

# Archaeological Observation & Archaeological Building Investigation and Recording

**Phase 3  
New Manufacturing Facility  
Rolls-Royce  
Filton  
Bristol**

**NGR: ST 606 807**

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# 1. Non Technical Summary

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*The Phase 3 archaeological observation at the Rolls Royce Works, Gypsy Patch Lane, Filton, Bristol, revealed very limited disturbance within the southern part of the observation area, this being limited to levelling and ground reduction relating to the laying out of a car park in the latter part of the 20<sup>th</sup> century. To the northeast of the car park, the ground level had been reduced significantly during the construction of a manufacturing facility, which had been demolished prior to the commencement of works. All deposits down to natural had been removed within this area.*

*Eight Second World War air-raid shelters were recorded in the northwest part of the observation area. These were all of the same type and were aligned northwest - southeast in two rows of four. Only one of these shelters (Shelter 1) was intact and a full written, drawn and photographic record of this structure was made. The other seven shelters were partly destroyed, with only the base and part of the sidewalls remaining.*

*Located to the north of the shelters were the remains of a filtration plant, probably relating to the settlement of Patchway. This appears to have been destroyed during the same phase of demolition as the air-raid shelters.*

*All of these features were covered by what appeared to be landscaping material, which was probably deposited as a result of the construction of the car park to the south.*

## 2. Introduction

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Border Archaeology was instructed by Scott Wilson Ltd to undertake archaeological observation (commonly known as a watching brief) of Phase 3 of the groundworks relating to the New Manufacturing Facility at Rolls-Royce Filton Bristol (**Fig. 1**) in accordance with planning condition 18 (Ref: PTO4/1737/F) and in respect of a Written Scheme of Investigation (WSI) issued by Scott Wilson in July 2005.

This programme of archaeological works, which was carried out on August 30<sup>th</sup> and 11<sup>th</sup>–29<sup>th</sup> September 2006 (excluding September 27<sup>th</sup>), constitutes the concluding phase of an ongoing programme of archaeological observation carried out by Border Archaeology at the Rolls Royce works and should be considered in conjunction with the Phases 1 & 2 report previously submitted to Scott Wilson Ltd and approved (Report No. BA0526SWRRB)

Border Archaeology additionally carried out archaeological building investigation and recording of eight Second World War air-raid shelters, the remains of which were revealed during site works. A brief for the recording of surviving structures relating to the 20<sup>th</sup> century use of the site was issued on 20<sup>th</sup> June 2005 by David Haigh, Planning & Environment Section, Archaeology & Conservation Officer South Gloucestershire Council. A WSI in respect of this work was requested by and submitted to David Haigh by Border Archaeology and approved.

Where possible, the recording methodology comprised “scale drawings and photographs internally and externally for each structure and detailed recording of features of interest” (South Gloucestershire Council brief paragraph 1.3); however, the majority of these remains were in a very damaged condition and largely inaccessible for recording purposes. Only the shelter located at ST 60675 80956 could be fully recorded and this record is included as an appendix to the main report; the remaining structures were photographed and surviving dimensions recorded. It should be noted, however, that all of the shelters were of the same basic design with only minor structural variations.

### 2.1 Soils & Geology

The site lies within an unsurveyed urban/industrial area (Soil Survey of England and Wales 1983); however, predominant within the local area are seasonally waterlogged slowly permeable clayey soils (pelo-stagnogley soils) of the DENCHWORTH series (712b) overlying Jurassic and Cretaceous clay. Also present are slowly permeable clayey soils (typical argillic pelosols) of the WORCESTER series (431) overlying Permo-Triassic reddish mudstone.

## 3. Methodology

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The archaeological observation was carried out by Border Archaeology under the supervision of Scott Wilson Ltd and all excavation and / or soil disturbance within the specified area was monitored (**Fig. 1**). The Historic Environment Record Officer for South Gloucestershire Council was provided with access to the site in order to monitor compliance with the Written Scheme of Investigation.

A full written, graphic and photographic record was made using *pro forma* record forms and sheets in accordance with archaeological practices set out by the Institute of Field Archaeologists (1994; revised 2001).

A detailed stratigraphic record was made using a context numbering system. Archaeological deposits, features and structures were recorded at a scale of 1:50.

All deposits, features and structures identified were photographed using 35mm colour print and 5.0MPX digital formats. A temporary benchmark of 59.36m OD was established on site.

