Proposed Residential Development at Land Adjacent to Lakeside Avenue, Llandrindod Wells

Archaeological Field Evaluation – Report No 267

Prepared for

Asbri Planning Ltd

On behalf of

PAR Homes Ltd

By

Black Mountains Archaeology Ltd

18th October 2022

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

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Comisiynwyd Archeoleg Mynydd Du Cyf gan Asbri Planning Ltd ar ran PAR Homes Ltd i ymgymryd gwerthusiad maes archeolegol ar bâr o gaeau a leolir gerllaw Lakeside Avenue, Llandrindod, Powys, LD1 5NT (NGR SO 05876 60128). Nod y gwerthusiad maes archeolegol oedd darparu gwybodaeth am natur a maint yr adnodd archeolegol o fewn y meysydd hyn. Bwriad yr adroddiad presennol yw llywio unrhyw gais cynllunio a gyflwynir yn y dyfodol mewn perthynas â'r datblygiad preswyl arfaethedig. Llywiwyd y gwerthusiad maes archeolegol gan ganlyniadau arolwg geoffisegol a gynhaliwyd o fewn yr ardal ddatblygu gan Dr Tim Young o GeoArch ym mis Mawrth 2022.

Yn ogystal â'r gwerthusiad maes archeolegol, cynhaliwyd arolwg tirwedd ffotogrammetrig trwy UAV o fewn ardal ehangach cae mwyaf deheuol yr ardal ddatblygu. Nododd yr arolwg hwn bresenoldeb nodwedd archeolegol bosibl i'r gorllewin o'r cae mwyaf deheuol.

Yn ystod y gwerthusiad maes archeolegol, cloddiwyd pedair ffos. Roedd Ffosydd 1–3 wedi'u lleoli yng nghae mwyaf deheuol yr ardal ddatblygu, tra bod Ffos 4 (a rannwyd yn 4a a 4b) wedi'i lleoli yn y mwyaf gogleddol. . Cofnododd Ffosydd 1–3 fod cyfres o ddraeniau tir yn dyddio o'r cyfnod modern ac Ôl-ganoloesol o bosibl yn gysylltiedig â gweithgarwch amaethyddol hanesyddol yn yr ardal yn y cae mwyaf deheuol. Cofnododd Ffos 4 bresenoldeb Safle Monitro Tanddaearol (UGMP) Corfflu Arsylwi Brenhinol (ROC) Llandrindod yn y cae mwyaf gogleddol. Roedd olion ROC UGMP yn cynnwys byncer tanddaearol a sylfeini postyn Orlit Math B.

Mae'r adroddiad presennol yn nodi canlyniadau'r gwerthusiad maes archeolegol yn unol â chyngor a ddarparwyd gan Mark Walters o Ymddiriedolaeth Archeolegol Clwyd-Powys (CPAT), cynghorydd archeolegol i'r Awdurdod Cynllunio Lleol (ACLl).

Mae'r adroddiad presennol hefyd wedi'i ysgrifennu yn unol â'r safonau proffesiynol a nodir yn Standard and Guidance for Archaeological Field Evaluation *gan y Chartered Institute for Archaeologists (CIfA) (cyhoeddwyd 2014, adolygwyd 2020).*

Black Mountains Archaeology Ltd were commissioned by Asbri Planning Ltd on behalf of PAR Homes Ltd to undertake an archaeological field evaluation on a pair of fields situated adjacent to Lakeside View, Llandrindod Wells, Powys, LD1 5NT (NGR SO 05876 60128). The aim of the archaeological field evaluation was to provide information on the nature and extent of the archaeological resource within these fields. The present report is intended to inform any future planning application submission relating to the proposed residential development. The archaeological field evaluation was informed by the results of a geophysical survey undertaken within the development area by Dr Tim Young of GeoArch in March 2022.

In addition to the archaeological field evaluation, a photogrammetric landscape survey was conducted via UAV within the wider area of the southernmost field of the development area. This survey noted the presence of a potential archaeological feature to the west of the southernmost field.

During the archaeological field evaluation, four trenches were excavated. Trenches 1–3 were situated in the southernmost field of the development area, while Trench 4 (which was

subdivided into 4a and 4b) was situated in the northernmost. Trenches 1–3 recorded the presence in the southernmost field of a series of land drains of modern and possibly Post-medieval date associated with historic agricultural activity within the area. Trench 4 recorded the presence in the northernmost field of the former site of the Llandrindod Wells Royal Observation Corps (ROC) Underground Monitoring Post (UGMP). The remains of the ROC UGMP comprised a subterranean bunker and the foundations of a Type B Orlit post.

The present report sets out the results of the archaeological field evaluation in accordance with advice provided by Mark Walters of Clwyd-Powys Archaeological Trust (CPAT), archaeological adviser to the Local Planning Authority (LPA).

The present report has also been written in accordance with the professional standards set out in the Chartered Institute for Archaeologists' Standard and Guidance for Archaeological Field Evaluation *(published 2014, revised 2020).*

Acknowledgements and Copyright

The project was managed by Richard Lewis BA MCIfA. The report was prepared by Dr Rhys Morgan PhD. The illustrations and Welsh translation were also prepared by Dr Rhys Morgan. The photogrammetric models were prepared by Richard Lewis. Black Mountains Archaeology are grateful to Dr Tim Young of GeoArch for providing the geophysical results for this project. The author is also grateful to the staff of Asbri Planning Ltd and PAR Homes Ltd for their cooperation. The cover image and Plates 23 and 25 was compiled by Bob Marshall, with whose very kind permission are reproduced in this report. The work of Bob Marshall can be found here: https://bobmarshall.co.uk, which covers a range of detailed architectural illustrations and historical reconstructions using digital techniques and computer 3D models. Ordnance Survey maps are reproduced under licence 100058761.

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Cover Image: A 3D reconstruction of an ROC bunker in use, by Bob Marshall

1 Introduction

1.1 Project Background

1.1.1 Black Mountains Archaeology Ltd/Archeoleg Mynydd Du Cyf were commissioned by Asbri Planning Ltd on behalf of PAR Homes Ltd to undertake an archaeological field evaluation on a pair of fields situated adjacent to Lakeside View, Llandrindod Wells, Powys, LD1 5NT (NGR SO 05876 60128) (Figure 1). The aim of the archaeological field evaluation was to provide information on the nature and extent of the archaeological resource within these fields. The present report is intended to inform any future planning application submission relating to the proposed residential development. The archaeological field evaluation was informed by the results of a geophysical survey undertaken within the development area by Dr Tim Young of GeoArch in March 2022 (see Section 1.8 below).

1.1.2 In addition to the archaeological field evaluation, a photogrammetric landscape survey was conducted via UAV within the wider area of the southernmost field of the development area. This survey noted the presence of a potential archaeological feature to the west of the southernmost field.

1.1.3 The present report sets out the results of the archaeological field evaluation in accordance with advice provided by Mark Walters of Clwyd-Powys Archaeological Trust (CPAT), archaeological adviser to the Local Planning Authority (LPA).

1.1.4 The present report has also been written in accordance with the professional standards set out in the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Field Evaluation* (published 2014, revised 2020).

1.2 Objectives

1.2.1 The definition of an archaeological **field evaluation** as set out by the *Chartered Institute for Archaeologists* (CIfA) is a programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present the field evaluation defines their character, extent, quality and preservation, and enables an assessment of their significance in a local, regional, national or international context as appropriate.

1.2.2 The purpose of field evaluation is to gain information about the archaeological resource within a given area or site (including its presence or absence, character, extent, date, integrity, state of preservation and quality), in order to make an assessment of its merit in the appropriate context, leading to one or more of the following:

- The formulation of a strategy to ensure the recording, preservation or management of the resource.
- The formulation of a strategy to mitigate a threat to the archaeological resource.

- The formulation of a proposal for further archaeological investigation within a programme of research.

1.2.3 (Chartered Institute for Archaeologists *Standard and Guidance for an Archaeological Field Evaluation* (published 2014, revised 2020)

1.3 Legislative Framework

1.3.1 Planning legislation is set out in the *Town and Country Planning Act 1990*. *Planning Policy Wales* (PPW 11th Edition) sets out the land use planning policies of the Welsh Government. Chapter 6 sets out the Welsh Government's policy towards the historic environment. It states "*The planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. The historic environment is a finite, non-renewable and shared resource and a vital and integral part of the historical and cultural identity of Wales. It contributes to economic vitality and culture, civic pride, local distinctiveness and the quality of Welsh life. The historic environment can only be maintained as a resource for future generations if the individual historic assets are protected and conserved. Cadw's published Conservation Principles highlights the need to base decisions on an understanding of the impact a proposal may have on the significance of an historic asset.*" (PPW 2021, 126).

1.3.2 Underpinning PPW are a series of legislative powers and TANs. The *Planning (Wales) Act 2015* sets out a series of legislative changes to deliver reform of the planning system in Wales, to ensure that it is fair, resilient and enables development. The 2015 Act also introduces a mandatory requirement to undertake pre-application consultation for certain types of development. The *Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016* defines in *Schedule 4(l)* the parameters and definitions for the requirement of pre-application consultation by Welsh Ministers, particularly in response to the effect of statutory designated monuments, buildings, and parks and gardens.

1.3.3 Following adoption of the TAN 24 Historic Environment on 31st May 2017, Welsh Office Circulars 60/96 Planning and the Historic Environment: Archaeology; 61/96 Planning and the Historic Environment: Historic Buildings and Conservation Areas; and 1/98 Planning and the Historic Environment have been cancelled.

1.3.4 Any works affecting an ancient monument and its setting are protected through implementation of the *Ancient Monument and Archaeological Areas Act 1979*. In Wales the 1979 Act has been strengthened by *The Historic Environment (Wales) Act 2016.* The 2016 Act makes important improvements for the protection and management of the Welsh historic environment. It also stands at the centre of an integrated package of secondary legislation (Annexes 1-6), new and updated planning policy and advice, and best-practice guidance on a wide range of topics (*TAN 24 Historic Environment*). Taken together, these will support and promote the careful management of change in the historic environment in accordance with current conservation philosophy and practice.

1.3.5 The *Ancient Monument and Archaeological Areas Act 1979* and *The Historic Environment (Wales) Act 2016* sets out a presumption in favour of preservation *in-situ* concerning sites and monuments of national importance (scheduled/listed), and there exists in the current *Planning Policy Wales (Chapter 6)* a presumption in favour of preservation *in-situ* of all types of heritage assets.

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1.3.7 The *Civil Aviation Authority* (CAA) is the airspace controlling body for the United Kingdom (UK). The rules and regulations for the use of SUAs (drones) in UK airspace is set out in the *Air Navigation Order 2016* and its *2018* and *2019* amendments. All UAS (drone) flights were operated within the limitations and conditions of the company Operational Authorisation (OA), Operations Manual and the applicable articles of the ANO (Articles 94, 94A, 94B, 95, 239, 240 and 241).

1.4 Location, Topography and Geology

1.4.1 The proposed development area in centred on NGR SO 05876 60128 and comprises a southern and northern portion of land connected in the middle by a narrow corridor representing the location of a proposed roadway. There is, furthermore, another proposed roadway attached to the northern portion, which is intended to link the development area to Lakeside Avenue. This proposed additional roadway encircles the development area on its northern and eastern perimeter. To the west, the development area is bounded by Wellington Road (the A483), which runs in a N/S direction towards the heart of Llandrindod Wells in the north. Presently, the development area forms part of a small collection of fields partly divided by a N/S aligned hedgerow running through the centre.

1.4.2 Topographically, the proposed development area is positioned between areas of lowland and upland to the west and east respectively. Running along the western edge of the development area is the Ithon Valley, which extends north-eastward towards Crossgates. Overlooking the development area from the east is a small collection of hills including, most notably, Gilwern Hill.

1.4.3 The superficial geological deposits within the proposed development area comprise Devensian till in the form of diamicton, which formed up to 2 million years ago during the Quaternary period in an environment dominated by ice age conditions. The underlying bedrock comprises laminated hemipelagic mudstone of the Builth Mudstone Formation, formed approximately 427.4–433.4 million years ago during the Silurian period. These bedrock deposits are marine in origin and consist of both coarse- and fine-grained detrital slurries derived from the continental shelf flowing into the local deep-sea environment (BGS 2021).

1.4.4 A geotechnical and geo-environmental survey conducted within the proposed development in 2019 revealed the local ground conditions encountered beneath the site (Alderman 2019). More specifically, a total of twelve test pits (TPs) were excavated during the survey, the locations of which were dispersed across the development area and wider surroundings. The excavation of TP01, within the region of the proposed Trench 4 (see Section 6), revealed that the ground here comprised a topsoil layer of brown clay, 0.2m deep, overlying a mottled brown clay subsoil, 0.2–>1.1m deep. The latter deposit potentially represented a natural geological layer. The excavation of TP07, within the region of the proposed Trenches 1–3, (see Section 6), revealed that the ground here comprised a topsoil layer of brown clay, 0.37m deep, overlying a gravel deposit with a low cobble content and a slightly sandy and clayey texture, 0.37–1.5m deep. Again, this latter deposit potentially represented a natural geological layer.

1.4.5 The present ground conditions within the development area are also suggested by historic aerial photography. An aerial photograph taken in 1990 (Plate 2) indicates that the area within which the proposed Trench 1 is to be located (see Section 6), which is situated on the north end of the development area, has at this time sustained significant degrees of surface disturbance. In particular, track marks from vehicles or plant machinery can be faintly observed, while the area also appears to be covered in spoil material. This can be contrasted with a previous 1988 aerial photograph of the site (Plate 1), which shows this area to be covered in turf, with no spoil observable. This serves as an indication that the area in question has been subject to groundwork in the recent past.

1.5 Archaeological and Historical Background

1.5.1 Prehistoric

1.5.2 The prehistoric archaeology within the vicinity of the proposed development is rare and poorly understood. The earliest known prehistoric sites within the area are represented by the round barrow and burnt mounds at Llwyn Ceubren to the south (SMRd127; SMRd141), as well as the Broom Hill Standing Stone (SMRd233) and Little Hill Round Barrows (SMRd009) to the east, which are of Bronze Age date. An Iron Age enclosure has been identified at Broom Hill (CPAT143584) to the southeast, which survives in poor condition, having sustained plough damage. The Llandrindod Common Enclosure (CPAT5287) and Caer Du Enclosure (SMRd145; CPAT5285), both of which are situated to the south, are also of potential Iron Age origin. Beyond these sites, some isolated artefacts have also been recorded within the area, including a flint knife discovered in a field to the west (CPAT23321). A crescentic stone object discovered in 1909 within the heart of Llandrindod Wells to the north (CPAT4210) may also be of prehistoric date, although due to its rather unique form, this remains uncertain.

1.5.3 Roman

1.5.4 The Roman archaeology within the local area is significantly more numerous. Immediately to the south and west are the remains of a pair of Roman earthworks (SMRd126), which originally comprised military practice camps. Straddling the western

edge of Wellington Road (the A483) is a chain of seven other practice camps (SMRd134). Beyond these practice camps to the west are the remains of the Llandrindod Wells Roman Road (SMRd259), which is today visible as a linear earthwork running in a N/S direction. The most noticeable feature of this monument is the agger, which survives as a raised embankment measuring approximately 7m in width and as much as 0.3m in height. It is likely that this road led directly to the auxiliary fort of Castell Collen (SMRd3320; CPAT1159) in the north. According to current understanding, this fort was constructed in the 70s AD (Burnham and Davies 2010, 234–7). The fort lies in a tactically advantageous position overlooking the River Ithon to the east. Initially, the fort covered an area of approximately 2ha and was defended by a pair of ditches, both 1.9m wide x 1.1m deep, along with an earthen rampart measuring 6–8m in width. Yet later in the fort's use its overall size was reduced to 1.5ha. The fort was surrounded by a sizeable vicus (CPAT39814). The ceramic and numismatic evidence obtained from within the area of the vicus indicates that both vicus and fort were occupied continuously until the 220s AD. However, this same evidence also suggests that both were abandoned between 259–96 AD, or at least that the occupation activity within them reduced drastically in scale. The numismatic assemblage associated with the vicus, which contains no coins belonging to the 4th century AD, indicates a *terminus ante quem* of 310 AD for the total cessation of Roman activity within the area (Walters 1996).

