

## Brighton City Airport (Shoreham) Heritage Assessment



**March 2016**

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## **1. Introduction**

### **1.1 Purpose of the assessment**

- 1.1.1** This report is an assessment of the impact of the proposed development at, and adjacent to, Shoreham Airport on its heritage value. The proposals are shown on Figure 1 and are a response to emerging Adur Local Plan policies 5 and 7. A letter of 23 September 2015 from Paul Roberts, Inspector of Ancient Monuments for Historic England, to Adur District Council sets out the context in which the assessment has been prepared.

### **1.2 Scope and Content**

- 1.2.1** The scope includes the impact on the airfield,<sup>1</sup> its listed terminal building and municipal hangar, and the major historic buildings within its viewshed. These are: Lancing College and its chapel; the church of St Nicolas, Old Shoreham; Old Shoreham Bridge; and the church of St Mary de Haura, New Shoreham. It does not cover the development area of New Monks Farm and does not repeat the recent landscape analyses by Allen Scott and Sheils Flynn.<sup>2</sup> The airfield has been in use for over 100 years and the historical information given is not intended to be comprehensive. The assessment concentrates on surviving features and the way that the airfield has been used.
- 1.2.2** The following section summarises the character and setting of the site. Section 3 describes the planning context. Sections 4-7 give the history of the site. Section 8 sets out the construction, use and post-war fate of the anti-aircraft dome trainer in detail, since it is central to the discussion of the impact of the proposed development. Section 9 discusses the airfield in relation to the surrounding heritage landmarks. The following section describes significance in accordance with current Historic England criteria, while sections 11 and 12 set out an assessment of the effects of the proposals and conclusions.

### **1.3 Acknowledgements**

- 1.3.1** We are grateful to Jonathan Candelon and his colleagues at the airfield for access to the site and buildings. Mick Wilson and the volunteers at the Shoreham Airport Visitor Centre provided information about the history of the

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<sup>1</sup> The early name for an airfield was aerodrome. This is how the site was most often described until the 1950s. Airfield is used throughout this report for all periods.

<sup>2</sup> Allen Scott, 'Shoreham Airport Proposed Development Masterplan Heritage Assessment' (June 2013); Sheils Flynn, 'Assessment of Landscape Sensitivity, Adur Local Plan Area' (January, 2016)

airfield and loaned a file, prepared by Mike Williams, on the dome trainer and the RAF Regiment This includes transcriptions of all the wartime operations record books. John Mills of West Sussex County Council was able to explain the treatment of the dome trainer in recent years.



# KEY

- COUNTRY PARK- 79.4 Acres - 32.1 Hectares
- EMPLOYMENT SPACE- 13.1 Acres -5.31 Hectares
- RE-LOCATED TRAVELLERS SITE (Existing 12 units 1.6 Acres) Proposed 14 units- 1.68 Acres- 0.68 Hectares
- RESIDENTIAL SITE- 41.2 Acres -16.7 Hectares
- RESIDENTIAL AREA FOR INITIAL 250 HOUSES AND NEIGHBOURHOOD CENTRE- 18 Acres -7.3 Hectares
- SCHOOL SITE- 2.57 Acres -1.04 Hectares
- SCHOOL EXPANSION SITE 1.3 Acres - 0.5 Hectares
- AIRPORT OPERATIONS AREA



FIGURE 1: The proposed development



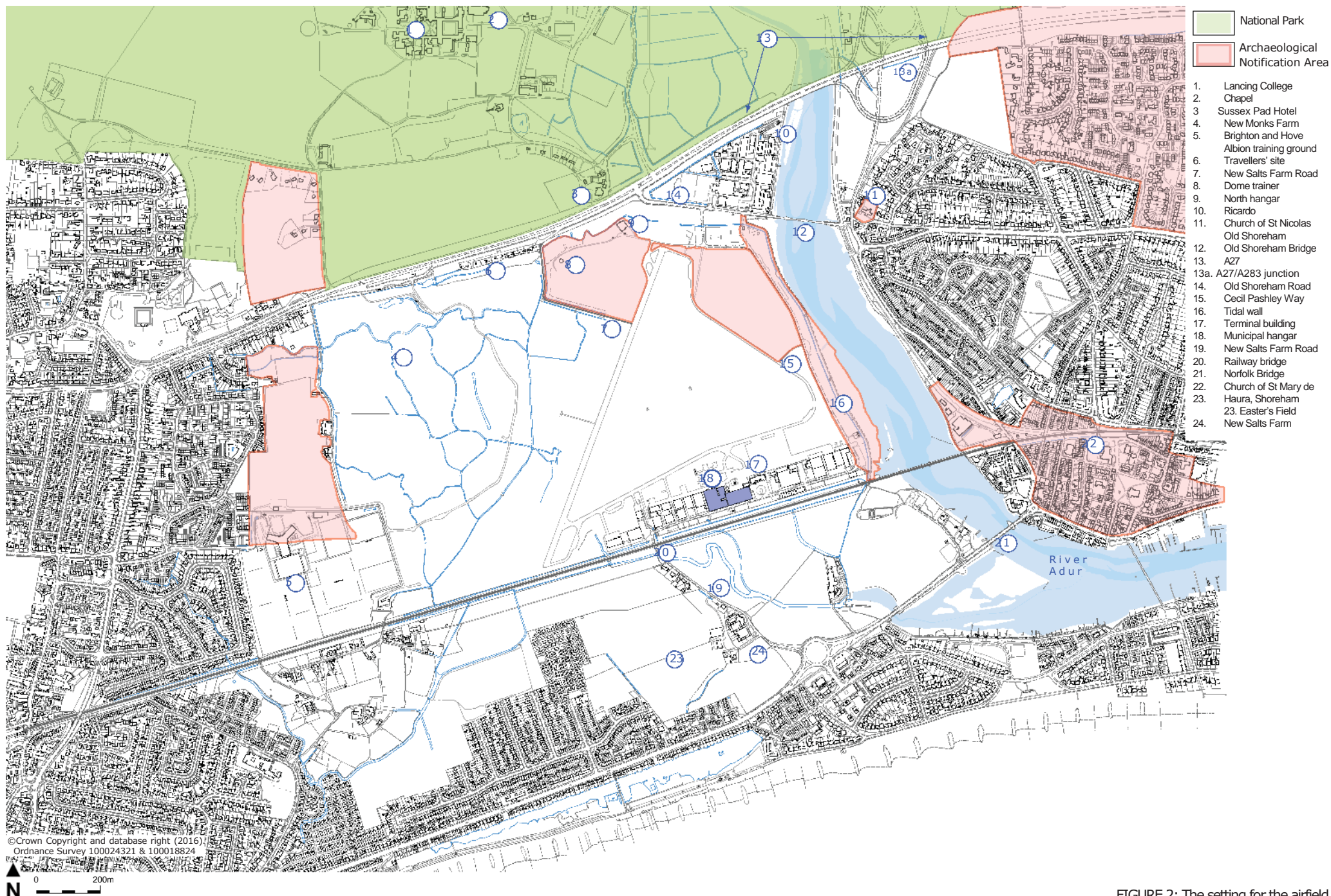


FIGURE 2: The setting for the airfield

## 2. **Setting, character and designations.**

- 2.1 Shoreham Airport is bounded in the north by the A27, in the east by a tidal wall adjacent to the River Adur, and in the south by the South Coast railway line (Figure 2). The west edge is formed by a substantial drainage ditch. Beyond this, there is wetland and disturbed ground around New Monks Farm and Daniel's Barn before the abrupt edge of the built-up area of Lancing. It is the most substantial open area between the east edge of Brighton and Goring and has been identified as part of the Lancing-Shoreham Local Green Gap in the emerging Adur Local Plan. North of the A27, the dip slope of the South Downs rises within the South Downs National Park.
- 2.2 Several prominent historical landmarks are visible from the open land of the airfield. To the west there is the grade I eleventh-century tower of Sompting Church, although this is far too distant to be affected by development on and around the airfield. The grade I Lancing College Chapel and the II\* college buildings are prominent in views to the downs across the airfield (Figure 3). To the northeast, the grade II\* Old Shoreham Bridge crosses the river to the grade I Church of St Nicolas, attractively set with a backdrop of pines and downland (Figure 4). In the southeast, the Norman tower of the grade I St Mary de Haura, New Shoreham is conspicuous.
- 2.2 The A283/A27 junction has a noticeable impact on views north-westwards across the airfield (Figure 5). However, the carriageway and cars (but not high-sided vehicles) on the A27 to the west are partially hidden by vegetation. Other prominent twentieth-century features that can be seen from the airfield include the Ricardo site in the northeast corner and the Brighton and Hove Albion training ground to the southwest.
- 2.3 The most distinctive feature of the flying field is the hard surface runway constructed in 1982. Almost all of the airfield buildings are on the south edge (Figures 6, 7), close to the railway and either side of the grade II\* 1930s terminal building and the contemporary grade II municipal hangar, which was re-clad in the 1950s. The other buildings serve a wide range of businesses, only some of which are connected with aviation. In general they date from the 1970s or later. Cecil Pashley Way, named after one of the most famous aviators associated with Shoreham, follows the east and south edges of the airfield. The original main approach to the 1930s airfield was from the south past New Salts Farm and underneath a bridge which is still in place (Figure 9).
- 2.4 The tidal wall down the east side (Figure 8) is about 2m above high water mark. Second World War pill boxes, gun emplacements, air raid shelters and other structures are at its west edge. The wartime guard hut at the north end is easily recognisable. Ricardo's offices and other buildings occupy a triangular area north of Old Shoreham Road, as they have done since 1919.



- 2.5 To the south of Old Shoreham Road and to the southeast of the A27 there is willow scrub, reeds and tall-herb vegetation. It lies either side of ditches connecting to those down the east and west edges of the airfield. On the north side a track extends as far as the dome trainer (Figures 6, 10), which is scheduled monument WS487. The freshwater spring known as Honeyman's Hole is in this location, but may have been affected by construction of the helicopter landing ground described below in 2001. There is a car park at the east end of the track. About halfway between this and the dome trainer the north hangar comprises a 1940s over blister hangar with a post-war east extension (Figure 11).
- 2.6 To the west of the dome, a raised trackway with dense scrub on either side extends southwards from the A27. It turns through a right angle before stopping abruptly at the edge of the airfield. This is the north end of New Salts Farm Road. The section between here and the railway bridge was removed by the construction of the flying field but can still be traced on aerial photographs. The west edge ends in rough grassland and wetland, with a partially-constructed golf course beyond.



FIGURE 3: The view northwards from the airfield to Lancing College



FIGURE 4: Old Shoreham Bridge and the Church of St Nicolas



Cut line



Cut line

FIGURE 5: The view north eastwards across the airfield to Old Shoreham



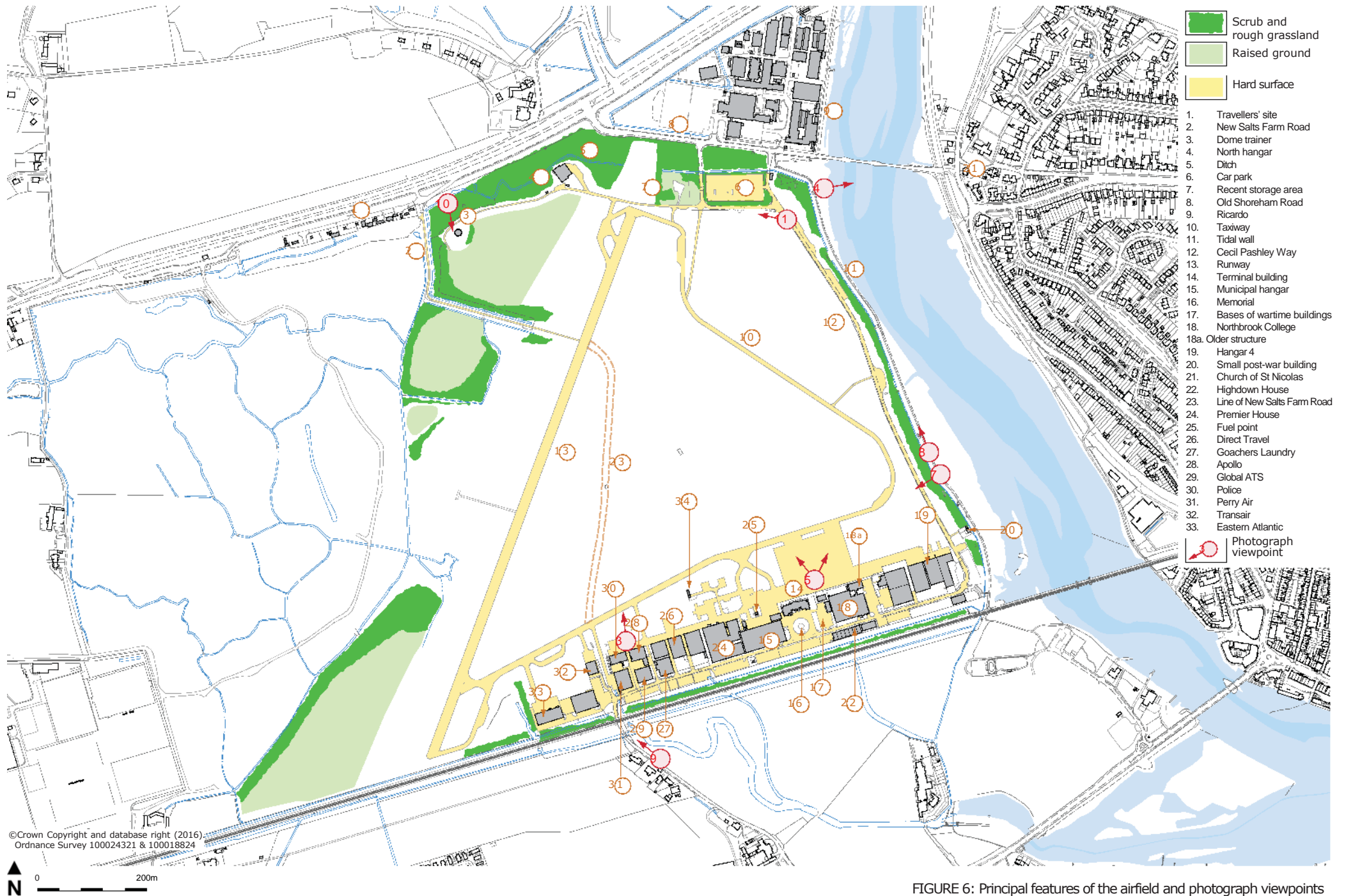


FIGURE 6: Principal features of the airfield and photograph viewpoints





FIGURE 7: The terminal building, municipal hangar and the south edge of the airfield