## 4. Results

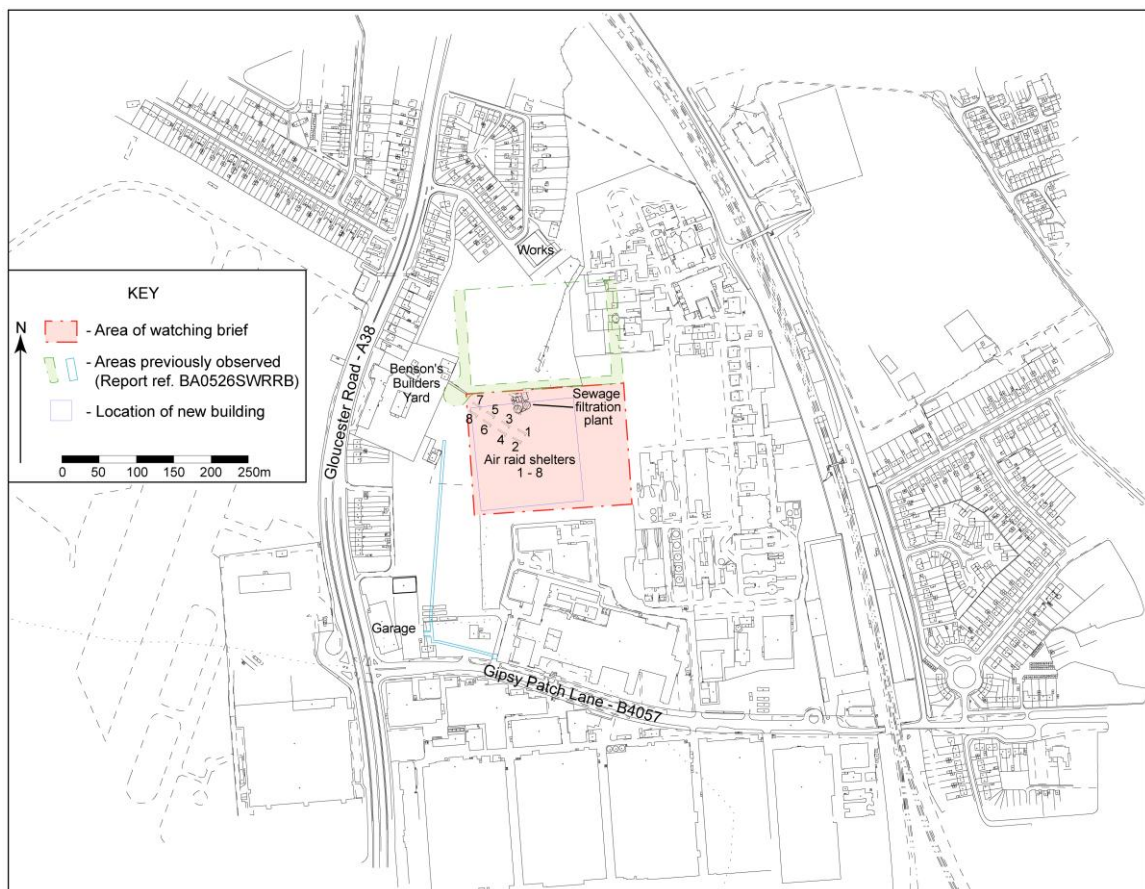


Fig 1: Plan showing location of Phase 3 observations

Phase 3 comprised ground reduction works carried out prior to the laying of the initial phases of construction materials (**Fig. 1**).

At the southern end of the site - the northern half of the Rolls Royce car park - this resulted in the removal in very little material, namely the car park tarmac surface (301) and a thin layer of pink gravel sub-base (302) down to what appeared to be the original topsoil, a dark brown silty clayey sand with occasional CBM rubble and other demolition materials (303). This deposit appeared to cover the entire of the southern part of the site and was probably an agricultural topsoil. In the northern part of the site,

the ground rose steadily, with a layer of levelling / landscaping material overlying (303). This comprised what appeared to be a mix of demolition material and dark brown sand clay silt (304) and contained occasional post-medieval pottery sherds, pieces of iron (industrial material) and very occasional slag, plastic and CBM.

Underlying this deposit and cutting into (303) and the deposits underlying it were a series of eight air-raid shelters, in varying condition, and the remains of a sewage processing plant. Underlying (303) across the site was a firm orangey-brown clay (334), which overlay a light yellowish-brown sandy clay (335). Both of these deposits were located during the excavations for the first new building on the site in 2005/6 and were interpreted as natural deposition. The excavations for this building did not extend below this depth during the course of the watching brief.

