



An Archaeological, Architectural and Cultural Impact Assessment Report for the Proposed Ballyloo Substation and Grid Connection, Co. Carlow

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Client: Ballyloo Solar Farm

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archaeology


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EXECUTIVE SUMMARY

The purpose of this report is to assess the importance and sensitivity of the known, as well as the potential archaeological, architectural and cultural heritage environment for a Strategic Infrastructure Development (SID), comprising of a proposed substation and underground grid connection situated in the townlands of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballyeg, Linkardstown and Moyle Big (townlands), Co. Carlow. The report also aims to assess the potential of the proposed development on the known and potential archaeological, architectural and cultural heritage. This study was undertaken for Ballyloo Solar Farm Ltd by Rubicon Archaeology Ltd.

The proposed development comprises a substation and underground grid connection. These are the same infrastructure referenced in three Solar Farms located nearby whose planning applications are at different stages. Both Ballyloo Solar Farm (Planning Ref. 2460043) and Park Solar Farm (Planning Ref. 2460205) have been granted permission, and a decision is pending on Ballybannon Solar Farm (Planning Ref. 2560137). The proposed substation and grid connection is proposed to connect these three solar farms to the National Grid via the existing Kellis 220/110 kV substation. Three separate archaeological impact assessments were carried out for Ballyloo Solar Farm, Park Solar Farm and Ballybannon Solar Farm (O'Sullivan and O'Flaherty 2024a; O'Sullivan and O'Flaherty 2024b, O'Sullivan 2025).


The proposed development is situated c. 7 km south-east of Carlow town, in the townland of Ballyloo (the location of the proposed substation), with the proposed underground grid connection crossing through the townlands of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballyeg, Linkardstown and Moyle Big.

The archaeological assessment has identified 51 sites of archaeological, and/or cultural heritage significance within the study area. These include 29 known or suspected monuments (CH001–CH029), six Protected Structures (CH030–CH035) including four NIAH sites (CH030–CH033). There is a single topographical find (CH036) and ten townland boundaries (CH039–CH048).

There were two previous excavations (CH037–CH038) including one carried out within the footprint of the proposed substation (CH038). The location of the proposed substation was also the subject of a preceding geophysical survey which identified two anomalies, (CH050–CH051). There was a single area of archaeological potential (CH049) identified by landscape characteristic.

As currently laid out, there are no RMPs located within the proposed substation nor or any Zones of Notification crossed by the proposed substation. In addition, there are no RMPs located within the route of the proposed grid connection. However, the proposed grid connection will cross the Zone of Notification for six RMPs (CH021, CH024–CH028). Where the proposed grid connection crosses the Zone, it will comprise an underground cable within the existing public road, which is previously disturbed ground.

The proposed development will have direct effect on four CH sites (CH038–CH039, CH049, CH051). It will have an indirect effect on seven CH sites (CH010, CH021, CH024–CH028).

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Mitigation Measures

The proposed substation is located within the boundary of the permitted Ballyloo Solar Farm (Planning Ref. 2460043, PL01.322347). In a statement issued by the National Monument Service in March 2025 as part of the Ballyloo Solar Farm application, the NMS confirmed that the proposed substation location was acceptable in principle. A copy of the National Monuments Service submission on that permitted planning application is included in Appendix 9.

The site of the substation was subject to a separate impact assessment for the Ballyloo Solar Farm (O'Sullivan and O'Flaherty 2024a) which outlined the mitigations for the solar farm. This recommended preservation *in situ* as the preferred option but where preservation *in situ* is not achievable, either in whole or in part, then a programme of archaeological excavation should be proposed, to ensure the preservation by record of the identified archaeology (O'Sullivan and O'Flaherty 2024a, 51). In the statement from the NMS, they agreed with the recommended mitigations in the impact assessment (O'Sullivan and O'Flaherty 2024a) for the Ballyloo Solar Farm. However, the NMS also confirmed that it would provide a formal comment on the substation in its own respective application to *An Coimisiún Pleanála*.

The following mitigation measures are recommended:


1. The location of the proposed substation was the subject of a previous geophysical survey and test trenching, which identified features of archaeological potential. Mitigation by *in-situ* preservation would be the preferred option. Where preservation *in situ* cannot be achieved, then a programme of full archaeological excavation shall be undertaken in order to ensure the preservation by record of any subsurface archaeology that will be directly impacted upon by the proposed development. This work shall be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2014. The results of any archaeological test trenching, surveys and/or excavation will be submitted in a report to the Local Authority, the Heritage and Planning Division, Department of Housing, Local Government and Heritage and the National Museum of Ireland.
2. As part of the programme of advance archaeological works prior to construction, a combination of advance geophysical survey and advance archaeological test trenching will be undertaken under license to the National Monuments Service Section of the Department of Housing, Local Government and Heritage by a suitably qualified archaeologist ahead of construction. This shall target the footprint of the proposed grid connection cable route in areas not previously disturbed by services, roads, or other modern construction.
3. A suitably qualified archaeological consultant under license to the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor any sub-surface groundworks undertaken in proximity to RMPs. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the consultant archaeologist prior to the commencement of works in the vicinity of the recorded monument.
4. Should any archaeological material be encountered during monitoring or testing, works will cease, and the Planning Authority and National Monuments Service shall be notified. A strategy will be proposed to the Planning Authority and National Monuments Service to

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suitably record any archaeological material identified, and preserve any archaeological material *in situ*, where possible. Where preservation *in situ* cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the development that will be directly impacted upon. Further work will then only be carried out following consultations with the Planning Authority and the National Monuments Service.

5. Appropriate screening should be planted along the border to reduce the visual effect of the proposed development site.
6. Where a cable crosses an extant stream, a wade survey and a metal detector survey will be carried out by a suitably qualified archaeologist to assess the riverbed and banks for any archaeological and cultural heritage.
7. The resulting archaeological report will be submitted to the Planning Authority and to the National Monuments Service Section of the Department of Housing, Local Government and Heritage.

Please note all recommendations are subject to the approval of the National Monuments Service and the local planning authority archaeologist.

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1. INTRODUCTION

The purpose of this report is to assess the importance and sensitivity of the known, as well as the potential archaeological, architectural and cultural heritage environment for a Strategic Infrastructure Development (SID) comprising of a proposed substation and underground grid connection situated in the townlands of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballyeg, Linkardstown and Moyle Big (townlands), Co. Carlow. The reports also aim to assess the potential of the proposed development on the known and potential archaeological, architectural and cultural heritage. This study was undertaken for Ballyloo Solar Farm Ltd by Rubicon Archaeology Ltd.