FIGURE 8: The tidal wall looking north



FIGURE 9: The railway bridge



FIGURE 10: The dome trainer



FIGURE 11: The north edge and north hangar



### 3. The planning context

- 3.1 Policy 7 of the Amendments to the Proposed Submission Adur Local Plan (2016) states the following.  
*'Approximately 15,000 sq m of new employment generating floorspace (both aviation and non-aviation related), including a mix of B1 (business), B2 (general industry) and B8 (storage) / hangar uses, will be provided on the north-eastern side of the Airport.*  
*New development at the Airport must be designed to minimise its impact on the landscape as well as on the open nature of the Shoreham-Lancing Local Green Gap. Key views must be retained, and any impacts on the historic character of the Airport and the historic assets within it must be minimised. A Development Brief will be required to address these issues.*  
*New development at the Airport will result in a need for improved access from the A27. Access across the A27 to the South Downs National Park for pedestrians, cyclists and equestrians must be retained, and where possible, enhanced. New development will also be required to contribute to the provision or funding of mitigation for offsite traffic impacts on the strategic road network and local roads through a package of measures including improvements to the A27/A2025 Grinstead Lane junction.'*
- 3.2 The two key heritage issues in the supporting text to the policy are:
- It is essential that the open character of the area is retained and key views are protected. These views are obtained from viewpoints within the South Downs National Park such as Lancing Ring and Mill Hill to the airport and Terminal Building, the Grade I Listed Church of St Nicholas and the Old Tollbridge, as well as key local views across the Local Green Gap and up to the Downs and Lancing College from the well-used paths running north-south on both sides of the River Adur.*
- It is important that the settings of the Grade II\* Listed Terminal Building, the Grade II Listed hangar and the Dome Trainer Scheduled Ancient Monument are not negatively impacted upon as a result of new development and any new access to the Airport.*
- 3.3 Policy 5 New Monks Farm, Lancing does not relate directly to the airfield, but implementing the policy through a new access off the A27 would have an impact on it. The supporting text for the policy discusses a new roundabout adjacent to New Monks Farm as the preferred option, with a new roundabout at the Sussex Pad junction as a contingency. Two indicative roundabout locations were referred to in the Proposed Submission Adur Local Plan 2014: one further west, adjacent to New Monks Farm; and one further east, at the existing Sussex Pad junction. However,

revised proposals were submitted to the council. Following consultation a revised central location is now the preferred approach, as shown in Figure 1.

3.4 *National planning policy for the historic environment is given in the National Planning Policy Framework (NPPF) of March 2012. The pertinent paragraphs are as follows.*

*Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.*

*In determining planning applications, local planning authorities should take account of:*

- *the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;*
- *the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and*
- *the desirability of new development making a positive contribution to local character and distinctiveness.*

*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden should be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II\* listed buildings, grade I and II\* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.*



#### 4. The history of the airfield to 1918

- 4.1 The history of the site before it became a flying field needs a brief discussion. New Salts Farm Road (Figure 6) follows the line of a sea wall which was present by 1592, with Lancing Marsh to the west.<sup>3</sup> Reclamation of the land to the east of the wall appears to have begun in 1684 with the construction of a dam along the line of this road. By 1770 most of this land had been reclaimed.<sup>4</sup> The area to the southeast lay in very large fields which had been divided-up by the time of the 1841 tithe map,<sup>5</sup> when the last of the land adjacent to the River Adur was enclosed. Between then and the early twentieth century the field pattern on the airport site was broadly stable. In the Second World War it was revived as camouflage for the airfield as discussed in section 6 and shown on Figure 18.
- 4.2 Shoreham Airfield came into existence in 1909 when George Wingfield took out a lease on land in the southeast corner of the present site (the area was probably about 540 x 540yds, 500m x 500m) and formed Aviators Finance Co Ltd.<sup>6</sup> In May of the following year, Harold Piffard began testing a biplane.<sup>7</sup> The name of his aircraft, 'Hummingbird,' is commemorated in the airfield restaurant. Piffard was an old boy of Lancing College and this may have been one of the reasons for the choice of airfield. Other early aviators were connected with the college and the link continued down to the Second World War when the Lancing OTC helped with airfield defence.<sup>8</sup> Other reasons for the airfield's early popularity are likely to have been its proximity to Brighton, the prominent navigation landmarks such as the river, chapel and railway, the rail link and access to the river for amphibious planes. The drainage was poor. New drains had to be cut and open channels boarded-over. Piffard's aircraft was housed in a shed,<sup>9</sup> which later became a restaurant, in the southeast corner of the site (Figure 12).
- 4.3 By early 1911 Shoreham was the base for, among others, the aviator Oscar Morrison and his Bleriot monoplane.<sup>10</sup> In March of that year the Daily Graphic published an ambitious plan for Brighton and Hove Aviation Grounds (Figure

<sup>3</sup> T.P. Hudson, ed., *A History of the County of Sussex* 6.1, The Victoria History of the Counties of England (1980), p.35

<sup>4</sup> West Sussex Record Office (WSRO) PAR 111/52/4.

<sup>5</sup> WSRO TD/W75, Lancing Tithe Map, 1841

<sup>6</sup> T.M.A. Webb and D.L. Bird, *Shoreham Airport, Sussex: the Story of Britain's Oldest Licensed Airfield* (1996), p.8

<sup>7</sup> R. Dallas Brett, *History of British Aviation 1908-1914* (1934) p. 8; P. Lewis, *British Aircraft 1908-1914* (1962), pp. 392-3 R. Almond, 'A brief history of Shoreham Airport in Sussex', *Sussex Industrial History* 14 (1985), pp. 11-16

<sup>8</sup> Webb, *op. cit.*, p.47

<sup>9</sup> Shed was the early name. It had been largely replaced by hangar by the end of the First World War. They were simple wooden-framed structures with corrugated metal cladding ( Webb, Appendix Part 1)

<sup>10</sup> Webb, *op. cit.*, p.9

13). Some of the features were never built, but ditches were filled-in to form a north-south landing ground about 2000ft (600m) long. The boundaries of the airfield that opened with the name Brighton and Shoreham Aerodrome on June 20 1911 was approximately the same as that of the municipal airport of the late 1930s (Figure 14). A row of six wooden sheds in addition to Piffards' had been built at the foot of the railway embankment (Figure 12). The airfield was a stopping point for several air races and the venue for the first recorded air freight made by Horatio Barber between Hove and Shoreham. By the end of the year, two flying schools were present.

- 4.4 The Brighton-Shoreham Aero Club was formed in January 1912. A wooden clubhouse was built in the southeast corner between Piffard's shed and the others, together with tennis courts. A croquet lawn was laid out further to the east. In the following month a fire destroyed three sheds, but they were rebuilt together with two new ones. In October the Avro Flying School moved to Shoreham from Brooklands. Avro also built a small number of planes for private customers at the airfield and used the river for a test float-plane versions of its Type H biplane, constructing a water plane hangar close to the tidal wall. Other aircraft constructed at Shoreham at this time included the Pashley brothers' three-seat biplane for club training.
- 4.5 The year 1913 saw the construction of two hangars on the east edge. The south one was used for the construction of the unsuccessful Radley-England water plane. After its failure, production continued with the manufacture of the bizarre Lee-Richards Annular Monoplane. However, the impetus and expansion appears to have slackened in the years immediately before the First World War and the Avro Flying School left in September 1913.<sup>11</sup>
- 4.6 The War Office had inspected the airfield as early as May 1913.<sup>12</sup> It was requisitioned in September 1914. No 3 Reserve Squadron Royal Flying Corps was established there in January 1915 and 14 Squadron was formed in the following month, although its members were largely taken from 3 Squadron. It moved to the Middle East in November. Other squadrons joined 3 Squadron for brief periods during the first half of the war.<sup>13</sup> Eight hangars were added to the pre-war ones, resulting in a line of buildings from the southeast corner of the airfield to the west edge of the site of the 1930s municipal hangar. There were also buildings on the site of the tennis courts.<sup>14</sup> The airfield was at this time about 1,100 x 660yds (1,000 x 600m) bounded to the north by the Upper Brighton Road and to the west by New Salts Farm Road (Figure 12). No domestic buildings for the RFC servicemen are known. It seems likely that there

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<sup>11</sup> Webb *op. cit.*, pp. 9-11 for paragraphs 4.3-4.5

<sup>12</sup> Webb *op. cit.*, Appendix Part 1

<sup>13</sup> K Delve, *The Military Airfields of Britain Southern England* (2005), pp, 210-11

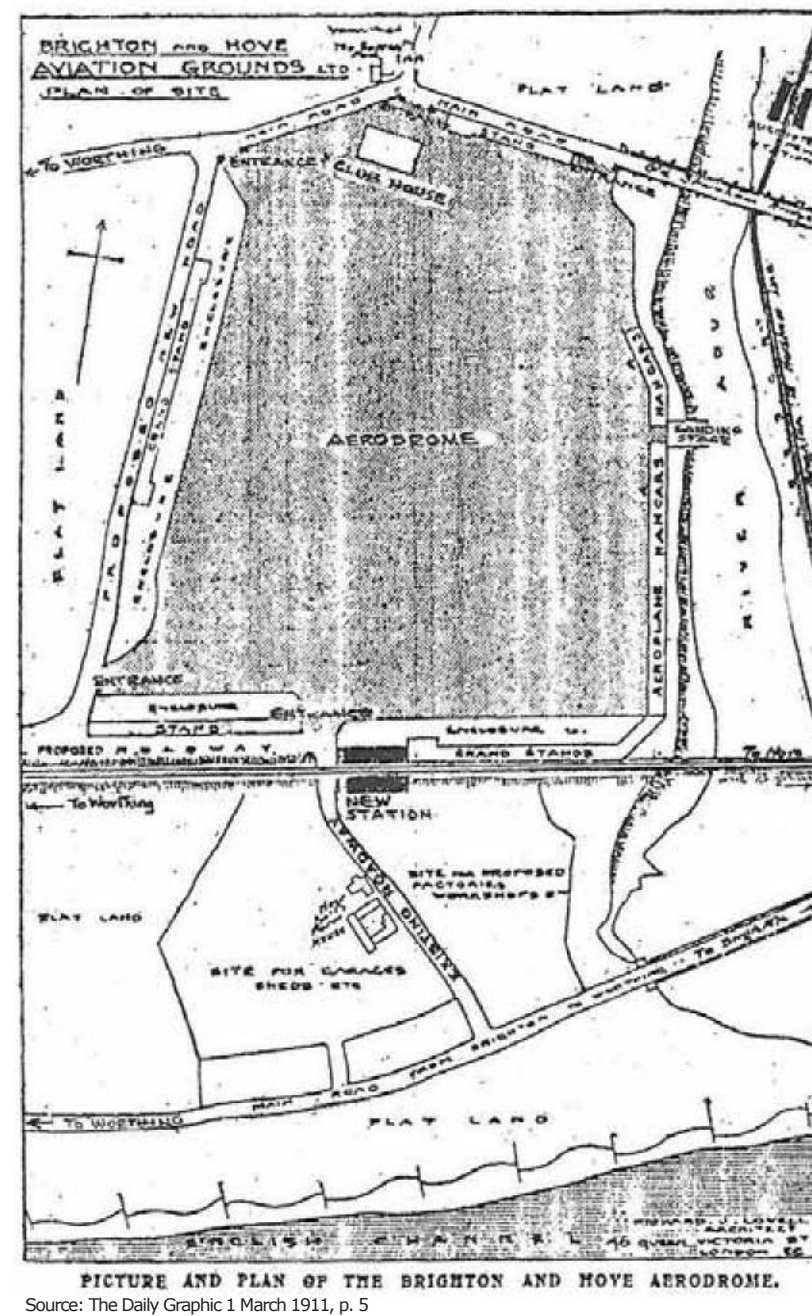
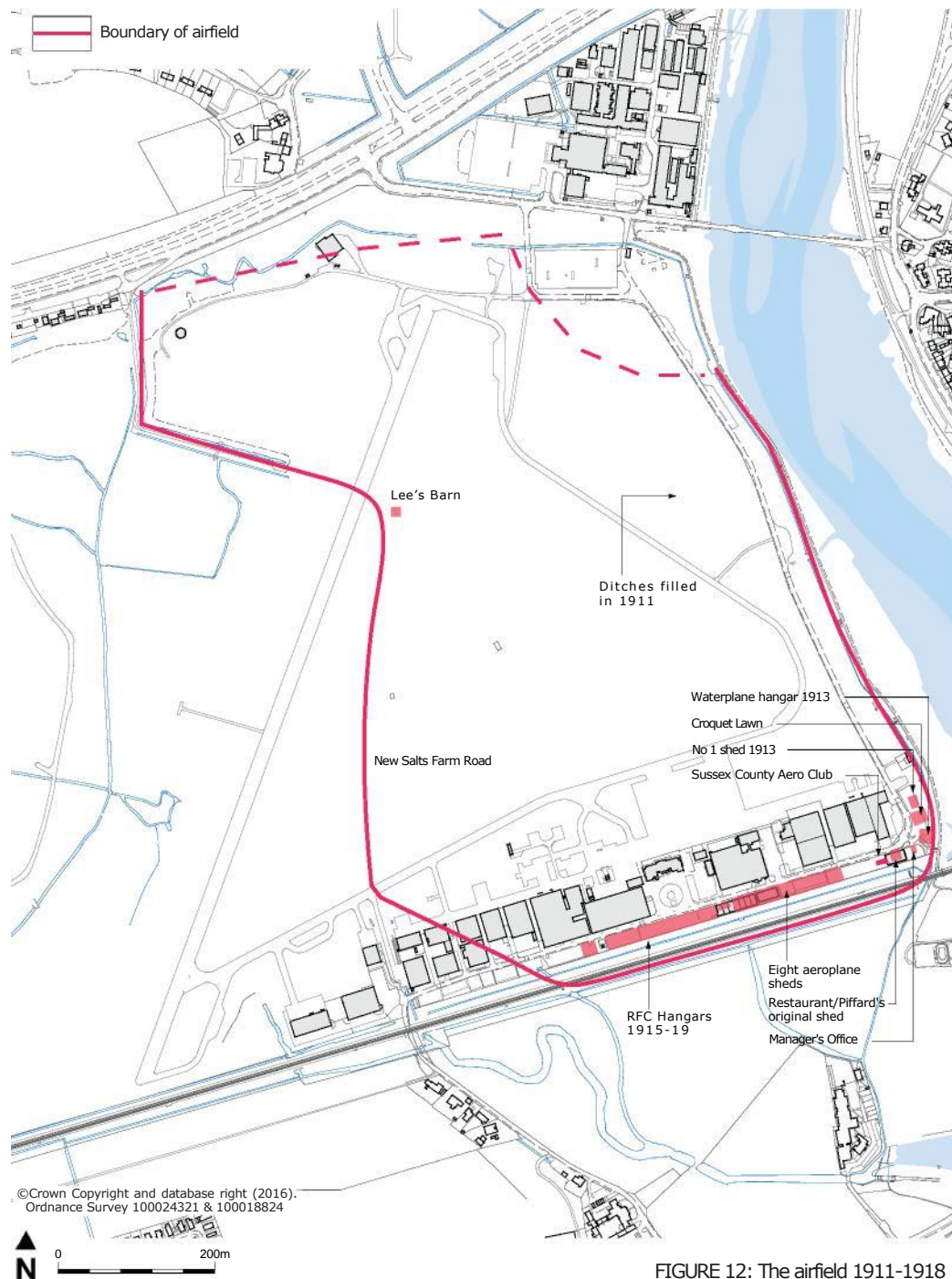
<sup>14</sup> Webb *op. cit.*, p.11

would have been tents and temporary structures. However, men may have been billeted in the surrounding towns as they were in the Second World War.