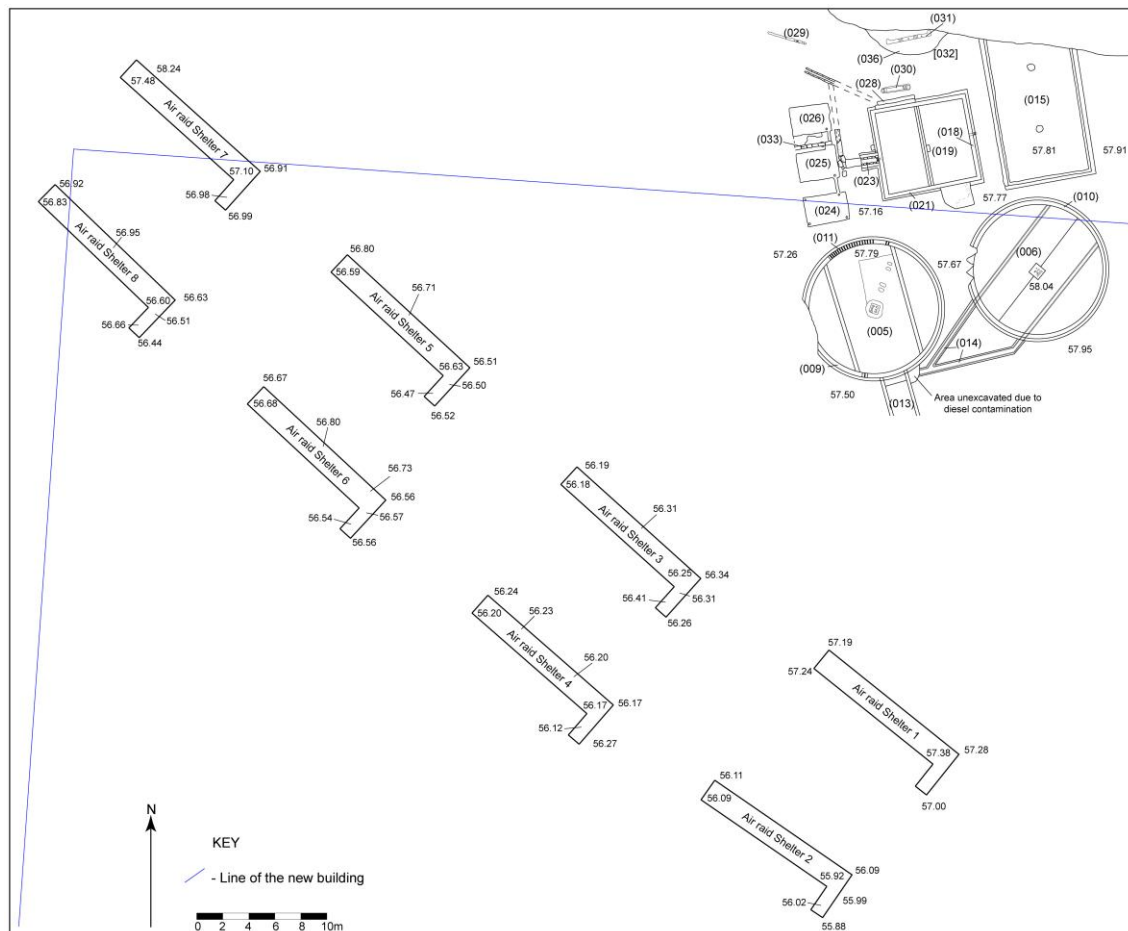


Fig. 2: Plan showing location of features revealed during Phase 3

## 4.1 Air-raid Shelters

### 4.1.1 General notes

The shelters were orientated NW-SE with in-turned entrances at the SE end (Figs. 1 & 2). All thus conformed to the same basic design, although minor differences were noted. A full written, drawn and photographic record was made of Shelter 1 (Appendix 2), the only complete example, and this section will thus concentrate on the minor variations noted and on the condition of each of the shelters. Most were in poor condition, the roofs having collapsed into the interior, and were overlaid by landscaping layer (304). All appear to have been supplied with electricity, probably for lighting, as

electrical cabling was found within the backfill material. The shelters were excavated through the topsoil (301) and generally down to the underlying bedrock.

#### 4.1.2 Air-raid Shelter 1 – NGR ST 60675 80956

The first shelter revealed was in the most complete condition and, unlike the others, the roof was intact and the entrance was still present in its entirety. This shelter is recorded in a separate report (Appendix 2).

#### 4.1.3 Air-raid Shelter 2 - NGR ST 60689 80944

Dimensions – 12.86m x 1.98m x 1.48m (**Plates 1 & 2**). The SE entrance end of the shelter was badly damaged and very little remained of the concrete steps. As with all of the shelters except Shelter 1 the roof had collapsed and only the sides and base remained, implying that most of the surviving structure had been underground. No internal fixtures or fittings remained, other than a drain located in the entrance area.

#### 4.1.4 Air-raid Shelter 3 – NGR ST 60662 80962

Dimensions – 12.75m x 1.88m x 1.3m (**Plates 3 & 4**). Most of the base of this shelter was intact, with four steps remaining within the SE entrance area. Again, no internal fixtures or fittings were present, other than a drain in the entrance area.



