57520195

Period Modern

Date of 1940s

On Air Ministry

Drawing No

Description A tall pole, braced at low level by iron supports bolted and braced to the pole. The pole is of a substantial mass, and probably formed the windsock to indicate the wind direction for the airfield. It is situated on the northern edge of the airfield proper, adjacent to the dispersal area. It is currently used to attach public footpath signs to. It is all present with the exception of the sock itself.

ID no	65
Airfield	Tywyn
PRN	32293
NGR	SH57860177
Period	Modern
Date of	1943
On Air Ministry	
Drawing No	
Description	<p>A track about 2m wide, of concrete, around the north-west corner of the former Tywyn airfield, around which a number of huts were located. These are not on the MOD airfield plan (1760/45) and must be related to the later development of the airfield, and are probably dispersed barrack blocks, rather than that which formerly concentrated around Morfa Tywyn farm. All the barrack blocks are demolished and survive as concrete pads only. The track forms a rectangle, with former barracks located off it to the east and south.</p>

ID no	66
Airfield	Tywyn
PRN	32294
NGR	SH57530191
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A circular concrete platform approximately 10m across, with north arrow picked out in concrete. Used to orientate aircraft.

ID no	68
Airfield	Hell's Mouth
PRN	32300
NGR	SH28212658
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	<p>A gunner range with 3 concrete platforms to the east, west and south, with trapezoidal shaped back area up to 30m long and 0.2m wide to the west. Firing platform 1.8m high and backed with earth, of concrete construction. These form part of the firing range, as does trapezoidal area. This is 1.6m high and 22m long. Two concrete walls joined by short cross concrete 0.7m wide. The two concrete panels are offset, and form the backing to the range. Evidence of the wooden frame in which all the concrete was constructed is clear. Now evidence of beach fires surround the site, concrete spilling is also present, particularly to the east. It is also eroding into the sea to the west.</p>

ID no	69
Airfield	Hell's Mouth
PRN	32301
NGR	SH28322700
Period	Modern
Date of	WW2
On Air Ministry	
Drawing No	
Description	North-south concrete wall, seperating landing ground to the west from techincal area and hangars. Wall 1.2m high of concrete and brick construction, and survives only in its northern part, although fragments survive to the south. 0.8m thick.

ID no	70
Airfield	Hell's Mouth
PRN	32302
NGR	SH28432675
Period	Modern
Date of	
On Air Ministry	
Drawing No	10
Description	Partially demolished Bellman hangars. South western most hangar survives solely as demolished rubble. Flat ground inbetween them retains some concrete hard standing. Butresses survive on the SW hangar, of a low broad type. Constructed of coursed rubble stone, and SW hangar survives to butress height. Used now as an animal shelter and store. All other material survives only as a large pile of demolished rubble. Concrete pad survives for SW example. Formerly 3 hangars present.

ID no	71
Airfield	Hell's Mouth
PRN	32303
NGR	SH83986715
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A gate with concrete post leading to track with Bellman hangars to the east and a concrete pad to the west (significance not clear as not on Air Ministry Plan). Concrete posts 1.6m high. Almost certainly a wartime access onto the airfield.

ID no	72
Airfield	Hell's Mouth
PRN	32304
NGR	SH32842672
Period	Modern
Date of	1940s?
On Air Ministry	
Drawing No	
Description	Access roadway bounding edge of airfield, bounded by concrete post and wire fencing that may be WW2 in date. Same course as shown on Air Ministry plan. The post and wire fence has somewhat spalled concrete and has been replaced by timber posts in places.

ID no	73
Airfield	Bodorgan
PRN	32305
NGR	SH38136828
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	A three bay former fire equipment shed with large opening to NW to allow the engine out. Otherwise standard cement rendered brick construction with buttresses and iron truss roof below asbestos sheeting.

ID no	74
Airfield	Bodorgan
PRN	32306
NGR	SH38136824
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	<p>A three bay shed, orientated S-N. The opening in the west side consists of a one and two bay width opening, with a blocked door opening in the north gable. Otherwise of standard hut type, with an asbestos roof. All internal fittings removed. Has iron roof trusses. A concrete pad survives to the north of this structure, which may or may not be of wartime date.</p>

ID no	75
Airfield	Bodorgan
PRN	32307
NGR	SH38216828
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	<p>Large complex of brick building, only rendered in parts, including the SE gable. Has supporting pillars on north side of main building, which is of ten bays. Iron trusses with corrugated iron roof. Approx. 8m across N-S range at western end gives the building an L-shape, consisting of five bays. This is of lower height, but built in the same style and contains surviving 'cirttal' windows. The roof at the western end of the far west range is raised and there is a large central opening on the northern side. Some survival of original internal fittings.</p>

ID no	76
Airfield	Bodorgan
PRN	32308
NGR	SH38186834
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	Standard two bay hut with asbestos roof. One window blocked and large double gated opening on SW side. Impossible to access the interior of the building. Currently used to store farm chemicals. Orientated NW-SE.

