

**THE CLWYD-POWYS ARCHAEOLOGICAL TRUST**

**Planning Application to Extend Borrass Quarry  
Land at Borrass Airfield and the Holt Estate  
Borrass Quarry, Wrexham**

**REVISED ARCHAEOLOGICAL ASSESSMENT**



**CPAT Report No 503.1**

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Land at Borrass Airfield and the Holt Estate  
Borrass Quarry, Wrexham**

**REVISED ARCHAEOLOGICAL ASSESSMENT**

**W J Owen and R J Silvester**  
August 2005

Report for Smiths Gore on behalf of Tarmac Ltd

**The Clwyd-Powys Archaeological Trust**  
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## CPAT Report Record

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### Internal memo


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## **1 INTRODUCTION**

- 1.1 The Clwyd-Powys Archaeological Trust (CPAT) was commissioned in October 2002 by SmithsGore, on behalf of Tarmac Ltd, to carry out an archaeological assessment of land at Borrás Airfield and the Holt Estate, Borrás Quarry near Wrexham, (henceforward termed the Application Site). The assessment included a study of the archaeological potential of the Application Site and its surrounding area. The potential impact of the Proposed Development on the archaeological interests within the Application Site was considered and mitigation measures proposed where appropriate. A report covering these aspects was submitted to Smiths Gore in March 2003.
- 1.2 In December 2004 CPAT were asked to re-assess the impact of the proposed extension to the Application Site as a result of amendments proposed by Tarmac Ltd to the original design. The present report considering these impacts was submitted in July 2005.
- 1.3 The original archaeological assessment formed part of the Environmental Statement submitted in 2003 on the proposals for extending Borrás Quarry. This present report will be included in the Supplementary Statement being submitted as part of the proposed amendments to the Planning Application.

## **2 DEVELOPMENT PROPOSALS**

- 2.1 The Proposed Development is for an extension to the existing sand and gravel workings at Borrás Quarry. This will involve the extraction of sand and gravel within two areas of the Quarry, known as Borrás Airfield and the Holt Estate. The minerals will be processed at the existing plant site located within Borrás Airfield.
- 2.2 A phasing scheme will be used for working the Site, so that only a proportion of the Site will be worked at any one time. The phasing will also allow for progressive restoration.

## **3 LOCATION, TOPOGRAPHY AND GEOLOGY**

- 3.1 The Application Site lies 13km south of Chester, 3.5km to the north-east of the centre of Wrexham and 2.5km south of Gresford. The Site lies to either side of Borrás Road, west of Borrás Hall Road, north of Holt Road (A534) and north-east of the Llan-y-pwll Link Road (A5156).
- 3.2 The Application Site is situated on a plateau, at a height of approximately 75m AOD. Land to the north-west of the Site, lying between the Site and Gresford, is primarily undulating, agricultural land (75-81m AOD), containing a number of depressions, known as 'kettle holes'. Mineral extraction is currently taking place at Caia Farm, which also forms part of Borrás Quarry and is centrally located between the Site and Gresford.
- 3.3 The Application Site and its immediate surrounds are located in an area of exposed sand and gravel. The exposed sand and gravel is of glacial origin and is composed predominantly of pebbles and cobbles of quartzite, with limestone and igneous rocks, with some quartz, sandstone, siltstone, chert, ironstone and coal. In general, the sand and gravel deposit can be sub-divided into the two distinct horizons, (the upper sands and gravels and the lower sands).

## 4 SCOPE OF THE ASSESSMENT

- 4.1 This assessment includes a desk-top study based on previous archaeological work that had been carried out at the Application Site. Where necessary this information has been updated. A field survey was also carried out in March 2003 and a written and photographic record was made of all the relevant features at the Site. This information was used to assess the archaeological impact of the Proposed Development and where an impact has been identified, mitigation measures are recommended.
- 4.2 Revisions to the assessment were completed by using existing data together with revised plans prepared by Tarmac Ltd. It should be stressed that no new fieldwork or desk-top study was conducted during the re-assessment process referred to in para 1.2.

## 5 DESK-BASED STUDY

- 5.1 The Application Site and the surrounding area has been the subject of three previous archaeological assessments relating to planning applications in 1995 to carry out mineral extraction at the Holt Estate (Hankinson 1995), and in 2000 to extend the depth of workings (Jones 2000a) and determine new conditions (Jones 2000b) at Borrás Quarry. These provided the basis for the assessment of 2003, which also involved the re-examination of all readily available primary and secondary records relating to the Application Site, including known documentary, cartographic and aerial photographic sources. Archives and repositories consulted included the following: the County Sites and Monuments Record (SMR) held by CPAT at Welshpool; the National Library of Wales (NLW), in Aberystwyth; the National Monuments Record (NMR), also in Aberystwyth; and the Flintshire County Record Office at Hawarden (CROH).
- 5.2 A search of the SMR revealed that there were no recorded archaeological sites within the Application Site, although a number of sites were known close to its perimeter (Fig. 1). The following summary, by period, is drawn from information collected during the desk-based study.

### **Prehistory (10,000BC – AD 43)**

- 5.3 There are three recorded prehistoric sites within the vicinity of the Site: a Mesolithic flint scatter (PRN 101653) adjacent to Borrás Farm (SJ 350525), a Neolithic axe head (PRN 101692) from Bryn-Gryfydd (SJ 35035235), and a hoard of Bronze Age metalwork (PRN 100386) found just to the west of the Site. These provide an indication that the general area was occupied from the Mesolithic period onwards, although no prehistoric occupation sites have yet been discovered.