Plate 1: Air-raid shelter 2. Facing NW



Plate 2: Air-raid Shelter 2 – Entrance. Facing NE



Plate 3: Air-raid Shelter 3, facing NW





Plate 4: Air-raid Shelter 3 – Entrance. Facing NE

#### 4.1.5 Air-raid Shelter 4 – NGR ST 60677 80942

Dimensions – 12.8m x 1.9m x 1.2m. Shelter 4 consisted of a relatively complete base with three remaining entrance steps, the other steps forming part of the backfill material. A single iron bracket was located on the SW-facing back wall of the entrance, which appeared to relate to the electrical system, possibly a fuse box bracket or similar. A drain was present in the entrance. No other items of internal furnishing were identified.



Plate 5: Air-raid Shelter 4. Facing NW



Plate 6: Air-raid Shelter 4 – Entrance. Facing NE

#### 4.1.6 Air-raid Shelter 5 – NGR 60648 80967

Dimensions – 12.97m x 1.9m x 1.15m (**Plates 7 & 8**). Shelter 5 consisted of a relatively complete base with three remaining entrance steps, the other steps being located as part of the backfill. A drain was present in the entrance. No other internal furnishings or decoration were located.



Plate 7: Air-raid Shelter 5, facing NW



Plate 8: Entrance to Air-raid Shelter 5, facing NE

#### 4.1.7 Air-raid Shelter 6 – NGR ST 60645 80962

Dimensions – 12.95m x 1.93m x 1m (**Plates 9 & 10**). Shelter 6 was badly damaged at the SE end, with no steps remaining; however, much of the base was intact. A drain was present in the entrance area. No other internal fittings were present.



Plate 9: Air-raid Shelter 6. Facing NW



Plate 10: Entrance to Air-raid Shelter 6, facing NE

#### 4.1.8 Air-raid Shelter 7 – NGR ST 60624 80972

Dimensions – 12.1m x 1.95m x 1.15m (**Plates 11-13**). The base of Shelter 7 was damaged at the NW and SE ends. Only two steps remained *in situ* in the entrance area and at the NW end the installation of modern services had resulted in the demolition of part of the shelter. Two iron brackets were located within the entrance on the SW-facing wall and, as in Shelter 4, these appear to have been fittings for a fuse box or similar installation associated with the electricity supply. A drain was present in the entrance area.



Plate 11: Air-raid Shelter 7, facing NW



Plate 12: Entrance to Air-raid Shelter 7, facing NE



Plate 13: Entrance to Air-raid Shelter 7 showing iron brackets, facing NE

#### 4.1.9 Air-raid Shelter 8 NGR ST 60616 80973

Dimensions – 12.93m x 1.98m x 1.24m (**Plates 14 & 15**). The sides of this structure were more heavily damaged, particularly around the entrance area, than the other shelters. A drain was located in the entrance but no other internal features were present.



Plate 14: Air-raid Shelter 8, facing NW



Plate 15: Entrance to Air-raid Shelter 8, facing NE

## 4.2 Sewage Filtration Plant

Immediately NE of the air-raid shelters were a series of concrete structures apparently relating to sewage treatment (**Figs. 1, 2 & 3**); these appear to have been associated either with the Rolls Royce site or with housing to the N.

The feature consisted of four principal structures, two of which were circular filtration beds with a diameter of 10.9m. These comprised a concrete platform measuring 0.1m (305) / (306) based on reddish-brown gravel (307) / (308), which was approximately 0.15m thick. Slightly stepped in from the edge of each of the concrete platforms was a concrete rim (309) / (310). On the rim of the western filtration bed was a single brick course (311); this feature would evidently have comprised further courses prior to what appears to have been the demolition of this facility.

