



University of
Salford
MANCHESTER

**Archaeological
Building Survey:**

Worsley New Hall
Cold War Bunker,
Worsley. Final
Version.

Client: Peel
Investments (North)
Ltd.

Technical Report:
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The Centre for
Applied
Archaeology





Contents

<i>Summary</i>	3
<i>1. Introduction</i>	4
<i>2. Historical Background</i>	6
<i>3. Building Description</i>	7
<i>4. Discussion</i>	12
<i>5. Sources</i>	15
<i>Appendix 1: Photographic catalogue</i>	17
<i>Appendix 2: Illustrations</i>	23



Summary

The Centre for Applied Archaeology was commissioned by Peel Investments (North) Ltd to undertake a Level 2 Building Survey of the Cold War Bunker at Worsley New Hall, Worsley, M28 2LJ. The survey work was carried out in November 2011 by Vicky Nash, Brian Grimsditch and Matthew Bishop.

A concrete bunker was constructed by the War Office in 1951 as an Anti Aircraft Operations Room (AAOR). In 1958 the Bunker became redundant and was used by the Royal Navy as a food store until the early 1960s. In 1961 the Bunker was purchased by Salford Corporation and used as a joint area control centre with Lancashire County Council. However, after the disbanding of the Civil Defence Corps in 1968 the building was handed over to the Greater Manchester Fire Service and in 1985 leased a local gun club who used the site as a shooting range until 2000 when it purchased by Peel Investments (North) Ltd. The building was empty at the time of the current survey and due to extensive vandalism both entrances have now been blocked.



1. Introduction

1.1 Background

The Centre for Applied Archaeology was commissioned by Peel Investments (North) Ltd to undertake a Level 2 Building Survey of the Cold War Bunker at Worsley New Hall, Worsley, M28 2LJ. The survey work was carried out in November 2011 by Vicky Nash, Brian Grimsditch and Matthew Bishop.

1.2 Location, Topography and Current Land Use

A concrete bunker was constructed by the War Office in 1951 as an Anti Aircraft Operations Room (AAOR). In 1958 the Bunker became redundant and was used by the Royal Navy as a food store until the early 1960s. In 1961 the Bunker was purchased by Salford Corporation and used as a joint area control centre with Lancashire County Council. However, after the disbanding of the Civil Defence Corps in 1968 the building was handed over to the Greater Manchester Fire Service and in the early 1990s it was sold to a local gun club and used as a shooting range until 1998. The building was empty at the time of the current survey and due to extensive vandalism both entrances have now been blocked.

There are no designations associated with the Bunker and it is not currently listed on the Greater Manchester Historic Environment Record. However, it does lie within the Middle Wood Site of Biological Interest (grade B).

1.3 Methodology

This survey has followed the conventions laid down in *Understanding Historic Buildings. A guide to good recording practice* (English Heritage 2006) and the Institute of Field Archaeologists' *Standard and Guidance for the archaeological investigation and recording of standing buildings or structures* (IFA, Revised Edition 2001).

In brief this work comprised:

- Historic research including a historic map regression exercise (scaled to a large, uniform, size), examination of Census records, trade directories and local history sources held at Salford Local History Library.
- A photographic survey showing general view of the building's exterior and setting; the overall appearance of the building's principle rooms and circulation areas; detailed coverage of the building's external and internal appearance; and architectural and structural features relevant to the building's design. The photographs have been taken as high resolution digital photographs, with the viewpoint directions shown on plans.
- A measured ground floor and first floor plan at 1:100 scale.

- A written report including a description of the structure; a discussion of the site's development and importance; and a photographic catalogue.

2. Historical Background

2.1 Introduction

The background history of the Bunker was mainly uncovered from cartographic evidence although a certain amount of information was obtained from local historical sources taken from Salford University Library, Salford Local History Library, the Bridgewater Estate Archive and Census Returns.

2.2 The Cartographic Evidence

The site of the concrete bunker first appears on a 1952 map from the Bridgewater Estate Archive (Fig 2). This depicts the area of the proposed bunker with its sewer and electrical services. The 1975 map (Fig 3) shows the completed bunker. It was square in shape and had a car park to the east. The bunker complex lay south of an access road. The bunker appears unaltered on the subsequent 1991 OS mapping (Fig 4) and the site survey in November 2011 determined that no alterations had taken place externally to the structure.

2.3 The Documentary Evidence

Correspondence held within the Bridgewater Estate Archive, which date to June 1951, referred to the construction of a 'reinforced concrete building' by the War Office on the site of the former New Hall (BEA/IV/C20, Vol. 844). Although the purpose of the building was not stated within this correspondence, further documentary research has established that the building was an Anti Aircraft Operations Room, which was opened in 1952 and which served the Manchester Gun Defended Area (Catford, 2002, 1). In November 1956 the site was sold by Bridgewater estates to the Secretary of State for the War Department was re-used as a Royal Navy food store until 1961, when it was purchased by Salford Corporation and used as a joint area control centre with Lancashire County Council (Catford, 2002, 1; Bridgewater Archives, Peel Group). After the disbanding of the Civil Defence Corps in 1968 the building was handed over to the Greater Manchester Fire Service. In 1985 they leased the site to the Worsley Rifle and Pistol Club who used it as a shooting range (Catford, 2002, 1; Bridgewater Archives, Peel Group). In 2000 the Bunker was purchased by Peel Investments (North) Ltd. However owing to extensive vandalism both entrances into the Bunker were blocked and the structure has remained empty ever since. This last sale re-united the site with the historic Worsley New Hall grounds.



3. Building Description

3.1 The Overall Plan-form of the Bunker

This section provides a description of the standing structure of the bunker as visible at the time of the survey. It is not an architectural description, but rather an archaeological assessment of the building's fabric, space and function as recovered from measured and photographic surveys. The findings of this work are used to inform an assessment of the structure's date, phasing and importance.

At the time of the current survey the Bunker was a large square, concrete, structure, two storeys high. It was terraced into the hillside. The interior was dominated by a large, central, square-plan operations room which rose through both storeys. This was surrounded by rooms accessed by corridors.

3.2 Ground Floor

Entrance

The ground floor was accessed via a secondary entrance which was located at this level on the southern side of the building. The entrance had been bolted and welded shut, a safety precaution likely to have been untaken by the local gun club in the 1990s.

Corridor G1 (Fig 9)

This room ran throughout the ground floor of the building providing access into all rooms on this level. G1 measured 1.20m wide and approximately 2.50m in height. The floor, walls and ceiling were constructed from reinforced concrete slabs. Iron piping and ventilation trunking ran round the top of the walls throughout the corridor.

Room G2 (Fig 10)

This room lay in the south-western corner of the building. The ceilings and walls were entirely covered in square asbestos tiles, which probably acted as a sound-proofing system. The floor was constructed from concrete. At the western end of the room were two wall-mounted boxes containing possible fuse boxes. These boxes were linked to an aluminium bar also mounted on the western wall. Two ceiling lights and associated switches were located in the central portion of the room. A possible iron air vent built into the ceiling was identified in the south-western corner of the room. The sound proofing tiling indicated that this was a radio/communications room.

Room G3 (Fig 11)

This room lay in the south-western portion of the building. Access to G3 was from corridor G1 to the south and from the central operations room G4 to the east. The room measured

4.27m x 5.50m. The floors, ceilings and walls were constructed from reinforced concrete slabs and covered in square tiling. No other features were present in this room.

Room G4 (Fig 12)

This was located in the central portion of the building. G4 was the largest room in the building measuring 10.43m x 10.97m. The room had four points of access; from the west through corridor G1 and room G3 and from the east through corridor G1 and room G10. The viewing gallery (G7) located above the room to the north clearly identified this space as the main operations room. The walls, ceiling and floors were constructed from reinforced concrete slabs. Across the ceiling laid east to west were metal lighting strips and the remains of electrical cord that would have originally carried overhead lights. Strips of metal were also found on the walls (**Fig 13**). These were probably used as a mounting for shelves or cabinets. At least four blocked doorways were identified running around the top of G4 at first floor height. These doorways would have originally led to rooms F2 and F7 on the first floor. Two open doorways at the same height were also identified located either side of the viewing gallery in F5. These access points infer that a spectator's gallery originally ran over or around the top of the operations room with access to both G4 and the various first floor rooms. This notion is supported by the presence of beam slots running around the circumference of the room at the same level. The room was found to be full of debris from all periods.

Room G5 (no image)

This room was located in western half of the building, against the western exterior wall. Originally the room would have been accessible from the north by corridor G1. At the time of this survey this access was blocked by debris.

Room G6 (Fig 14)

This lay in the far north-western corner of the building. The room measured 5.64m x 4.57m. The floors, walls and ceiling were constructed from concrete. Iron pipes and light fittings ran at ceiling level across the extent of the room. No other fixtures or fittings were present. G6 could be accessed from two doorways along the room's northern wall, both of which led into corridor G1. At the western end of G6, a doorway led into a narrow side room measuring 3.20m x 0.92m. The only access into this room was through G6. This side room was void of any fixtures and fittings.