### **Roman (AD 43 –410)**

- 5.4 There are no known Roman sites within the Site, although recent discoveries at Plas Coch, Wrexham (Greuter *et al.* 1994 and 1995; Wait 1996) indicate the presence of Roman settlement in the surrounding area.

### **Medieval (AD 410-1500)**

- 5.5 The only recorded medieval site is that of a rabbit warren (PRN 101542) to the south of the Application Site, while a seal of *c.* 1300 (PRN 19377), found at Borrás Hall, suggests that the site may have been occupied during this period. In addition to these sites, some of the field names recorded in the Tithe Surveys (see below) suggest the presence of medieval open-field agriculture; one called 'Two Butts' lies within the Application Site, to the north of Walnut Tree Farm.

### **Post-medieval (AD 1500-1900)**

- 5.6 There are numerous post-medieval sites recorded within the area surrounding the Application Site, the majority of which are boundary stones, together with several buildings including a farm, a smithy and an inn, few of which are considered to be of particular relevance to the present study. Borrás Hall (PRN 102853), is an early 17<sup>th</sup>-century former manor house occupying the site of a house dating from at least the 16<sup>th</sup> century, lying immediately to the east of the Site. Borrás Hall was owned by the Brereton family until 1789, when it was sold to Lord Kenyon. Borrás Head House (PRN 102854) also dates from the 17<sup>th</sup> century, and was bought by Lord Kenyon in 1803.
- 5.7 The earliest available cartographic source for the Application Site is an estate map of 1767 (CROH D/GW/661). A house (Site No 18), apparently the dwelling associated with a smallholding called 'Hesketh's Tenement', is depicted on the map within the Site boundary, as is 'Walnut Tree Farm' (Site No 14), though this lies just beyond the boundary. The remaining feature of interest depicted on the map is a field called 'Brick Kiln Field' (Site No 20), which is likely to define the site of a kiln used to produce bricks that were then used to build local residences. Some of the nearby hollows (e.g. that at SJ 3622 5341) are likely to be pits from which clay was extracted to be used in the brick-making process.
- 5.8 The Tithe Surveys of the mid-19<sup>th</sup> century provide further information regarding the Application Site, which lay within the townships of Gourton (1838; fig. 2), Borrás Hovah (1839-40; fig. 3) and Borrás Rifre (1843; fig. 4). Details from the Tithe Apportionments indicate that the majority of the Site was owned by Lord Kenyon and Sir William Lloyd, with recorded landuse suggesting a mixed farming regime of arable and pasture. One house, called 'White House' (Site No 22), is depicted within the Site area, though its location falls outside the area of the 1767 map and its date of origin is therefore uncertain. Later Ordnance Survey mapping suggests that the house went out of use and was demolished between 1872 and 1899. Some of the field names recorded in the Tithe Apportionments suggest further archaeological features, including a possible rabbit warren (Site No 21), and a trackway (see Site No 11). Confirmation of the location of the Hesketh's Tenement house (Site No 18) is provided by the naming of the surrounding field as 'Old House field', though the house itself is not depicted and therefore appears to have gone out of use around the end of the 18<sup>th</sup> century.
- 5.9 The Ordnance Survey 1st edition 6" map, surveyed in 1871-2 (fig. 5), and the 2nd edition map, revised in 1897-8 and published in 1900 (fig. 6), show much the same picture for the Site, the whole of which was divided into fairly regular fields with a few tracks and some small areas of woodland. Only two buildings consisting of three tied cottages built some time after the Tithe Survey, and White House, are depicted in the Site. A small amount of gravel quarrying (Site No 15) is evident on the second edition map.

### **Modern**

- 5.10 The modern history of the area is dominated by the development of Borrás Airfield, which has been documented in detail by Pratt and Grant (2002), from which the following summary is derived. Outside the area of the Airfield, modern land-use appears to have been almost entirely restricted to agricultural pasture.
- 5.11 The origins of the Airfield date back to 1917-20 when fields at Borrás 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', to practice emergency landings etc. 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.
- 5.12 By early 1940 the fields at Borrás were again pressed into service for training flights. The removal of several hedges and limited levelling initially provided three grass runways of some 550-600yds. Accommodation was originally limited to tents, then replaced by timber huts situated alongside Borrás Head Farm. A 'Bellman' hangar was erected in the north-east



corner of the landing ground to replace or supplement the World War I Bessoneau timber-framed and canvas hangar that had been erected alongside New Buildings.