1.5.5 In 2021, an archaeological field evaluation was conducted by Black Mountains Archaeology Ltd within a parcel of land west of Ithon Road (Lewis *et al* 2021), the site of which is situated to the north of the development area. During this field evaluation, the remains of a probable Roman cremation pit were recorded. These findings may suggest that other cremations of Roman date exist within the area of Llandrindod Wells, particularly as the placement of cremations along roads was relatively common during the Roman period.

1.5.6 Medieval

1.5.7 To the south of the development area, near Caer Du, is an earthen enclosure of probable medieval date (SMRd145). This enclosure is difficult to interpret at present, although it possibly represents a military or at least defensive installation. Immediately south of here is the Caer Du Enclosure. Although the bank and ditch perimeter of this monument is of potential Iron Age date, it appears likely that it is also defined by medieval activity. The most notable medieval sites within the area of Llandrindod Wells are positioned on Gilwern Hill, which overlooks the development area from the east. At the top of the hill is Cefnllys Castle (SMRd008), the remains of which comprise buried masonry associated with two distinct phases of construction and occupation. The castle was owned and inhabited by the Mortimer family – one of the most prominent and powerful baronial dynasties in the Welsh Marches during the Middle Ages. By the end of the 12th century, the Mortimer family also held Cymaron Castle (Pettifer 2000, 141). On the western edge of Cefnllys Castle, towards the base of Gilwern Hill, are the remains of the Cefnllys settlement and field systems (SMRd150). This site may

represent the settlement of the historic borough of Cefnllys which, during the early 14th century, included 20 burgesses (Rowley 1986, 109). As well as being defined by prominent military sites, the area also possessed a distinctive ecclesiastical character throughout the medieval period. Several medieval churches and chapels exist within and around Llandrindod Wells. These include, most notably, the Llandrindod (or Holy Trinity) Church (CPAT16199), which dates to the 13th century, and Capel Maelog (CPAT15844), which dates to the late 12th or early 13th century. Within the former church a *Sheela na gig* (a stone carving of a naked woman displaying her vulva) (CPAT5960) was housed, which likely dates to the early medieval period (Hemp 1938). This stone carving is now found in Radnorshire Museum. Also found within the ground of the former church is a possible holy well (CPAT81710), consisting of a wet hollow measuring approximately 15m^2 (Silvester and Hankinson 2004, 13).

1.5.8 Post-medieval

1.5.9 During the post-medieval period Llandrindod Wells developed into a significant tourist attraction and by the 19th century it was a popular spa town. The waters here are rich in sulphides and iron, which were purported to cure rheumatism and obesity (Altman 2000, 223). The popularity of Llandrindod Wells was elevated by the construction of the Heart of Wales railway line, which linked the town to the major urban centres of South Wales, the Midlands and Lancashire. The significance of Llandrindod Wells as a centre of healing is said to date as far back as the 17th century.

1.5.10 Modern

1.5.11 Situated directly within the proposed development area is the remains of a Royal Observer Corps (ROC) Underground Monitoring Post (UGMP) (CPAT152214) (a Cold War era bunker), which was constructed in 1958 and was abandoned in 1991 after the fall of the Soviet Union and the end of the Cold War. In form, the post comprised a subterranean brick and concrete bunker with a least three flues or vents and an entrance stack penetrating the surface above. Beyond a basic description of its form and location, little is known of this feature. By the beginning of the 2010s, surface remains associated with the UGMP were removed and the bunker itself was partly demolished and infilled with spoil material (see Section 3 below).

1.5.12 The ROC was established in 1925 as part of the British air defence system which, at this time, was rapidly trying to keep pace with, and potentially respond to, advances in aerial warfare technology brought on by the First World War (WWI). Between 1925 and 1941, the organisation was known simply as the 'Observer Corps' (OC). The main role of the OC was to identify hostile aircrafts flying over or within the vicinity of the British Isles. Prior to the establishment of the OC, during WWI, air defence was the responsibility of the Admiralty, to whom information on potential hostile aircrafts was sent via police reports. By 1920, after the end of WWI, British air defences had been rolled back, with most anti-aircraft hardware in the country being decommissioned. However, by 1924 Air Raid Precautions (ARP) guidelines were established, which were designed to inform on the reporting of, and countermeasures against, potential

dangers to British civilians from air raids. In addition, ARP guidelines filtered through to urban and industrial planning, engendering a policy of continual aerial defence preparations during peacetime (Page 2016, 119). Within a year, the ARP had developed into a specified methodology for the OC. Prior to the outbreak of the Second World War (WWII), the ROC was plagued with technical and organisational issues, although these were ironed out in 1939 during a series of exercises intended as preparation for potential Luftwaffe raids. During the Battle of Britain in 1941, and the Blitz more generally, the role of the OC was integral to British air defence and aided greatly in allowing the RAF to fight off the Luftwaffe. OC personnel worked tirelessly in tracking enemy aircrafts and passing information on to RAF Fighter Command Groups and Sector Controls. In recognition of its importance to British defence, the OC was granted the title *Royal* by King George VI in April 1941 (therefore becoming the ROC).

1.5.13 By 1945, at the end of WWII in Europe, and the cessation of Luftwaffe raids on British territory, the ROC stood down. Yet during that same year, the ROC was once again put on active duty to deal with potential security threats posed by Britain's involvement in the Cold War. Principally, it was the ongoing expansion of Soviet-style socialism into much of Central Europe, and the perceived threats that this posed to British interests, that led directly to the reformation of the ROC (Clarke 2005, 140). In 1954, the first thermonuclear weapon (or H bomb) was detonated by the USA during Operation Castle Bravo at the Bikini Atoll of the Marshall Islands. The radioactive fallout from this event was both devastating and (perhaps more importantly) extensive, meaning that in the wake of a thermonuclear explosion, large areas of land would be vulnerable to drifting radioactive particles. In 1955, the Strath Committee was established, which comprised a secret group of civil and military experts tasked to assess the potential impacts of thermonuclear weapons on Britain from an environmental, societal, defensive and economic perspective (Hughes 2010). The Strath Committee concluded that the detonation of only a limited number of thermonuclear weapons along the western seaboard of Britain would lead to the release of a devastating amount of nuclear fallout across the entire country (Clarke 2016, 206). As a response to this potential threat, the United Kingdom Warning and Monitoring Organisation (UKWMO) was established in 1957, which was responsible for, among other things, the monitoring of potential nuclear detonations and their ensuing fallouts. During that same year, the UKWMO set up a large network of UGMPs, numbering 1,518 in total, which were operated and maintained by the ROC. The placement of these posts formed a grid-like pattern across the country, with each post being situated in an isolated rural area. Moreover, each post was situated approximately seven to ten miles from its neighbour and were often positioned, for reasons of accessibility, on the periphery of playing grounds or arable fields (Bennett 2018, 215). With the introduction to Britain of UGMPs came the abandonment by the ROC of most of its aircraft observation duties (however, see references to Orlit posts below). Indeed, the principal focus of the ROC between 1957 and the end of the Cold War was nuclear monitoring.

1.5.14 An archaeological analysis of ROC UGMPs has previously been conducted by Clarke (2016), within which the function of these posts is detailed. Moreover, a model of the the interior of an ROC UGMP has been illustrated by Bob Marshall (Plate 23–25). The work of Marshall serves as a useful, visual demonstration of life within, and the workings of, a typical UGMP. Clarke notes that each post was occupied by three or four ROC personnel, whose daily tasks primarily consisted of observation and submitting periodic reports to larger command and control bunkers (Clarke 2016, 76). In total, 31 of these larger bunkers were established across Britain, the construction of which was funded by the Home Office. Once the personnel within the larger bunkers received a report from those operating a given UGMP, the information within the report was then passed on to the military and Home Office (Wood 1992). Depending on the vagaries of local geology, each UGMP was buried to a depth of at least 4m (Clarke 2017, 242). In terms of composition, UGMPs were constructed using materials capable of withstanding the kinds of environments left in the wake of nuclear explosions. Predominantly, these materials included reinforced concrete, steel and tungsten (Clarke 2016, 89). In effect, each UGMP comprised a subterranean control room measuring approximately 5.8m x 2.6m in area and around 2.3m in height (Clarke 2016, 206). Accompanying the control room was a series of above-ground instruments, which recorded exterior radiation levels and monitored any potential detonations and the amount of energy they released. Initially, communications between UGMPs and elsewhere were often conducted via telegraph wires, which were highly vulnerable and susceptible to damage. In order to rectify this problem, radios were installed in the control rooms of UGMPs in the 1960s, which replaced telegraph communication. All radio equipment was situated within the mast post, which comprised a small station positioned against the interior wall of the bunker. Within the master post was, for example, VHF radio, carrier receiver, teletalk device and filter unit. Attached to one of the ventilation stacks above ground was an aerial mast, via which radio communication could be achieved. This mast could be extended into the air via an air pump located within the control room. Also situated above ground was a Ground Zero Indicator (GZI) – an instrument designed to locate the hypocentre of a nuclear explosion. These instruments comprised circular metal boxes with four horizontally mounted pinhole cameras inside, within which sheets of photosensitive paper were placed. If a nuclear blast was set off within or near Britain, the resulting bright flash would burn a mark on the photosensitive paper. The position of this mark on the paper would inform on the height of the nuclear blast, with the position of the blast being determined by triangulating data from GZIs situated at neighbouring UGMPs. The GZI was situated on top of a brick or concrete plinth, with a circular mount fixing it in place. This mount was attached directly to the plinth. Sometimes, the plinth was positioned above ventilation duct of the main entrance stack, as was the case with the Llandrindod Wells UGMP (see below).

1.5.15 In 1991, the Soviet Union was dissolved, and the Cold War ended. This, in turn, led to a diminishment in nuclear hostilities and, therefore, a reduction in nuclear threats to Britain. Despite the easing of tensions that followed the ending of the Cold War, the

ROC was still kept in active duty throughout the early–mid-1990s, albeit in a much-reduced capacity. The remaining personnel attached to the ROC were at this point, however, confined to maritime and not terrestrial duties. By the summer of 1990, in the face of radical reforms to the Soviet Union and the Warsaw Pact proposed by Gorbachev, the British government commenced the Options for Change programme, which aimed at reducing military spending. The implementation of this programme ultimately led to the disbandment of all remaining UGMPs in Britain.

1.6 Cartographic Evidence

1.6.1 The 1840 tithe map of the local area (*Plan of Llandrindod Parish in the County of Radnor*) demonstrates that during this time much of the proposed development area comprised common land. More specifically, the southernmost and northernmost ends of the development area constituted Land Parcel 133, owned by Prebendary of Llandrindod. However, the attached apportionment demonstrates that this parcel of land was also being used for agricultural purposes as it housed Penrhew Farm. This farm was being occupied at this time by Meredith Smith. The tithe map, moreover, demonstrates that part of the northern portion of the development area was occupied by Land Parcel 248, which comprised an arable field attached another farm known as Baily Bedu. This parcel of land is recorded in the apportionment as being owned by Henry Lucas Esquire, who was leasing it to John Cane. Both the southern portion of the development area and the central roadway connected it to the northern portion are indicated on the tithe map as having been occupied by fields also attached to Baily Bedu Farm. These fields comprise Land Parcels 246 and 247. The former parcel of land comprised a meadow south of Land Parcel 248, while the latter, situated immediately east, comprised another arable field. Again, Land Parcels 246 and 247 were being owned by Henry Lucas Esquire and were being occupied by John Cane.

1.6.2 The 1st Edition 1888 Ordnance Survey (OS) map of the local area (*Radnorshire XXIII.SW*) demonstrates that at this time the development area retained the same agricultural character that it exhibited in the previous 1840 tithe map. However, towards the south and southwest of the development area, the map illustrates the position of a pair of quarries and a small collection of tumuli. These features were excavated during the 19th century and were shown to be Bronze Age round barrows. The 2nd Edition 1905 OS map demonstrates that by this time the areas within and around the development area formed part of a golf course. The establishment of this golf course appears to have involved significant degrees of landscaping, as one of the quarries shown on the 1st Edition OS map no longer exists and the local topography appears slightly altered. Both the 1945 and 1953 OS maps fails to illustrate the presence of a golf course, indicating that it had gone out of use at some point during the early 20th century.

1.7 Placename Evidence

1.7.1 The name *Llandrindod* is composed of two words, the prefix *llan*, denoting the enclosed land surrounding a church (or parish), and the noun *drindod*, meaning 'trinity'.

Llandrindod, therefore, translates literally to 'Parish of Trinity Church'. A church possessing this name still survives today and is located at 5 Temple Street (LB9061) in the town centre of Llandrindod Wells, although as the construction of this church dates to no earlier than 1871 (Haslam 1979, 247) it cannot be the church from which the town is named. Yet this church was constructed in order to replace a far older church of the same name, situated just over 1km to the southeast of the town centre. This church originally comprised a single chamber of 13th or 14th century date accompanied by a southern porch and western spire. It has been asserted that this church (as well as the one at Cefnllys) was left roofless by Archdeacon De Winton during the late 19th century to encourage parishioners to attend the New Holy Trinity Church at 5 Temple Street instead. According to records from the medieval period, this church was known as *Llandduw* or 'Parish of God', a name that is now generally spelt as *Llandow*. By 1535 the name of the church had changed to *Llandynddod* before changing again in the 1550s to its current name *Llandrindod*. However, in the early 17th century the church was briefly known as *Llanydryndott* (Richards 1970, 126). The name *Llandrindod Wells* began to be used during the post-medieval period as a result of the town becoming a renowned spa.

1.8 Previous Investigations

1.8.1 19th century: Seven Bronze Age round barrows were excavated on the former site of Llandrindod Common to the southwest of the development area.

1.8.2 2014: an archaeological desk-based assessment and field evaluation was undertaken by CPAT at Waterloo Road in Llandrindod Wells, during which no archaeological features, deposits or artefacts were encountered (Watson 2014).

1.8.3 2019: geotechnical and geo-environmental survey conducted within the proposed development, during which the site history, geology and ground conditions were analysed (Alderman 2019).

1.8.4 2021: an archaeological field evaluation was conducted by Black Mountains Archaeology Ltd within a parcel of land west of Ithon Road (Lewis *et al* 2021), the site of which is situated to the north of the development area. During this field evaluation, the remains of a probable Roman cremation pit were recorded.

1.8.5 2021: a rapid assessment was conducted by Black Mountains Archaeology Ltd, which identified the ROC UGMP in the north of the development area and broadly outlined its potential form and history. The historic ground conditions of the development area were also analysed through the use of historic aerial photographs.

1.8.6 2022: a geophysical survey of the development area was undertaken by GeoArch, during which anomalies were detected in the southern portion suggestive of Post-medieval field systems (Young 2022). The results of the geophysical survey indicated the presence of potential archaeological remains in the southern portion of the development area in the form of positive magnetic anomalies. The results also

indicated the presence of a strong magnetic signal within the northern portion of the development area, which was likely caused by the ROC UGMP.

2 Methodology

2.1.1 The archaeological field evaluation comprised the excavation of four trenches (named Trenches 1–4). The position of these trenches was determined with reference to the results of the geophysical survey undertaken by GeoArch within the development area (Young 2022). Descriptions of the trenches are as follows:

- Trench 1: Measured 20m long x 2m wide. Aligned NW/SE and positioned over what are labelled features h, j and k in Figure 4. These features were described by Young as positive magnetic anomalies and of potential archaeological significance. More specifically, anomalies 'h' and 'j' were interpreted as the potential remnants of a bank and ditch respectively, while anomaly 'k' were interpreted as a possible furrow.
- Trench 2: Measured 20m long x 2m wide. Aligned E/W and positioned over what are labelled features 'l' and 'm' in Figure 4. These features were described by Young as positive magnetic anomalies and of potential archaeological significance. More specifically, anomaly 'l' was interpreted as a potential old field boundary, while interpretations of anomaly 'm' were less certain (yet it was suggested that it could be the remnants of either cultivation traces or natural geology).
- Trench 3: Measured 20m long x 2m wide. Aligned E/W and positioned over what was labelled features 'n' and 'o' in Figure 4. These features were described by Young as positive magnetic anomalies and of potential archaeological significance. More specifically, both features were interpreted as possible field boundaries or ditches. Anomaly n appeared to comprise a pair of parallel linear features, while anomaly o appeared to comprise a single linear feature.
- Trench 4: Positioned over what is labelled anomaly 'c' Figure 4. This feature has been described by Young representing a strong magnetic signal with large ferrous-type anomalies. More specifically, anomaly 'c' was interpreted as the potential remains of the ROC UGMP built here during the middle of the 20th century. However, the entire area surrounding the UGMP bunker was found to contain buried demolition material derived from the UGMP bunker, which affected magnetometer results. This meant that anomaly 'c' likely represented a mass of rubble (with frequent scrap metal inclusions throughout), rather than the bunker itself. In turn, initial attempts at targeting and uncovering the UGMP proved difficult and the excavation of a wider area was necessary. During this process the bunker was uncovered and a trench measuring 6.8m long x 2m wide (max) was targeted over it (known as Trench 4a). Moreover, an irregularly shaped area adjacent to the bunker was also uncovered, measuring 7m N/S x 7.4m E/W (known as Trench 4b), which contained additional features associated with the UGMP.