- 4.7 The main wartime role of Shoreham was flying instruction. The SE Area Flying Instructor's School was based there from early 1918. At the end of the war the airfield was used for storing captured enemy aircraft. In April 1919 no 1 Wing of the Canadian Air Force comprising two squadrons moved to Shoreham from RAF Upper Heyford, remaining there until January or February 1920. They took 65 of the captured German aircraft with them. The airfield was de-requisitioned, all the buildings were cleared, and the field reverted to pasture.<sup>15</sup>
- 4.8 Nothing of this phase of the airfield's history now remains on the site itself. In St Nicolas's Churchyard there is a group of graves of men who served in the Canadian Air Force, the RFC and the Royal Engineers in the First World War.

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<sup>15</sup> Webb *op. cit.*, p.33





## 5. From the end of the First World War to the outbreak of the Second

- 5.1 In the early 1920s the Sussex Aero Club was briefly re-founded on Easter's Field south of the railway (Figure 14), but it soon dissolved. In 1925 the Gnat Aero Company was formed by F.G. Miles with Cecil Pashley as instructor.<sup>16</sup> This began Miles's long association with Shoreham, extending into the 1970s. The company's five aircraft were housed in a Bessoneau hangar and in Easter's Barn adjacent to New Salts Farm Road. In 1926 the operation moved north of the railway line to a site near the south end of the present runway (Figures 14, 16). A new hangar and a clubhouse were put up, and the Southern Aero Club was founded. The Gnat Aero Company became Southern Aircraft Ltd, eventually building biplanes called Martlets. Production of these ceased in May 1931.<sup>17</sup> The aero club became a limited company providing flying training and joyrides.
- 5.2 In parallel with this use of part of the present airfield, the local authorities of Brighton, Hove and Worthing began to take an interest in the development of a municipal airport in line with the widespread promotion of civil aviation in the 1920s and 1930s. They asked Sir Alan Cobham, who by then had become the propagandist for British aviation, to look at possible sites. In 1929, backed by C. C. Wakefield, he had undertaken a national municipal aerodrome campaign and visited Worthing in September of that year.<sup>18</sup> The Shoreham site was approved by the Air Ministry at the end of 1930, and in August 1933 the municipalities purchased it for £10,000, with £31,000 allocated for its development. Figure 15 shows the approved original design with four hangars.
- 5.3 Construction of the terminal building, designed by S. H. Tiltman, and the Boulton and Paul hangar to the west of it began in November 1934. The airport was formally opened on 13 June 1936.<sup>19</sup> The proposed hangar to the west of the surviving one was never built. The two proposed to the east were eventually put up as Bellman hangars in 1937 for the Martin School of Air Navigation, but were bombed in May 1941 and never replaced.<sup>20</sup> In addition to the new buildings there were extensive improvements to the landing ground which cost £11,889 (equivalent to about

<sup>16</sup> D.L. Brown, *Miles Aircraft since 1925* (1970), p.3

<sup>17</sup> *Ibid.*, pp. 45-52

<sup>18</sup> H. J. Penrose, 'Cobham, Sir Alan John (1894-1973)', rev. *Oxford Dictionary of National Biography*, Oxford University Press, 2004; online edn, Jan 2011 [<http://www.oxforddnb.com/view/article/30944>, accessed 17 Jan 2016]

<sup>19</sup> Webb, *op. cit.*, p. 33

<sup>20</sup> R. J. Brooks, *Sussex Airfields in the Second World War* (1993), p.123; Webb, *op. cit.* map between pp.7 and 8.

£450,000 today).<sup>21</sup> The northwest corner remained boggy until it was drained in 1941. Lee's Barn on the west edge was removed.

- 5.4 The councils were fortunate in their choice of the Brighton-based Tiltman. The terminal building captured the essence of the Moderne spirit of the mid-1930s. It was acclaimed by his contemporaries when the South Eastern Society of Architects held their annual meeting at the airport in July 1936.<sup>22</sup> It was and is still much admired and cited as a largely unchanged example of an integrated terminal on a smaller airfield of the period. Tiltman's other airport buildings included Belfast-Harbour Airport and the Leeds-Bradford Joint Municipal Airport at Yeadon (both 1939).<sup>23</sup>
- 5.5 The contemporary Boulton and Paul (municipal) hanger is of a type widely used on airfields throughout the UK and the British Empire before the Second World War, being steel-framed with brick and concrete brick infill.<sup>24</sup> Most of the original cladding was lost when it was hit by a bomb in 1941 and the present corrugated asbestos-cement sheeting dates from the 1950s.
- 5.6 There were commercial flights well before the completion of the buildings: the first scheduled service between Shoreham and the Isle of Wight began in October 1932. In 1935 Olley Air Services Ltd was appointed to manage the airfield prior to the official opening. By this time the Miles-operated flying school on the 1920s field had closed and the Southern Aero Club was reconstituted as the South Coast Aero Club. Early in 1936 it moved to a new wooden clubhouse in the southeast corner of the airfield very close to the site of the pre-war one. On 1 July the Southern Railway opened Shoreham Airport Station opposite the air terminal. It remained open until 15 July 1940, although it never re-opened after the war. Throughout the late 1930s a variety of companies provided flights to major UK cities and the Channel Islands.
- 5.7 In the mid-1930s the Air Ministry increased aircrew training using civilian organisations as part of the expansion of the RAF. The Martin School of Air Navigation received a RAF Volunteer Reserve training contract starting in July 1937 (No 16 Elementary and Reserve Flying Training School). Bellman hangars were erected at sites 3 and 4 (Figure 17).

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<sup>21</sup> P. C. Brown, *Shoreham Airport an Illustrated History* (2014), p.23; an Anon, 'Brighton Airport', *The Builder* 4 (January, 1935), pp.14-16; Anon, 'Brighton, Hove and Worthing Airport', *Architecture Illustrated* 11(November 1935), pp 135-40; Anon, 'Shoreham Airport designed by Stavers H. Tiltman', *Architects Journal* 31( October 1935), pp. 629-30, 633-8

<sup>22</sup> Brochure at Shoreham Visitor Centre

<sup>23</sup> B. Hawkins and J. Lake, 'Croydon and Shoreham a tale of two airports' in B. Hawkins and G Lechner (eds), *Historic Airports: Proceedings of the L'Europe de L'air Conferences on Aviation Architecture* (1 March 2005), pp. 183-6

<sup>24</sup> Anon, 'The Industry Boulton and Paul Hangar Construction', *Flight* (11 March 1932), p.226

Standard Air Ministry wooden huts were put up near the clubroom as classrooms and offices. In May 1938 navigation training for bombers was also moved to Shoreham, but the operation was closed down in September 1939 at the outbreak of war because the location was considered to be too vulnerable.<sup>25</sup>

- 5.8 The airfield today has expanded beyond its 1936 boundaries to the southwest, although the now-surfaced runway follows the alignment of the main 1930s one. The terminal building and municipal hangar have post-war buildings alongside them, yet they are still the most distinctive features, rising above their surroundings. The 1930s character is thus still very much in evidence. It is supported by a vast legacy of photographs and other archival material, much of which is at the visitor centre, and Shoreham must be one the few airfields to have an article in *Country Life*.<sup>26</sup>

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<sup>25</sup> Webb, op. cit., pp, 34-5 for 5.6-7

<sup>26</sup> B. Bailey, 'Little Airport, Great Memories' *Country Life* (September 12 1985), p.724

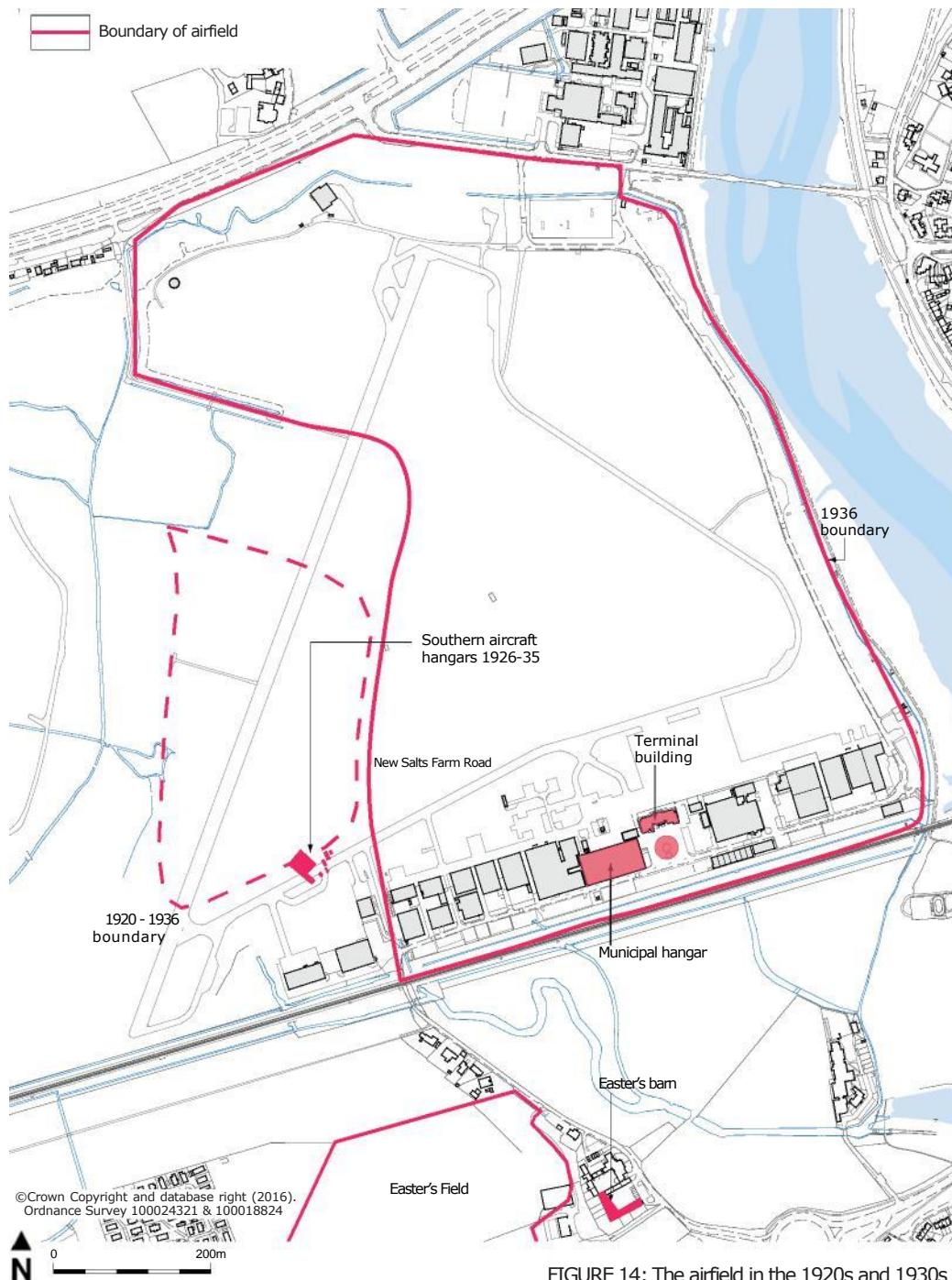
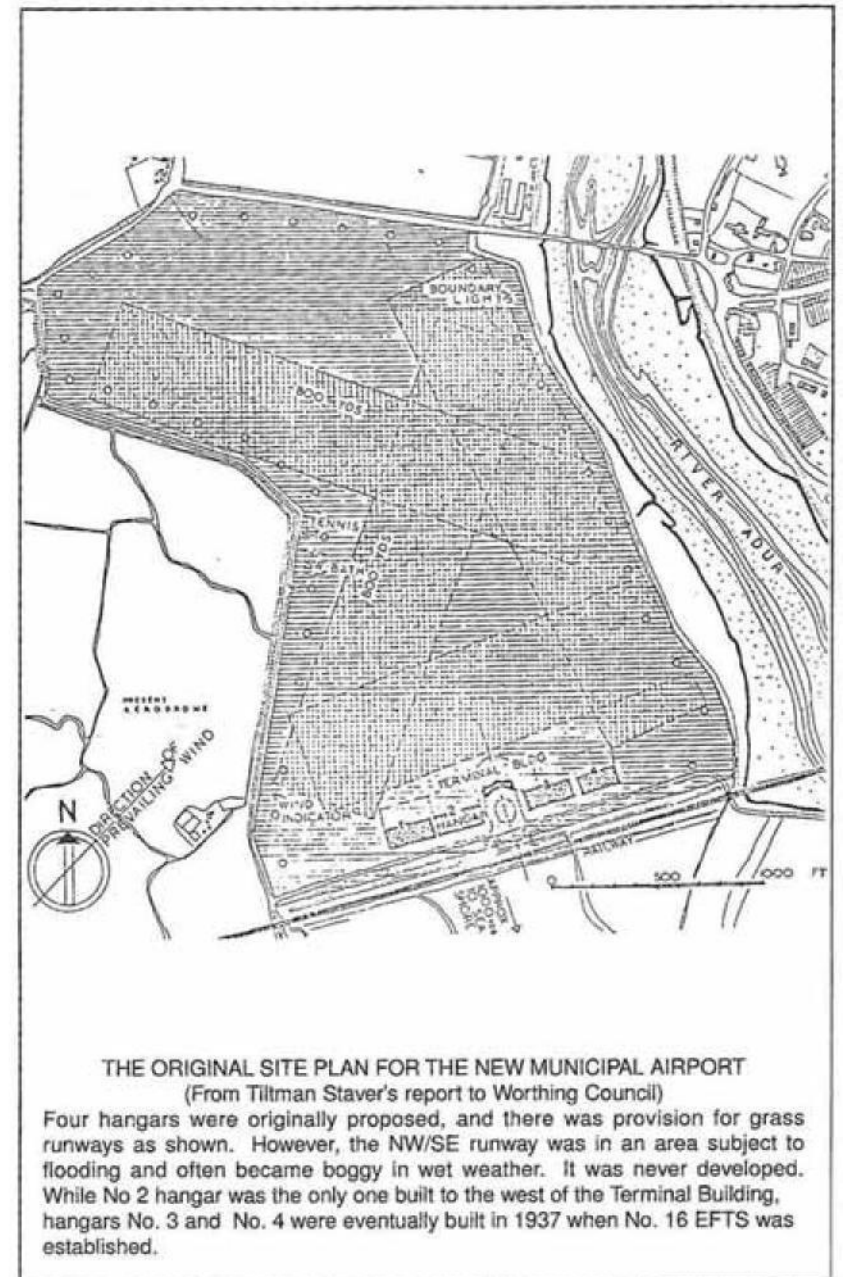