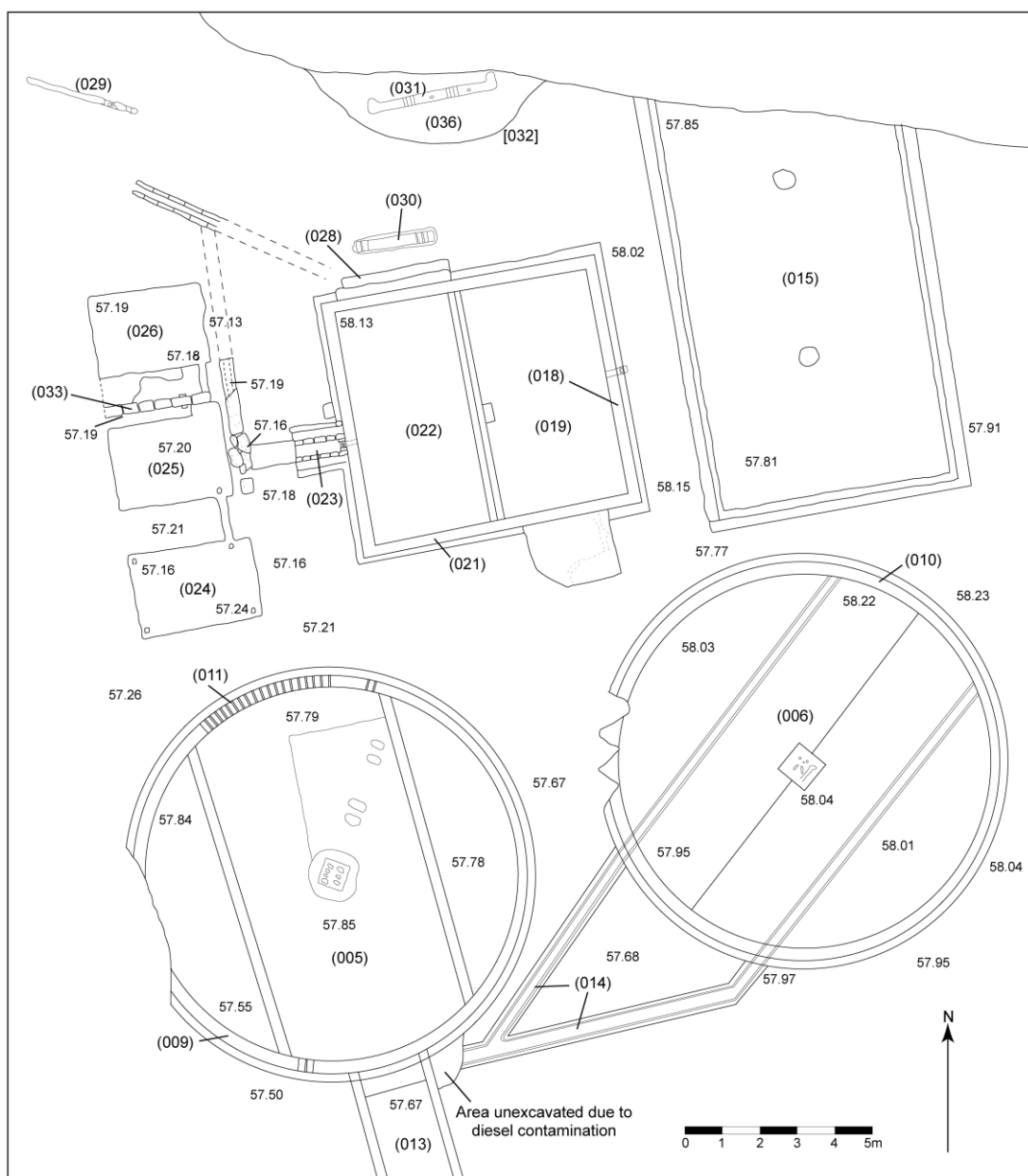


Fig. 3: Plan of sewage filtration plant



Plate 16: View SW showing filter beds

The concrete platforms themselves were divided into three sections, separated by two concrete drainage channels filled with a compact mixture of ceramic pipe, iron furnace slag and dark grey gritty silt (312). This appeared to be associated with the clinker material that would have filled the filter bed to remove ammonia from the waste. The ceramic pipe seems to have extended along the length of the channels but had probably been damaged during demolition of the facility. In the centre of both concrete platforms was a concrete plinth, which would probably have supported a rotating arm. The concrete platform on the westernmost filtration bed appears to have been 're-surfaced' with an additional 0.1m thick layer of concrete.



Plate 17: Filter beds, facing NE





Plate 18: Western filter bed (306), facing SE

The concrete drainage channels in the western filtration bed ran into a brick holding chamber (313) measuring 4.3m x 2.6m located to the S of the beds; this was heavily contaminated with accumulated diesel waste and was thus not fully investigated. This chamber was constructed of 11 courses of standard gauge unfrosted brick, which was laid in stretcher bond. The two drainage channels in the eastern bed were orientated slightly differently from those of the western bed at a NE–SW alignment. The two channels ran into a concrete and ceramic-drainage-pipe-lined gully (314) to the S of the filtration bed, which was orientated NE-SW. This gully ran to the S of the western filtration bed and appears to have emptied liquid from the bed into the brick holding chamber (313).



Plate 19: Concrete drains (314), facing NE/E

To the N of the filter beds were two concrete structures, which appear to have been liquid holding tanks. The first and largest of these consisted of a large flat concrete platform (315) orientated N–S and measuring 11.7m x 7.2m. The platform sat on a rectangular concrete foundation (316), the centre of which was filled with a pinkish-brown gravel (317). The uppermost concrete layer appears to have had a 0.15m thick steel reinforced concrete wall around the outside edge, which appears to have been demolished.



Plate 20: View NW showing concrete platform / holding tank (315)

To the W of this structure was the second tank, which appears to have comprised two separate chambers abutting each other. The easternmost consisted of a rectangular concrete wall (318) based on a thin concrete platform (319), which sat on top of a gravel base material (320). On the eastern side of this tank was a cast iron valve, which may have related to liquid passing from (315) to this tank.