2.1.2 The trenches were excavated with a toothless grading bucket to the first archaeological horizon and deposits and features were excavated sufficiently to identify their nature and form followed by recording. The trenches were also cleaned by hand and then recorded in detail. The archaeological recording techniques conformed to the best industry standard; all deposits were recorded using a single continuous context numbering system pro forma. All contexts were recorded with the trench number prefix (e.g. context 03 in Trench 1 = 103) and are summarised in Appendix III. When no archaeology was encountered during the machine excavation of the trenches then the excavations were taken down to the natural Devensian clays. Following archaeological recording, all trenches were backfilled with the excavated material.

2.1.3 The trenches were laid out using a GNSS/Glonass (GPS) Receiver and data logger with a <20mm tolerance. All trench areas, spoil tips and areas of archaeological potential were surveyed with a Garrett Ace 400i metal detector with a 28cm x 22cm DD PROformance search coil and Garrett Ace 200i metal detector with a 16.5 x 23cm PROformance search coil. No metallic finds were identified.

2.1.4 All trenches were photographed in high resolution by UAV (drone) equipped with a 35mm equivalent 20mp, 1" sensor, 4k UHD camera, a 35mm equivalent (24mm) camera with a 12mp 1/2.3" CMOS sensor and a terrestrial Canon EOS 2000D DSLR camera with a 24.7mp, 22.3mm x 14.9mm CMOS sensor. The ground investigations and aerial survey were tied into the Ordnance Survey National Grid and Datum using an GNSS/Glonass (GPS) Receiver and data logger with a <20mm tolerance. All excavated areas (trenches) were subjected to 3D photogrammetric modelling using proprietary photogrammetry software and aligned using known ground control points (GCPs). Dimensional control was then applied to each model and then reprocessed using the new parameters and optimised cameras to create dense point clouds and a high face count meshes. Models were then exported to OBJ format. GCPs were used in each excavation area (trenches) with a sub-20mm error margin to OSGB36 (National Grid) and a high-resolution Ground Sampling Distance (GSD). High resolution orthographic renders (orthoplanes and orthomosaics) were exported and scaled in georeferenced raster (TIFF and JPEG) format (see Appendix I).

2.1.5 In addition to the archaeological field evaluation, a 3D photogrammetric multispectral survey was conducted within the wider area of the southernmost field of the development area. This survey was performed via UAV with the aim of establishing the extent of buried land drains. A vegetation index value (NDVI) on multispectral bands of light was produced in the form of an orthomosaic plan (Figure 13). The plan shows near infrared light, with chlorophyl (good sun reflectance of healthy grass/vegetation) shown in red. Using near infrared light bands, subtle changes in plant (grass) growth can be observed, which may be indicative of underlying (buried ditches etc) archaeological anomalies.

2.1.6 The capture, processing and output of 3D models conformed to professional industry standard and best practice guidelines as set out by Historic England's *Photogrammetric*

Applications for Cultural Heritage Guidance for Good Practice (Published 2017). The full photogrammetric 3D models can be viewed here: https://p3d.in/u/BMALTD/BI1KE

2.1.7 All classes of finds were retained (cleaned and catalogued) and arrangements for final deposition agreed as set out in the requirements of the Chartered Institute for Archaeologists' *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (2011) and the Museums and Galleries Commission' *Standards in the Museum Care of Archaeological Collections* (1994). The archive of archaeological records and artefacts has been prepared to the guidelines set out in Historic England's *Management of Archaeological Projects* (1991) Appendix 3. The final archive of records relating to the preparation of the report has been prepared to Historic England's guidelines set out in the *Management of Archaeological Projects* (1991), Appendix 6 and the *National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales 2017*.

2.1.8 When substantial quantities of undiagnostic, residual or modern material were recovered, an on-site recording and discard policy for these classes of find was employed. However, sufficient material was retained to understand the nature, date and function of the deposit from which it was recovered. Specialist artefact advice and analysis for finds assemblages was sought and the results by fabric type can be found in Section 3. No items were recovered that are subject to *The Treasure Act* 1996 (2003 as amended).

2.1.9 With the permission of the landowner, the site archive will be deposited with Powys Archives, Llandrindod Wells for permanent curation. An accession number will be generated on submission. The report and archive conform to the professional standards as set out in section 3.4 of the Chartered Institute for Archaeologists' *Standard and Guidance for an Archaeological Field Evaluation* (published 2014, revised 2020), as well as the *Guidance for the Submission of Data to the Welsh Historic Environmental Records (HERs)* (2018).

2.1.10 A digital copy of the report and archive summary will be supplied to the client and their agents, the regional HER (CPAT), the LPA and the Royal Commission on the Ancient and Historical Monuments of Wales. Submission of photogrammetric images acquired by drone to the RCAHMW will follow *RCAHMW Unmanned Aerial Vehicle (UAV) Policy.* All data has been digitally stored in appropriate formats (SHP, DXF, TIFF, RAW, JPEG, PDF etc) with the archive destination in mind. All data will be submitted to the relevant archives in accordance with the RCAHMW's *Guidelines for Digital Archaeological Archives* (2015).

2.1.11 The archaeological field evaluation was conducted in accordance with the Chartered Institute for Archaeologists' *Standard and Guidance for Archaeological Field Evaluation* (published 2014, revised 2020) and was implemented in accordance with the standards set out in Historic England's *Photogrammetric Applications for Cultural Heritage Guidance for Good Practice* (2017).

3 Results

3.1 Stratigraphic Evidence

3.1.1 The archaeological field evaluation consisted of the excavation of four trenches. The trenches were positioned to target anomalies identified by the magnetometer survey conducted by GeoArch (Young 2022; Figure 3 and 4). The total excavation area covered by all trenches measured 167.4m^2.

3.1.2 **Trench 1** (Figure 1–2, 5 and 9; Plate 1–3)

3.1.3 Trench 1 measured 20m long x 2m wide, was aligned NW/SE and positioned over what are labelled features h, j and k in Figure 4. These features were described by Young (2022) as positive magnetic anomalies and of potential archaeological significance. The total excavation area covered by Trench 1 was 38.1m^2. The height at the top of the trench was recorded at 232.5mOD, while the height at the base of the trench was recorded between 232.17mOD and 232.83mOD. In terms of its positioned within the development area, Trench 1 was located towards the southwest corner of the southernmost field.

3.1.4 Two basal layers were encountered within Trench 1. The first was a bedrock deposit (105) comprising laminated bluish grey mudstone of the Builth Mudstone Formation. The depth at which this deposit was encountered ranged from 0.33m below the top of the trench at its highest, to 0.67m at its lowest. This discrepancy highlighted the undulating nature of the deposit. The second basal layer within Trench 1 was a superficial geological deposit (104) comprising light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size. Again, the depth at which this deposit was encountered ranged from 0.33–0.67m. Cutting through deposits (104) and (105) towards the northwest end of the trench was a paleochannel (103), which was broadly N/S aligned, measuring 3.6m wide x approximately 0.17m deep. The fill of this paleochannel (106) comprised yellow silty clay very similar in appearance to deposit (104) save for its notably lower stone content. Situated above deposits (104), (105) and (106) was a subsoil deposit (102) comprising mid–light brownish yellow silty clay with occasional rounded and angular mudstone and sandstone fragments throughout, measuring 0.01–0.2m in size. In depth, deposit (102) measured 0.2m. Finally, situated above subsoil (102) was a topsoil deposit (101), comprising mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size. In depth, topsoil (101) measured 0.1m.

3.1.5 **Discussion**

3.1.6 Three anomalies were identified by Young in Figure 4, which Trench 1 targeted. The first anomaly (h) appeared linear in form, extending in a broadly N/S direction. The second anomaly (j) appeared irregular in form. The third anomaly (k) again appeared linear in form, extending in a broadly N/S direction. Anomaly j was not observed within Trench 1 and may have represented a variation within the natural geology. In

considering its linear form, paleochannel (103) either represented anomaly h or k. Judging by its position within the trench, the latter is perhaps more likely. Overall, it was determined that the anomalies targeted by Trench 1 were of natural rather than archaeological provenance.

3.1.7 Trench 2 (Figure 1–2, 6 and 10; Plate 4–8)

3.1.8 Trench 2 measured 20m long x 2m wide, was aligned E/W and positioned over what are labelled features 'l' and 'm' in Figure 4. These features were described by Young (2022) as positive magnetic anomalies and of potential archaeological significance. The total excavation area covered by Trench 2 was 38.1m^2. The height at the top of the trench was recorded at 233.8mOD, while the height at the base of the trench was recorded at 233.5mOD. In terms of its positioned within the development area, Trench 2 was located towards the southern edge of the southernmost field.

3.1.9 Two basal layers were encountered within Trench 2. The first was a bedrock deposit (204) comprising laminated bluish grey mudstone of the Builth Mudstone Formation. The depth at which this deposit was encountered was 0.39m below the top of the trench. This bedrock deposit was found to be undulated and was visible in only parts of the trench. The second basal layer within Trench 2 was a superficial geological deposit (203) comprising light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size. Again, the depth at which this deposit was encountered was again 0.39m below the top of the trench.

3.1.10 Cutting through deposits (203) and (204) towards the west end of the trench was land drain [205], which ran in a broadly NE/SW direction through the trench. In width, land drain [205] measured 0.3m in width, while in depth it measured 0.2m. The edges of the drain were approximately sheer. The base of the drain was flat and narrow, measuring around 0.15m in width. The fill of the drain (206) comprised dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length. Situated approximately 0.5m to the east of land drain [205] was land drain [207], which also cut through deposits (203) and (204). Again, this drain was aligned in a broadly NE/SW direction. In form and appearance, drain [207] was markedly different from drain [205] as it was significantly shallower and more irregularly cut. In width, the drain measured 0.6m in width, while in depth it measured 0.15m. The profile of the drain was concave, while its edges were irregular. The fill of the drain (208) was similar in appearance and composition to fill (206) save for its darker colour and its inclusion of rounded sandstone rather than angular/laminated mudstone fragments. Towards the east end of the trench was a third and final land drain [209], which also cut through deposits (203) and (204), as well as subsoil (202) (see below). Again, this drain was aligned in a broadly NW/SE direction. In width, the drain measured 0.27m, while in depth it measured 0.15m. The sides of the drain were notably sheer, while the base of the drain was flat and shared broadly the same width from top to bottom. The fill of the drain (210) was identical in appearance and composition to fill (206).

3.1.11 Situated immediately above, and therefore sealing, fills (206) and (208) was a subsoil deposit (202) comprising mid–light brownish yellow silty clay with occasional rounded and angular mudstone and sandstone fragments throughout, measuring 0.01–0.2m in size. In depth, subsoil (202) measured between 0.15–0.2m. This indicated that land drains [205] and [207] were cut prior to the deposition of subsoil (202). Land drain [209], however, cut through subsoil (202). Situated above subsoil (202) was a topsoil deposit (201), comprising mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size. In depth, topsoil (101) measured 0.2m.

3.1.12 Discussion

3.1.13 Two anomalies noted by Young in Figure 4, which Trench 2 targeted. The first anomaly (l) appeared linear in form, extending in a broadly NE/SW direction. The second anomaly (m) again appeared linear in form, extending in a broadly NW/SE direction. In consideration of their alignment and position within the trench, it is likely that anomalies l and m were represented by land drains [205] and [209] respectively. Both land drains were probably cut from the mid-20th century onwards, as their sheer sides and flat bases, in addition to their regular and neat forms, are indicative of machine cutting. On the other hand, it appears that land drain [207] was not detected during the magnetometer survey, perhaps due to its ephemeral form. This land drain differed from drains [205] and [209] and the irregular form of its cut would suggest that it was excavated by hand, rather than machine. This in turn would indicate that it older than [205] and [209], perhaps being of Post-medieval date. In terms of alignment, it is notable that all three land drains were cut across rather than along the natural hillslope, which broadly runs in an E/W direction. Moreover, the nearest stream is situated to the east of the field, which would have represented an ideal location to drain surface water into. In effect, this would have meant that the water within these drains was working against rather than with the force of gravity. The reason for this is not immediately clear, although it may indicate that the drains were intended to feed eventually into a larger drain (or drains) that ran downslope towards the nearby stream.

3.1.14 Trench 3 (Figure 1 –2, 7 and 11; Plate 9–13)

3.1.15 Trench 3 measured 20m long x 2m wide, was aligned E/W and positioned over what are labelled features ‘n’ and ‘o’ in Figure 4. These features were described by Young (2022) as positive magnetic anomalies and of potential archaeological significance. The total excavation area covered by Trench 2 was 38.1m^2. The height at the top of the trench was recorded at 233.9mOD, while the height at the base of the trench was recorded at 233.3mOD. In terms of its positioned within the development area, Trench 2 was located towards the southern edge of the southernmost field.

3.1.16 Two basal layers were encountered within Trench 3. The first was a bedrock deposit (309) comprising laminated bluish grey mudstone of the Builth Mudstone Formation. The depth at which this deposit was encountered was 0.5m below the top of the trench. This bedrock deposit was found to be undulated and was visible in only parts of the

trench. The second basal layer within Trench 3 was a superficial geological deposit (308) comprising light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size. Again, the depth at which this deposit was encountered was again 0.5m below the top of the trench.

3.1.17 Cutting through deposits (308) and (309) towards the west end of the trench was land drain [302], which ran in a broadly NW/SE direction through the trench. In width, land drain [302] measured 0.23m, while in depth it measured 0.3m. The edges of the drain were approximately sheer. The base of the drain was flat and narrow, measuring around 0.12m in width. The fill of the drain (303) comprised dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length. Situated approximately 6m to the east of land drain [302] was land drain [304], which also cut through deposits (308) and (309). Again, this drain was aligned in a broadly NW/SE direction. In form and appearance, drain [304] was very similar to [302]. In width, the drain measured 0.28m, while in depth it was 0.3m. The edges of the drain were approximately sheer, and its base was flat and narrow, measuring 0.12m in width. The fill of the drain (305) was identical in appearance and composition to (303). Towards the east end of the trench was a third and final land drain [306], which ran in a broadly N/S direction. In appearance, the drain was very similar to drains [302] and [304]. In width, land drain [306] measured 0.26m, while in depth it measured 0.36m. The edges of the drain were approximately sheer. The base of the drain was flat and narrow, measuring around 0.1m in width. The fill of the drain (307) was again identical in appearance and composition to (303).

3.1.18 Situated immediately above, and therefore sealing, fills (303), (305) and (307) was a topsoil deposit (301) comprising mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size. In depth, topsoil (101) measured approximately 0.4m. The relationship between the fills of the land drains and the topsoil meant that land drains [302], [304] and [306] were cut prior to the deposition of the topsoil. Unlike within Trenches 1 and 2, no subsoil deposit was encountered within Trench 3.