FIGURE 14: The airfield in the 1920s and 1930s



Source: Webb, after p.35

FIGURE 15: The municipal airport proposal





Source: Historic England Archive

FIGURE 16: Air photograph of 1936

## 6. The Second World War

- 6.1 Despite the outbreak of war, the service to the Channel Islands continued until June 1940 and flights from national airlines of Belgium, Holland and Denmark were moved to Shoreham from Croydon. They continued until these countries were occupied. Flights to the Middle East survived until Italy's entry into the war.<sup>27</sup>
- 6.2 The site was requisitioned in mid-1940. Defences for the airfield and the river were quickly put in place. They reflected the wider vulnerability of Shoreham Harbour and the Adur Valley to invasion. The beaches between Worthing and Hove had defences against boats, landing craft and tanks. There were machine gun posts, land minefields and sea minefields. Houses on the foreshore were demolished to clear lines of fire and Shoreham had one of the first Emergency Coast Batteries. Coastal remains are now few and fragmented. The heavy anti-aircraft gun sites that defended Shoreham from the coast and further up the Adur Valley have also disappeared. This is not so for the airfield where substantial evidence survives (Figure 16).
- 6.3 Shoreham was placed within the Air Ministry's group of the 149 most vulnerable airfields in Britain: it was the subject of a Luftwaffe target dossier.<sup>28</sup> One of the primary aims was to prevent it being used by German paratroopers and gliders. This is reflected in the positions of the pillboxes and the painting of hedges across the airfield (Figure 18) to give the impression to reconnaissance aircraft that it was just fields. Along the east edge, pillboxes and light anti-aircraft positions were partially set within the tidal wall with air raid shelters and stores behind.<sup>29</sup> At the north end, there was a 25-pounder gun emplacement and a machine gun practice range. Further light anti-aircraft batteries lay along the north edge and three pillboxes guarded the northwest corner with another, now lost, in the southeast. Table 1 gives the scheme in April 1941<sup>30</sup> and the extent of survival as assessed by Jo Short.

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<sup>27</sup> Webb, *op.cit.*, p.37

<sup>28</sup> J. Short, 'The Remains of a Military Landscape: the impact of Second World War allied military activity on the physical and social landscape of the Adur Valley' West Sussex MA thesis, University of Leicester (September 2005) quoting Imperial War Museum 422.5:GB10203. There is a copy of the Luftwaffe map at Shoreham Visitor Centre.

<sup>29</sup> P Stephenson, J Russell and L. Barber, 'An Archaeological Evaluation and Watching Brief at the Shoreham Adur Tidal Walls, Shoreham,' ASE Project No: 6833 (May 2015)

<sup>30</sup> Short thesis, p.23 Diaries of the 25th Infantry Brigade (The National Archives: WO166/930: Appendix C1)

**Table 1: Defence of Shoreham Airfield, April 1941**

Type	Weapons (total)	Quantity built	Quantity surviving
Brick pillbox	6 Light machine guns	6	2
Trench	4 Light machine guns 6 Medium machine guns	7	0
Breastwork <sup>31</sup>	2 Light machine guns	2	1
Light anti-aircraft post	8 Lewis machine guns	8	3
Total	16	23	5

Structures not listed in this schedule include a further light anti-aircraft pillbox on the east edge and three Pickett-Hamilton forts which had been installed by the end of Feb 1941.<sup>32</sup> One survives near the terminal building. Today, concrete slabs with holes cast for posts line the top of the tidal wall. They have probably been salvaged from barbed wire and anti-landing defences at the base of the wall.

- 6.4 There was a further defensive measure in the use of Canadian pipe mines. Steel pipes were driven into the ground at oblique angles and packed with explosives. They were intended to be fired electrically to form craters that would disrupt a tank attack. About 13,000 individual pipes were in place by July 1941 and they were not disarmed until after the war.<sup>33</sup> Their locations can be seen on Figure 19. There are concrete anti-glider cones around the front of the terminal building and anti-tank concrete blocks on the track to the north hangar. The latter may well have been put in place after the war to prevent unauthorised access to the airfield. Finally, the dispersal of aircraft around the edges

<sup>31</sup> Raised earthwork on waterlogged ground

<sup>32</sup> The fort comprised two vertically sunken concrete cylinders, one mounted inside the other. The inner cylinder, pierced with three loopholes, was raised to its firing position manually or by means of a pneumatic or hydraulic pump. In its dormant position, the lifting head lay flush with the ground surface, and contained a hatch through which the fort was entered. Only 19 surviving examples are recorded on 12 airfield sites (Short thesis, p.23 and Pillbox Study Group <http://www.pillbox-study-group.org.uk/advanced-pillbox-designs/part-2-o-z/pickett-hamilton-fort/>).

<sup>33</sup> Short thesis quoting TNAWO 199/52, HF/2435/E; WSRO POL/W/HQ/15/7



of the airfield and the construction of four over blister hangars<sup>34</sup> was the consequence of a German bombing raid on May 8 1941.<sup>35</sup> The cladding of the municipal hangar was lost and the two Bellman hangars destroyed. One blister hangar was placed within the municipal hanger, another in the southeast and two on the north edge. One of the latter survives.

- 6.5 Shoreham was first intended as advanced airfield of 11 Group Fighter Command. It was a satellite of Kenley and Tangmere but did not have a significant role in the Battle of Britain. Its main wartime purpose was for air-sea rescue, training, short-term use by a wide range of squadrons, and as an emergency landing ground. There was very limited domestic accommodation. The Sussex Pad Hotel was the officers' mess. The sergeants' mess and quarters were at Ricardo's. They were moved to New Salts Farm towards the end of the war. There were Nissen huts in the northwest corner used for accommodation (no 32 on Figure 17). These were taken over by the RAF Regiment in 1942 and two further huts added, although most men were billeted in the surrounding towns.
  
- 6.6 The air sea rescue operation began in October 1940 with a detachment of 225 Squadron flying Lysanders. Shortly afterwards, Tangmere was heavily bombed and its Beaufort Fighter Interceptor Unit used Shoreham a temporary base, joined in October by 422 Flight nightfighters with Hurricanes. Both units left in January 1941. At about this time the airfield was extended to the west by demolishing the embankment of New Salts Farm Road (Figure 17). During 1941 the complement of Lysanders was increased. Walrus amphibians were added and the unit at the base became C flight of 277 Air Sea Rescue Squadron.<sup>36</sup>
  
- 6.7 Shoreham was never planned as a military airfield, so the layout was essentially an adaptation of the very simple layout of the 1930s municipal airfield. There was nothing like the carefully structured layout of technical, domestic and regimental groups of buildings found on a purpose-built RAF base. The defences have already been described. There was only a grass runway at this time. The terminal building was the station headquarters and a battle headquarters was constructed near the Sussex Pad Hotel (Figure 17). The civilian hangars were used until the bombing of May 1941, then the four blister hangars distributed around the edge of the field. No evidence of a quay or access point for amphibious planes has been found. The flight hut and accommodation for duty crews was adjacent to the site of one of the Bellman hangars. They were part of a cluster of structures that included general stores, a link trainer<sup>37</sup> and fuel stores.

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<sup>34</sup> P. Francis, *British Military Airfield Architecture* (1996), pp. 116-7

<sup>35</sup> Webb, *op.cit.* , pp.38-9

<sup>36</sup> Brooks, *op.cit.* pp. 123-126 for this paragraph

<sup>37</sup> Francis, *op cit*, p139

- 6.8 The main active role that Shoreham played in 1942 was in support of the disastrous Dieppe Raid in August. It was a temporary base for the Hurricanes of 3 and 245 Squadrons and a refuelling point for other aircraft.<sup>38</sup> In October responsibility for airfield defences passed to 2771 Squadron of the RAF Regiment which occupied the buildings in the northwest corner of the airfield. At the end of the year command of Shoreham passed to the Royal Naval Air Service Station at Ford and C Flight received Spitfire IIs.
- 6.9 During 1942 and 1943 there was a rapid succession of RAF Regiment squadrons at the airfield, but the most significant change was the formation in April 1943 of 7 Practice Camp. The dome trainer was constructed for initial training by this unit. After this trainees moved on to target practice on dummy aircraft towed by the Lysanders of 277 Squadron. There were about 100 men on the first course for twin Brownings which began in May. This was without the benefit of the dome which was still under construction.<sup>39</sup> Most of the training was in the use of the 40mm Bofors guns, although the ones actually on the airfield had been removed by October. The anti-aircraft guns then consisted of 1 quadruple Vickers, 6 Hispano cannons and 13 twin Brownings. No 18 Armament Practice Camp was formed on October 18 1943 and by end of year the Anti Aircraft flight became part of C Flight of 667 Squadron.
- 6.10 From the middle of 1943 the airfield was occasionally used for emergency landings of USAAF bombers, particularly Boeing B17 Flying Fortresses. There were sometimes disastrous results on the short grass runway.<sup>40</sup> This may have been one of the reasons why a wire-mesh surface was finally laid in February 1944, although it was difficult to install and not altogether successful.<sup>41</sup> At the beginning of the year the airfield defences were gradually wound down to eight gunposts.<sup>42</sup> The airfield was transferred back to Tangmere and was briefly a location for Sea Otters for air sea rescue.

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<sup>38</sup> Webb, op pp.4-41 Shoreham Airport Archive RAF Regiment file summary notes. This file was prepared by Mike F. Williams at some time before 1996. Mr Williams transcribed all of the RAF Regiment operations record books at what was then the Public Record Office, but he did not record the catalogue numbers.

<sup>39</sup> RAF Regiment file 12.5.43 'No 7 AA Practice camp almost complete first course on two Brownings commenced today with approx. 100 trainees dome trainer steadily advanced and hopes to complete near future.

<sup>40</sup> RAF Regiment file 26 8.43 and 28.4 44

<sup>41</sup> RAF Regiment file 8.2.44 and 3.4.44

<sup>42</sup> RAF Regiment file 11.2.44 4 and 22.3.44

- 6.11 In the build-up to D-Day, Shoreham became the base for 345 Free French Squadron. No. 277 Squadron was equipped with Spitfires as well as Walruses and continued its air sea rescue duties. Both squadrons were successful in shooting down V1 flying bombs (doodlebugs) while based at Shoreham.<sup>43</sup>
- 6.12 The station headquarters closed in September in 1944 and 277 Squadron left for Goodwood on 12 October. The airfield was handed over to the Ministry of Civil Aviation in March 1946. Figure 20 shows the airfield at that time. Figure 21 was dated 1954 by the Air Ministry but appears to have been drawn in 1950 at about the same time as Figure 19 which was prepared for the disposal of the pipe mines. In combination, they show the buildings and landscape at the end of the war. The most notable feature is that there were hardly any changes after the construction of the blister hangars and southwest extension in 1941 other than the construction of the dome trainer and the addition stores and other minor buildings.
- 6.13 Archaeology South-East's recent study shows that most of the pillboxes, gun positions and other structures on the river edge survive in varying states of preservation, or are traceable as buried archaeology. Nothing now remains above ground on the south side. A Pickett-Hamilton fort survives, together with the floor levels and outlines of walls at site 17 shown on Figure 2. The construction of the post-war buildings and car parks is likely to have removed some or all of the below-ground remains of the buildings of this period. On the north edge, the wartime taxi-way appears to remain as far as the north hangar, although the aircraft standings have been lost. The hangar is still there with a post-war extension on the east side. The track beyond is not on the original alignment. The dome trainer survives in poor condition as described below. To the north there is dense scrub. It is not clear if any of the small structures shown on Figure 21 remain, but it seems unlikely because of the level of disturbance. The dome trainer survives in the poor condition described below. Of the three pillboxes on New Salts Farm Road, only the middle one can be traced in dense scrub. Nothing remains of the buildings west of this.