Room G7 (Fig 15)

This room was located in the southern central portion of the building. The room measured 6.40m x 5.71m. The floor, walls and ceilings were constructed from reinforced concrete slabs. Light fittings ran at ceiling level. An air vent system ran along the top of the northern wall. A 'T-shaped' wooden inlay ran north-south across the main floor of the room. A groove running down the centre of this wooden inlay suggested that this feature was a runner for mobile shelving or screens.

Room G8 (Fig 16)

This lay in the far north-eastern corner of the building, and was a mirror image of room G6. The room measured 5.64m x 4.57m. The room could be accessed from the west through a

1.52m wide doorway from corridor G1. At the eastern end of G8, a doorway led into a narrow side room. This room measured 3.20m x 0.92m. A likely use of this space would be for storage purposes. Iron heating pipes and light fittings ran around the top of the room at ceiling level. At the eastern end of the room, the remains of three wall mounted iron coat hooks (**Fig 17**) were found to the south of the doorway leading to the side room.

Room G9 (Fig 18)

This room lay in the eastern half of the building, directly opposite room G8 in the west half of the building. The room measured 5.50m x 3.05m. The only access into this room was from the north through a reinforced steel framed cast iron safe door. The door was painted gray and embellished with the maker's stamp on the inside of the door: 'Chatwood Milner Ltd, London, England' (**Fig 19**). Along the south wall of the room were three fitted cast iron/steel safes all of which were found to be empty and open. The eastern safe was embellished with the logo: 'Samuel Withers & Co, West Bromwich'. To the west of the safes, along the room's western wall was one set of steel shelving units. Adjacent to these units was a four tiered grey filing cabinet which were found open and empty. Next to the filing cabinet were two blue steel cabinets. Other shelving units were found lying on the ground amongst general debris.

Room G10 (Fig 20)

This lay in the southeast portion of the building and was a mirror image of room G3. G10 measured 4.27m x 5.50m. The room could be accessed from the north via corridor G1 or from the west by the central operations room G4. A single strip of metal ran around the room at mid level. Light fittings and a ventilation shaft ran north-south across the room at ceiling level. The room was found to be full of debris.

Room G11 (Fig 21)

This room was located in the far southeast corner of the building. The room measured 3.05x 2.60m and was accessible from the north by corridor G1. In the southwest corner of the room was a cast iron/steel boiler (**Fig 22**). Running from the back of the boiler up and through the ceiling was a flue. Various iron pipes ran off the east side of the boiler. Fitted to the east wall of G11 were the remains of two iron supporting bars, probably used to hold machinery associated with boiler (**Fig 23**). Various light fitting and control switches were found mounted to the west wall of G11 under an air vent.

Room G12 (Fig 24)

This lay directly to the west of room G11. The room measured 4.71m x 3.06m and was accessible from the west by corridor G1. The room contained a large iron/steel air handling unit, the central component for the building's ventilation system. The controls for the system and the room's lighting were located on the western wall. An additional wall mounted control was located on the eastern wall (**Fig 25**).

Stairwells

Stairwell S1 (Fig 26) was located at the very south of the building. The stairs rose from an entrance flanked by two steel posts in corridor G1 to room F1 on the first floor. The staircase

was found to be blocked at the top of its flight by a wooden hatch laid into the floor of F1 (Fig 31)

Stairwell S2 (no image) was located in the western half of the building. The stairs rose from corridor G1 on the ground floor to room F2 on the first floor. The stairs provided direct access to the viewing platform G7 on the first floor.

Stairwell S3 (Fig 27) was located in the eastern half of the building. The stairs rose from corridor G1 to corridor F4 on the first floor. The stairs provided direct access to the viewing platform G7 on the first floor.

Stairwell S4 (Fig 28) lay in the far northeast corner of the building. The stairs rose from corridor G1 on the ground floor to the toilet block in room F6 on the first floor.

3.3 First floor

Main Entrance

This was located at this level on the north side of the building and incorporates a concrete covered porch. During the time of survey the locks and bolts of the main door were vandalised and broken open. Immediately after the survey the entrance was permanently sealed with concrete.

Room F1 (Fig 29)

This room was located in southern part of the building. The room ran the full width of the building, along its southern external wall. F1 measured 21.70m x 4.60m. The floors, walls and ceilings were all constructed from reinforced concrete slabs. Access to F1 was from the west through a door in the northern partition wall. At the far western end of the room was a row of four shooting targets made from sheet metal. It is likely that these sheets originally lay behind superimposed circle targets. Behind the metal sheets was the 'butts' or backstop where the pellets used for shooting would have been contained and collected. A power control box was located on the room's western wall (**Fig 30**). Laid in to the floor, along the southern wall of F1 was a square wooden hatch (**Fig 31**). The hatch was found to block the top of stairwell S1.

Room F2 (Fig 32)

This was located in the western portion of the building, aligned north-south along the western exterior wall. The room measured 14.35m x 5.80m. The floor and walls were constructed from concrete. F2 could be accessed from the south through room F1, from the north by room F3 and from the east by corridor F4. Two blocked doorways were identified along the room's eastern wall (**Fig 33**). On the north wall were two wall mounted fuse boxes.

Room F3 (Fig 34)

This room lay directly to the north of room F2 and could only be accessed from this room. F3 measured 4.26m x 5.77m. All walls were built with breeze blocks and coated with a white-wash paint. An open circular air vent leading outside the building had been cut in to the north wall. Two sets of wall mounted light switches were identified on the east wall. A 1m wide

doorway located in the northwest corner of the room lead into a rectangular side room measuring 3.00m x 1.00m. At the time of this survey this room was full with debris.

Corridor F4 (Fig 35)

This lay in the northern part of the building and was found to run around the viewing platform area F5. The corridor provided access to eastern room F2, the viewing platform F5, and the toilet block F6. Staircase S3 rose to meet F4 from the ground floor. The corridor appears to terminate either side of the viewing gallery at two open doorways that drop straight down to the operations room on the ground floor (**Fig 36**). The corridor was found to be constructed from concrete blocks which had been painted black from their mid section down to the floor. The north-east aligned section of F4 was found to have a small square window cut through its southern wall into the north wall of the viewing platform room (**Fig 37**). A single strip of metal had been laid round the ceiling of the corridor. It is presumed this was for mounted ceiling lights.

Room F5 (Fig 38)

This room lay in the northern part of the building and was partially surrounded by corridor F4. The room measured 6.42m x 5.48m. The southern wall of the room was made from solid concrete and was partially open. This opening provided the building with a large viewing gallery for the central operations room (G4) that lay below on the ground floor. The northern, eastern and western walls were constructed from breeze blocks. Covering the extent of these three walls and the ceiling were the remains of wooden frames, very likely to have been a mounting for wooden panels. Access to this room from G4 was through two doorways in the northeast and northwest of F5. Staircase's S2 and S3 provided access to the viewing gallery from the ground floor.

Room F6 (Fig 39)

This was located in the far north-eastern corner of the building. The room comprised of three breezed blocked south facing toilet cubicles. There were three points of access to this room: two to the north by corridor F4 and room F7 and one to the west by staircase S4 which rose to F6 from the ground floor. A metal fan probably associated with the air venting systems was found running through the mid section partition wall in room F6 (**Fig 40**). It was clear that the toilets were a later addition and the room would have originally been an open space, mirroring the image of room F3 in the north-west corner of the building.

Room F7 (Fig 41)

This room was located in the eastern portion of the building. The room was north-south aligned and measured 13.37m x 5.79m. Access to the room was from the north by a doorway in the north wall. The walls, ceiling and floor had been constructed from reinforced concrete slabs. The presence of five angled plates at the southern end of room suggested that the purpose of the room at the time of the survey was a short range shooting gallery. These angled plates would have been located in the butts, the area behind the targets (**Fig 42**). The targets themselves had not survived. Two blocked doorways were identified along the western wall (**Fig 43**) that may originally have led down into a room or walkway that ran around the operations room G4 at first floor level.



4. Discussion

4.1 The Phasing of the Cold War Bunker

Two main phases of activity at the concrete bunker were identified by the current survey. These indicated a building development spanning the 1950s to the 1990s (**Figs 7 & 8**).

Phase I: 1952-61

This primary phase saw the construction of the two story concrete building as described in the documentary evidence from 1952. This building was erected as an Anti Aircraft Operations Room which served the Manchester Gun Defended Area (Catford, 2002, 1). On the ground floor, eight reinforced concrete rooms were constructed around the central operations room G4. The ground floor rooms included the radio communications room G2, the safe room G9, the boiler room G11 and the central ventilation room G12. The first floor comprised six rooms and one corridor (F1-F7) running around the edge of the central operations room. The viewing gallery F5 was located in the north of the building overlooking the central operations room through a viewing window from the north. Rooms F2, F7 and F1 were found to have blocked doorways located along those walls that bounded the central operations room. Corridor F4 was found to terminate at two open doorways located along the southern wall of the same room. It is suggested that a walkway originally ran around the circumference of G4 with access to the first floor via these openings. It is envisaged that this walkway provided access between G4 and the first floor. This notion is further supported by the presence of beam slots running around the edge of G4 at first floor height.