1.1 Project Background

The proposed development comprises a substation and underground grid connection. These are the same infrastructure referenced in three Solar Farms located nearby whose planning applications are at different stages. This includes Park Solar Farm (Planning Ref. 2460205) which has been granted permission by Carlow County Council and Ballybannon Solar Farm (Planning Ref. 2560137) which is currently subject to request for further information by Carlow County Council. The last solar farm is Ballyloo Solar Farm (Planning Ref. 2460043, PL01.322347) which has been granted permission by An Coimisiún Pleanála. The proposed substation and grid connection is proposed to connect these three solar farms to the National Grid via the existing Kellis 220/110 kV substation. Three separate archaeological impact assessments were carried out for Ballyloo Solar Farm, Park Solar Farm and Ballybannon Solar Farm (O'Sullivan and O'Flaherty 2024a; O'Sullivan and O'Flaherty 2024b, O'Sullivan 2025).


The proposed location of the substation falls within Parcel 3 of the permitted Ballyloo Solar Farm. As part of the Ballyloo Solar Farm planning application, the applicant consulted with the National Monument Service (NMS) over the location of the substation. The substation was originally located in the field to the immediate east, on the opposite side of the L3050 in the townland of Linkardstown. Following an Options Assessment, and direct consultation with the NMS in January 2025, a decision was made to relocate the proposed substation to avoid any effects on recorded archaeological heritage.

The substation was moved from its original location to its current location in the townland of Ballyloo. In a statement issued in March 2025, the NMS confirmed that this new location of the substation was acceptable (See Appendix 9). In this statement, they also agreed with the recommended mitigations in the impact assessment (O'Sullivan and O'Flaherty 2024a) for the Ballyloo Solar Farm. In their statement, the NMS noted that as the substation and associated infrastructure will be the subject of a separate planning application to *An Coimisiún Pleanála*, they will comment on that application under separate cover.

This decision has had a positive effect on the potential impact level of the proposed substation with all archaeology associated with the former proposed substation site now being avoided.

1.2 Site Description and Location

The proposed development is situated c. 7 km south-east of Carlow town, in the townland of Ballyloo (the location of the proposed substation), with the proposed underground grid connection crossing through the townlands of of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown

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West, Kilballyhue, Knockbower, Leagh Or Ballyeg, Linkardstown and Moyle Big. The proposed substation will be connected to the existing Kellis 220/110kV substation via the proposed underground grid connection.

The proposed substation is located within an agricultural field, primarily used for tillage. The proposed grid connection will exit the proposed substation and will travel approximately 8.9 km to the existing Kellis substation, following the existing public road network. The route travels east on the L3050 before turning north onto the L30504. The cable would then cross the N80 at Castletown Cross Roads and enter the L7148 before turning south onto the L3053. The cable would then turn east onto the L30535.

However, there are two options proposed for its final entry into the existing 220/110kV Kellis substation, which apply to both the 110kV and 220kV underground grid connection cables.

- Option A is to leave the L30535 local road and enter onto private lands where it will cross agricultural farmland into the existing 220/110kV Kellis substation.
- Option B is to be situated within the L30535 local road which provides road access into the existing 220/110kV Kellis substation.

1.3 Study Area


The study area for this assessment has been defined in respect of two factors:

- the ability of sites/information sources to provide information pertaining to the archaeological potential of the proposed development site, and
- the potential physical effects, as well as effects on setting, that the proposed works may have on sites of cultural heritage significance.


Taking these factors into account, the study area has been defined as follows (See Table 1):

Table 1 — Dimensions of the study area

| Subject | Study Area |
|---|--|
| National Monuments and Recorded archaeological monuments (RMPs) | Within 1 km of proposed substation site, and within 250 m of the proposed underground cable route. |
| Protected Structures and/or their curtilage | Within 1 km of proposed substation site, and within 250 m of the proposed underground cable route. |
| Architectural Conservation Areas (ACAS) | Within 1 km of proposed substation site, and within 250 m of the proposed underground cable route. |
| Structures recorded in the NIAH | Within 1 km of proposed substation site, and within 250 m of the proposed underground cable route. |
| Zones of Archaeological Potential | Within the proposed development footprint |
| Unregistered features of cultural heritage | Within the proposed development footprint |
| Areas of archaeological potential; Unregistered Cultural Heritage Receptors (UCH) | Within the proposed development footprint |

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| Subject | Study Area |
|--|--|
| Previous Excavations and National Museum Topographical Files | Within 1 km of proposed substation site, and within 250 m of the proposed underground cable route. |

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2. OBJECTIVES AND METHODOLOGY

2.1 Objectives

This study aims to assess the baseline archaeological, architectural and cultural heritage environment, evaluate potential effects that the proposed works will have on this environment, and provide mitigation measures in accordance with the policies of the National Monuments Service, the Department of Housing, Local Government and Heritage (DoHLGH) and Carlow County Council, the National Monuments Act 1930–2014, as amended, and best practice guidelines, to avoid, reduce or offset these effects.

Cultural heritage (CH) includes artefacts, monuments, groups of buildings, sites, and museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological or anthropological, scientific and social significance. It includes tangible heritage (movable, immobile and underwater), intangible cultural heritage (ICH) embedded into cultural, and natural heritage artefacts, sites or monuments. The definition excludes ICH related to other cultural domains such as festivals, celebration etc. It includes industrial heritage and cave paintings (UNESCO 2009).


In order to provide a comprehensive assessment, an extensive desktop study in addition to a field inspection of the proposed development area was undertaken.