Plate 21: View SE showing holding tank remains (318)

The second chamber consisted of a concrete wall (321) overlying a concrete rectangular foundation (322). Unlike (318), there was no concrete platform underlying the wall (321) and the interior of the tank was entirely earthen (334). Both tanks appear originally to have possessed higher exterior steel reinforced walls but these seem to have been demolished.



Plate 22: Holding tank remains (321), facing SE

On the western side of this tank was what appeared to have been a sluice, constructed of cast iron girders, which ran into a brick-lined gully (323).



Plate 23: Gully (323), facing NE

The gully ran to what appeared to be three sunken concrete platforms (324) / (325) and (326), each filled with a 0.4m deep layer of iron furnace slag / clinker (327). A two-course wall of unbonded concrete blocking (333) divided the central and northernmost

platforms. Within the eastern side of the wall was a ceramic tube that appeared to have allowed the flow of liquid between the two platforms. The gully and platforms appeared to relate to an overflow sluice, which would have been released when the holding tanks to the E were full.



Plate 24: View SE showing platforms (324) / (325) & (326)



Plate 25: Wall (333), facing N

To the N of the platforms was a small section of drainage pipe orientated in a NW-SE (328). To the N of tank (319) was another section of drainage pipe flanked on either side by concrete (329) and a small section of brick wall (330) orientated NW-SE. Immediately to the N of this, and only partially revealed by the excavations, was a small, apparently rectangular concrete foundation with two grooves in the southern side (331). These appear to have held some form of piping. The concrete wall was within a semicircular cut [332] some 5m in length and >3m wide, filled with a creamy / greyish-white firm clay (336) (not excavated).



Plate 26: Concrete foundation (330), facing N

## 5. Conclusion

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The Phase 3 archaeological observation revealed very limited disturbance towards the S of the observation area. This appeared to be limited to levelling and ground reduction works relating to the laying of the site car park in the latter part of the 20<sup>th</sup> century. To the NE of the car park, the ground level had been reduced significantly during construction of a manufacturing facility, which was demolished prior to the commencement of works. All deposits had been removed down to natural within this area.

Located within the NW part of the observation area were the remains of eight Second World War air-raid shelters aligned NW-SE in two rows of four, all of which seemed to be of the same design type. All but one of these structures (Shelter 1) had been partly demolished, with only the base and part of the sidewalls remaining. A full written, drawn and photographic record of Shelter 1 was made and this is included as an appendix to the main report.

Located to the N of the shelters were the remains of a filtration plant, probably relating to the settlement of Patchway to the N. This appears to have been destroyed during the same phase of demolition as the air-raid shelters.

All of these features were covered by what appeared to be landscaping material, which was probably deposited as a result of the construction of the car park to the S.

## 6. Copyright

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## 8. Appendices

### 8.1 Appendix 1: Context Register Phase 3

CONTEXT NUMBER	DESCRIPTION
(301)	Modern tarmacadam car parking surface, up to 0.1m in thickness.
<i>INTERPRETATION:</i>	<i>Car parking surface</i>
(302)	Loosely compacted pinkish gravel, up to 0.2m in thickness.
<i>INTERPRETATION:</i>	<i>Sub-base for (301)</i>
(303)	Loosely to moderately compacted dark brown silty clayey sand, occasional ceramic building material rubble and demolition material, covers majority of site to a depth of < 0.4m
<i>INTERPRETATION:</i>	<i>Pre C20 century agricultural soil</i>
(304)	Loose mixture of dark brown silty clay sand and demolition rubble material, covers NW area of site, up to 1m in thickness.
<i>INTERPRETATION:</i>	<i>Landscaping deposit.</i>
(305)	Filtration bed concrete base (1)
(306)	Filtration bed concrete base (2)
(307)	Gravel base for (307)
(308)	Gravel base for (308)
(309)	Concrete rim around edge of (307)
(310)	Concrete rim around edge of (308)
(311)	Single brick course on western filtration bed
(312)	Clinker filter bed material
(313)	Brick holding chamber
(314)	Concrete drainage gully relating to filter beds
(315)	Large rectangular concrete platform (holding tank)
(316)	Concrete foundation for (315)
(317)	Gravel fill in centre of (316)
(318)	Wall of western holding tank, eastern part
(319)	Concrete platform associated with (318)
(320)	Base of (318) and (319)
(321)	Concrete wall of western part of western holding tank associated with (318)
(322)	Concrete foundation associated with (321)
(323)	Brick-lined gully
(324)	Concrete platform/surface
(325)	Concrete platform/surface
(326)	Concrete platform/surface
(327)	Slag clinker overlying platforms (324), (325), (326)
(328)	Drainage channel
(329)	Drainage channel and concrete surround
(330)	Small section of brick wall
(331)	Concrete 'foundation' with slots for drainage pipes
[332]	Cut, shape in plan semicircular, dimensions 5.5m x 2m x Not excavated. Not excavated as the remainder of this cut was below excavation depth. Filled by (331), (336)
(333)	Concrete two-course wall associated with (324), (325) & (326)
(334)	Firm orangey-brown clay, site wide to a depth of c. 0.4m
<i>INTERPRETATION:</i>	<i>Natural deposit</i>
(335)	Moderately to firm light yellowish-brown sandy clay, apparently covering all of site but only exposed around air-raid shelters to a depth of <0.4m
<i>INTERPRETATION:</i>	<i>Natural deposit</i>