Phase II: 1990s

Despite the transfer of use of the site to Salford City in 1961 and then to the Greater Manchester Fire Service in 1974, no major alterations to the plan-form of the building were noted until the 1990s when it was sold to a local gun club. This phase saw the re-use and alteration of at least three rooms on the first floor. Rooms F1 and F7 were clearly re-used as long-range (F1) and short range (F7) shooting galleries. There is a possibility that during the building's use as anti aircraft operation building, these rooms were originally divided into smaller rooms. The local gun club who took over the building in the 1990s may have knocked the rooms together to create the long shooting galleries. The survey noted the construction of a butts and target practice area at the east end of F1 and at the south end of F7. Again these changes can be associated by the acquisition of the bunker by a local gun club in the early 1990's. Room F6 was found to contain three toilet cubicles constructed from breeze blocks. The main walls of the room were found to be constructed from reinforced concrete slabs and were clearly part of the original building. The cubicles were probably constructed during this phase as part of the conversion for use by the local gun club.

4.2 The Archaeological Context of the Bunker

The concrete bunker at Worsley New Hall was built in the years 1951-2 as part of the re-organisation of Britain's anti-aircraft defences during the early 1950s (Catford 2010, 123-4;

Cocroft & Thomas 2004, 148). The plan-form and materials used owed a great deal to the bunker's Second World War and pre-war antecedents. Central communications complexes, with a large operations room surrounded by corridors and smaller rooms which included telephone communications, electrical and air supplies and rest facilities, were developed in the 1930s to co-ordinate the RAF's response to the threat from bombing by enemy aircraft. Such control centres were part of Britain's early warning and response systems, which also encompassed, during the Second World War, the air-raid warning system; the blackout; evacuation; and the ARP Warden system. They were usually concrete and steel structures partially terraced or built into the landscape so as to minimise discovery and the risk of bombing (Lowry 1995, 32-47). A fine example of a Second World War era control complex survives beneath Dover Castle, Kent, cut into the chalk on which the medieval castle stands (Semple 2005).

The construction of the bunker at Worsley New Hall, despite its physical similarities to its ancestors, was undertaken in the light of civil defence policies developed in the decade after 1945 as part of the response to the emergence of nuclear weapons and the threat of war with the Soviet Union (Grant 2006, 54-76). The spur for this was the Berlin blockade crisis of 1948 and the increased risk of attack, especially with nuclear weapons. The Second World War warning system and civil defence structure was re-assembled after 1948 through the Civil Defence Act (1948). This involved an alternative seat of government (underground at Box Hill near Corsham in Wiltshire), and a regional command structure, with 12 zones (Regional Seats of Government or RSGs) as during the War. Beneath these would be further sub-regional control centres, local war rooms, and at street level warden posts staffed by the newly formed Civil Defence Corps. Initially, the focus was warning, evacuation, shelter and post-attack management through the RSGs and the Corps (Grant 2006, 9-11, 54-75). This involved building underground and over-ground warehouses to stock-pile essential goods such as fuel and food, and the construction of regional and sub-regional control centres and local war rooms.

The defence of the population from aerial bombardment was still thought possible through use of anti-aircraft guns (Catford 2010, 104) and therefore Britain was divided into 33 gun defended areas arranged in five groups. The bunker at Worsley New Hall was part of this network of anti-aircraft operations centres built during the early 1950s across Britain and away from major conurbations such as Manchester (Cocroft & Thomas 2004, 147-8). The site at Worsley New Hall formed part of 5 Group controlling the Manchester Gun Defended Area and was run by 70 Brigade. The nearest comparable site was the anti-aircraft operations room at Frodsham, which formed part of 4 Group under 79 Brigade (Catford 2010, 108; Cocroft & Thomas 2004, 148). AAOR centres all followed a similar plan with a two-storey concrete structure, the lower storey of which was set into the ground. Internally, the plan was dominated by a two-storey plotting room overlooked by a viewing gallery and control cabins from which AAOR staff filtered information from the RAF sector operations centres to the individual gun sites. The Worsley New Hall bunker thus formed part of the initial development of Britain's Cold War Civil Defence strategy.

As the Cold War developed and nuclear technology advanced civil defence policies changed as it was realised that nuclear bombs could be delivered via inter-continental ballistic missiles rather than by long-distance-bombers. The development of nuclear weapons technology and budget cuts during the mid-1950s led to a significant review of the civil defence policy in 1954, which moved the strategy towards preserving the ability of Britain to function as a government after a nuclear war, rather than protecting the population (Grant 2006, 191-200).

This explains why the anti-aircraft operations room at Worsley New Hall was transferred to Salford City Council in 1961 when it continued to act as a sub-regional control centre. This change in policy also led to the construction of 1,563 underground observation posts managed by the Royal Observer Corps (ROC). They were designed to monitor the location and effect of nuclear blasts and were in operation from the mid-1950s to the 1980s. An example of a large ROC post that survives with its fixtures and fittings intact is the York Cold War Bunker, now a Scheduled Ancient Monument and opened to the public through English Heritage. This two-storey structure was opened in 1961 and operated by the Royal Observer Corps as part of the UK Warning and Monitoring Organisation network. It controlled a network of smaller bunkers scattered around Yorkshire to monitor nuclear explosions and fallout in the region.

A number of these cold war civil defence bunkers have been recorded archaeologically since 2000 as part of the planning process. A sub-regional control bunker from the early 1950s was recorded in 2008 beneath the Civic Centre at Dagenham, London. Like Worsley this had a large central control room, as well kitchen, dormitories and independent air, water and electricity supplies (Capon 2008). A small local war room in the basement of a building on Canterbury Street, Gillingham, Kent, was investigated in 2010. Like Worsley this bunker that was a concrete structure with its own air and electricity supply although it lacked a large central operations room (Smith 2010).

The emergence of the idea of détente after the Cuban Missile Crisis of 1962 and changes to the scale and nature of nuclear weapons in the 1960s led to the closure of the Civil Defence Corps in 1968 (Grant 2006, 234-51). The bunker at Worsley New Hall was also closed in this year, suggesting that it was no longer seen as a viable part of the new policy of preserving the civil power after a nuclear war. That policy saw new underground emergency control centres and monitoring stations built elsewhere in the region.



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Maps

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Appendix 1: Photographic Catalogue

Photo Number	Figure Number	Room	Description	Looking
1.		F4	North-west part of corridor F4	W
2.		F4	North-east part of corridor F4	E
3.		F4	Shot along length of northern corridor	W
4.		F4	Close up of window into F5 from entrance	S
5.		F4	Shot along length of western corridor	S
6.		F4	Shot of blocked stairwell and doorway into G4	SW
7.		F4	Doorway into F2	NW
8.		F4	Ceiling detail of western corridor	S
9.		F4	Detail of strip light fixture in western corridor	S
10.		F5	Viewing platform room	NE
11.		F5	Viewing platform room	NW
12.		F5	Viewing platform room	SE
13.		F5	Shot of viewing platform window	S
14.		F5	Viewing platform room	SW
15.		F5	Detail of ceiling	SW
16.		F5	Detail of flooring	E
17.		G4	Shot of central operations room from viewing platform room	S
18.		G4	Shot of central operations room from viewing platform room	SW
19.		G4	Shot of central operations room from viewing platform room	SE
20.		F2	Shot of debris blocking stairwell S2	S
21.		F2	General shot of Room F2	S
22.		F2	General shot of Room F2	N
23.		F2	Shot of doorway, light fixture and blocked stairwell.	E
24.		F2	North-west corner of room and doorway between F2 and F3	NW
25.		F2	Shot of blocked doorway	E
26.		F2	Detail of ceiling	N
27.		F2	Detail of fuse boxes	N
28.		F3	Shot of north-east corner of room	NE
29.		F3	Shot of north-west corner of room and doorway	NW
30.		F3	Shot into cupboard	SW
31.		F3	Detail of pillar/pipe remnants on	E

			floor	
32.		F1	General shot of room	E
33.		F1	Shot of blocked doorway	N
34.		F1	Detail of ceiling girder and light fixture	S
35.		F1	Detail of steel firing range bullet deflector at eastern end of room	E
36.		F1	Leather curtain at eastern end of firing range	E
37.		F1	General shot of room	W
38.		F1	Shot of north-west corner of room, doorway and electrical fixtures	NW
39.		F1	Wide shot of ceiling	E
40.		F1	Wide shot of flooring	E
41.		F1	Detail of flooring	E
42.		F1	Detail of power control unit	N
43.		F1	Detail of access to cross-floor shaft	W
44.		F4	Shot of eastern corridor with doorway into operations room at southern end	S
45.		S3	Top of stairwell and doorway into F6	NE
46.		S3	Top of stairs and doorway into G4	SW
47.		S3	Shot down stairs into G4	S
48.		S3	Shot down to mid-level of stairwell	E
49.		F6	Shot of western end of room/corridor with doorway to S3 visible on left	W
50.		F6	Shot of eastern end of room/corridor with doorway to F7 visible in right corner	E
51.		F6	General shot of toilet doorways	NE
52.		F6	Detail of toilet cistern	N
53.		F6	Shot of toilet doorways	NW
54.		F6	Shot of toilet doorways	NW
55.		F6	Shot along eastern side of room and doorway into F7	S
56.		S4	Shot of top of stairwell	E
57.		S4	Shot down stairs	S
58.		S4	Detail of girders and light fixtures	S
59.		F7	General shot of room	S
60.		F7	Shot of steel firing range bullet deflectors at southern end of room	S
61.		F7	Shot of steel firing range bullet deflectors and leather curtain at southern end of room	SW
62.		F7	Shot of blocked doorway in south-western corner	W
63.		F7	Wide shot of north-west corner of room	NW