ID no	77
Airfield	Bodorgan
PRN	32309
NGR	SH38186832
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	Ten large bay shed, somewhat converted to agricultural use with windows blocked up and some other openings. Probably a former barrack block. Of standard iron truss roof construction with asbestos covering.

ID no	78
Airfield	Bodorgan
PRN	32310
NGR	SH38176829
Period	Modern
Date of	1940 & 1943
On Air Ministry	
Drawing No	
Description	Twelve bay former barrack block, of standard construction type. Some of the windows have since been blocked up. An additional lean to structure has been added to the SE side of the building, but this does appear to be of wartime date, and may be to provide additional accomodation space. A blocked up opening is noted at the northern end. Currently used as a byre for cattle.

ID no	79
Airfield	Bodorgan
PRN	32311
NGR	SH38296805
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	64
Description	<p>Four bay buttressed hut with tower to the NW. Abestos corrugated roof, porch on third bay to the west. Now used for storage. Constructed of concrete rendered-brick. Forms a T-shape with five bay SW-NE orientated hut of similar type. This has been partially rendered in pebble dash in recent times. Has some surviving original 'critalls' windows, others have been replaced or boarded up. Currently used for storage and agricultural use.</p>

ID no	80
Airfield	Bodorgan
PRN	32312
NGR	SH38276805
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	A concrete clad brick three bay hut, used as a latrine block. Some remnants of latrines and internal partitions survive, although building is heavily overgrown. Roof not identified, but must be partially collapsed under the plant growth. What survives is of wartime date, including rusty cisterns, bowls and piping.

ID no	81
Airfield	Bodorgan
PRN	32313
NGR	SH38286804
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	A three bay concrete clad brick hut of single half-hipped asbestos roof. Some remnants of original Crittalls windows, and replacement UPVC door at western end. Concrete peeling off brick. Clearly some post war use, and now used for agricultural storage.

ID no	82
Airfield	Bodorgan
PRN	32314
NGR	SH38306801
Period	Modern
Date of	
On Air Ministry	
Drawing No	
Description	An eight bay concrete clad hut with standard buttresses and porch at the southern end. Asbestos roof, and large opening on the western side. All windows blocked with breeze blocks, except four on the western side where remnants of the original crittals windows remain. Impossible to gain internal access.

ID no	83
Airfield	Bodorgan
PRN	32315
NGR	SH38286803
Period	Modern
Date of	1940
On Air Ministry	
Drawing No	
Description	A six bay hut of standard type with end doors which appear to be original with bakalite knobs. Now heavily overgrown and difficult to view any detail, but Crittalls type windows survive, although in a damaged state. Now used for storage. No internal detail visible. Air vents noted. Used as a RAF social centre during wartime (Ted Gittens, farmer).

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Figure 01: Location map of Airfield sites



Plate 01: Battle Headquarters Building, RAF Penrhos (PRN 32307)



Plate 02: Internal view of the Battlefield Headquarters Building, RAF Bodorgan (PRN 32307)



Plate 03: Officers Mess, RAF Penrhos (PRN32252)



Plate 04: Rear view of Officers Mess, RAF Penrhos (PRN 32252)



Plate 05: Bath House and Batman's Quarters, RAF Penrhos (PRN32252)



Plate 06: Rear view of Bath House, RAF Penrhos (PRN 32252)



Plate 07: Turret Gunnery Range, RAF Hell's Mouth (PRN32300)



Plate 08: Turret Gunnery Range Platform, RAF Hell's Mouth (PRN 32300)



Plate 09: Turret Training Building, RAF Llandwrog (PRN32274)



Plate 10: Turret Training Building, RAF Llandwrog (PRN 32274)



Plate 11: Eight bay hut, RAF Llanbedr (PRN32270)



Plate 12: Internal view of eight bay hut, RAF Llanbedr (PRN 32270)



Plate 13: Range, RAF Llanbedr (PRN32273)



Plate 14: Rifle Range, showing buttressing and revetment RAF Llanbedr (PRN 32273)



Plate 15: Vulcan Bomber Readiness Position, RAF Llanbedr (PRN32263)



Plate 16: Vulcan Bomber Readiness Position and Lengthened runway RAF Llanbedr (PRN 32263)



Plate 17: T2 Hangars from the south east, RAF Llanbedr (PRN32316 and 32317)



Plate 18: T2 at RAF Llanbedr from the WNW (PRN 32316)



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