The scope and methodology for the baseline assessment has been devised with reference to the following guidelines:

- Environmental Protection Agency (2022) *Guidelines on the Information to be Contained in Environmental Impact Statements*
- TII (2022) *Guidelines for Cultural Heritage Impact Assessment of TII National Road and Greenway Projects*
- Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) (1999) *Frameworks and Principles for the Protection of the Archaeological Heritage*
- Environmental Protection Agency (2003; Draft 2015) *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)*
- *Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment* (Department of Housing Local Government and Heritage 2018)
- Department of the Environment, Heritage and Local Government (2011) *Architectural Heritage Protection Guidelines for Planning Authorities*
- Eirgrid (2015) *Cultural Heritage Guidelines for Electricity Transmission Projects. A Standard Approach to Archaeological, Architectural and Cultural Heritage Impact Assessment of High Voltage Transmission Projects*
- National Monument Service (2016) – Solar Farm developments; Internal Guidance Documents
- Chartered Institute for Archaeologists (CIfA 2020) *Standard and Guidance for Commissioning Work or Providing Consultancy Advice on Archaeology and the Historic Environment*

2.2 Desktop Study Methodology

The present assessment of the archaeological, architectural, and cultural heritage of the proposed development area is based on a desktop study of a number of documentary and cartographic sources. The desktop study was further augmented by an examination of aerial photography as well as a field survey. The main sources consulted in completing the desktop study are listed here:

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- List of National Monuments in State Care: Ownership & Guardianship
- List of Preservation Orders and the Register of Historic Monuments
- Record of Monuments and Places (RMP)
- Files of the Sites and Monuments Record (SMR)
- Updated SMR available at www.archaeology.ie
- National Inventory of Architectural Heritage (NIAH) Building Survey
- County and Town Development Plans
- Irish Antiquities Division, National Museum of Ireland Topographical Files
- Urban Archaeological Surveys
- Ordnance Survey first and subsequent editions, www.osi.ie
- Ordnance Survey Name books / Letters / Memoirs
- National Folklore Collection
- Early maps and estate maps
- Aerial photographs
- Excavations Bulletin (www.excavations.ie)
- www.loganim.ie (for townland names)

2.3 Field Inspection Methodology

A field inspection of the location of the proposed substation was undertaken by Enda O'Flaherty and Dawn Gooney of Rubicon Archaeology Ltd on 27 April 2023 (Plates 1–2).

The primary purpose of a field inspection is to assess the site in order to identify any potential low-visibility archaeological and/or historical sites or other elements that are not currently recorded, and which may be impacted upon negatively by the proposed development. It is also the purpose of the field inspection to survey any known monuments or sites and to consider the relationship between them and the surrounding landscape, all of which need to be considered during the assessment process.


The methodology used during the field inspection involved recording the present land use as well as the existing topography for the entire area comprising the proposed development site. A photographic record and written description were compiled for any known and/or potential sites of archaeological, architectural and/or cultural significance.

2.4 Methodology Used for Assessing Baseline Value of Sites

In order to categorise the baseline environment in a systemised manner, 'baseline values' have been assigned to each identified site of cultural heritage significance and/or potential within the study area (see Section 1.3). The baseline value of a site is determined with reference to the 'importance' and 'sensitivity' of the site.

The importance of a site is determined based on the following criteria: legal status, condition, historical associations, amenity value, ritual value, specimen value, group value and rarity.

The sensitivity of a site is determined based on the presence of extant remains and/or the potential for associated sub-surface remains of the feature to be present *in situ*.

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It should be noted that the National Monuments Act 1930–2014, as amended does not differentiate between recorded archaeological sites on the basis of relative importance or sensitivity. In addition, the Planning and Development Act 2000 (as amended) does not differentiate between Protected Structures or Areas of Architectural Conservation on the basis of relative importance or sensitivity either. Consequently, professional judgement has been exercised to rate these features based on their perceived importance and sensitivity in relation to physical effects and effects on setting.

Taking the above factors into consideration, the criteria that have been defined are provided in Table 2 below.

Table 2 — Baseline values of sites

| Subject | Baseline Value |
|--|----------------|
| <ul style="list-style-type: none"> - Recorded Archaeological Monuments - Protected Structures - Architectural Conservation Areas (ACAs) | Very High |
| <ul style="list-style-type: none"> - Sites listed in the NIAH that are not Protected Structures - Unregistered built heritage sites that comprise extant remains which are in good condition and/or which are regarded as constituting significant cultural heritage features - Unrecorded features of archaeological potential | High |
| <ul style="list-style-type: none"> - Unregistered built heritage sites that comprise extant remains which are in poor condition - Unregistered cultural heritage sites (not including built heritage sites) that comprise extant remains - Townland boundaries that comprise extant remains - Marshy/wetland areas | Medium/High |
| <ul style="list-style-type: none"> - Unregistered cultural heritage sites for which there are no extant remains but where there is potential for associated subsurface evidence - Townland boundaries for which there are no extant remains | Medium/Low |
| <ul style="list-style-type: none"> - Unregistered cultural heritage sites for which there are no extant remains and where there is little or no potential for associated subsurface evidence | Low |

Caution should be exercised when assessing the perceived significance of an archaeological, architectural or cultural heritage site as such categorisation is open to subjectivity. In addition, the perceived levels of importance as identified in this report are liable to future revision in the instance where new information, through the undertaking of further archaeological investigations, is provided.

2.5 Type of Effects

The following table lists the type of effects that a proposed development may have on the cultural heritage resource (after Environmental Protection Agency 2022):


| | | | | | | |
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Table 3 - Type of effects

| Type of Effects | Definition |
|----------------------|--|
| Direct | Direct effects arise where an archaeological, architectural and/or cultural heritage feature or site is physically located within the footprint of the proposed development, or its associated physical effect zone, whereby the removal of part, or all of the feature or site is thus required. |
| Indirect | Indirect effects arise when an archaeological, architectural or cultural heritage feature is not located within the footprint of the proposed development, or its associated physical effect zone, and thus is not affected directly. Such an effect could include an effect on setting or effect on the zone of archaeological potential of site whereby the actual site itself is not physically affected. |
| Do-nothing effects | The environment as it would be in the future should the subject project not be carried out. |
| Worst-case Effects | The effects arising from a project in the case where mitigation measures substantially fail. |
| Cumulative | The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects |
| Indeterminable | Whereby the full consequence that the proposed development may have on the cultural heritage resource is not known |
| Irreversible Effects | When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost. |
| Residual | The degree of environmental change that will occur after the proposed mitigation measures have taken effect. |
| Synergistic Effects | Where the resultant effect is of greater significance than the sum of its constituents |

2.6 Methodology Used for Assessing Magnitude of Effects

The methodology used to assess the magnitude of potential pre-mitigation effects, as well as residual effects, of the proposed development on the baseline environment is presented in Table 4 below.