64.		F7	General shot of northern end of room	N
65.		F6	Detail of extractor fan	N
66.		F4	Eastern corridor	N
67.		F4	Shot from outside of first floor entrance	SW
68.		F1	Detail of blocked stairwell S1	Down
69.		F1	Shot of blocked stairwell S1	S
70.		G4	Shot of south-west corner of room	SW
71.		G4	Shot of north-east corner of room with viewing platform window top-left	NE
72.		G4	Shot of north-west corner of room with viewing platform window top-right	NW
73.		G4	Shot of south-east corner of room	SE
74.		G4	Detail of ceiling	Up
75.		G4	Shot of northern wall and viewing platform window with open doorways on left and right of shot	N
76.		G4	Detail of floor	Down
77.		G4	Shot of map/document fixtures on western wall	W
78.		G4	Detail of air-vent on northern wall	N
79.		G4	Shot of northern doorway on eastern wall	E
80.		G4	Shot of southern doorway on eastern wall	E
81.		G4	Shot of southern doorway on western wall	W
82.		G4	Shot of northern doorway on western wall	W
83.		G4	Detail of fallen ' <i>Rooms Allocation Operational</i> ' sign	Down
84.		G3	Shot of south-west corner of room	SW
85.		G3	Shot of north-east corner of room with doorway to G4 on right	NE
86.		G3	Detail of pipe work on ceiling	N
87.		G1	Shot of northern doorway of room G3	S
88.		G1	Shot of northern doorway from corridor into G4	NE
89.		G1	Shot of debris filled corridor and stairwell S2	N
90.		G1	Shot of debris blocked main southern corridor	E
91.		G10	Shot into room from doorway	S
92.		G1	Shot of north-east corridor and stairwell S3	N
93.		G1	Detail of ' <i>SMOKING STRICTLY</i>	E

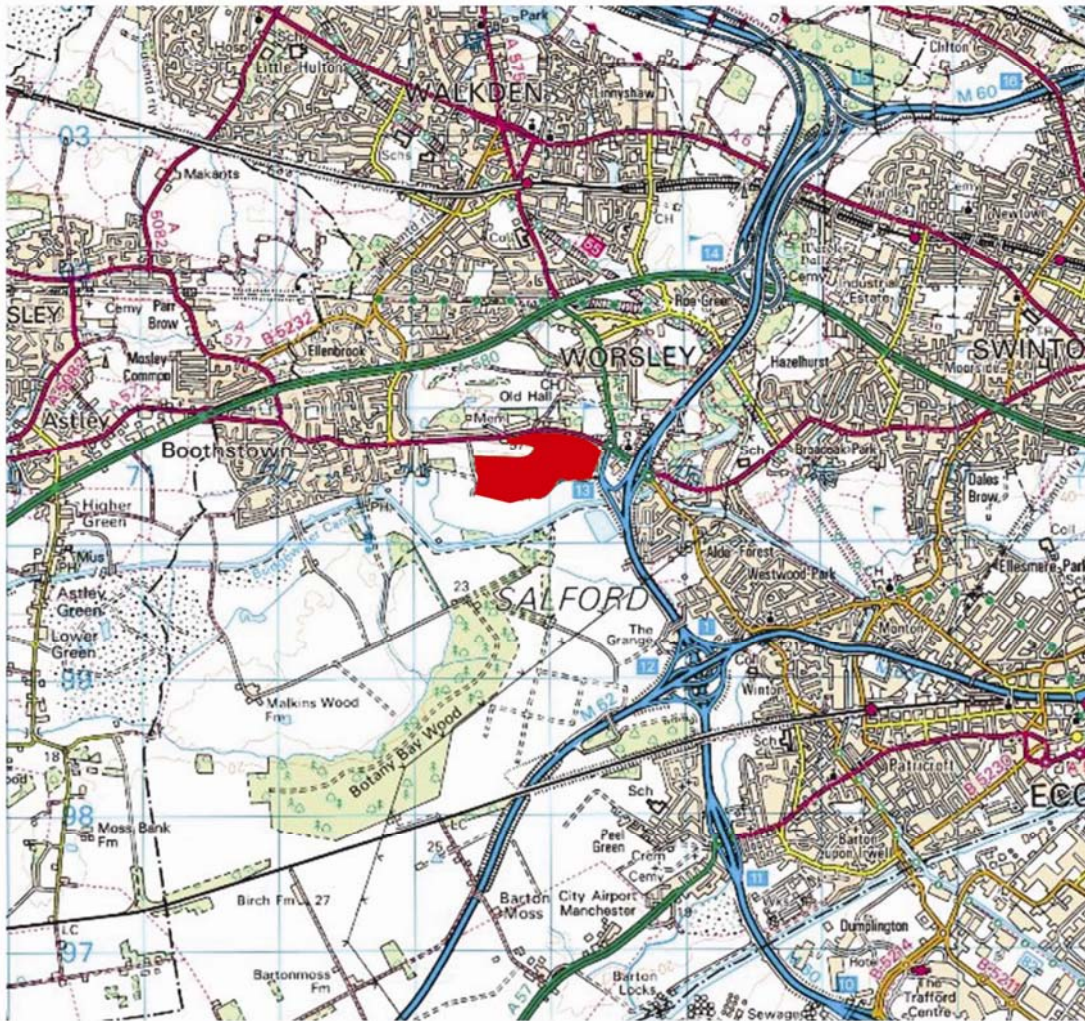
			<i>PROHIBITED</i> ' painted wall sign	
94.		G1	Shot of north-east corridor with stairwell on right	S
95.		G1	Shot of corridor and northern doorways of G4 and G10	SW
96.		G1	Detail of iron fixtures on eastern wall in far east corridor	E
97.		G11	Shot of doorway into boiler room	SE
98.		G11	Shot of doorway into boiler room and boiler	SW
99.		G11	Shot of boiler	S
100.		G11	Detail of boiler	S
101.		G11	Shot of electrical fixtures and air vent	W
102.		G11	Shot of pipe work and debris east of boiler	S
103.		G1	Shot of southern ground floor entrance corridor and doorway into room G6	SW
104.		G1	Shot of fuse box on northern wall of ground floor entrance corridor	N
105.		G1	Wide shot of southern ground floor entrance corridor and doorway into room G6	SW
106.		G2	Shot through doorway into radio room	W
107.		S1	Shot of blocked stairwell S1	E
108.		S1	Wide shot of stairwell S1 and ground floor entrance corridor	E
109.		G2	Detail of open fuse box on northern wall of room	N
110.		G2	Shot of ceiling and light fixtures	W
111.		G2	General shot of room	E
112.		G2	General shot of room	W
113.		G2	Shot of electrical fixtures on western wall of room	W
114.		G2	Detail of sound proof material used on walls and concrete base behind	N
115.		G2	Shot of inter-floor shaft opening	SW
116.		G12	Shot of ventilation system and doorway into room	SE
117.		G12	Shot into doorway of room and ventilation system in background	E
118.		G12	Detail of iron ventilation feature	N
119.		G12	Shot of eastern wall and remnants of frame	E
120.		G12	Detail of electrical starter motor and isolator switch	N
121.		G12	General shot of ventilation system	W

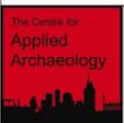


122.		G12	Shot of motor on floor	W
123.		G12	Detail of ventilation system	S
124.		G12	Shot of light switches and electrical fixtures on western wall	SW
125.		G12	Detail of ceiling	E
126.		S1	Shot of area below stairwell	W
127.		S1	Shot through opening into area below stairwell	SW
128.		G1	Shot of stairwell S3 and corridor	N
129.		G9	Shot of doorway into safe room and door	S
130.		G9	Detail of company branding on inside of safe door	W
131.		G9	Shot of safe room door system	N
132.		G9	Wide shot of door system and northern wall	N
133.		G9	Shot of north-west corner of room	NW
134.		G9	Shot of safes on southern wall of room	S
135.		G9	Detail of eastern safe door on southern wall	SE
136.		G9	Detail of central safe on southern wall	S
137.		G9	General shot of room	S
138.		S4	Shot of stairwell	N
139.		G1	Shot of north-east corridor and eastern doorway of G7	W
140.		G1	Shot of north-east corridor with safe room door in distance	E
141.		G1	Detail of ceiling fixtures in corridor	N
142.		G7	General shot of northern end of room from doorway	NW
143.		G7	Detail of flooring against west wall	N
144.		G7	Shot of north-west corner and ceiling fixtures in room	NW
145.		S3	Shot of area below stairwell	W
146.		G8	Shot of west doorway of room from corridor	SE
147.		G8	General shot of eastern end of room with doorway to below stairwell S4	E
148.		G8	General shot of western end of room and doorway into corridor	W
149.		G8	Detail of pipe work and ceiling	E
150.		G8	Shot of doorway into area below stairwell S4	E
151.		G8	Shot of area below stairwell S4	S
152.		G8	Detail of flooring and pipe work along northern wall	W
153.		G1	Shot of northern corridor	W