- 5.13 The main period of construction for the Airfield was, however, between December 1940 and June 1941, and was undertaken by Alfred McAlpine. The foundation material for the runways and perimeter tracks was largely shale brought from Bersham and Hafod Collieries, Plas Power and other disused pits within the area, along with coarse ash from the Warrington power stations and stone from the Hendre quarries. The concrete surfacing was produced by a large batch plant constructed on site. This was an early example of the use of concrete in the construction of the runways. The perimeter defences were built on an *ad hoc* basis and eventually consisted of three 'defended localities' incorporating camouflaged and concealed pill boxes, 'mushrooms', seagull trenches, 'retractable forts', LAA guns and searchlights.
- 5.14 The Airfield was built primarily to accommodate a night-fighter squadron for the air defence of Liverpool and Manchester and eventually came under 9 Group Fighter Command, with 96 Squadron in residence. The plan of the Airfield (fig. 7) consisted of three runways with a perimeter track, around which the various buildings were arranged. The Control Tower was located on the north-west side of the Airfield, beyond which numerous buildings formed the Instructional and Technical Site. The 'Bellman' hangar had been relocated to the north-east side of the site in 1942 at the end of a trailing taxi-way running from the underground fuel tanks at the rear of Borrass Hall. There were three dispersal areas on the south and north-east sides of the perimeter track, each with a series of single or double dispersal pens and each with its own self-contained 'defended locality'. The location of a battlefield headquarters (Site No 13) lies just within the Site, on the north-west side of Borrass Road.
- 5.15 A series of vertical aerial photographs taken during 1942 provide a detailed record of the Airfield at that date, showing all of the features visible on the 1953 Ordnance Survey (fig. 8), together with other minor details.
- 5.16 The Airfield closed after the war and was eventually sold on 22 October 1959, being described as 'A Valuable Block of Accommodation Land, together with the useful buildings erected thereon . . . , formerly Borrass Airfield Wrexham, extending to a total area of 255 acres or thereabouts'. The sale plan (fig. 9) and catalogue (CROH, D/E/2739) describe four lots as follows:
- Lot 1. 5 acres, 2 roods, 11 perches in area. A 'Bellman' type hanger c. 117ft long, 96ft wide and 18ft to eaves; other buildings include a nissen hut and concrete ablutions block.
- Lot 2. Numerous permanent and semi-permanent buildings, 13 brick, concrete and asbestos roofed buildings ranging from 190ft x 29ft to 21ft x 18ft, 23,600 sq ft floor area in total.
- Lot 3. Includes the derelict farm house and buildings known as Borrass Lodge.
- Lot 4. 7 brick, concrete and asbestos roofed buildings with concrete floors ranging from 87ft x 29ft to 21ft x 19ft, approx. 6,000 sq ft floor area. Buildings include two with central heating and an open fronted building of similar construction. Numerous smaller buildings are in the area.
- 5.17 The purchasers were United Gravel Company, a subsidiary of Alfred McAlpine, who paid £23,000 for the site. Following the sale there was little development for some time, although the north-west corner was compulsorily purchased in 1961 in order to build protected accommodation for Headquarters, No. 17 (North Wales) Group, Royal Observer Corps.
- 5.18 Quarrying operations did not commence until the mid 1970s and by 1977, Borrass Quarry was the largest sand and gravel pit in the former county of Clwyd, accounting for almost one third of the county's total sand and gravel production.

## 6 FIELD SURVEY

6.1 The second stage of the archaeological assessment involved a field survey of the Application Site. This was undertaken on 17 January 2000, with a further visit on 9 October 2002. The earlier visit was in connection with previous planning applications (Jones 2000a; 2000b) and was restricted to the existing quarry areas at Borrás Airfield, which had not been subject to extraction or storage of spoil. The survey consisted of a detailed investigation, undertaken with the assistance of the Quarry Manager, Mr Tom Gregson, and Mr Mike Grant, a local expert on the history of the airfield. The remaining area of the present Application Site was visited on 9 October 2002, comprising the examination of the Holt Estate. Mr Mike Grant was again present during this later visit as the area was known to contain a number of features related to the airfield. A written and photographic record was made of each feature and the descriptive account which resulted from the field visits establishes the baseline conditions with regard to the archaeological resource, a summary of which is presented in Section 7 below.

### **Borrás Airfield**

6.2 The first visit (on 17 January 2000), demonstrated that very little of the land within Borrás Airfield area perimeter has survived undisturbed during the period that the Quarry has been in operation. Large areas have been disturbed by extraction, and some have subsequently been reinstated. Those areas which have not been subject to extraction have often undergone landscaping either by the removal or deposition of material. Consequently, the surviving remains of the Airfield are rather limited and are largely restricted to areas around the south-east perimeter. It is possible that further structures may survive beneath redeposited material within the potentially undisturbed areas (fig. 10), for which there is presently no surface evidence.

6.3 Those features and buildings identified during the first part of the survey were entirely related to the former Airfield and presumably date from 1941.

### **The Holt Estate**

6.4 The second visit (on 9 October 2002), consisted largely of an examination of archaeological features on the Holt Estate, first recorded during an assessment for a proposed quarry in 1995 (Hankinson 1995). The visit was carried out both to determine the state of survival of the features and to re-assess their function in the light of more recent knowledge. The Holt Estate is still in use as agricultural pasture.

6.5 Further information regarding a number of the archaeological sites recorded during the desk-top section of the study (Stage 1) was forthcoming. It was evident that no surface traces of either of the two houses (Site Nos 18 and 22) had survived, though there remains a reasonable likelihood of in-situ sub-surface features being present at both locations. An area of ridge and furrow cultivation (Site No 10) was recorded within the Holt Estate, and this may represent post-medieval use of an area of open-field cultivation, which the desk-top study suggests had its origins in the medieval period.