3.1.19 Discussion

3.1.20 Two anomalies were noted by Young in Figure 4, which Trench 3 targeted. The first anomaly (n) appeared linear in form, extending in a broadly N/S direction. The second anomaly (o) again appeared linear in form, extending in a broadly NE/SW direction. In consideration of their alignment and position within the trench, it is likely that anomaly n was represented by land drains [303] and [305], while it is likely that anomaly o was represented by land drain [307]. All three of these land drains were probably cut from the mid-20th century onwards, as their sheer sides and flat bases, in addition to their regular and neat forms, are indicative of machine cutting. Akin to the land drains recorded within Trench 2, drain [303], [305] and [307] were notable for being positioned across rather than along the natural hillslope. Although again it is possibly that they were intended to feed into a larger drain (or drains) that discharged into the nearest stream to the east. Finally, Trench 3 was notable for the absence of a subsoil

deposit, as topsoil (301) was seen to directly overlie natural deposits (308) and (309). The absence of such a subsoil deposit within the trench can be explained by recent ploughing activity, which is also indicated by the undulating form of topsoil (301).

3.1.21 Trench 4

3.1.22 The excavation of Trench 4 was targeted over what is referred to by Young in Figure 4 as anomaly 'c' This anomaly was interpreted as the remains of a as the potential remains of the ROC UGMP built here during the middle of the 20th century. However, the entire area surrounding the UGMP bunker was found to contain buried demolition material derived from the UGMP bunker, which affected magnetometer results. This meant that anomaly 'c' likely represented a mass of rubble (with frequent scrap metal inclusions throughout), rather than the bunker itself. In turn, initial attempts at targeting and uncovering the UGMP proved difficult and the excavation of a wider was necessary. During this process the bunker was uncovered, and a trench targeted over it (known as Trench 4a). Moreover, an irregularly shaped area adjacent to the bunker was also uncovered (known as Trench 4b), which contained additional features associated with the UGMP. In terms of their position within the development area, Trenches 4a and 4b were situated towards the northern end of the northernmost field.

3.1.23 Trench 4a (Figure 1–2, 8 and 12; Plate 15–17)

3.1.24 Trench 4a measured 6.8m long x 2m wide (max). Due to the instable nature of the demolition deposits that the trench cut through, the sides of the trench were continually liable to collapse. This factor, combined with the depth of the trench, meant that entry into the trench was not possible. The height at the top of the trench was recorded at 246.4mOD, while the height at the base of the trench was recorded at 249.3mOD.

3.1.25 The lowermost deposit encountered within Trench 4a was a bedrock deposit (406) comprising laminated bluish grey mudstone of the Builth Mudstone Formation. The lowest point at which this bedrock deposit was encountered was 2.9m below the top of the trench. An additional natural deposit was encountered within the trench (407), which comprised light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size. This deposit was recorded as approximately 0.8m in depth and was situated directly above (406).

3.1.26 Cutting through deposits (406) and (407) was demolition cut [401], which was formed for the purposes of demolishing the ROC UGMP that once occupied the site. The base of this cut was not encountered during excavations as flood water began pouring into the trench, probably having collected on the level of the original floor of the UGMP. The maximum depth at which this cut was recorded was 2.9m below the top of the trench. The edges of this cut were steep, but not sheer. The fill of this cut (402) comprised demolition material derived from the UGMP bunker. No *in situ* features associated with the bunker were observed within the trench and the material that comprised deposit (402), it appeared, was all that remained of the bunker. Neither was the original cut for the bunker observed, as it appeared that later cut [401] had

truncated it in its entirety. Deposit (402) primarily consisted of large fragments of reinforced concrete (with steel rebars throughout). However, large fragments of demolished brick walling were also present, as well as the remains of smaller items originally held within the UGMP. Of those complete (or near-complete) items, some were retained for post-excavation analysis (see Section 3.2). Deposit (402) was observed in the east-facing section of Trench 4a only, meaning that the trench truncated the eastern end of the UGMP bunker (or, more specifically, the mass of demolition material that once constituted the bunker). Situated immediately above deposit (402) was a layer of re-deposited natural (403), which comprised a mix of (406) and (407), albeit slightly darker in colour, suggesting that it was possibly re-deposited during demolition works. The depth of this deposit was approximately 1m. Deposit (403) was also seen to abut the eastern edge of (402), as it was observed within the west-facing section of Trench 4a on a level at which deposit (402) was present within the east-facing section. However, the east-facing section also revealed remnants of deposit (402) immediately below (403), beginning at a significantly lower level than in the east-facing section (at approximately 2.3m below the top of the trench). Finally, situated immediately above deposit (403) was topsoil (405), which comprised mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size. In depth, this topsoil deposit measured 0.3m. This topsoil, furthermore, was recorded in neither section of Trench 4a, as it was stripped prior to excavation.

3.1.27 Trench 4b (Figure 1–2 and 8; Plate 14 and 31)

3.1.28 Trench 4b comprised an irregularly shaped area adjacent (to the east) of the site of the ROC UGMP, measuring 7m N/S x 7.4m E/W. The space between Trenches 4a and 4b was approximately 2m. Trench 4b was excavated during attempts to locate the UGMP, which initially proved difficult. The height at the top of the trench was recorded at 246.4mOD, while the height at the base of the trench was recorded at 246.7mOD.

3.1.29 Set into natural deposit (407) were the remains of four foundation pads (Plate 14 and 31). These pads appeared to form the corners of a roughly rectangular structure, aligned NE/SW. Together, these pads covered an area measuring approximately 3.8m N/S x 2.6m E/W. The north-westernmost pad [408], north-easternmost pad [409] and south-westernmost pad [410] were broadly identical. Each was square in form, covering an area measuring approximately 0.7m^2. Moreover, each was sunk at about 0.1m into deposit (407). In composition, these pads comprised poured concrete. The southeasternmost pad [411] was noticeably different, as it incorporated a disturbed section of brickwork on its upper surface. Although disturbed and partly demolished, it was observed that this brickwork comprised unfrogged red bricks bonded with cement mortar. This brickwork was also attached to a small concrete plinth, measuring 0.33m^2 x 0.05m deep, which separated the brickwork from the foundation pad proper. Prior to their demolition, it is assumed that foundation pads [408], [409] and [410] also originally incorporated a concrete plinth and brickwork identical to that of [411]. Together, the foundation pads formed the base of Orlit post [404], as detailed below .

Situated immediately above the four foundation pads was topsoil deposit (405), which again measured 0.3m in depth.

3.1.30 Discussion

3.1.31 Within Trench 4a, the remains the ROC UGMP that once occupied the area were uncovered. Although no part of this bunker was observed to be *in situ*, its broad outline could nonetheless be observed. This outline was observed only in the east-facing section of the trench. In the opposite, west-facing section was natural geology, indicating that Trench 4a cut through the eastern edge of the bunker. Due to its previous demolition, the internal arrangement of the bunker was not ascertained, and neither was its structural form. The finds collected from within deposit (402) were able to reveal a limited amount of information regarding the activities conducted within and around the bunker (see below). A photograph of the UGMP after its abandonment (Plate 20) demonstrates its original position and configuration in relation to the wider landscape. In the background of the photograph are a range of hills, with the centremost hill appearing, in form, to be Drums Ddu, situated immediately northwest of the development area's northernmost field. It may therefore be deduced from the photograph that the main entrance stack leading into the bunker was aligned broadly in a SW/NE direction, with the ventilation duct being situated on its southern edge. Moreover, it can be concluded from the photograph that the larger ventilation ducts were situated immediately to the west of the entrance stack. Finally, in the photograph, the GZI mount is fixed directly on top of the ventilation duct within the entrance stack (see discussion of finds below). During the excavation of Trench 4a, neither of the larger ventilation ducts were encountered.

3.1.32 Unlike within Trench 4a nearby, Trench 4b uncovered *in situ* structural remains, which came in the form of four foundation pads. As detailed above, it is assumed that each of these pads comprised a concrete foundation and plinth in conjunction with brickwork. The brickwork observed on feature [411] may have once comprised a column. If so, it may again be assumed that similar columns were once attached to all four foundation pads. The two photographs demonstrating views towards the east of the ROC UGMP, where the structure to which the foundations pads belonged was originally located, indicate that no such structure was present at the time that the photographs were taken. The only type of above-ground structure normally situated to the exterior of a UGMP bunker was the Orlit post, which Clarke describes as "an overground observation point for aircraft reporting….constructed using pre-cast concrete panels manufactured to a design by Messrs Orlit, Bedfordshire" (2016, 14). It is clear that Orlit posts ranged quite significantly in form and size, with two types being defined by Clarke. The first, Type A, was constructed over a concrete base at ground level. The second, Type B, was constructed on four precast concrete legs (Clarke 2016, 162). It appears, in consideration of the form of the structure once constituted by foundation pads [408]–[411], that it can be identified as a Type B Orlit post, which has been numbered [404]. From this finding, we can therefore deduce that, within the Llandrindod Wells UGMP,

above-ground aircraft reporting was, for a time at least, being conducted in conjunction with underground nuclear monitoring.

3.1.33 In form, the Type B Orlit post was effectively a raised concrete box accessed via a wooden door, within which communications board, telephone and various other equipment were located (Plate 30). On the right-hand side of the entrance, a sliding door was often incorporated to provide access to a small observation platform, which was open to the elements albeit for a moveable, corrugated tin cover. On top of the Orlit post, an instrument was mounted, which plotted the bearing and altitude of unidentified or potentially hostile aircrafts. Despite the importance of the Orlit post to the UGMP and the intricacy of the activities conducted within, the structure was markedly rudimentary, and when viewed from the exterior it had the appearance of a simple store shed.

3.2 Finds (Plates 26–29)

3.2.1 All finds collected during the archaeological field evaluation derived from deposit (402), which was encountered in Trench 4a. This deposit represented the fill of demolition cut [401], which was formed during the demolition of the Llandrindod Wells ROC UGMP. In composition, deposit (402) comprised demolition material derived from the UGMP bunker. The number of finds retained for post-excavation analysis was four (SF1–4). The total weight of these finds was 4,466g. Each find is discussed individually below. However, several other finds were noted within deposit (402), which were not retained for post-excavation analysis. These were photographed on site and then reburied during the backfilling of Trench 4. These additional finds were discarded because, due to their size and/or weight, their transport from site was impractical. The discarded finds (Plate 30), like those four that were retained (SF1–4) also comprised various pieces of equipment associated with the UGMP bunker. As a broad summary, the discarded finds included lengths of electric cable, lengths of iron strapping (perhaps originally situated on the exterior of walls of the bunker for structural support), a section of iron grating, a small iron hatch (possibly used for transporting messages or items to and from the bunker and the surface), the iron frame of the entrance stack's hatch, an overhead door closer, and a plastic washing-up bowl.

3.2.2 GZI Mount (SF1) (Plate 26)

3.2.3 The Ground Zero Indicator (GZI) mount comprised an upper circular fixture (measuring 17.5cm in diameter) attached to a triangular base (measuring 12cm in width) via a circular neck (measuring *c* 6.5cm in diameter). The total weight of the find was 2,229g. The mount was cast in one piece (in cast iron) and was painted a dark green colour. The upper fixture had a very shallow conical profile, which peaked at the centre, and as a result in was slightly pitched. Set into the upper fixture were three holes (each measuring 1.75cm in diameter), which fully penetrated the fixture. These holes allowed the GZI to be mounted in place atop the upper fixture. Underneath the triangular base were three perforations, which penetrated approximately halfway into the base. Within these three perforations were a corresponding number of screws, which were

originally attached to the concrete constituting the top of the ventilation duct attached to the entrance stack (see above). Indeed, part of this concrete was still attached to the base of the mount. The function of the GZI is briefly detailed above in Section 1.5.10, where a non-technical summary is provided.

3.2.4 Master Post Carrier Receiver (SF2) (Plate 27)

3.2.5 The carrier receiver comprised a grey plastic box with a speaker grill attached to the front. In terms of its dimensions, the find measured 18.5cm^2 x 6cm in thickness. The total weight of the find was 1,726g, although this included a small portion of fibreboard attached to the rear. The find incorporated a front cover, on which the speaker grill was located, which allowed it to be opened for inspection/repair. On this cover was a button and a dial, situated below the speak grill. The button, situated on the left-hand side, was for testing the radio and speaker, while the dial, situated on the right-hand side, controlled the volume. A serial number was noted on the right-hand edge of the find, which read 'EMT 82/21'.

3.2.6 In terms of function, the carrier receiver was originally attached to the master post, which comprised a set of equipment mounted to the wall of the bunker that collected readings and messages from derived from the local cluster of UGMPs to which the bunker belonged. The carrier receiver allowed the personnel manning the UGMP to receive the National Attack Warning Red (implying aerial attack), the Fallout Warning (implying a nuclear strike and fallout) or All Clear (implying no immediate danger. Two models of the carrier receiver were produced for use within UGMPs, known as the 1st and 2nd generation. The 1st generation model was notably small and comprised a speaker with no buttons or dials. The 2nd generation model was notably larger and comprised a speaker with a test button and volume dial. The carrier receiver collected during from deposit (402) was a 2nd generation model.

3.2.7 Master Post Telecoms Filter Unit (SF3) (Plate 28)

3.2.8 The filter unit comprised a small black box, rectangular in profile, with a detachable cover on the front held in place with screws. In terms of dimension, the find measured 12cm x 8cm x 3.5cm in thickness. The total weight of the find was 352g. The find had bevelled (or rounded) edges, while on the interior was a circuit board a wires. On the front of the find, in white print, were the words 'TELECOM', 'FILTER UNIT' and the model number 'WB1410'.

3.2.9 In terms of function, the filter unit selectively sorted incoming telecommunications signals through a specified (and desired) range, while suppressing others. More specifically, the WB 1410 filter separated the carrier from the speech and power received by the teletalk, which represented the main communication tool within the UGMP bunker.

3.2.10 Warning Sign (SF4) (Plate 29)

3.2.11 The warning sign was a badly damaged condition upon discovery, although its broad form could be ascertained, which was triangular. The find was crushed and had been

folded over on itself. This meant that obtaining its original dimensions were difficult. However, the surviving dimensions of the find were 26cm x 11m x <1cm thick. The total weight of the find was 159g. The find represented a typical warning sign of the 20th century, with a yellow triangle in a bold, black border denoting a warning signal. The text on the find, although no longer entirely visible, read 'Mind Your Head', or at least some variation thereof. This sign would have been fixed to the wall of the UGMP bunker.

3.3 Aerial (UAV) Survey (Figure 13)

3.3.1 In addition to the archaeological field evaluation, a 3D photogrammetric multispectral survey was conducted within the wider area of the southernmost field of the development area. This survey was performed via UAV with the aim of establishing the extent of buried land drains. A vegetation index value (NDVI) on multispectral bands of light was produced in the form of an orthomosaic plan (Figure 13). The plan shows near infrared light, with chlorophyl (good sun reflectance of healthy grass/vegetation) shown in red. Using near infrared light bands, subtle changes in plant (grass) growth can be observed, which may be indicative of underlying (buried ditches etc) archaeological anomalies.

3.3.2 The dense point cloud produced from the UAV survey achieved over 24 million points and a high face count mesh with a mean RMS error of 0.01m. Models were then exported to OBJ format. Five GCPs were used with a sub-20mm error margin to OSGB36 (National Grid) and a high-resolution Ground Sampling Distance (GSD) of 2cm/pixel. High resolution orthographic renders (orthomosaics) utilising near-infrared light bands and vegetation indices (NDVI) were exported and scaled in georeferenced raster (TIFF) format (Figures 13).

3.3.3 The results of the RGB survey indicated a discrete area of colour change (anomaly) in the field situated immediately to the west of the southernmost portion of the development area. More specifically, this field is separated from the development area by a NE/SW running hedgerow that forms the westernmost boundary of the development area. In form, the anomaly is broadly circular in form and covers an area measuring approximately 18m N/S x 15m E/W. The available aerial photographs of the Llandrindod Wells (Plate 21 and 22) fail to indicate any substantial activity beyond agriculture in the area occupied by the anomaly. This suggests that the anomaly is perhaps not of modern date. A cartographic review revealed the feature to be a quarry depicted as 'old' on the Ordnance Survey 1888 1st Edition Map. There is no depiction of the quarry on the Tithe Map 1840 (apportionment of the rent-charge in lieu of tithes in the parish of Llandrindod in the County of Radnor), probably as the quarry is located on the common and within Glebe land (The Prebendary of Llandrindod).