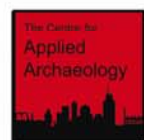
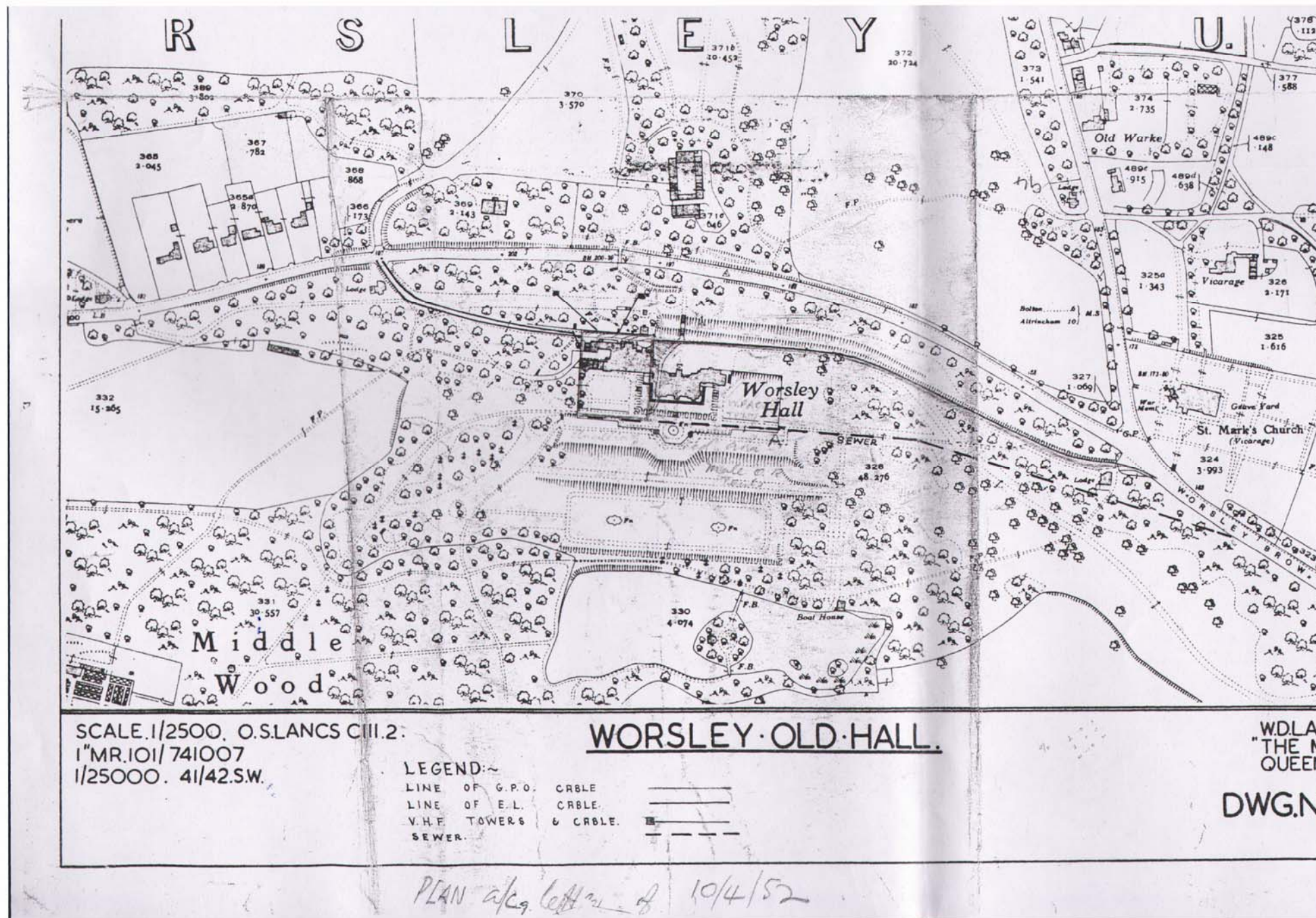
154.		G1	Detail of fuse boxes and electrical fixtures on southern wall of northern corridor	SW
155.		G1	Detail of fuse boxes and electrical fixtures on southern wall of northern corridor	SE
156.		G1	Shot of western corridor surrounding G7	N
157.		G1	Detail of pipe work and ceiling in western corridor surrounding G7	N
158.		S2	Shot of entrance into area below stairwell	W
159.		G6	Shot of doorway into room	NW
160.		G6	General shot of north-east corner of room	NE
161.		G6	Shot of western end of room with doorway to corridor on left and doorway to storage area on right	W
162.		G6	Shot of doorway into area below stairwell	W
163.		G6	Shot of area under stairwell	S
164.		G6	Shot of ceiling	SE
165.		G1	Shot of debris filled corridor surrounding inaccessible room G5	SW
166.		G1	Shot of debris filled corridor to west of stairwell S2	S
167.		Exterior	Shot of south-east corner	N
168.		Exterior	Shot of southern ground floor entrance	NW
169.		Exterior	Shot of southern doorway	NW
170.		Exterior	Shot of southern ground floor entrance	NE
171.		Exterior	Shot of western wall	NE
172.		Exterior	Shot of western wall	SE
173.		Exterior	Shot of roof and ventilation chimney	SE
174.		Exterior	Shot of north-west corner and northern wall	E
175.		Exterior	Shot of northern first floor doorway	S
176.		Exterior	Detail of northern doorway light	Up
177.		Exterior	Detail of northern doorway	S
178.		Exterior	Shot of north-east corner and northern wall	W
179.		Exterior	Shot of top of exterior stairs and eastern wall	W
180.		Exterior	Detail of ventilation shaft grill	W
181.		Exterior	Shot from base of stairs	N
182.		Exterior	Detail of iron wall frame of southern wall	N



Appendix 2: Illustrations



 <p>Centre for Applied Archaeology Joule House The Crescent Salford M5 4NW</p>	<p>Title: Location Map (OS 1999)</p>	<p>Key:</p>  Study Area	<p>Ordnance Survey data copyright OS, reproduced by permission. Licence no: 100050261</p>
<p>Site Name: Worsley New Hall, Worsley. Site Code: WNH11 Drawing Ref: BS-WNH-11- 1 Date Drawn: 08-09-11 Drawn By: VN</p>	<p>Scale:</p> 		



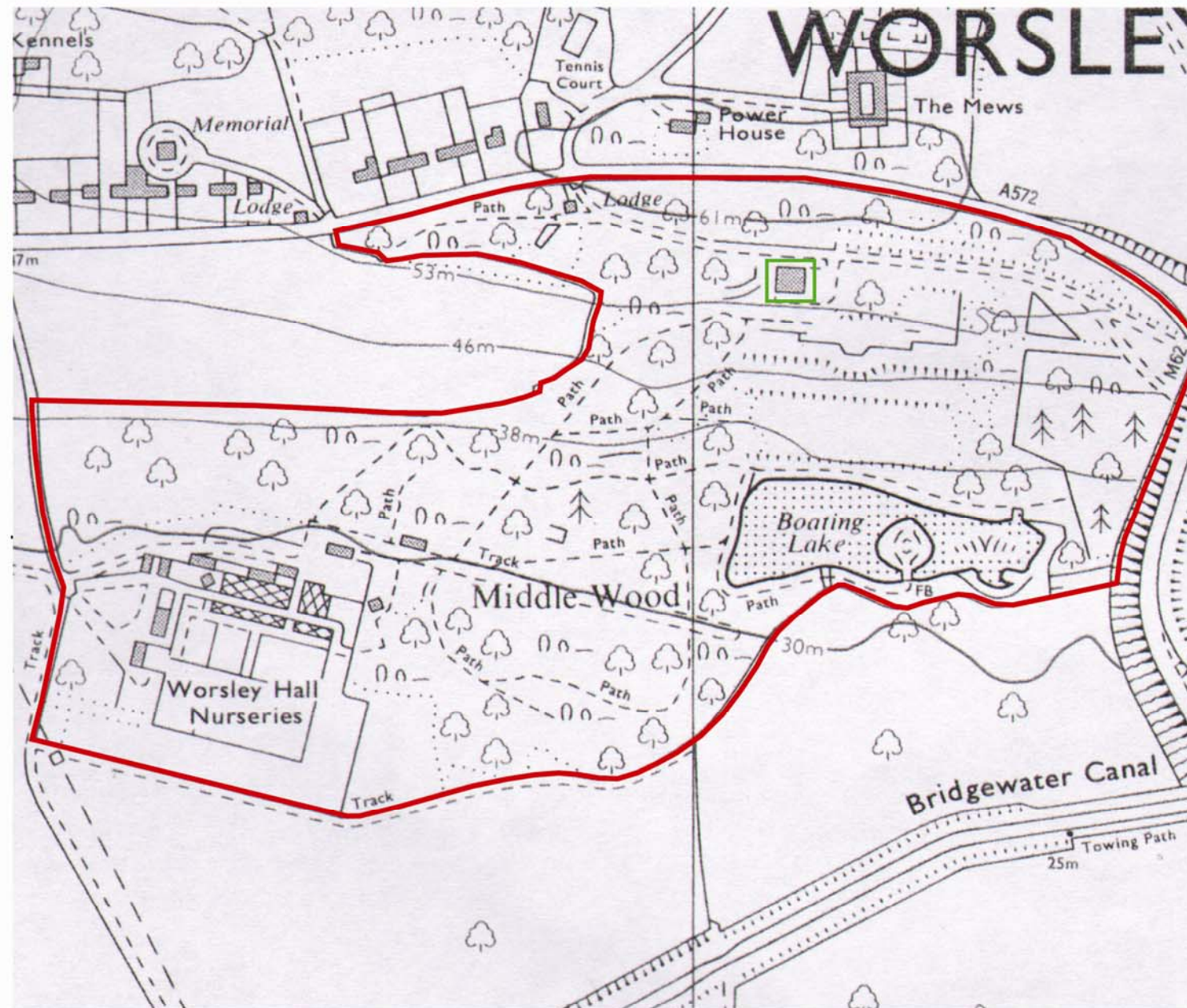
Centre for Applied Archaeology
School of the Built Environment
The Crescent
Salford
M5 4NW