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<sup>43</sup> RAF Regiment file 4-7.7.44



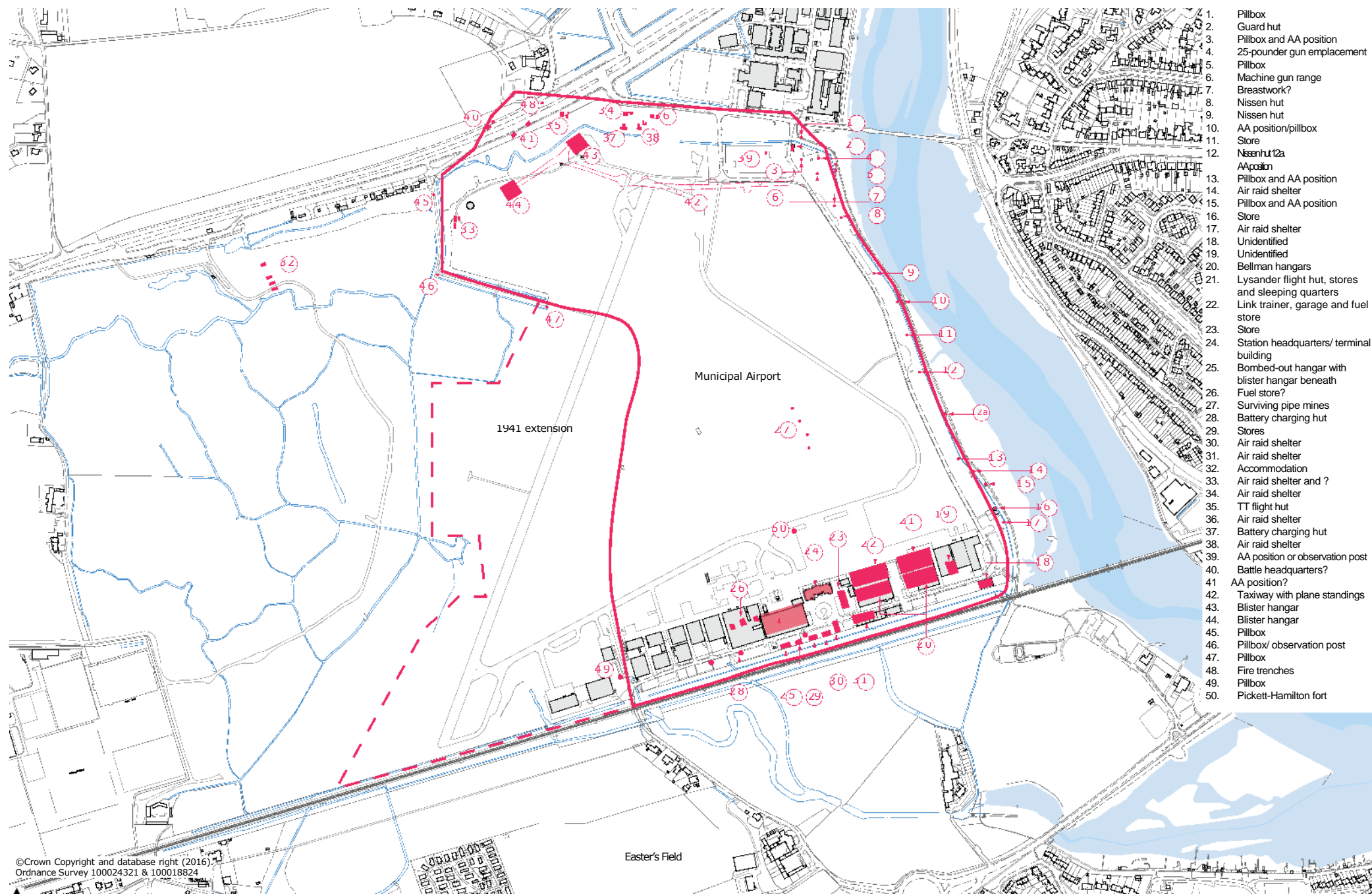
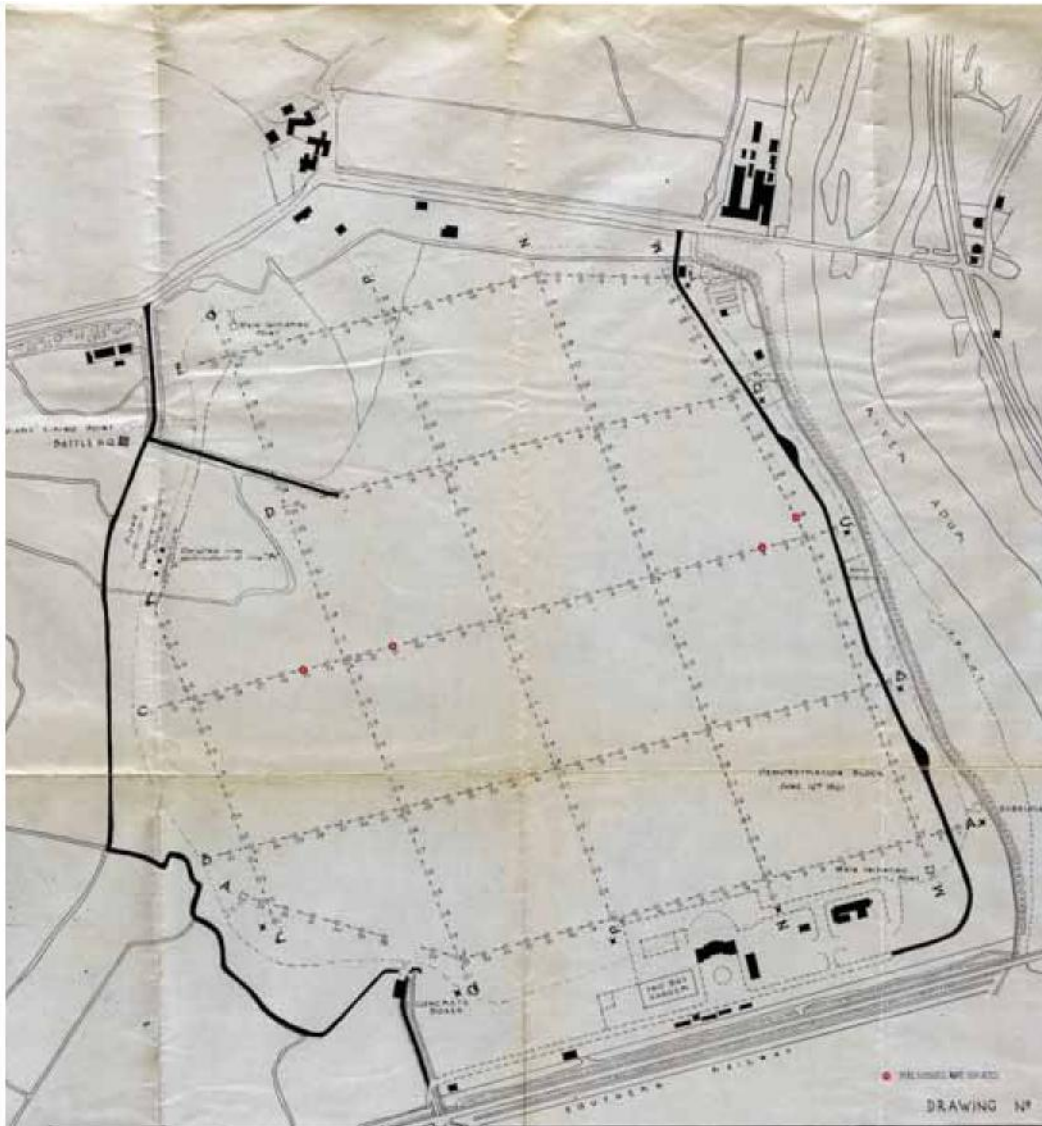


FIGURE 17: Airfield defences 1940-41



Source: Historic England Archive RAF S653 H9 140 7.11.41 S

FIGURE 18: Air photograph, November 1941



Source: West Sussex Record Oce POL/W/HQ/15/7 1944-50

FIGURE 19: Map of pipe mines





Historic England Archive 3G JTUD/UK/157 Part I 19 April 46 138 Sqdn

FIGURE 20: Air photograph, April 1946





- 2 Fort (Pickett-Hamilton)
- 9 A R shelter
- 10 TT flight hut
- 11 W/T hut
- 12 Tr... for fire tender
- 13 TT flight hut (ex VR link trainer building)
- 14 Amplifier
- 15 A R shelter
- 16 A R shelter
- 17 A R shelter
- 19 A R shelter
- 21 A R shelter
- 22 A R shelter
- 23 A R shelter
- 24 Fire pool hut
- 25 Lysander flight hut, stores and sleeping quarters
- 26 Garage (fuel store)
- 27 Sewage pump house
- 28 A M W D store
- 29 Garage and gas proof clothing store
- 30 Station headquarters
- 31 A R shelter
- 32 A R shelter
- 33 A R shelter
- 34 A R shelter
- 35 Stores (annex of original hangar)
- 36 Fire pool hut
- 37 Battery charging hut
- 38 A R shelter
- 40 A I R stores and sleeping quarters
- 41 Petrol installation
- 42 Blister hangar (over type)
- 43 Blister hangar (over type)
- 44 Blister hangar (over type)
- 45 Blister hangar (over type)
- 46 Guard hut
- 55 Battle headquarters (new)
- 56 Dome trainer building
- 58 M G range
- 60 S A A store
- 61 P B N building
- 62 Link trainer building
- 63 Next trainer building (thorn hut)
- 64 25000 gall static tank
- 65 A M W D workshops and store
- 66 A M W D compound (iron railings and wire)
- 67 Fuel
- 68 A M W D office
- 69 E store type B
- 70 E store type C
- 71 S A A store
- 72 M T petrol installation 4 500 gallon tanks
- 73
- 74 Guard hut
- 75 Sergeant's quarters B
- 76 Sergeant's quarters B
- 77 Sergeant's showers ablutions latrines and drying room
- 78 Ration store (400-500)
- 79 Gas clothing store
- 80 Latrine (4 seats)
- 81 Store
- 82 Oil store
- 83 Old battle H Q
- 84 Dope store (old S A A)

FIGURE 21: Air Ministry drawing, 1954

## 7. **Post-war history**

- 7.1 After the war, the airfield was restored to use by civil aircraft. The South Coast Flying Club was the first user to return in 1946 and the Brookside Flying Club was established two years later. The airfield was host to small-scale air displays and was used by a number of private aircraft. But significant activity only began in 1951 when F.G. Miles returned to Shoreham to use the airfield buildings for the construction of gliders.<sup>44</sup> The municipal hangar was re-clad in the following year and two of the blister hangars were dismantled to enlarge the one in the southeast corner of the site. The remainder of the Miles staff who had been based at Redhill moved to Shoreham in the following year and aircraft manufacture was the principal activity for the next 18 years. Commercial flights to the Channel Islands were also started, but Shoreham never regained its regular pre-war level of use. The Miles business occupied most of the buildings that survived from the war. The dome was used by Miles' electronics subsidiary and a shed adjacent to it housed a drawing office. This developed as a substantial enterprise which was absorbed into Beagle Aircraft Ltd in 1960.<sup>45</sup> A prefabricated modern drawing office replaced wartime huts between the terminal building and the aero club and a new factory building was put up on the west side of the municipal hangar. This layout is shown on Figure 22.
- 7.2 The Beagle company went into liquidation in 1970.<sup>46</sup> In 1971 Shoreham was reinstated as Brighton, Hove and Worthing Municipal Airport for light commercial and private aviation, although manufacture of aircraft components continued on a smaller scale.
- 7.3 Several organisations started scheduled services from the mid-1950s onwards, but none survived over the long term. Flying schools also came and went quite frequently. Nevertheless, Shoreham airport survived. It was used by 200 businesses in 1977. Chelsea College of Aeronautical Engineering (now Northbrook College) moved there in 1975 and by 1979 it was a base for 140 aircraft and used by 280 different business aircraft a year.<sup>47</sup> During the period of post-war growth the absence of a hard-surface runway was felt to be a major restriction. After three public inquiries, one was finally built in 1982. Throughout this period the footprint of the buildings on the south edge did not expand much beyond that in the 1950s (Figure 23). The extent of the buildings was essentially the same in 1984. The

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<sup>44</sup> Brown, *op. cit.*, p. 44

<sup>45</sup> Anne Pimlott Baker, 'Miles, Frederick George (1903–1976)', Oxford Dictionary of National Biography, Oxford University Press, 2004 [<http://www.oxforddnb.com/view/article/48059>, accessed 29 Jan 2016]

<sup>46</sup> P. R. March 'Epitaph on the Beagle Pup' *Aircraft Illustrated* 4 (1971), pp.68-73

<sup>47</sup> Brown, *op. cit.*, pp. 70-76

expansion westwards from Premier House since that time has retained the setting and prominence of the terminal building.

- 7.4 There were further improvements in 1986 with the construction of a new taxi-way from the airport apron, and in the following year an extension of the control tower on top of the terminal building. In 1998 the runway was extended 70m to the southwest, and in 2001 planning permission was granted to raise the ground level in the northeast corner by 2m to create a helicopter landing area. The original ground level was left for a distance of a few metres around the dome trainer.
- 7.5 Although the airport was successful in many ways, it accumulated mounting debts and in 2006 Brighton and Hove City Council sold it to the Erinaceous Group. Ambitious redevelopment proposals were put forward, but the only immediate consequence was the listing of the municipal hangar. The Erinaceous Group went into liquidation and Albemarle Shoreham Airport Ltd, which already owned the buildings, bought the Erinaceous Group's interest. In late 2014/early 2015 Albemarle undertook major repairs to the terminal building.





Source: Historic England Archive MAL/67068 7.8.67 98 65 006

FIGURE 22: The airfield in 1967



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Ordnance Survey 100024321 & 100018824

FIGURE 23: Post-war development of the south edge of the airfield

## 8. The dome trainer and its setting

### 8.1 The history and design of dome trainers

- 8.1.1 The basic principle of the dome trainer is that images are projected onto the interior of the dome and fired at by a centrally-placed anti-aircraft gun (Figure 24). In the case of Shoreham this appears to have been a 40mm Bofors gun.
- 8.1.2 An early version of the dome trainer using static images was developed by Colonel G. F. Haszard and Brigadier Vere Ronald Krohn in 1926 when they were gunnery instructors at the Army Anti-Aircraft School at Biggin Hill.<sup>48</sup> In 1939 H. C. Stephens initiated the use of films to give more realistic targets, working with the anti-aircraft department at the Royal Navy's School of Gunnery, HMS Excellent, at Portsmouth. Technicolor Ltd provided technical advice.
- 8.1.3 In late 1940 a half-dome with a diameter of 25ft (7.5m) was under construction at Portsmouth. By mid-January 1941 the design was changed to a cylinder up to 5ft (1.5m) high, with the dome wall starting to curve above this, so that the aircraft image would be optically correct for the operator. This was the form finally designed by the Trussed Concrete Steel Company and adopted by the Air Ministry as drawing 73/42. The dome was 25ft (7.5m) high and 40ft (12m) internal diameter. The framework of welded steel was fabricated in a factory. On site, a light metal lathing was wired to the framework to support the poured concrete during construction and reinforce the shell. The finished walls were 4.5ins (112.5mm) thick. The interior was plastered and the exterior cement rendered. At Shoreham the plaster has been lost and the steel framework is exposed. Camouflage was either a tar spray coating with chopped heather or tar and stone chippings, not the painted finish at Shoreham which may date from 1995.
- 8.1.4 There was a cloakroom in one side of the single entrance lobby and a ventilating plant room on the other. These were separated from the training area by a soundproof partition. Inlet and exhausts ports for the plant equipment were above the doorway. On early domes the walls were painted blue. A fluorescent tube was used later to flood the whole surface with low intensity blue light. This effect can be seen in the restored dome at RAF Langham (Figure 25).
- 8.1.5 The aircraft image was projected onto a gimbal-mounted mirror which could traverse up to 180° and elevate up to 90°. This in turn reflected the image onto the projection surface of the dome. Movement of the mirror was controlled by three cams. The key to the training was to get the gunner to aim correctly at the future position (aim-off point)

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<sup>48</sup> Information in this section is taken from Francis, *Airfield Architecture*, pp. 166-171 unless stated otherwise

which was added to the film frame-by-frame. Dummy guns, which had controls similar to real weapons but were less bulky, were used. A gun-sight projector showed the actual point at which the trainee was aiming. When this coincided with the future position, the instructor could see if the target would be hit. An amplifier produced the noise of a weapon being fired at close range. Aircraft noise was recorded on the soundtrack of the film to give sound effects.