6.6 Information was provided by Mr Mike Grant during the second visit regarding two extant buildings and a nearby concrete base. These represent the surviving remains of a Second World War distance finding radio station (Site No 12), which was associated with the Airfield. The position of a battlefield headquarters, which is believed to survive below ground immediately to the north-west of Borrás Road, and was intended for use when the main buildings at the Airfield were under attack, was also identified. The sites of two aircraft wrecks were also visited; of these only Site 23 is believed to retain any evidence of wreckage.

- 6.7 The area of the Holt Estate contains a number of geological features known as ‘kettle holes’. These were formed after the last glaciation, around 10,000 BC, when large blocks of ice melted, which had been buried by glacial moraine, leaving substantial depressions in the ground surface. As these depressions became infilled they would have incorporated organic matter such as seeds, pollen and wood which, under waterlogged conditions can be preserved, providing a significant palaeoenvironmental record (i.e. of the vegetation and condition of past landscapes). Information made available by the client indicates that in this case the present groundwater level is significantly below the ground surface and that the kettle holes are now dry. That being the case, if palaeoenvironmental deposits had accumulated within any of the kettle holes they would only have been preserved under continuously waterlogged conditions and the palaeoenvironmental potential of these features is therefore regarded as low.

## 7 ARCHAEOLOGICAL SUMMARY

- 7.1 This section relates to the sites identified within the area of the Application Site.

### *Site Categories*

- 7.1.1 Each site of archaeological interest, identified during the desktop and earlier field surveys, has been provisionally classified according to its perceived significance as it appears to us at present. The categories are those given in the Cadw: Welsh Historic Monuments draft *Archaeology and the Trunk Road Programme in Wales: a Manual of Best Practice*. These are based in turn - with the exception of Category E – on those given in the Department of Environment, Transport and Regions' *Design Manual for Roads and Bridges Volume 11 Section 3 Part 2* (1993). Category E (also termed category U in the classifications adopted in some comparable reports) has been introduced to cover archaeological sites and monuments whose existence went unacknowledged in the Design Manual.

i) *Category A* sites are those which are considered by CPAT to be of primary significance, either potentially of national importance or already designated by Cadw: Welsh Historic Monuments as being of scheduled ancient monument status and thus of national importance. It is presumed that sites in this category will be preserved and protected *in situ* and that their setting may also be a material consideration

ii) *Category B* sites are sites of regional importance. These sites are not of sufficient importance to justify scheduling, but are nevertheless important in aiding the understanding and interpretation of the archaeology of the region. Preservation *in situ* is the preferred option for such sites, but if loss or damage is unavoidable, appropriate detailed recording should be undertaken

iii) *Category C* sites are seen as sites of local importance. These sites are of lesser importance, but are nevertheless useful in aiding the understanding and interpretation of the archaeology of the local area. They are not normally of sufficient importance to justify preservation if threatened, but they do merit adequate recording in advance of loss or damage.

iv) *Category D* sites are either sites of minor importance or those which are so badly damaged that too little now remains to justify their inclusion in a higher grade. Rapid recording is usually considered sufficient in the event that such sites are threatened by development.

v) *Category E* sites are sites which have been identified, but whose importance cannot be assessed from the desk-top study alone. An archaeological evaluation would generally be

required to categorise such a site more accurately if the proposal was likely to affect it in any way.

The location of each archaeological site is shown in Figure 10.

### Category A sites

There are no Category A sites.

### Category B sites

Site No	Name	Type	Period	Condition	NGR
14	Walnut Tree Farm	Building	Post Medieval	Intact	SJ 36395330

#### Site 14

The farm is depicted on the 1767 estate map. Cartographic sources recorded two earlier names for the farm: Borrás Higher Farm; and Borrás Farm. Comparison between the map and the surviving buildings suggests that three or more of the buildings, probably including part of the house, are those depicted in 1767. It seems probable that the bricks for these buildings were made locally (see Site 20). Other dwellings in the area, of similar construction, have been dated to the 17th and early 18th centuries by various sources (detailed in the SMR), and there seems no reason to suppose that a similar date cannot be ascribed to the buildings depicted at this location on the 1767 map. The site lies outside the Application Site and will therefore not be affected by the proposals.

### Category C sites

Site No	Name	Type	Period	Condition	NGR
1	Borrás Airfield Building 1	Building	20th Century	Intact	SJ 36765212
2	Borrás Airfield Building 2	Building	20th Century	Intact	SJ 36985226
3	Borrás Airfield Building 3	Building	20th Century	Damaged	SJ 37085220
4	Borrás Airfield Building 4	Building	20th Century	Intact	SJ 36885217
5	Borrás Airfield Building 5	Building	20th Century	Intact	SJ 36825221
6	Borrás Airfield Bellman hangar	Hangar	20th Century	Intact	SJ 36925289
7	Borrás Airfield Gunnery Butts	Butts	20th Century	Intact	SJ 36805259
8	Borrás Airfield runways	Runway	20th Century	Damaged	SJ 36705242
9	Borrás Airfield Perimeter track	Track	20th Century	Damaged	SJ 36815250
10	Borrás Ridge and furrow	Ridge and furrow	Post Medieval	Damaged	SJ 36155350
11	Borrás trackway	Track	Medieval ?	Damaged	SJ 36475348
12	Borrás Airfield radio station	Building	20th Century	Damaged	SJ 35705310
13	Borrás Airfield battlefield HQ	Bunker	20th Century	Damaged	SJ 36285325

*Site 1 (Plate 2)*

Building. Brick with render and asbestos roof, now used as a store. 9.5 x 6.5m overall, including buttresses. The site lies within the Application Site but outside the extraction boundary and will therefore be unaffected by the proposals.