Title:
Bridgewater archive
map showing location of bunker

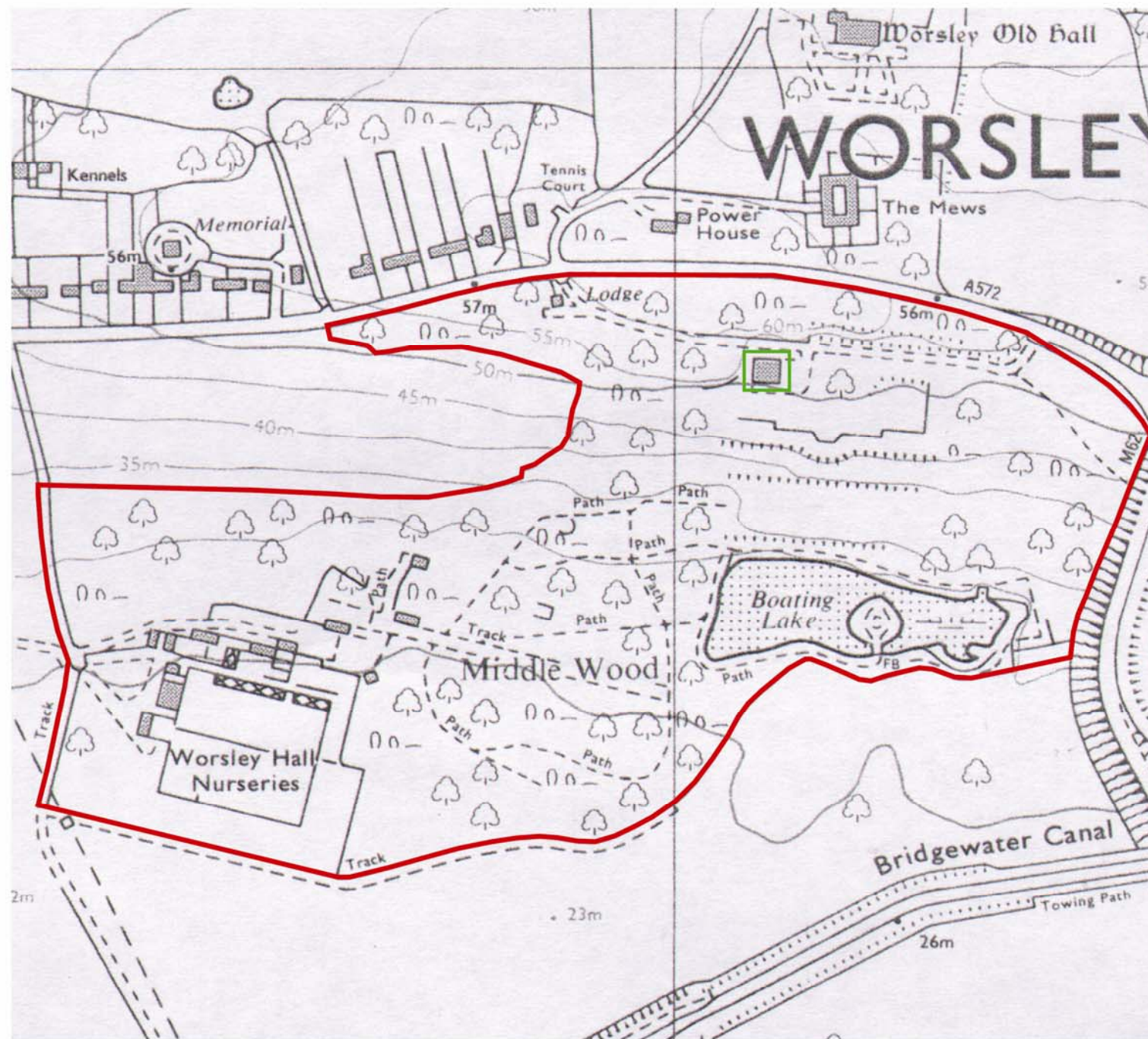
Site Name: Worsley New Hall, Worsley.
Site Code: WN11
Drawing Ref: BS-WNH-11-2
Date Drawn: 14/12/11
Drawn By: MB