4 Discussion

4.1.1 During the archaeological field evaluation, two types of archaeological features were recorded. The first was agricultural in nature and comprised field drains. The second was defensive in nature and comprised the remains of a Cold War era, Royal Observer Corps (ROC) Underground Monitoring Post (UGMP).

4.1.2 The land drains were uncovered within Trench 2 and 3, located in the southernmost field of the development area. These land drains numbered six in total, and comprised contexts [205], [207], [209], [302], [304] and [306]. Aside from land drain [207], which due to its irregular form suggestive of pre-mechanised farming, all land drains were interpreted as mid–late 20th century in date. This interpretation is based on the sheer sides and flat bases of the drains, which are highly indicative of machine cutting. Land drain [207] may be 20th century in date, or it could equally be of Post-medieval date.

4.1.3 The remains associated with the ROC UGMP uncovered within the northernmost field of the development area were heavily disturbed as a result of the post as a whole being demolished in recent times. No *in situ* remains were discovered in associated with the main subterranean bunker, although its broad outline was determined by the presence of deposit (402), which represented the demolished remains of the bunker. Based on the finds collected from deposit (402), it was determined that the bunker conformed to the standardised UGMP configuration found across all of Britain (see Clarke 2016). The UGMP incorporated a master post on one of its walls, as indicated by the discovery of a carrier receiver and telecoms filter unit, which would have originally adorned the master post. In function, the master post served as the only means of communicating with other UGMPs or larger command posts via telecommunication. The filter unit was of the 2nd generation variety, indicating that the equipment associated with the master post was upgraded during the lifespan of the UGMP. The entrance stack also incorporated a concrete ventilation duct that doubled as a GZI plinth, as indicated by Plate 20.

4.1.4 Within Trench 4b, the discovery of a previously unknown (or unrecorded) feature was made – Orlit post [404]. The remains of this feature comprised four foundation pads [408]–[411] constructed from poured concrete. In form, therefore, this feature sat on raised columns and was therefore an Orlit post of the Type B variety. The discovery of this Orlit post demonstrates that the monitoring of potential hostile aircrafts was occurring at the UGMP in tandem with nuclear monitoring. This situation was, however, altered at some point in the use of the UGMP. Plate 21 demonstrates the broad position of the UGMP bunker (by virtue of its associated above-ground ventilation ducts), yet it also demonstrates the absence of the Orlit post, implying that the latter was demolished prior to the former. In turn, this suggests that the Orlit post may have been demolished during the use of the UGMP, perhaps implying that aerial monitoring was no longer required at the site beyond a specific point in time.

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6 Appendices

6.1 Appendix I – Figures

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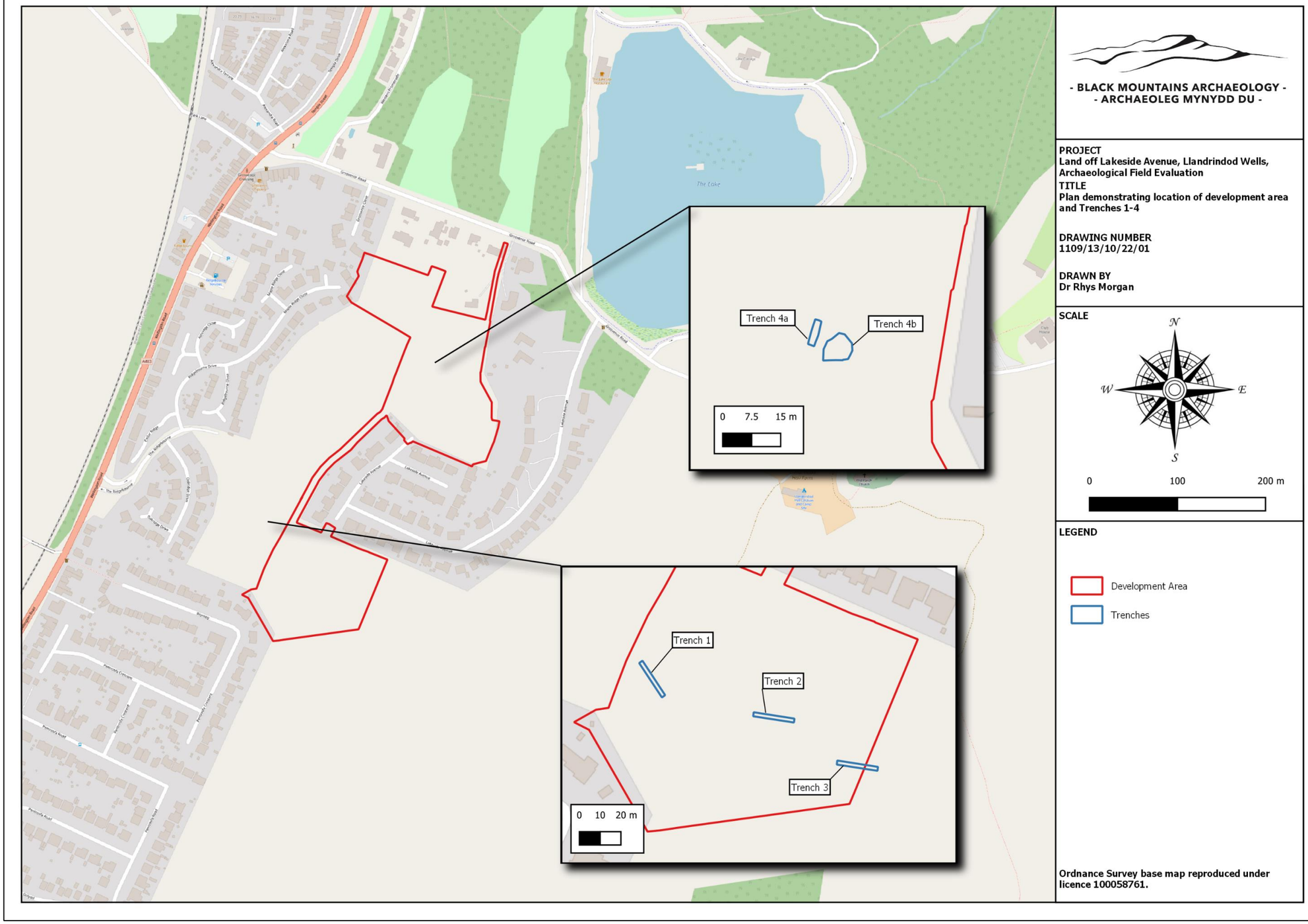

Figure 1. Location of development area and Trenches 1-4

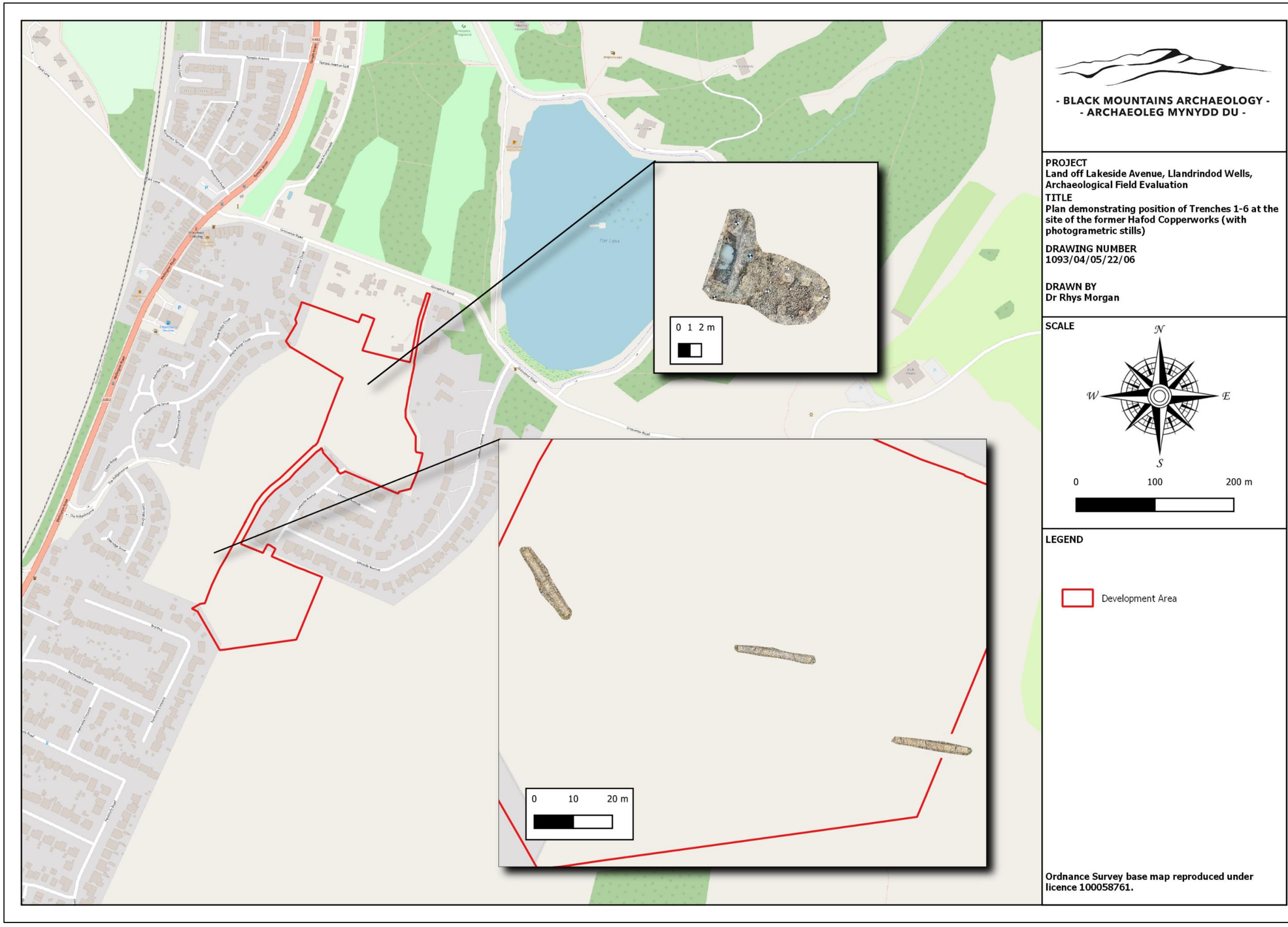

Figure 2. Location of development area and Trench 1-4 with photogrammetric stills

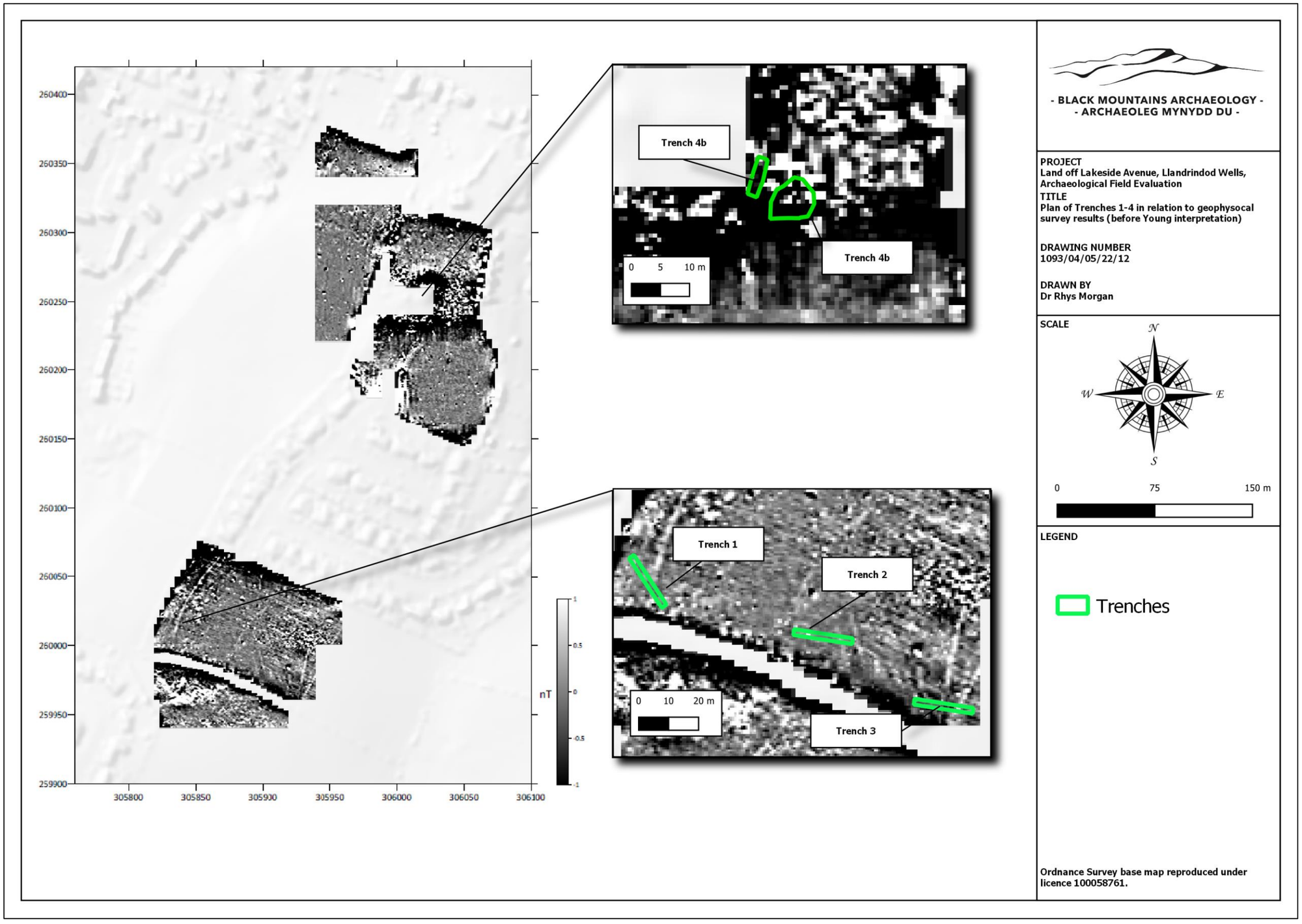

Figure 3. Location of Trenches 1-4 in relation to GeoArch 2019 geophysical survey results (before interpretation)

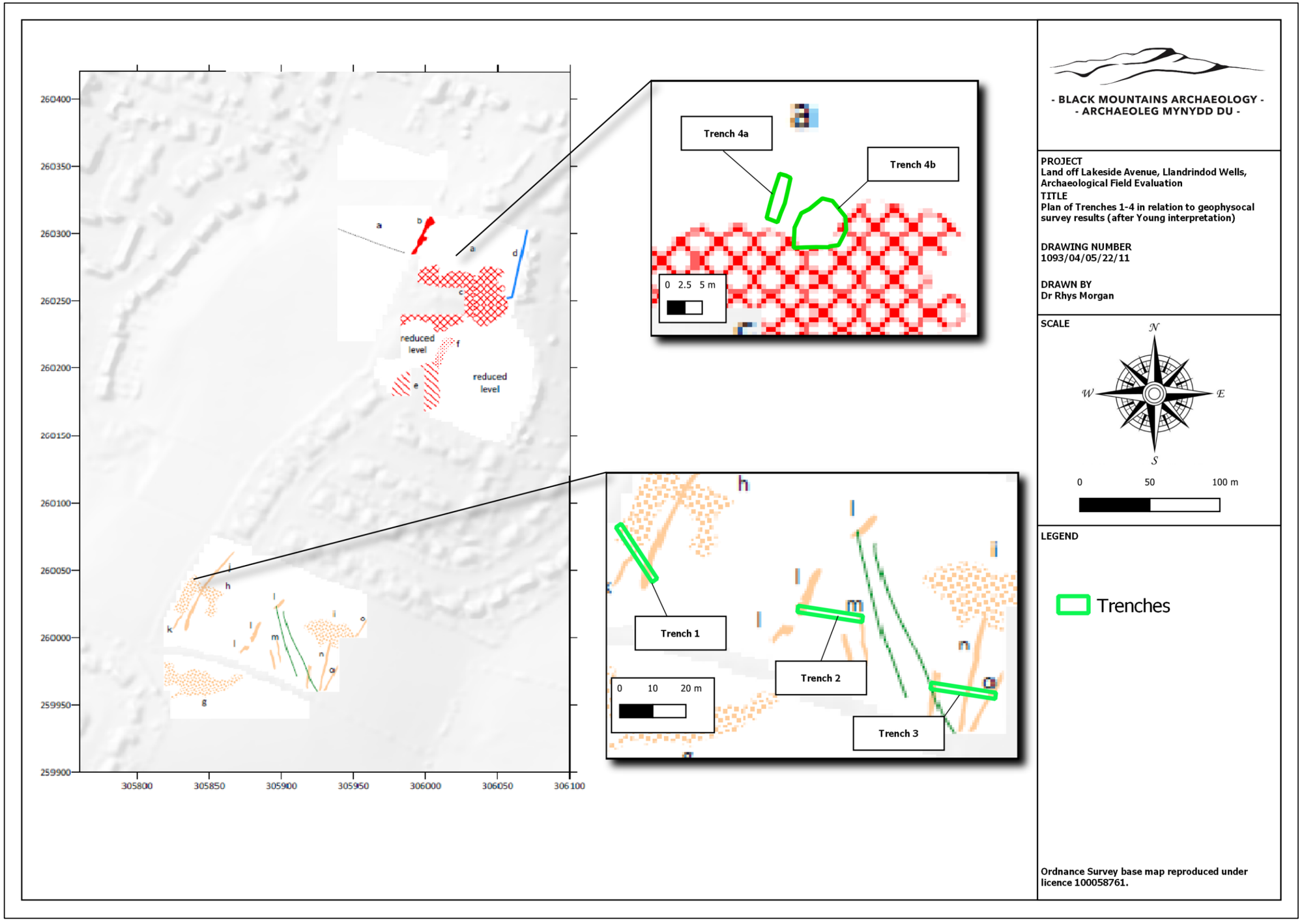

Figure 4. Location of Trenches 1-4 in relation to GeoArch 2019 geophysical survey results (after interpretation)

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells, Archaeological Field Evaluation

TITLE
Plan of Trench 1 (with photogrammetric orthomosaic)

DRAWING NUMBER
1109/18/10/22/01

DRAWN BY
Dr Rhys Morgan

SCALE

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Ordnance Survey base map reproduced under licence 100058761.