Table 4 — Criteria used for rating magnitude of effects

| Effect Magnitude | Criteria |
|------------------|--|
| Profound | <ul style="list-style-type: none"> An effect which obliterates sensitive characteristics Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, adverse effects only. These effects arise where an archaeology site is completely and irreversibly destroyed. An effect that obliterates the architectural heritage of a structure or feature of national or international importance. These effects arise where an architectural structure or feature is completely and irreversibly destroyed by the proposed development. Mitigation is unlikely to remove adverse effects. |
| Very Significant | <ul style="list-style-type: none"> An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment. |



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| Effect Magnitude | Criteria |
|------------------|--|
| Significant | <ul style="list-style-type: none">• An effect which, by its magnitude, duration or intensity, alters an important aspect of the environment. An effect like this would be where part of a site would be permanently affected, leading to a loss of character, integrity and data about an archaeological feature/site.• An effect that by its magnitude, duration or intensity alters the character and/or the setting of the architectural heritage. These effects arise where an aspect or aspects of the architectural heritage is/are permanently affected leading to a loss of character and integrity in the architectural structure or feature. Appropriate mitigate is likely to reduce the effect.• A beneficial or positive effect that permanently enhances or restores the character and/or setting of a feature of archaeological or cultural heritage significance in a clearly noticeable manner. |
| Moderate | <ul style="list-style-type: none">• An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.• A medium effect arises where a change to a site/monument is proposed which though noticeable, is not such that the archaeological integrity of the site is compromised, and which is reversible. This arises where an archaeological feature can be incorporated into a modern-day development without damage and that all procedures used to facilitate this are reversible.• A medium effect to a site/monument may also arise when a site is fully or partly excavated under license and all recovered data is preserved by record.• An effect that results in a change to the architectural heritage which, although noticeable is not such that alters the integrity of the heritage. The change is likely to be consistent with existing and emerging trends. Effects are probably reversible and may be of relatively short duration. Appropriate mitigation is very likely to reduce the effect.• A beneficial or positive effect that results in partial or temporary enhancement of the character and/or setting of a feature of archaeological or cultural heritage significance in a clearly noticeable manner. |

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| Effect Magnitude | Criteria |
|------------------|---|
| Slight | <ul style="list-style-type: none"> An effect which causes noticeable changes in the character of the environment without affecting its sensitivities An effect which causes changes in the character of the environment, such as visual effect, which are not high or very high and do not directly affect or affect an archaeological feature or monument. An effect that causes some minor change in the character of architectural heritage of local or regional importance without affecting its integrity or sensitivities. Although noticeable, the effects do not directly affect the architectural structure or feature. Effects are reversible and of relatively short duration. Appropriate mitigation will reduce the effect. A beneficial or positive effect that causes some minor or temporary enhancement of the character of an architectural heritage significance which, although positive, is unlikely to be readily noticeable. |
| Not significant | <ul style="list-style-type: none"> An effect which causes noticeable changes in the character of the environment but without significant consequences. |
| Imperceptible | <ul style="list-style-type: none"> An effect on archaeological features or monument capable of measurement but without significant consequences. An effect on architectural heritage of local importance that is capable of measure merit but without noticeable consequences. A beneficial or positive effect on architectural heritage of local importance that is capable of measurement but without noticeable consequences. |

Positive significance level of a construction or operation effect on a feature may also be expressed.


- **Significant positive:** a beneficial effect that permanently enhances or restores the character and/or setting of the architectural heritage in a clearly noticeable manner.
- **Moderate positive:** a beneficial effect that results in partial or temporary enhancement of the character and/ or setting of the architectural heritage and which is noticeable and consistent with existing and emerging trends.
- **Slight positive:** a beneficial effect that causes some minor or temporary enhancement of the character of architectural heritage or local or regional importance which, although positive, is unlikely to be readily noticeable; and
- **Imperceptible positive:** a beneficial effect on architectural heritage of local importance that is capable of measurement but without noticeable consequences.

2.7 Assessing the Duration and Frequency of Effect

‘Duration’ is a concept that can have different meanings for different topics. The EPA (2022) has issued the below guideline definitions when discussing duration in the context of environmental impact assessment.

Table 5 — Duration and frequency of effect

| Term | Criteria |
|-------------------|---|
| Momentary Effects | Effects lasting from seconds to minutes |

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| Term | Criteria |
|----------------------|--|
| Brief Effects | Effects lasting less than a day |
| Temporary Effects | Effects lasting less than a year |
| Short-term Effects | Effects lasting 1–7 years |
| Medium-term Effects | Effects lasting 7–15 years. |
| Long-term Effects | Effects lasting 15–60 years. |
| Permanent Effects | Effects lasting over 60 years. |
| Reversible Effects | Effects that can be undone, for example through remediation |
| Frequency of Effects | Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually). |

2.8 Methodology Used for Assessing Significance Level of Effects

The significance level of a construction or operation effect on a feature is assessed by combining the magnitude of the effect and baseline value of the feature. The matrix in Table 6 provides a guide to decision-making but is not a substitute for professional judgement and interpretation, particularly where the baseline value or effect magnitude levels are not clear or are borderline between categories. The permanence of the effects is also taken into account, with irreversible effects being more significant while temporary or reversible changes are likely to be less significant.


Table 6 — Criteria for assessing significance level of effects

| Magnitude of Effect | Baseline Value | | | | |
|-------------------------|------------------|------------------|---------------|---------------|---------------|
| | Very High | High | Medium/High | Medium/Low | Low |
| Profound | Very significant | Very significant | Significant | Moderate | Slight |
| Very Significant | Significant | Significant | Moderate | Slight | Slight |
| Significant | Significant | Moderate | Moderate | Slight | Slight |
| Moderate | Moderate | Moderate | Slight | Slight | Negligible |
| Slight | Moderate | Slight | Slight | Negligible | Negligible |
| Not Significant | Slight | Slight | Imperceptible | Imperceptible | Imperceptible |
| Imperceptible | Imperceptible | Imperceptible | Imperceptible | Imperceptible | Imperceptible |

2.9 Assessing Effects on Setting

The definition of setting follows the guidance set by Historic England as they have developed a range of comprehensive guidance on this subject specific to heritage assets (Historic England; 2008; 2017). Hence setting is not simply the visual envelope of the asset in question. Rather, it is those parts of the asset's surroundings that are relevant to the significance of the asset and the appreciation thereof, and in which a heritage asset is experienced.

In most instances setting will relate to the historical value of the asset, where an appreciable relationship between the asset and an element of its surroundings helps the visitor understand and appreciate the asset. This may be in terms of a physical relationship, such as between a castle and the natural rise that it occupies, or a more distant visual relationship, such as a designed vista or the view from, for example, one ringfort to another. The former is referred to as immediate setting and the latter as landscape

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setting. Many assets will only have an immediate setting. Some assets will have aesthetic value that relates to the surrounding landscape, such as in the case of a designed view incorporating a distant hill, or that relates to the contribution the asset makes to the local landscape, for example a church spire providing a focal point in a view down a valley.


Historic England has provided a list of factors to be considered when assessing effects upon setting. These are broad factors and have been taken into consideration when assessing magnitude of effect and sensitivity. They are summarised in Table 7.