Scale:
Not scaled

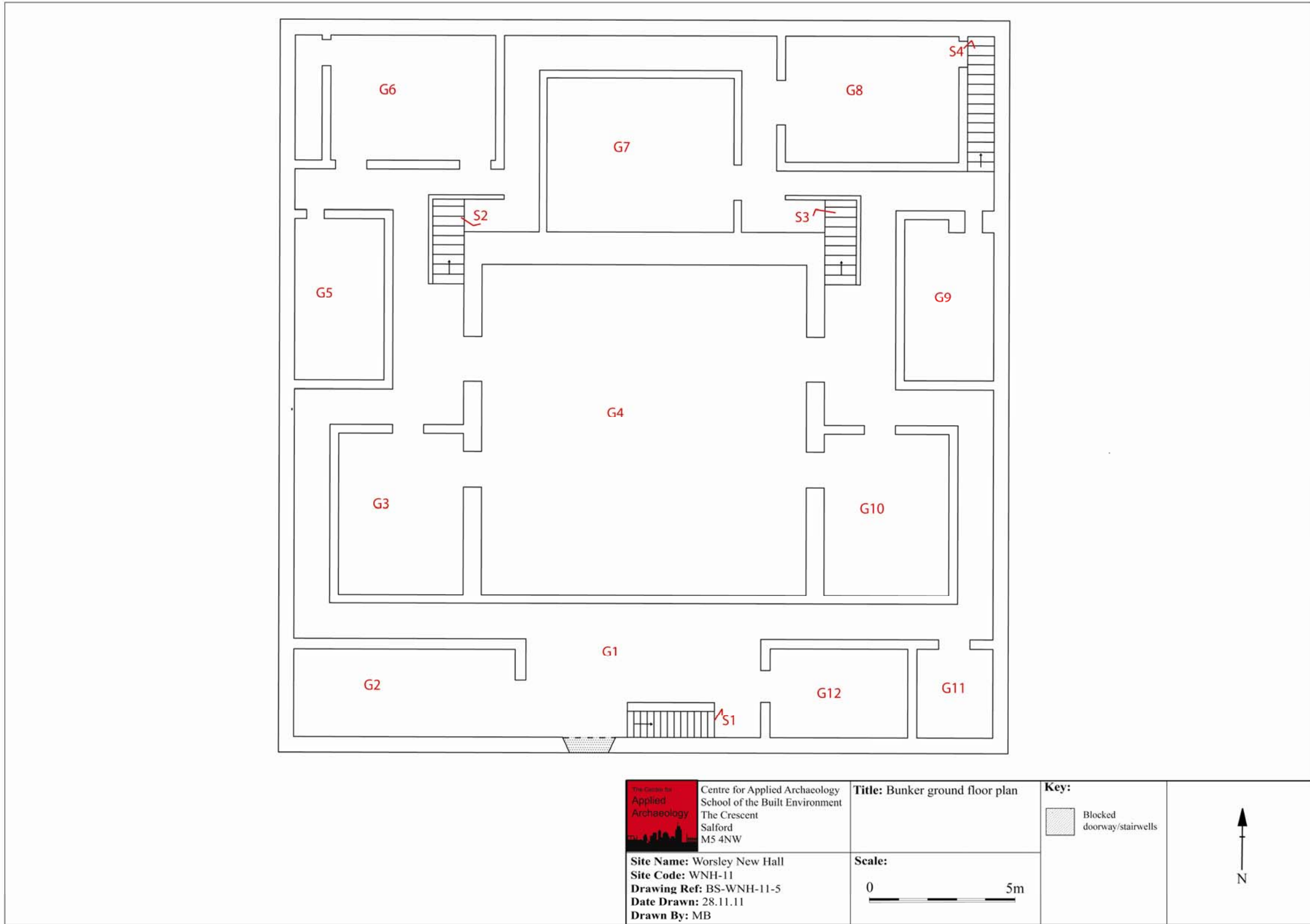
Courtesy of Bridgewater
Estate archive






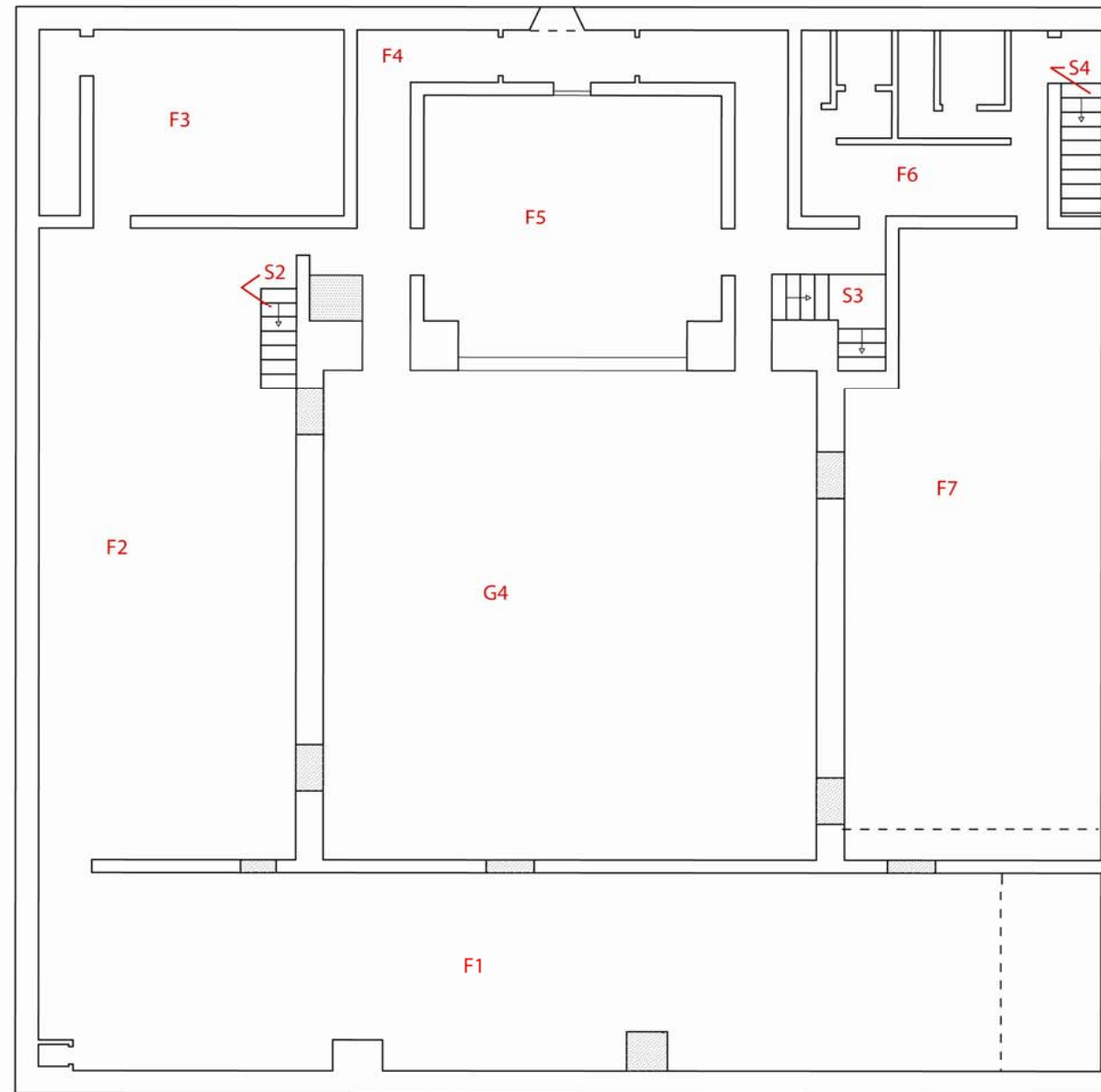
	Centre for Applied Archaeology School of the Built Environment The Crescent Salford M5 4NW	Title: OS Plan of 1975	Key: Site boundary Survey area	Ordnance Survey data copyright OS, reproduced by permission. Licence no: 100050261
Site Name: Worsley New Hall, Worsley. Site Code: WNH11 Drawing Ref: BS-WNH-11-3 Date Drawn: 14/12/11 Drawn By: MB	Scale: Based on OS 1": 6 mile Rescaled to 1: 2500			





	Centre for Applied Archaeology School of the Built Environment The Crescent Salford M5 4NW	Title: OS Plan of 1991	Key: Site boundary	Ordnance Survey data copyright OS, reproduced by permission. Licence no: 100050261
Site Name: Worsley New Hall, Worsley. Site Code: WNH11 Drawing Ref: BS-WNH-11-4 Date Drawn: 14/12/11 Drawn By: MB	Scale: Based on OS 1" : 6 mile Rescaled to 1 : 2500	Survey area		




 Centre for Applied Archaeology School of the Built Environment The Crescent Salford M5 4NW	Title: Bunker ground floor plan	Key:  Blocked doorway/stairwells	
	Site Name: Worsley New Hall Site Code: WNH-11 Drawing Ref: BS-WNH-11-5 Date Drawn: 28.11.11 Drawn By: MB		

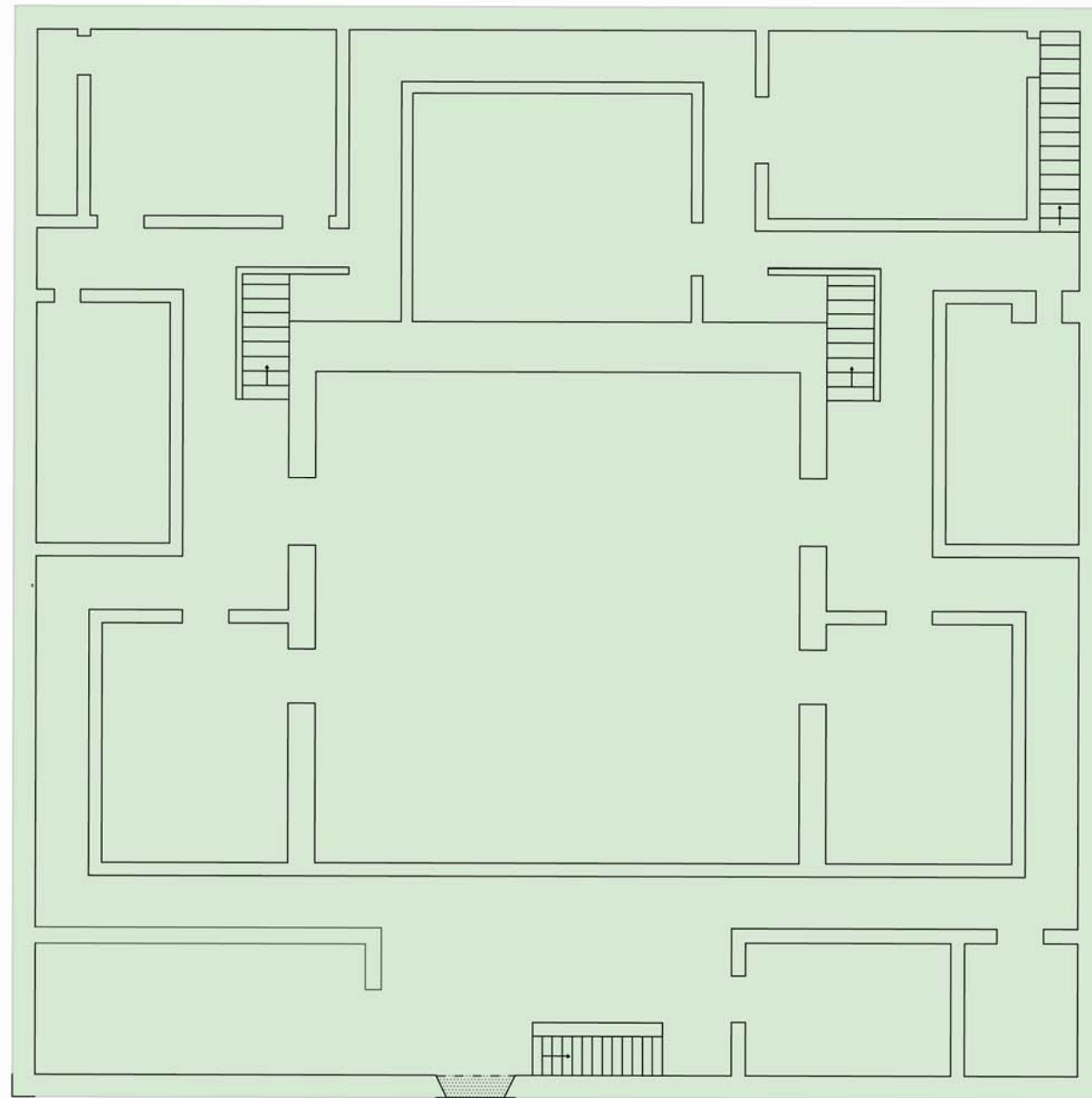



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 Salford
 M5 4NW
Site Name: Worsley New Hall
Site Code: WNH-11
Drawing Ref: BS-WNH-11-6
Date Drawn: 28.11.11
Drawn By: MB