Figure 5. Photogrammetric orthomosaic of Trench 1

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells, Archaeological Field Evaluation

TITLE
Plan of Trench 2 (with photogrammetric orthomosaic)

DRAWING NUMBER
1109/18/10/22/02

DRAWN BY
Dr Rhys Morgan

SCALE

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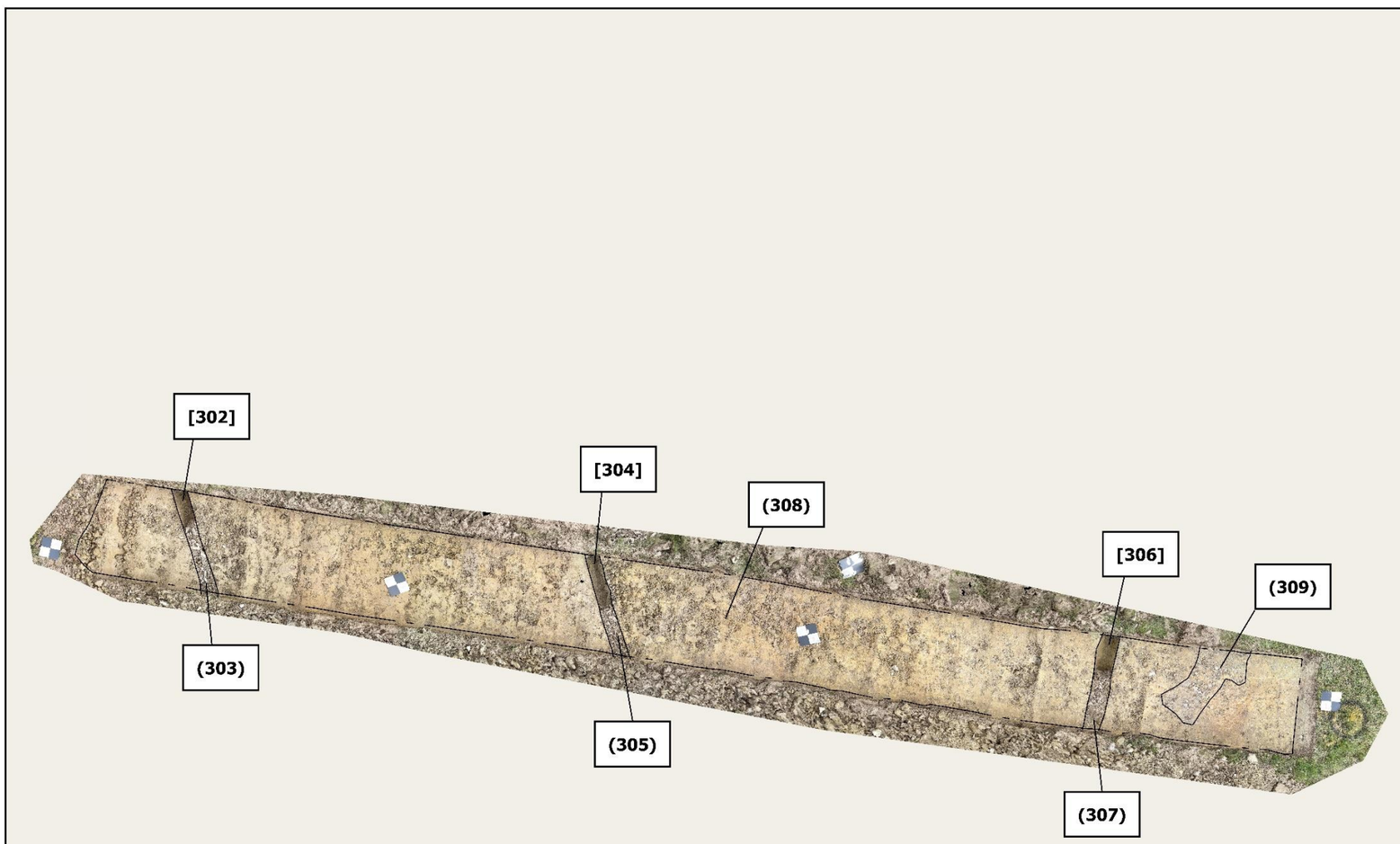
Figure 6. Photogrammetric orthomosaic of Trench 2



- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells, Archaeological Field Evaluation

TITLE
Plan of Trench 3 (with photogrammetric orthomosaic)

DRAWING NUMBER
1109/18/10/22/03

DRAWN BY
Dr Rhys Morgan

SCALE

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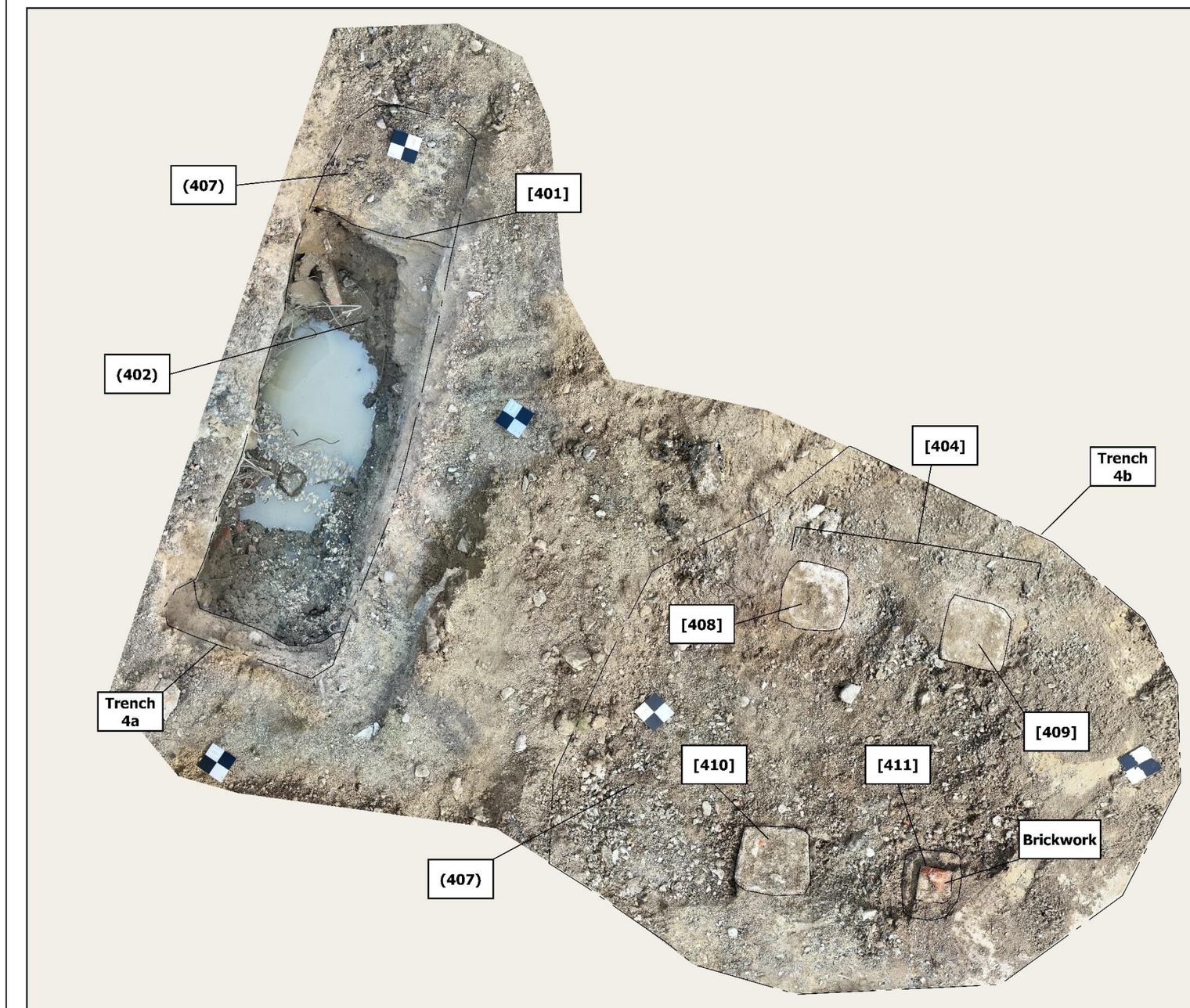
Figure 7. Photogrammetric orthomosaic of Trench 3



- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells, Archaeological Field Evaluation

TITLE
Plan of Trench 4 (with photogrammetric orthomosaic)

DRAWING NUMBER
1109/18/10/22/04

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Figure 8. Photogrammetric orthomosaic of Trench 4

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells,
Archaeological Field Evaluation
TITLE
Northeast-facing section of Trench 1

DRAWING NUMBER
1109/13/10/22/02

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Dr Rhys Morgan

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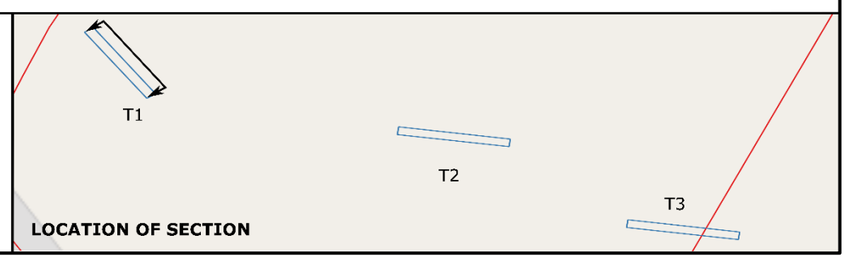

Figure 9. Photogrammetric orthofacade of northeast-facing section of Trench 1

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells,
Archaeological Field Evaluation
TITLE
Southwest-facing section of Trench 2

DRAWING NUMBER
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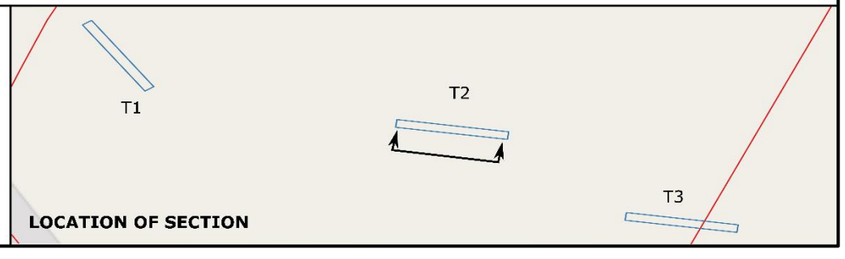