Table 7 — Factors to be considered when assessing effects upon setting (after Historic England 2017)

| Factor | Discussion |
|----------------------------------|--|
| Visual dominance | Where an historic feature (such as a hilltop monument or fortification, a church spire, or a plantation belonging to a designed landscape) is the most visually dominant feature in the surrounding landscape, adjacent construction of the proposed development may be inappropriate. |
| Scale | The extent of a proposed development and the number, density and disposition of its associated elements will also contribute to its visual effect. |
| Intervisibility | Certain archaeological or historic landscape features were intended to be seen from other historic sites. Construction of a proposed development should respect this intervisibility. |
| Vistas and sightlines | Designed landscapes invariably involve key vistas, prospects, panoramas and sightlines, or the use of topography to add drama. Location of a proposed development within key views, which may often extend beyond any designated area, should be avoided. |
| Movement, sound or light effects | The movement associated with a proposed development may be a significant issue in certain historic settings. Adequate distance should always be provided between important historic sites and proposed developments to avoid the site being overshadowed or affected by noise. |
| Unaltered settings | The setting of some historic sites may be little changed from the period when the site was first constructed, used or abandoned. Largely unaltered settings for certain types of sites, particularly more ancient sites, may be rare survivals and especially vulnerable to modern intrusions such as wind turbines. This may be a particular issue in certain upland areas. |

The following are guides to the assessment of magnitude of effect on setting:

- Obstruction of or distraction from key views. Some assets have been sited or designed with specific views in mind, such as the view from a country house with designed vistas. The obstruction or cluttering of such views would reduce the extent to which the asset could be understood and appreciated by the visitor. Developments outside key views may distract from them and make them difficult to appreciate on account of their prominence and movement. In such instances the magnitude is likely to be greatest where views have a particular focus or a strong aesthetic character. Sympathetic development may improve key views by removing features that obstruct or distract from key views and hence preserve or enhance the importance of the asset.
- Changes in prominence. Some assets are deliberately placed in prominent locations in order to be prominent in the surrounding landscape, for example prehistoric cairns are often placed to be silhouetted against the sky and churches in some areas are deliberately placed on ridges in

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order to be highly visible. Developments can reduce such prominence and therefore reduce the extent to which such sites can be appreciated or the contribution that they make to the local landscape. Similarly, sympathetic development can enhance the setting of such sites by, for example, removing modern forestry that would otherwise compromise the setting of a cairn that had been placed on a skyline.

- Changes in landscape character. A particular land use regime may be essential to the appreciation of an asset's function, for instance the fields surrounding an Improvement period farmstead are inextricably linked to its appreciation. Changes in land use can leave the asset isolated and reduce its value. In some instances, assets will have aesthetic value or a sense of place that is tied to the surrounding landscape character. Conversely, sympathetic development may restore or preserve the relevant land use and hence preserve or enhance the relevant value of the asset.
- Duration of effect. Effects that are long term or permanent are generally of greater magnitude than those that are short term.


Readily reversible effects are generally of lesser magnitude than those that cannot be reversed. Effects upon the defined setting will be of greater magnitude than those that affect unrelated elements of the asset's surroundings or incidental views to or from an asset that are unrelated to the appreciation of its value. The magnitude of effects can be rated from Negligible to Major using a similar scale to that for physical effects.

2.10 Legislation, Planning Policy and Guidance

A review of the applicable legislation, as well as national, strategic and local planning policies and guidance was undertaken as part of this study. The relevant sections addressing archaeological, architectural and cultural heritage in the Carlow County Development Plan (2022–2028) are included in Appendix 5. Any mitigation measures proposed in Section 5 take account of the current legislation, policies and guidelines so as to avoid, reduce or offset effects on the archaeological, architectural and cultural heritage environment, in line with the aforementioned legislation, local planning policies and guidance.

2.11 Limitations of this Assessment

There were no difficulties or limitations encountered during the compilation of this report.

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3. BASELINE/RECEIVING ENVIRONMENT

3.1 Designated Archaeological Sites

3.1.1 Known or Suspected Monuments (The SMR and RMP)


A Sites and Monuments Record (SMR) was issued for all counties in the State between 1984 and 1992 and is continually updated and supplemented as additional monuments are discovered. The SMR is an inventory containing a numbered list of known or suspected monuments originally accompanied by 6-inch Ordnance Survey maps (at a reduced scale). The SMR formed the basis for issuing the Record of Monuments and Places (RMP) - the statutory list of recorded monuments established under Section 12 of the National Monuments (Amendment) Act 1994. Under this Act, each site recorded in the RMP is granted statutory protection. When the owner or occupier of a property, or any other person, proposes to carry out, or to cause, or to permit the carrying out of any work at or in relation to a recorded archaeological monument, they are required to give notice in writing to the Minister for Housing, Local Government and Heritage two months before commencing that work.

There are 28 known or suspected monuments located within the study area (see Section 1.3) for the proposed development (see 1.3; Table 8). This includes a single redundant record (CH016) which was delisted from the RMP on the 1995 RMP mapping.

There are no monuments located within the proposed substation. The proposed substation does not cross the statutory Zone of Notification for any monument (See Figures 7.1–7.3).

In addition, there are no monuments located within the route of the proposed grid connection. However, the proposed route crosses the statutory Zone of Notification for six RMPs, CH021, CH024–CH028. Five of the RMPs (CH024–CH028) are a group situated in the same location. Where the proposed grid connection crosses the Zone, it will comprise an underground cable within the existing public road, which is previously disturbed ground.

- CH021 (CW012-090---): Aerial photographs (GB89.O.23 and 24) shows cropmark of a large curvilinear enclosure defined by a wide fosse with a complex multi-ditched entrance facing east and a simple entrance facing south. A third possible entrance leads into a rectilinear annexe, defined by two fosses, on western side. A circular pit adjoins the fosse within the curvilinear enclosure. Curvilinear fosses extend from both enclosures indicating an associated field system but complicated by irregular cropmarks of geomorphological origin indicating patterned ground resulting from frost action. Part of a complex cropmark landscape comprising three contrasting enclosures. Curved modern field boundary respects the eastern boundary of the enclosure. The three contrasting enclosures are not necessarily contemporaneous (Barrett 1989).
- CH024 (CW008-038001-): Church in the south sector of the graveyard (CW008-038006-), the south wall of the church forming the south boundary of the graveyard. Dedicated to St Patrick (OSL 1839, 11-15, 100-1). Church consists of rectangular structure of large, uncoursed mortared granite boulders (min. L. 14 m: Wth. 5.6 m), subsequently enlarged and modified by removing and replacing wall at the north to give width of 6.4 m, adding chancel of small granite stones (min. L. 5.3 m: Wth. approx. 3.9 m), and large round ashlar chancel arch. Blocked round-arched entrance in south wall of nave. Small piscina in south wall. Lying within nave are (1) large fragment of finely dressed polygonal font, (2) single basin bullaun (diam. 0.3 m D. 0.2 m). No trace of round tower. (JKAS 1933, 271-7; JAPMD 1902, 148).