- 8.1.6 Forty-four concrete domes are known to have been constructed (Appendix 1). There were also timber-framed and inflatable versions. Five concrete domes survive in addition to Shoreham's. The one at RAF Langham in Norfolk has been restored with a Heritage Lottery Fund grant and is now a visitor attraction. At the USAF base at Mildenhall in Suffolk the building appears to be in good condition and is used as a store. The condition of the dome at Limavady in Ulster is unknown but the remaining two on active airfields at RAF Wyton in Cambridgeshire and Pembrey Airfield in Carmarthenshire appear to be sound externally.

## 8.2 **The history and condition of the Shoreham dome**

- 8.2.1 The Shoreham dome was in use between its completion shortly after May 1943 and October 1944 when the last RAF Regiment Squadron left the airfield. A letter from a retired TA officer in the Shoreham airport file describes it as being used for training all anti-aircraft gunners within the Brighton to Selsey area, but since there are several inaccuracies in the letter it is difficult to be certain of any of its contents. Mr. Williams' transcriptions only refer to the dome occasionally. As noted above, it was used by F. G. Miles Ltd for work related to aircraft electronics at some time between 1952 and 1960 and a building described as a shed was set up on adjacent hard standing. This can be seen on Figure 22.<sup>49</sup>
- 8.2.2 Before Miles' occupation, it was used by 1440 Air Training Corps for meetings, training and band practice. There are reminiscences about the post-war condition and use of the building on the Shoreham-by-Sea local history forum and other internet sources. These do not always correspond with one another or with what is known from other sources. The fullest description is as follows, 'The ceiling, was painted white and either side of the front double doors, there were two small rooms. In use as the training facility, the skyline was painted similarly to the local skyline, with the downs and Adur valley. In one room a projector displayed a silhouette of German aircraft against the sky. In the other room a Gun fired a light source which recorded hits on the silhouette. Deflection sighting was taught. In use as

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<sup>49</sup> Webb, pp. 59-60, 'One of the sheds adjacent to the dome housed Aviation Developments, a sub contract drawing Office. When the M.o.D. awarded MED the contract for the Sea Vixen FAW1 simulator, and a high security fence was erected around the design Offices with a continually manned single access point, MED upped sticks into the security compound, and the dome returned to its fallback status as storage space.'

the drill hall, the rooms were used for storing the training rifles, and uniforms, and the other was a classroom. Wooden huts, which were located nearby were used as offices, and classrooms. I should add that the profile of the inside was the same as the outside. The framework was made of timber [sic], covered with a tarmac material, and the inside was covered with a material like plasterboard. The floor was concrete.’<sup>50</sup>

- 8.2.3 It is likely that the doors/windows in the lower part of the dome on the north side were cut for use by Miles for additional light and ventilation. They are not shown on the Air Ministry drawing nor do they appear on the other surviving domes (Figure 26).
- 8.2.4 Nothing has been found out about the use of the building in the 1960s. It is said to have been gutted by fire in 1969 and restored in 1995.<sup>51</sup> The work carried out is unknown. It may have included covering with the camouflage paint which is now peeling off. The reasons for doing this are not clear, since there is no evidence that this was the original finish. By holding moisture in, and preventing the concrete from breathing, it may have caused damage.
- 8.2.5 The helicopter landing site was constructed in, or shortly after, 2001<sup>52</sup> by raising the ground level by 2m. The county archaeologist recommended that a 7m-wide area around the dome be left at the original level. The space actually left is narrower than this. Plate 5 of Short’s thesis shows the landing site under construction with at least the lower layers comprising rubble. Water draining into this may be moving laterally into the sump around the dome, keeping the ground permanently wet. The resultant ‘moat’ is dominated by willows and had about 450mm of standing water in January 2016. In addition to this, there is a lot of rubbish inside. The dome needs to be made safe and subject to a structural inspection before any decisions about its future can be made.

### 8.3 The setting of the dome

- 8.3.1 Historic England guidance states that setting ‘relates to the surroundings in which a place is experienced, its local context, embracing present and past relationships to the adjacent landscape’. It goes on to say that the context can be ‘for example, cultural, intellectual, spatial or functional.’<sup>53</sup> In the case of the dome trainer there are three aspects to context:

<sup>50</sup> <http://www.shorehambysea.com/forums/index.php?/topic/1568-1440-squadron-air-training-corps/>

<sup>51</sup> There is no record of what was done on the English Heritage file for the period AA053322 /1. M. Wilkins, Historic England e mail 25.2.16

<sup>52</sup> Planning application to Adur District Council in 2001 L/8/01/TP for raising of the ground level to the south of the Dome Trainer by up to 2 metres in height, to provide a helicopter training ground.

<sup>53</sup> English Heritage, *Conservation Principles, Policy and Guidance* (2008), p. 39

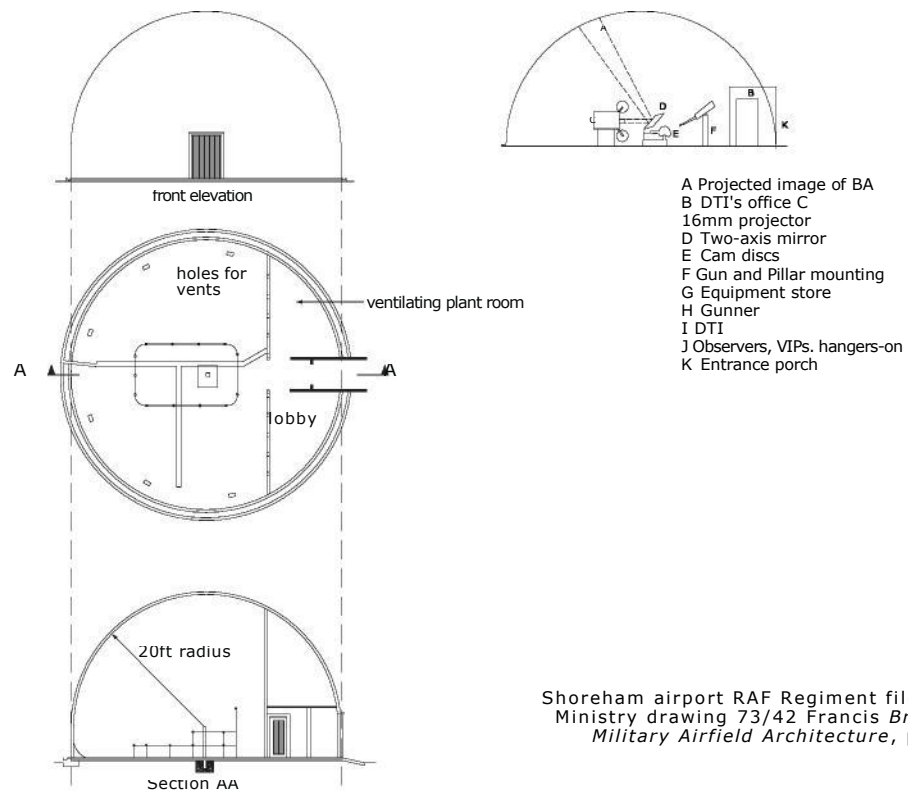


- the setting in 1943 when it was built;
- the survival of the 1943 setting;
- the dome's setting in the present-day landscape.

- 8.3.2 When first established, military airfields of the Second World War and the pre-war expansion period had a standard layout: technical buildings, accommodation by rank, the buildings for each squadron and so on were carefully grouped. However, the layout of Shoreham was formed by adapting a civil airfield, as described in 6.4. The dome cannot, for instance, be regarded as part of an RAF Regiment training area since the only other known training building was the link trainer in the southeast corner. Moreover, it was added nearly two years after almost all the other RAF buildings and structures were completed. The building was placed close to the track that led past the westernmost blister hangar to the crossing of New Salts Farm Road. The RAF Regiment's offices were just to the side of the road. They and the dome could have been accessed from the Brighton Road without the need to enter the rest of the airfield. The original location of the building was thus a convenient ad hoc arrangement and not a piece of military planning. It did not have any functional relationship with 1930s buildings at the other end of the airfield, or with the 1940-42 buildings principally serving the air-sea rescue operation that had accumulated around them.
- 8.3.3 The wartime setting has more or less disappeared. All of the buildings west of New Salts Farm Road are long gone. Only one of the three pillboxes on the road can be definitely traced within scrub. The westernmost blister hangar has gone. If any of the ancillary buildings north of the stream survive they are lost within scrub. A photograph of 1973<sup>54</sup> shows the track past the dome that appears on Figure 21. It has since been realigned to take account of the construction of the helicopter landing site. An undated photograph (Figure 27) taken before this shows a slabbed area on the west side of the dome. There is no evidence for anything here before the 1950s and it was probably part of the F. G. Miles layout. If it survives, it is now beneath the wetland and scrub. The dome can be seen within the same view as the north hangar (Figure 11) and this is all that remains of the wartime setting.
- 8.3.4 It is thus only the third aspect of setting that requires major consideration. The dome is prominent in views across the airfield (Figures 3 and 4) and is the most conspicuous survival of the Second World War. It is particularly evident in views from the terminal building with Lancing College in the background. The significance in this respect is discussed in section 10.

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<sup>54</sup> J. G. Bagley, 'Shoreham and Ford a History of Two Sussex Airfields,' *Sussex Industrial History* (Winter 1973-4), pp. 25-33



Shoreham airport RAF Regiment file Air  
 Ministry drawing 73/42 Francis British  
*Military Airfield Architecture*, p117

FIGURE 24: Dome trainer construction and use



FIGURE 25: Langham dome trainer interior



FIGURE 26: Langham dome trainer exterior



Source: Shoreham Airfield Archive RAF Regiment Gunnery Training School file

FIGURE 27: The dome trainer before construction of the helicopter landing area

## 9. The airfield as the setting for historical landmarks

- 9.1 The locality, particularly the settlements on the east bank of the river, has a rich and complex history. The purpose of this section is not to deal with this history but to review the landscape context and aesthetic appreciation of the churches of St Nicolas and St Mary de Haura, Lancing College and Old Shoreham Bridge in relation to the airfield.
- 9.2 St Nicolas's Church has probable late Anglo-Saxon fabric but all that can be seen at a distance is early post-Conquest.<sup>55</sup> It is the most prominent upstanding evidence of the settlement of Old Shoreham. When seen along the river with the twelfth-century tower of St Mary de Haura also in the view, it sums up the settlement shift at a glance. It is part of the view from the entire length of the tidal wall and can be seen in views across the airfield from beyond the terminal building. The composition with the backdrop of the downs and the pleasant mixture of weathered tiles, flint and Caen stone have attracted many artists (Figure 28). Despite the presence of the A27/A283 junction to the west and a modern residential area to the south, this part of the view retains its rural character. However, the airfield can only be slightly glimpsed from around the church at ground level.
- 9.3 Old Shoreham Bridge was built as a toll bridge in 1781. It was faithfully restored in the early twenty-first century. The route leading to it from the old Brighton Road remains in place as Old Shoreham Road. Its picturesque qualities attracted artists from soon after it was built: twentieth-century paintings include one by John Piper. In many paintings it forms the foreground to views of the church. It has a similar viewshed to the church but is less prominent in distant views. From its centre there are angled views across the airfield to the terminal building.
- 9.4 The tower of St Mary de Haura is visible from the tidal wall, but only occasionally and distantly from the airfield. It is not considered further.
- 9.5 Most of the buildings at Lancing College were the work of the architect R.H. Carpenter between 1878 and 1881 fulfilling the ideas of his father R.C. Carpenter, begun in 1848.<sup>56</sup> The chapel is largely the son's work, designed in 1868. It was not substantially completed until 1911 and not fully finished until 1975. It belongs to the high Victorian Gothic revival style which is also seen in Hansom's roughly contemporary Arundel Cathedral in a similar situation above the River Arun. Nairn wrote that 'chapel and quadrangle... compose so perfectly that the elusive dream of the Gothic Revival suddenly seems to be a possibility. This is nearer to Pugin's vision than any of his own buildings'

<sup>55</sup> H.M. and J. Taylor, *Anglo-Saxon Architecture*, 2 (1965-78), pp 544-545

<sup>56</sup> I. Nairn and N. Pevsner, *The Buildings of England: Sussex* (1965), pp. 256-9

- 9.6 The college, and the chapel in particular, dominate the skyline in views northwards across the airfield and draw the eye away from the A27, and to some extent the dome trainer, in the middle ground. The view, has often has been often captured in paintings, but also in promotional material for the airfield dating back to the inter-war years (Figure 29). The airfield is also an important part of the setting of the chapel with views from ground level across the open area to the coastal plain (Figure 30). The chapel and airfield are more or less contemporary.





FIGURE 28: Birket Foster's painting of Old Shoreham



FIGURE 29: Spitfire and Landing College



FIGURE 30: The view from in front of Lancing College Chapel

## 10 Significance

### 10.1 Method

10.1.1 The method used is that given in Historic England guidance.<sup>57</sup> Significance is expressed as historical, evidential, aesthetic and communal value.

**Historical** value derives from the way in which past people, events, and aspects of life can be connected through a place to the present. It can be *associative, illustrative or representational* value, and encompasses among other things rarity of survival, the extent of associated documentation, the ability to characterize a period, and association with other monuments.

**Evidential** value derives from the potential of the site to provide evidence of past human activity. The resource (both above- and below-ground) and its potential capacity to respond to investigative analysis make the primary contribution to evidential value.

**Aesthetic** value derives from the way in which people draw sensory and intellectual stimulation from a place. This includes not only formal visual and aesthetic qualities arising from *design* for a particular purpose but more *fortuitous* relationships of visual elements arising from the development of the place through time, and aesthetic values associated with the actions of nature.

**Communal** value is based on the meanings a place may have for contemporary society. *Commemorative* and *symbolic* values are founded in collective memory and historical identity. *Social* value often derives from contemporary uses of a place. *Spiritual* value can come from the customs and teachings of organised religion as well as less formal beliefs.

10.1.2 The following scale is used.

**Very high:** elements of the place that are of key national or international significance, being among the best or only surviving examples of an important type of monument, or being outstanding representatives of important social or cultural phenomena.

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<sup>57</sup> English Heritage *op. cit.* , pp. 27-40

**High:** elements that constitute good and representative examples of an important class of monument (or the only example locally), or that have a particular significance through association (although surviving examples may be relatively common on a national scale) or that make major contributions to the overall significance of the monument.

**Medium:** elements that contribute to the character and understanding of the place, or that provide a historical or cultural context for features of individually greater significance.