*Site 2 (Plate 3)*

Building. Brick with render and asbestos roof and later additions. Irregular cruciform plan, formerly quarry offices but now disused. Original building c. 31m N-S x at least 16m E-W.

*Site 3 (Plate 4)*

Building. Brick with flat concrete roof, metal ventilation grills at the base of the walls. Northern blast door and wall survive but southern has been removed. Formerly a sleeping shelter, now used as a cow shed. 14m x 3.6m overall. The site lies outside the Application Site and will therefore be unaffected by the proposals.

*Site 4 (Plate 5)*

Building. Brick with render and asbestos roof, now used as St Christopher's Eco Centre. 18.6m x 6.6m overall, including buttresses. The site lies within the Application Site but outside the extraction boundary and will therefore be unaffected by the proposals.

*Site 5 (Plate 6)*

Building. Brick with render and modern metal roof and later additions to west side. Original building c. 18.7m x 6.6m.

*Site 6 (Plate 7)*

Hangar. 'Bellman' hangar with double entrance. Sheet metal and steel frame construction with perspex windows and skylights. 35.6m x 29.3m. The site lies outside the Application Site and will therefore be unaffected by the proposals.

*Site 7 (Plate 8)*

Gunnery Butts. Open-ended brick enclosure, originally filled with sand and used for testing and aligning fighter weaponry. Modern additions. Now used as a maintenance shed. 13.2m x 8.1m.

*Site 8 (Plate 1)*

Borras Airfield runways. Only the eastern half of the main runway now survives, together with a short section of the eastern runway.

*Site 9*

The eastern portion of the airfield perimeter track survives, along with several adjacent structures (see above).

*Site 10*

An area of ridge and furrow cultivation, aligned north-west/south-east, consists of low earthworks, approximately 0.2m high with a separation of 6m between adjacent furrows.

*Site 11*

An earthwork bank approximately 100m in length, 20m wide and 0.7m high. The Burras (Borras) Hovah Tithe map of 1839 describes a similarly aligned feature in this locality as an 'Occupation Road', presumably referring to an agricultural trackway; it therefore seems likely that the bank formed a boundary of the trackway. To the north-east of this feature, and immediately outside the Application Site, is a long, narrow field on the same alignment, called 'Two Butts' on the Tithe map. This name is one found in medieval open field agriculture, and is probably a reflection of the nature of land-use here during that period.

*Site 12 (Plate 9)*

Two roofed, brick-built huts are presently in agricultural use but were originally constructed as a distance finding radio station for Borrás Airfield. The eastern building has four windows and a chimney and was the staffing building, while the other building was a standby generator house and battery store. The concrete base survives for the radio mast, which itself has been removed (SJ 35665321).

#### *Site 13 (Plate 10)*

A sub-rectangular earthwork mound, measuring 20.0m north-east/south-west by 17.5m north-west/south-east and 1.2m high represents the visible remains of the former battlefield headquarters for Borrás Airfield. This was a sunken concrete structure on a brick base, designed as a strong point for running the airfield in the event that primary command buildings were destroyed. An attempt was made to remove it after the war, although this proved to be too difficult and the structure was buried in the 1950s. Although the site is damaged it does represent a rare survival of this type of military installation.

#### **Category D sites**

Site No	Name	Type	Period	Condition	NGR
15	Borrás Gravel Pit	Quarry	19th Century	Destroyed	SJ 35935329
16	Borrás smithy	Smithy ?	Post Medieval	Destroyed	SJ 35915301
17	Borrás Memorial cross	Cross	20th Century	Intact	SJ 35435292

#### *Site 15*

A gravel pit, c. 20m in diameter, is marked on the second edition Ordnance Survey map that was revised in 1898. No evidence remains at this location.

#### *Site 16*

A small rectangular building, aligned north-west/south-east, is depicted at this location on the 1767 estate map. The adjoining field name of 'Smithy Field' on this map which is also evident on the 1839 Tithe map suggests that it was used as a smithy, although the building was apparently no longer extant when the Tithe map was drawn.

#### *Site 17 (Plate 12)*

Steel cross 1.5m high, situated in scrub adjacent to a fence. The cross is painted black and has a welded inscription 'In Memory of Austin Youde'.

#### **Category E sites**

Site No	Name	Type	Period	Condition	NGR
18	Hesketh's Tenement	House	Post Medieval	Unknown	SJ 35925367
19	Borrás cropmark	Non antiquity ?	Unknown	Unknown	SJ 36275348
20	Borrás brick fields	Brick kiln	Post Medieval	Unknown	SJ 36205330
21	Borrás pillow mounds	Pillow mound ?	Unknown	Unknown	SJ 35605306
22	Borrás house 'The White House'	House	Post Medieval	Unknown	SJ 35445292
23	Borrás aircraft crash site I	Wreck (aviation)	20th Century	Unknown	SJ 36235340
24	Borrás aircraft crash site II	Wreck (aviation)	20th Century	Unknown	SJ 35955330

25	Borras aircraft crash site III	Wreck (aviation)	20th Century	Unknown	SJ 36055325
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*Site 18*

A house associated with a defunct smallholding known as Hesketh's Tenement is depicted on an estate map of 1767. By the time the Burras (Borras) Hovah Tithe map was compiled in 1839 the field was called 'Old House Field', and no evidence of a building is shown. No surface traces of the site remain.