## 8.2 Appendix 2: Archaeological Building Investigation & Recording

### 8.2.1 Introduction

Border Archaeology carried out archaeological building investigation and recording of all structural remains relating to the most complete Second World War air-raid shelter (Shelter 1) identified within the observation area (NGR ST 60675 80956). The recording comprised a measured survey and photographic record of both the exterior and interior.

### 8.2.2 Aim

The aim of the programme of archaeological building investigation and recording was to allow for the preservation by record of significant structural remains and any remains the presence and / or nature of which could not be established in advance of development.

### 8.2.3 Methodology

Following guidelines set out within Planning Policy Guidance (PPG) 15 (DOE 1994) and standards set by English Heritage (EH 2006), the Royal Commission on the Historical Monuments of England (RCHME 1996) and the Institute of Field Archaeologists (IFA 1996, revised 2001), Border Archaeology carried out a recording programme combining a written, drawn and photographic record of all structural remains affected by the development. This included a detailed written description of original features and a photographic survey of all significant internal and external features.

Written, graphic and photographic records were made using *pro forma* record forms and sheets, these being in accordance with Border Archaeology's Site Recording Manual.

The written record included a full description of the structure and provided details of type, dimensions, form, position of entrance, construction materials, details of topographical position, deterioration or damage and overall condition. Additional details, such as the presence of contemporary graffiti (EH 2004), were also noted.

All archaeological record drawings were prepared at a scale of 1:50. The photographic record was produced using 35mm colour print and 5.0MPX digital images. Individual features were photographed as separate items and in detail. Each feature was also be photographed and placed into a wider context (i.e. the surrounding elevation).

### 8.2.4 External Description

The shelter comprised an L-shaped concrete structure consisting of a main body orientated E-W, with an entrance at the eastern end set at right angles to the entrance opening to the S (**Figs. 1-3, Plate 3**). A circular concrete vent was visible at the western end of the main body (**Figs. 1 & 3, Plate 2**).





Plate 1: View SW showing external construction of shelter



Plate 2: View NW showing location of vent



Plate 3: View E showing location of entrance

### 8.2.5 Construction method

A construction trench appears to have been excavated and filled with concrete to form the lower section of the shelter (approximately 1.4m in height) (**Plate 4**).

The upper part of the structure (the upper 1m) appeared to have been constructed from pre-cast concrete sections bonded with cement and concrete was also used for the roof construction (**Plate 6**).

The pre-cast sections curved inwards towards the top and the upper section of the structure was thus narrower than the base. An iron mesh gate had been present on the entrance but this had been removed previously.

A small rectangular aperture was visible at the eastern end of the shelter (**Plate 7**) but as the surrounding area was damaged it was not clear whether this was an original feature or simply the result of damage.

The concrete around the entrance appeared to have been cosmetically treated with a 'stencilling' effect to create the illusion of block construction rather than solid concrete (**Plates 5 & 7**). No other external features of note were observed.

Seven concrete block steps led down from the entrance to the interior of the shelter (**Fig. 1, Plate 8**).



Plate 4: View S showing construction



Plate 5: View NE showing entrance construction



Plate 6: View E showing roof construction



Plate 7: View E showing entrance area, with aperture visible in E wall



Plate 8: View S showing steps forming part of entrance

### 8.2.6 Interior Description

The interior of the shelter had been flooded for quite some time. Within the entrance area was a drain running out from the shelter to the E and then S, which was evidently designed to prevent flooding but which had become silted up. After the drain had been cleared, it was apparent that the floor of the shelter sloped slightly to the E. A 0.05m layer of silt had built up in the base of the shelter and this prevented full recording of the floor surface, although investigation suggested this was, again, of concrete construction. Within the entrance was an opening to the W into the main body of the shelter. Two small iron fittings were attached to the northern wall of the entrance, both of which were heavily corroded; one appeared to be a hinge but the other had decayed beyond recognition (**Plate 9**).

The main body of the shelter consisted of a long narrow room with no internal décor evident; again the stencilling affect seems to have been used on the walls. The ceiling was arched, presumably to strengthen the construction, and rose to 2m above floor level. At the western end of the roof was the base of the vent that was visible externally (**Plate 10**). Recent detritus seemed to have been deposited through the vent into the shelter; including tyres, plastic hubcaps and various alcoholic drink bottles (**Plate 10**). No contemporary or later graffiti were observed on the walls.