Figure 10. Photogrammetric orthofacade of southwest-facing section of Trench 2

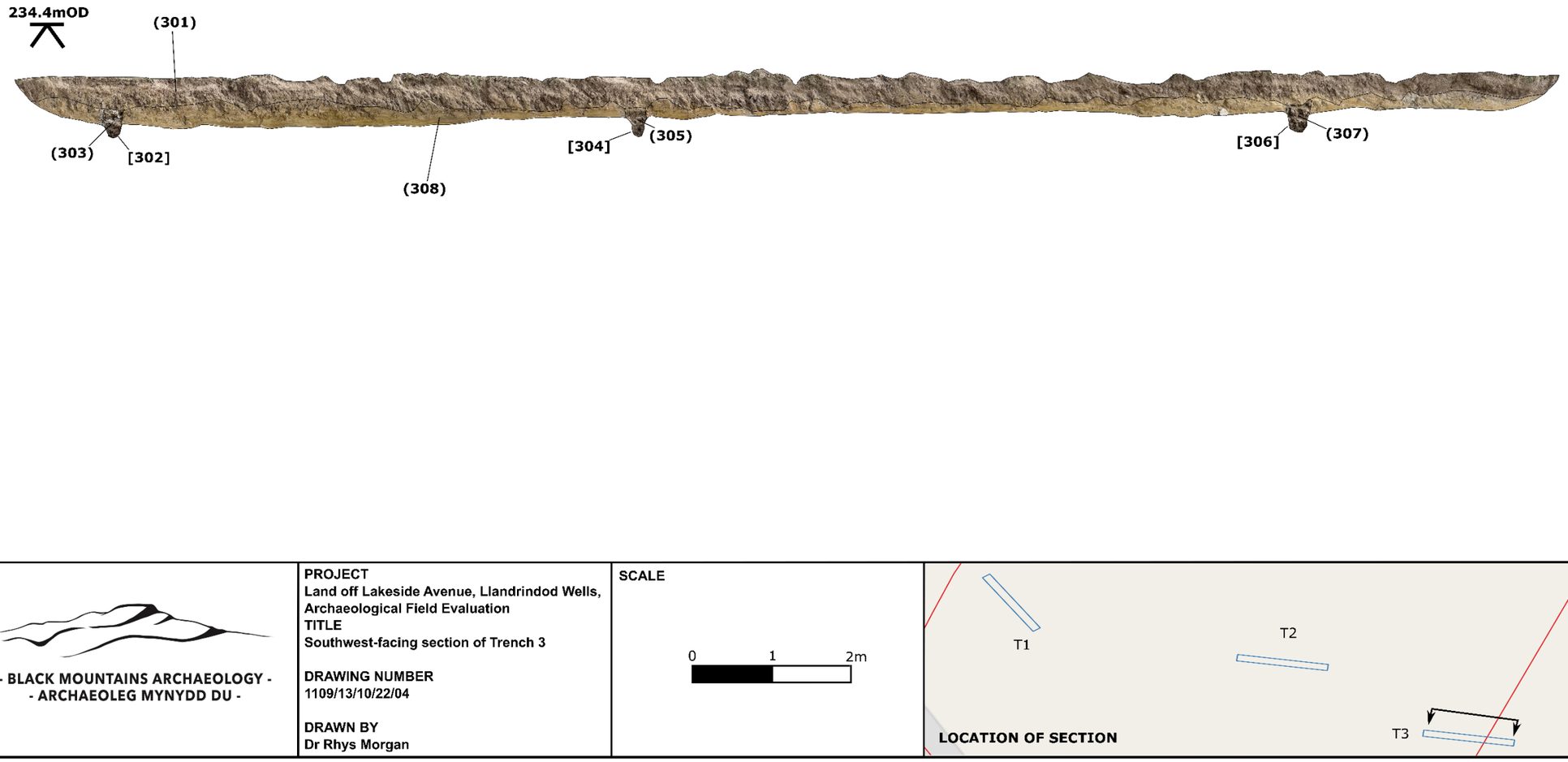

Figure 11. Photogrammetric orthofacade of southwest-facing section of Trench 3

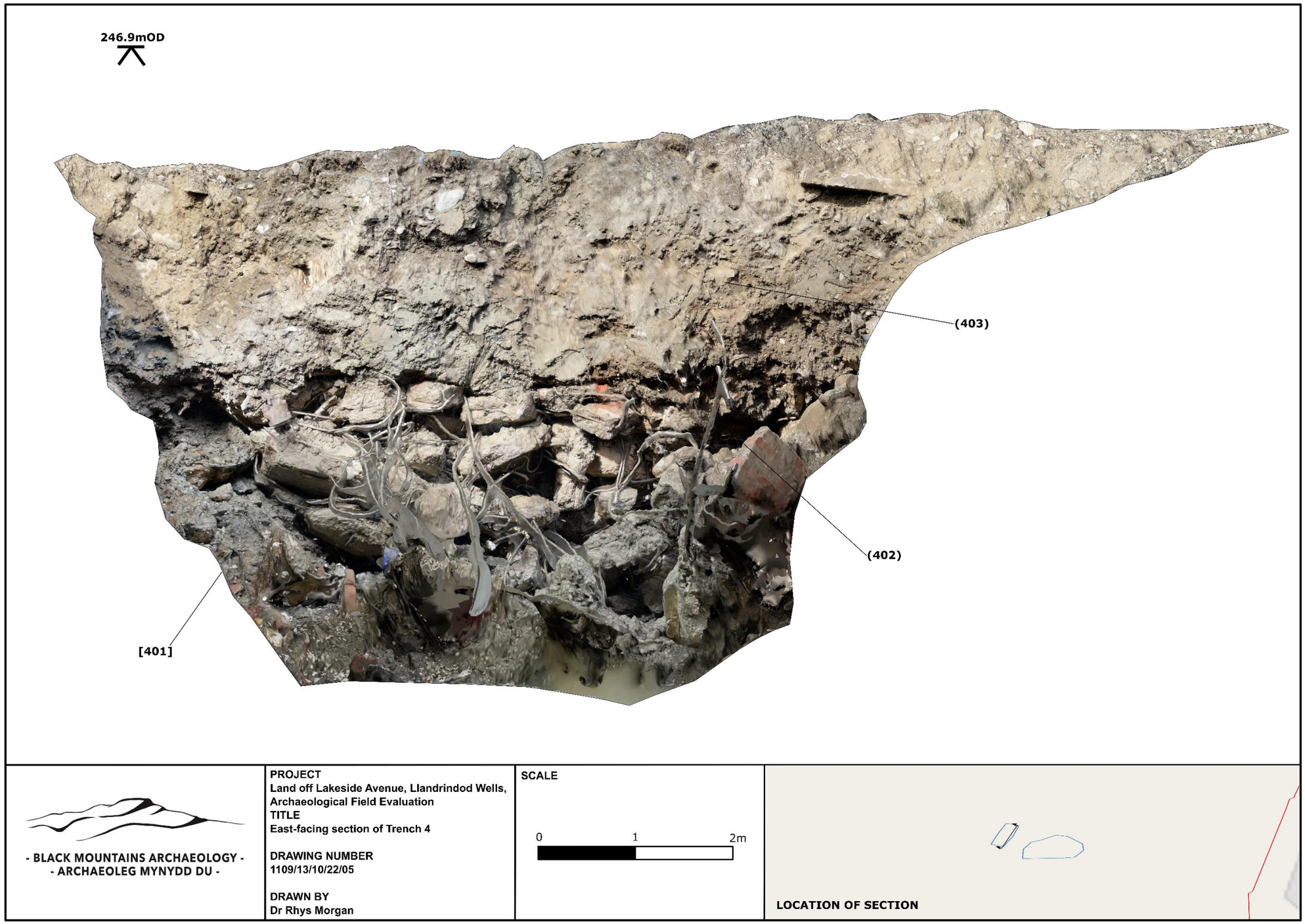

Figure 12. Photogrammetric orthofacade of east-facing section of Trench 4

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

PROJECT
Land off Lakeside Avenue, Llandrindod Wells, Archaeological Field Evaluation
TITLE
Plan demonstrating results of aerial survey of southern field

DRAWING NUMBER
1109/18/10/22/05

DRAWN BY
Dr Rhys Morgan

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Figure 13. Photogrammetric vegetation index (NDVI) orthomosaic plan showing near-infrared light bands.

6.2 Appendix II – Plates

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Plate 1. Northwest facing view of Trench 1

Plate 2. Southeast facing view of Trench 1

Plate 3. Southwest facing view of paleochannel (103) below subsoil (102) and topsoil (101) (in Trench 1)

Plate 4. West facing view of Trench 2

Plate 5. Aerial view of Trench 2

Plate 6. North facing view of land drain [205] cutting through natural deposits (203) and (204) (in Trench 2)

Plate 7. North facing view of land drain [207] cutting natural deposits (203) and (204) (in Trench 2)

Plate 8. North facing view of land drain [209] cutting natural deposits (203) and (204) (in Trench 2)

Plate 9. East facing view of Trench 3

Plate 10. Aerial view of Trench 3

Plate 11. North facing view of land drain [302] cutting through natural deposits (308) and (309)

Plate 12. North facing view of land drain [304] cutting through natural deposits (308) and (309)

Plate 13. North facing view of land drain [306] cutting through natural deposits (308) and (309)

Plate 14. ortheast facing view of foundation pads [408]-[[411] in Trench 4b

Plate 15. General view of Trench 4a

Plate 16. East facing view of fill (402) within cut [401] (in Trench 4a)

Plate 17. West facing section of Trench 4a, demonstrating natural deposits (403) and (407) (indicating that Trench 4a cut through eastern edge of UGMP bunker)

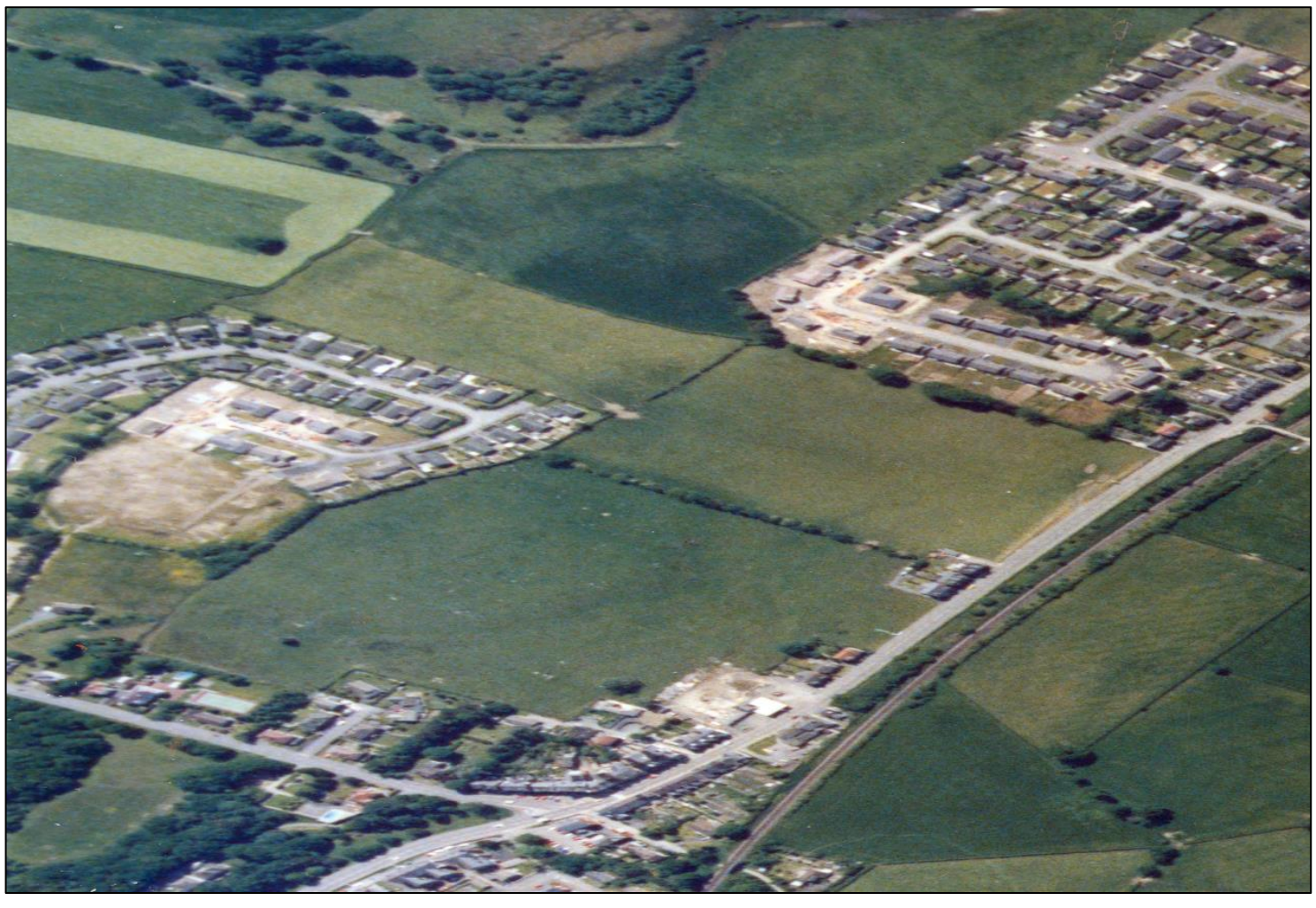

Plate 18. 1988 aerial photograph of the development area (copyright Air Photo Wales)

Plate 19. 1990 aerial photograph of the development area (copyright Air Photo Wales)

Plate 20. Northwest facing view of surviving elements of the Llandrindod Wells ROC UGMP prior t demolition (unknown date, although post-1991) (photograph by Nick Catford)

Plate 21. South facing view of surviving elements of the Llandrindod Wells ROC UGMP prior to demolition (photograph by Mark Russell, taken 2007)

Plate 22. Detailing view of entrance stack leading into main subterranean bunker of Llandrindod Wells ROC UGMP prior to demolition (photograph by Mark Russell, taken 2007

Plate 23. Three dimensional illustration of an ROC UGMP when in use (copyright Bob Marshall)

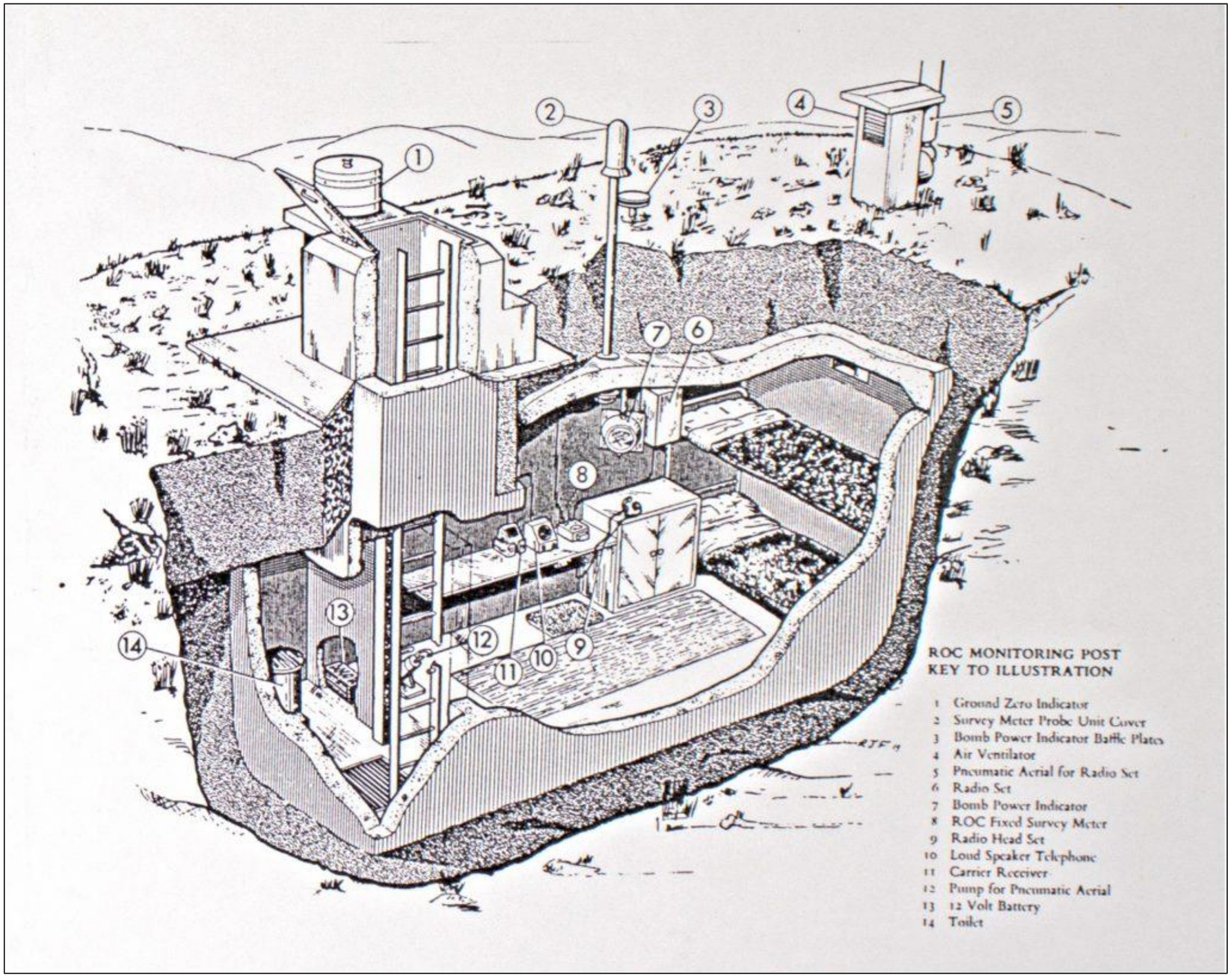

Plate 24. 1950s schematic drawing of the equipment held in a Royal Observer Corps post. From Nuclear War Games in Your Own Backyard? (W.MS.2000.28.187).