*Site 19*

A possible cropmark composed of two adjacent circles, each perhaps 10m in diameter, was recognised on RAF aerial photographs taken in 1946 (RAF/106G/UK 1454/4011-13) and possibly also on an aerial photograph taken in 1974 (35 74 134). The site coincides with a slight hollow visible on the ground and it is possible that the cropmarks have resulted from features of natural origin.

*Site 20 (Plate 11)*

Area of clay extraction and brick-making. The most obvious feature of this activity, still extant, is a dumb-bell shaped hollow at SJ 3622 5341, measuring 45m north-west/south-east by 22m north-east/south-west and over 2m deep, with standing water at the bottom, which was the site of a Second World War aircraft crash (see Site 23). A field called 'Brick Kiln Field', alongside the road through Borras and to the south of the hollow mentioned above, is depicted on the 1767 estate map; it also appears as 'Brick Field' on the 1839 Burras (Borras) Hovah Tithe map. The estate map depicts a further six pits in the area and it seems likely that some or all of the pits would have been used for the extraction of clay, which was fired locally to produce bricks.

*Site 21*

A group of cropmarks apparently comprised of overlapping circles, covering an approximately circular area 60m in diameter. The marks can be seen on a colour air photograph taken in 1993 (100 93 169), but what they represent is difficult to determine from the photographic evidence. A possible interpretation is suggested by the 1842 Borras Riffe Tithe map which names a former field in the immediate vicinity as 'Erw Pwll Warren'. The 1839 Burras (Borras) Hovah Tithe map names an adjacent field, along the north side of Borras Road as 'Cae Pwll and Warren'. It is further evident from a 16th-century survey of the lordship of Bromfield and Yale that an area in the locality called 'The Warren', with a perimeter of one and a half miles, was converted from a rabbit warren to farmland at the end of the reign of Henry VIII (Palmer 1907). It is therefore possible that the cropmarks are representative of a former artificial rabbit warren, the earthworks of which are normally referred to as pillow mounds.

*Site 22*

A small rectangular house, aligned east-north-east/west-south-west, is depicted on the 1839 Burras (Borras) Hovah Tithe map; it falls outside the area covered by the 1767 estate map. It was named as 'White House' on the first edition Ordnance Survey 1:10560 map (Denbighshire 29NW), surveyed in 1872. However, no traces can be seen on the second edition 1:2500 Ordnance Survey map (revised 1898), and it therefore appears that the house had been demolished in the intervening period. A slight rise in ground level near the corner of the field represents its location.

*Site 23*

During the Second World War a Bristol Beaufighter, registration T3414 code C-J, from 96 Squadron, RAF Wrexham (Borras), crashed into a pond. Structural remains from the aircraft are likely to survive within the pond and live rounds of ammunition have been recovered

from the area. The crash did not result in any fatalities and is therefore not regarded as a war grave.

*Site 24*

Second World War aircraft crash site. No further details (Pratt and Grant 2002, 169).

*Site 25*

Second World War aircraft crash site. No further details (Pratt and Grant 2002, 169).

## 8 IMPACT

### Unaffected sites

- 8.1 Five sites have been recorded which will not be affected by the proposals. Three of these lie outside the Application Site (Sites 3, 6 and 14), and two others have already been destroyed (Sites 15 and 16).

Site No	Name	Type	Period	Condition	Category
3	Borras Airfield Building 3	Building	20th Century	Damaged	C
6	Borras Airfield Bellman hangar	Hangar	20th Century	Intact	C
14	Walnut Tree Farm	Building	Post Medieval	Intact	B
15	Borras Gravel Pit	Quarry	19th Century	Destroyed	D
16	Borras smithy	Smithy ?	Post Medieval	Destroyed	D

### Direct impact

- 8.2 Eleven sites have been identified where a direct impact by the proposals appears likely, five within Borras Airfield and six within the Holt Estate.

#### Borras Airfield

Site No	Name	Type	Period	Condition	Impact	Category
2	Borras Airfield Building 2	Building	20th Century	Intact	Loss	C
5	Borras Airfield Building 5	Building	20th Century	Intact	Loss	C
7	Borras Airfield Gunnery Butts	Butts	20th Century	Intact	Loss	C
8	Borras Airfield runways	Runway	20th Century	Damaged	Loss	C
9	Borras Airfield Perimeter track	Track	20th Century	Damaged	Loss	C

#### Holt Estate

Site No	Name	Type	Period	Condition	Impact	Category
12	Borras Airfield radio station	Building	20th Century	Damaged	Loss	C
13	Borras Airfield battlefield HQ	Bunker	20th Century	Damaged	Loss	C
20	Borras brick fields	Brick kiln	Post Medi	Unknown	Loss	E



			eval			
21	Borras pillow mounds	Pillow mound ?	Unknown	Unknown	Loss	E
24	Borras aircraft crash site II	Wreck (aviation)	20th Century	Unknown	Loss	E
25	Borras aircraft crash site III	Wreck (aviation)	20th Century	Unknown	Loss	E

### Potential impact

- 8.3 A further nine sites have been identified on which the proposals may potentially have an impact, two of which lie within Borras Airfield and seven within the Holt Estate. They all lie within the Application Site but outside the extraction boundary.