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- CH025 (CW008-038006-): A rectangular enclosure (map dims. c. 37 m north-south; c. 79 m east-west) with the medieval church (CW008-038001-) in the south sector of the graveyard, the south wall of the church forming the south boundary of the graveyard. A later, probably 19th century, church was built to the north-west of the earlier church.
- CH026 (CW008-038005-): A vault with an inscription dating to 1603 was noted at Kellistown Church (CW008-038001-) (O' Flanagan 1934, 47). This could not be located.
- CH027: (CW008-038002-: *The Anthologia Hibernica* (Vol. IV., p. 105 July - December 1794) contains a sketch of a Round Tower in ruins at Kellistown (JKAS 1933, 271-7). A drawing by J. Saunders TCD, believed to date to c. 1797 also depicts the round tower in ruins. The OS Letters (O' Flanagan 1934, 44) note that the belfry of the church (CW008-038001-) was built where the round tower stood.
- CH028 (CW008-038003-): Large fragment of finely dressed polygonal font (CW008-038002-) and single basin bullaun (CW008-038004-) lying within nave of church (CW008-038001-).

The zones do not define the exact extent of the monuments but rather are intended to identify them for the purposes of notification under Section 12 of the National Monuments Act (1930-2004): each is referred to as a "zone of notification". If it is intended to carry out works within a Zone of Notification, two months prior notice in writing must be provided to the Minister for Minister for Housing, Local Government and Heritage, even if planning permission is not needed for the works. Works undertaken through the planning process is via a formal notification mechanism and acts as notification in accordance with Section 12 of the National Monuments Act.

Table 8 — Known or Suspected Monuments within the study area

| CH ID | Monument No. | RMP | Short Description | Townland |
|-------|---------------|-----|----------------------|----------------|
| CH001 | CW012-091002- | No | Enclosure | Linkardstown |
| CH002 | CW012-091003- | No | Enclosure | Linkardstown |
| CH003 | CW012-017---- | Yes | Linkardstown burial | Linkardstown |
| CH004 | CW012-018001- | Yes | Church | Linkardstown |
| CH005 | CW012-018002- | Yes | Font | Linkardstown |
| CH006 | CW012-018003- | Yes | Graveyard | Linkardstown |
| CH007 | CW012-016---- | Yes | Enclosure | Ballybar Upper |
| CH008 | CW012-028---- | Yes | Enclosure | Garryhundon |
| CH009 | CW012-029---- | Yes | Ringfort - rath | Ballyloo |
| CH010 | CW012-031---- | Yes | Castle - tower house | Ballyloo |
| CH011 | CW012-031001- | No | Bawn | Ballyloo |
| CH012 | CW012-030---- | Yes | Ringfort - rath | Ballyloo |
| CH013 | CW012-192---- | No | Enclosure | Ballyloo |
| CH014 | CW012-211---- | No | Enclosure | Ballyloo |
| CH015 | CW012-210---- | No | Enclosure | Ballyloo |
| CH016 | CW012-032---- | Yes | Redundant record | Ballyloo |
| CH017 | CW012-084---- | Yes | Burial ground | Ballyloo |
| CH018 | CW012-090001- | No | Enclosure | Linkardstown |
| CH019 | CW012-090003- | No | Field system | Linkardstown |
| CH020 | CW012-090002- | No | Enclosure | Linkardstown |
| CH021 | CW012-090---- | Yes | Enclosure | Linkardstown |
| CH022 | CW012-220---- | No | Enclosure | Ballyloo |

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| CH ID | Monument No. | RMP | Short Description | Townland |
|-------|---------------|-----|-------------------------|-----------------|
| CH023 | CW013-001---- | Yes | Ritual site - holy well | Kellistown East |
| CH024 | CW008-038001- | Yes | Church | Kellistown East |
| CH025 | CW008-038006- | Yes | Graveyard | Kellistown East |
| CH026 | CW008-038005- | Yes | Graveslab | Kellistown East |
| CH027 | CW008-038002- | Yes | Round tower | Kellistown East |
| CH028 | CW008-038003- | Yes | Font | Kellistown East |

3.1.2 National Monuments

National Monuments are broken into two categories: National Monuments in the ownership or guardianship of the state and National Monuments in the ownership or guardianship of a local authority. Section 8 of the National Monuments (Amendment) Act 1954 provides for the publication of a list of monuments, the preservation, of which, are considered to be of national importance. Two months' notice must be given to the Minister for Housing, Local Government and Heritage where work is proposed to be carried out at or in relation to any National Monument.

There are no National Monuments sites incorporated by the study area (see Section 1.3).

3.1.3 Sites with Preservation Orders

The National Monuments Act 1930–2014 as amended provide for the making of Preservation Orders and Temporary Preservation Orders in respect of National Monuments. Under Section 8 of the National Monument Act 1930 (as amended) the Minister for Housing, Local Government and Heritage, can place a Preservation Order on a monument if, in the Ministers' opinion, it is a National Monument in danger of being or is actually being destroyed, injured or removed or is falling into decay through neglect. The Preservation Order ensures that the monument shall be safeguarded from destruction, alteration, injury, or removal, by any person or persons without the written consent of the Minister.

There are no sites with preservation orders incorporated by the study area (see Section 1.3)


3.1.4 National Museum of Ireland Topographical Finds

The National Museum of Ireland Topographical finds database was consulted to see if there was a record of an archaeological object within the study area. The database is a representation of the distribution of archaeological objects at a local and national level, based on the Irish Antiquities Division's Collections Database. Section 2 of the 1930 National Monuments Act (amended) defines an archaeological object as (in summary) any chattel in a manufactured or partly manufactured state or an unmanufactured state but with an archaeological or historical association. This includes ancient human, animal or plant remains. The database produced a single result for the study area (see Section 1.3; Table 9).