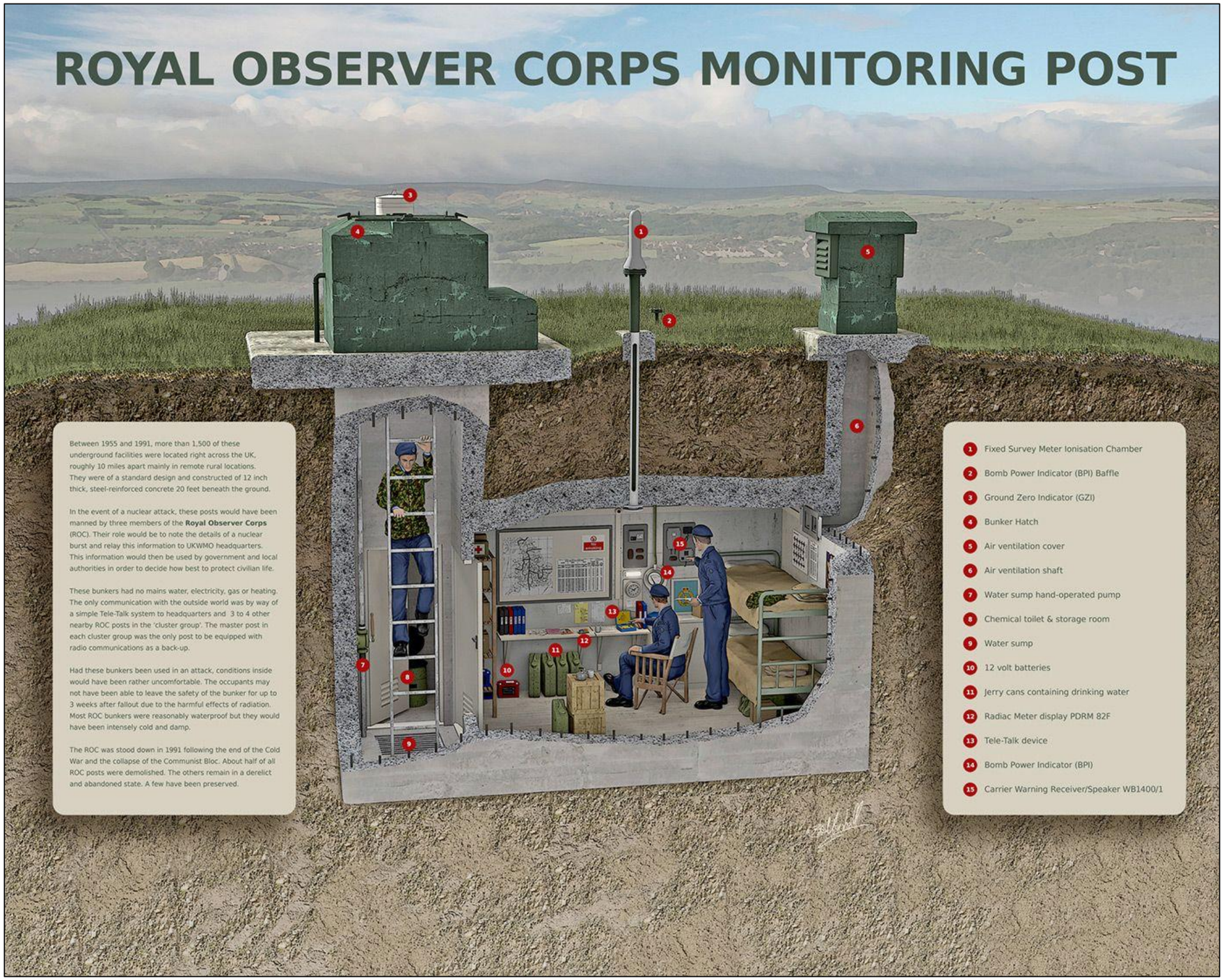

Plate 25. Three-dimensional illustration of an ROC UGMP when in use (with information panels) (copyright Bob Marshall)

Plate 26. GZI Mount (SF1)

Plate 27. Master post carrier receiver (SF2)

Plate 28. Master post filter unit (SF3)

Plate 29. Warning sign (SF4

Plate 30. Aerial view of general finds from deposit (402)

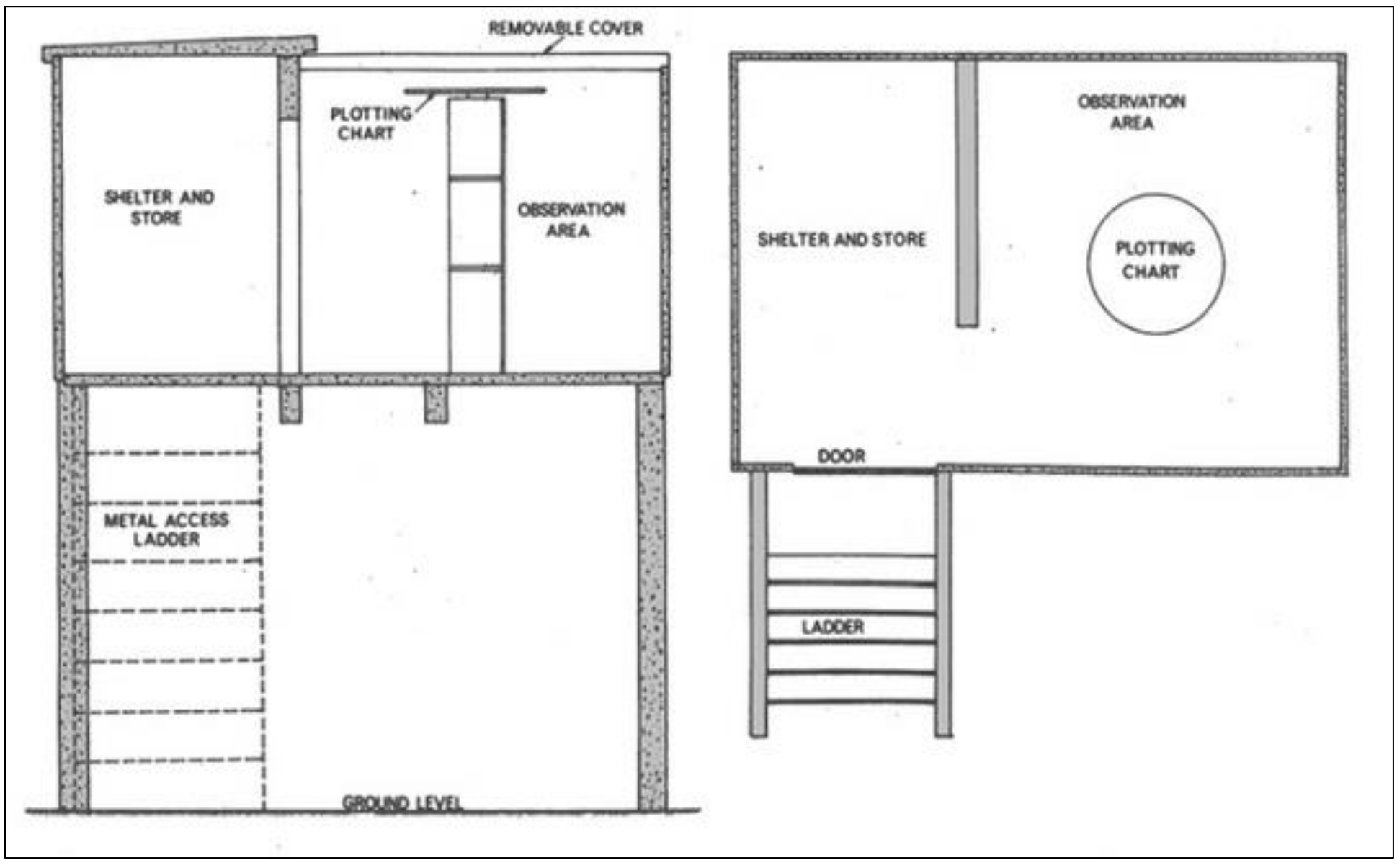

Plate 31. Diagrammatic section and plan of an ROC Type B Orlit post (after Wood 1992)

6.3 Appendix III – Context Inventory

Trench 1

Trench 1 measured 20m long x 2m wide, was aligned NW/SE and positioned over what are labelled features h, j and k in Figure 4. These features were described by Young (2022) as positive magnetic anomalies and of potential archaeological significance. The total excavation area covered by Trench 1 was 38.1m^2. The height at the top of the trench was recorded at 232.5mOD, while the height at the base of the trench was recorded between 232.17mOD and 232.83mOD. In terms of its positioned within the development area, Trench 1 was located towards the southwest corner of the southernmost field.

Context	Type	Depth/Dimensions	Description	Period
101	Deposit	0.1m deep	Topsoil. Mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size.	Modern
102	Deposit	0.2m deep	Subsoil. Mid–light brownish yellow silty clay with occasional rounded and angular mudstone and sandstone fragments throughout, measuring 0.01–0.2m in size.	Modern
103	Geological feature	3.6m wide x *c* 0.17m deep	Paleochannel. Approximately N/S aligned. Fill comprised yellow silty clay very similar in appearance to deposit (104) save for its notably lower stone content. Line between paleochannel and (104) very blurred and not clearly defined.	Natural
104	Deposit	Situated 0.33–0.67m below top of trench	Light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size.	Natural
105	Deposit	Situated 0.33–0.67m below top of trench	Laminated bluish grey mudstone of the Builth Mudstone Formation.	Natural

Table A 1. List of contexts recorded in Trench 1

Trench 2

Trench 2 measured 20m long x 2m wide, was aligned E/W and positioned over what are labelled features 'l' and 'm' in Figure 4. These features were described by Young (2022) as positive magnetic anomalies and of potential archaeological significance. The total excavation area covered by Trench 2 was 38.1m2. The height at the top of the trench was recorded at 233.8mOD, while the height at the base of the trench was recorded at 233.5mOD. In terms of its positioned within the development area, Trench 2 was located towards the southern edge of the southernmost field.

Context	Type	Depth/Dimensions	Description	Period
201	Deposit	0.2m deep	Topsoil. Mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size.	Modern
202	Deposit	0.15–0.2m deep	Subsoil. Mid–light brownish yellow silty clay with occasional rounded and angular mudstone and	Modern

Context	Type	Depth/Dimensions	Description	Period
			sandstone fragments throughout, measuring 0.01–0.2m in size.	
203	Deposit	Situated 0.39m below the top of the trench	Light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size.	Natural
204	Deposit	Situated 0.39m below the top of the trench	Laminated bluish grey mudstone of the Builth Mudstone Formation.	Natural
205	Cut	0.3m wide x 0.2m deep	Land drain. Aligned NE/SW. Sheer sides. Flat Base.	Modern
206	Deposit	0.3m wide x 0.2m deep	Fill of land drain [205]. Dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length.	Modern
207	Cut	0.6m wide x 0.15m deep	Land drain. Aligned NE/SW. Shallow and irregularly cut.	Post-medieval/modern
208	Deposit	0.6m wide x 0.15m deep	Fill of land drain [207]. Dark brown silty clay with frequent rounded mudstone fragments throughout, 0.1–0.2m in size.	Post-medieval/modern
209	Cut	0.27m wide x 0.15m deep	Land drain. Aligned NE/SW. Sheer sides. Flat Base.	Modern
210	Deposit	0.27m wide x 0.15m deep	Fill of land drain [209]. Dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length.	Modern

Table A 2. List of contexts recorded in Trench 2

Trench 3

Trench 3 measured 20m long x 2m wide, was aligned E/W and positioned over what are labelled features 'n' and 'o' in Figure 4. These features were described by Young (2022) as positive magnetic anomalies and of potential archaeological significance. The total excavation area covered by Trench 2 was 38.1m^2. The height at the top of the trench was recorded at 233.9mOD, while the height at the base of the trench was recorded at 233.3mOD. In terms of its positioned within the development area, Trench 2 was located towards the southern edge of the southernmost field.

Context	Type	Depth/Dimensions	Description	Period
301	Deposit	0.4m deep	Topsoil. Mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size.	Modern
302	Cut	0.23m wide x 0.3m deep	Land drain. Aligned NW/SE. Sheer sides. Flat base.	Modern
303	Deposit	0.23m wide x 0.3m deep	Fill of land drain [302]. Dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length.	Modern
304	Cut	0.28m wide x 0.3m deep	Land drain. Aligned NW/SE. Sheer sides. Flat base.	Modern
305	Deposit	0.28m wide x 0.3m deep	Fill of land drain [304]. Dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length.	Modern
306	Cut	0.26m wide x 0.36m deep	Land drain. Aligned N/S. Sheer sides. Flat base.	Modern
307	Deposit	0.26m wide x 0.36m deep	Fill of land drain [306]. Dark brown silty clay with frequent angular and laminated mudstone fragments throughout, 0.1–0.2m in length.	Modern

Context	Type	Depth/Dimensions	Description	Period
308	Deposit	Situated 0.5m below the top of the trench	Light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size.	Natural
309	Deposit	Situated 0.5m below the top of the trench Situated 0.5m below the top of the trench	Laminated bluish grey mudstone of the Builth Mudstone Formation.	Natural

Table A 3. List of contexts recorded in Trench 3

Trench 4

The excavation of Trench 4 was targeted over what is referred to by Young in Figure 4 as anomaly 'c' This anomaly was interpreted as the remains of a as the potential remains of the ROC UGMP built here during the middle of the 20th century. However, the entire area surrounding the UGMP bunker was found to contain buried demolition material derived from the UGMP bunker, which affected magnetometer results. This meant that anomaly 'c' likely represented a mass of rubble (with frequent scrap metal inclusions throughout), rather than the bunker itself. In turn, initial attempts at targeting and uncovering the UGMP proved difficult and the excavation of a wider was necessary. During this process the bunker was uncovered, and a trench targeted over it (known as Trench 4a). Moreover, an irregularly shaped area adjacent to the bunker was also uncovered (known as Trench 4b), which contained additional features associated with the UGMP. In terms of their position within the development area, Trenches 4a and 4b were situated towards the northern end of the northernmost field. The height at the top of Trench 4a was recorded at 246.4mOD, while the height at the base of Trench 4a was recorded at 249.3mOD. The height at the top of Trench 4b was recorded at 246.4mOD, while the height at the base of Trench 4b was recorded at 246.7mOD.

Context	Trench	Type	Depth/Dimensions	Description	Period
401	4a	Cut	>2.9m deep	Demolition cut. Formed during demolition of ROC UGMP.	Modern
402	4a	Deposit	>2.9m deep	Fill of demolition cut [401]. demolition material derived from the UGMP bunker (e.g. large fragments of reinforced concrete, brick walling, plastic etc.).	Modern
403	4a	Deposit	c 2.3m below the top of the trench	Re-deposited natural. Comprised fragments of laminated bluish grey mudstone of the Builth Mudstone Formation and light brownish yellow silty clay. Loose compaction, dark in colour.	Modern?
404	4b	Structure	*c* 7m N/S x 7.4m E/W in plan	Structure number for Type B Orlit post.	Modern
405	4b	Deposit	0.3m deep	Topsoil. Mid-brown silty clay with rare rounded and angular fragments of mudstone and sandstone throughout, measuring approximately 0.01m in size.	Modern
406	4a, 4b	Deposit	>2.9m below top of Trench 4a	Laminated bluish grey mudstone of the Builth Mudstone Formation.	Natural
407	4a. 4b	Deposit	0.8m below top of Trench 4a	Light brownish yellow silty clay with frequent angular fragments of mudstone throughout measuring 0.01–0.2m in size.	Natural
408	4b	Structure	0.7m^2 x 0.1m deep	Northwest foundation pad of Orlit post [404]. Composed of concrete.	Modern

Context	Trench	Type	Depth/Dimensions	Description	Period
409	4b	Structure	0.7m² x 0.1m deep	Northeast foundation pad of Orlit post [404]. Composed of concrete.	Modern
410	4b	Structure	0.7m² x 0.1m deep	southwest foundation pad of Orlit post [404]. Composed of concrete.	Modern
411	4b	Structure	0.7m² x 0.1m deep	Southeast foundation pad of Orlit post [404]. Composed of concrete. Has remnants of brickwork measuring 0.33m2 x 0.05m deep attached to top of concrete.	Modern

Table A 4. List of contexts recorded in Trench 4

6.4 Appendix IV – Small Finds Inventory

Context	Trench	Small Finds No	Description	Weight	Dimensions	Date
402	4a	SF1	Ground Zero Indicator (GZI) mount. Comprised an iron mount of circular profile on top of which a GZI was placed.	2,229g	17.5cm diameter at top x 6.5cm diameter at base	Modern
402	4a	SF2	Master post carrier receiver. Allowed the personnel manning the UGMP to receive the National Attack Warning Red (implying aerial attack), the Fallout Warning (implying a nuclear strike and fallout) or All Clear (implying no immediate danger.	1,726g	18.5cm2 x 6cm	Modern
402	4a	SF3	Master post telecoms filter unit. Selectively sorted incoming telecommunications signals through a specified (and desired) range, while suppressing others. Model number = WB1410.	352g	12cm x 8cm x 3.5cm	Modern
402	4a	SF4	Warning sign. Triangular. Crushed. Typical warning sign of the 20th century, with a yellow triangle in a bold, black border denoting a warning signal. The text on the find, although no longer entirely visible, read 'Mind Your Head', or at least some variation thereof.	159m	26cm x 11m x <1cm	Modern

Table A 5. List of small finds collected during the archaeological field evaluation

- BLACK MOUNTAINS ARCHAEOLOGY -
- ARCHAEOLEG MYNYDD DU -

Yn rhan o'n hawydd i wella ansawdd ein gwasanaeth, rydym yn croesawu unrhyw adborth y gallwch ei ddarparu.

As part of our desire to improve our quality of service we welcome any feedback you are able to provide.

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