#### Borras Airfield

Site No	Name	Type	Period	Condition	Impact	Category
1	Borras Airfield Building 1	Building	20th Century	Intact	Potential Loss	C
4	Borras Airfield Building 4	Building	20th Century	Intact	Potential Loss	C

#### Holt Estate

PRN	Name	Type	Period	Condition	Impact	Category
10	Borras Ridge and furrow	Ridge and furrow	Post medieval	Damaged	Potential Loss	C
11	Borras trackway	Track	Medieval ?	Damaged	Potential Loss	C
17	Borras Memorial cross	Cross	20th Century	Intact	Potential Loss	D
18	Hesketh's Tenement	House	Post Medieval	Unknown	Potential Loss	E
19	Borras cropmark	Non antiquity?	Unknown	Unknown	Potential Loss	E
22	Borras house 'The White House'	House	Post Medieval	Unknown	Potential Loss	E
23	Borras aircraft crash site I	Wreck (aviation)	20th Century	Unknown	Potential Loss	E

- 8.4 In addition to the recorded sites, there is the potential for further unrecorded sites where the proposed development may have an impact.
- 8.5 The nature of the kettle holes on the Holt Estate has been discussed above. Although under waterlogged conditions such features can preserve significant palaeoenvironmental remains, it would appear from the information made available that those in question are now dry and it is considered very unlikely that any organic material which may have been present will have survived. In summary, the kettle holes lie within the extraction boundary, but are not considered to contain significant archaeological or palaeoenvironmental potential.

## 9 MITIGATION

### 9.1 Terminology

The following standard terms are used as recommended mitigation measures for issues involving archaeological sites and features. Some though not necessarily all are adopted in the section that follows.

i) *Preservation in situ*: where a site is considered to be of sufficient significance it may be considered appropriate to preserve the site in its present form, condition and location.

ii) *Preservation by record*: where proposals will inevitably lead to the loss of a site, sufficient recording should be undertaken to provide a full, accurate and permanent record of its nature, form, significance and dating. Preservation by record can take a number of forms, depending on the nature of the site in question, and may be achieved with or without excavation and could include any or all of the following: written record; drawn record; photographic record; artefactual record; survey and environmental sampling.

iii) *Evaluation*: where insufficient information exists for a decision to be made regarding an archaeological site's future management, a programme of investigative work may be proposed. Such investigation may include geophysical survey, topographical survey and trial excavation.

iv) *Watching brief*: may be recommended to include archaeological monitoring of all relevant groundworks, including topsoiling, in order to identify and record any previously unknown archaeological remains which may be revealed. Sufficient time should be allowed for adequate recording of any remains that are encountered.

v) *Landscape assessment*: where a proposed development occurs within an area designated as a landscape of historic interest in either of the two published Registers of historic landscapes (Cadw 1998; Cadw 2001), an assessment known as an Assessment of the Significance of Impact of Development on Historic Landscape Areas (ASIDOHL) should be conducted (Cadw 2003). Where a proposed development occurs outside any of the designated areas an ASIDOHL may still be an option to be considered, depending on the scale of the development.

vi) *Visual mitigation and setting*. Visual impact is to some degree a subjective element of any assessment, if only because of personal perceptions, but should be taken into consideration, at the least, for significant monuments. Setting is deemed to be a material consideration for scheduled ancient monuments under the *Ancient Monuments and Archaeological Areas Act (1979)*, and by extension those monuments that are of similar significance but not scheduled. Planning Policy Wales, section 6.5.1 (2002) notes that .. 'the desirability of preserving an ancient monument and its setting is a material consideration in determining a planning application, whether that monument is scheduled or unscheduled'. Mitigation measures for scheduled sites should be identified by direct contact (consultation)

The potential impact on the known archaeology has been considered and appropriate mitigation measures are outlined below.

#### Site-specific Mitigation

9.3 The assessment has identified direct or potential impacts on the following recorded sites and mitigation measures are proposed for each.

**Borras Airfield**

Site No	Name	Type	Period	Condition	Impact	Mitigation
2	Borras Airfield Building 2	Building	20th Century	Intact	Loss	Preservation by record
5	Borras Airfield Building 5	Building	20th Century	Intact	Loss	Preservation by record
7	Borras Airfield Gunnery Butts	Gunnery Butts	20th Century	Intact	Loss	Preservation by record
8	Borras Airfield runways	Runway	20th Century	Damaged	Loss	None
9	Borras Airfield Perimeter track	Track	20th Century	Damaged	Loss	None