Table 9 — National Museum of Ireland Topographical Finds located within the study area

| CH ID | Type | ID No; | Short Description | Townland |
|-------|------|---------------------------|--|--------------|
| CH036 | NMI | 1944: 65, 65A, 66, 67 A-E | Human skeleton (65), Pig tooth (65A), Stone axe head (66), Pottery representing 5 vessels (67 A-E) | Linkardstown |

3.2 Designated Architectural Heritage Sites

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In 1997 Ireland ratified the Granada Convention on architectural heritage. This provided the basis for a national commitment to the protection of the architectural heritage throughout the country. The Local Government (Planning and Development) Act 2000, and the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999, made the legislative changes necessary to provide for a strengthening of the protection of architectural heritage.

3.2.1 Record of Protected Structures

The Carlow County Development Plan (2022–2028) was consulted for schedules of Protected Structures. These are buildings that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, and/or technical point of view. Protected Structures receive statutory protection from injury or demolition under Section 57 (1) of the Local Government (Planning and Development) Act 2000. Protected structure status does not exclude development or alteration but requires the developer to consult with the relevant planning authority to ensure that elements which make the structure significant are not lost during development.

There are six Protected Structures located within the study area (see Section 1.3), of which four are also listed on the NIAH register (see Table 10). None of the Protected Structures are located within the application boundary. The closest site is Kellistown Church of Ireland (CH030) which is located c. 47 m north of the proposed grid connection.

Table 10 — Protected Structures located within the study area

| CH ID | Type | RPS No; | Short Description | Townland |
|-------|------|---------------|-----------------------------------|-------------------|
| CH030 | RPS | RPS No. CW308 | Church/chapel | Kellistown East |
| CH031 | RPS | RPS No. CW313 | Outbuilding | Kilballyhue |
| CH032 | RPS | RPS No. CW312 | Kilballyhue house | Kilballyhue |
| CH033 | RPS | RPS No. CW293 | Graiguenaspiddoge National School | Graiguenaspiddoge |
| CH034 | RPS | RPS No. CW311 | Farmyard, Kyleballyhue House, | Kilballyhue |
| CH035 | RPS | RPS No. CW402 | Letter Box | Moyle Big |


3.2.2 Architectural Conservation Areas

The Carlow County Development Plan (2022–2028) was consulted for records relating to Architectural Conservation Areas (hereinafter ‘ACAs’). The stated objective of ACAs is to conserve and enhance the special character of the area, including traditional building stock and material finishes, spaces, streetscapes, landscape and setting.

There are no ACAs within the study area (see Section 1.3).

3.2.3 National Inventory of Architectural Heritage (NIAH)

The National Inventory of Architectural Heritage (hereinafter the ‘NIAH’) is a state initiative under the administration of the DoHLGH and was established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. Its purpose is to identify, record and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently, as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing, Local Government and

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Heritage to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

There are four NIAH sites located within the study area (see Section 1.3), all of which are Protected Structures (see Table 11). None of the Protected Structures are located within the application boundary. The closest site is Kellistown Church of Ireland (CH030) which is located *c.* 47 m north of the proposed grid connection.

Table 11 — NIAH registrations located within the study area

| CH ID | Type | Reg No; | Short Description | Townland |
|-------|------|------------------|-----------------------------------|-------------------|
| CH030 | RPS | Reg No. 10300803 | Church/chapel | Kellistown East |
| CH031 | RPS | Reg No. 10301238 | Outbuilding | Kilballyhue |
| CH032 | RPS | Reg No. 10301234 | Kilballyhue house | Kilballyhue |
| CH033 | RPS | Reg No. 10301235 | Graiguenaspiddoge National School | Graiguenaspiddoge |

3.3 Undesignated Cultural Heritage Sites within the Proposed Development Site

This section deals with sites that are considered to be of cultural heritage value, but which do not fall within the above categories as they are not registered. Such sites may include limekilns, dwellings/outhouses, trackways or townland boundaries etc. identifiable on the First Edition 6/25-inch OS maps and/or noted during the field visit.


3.3.1 Sites identifiable on cartographic sources

The cartographic record for the study area was examined for the purposes of this report (Figures 4, 5 and 6). The First Edition 6-inch Ordnance Survey Sheet (1840), First Edition 25-inch Survey (1907) and the First Edition 6-inch Cassini Survey (*c.* 1908–1942) were consulted to identify undesignated cultural heritage sites that may be impacted on by the proposed scheme. The maps show that there were changes to the field system between the 6-inch map and 25-inch map, with fields being subdivided. For example, the two fields located at the east end of the grid connection are shown as four adjoining fields on the 6-inch OS map. By the time of the 25-inch OS map, this has reduced to two adjoining fields.

There are no undesignated cultural heritage sites located within the application boundary of the proposed substation and grid connection (see Section 1.3).

3.3.2 Townland boundaries

A townland is the smallest official land unit in the country. Ireland is made up of approximately 60,000 townlands. As a result, townland boundaries are ubiquitous in the Irish countryside and have been incorporated into the modern agricultural landscape. Many townlands predate the arrival of the Anglo-Normans, and Irish historical documents consistently use townland names throughout the historic period to describe areas and locate events accurately in their geographical context. This suggests that many the boundaries of many of these territorial units preserve landscape divisions from the medieval period and perhaps earlier. The townland names and boundaries were standardised in the 19th century when the Ordnance Survey began to produce large-scale maps of the country. Research into the name of these land units frequently provides information relating to its archaeology, history, folklore, ownership, topography or land use.

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The First Edition 6-inch Ordnance Survey was consulted in order to identify the location of townland boundaries that may be affected on by the proposed scheme. The proposed development overlies or crosses ten townland boundaries (see Table 12). One of the townland boundaries, CH039, is follows the line of a stream on the 6-inch OS map. However, by the time of the 25-inch map, this has been straightened to follow the centre of the road. The 25-inch OS map shows the drain along the western side of the road. In all other instances, the townland boundary has already been broken or is formed by the existing road network.