**Low:** elements that are of low value in general terms, or have little or no significance in promoting understanding or appreciation of the place, without being actually intrusive.

## 10.2 Features pre-dating the airfield

10.2.1 New Salts Farm Road is extant at the north end and can be traced across the airfield. Lee's Barn was adjacent to its west edge. The age of the tidal wall along is unknown, but may have gone through several phases. The historical and evidential significance of these pre-twentieth century features may be **medium** when looked at in the context of the enclosure and draining of the tidal marshes and the saltings and settlements to the west. However, this requires a study outside the scope of the present report.

## 10.3 The airfield before 1918

10.3.1 None of the buildings of this period survive. They were made of timber and corrugated metal sheets, and the locations have since been used for the construction of car parks and buildings. Little, if any, buried archaeology is likely to survive. The **evidential** value is therefore **low**. However, there is an excellent photographic record of this period as well as documentary evidence in the form of letters, oral history accounts and the records of the RFC. Much of this information is held on site at the visitor centre. As well as the flights of Harold Piffard, Shoreham was the base for other early aviators, although none of the major figures in early aviation history such as Charles Rolls or John Moore-Brabazon appear to have used Shoreham. These connections have never been fully explored. The continuity of Shoreham in training pilots from the start of aviation through the twentieth century is also of interest, as is the story of the Canadian Air Force. The **historical** value of the airfield for this period is therefore **medium**.

10.3.2 There is clearly no aesthetic value, but there is communal value. The memorial at the front of the terminal building uses a Second World War B26 bomber propeller and was originally put up in 1997, but airmen of both world wars are

commemorated. At St Nicolas's Churchyard RFC fliers and other First World War servicemen are buried alongside one another. The story of Piffard and his contemporaries features in interpretation at the terminal building and is commemorated in the name of the restaurant. The airfield is therefore of **medium communal** value for this period.

#### 10.4 The airfield 1920-1940

- 10.4.1 The site of the 1920s hangars and other buildings was destroyed when the hard surface runway was built in 1982, so there is no evidential or aesthetic value for this decade. But, as with other phases, there is good and not fully explored documentary and photograph evidence. This is bound up with the long career of F.G. Miles at Shoreham. He was sufficiently important a figure in aviation history to have an entry in the Oxford Dictionary of National Biography.
- 10.4.2 The major significance of the inter-war years, however, is in the terminal building and the municipal hangar. The planning and design of both, and the original layout, are well documented. The terminal building is typical of those of a smaller 1930s airport in having traffic control, customs and other facilities under one roof. It is largely unchanged since 1936 and has long been regarded as an excellent illustration of the Moderne style. Most of the original features remain. Very importantly, it still looks out over a functioning airfield. This has broadly the same extent and the same main runway alignment as it had originally. Even the fuel points seem to be in the same place. Although the number of buildings on either side has greatly increased since the 1950s, none of them extends north of the terminal building or competes with it for height. The south front is as it was in the 1930s, apart from the addition of the 1997 memorial.
- 10.4.3 The municipal hangar is set to the southeast of the terminal building and does not dominate it. The steel frame and the east and west lean-tos are original. The cladding dates from the 1950s. More or less complete Boulton and Paul hangars of this period are scarce in the UK. In its way it reflects the same economical relationship between form and function as the terminal building. Individually and as a group they are of major illustrative historical value. This value is increased by their associations. Visits to the airfield in the 1930s by the rich and famous are well documented, there is a very extensive photographic archive of the period. They are evidence of the pre-war boom in civil aviation and the terminal building has been used frequently in films and TV programmes. Overall, the two buildings and their setting within the bounds of the 1930s airfield are of **high historical** significance.
- 10.4.4 The buildings are largely intact and well documented so that they have **medium evidential** value as examples of 1930s construction methods. The Boulton and Paul hangar is of a type designed in 'kit' form to be transported and assembled all over the world. It is a functional rather than aesthetically pleasing building but is part of the setting of



the terminal building. The latter has all the bold simplicity of the Moderne style with the simple block design and the round-edged rectangles of the period. The windows and detailing are also largely intact. The setting has been affected by the construction of post-war buildings alongside but this is not a major impairment. Overall, the **terminal building** is of **high aesthetic** significance.

10.4.5 The 1930s airfield, and the terminal building in particular, have symbolic significance in representing popular perceptions of the freedom of pre-war air travel. They have social value as the main focus for the many visitors who come just to visit the restaurant and watch the planes. For these reasons the 1930s airfield is of **medium communal** significance.

## 10.5 **Wartime defences and air-sea rescue 1940-42**

10.5.1 There is good survival of the defences along the east side of the airfield site, supported by excavation. On the north side only the north hangar survives. There may be evidence in the strip along the A27 and in the northeast corner at New Salts Farm Road. With the exception of the Pickett-Hamilton fort and the building bases near the terminal building, nothing survives along the south edge. Sub-surface archaeology here is very likely to have been removed by the construction of the post-war buildings. Overall, the **evidential** value for this period is **medium**.

10.5.2 However, the **historical** value is **high**. The features along the river are a good illustration on the rapidly assembled defences of 1940-41, as were the mock hedges and the pipe bombs. The blister hangars and the distribution of aircraft around the edges of the flying field illustrates the typical response to direct bombing, while the Pickett-Hamilton fort is a good example of ad-hoc wartime design and a rare survivor. The air sea rescue operation was an essential part of the RAF's history, vividly illustrated in such sources as Norman Franks' book.<sup>58</sup> This is often neglected in popular accounts. Because of its location and lack of the facilities belonging to an RAF base, the airfield was used by a large number of units for a short period of time. This touched upon many major events such as the Battle of Britain and the Dieppe Raid.

10.5.3 There is little aesthetic value, but there is commemoration and hence communal value in the form of the memorial at the south entrance. Until 2003 there was a garden of remembrance adjacent to the D-day Museum that was in the east lean-to of the municipal hangar. When the museum closed, the soil from the garden was moved to Lancing College. Overall the **communal** value is **low**.

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<sup>58</sup> N. Franks, *Another Kind of Courage* (1994)

## 10.6 The dome trainer

- 10.6.1 Dome trainers seem a rather eccentric idea now. Quite soon after the war, many people had little idea what they were for. Yet they were still being constructed for British troops abroad in the 1950s, and were a successful practical approach to training a large number of anti-aircraft gunners in the second half of the war. Only six concrete domes survive, so that on the grounds of rarity alone the Shoreham dome is of substantial interest. However it is in poor condition, no internal features survive and none of the other wartime buildings that would have set it in context are now present. It is nevertheless of **high historical** significance. If anything, the openings that were probably cut by F.G. Miles to provide ventilation and make the building useable for a purpose other than its original one contribute to this interest. It may be the only dome trainer that had an active post-war use, since the other survivors appear to have been just used for storage.
- 10.6.2 Section 8.3 describes how the dome's setting among the earlier wartime buildings was an ad hoc arrangement and not the result of military planning. In addition this wartime setting has now been lost. However, the dome is prominent in views across the airfield from the south (Figure 3) and to a lesser extent from the northeast (Figure 11). The north hanger is also visible but less prominent and within a smaller field of view. The other wartime features along the tidal wall are only visible at short range. The dome trainer is thus the most prominent feature of the Second World War on the airfield. These views can be regarded as part of its historical significance, although at a lower level than the structure itself because the context has been lost. The siting is fortuitous. The score is thus **medium historical** for this aspect of the dome trainer. The **evidential** value is **low** because only the shell survives.
- 10.6.3 **Aesthetic** value is perhaps the wrong term for a prominent geometric shape, but it certainly gives a very individual identity to the airfield. There is also a **communal** value since the dome's post-war use by the ATC is still remembered by local people. Overall these significances are **low**.

## 10.7 The post-war airfield

- 10.7.1 The **medium historical** significance of the post-war period lies principally in: its links to the light aviation industry; the way that the essential features of the 1930s have been retained down to the present day; and that the flying field remained in use throughout this period. The **evidential** significance is **low**. The buildings that have been added since the war are simple and functional. They have respected the significance and setting of the terminal building so that their aesthetic value is neutral.

- 10.7.2 The post-war **communal** significance of the airfield is **medium**. The continuity of aviation at the site is part of perceptions of Shoreham, reflected, for instance, in street names, the popularity of the terminal building as a destination in its own right, and its use in TV and films. The air shows are also popular attractions.

## 10.8 Views and the setting of historic buildings

- 10.8.1 The views from north of the railway across the airfield to Lancing College show the full assemblage of college buildings, not just the chapel, in their downland setting. These are probably the best views of the college available. They face the buildings square on with largely unobstructed foreground. While the chapel is most often referred to in discussions of the view, the fact that the whole assemblage of buildings can be seen is particularly important, since it fulfils the medieval ideal of Pugin and his contemporaries referred to above. The dome adds visual and historical interest. Because the college buildings are so dominant and the roadside vegetation provides some screening, the traffic on the A27 is not a major intrusion except on the elevated section. In addition to the views directly northwards, there are angled views across the open flying field in which the chapel is a conspicuous eye-catcher. The views to the chapel are therefore of **high historical** and **high aesthetic** significance.
- 10.8.2 The airfield is the major open space below the chapel and college (Figure 30). The relationship between them is essentially as it was in 1911 when both came into being. There are several viewpoints around the college and chapel where the buildings along the south edge of the airfield are in view, together with southern parts of the flying field. In all of these views the eye is drawn to the sea and the horizon as the dominant feature. Overall the views of the airfield from the college are of **medium historical** and **aesthetic** significance.
- 10.8.3 The close-range views of Old Shoreham Bridge and St Nicolas's Church from the riverbank show an attractive grouping of an important early post-Conquest church with what Historic England describe as the last surviving example of a major river crossing toll bridge. The aesthetic value is self-evident on Figure 4. The historical value arises from the way that the significance and location of the settlement of Old Shoreham and the importance of a crossing of the lower river are explained at a glance. These views are of **high historical** and **aesthetic** significance.
- 10.8.4 In the longer, wider views north-eastwards across the airfield, the bridge is not particularly conspicuous. Although the church can be seen, it does not break the skyline. With the backdrop of pines and the downs it forms an attractive rural element between the road junction on one side and modern residential development on the other.

These views of the bridge and church are thus of lower importance than the riverside ones and can be classed as having **medium aesthetic** and **historical** significance.

- 10.8.5 Some of the buildings on the south edge of the airfield, some of the south part of the flying field, and some of the land in the northeast corner within the proposed industrial area is visible from the central section of the bridge. This view westwards is part of its setting. When it first came into use the view would have been across pasture fields with marsh beyond. The remaining open character is therefore of **medium historical** significance in this respect.
- 10.8.6 The views westwards across the airfield do not have prominent built heritage features. Although the coastal plain is densely developed, the rural landscape of the downs dominates.



## 11. Impacts and their effects

### 11.1 Method and scope

11.1.1 The method of assessing the effects of the proposed development is that used in the Department for Transport's *Design Manual for Roads and Bridges*, Volume 11. This is widely used in environmental assessments and is based on understanding the significance of a feature. The magnitude of an impact is tested against that significance. Thus the destruction of a feature of low value may have a lesser effect than a moderate impact on one of high value. In the case of the present assessment, the features at and near the airfield include grade I and II\* buildings and a scheduled monument. These fall into the highest category of heritage assets identified in the NPPF. The assessment process allows the effect on assets such as these to be gauged and the risk of significant harm as defined in the NPPF to be evaluated. The magnitude of impact is ranked on the scale shown on Table 2. This section should be read with reference to Figure 1.

**Table 2: Factors in the assessment of magnitude of impacts**

Major	Change to key elements, such that the resource is totally altered. Comprehensive changes to the setting.
Moderate	Change to many key elements, such that the resource is significantly modified. Changes to the setting such that it is significantly modified.
Minor	Change to key elements such that the asset is slightly different. Change to setting such that it is noticeably changed.
Negligible	Slight changes to elements or setting that hardly affect it.
No change	No change to fabric or setting.

Matching the magnitude of impact against the value or significance of the feature gives the matrix shown on Table 3.

11.1.2 Impacts from the scheme shown on Figure 1 are likely to arise from:  
the new main roundabout and associated, lighting, signage and traffic;

- the smaller roundabout and service roads leading to the New Monks Farm Development and the northeast corner of the airfield;
- the employment site

**Table 3 Identifying effects**

SIGNIFICANCE	Very high	Neutral	Slight	Moderate /large	Large/very	Very larg
	High	Neutral	Slight	Moderate/ large	Moderate/ large	Large/very
	Medium	Neutral	Neutral/ slight	Slight	Moderate	Moderate/ large
	Low	Neutral	Neutral/ slight	Neutral/ slight	Slight	Slight/ moderate
	Negligible	Neutral	Neutral	Neutral/ slight	Neutral/ slight	Slight
		No change	Negligible	Minor	Moderate	Major
	MAGNITUDE OF IMPACT					

## 11.2 The landscape before the airfield and the airfield 1910-1918

- 11.2.1 The proposed east service road from the small roundabout would remove a section of New Salts Farm Road and sever the northeast corner of the early flying field from the rest. These are minor impacts since the features can still be effectively traced, so that there would be **slight** effects. The proposed employment area would also reduce the extent of the early flying field. Since none of the buildings contemporary with it survive, this can also be regarded as a minor impact on a feature of medium value resulting in a **slight** effect.

## 11.3 The municipal airfield and its buildings

- 11.3.1 The development would not have a direct impact on the 1930s buildings. The impact on the 1930s airfield would be the same as that on the pre-war airfield. But since this forms the setting of the terminal building and the municipal hangar, the significance, and therefore the effect, is greater. Although it is not discussed by the promoters, a security

fence would presumably be necessary between the east service road and the airfield, otherwise there would be no control of access to the flying field. This could be prominent. The roundabout and its lighting certainly would be. A full assessment of these impacts cannot be made until the highway design has been taken further, but there is limited space for mitigation through earthworks and planting.

- 11.3.2 The employment area development in the northeast would intrude into the wide views towards the river across the airfield from the south and southwest. Although this area would be in the same field of view as Ricardo's from the south edge of the airfield, it would be nearer. The employment area would also obstruct views of the terminal building from the approach along the north part of Cecil Pashley Way. However, the area has been well chosen to maintain views towards St Nicolas's Church and much depends on the exact massing and siting of the new buildings. The 1930s buildings and their setting are of high significance. The impact would be moderate, giving rise to a **moderate/large** effect. There is scope for mitigation through the siting, massing, materials and design of buildings as discussed in 11.7. It may be possible to reduce the impact to minor, although the effect would remain moderate/large.