**Holt Estate**

Site No	Name	Type	Period	Condition	Impact	Mitigation
10	Borras Ridge and furrow	Ridge and furrow	Post medieval	Damaged	Potential Loss	None
11	Borras trackway	Track	Medieval ?	Damaged	Potential Loss	Preservation by record
12	Borras Airfield radio station	Building	20th Century	Damaged	Loss	Preservation by record
13	Borras Airfield battlefield HQ	Bunker	20th Century	Damaged	Loss	Preservation in situ/by record
17	Borras Memorial cross	Cross	20th Century	Intact	Potential Loss	Preservation in situ
18	Hesketh's Tenement	House	Post Medieval	Unknown	Potential Loss	Evaluation
19	Borras cropmark	Non antiquity ?	Unknown	Unknown	Potential Loss	Watching brief
20	Borras brick fields	Brick kiln	Post Medieval	Unknown	Loss	Evaluation
21	Borras pillow mounds	Pillow mound ?	Unknown	Unknown	Loss	Watching brief
22	Borras house 'The White House'	House	Post Medieval	Unknown	Potential Loss	Preservation in situ /Evaluation
23	Borras aircraft crash site I	Aircraft wreck	20th Century	Unknown	Potential Loss	Consultation/Evaluation
24	Borras aircraft crash site II	Aircraft wreck	20th Century	Unknown	Loss	Watching brief
25	Borras aircraft crash site III	Aircraft wreck	20th Century	Unknown	Loss	Watching brief

Site 2 Borras Airfield Building 2

If the building is likely to suffer loss or damage its preservation by record should be ensured through appropriate drawn, written and photographic survey.

Site 5 Borras Airfield Building 5

If the building is likely to suffer loss or damage its preservation by record should be ensured through appropriate drawn, written and photographic survey.

Site 7 Borrass Airfield Gunnery Butts

The existing record made during the field survey is considered sufficient to ensure preservation by record.

Site 8 Borrass Airfield runways

No further mitigation is considered appropriate.

Site 9 Borrass Airfield Perimeter track

No further recording or other mitigation is considered appropriate.

Site 10 Borrass Ridge and furrow

No further recording or other mitigation is considered appropriate.

Site 11 Borrass trackway

The existing record made during the field survey is considered sufficient to ensure preservation by record.

Site 12 Borrass Airfield radio station

Preservation by record should be ensured through appropriate drawn, written and photographic survey.

Site 13 Borrass Airfield battlefield HQ

Although the site is damaged and has therefore been afforded Category C status, it is a rare survival and should be preserved in situ if at all possible. Should this not prove a viable option, then preservation by detailed record should be ensured through appropriate measured, drawn, written and photographic survey.

Site 17 Borrass Memorial cross

The site lies on the boundary and should be preserved in situ.

Site 18 Hesketh's Tenement

Although the available information indicates that this site is outside the extraction area, its precise location of the building has not been determined. A programme of evaluation should be undertaken, prior to the commencement of any development in Phase H4, to assess its location, condition and origins. Geophysical survey should be considered, to be followed, if appropriate, by excavation..

Site 19 Borrass cropmark

Due to the indeterminate nature of the site, no mitigation is recommended over and above a general watching brief.

Site 20 Borrass brick fields

The locations of the brick kilns implicit in the 18<sup>th</sup>-century field-name have not been determined. Consideration should be given to a programme of evaluation, prior to the commencement of any development in Phase H6, to establish their location, condition and significance. Geophysical survey might be an appropriate option, to be followed by trial excavation.

Site 21 Borrass pillow mounds

Due to the indeterminate nature of the site, no mitigation is recommended over and above a general watching brief.

Site 22 Borrass house 'The White House'

The site lies on the edge of the Application Site and just outside the extraction boundary. Preservation in situ would be preferred, with the extraction boundary amended and the site clearly demarcated prior to works commencing in Phase H3 to ensure avoidance. Should preservation in situ not be an option, a programme of trial excavation should be undertaken to determine the condition and significance of the site before a final decision is made regarding any further mitigation.

#### Site 23 Borrass aircraft crash site I

Structural remains from the aircraft are likely to survive within the pond and live rounds of ammunition have been recovered from the area. Further consultation involving those with expertise and/or specialist knowledge of such crash sites is recommended to determine the most appropriate method of ensuring preservation by record. This might involve a limited programme of evaluation and/or excavation.

#### Site 24 Borrass aircraft crash site II

It is considered unlikely that significant remains survive and no further mitigation is recommended over and above a general watching brief (see below).

#### Site 25 Borrass aircraft crash site III

It is considered unlikely that significant remains survive and no further mitigation is recommended over and above a general watching brief (see below).

- 9.4 A watching brief should be maintained during all phases of topsoil stripping to allow identification and recording of any significant features and artefacts that may be revealed.

## **10 ACKNOWLEDGEMENTS**

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 Smith, P, 1988, *Houses of the Welsh Countryside*, London: HMSO.  
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## 11.2 Cartographic Sources

- a) Held by the County Record Office, Hawarden  
1767 Estate map of lands near Wrexham (D/GW/661)  
1823 Acton Hall Estate records (D/AH/24)  
Sale plan and details of Borrass airfield, 1959. D/E/2739
  
- b) Held by the National Library of Wales, Aberystwyth  
Tithe Survey of Gourton Township 1838  
Tithe Survey of Borrass Hovah Township 1839-40  
Tithe Survey of Borrass Rifre Township 1842-3  
Ordnance Survey 1st edition 6" Denbighshire 29, 1871  
Ordnance Survey 2nd edition 6" Denbighshire 29, 1900  
Ordnance Survey Provision edition 6" Denbighshire 29 NW, 1949
  
- c) Other Cartographic Sources  
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## 11.3 Aerial Photographic Sources

Provided by RCAHMW:  
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