Plate 9: Northern wall of entrance area



Plate 10: Interior view, looking W, showing vent in roof and internal debris

### 8.2.7 General

Shelter 1 appeared to be of a standard design and to be identical in terms of form and fittings to the other shelters identified within the observation area.

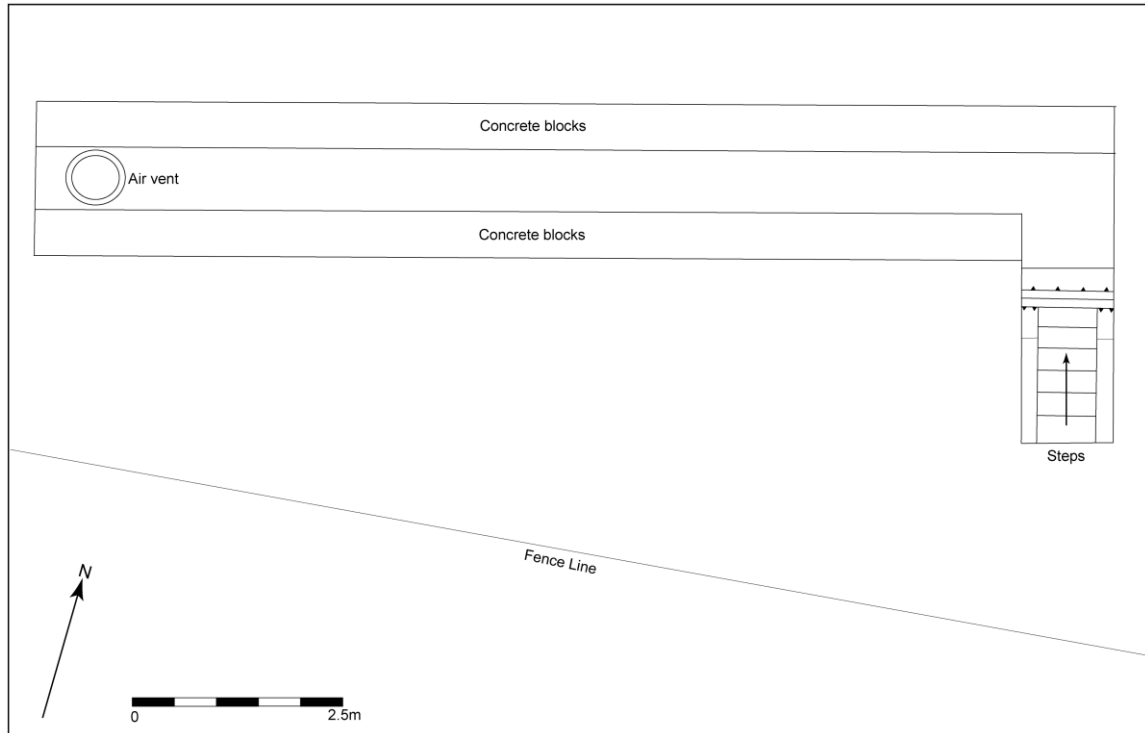


Fig. 1: Exterior of shelter (Scale 1:50)



Fig 2: Interior of shelter (Scale 1:50)

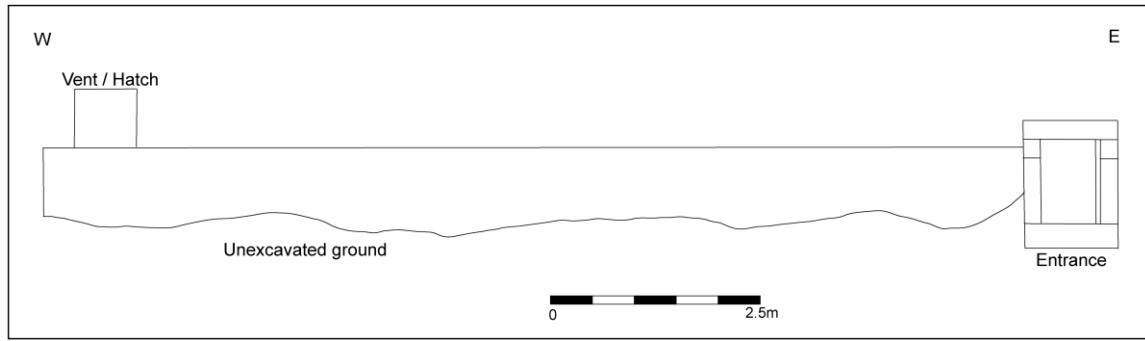


Fig. 3: S-facing profile (Scale 1:50)





## Document Control

<b>Job title</b>	Phase 3 New Manufacturing Facility Rolls-Royce Filton Bristol	<b>Job No</b>	BA0526SWRRB
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