#### 11.4 **The wartime airfield 1940-1942**

- 11.4.1 There would be no impact on the east defences. The east road off the small roundabout would remove the pillbox on the right-angle on New Salts Farm Road, disrupting the defensive alignment formed along the road. It would sever the line of the 1941 taxiway. On the basis of our present knowledge, the only other feature of 1940-42 that survives in this area is the north hangar. This would not be directly affected, but the new road and security fence would intrude into its setting. The features of this period are of high significance, the impact would be minor, resulting in a **moderate/large** effect.

#### 11.5 **The dome trainer**

- 11.5.1 The dome trainer would not be directly physically affected by the proposed development, but it would be close to the roundabout and the east service road. There would be traffic, lighting and signage behind it at a higher level. Vehicles would pass close to it on either side and views would be disrupted by this movement. It would also be severed from the airfield by the road. A security fence would form the new airfield boundary. The lack of any significant wartime functional context and the loss of the earlier adjacent buildings of 1940-42 vintage is discussed in sections 8.3 and 10.6.2. There is no impact in these respects. The road and a fence as such would not have a major

impact. The dome would still read as an airfield building in long views. Buildings within operation airfields are often separated-off by roads and fences.

- 11.5.2 However, as noted in section 10.6.2, despite the fact that no contemporary context survives, the dome trainer is fortuitously the most prominent feature of the Second World War on the airfield. It appears in many views across it, although their quality is diminished by the screening of the lower 2m of the dome by the helicopter landing site. The new roundabout, lighting, fencing, service road and the volume of moving traffic would have a major impact on this aspect of the setting of the dome before mitigation. At present the road is quite well screened by vegetation which also provides the immediate setting for the dome. It is a static landscape with glimpses of moving traffic. Following the development, the dome would be effectively surrounded by moving traffic and the eye would be constantly drawn away from it. The roundabout and perhaps the service road would have intrusive lighting columns and an intrusive security fence may also be required. The fortuitous prominence is of medium historical significance, so that there would be a **moderate/large** effect. The scope for mitigation is discussed in 11.7 and it may be possible to reduce the impact to moderate, so that the net effect would be moderate.
- 11.5.3 There is scope for compensating (as opposed to mitigating) this effect when the dome is outside the airfield perimeter, although there is equal opportunity for vandalism and misuse if the location is not properly managed. The first step would be to obtain a structural engineer's report to guide conservation work. The helicopter landing area either side of the new east road would presumably be redundant. The ground level could therefore be lowered to the pre-2001 surface. This would remove the 'moat' around the dome. The building and the surrounding land could be allowed to dry out. The paint, probably dating from the 1990s could be removed, allowing further drying out and replacement with an authentic surface. If it is separated from the flying field it will be accessible to visitors, or even available for a commercial use such as it once had. If the east road could be realigned so that the north hangar is also outside the airfield this could also be conserved by adaptation to a new use.

## 11.6 Views and the setting of historic buildings

- 11.6.1 Much of the traffic on the A27 in the view northwards to Lancing College is partially screened at present. More traffic would become visible with the construction of the roundabout, the mini-roundabout and the access roads to the development. These structures and the associated lighting and signage could have a major impact on a view of high significance, giving rise to a **large/very large** effect. However, the proposals shown on Figure 1 are indicative and there is the potential to mitigate them at the detailed design stage, making the impact moderate and the effect **moderate/large**.



- 11.6.2 Mitigation comes even more into play in considering the view from the college. As far as can be judged without sections and photomontages, part of the roundabout and the lighting columns would be visible in the middle distance. There is good tree and shrub cover on the slopes which could be augmented by offsite planting to provide screening. Part of the proposed employment development site would be visible. Its impact is largely dependent on the orientation, massing and materials of buildings. On the basis of present knowledge, there could be a moderate impact on a feature of medium value giving rise to a **moderate** effect. It may be possible to reduce this to slight with mitigation.
- 11.6.3 The close-range views of St Nicolas's Church and Old Shoreham Bridge from the riverside would be unaffected by the development. The wider views from the south and southwest across the airfield would be affected by the new employment site and would have the new roundabout at the edge of the field of view. As noted above, this site has been well chosen to minimise impact on this view and there is scope for mitigation. Without mitigation there would be a moderate impact on a feature of medium value, giving rise to a **moderate** effect. If, through good design, the impact could be reduced to slight, the net effect would be moderate.
- 11.6.4 The views towards the airfield from the crest of the bridge would have part of the new employment site in the middle ground. This would be a moderate impact on a view of medium significance, giving rise to a **moderate** effect.

**Table 4 Summary of effects before mitigation**

Feature	Significance	Impact	Effect
<b>Before 1918</b>			
New Salts Farm Road	Medium	Minor	Slight
Flying field	Medium	Minor	Slight
<b>Municipal airport</b>			
1930s building	High	None	None
1930s setting	High	Moderate	Moderate/large
<b>Airfield 1940-1942</b>	High	Minor	Moderate/large
<b>Dome trainer</b>			
Fabric	High	None	None
Wartime setting	Lost		
Present-day setting	Medium	High	Moderate/large
<b>Views</b>			

To college	High	Major	Large/very large
From college	Medium	Moderate	Moderate
St Nicolas and bridge close	High	None	None
From bridge	Medium	Moderate	Moderate
NE across airfield	Medium	Moderate	Moderate

## 11.7 Mitigation

11.7.1 The proposals shown on Figure 1 are indicative and it is not possible to make any firm suggestions about mitigation until they have been developed further. However, in very general terms, the following could be considered.

### **Main roundabout**

11.7.2 Views of the carriageway are often the most intrusive feature of new roads. They could probably be reduced or removed by creating a bund or false cutting. For example, the bund screening the travellers' site from the existing carriageway is about 2m high and is effective. Some of the visual impact of traffic can be screened by dense planting. This would be in character with the vegetation on the north side of the A27 and the sections to the east and west. The dome trainer already has a wooded backdrop so this would not change, although in practical terms, allowing for access and grass verges, only about 15m would be available for planting between it and the carriageway. There is also scope for ensuring the least intrusive locations and designs for lighting and signage.

### **Service roads and small roundabout**

11.7.3 There will be scope for minimising the impact of fences, lighting and signs, but new planting would probably not be appropriate in what has historically been an open area. The impact of traffic on views of the dome trainer could be reduced by realigning the roundabout and east service road so that the road passes behind the dome trainer. It would then remain within the airfield. If the helicopter landing area can then be removed and the original ground level restored, the impact on the dome would be substantially reduced. However, as discussed below, the scope for conservation of the dome itself is greater if it is outside the operational airfield.

### **The employment site**

11.7.4 The scope for minimising the impact of new buildings through design and siting of individual buildings is self-evident.

### **Compensation**

- 11.7.5 Compensation is not normally considered as part of mitigation. It is very often an activity that could take place even if there were no development. However, the only realistic way that the dome trainer could become accessible for conservation and interpretation is for it to be outside the operational airfield. The development is an opportunity to do this.

## **11.8 Overview and the NPPF**

- 11.8.1 Table 4 shows that the effects before mitigation that are higher than moderate relate to:

- the setting of the terminal building and the municipal hanger;
- the present-day setting of the dome trainer;
- views of Lancing College.

As stated above, the heritage assets concerned are in the category of highest significance within the NPPF. The risk of substantial harm is therefore a major issue in assessing the overall effect of the development.

- 11.8.2 With regard to the setting of the 1930s buildings, the new roundabout and roads will be at the far end of the airfield. Their impact can be reduced by the sorts of measures suggested under mitigation above. The buildings themselves and their immediate setting would be unaffected. There would not, therefore, be substantial harm.

- 11.8.3 There are three potential impacts on the dome trainer:

- a. harm to the fabric;
- b. loss of contemporary context;
- c. impact on the present-day setting.

There would be no harm to the building itself. For b. the analysis in section 8 shows that the location chosen in 1943 was an apparently ad hoc arrangement unrelated to airfield planning. In any case, such wartime context as there was has been lost. The impact is therefore entirely on c. The present-day setting is effectively an historical accident and does not carry the same weight of significance as the fabric itself or the survival of a planned wartime setting, so that overall there would not be substantial harm to the dome trainer.

- 11.8.4 The view of Lancing College is also fortuitous. The buildings themselves and their downland setting would be unaffected, so that there would not be substantial harm in this instance either.

## 12. **Summary and conclusions**

- 12.1 Shoreham Airport is the oldest municipal airfield in the country. The flying field has been in use for over 100 years. Features of its post-medieval enclosure from marshland can be traced and it had a significant role in the early history of aviation. It was used by the Royal Flying Corps and the Canadian Air Force in the First World War. In the 1920s and early 1930s it was a venue for flying training and aircraft manufacture. A Moderne terminal building was constructed in 1936 and remains one of the best examples of its type in the country. Its relationship with the flying field is as it was in the 1930s, and the contemporary municipal hangar survives. The airfield was used by the RAF during the Second World War for air sea rescue, emergency landing and other functions. Early in the war it acquired substantial anti-aircraft and anti-paratrooper/glider defences. Many features of these are extant. In 1943 a dome trainer was constructed for anti-aircraft training by the RAF Regiment. The dome is one of only six surviving in the country, although it is now in a poor state. For a long time after the war the airfield was a base for aircraft manufacture. It became a municipal airport again in 1970, returning to the private sector in 2006. There are thus many layers of heritage value at the site supported by a large on-site archive. In addition the site is significant in the setting of Lancing College, Old Shoreham Bridge and St Nicolas's Church.
- 12.3 In 1943 the dome trainer was inserted into a wartime airfield layout established two years earlier, which was an RAF adaptation of a civil airport. The siting of the dome appears to have been just for convenience, and not part of a planned or zoned layout. In addition almost all the earlier wartime structures near it have now been lost.
- 12.2 Using Historic England's values and scale of assessment, the terminal building, municipal hangar and their setting, the Second World War defences and the dome trainer are of high historical significance. The terminal building is also of high aesthetic significance.
- 12.4 The following aspects are of medium significance: the airfield in the period 1910-1918 for its historical role in early aviation and the First World War, together with its communal value; the present-day setting of the dome trainer; and the post-war airfield for its role in aviation history.
- 12.5 Views are an important part of the airfield's heritage value. The view across the airfield to Lancing College and the view from the riverbank to St Nicolas's Church and Old Shoreham Bridge are of high significance. Those from the college and from the bridge are of medium significance, as is the view north-eastwards across the airfield.



- 12.6 The development proposals would introduce a new employment area in the northeast of the airfield and a roundabout on the A27 close to the northwest corner. A road would lead to a smaller roundabout with roads to the east and west serving the airfield and industrial site and the new development at New Monks Farm respectively. The dome trainer would be separated from the airfield by the east road and a new security boundary for the north side of the airfield would be necessary.
- 12.7 The roundabout, roads, lighting and fencing and the new employment site would have a moderate impact on the setting of the terminal building and the municipal hangar giving rise to a moderate/large effect. Here, the relationship with the flying field and the backdrop of the downs and the college remain as it was in the 1930s. In contrast, the contemporary context of the dome trainer has been lost. However it is still a prominent landmark and part of a significant historical view. The effect of the development on this present-day setting would be moderate/ large. It would be severed from the airfield, but we do not consider this to be a major issue since the historical context has already been lost. The dome trainer is in poor condition and likely to deteriorate. The proposed development is an opportunity to arrest decay and stabilise the structure to offset the impact on its setting.
- 12.8 The roundabout and its associated features would have a large/very large effect on the view to Lancing College and a moderate effect on the views from it. The close-range views of Old Shoreham Bridge and St Nicolas's Church would be unaffected, but there would be a moderate effect on views towards them across the airfield.
- 12.9 It would be possible to mitigate some of the impacts of the new roundabouts and roads by earthworks, planting and the design and location of signs, lighting and fences. The impact of new buildings at the employment site can be minimised through their location, massing and materials. However, since the developer's proposals are indicative, the scheme design needs to be taken further before mitigation options can be tested.
- 12.10 **The principal impacts of the development would be on the setting of the 1930s buildings, the fortuitous present-day setting of the dome trainer, and on the views to Lancing College and Old Shoreham. These impacts would not be sufficient to cause substantial harm within the terms of the National Planning Policy Framework.**

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T7372/54 Shoreham site plan

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## Appendix 1 Airfield Reach Group notes on dome trainers

It is believed that forty-four 40ft Diameter Concrete Domes were erected on various RAF airfields in the UK c.1942, of which 6 survive:-

The Dome at RAF Langham, Norfolk, has been refurbished and from 20/7/14 will have an exhibition showing the history and workings of the Dome Anti-Aircraft Gunnery Trainers.

The Dome at RAF Mildenhall, [Suffolk](#), is used by the USAF based there as **Building 506 recently** housing the 100th Communication Squadron's secure communications functions. Erroneously described in the "**History of the 100th Air Refueling Wing and RAF Mildenhall**" as "*Originally intended for astronavigation (celestial) training....*".

The Dome at RAF Wyton is in original chipped stone finish and appears to be in good external condition. The interior has all been stripped out.

The Domes at RAF Pembrey, [Carmarthenshire](#) and RAF Limavady, Co. Londonderry are both in a derelict condition.

The Dome at RAF Shoreham (Airport), West Sussex, is believed to have had internal fire damage c.1980 but may have been restored by 1995 (Eng. Heritage)???

Over 400 Dome AA Trainer systems of 4 different types (including the above) were supplied during WW2 for the Royal Navy, British Army and the RAF.

### **40ft. Diam. Concrete Domes 9277/42 & 73/42 Sites**

**Bold and underlined** entries are domes that are still in existence.

- 01 & 44 Alness (2)
- 02 Andover
- 03 Bovingdon
- 04 Burtonwood
- 05 Carew Chariton
- 06 Castle Bromwich
- 07 Chipping Warden
- 08 Church Fenton
- 09 Detling
- 10 Douglas (Villa Marina)
- 11 Dumfries
- 12 Errol
- 13 Fairford
- 14 Felixstowe
- 15 Filey (Butlins)

16 Hook  
17 Horsham St Faith  
18 Hornchurch  
19 Kiddlington  
**20 Langham**  
21 Lee-on-Solent  
**22 Limivady**  
23 Locking  
24 Long Kesh  
25 Longman  
26 Lulsgate  
**27 Mildenhall**  
28 Montrose  
29 Penrhos  
**30 Pembrey**31 Portreath  
**32 Shoreham**  
33 Squires Gate  
34 Tangmere  
35 Tatenhill  
36 Tempsford  
37 Towyn  
38 Watchet  
39 Warmwell  
40 Wellesbourne Mountford  
41 West Raynham  
42 Westwood  
**43 Wyton** **44 Total.**

Site list by Paul Francis with additional information by myself.

<http://airfieldresearchgroup.org.uk/forum/airfield-buildings-installations/1006-concrete-domes?start=20>

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