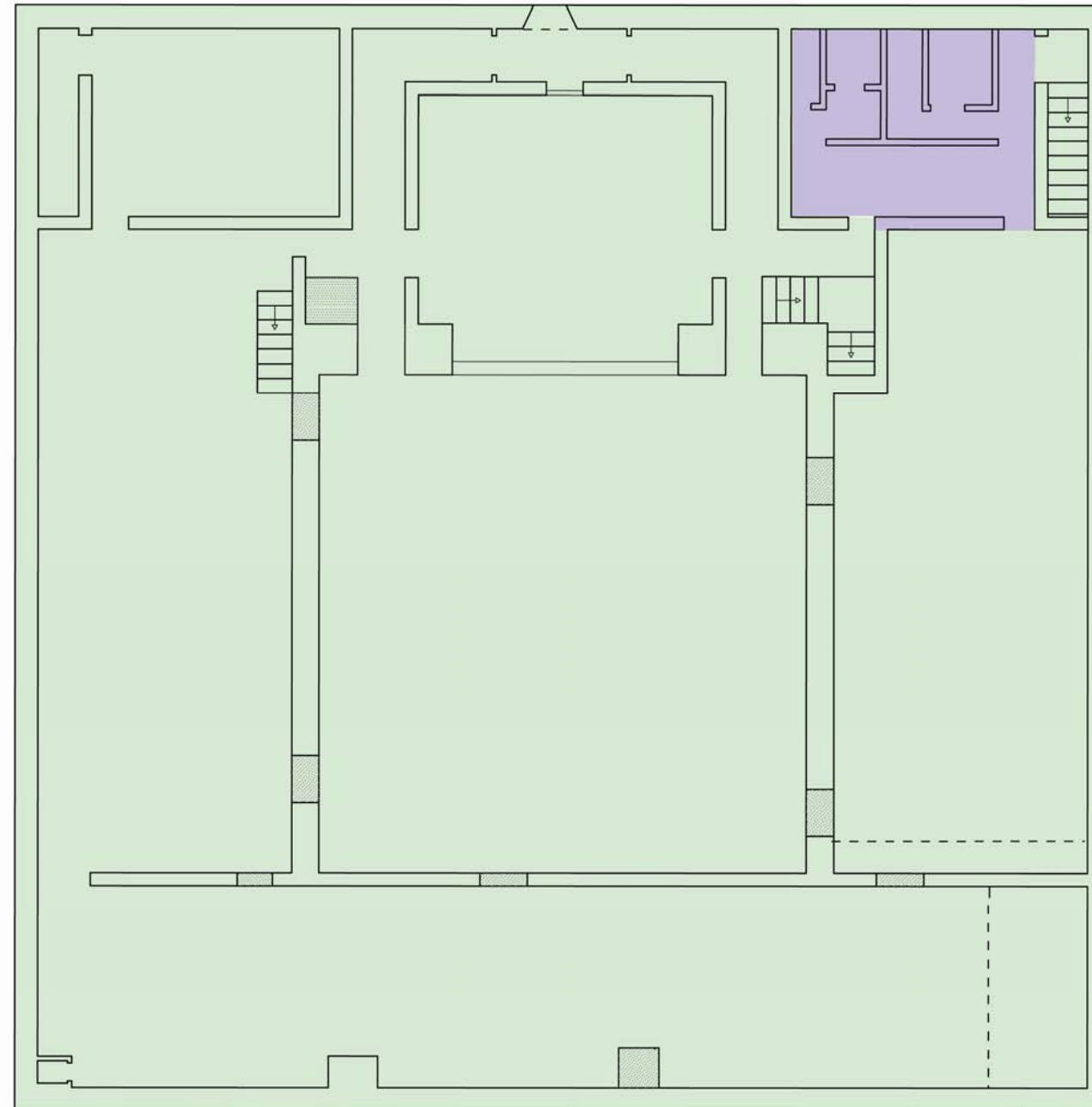
Title: Bunker First Floor Plan
Scale:
 0  5m

Key:
 - - - - - Curtain wall for firing range
 Blocked doorway/stairwells





	Centre for Applied Archaeology School of the Built Environment The Crescent Salford M5 4NW	Title: Bunker ground floor plan	Key: Blocked doorway/stairwells Mid 20th century original layout	
Site Name: Worsley New Hall Site Code: WNH-11 Drawing Ref: BS-WNH-11-7 Date Drawn: 28.11.11 Drawn By: MB	Scale: 			



	Centre for Applied Archaeology School of the Built Environment The Crescent Salford M5 4NW	Title: Bunker first floor plan phasing	Key: - - - - - Curtain wall for firing range Blocked doorway/stairwells Mid 20th century original layout Late 20th century alterations	
Site Name: Worsley New Hall Site Code: WNH-11 Drawing Ref: BS-WNH-11-8 Date Drawn: 28.11.11 Drawn By: MB	Scale: 0 5m			



Figure 9: General shot of corridor G1 with blocked staircase S2 to the right. Looking north.



Figure 10: General shot of southwest radio control room G2 with sound proofing tiles covering the walls and ceiling. Looking west.



Figure 11: General shot of western room G3, showing the northern and eastern doorways. Looking northeast.



Figure 12: General shot of the main operations room G4 showing its western access points. The shot also shows the viewing gallery F5 on the first floor. Looking north-west.



Figure 13: Detail of fixings for possible shelving on the east facing wall of the main operations room G4. Looking west.



Figure 14: General shot of north-western room G6, showing the southern doorway and access to the western side room. Looking southwest.



Figure 15: General shot of room G7, showing the floor with a 'T-shaped' wooden in-lay. Looking west.



Figure 16: General shot of room G8, showing doorway leading to staircase S4. Looking east.



Figure 17: Detail of doorway in room G8 leading to staircase S4 showing wall mounted coat hooks. Looking east.



Figure 18: General shot of the safe room G9, showing the three cast iron and steel safes along the south wall. Looking south



Figure 19: Detail of the main door into to the safe room G9. Note the reinforced steel surround and double thickness iron door. Looking south.



Figure 20: General shot of eastern room G10 partially filled with debris. Looking south.



Figure 21: Shot of the northern doorway into the boiler room G11 from corridor G1. The boiler itself can be seen in the south-western corner of the room. Looking south.



Figure 22: Detail of the cast iron boiler in room G11.



Figure 23: Detail of wall mounted support bars on the west facing wall of room G11.



Figure 24: Shot of the air ventilation room G12, showing the central air handling unit for the building. Looking west.



Figure 25: Detail of wall mounted control device for the ventilation unit in room G12. The device was fixed to the south facing wall of the room.



Figure 26: Detail of stairwell S1 which rose from corridor G1 to room F1 on the first floor. Access to F1 was found to be blocked by a wooden hatch built into the floor of F1.



Figure 27: Shot taken of eastern stairwell S3 taken from corridor F4 on the first floor. Looking east.



Figure 28: Shot taken of north eastern staircase S4, looking down the staircase from toilet room F6. Looking south.



Figure 29: General shot of the long range shooting gallery in F1.



Figure 30: Detail of a power control system mounted on to the south facing wall of room F1. Looking north.



Figure 31: Detail of blocked southern stairwell S1 in room F1. The wooden hatch marks the location where the stairs would have risen to from corridor G1 on the ground floor.



Figure 32: General shot of room F2 showing the access to room F3 along the northern wall and a series of possible fuse boxes in the northwest corner of the room. Looking northwest.



Figure 33: Detail of the most southerly blocked doorway along the east wall of room F2. This doorway would have originally lead to a walkway or room that ran around the top of the main operations room G4. Looking east.



Figure 34: General shot of room F3 showing light switch on the north wall and an open air vent cut through the west wall. Looking north.



Figure 35: General shot of corridor F4 looking west down the east-west aligned section of the corridor.



Figure 36: General shot of the main operations room showing the eastern end of corridor F4 terminating with an open doorway on the first floor. Looking northeast.



Figure 37: Detail of a window cut into the partition wall between corridor F4 and the viewing gallery room F5. Looking south.



Figure 38: General shot of the viewing gallery room F5 showing the eastern doorway and the viewing window that looks down on to the main operation room G4. The walls and ceiling were found to be covered in wooden framing, a likely mounting for wooden panels. Looking southeast.



Figure 39: General shot of the breeze block toilet block in north-eastern room F6. Looking northeast.



Figure 40: Detail of a corroded fan located on the east-west aligned partition wall in room F6. Looking north.



Figure 41: General shot of the short range shooting gallery in room F7, showing the metal sheeting of the butts area at the southern end of the room.



Figure 42: Detail of the butts area behind the damaged target area at the southern end of room F7. Looking southwest.



Figure 43: Detail of one of two blocked doorways located along the west wall of room F7. The doorway would have originally provided access to a walkway or room that ran around the top of the main operations room G4. Looking west.