Table 12 — Townland boundaries located within the study area

| CH ID | Type | ID No. | Short Description | Townland |
|-------|-------------------|--------|---|---|
| CH039 | Townland Boundary | TB01 | Linkardstown/Ballyloo townland boundary | Ballyloo/Linkardstown |
| CH040 | Townland Boundary | TB04 | Linkardstown/Knockbower townland boundary | Linkardstown/Knockbower |
| CH041 | Townland Boundary | TB03 | Kilballyhue/Knockbower townland boundary | Kilballyhue/Knockbower |
| CH042 | Townland Boundary | TB02 | Kilballyhue/Graiguenaspiddoge townland boundary | Kilballyhue/Graiguenaspiddoge |
| CH043 | Townland Boundary | TB05 | Graiguenaspiddoge/Kilballyhue/Leagh of Ballybeg townland boundary | Graiguenaspiddoge/Kilballyhue/Leagh of Ballybeg |
| CH044 | Townland Boundary | TB06 | Kilballyhue/Leagh of Ballybeg townland boundary | Kilballyhue/Leagh of Ballybeg |
| CH045 | Townland Boundary | TB07 | Kilballyhue/Castletown townland boundary | Kilballyhue/Castletown |
| CH046 | Townland Boundary | TB08 | Kilballyhue/Moyle Big townland Boundary | Kilballyhue/Moyle Big |
| CH047 | Townland Boundary | TB09 | Kellistown West/Kilballyhue/Moyle Big townland boundary | Kellistown West/Kilballyhue/Moyle Big |
| CH048 | Townland Boundary | TB10 | Kellistown West/Kellistown East Townland boundary | Kellistown West/Kellistown East |


3.3.3 Sites identifiable on aerial photography and satellite imagery

Ortho-rectified aerial photography available from the Ordnance Survey of Ireland was inspected in order to identify possible features of cultural and heritage significance. Aerial photography from the 1995, 2000, and 2005 fly-overs was inspected, as well as the latest Tailte Éireann images, LiDAR imagery (where available), Google Earth and Bing Maps satellite imagery.

No additional undesignated cultural heritage sites were identified on other aerial photography and satellite imagery within the proposed development site.

3.3.4 Sites identified during field inspection

The location of proposed substation was inspected by Enda O’Flaherty and Dawn Gooney of Rubicon Archaeology Ltd during November 2023 (see Plate 1–2).

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No additional sites or features of Archaeological, Architectural and Cultural Heritage significance were identified.

3.3.5 Areas of Archaeological Potential

Areas of archaeological potential (AAPs) are additional areas or locations whose landscape characteristics suggest a higher potential for unknown archaeological features to be present e.g. riverine, estuarine or peatland environments. There was a single area of archaeological potential identified based on landscape characteristics (see Section 1.3; Table 13).


The location of the substation was the subject of a previous programme of geophysical survey by G. Dowling (2024) under Licence No. 24R0349 (see Appendix 7). This was carried out in advance of Ballyloo Solar Farm (PI Ref. 2460043). As noted in Section 1.1, as part of the Ballyloo Solar Farm planning application, the NMS confirmed that the location of the substation was acceptable.

This geophysical survey, comprising high resolution magnetic gradiometry, was implemented over 11 discrete areas that encompass a combined area of 63.25 hectares (Dowling 2024, 8). The results of Area 6, which comprises two adjacent fields, are relevant to the location of the proposed substation.

Within the field of the proposed substation location, the geophysical survey identified two anomalies. This included Anomaly 2 which is interpreted as a probable former road/track network that extended across much of the development area of Ballyloo Solar Farm (Dowling 2024, 26). The second anomaly was Anomaly 5 which was suggested to be a *'complex mosaic of individual and interconnected ditches indicative of former field system'* (Dowling 2024, 26).

Table 13 — Areas of Archaeological Potential identified with proposed development site

| CH ID | ID No. | Description |
|-------|-----------|--|
| CH049 | AAP01 | Low-lying Stream shown on 6-Inch map, marking the Ballyloo/Linkardstown townland boundary. |
| CH050 | Anomaly 2 | Anomaly 2 was identified by the geophysical survey carried out under Licence No. 24R0349. This is a probable former road/track network extending across much of the survey area. Seemingly defined by a pair of narrow, closely-set ditches, averaging about 3–6 m apart. Gaps visible along line of some examples may have facilitated access to neighbouring fields. Putative roads/tracks on east appear to converge on enclosure (Anomaly 1) identified by the geophysical survey where they can be seen to curve around its northern and western perimeter. Longest running road/track mapped on west for a distance of approx. 350 m. Not recorded on early historical maps (Dowling 2024, 26). This anomaly was the subject of test excavation under Licence No. 24E1035 which identified several features which were thought to correspond to this probable road/trackway although its exact path was difficult to determine (McCarthy 2024, 14–25). |

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| CH ID | ID No. | Description |
|-------|-----------|--|
| CH051 | Anomaly 5 | Anomaly 5 was identified by the geophysical survey carried out under Licence No. 24R0349. This was a complex mosaic of individual and interconnected ditches indicative of former field system/s. Extends over much of the survey area, with individual rectilinear and ovaloid [e.g., Anomaly 3 and 4] enclosures/fields discernible. Difficult to disentangle on the basis of geophysics alone but likely attests to multiple phases of field division and land use. Not recorded on early historical maps (Dowling 2024, 26). This anomaly was the subject of test excavation under Licence No. 24E1035 which identified several features which were thought to correspond and supporting Dowling's interpretation. (McCarthy 2024, 14–25). J. McCarthy (2024, 27) suggested that the anomaly may represent relict field systems associated with a medieval settlement near Ballyloo Castle (RMP no. CW012-031----) and/or later activity associated with Ballyloo House. |


3.4 Archaeological and Historical Background

3.4.1 Prehistoric period

There is abundant evidence for prehistoric settlement within Co. Carlow. Located within the study area is the Linkardstown Burial (CH003/ CW012-017----), situated c. 680 m north-east of the proposed development site. This site is a cist burial containing the disarticulated inhumation of an adult. The site gives it name to this type of burial tradition during the Neolithic period. The Linkardstown-type burial dates to 3525–3350 cal. BC and was contemporary with the building of the early passage tombs (O'Sullivan and Downey 2019, 51).

Evidence of prehistoric activity outside of the study area includes three *fulachtaí fiadh* (CW012-155----; CW012-154----; CW012-115----) situated c. 2 km north-west in the townland of Ballybar Lower. *Fulachtaí fiadh* are the most numerous prehistoric sites in Ireland, and radiocarbon dating from excavated examples of *fulachtaí fiadh* generally date them to the Bronze Age. The most common interpretation for the function of this monument is as cooking places. However, a number of alternative functions have been put forward such as bathing, saunas, garment washing and dyeing (Hawkes 2015). It is not certain whether *fulachta fiadh* were elements of temporary hunting camps or of permanent settlements (Power 1990, 13–17). *Fulachtaí Fiadh* generally survive as low mounds, usually horseshoe shaped, of charcoal-enriched soil packed with fragments of heat-shattered stones (termed 'burnt mound'). When levelled, they are often noticeable as black spreads in ploughed fields. They were usually situated close to a water source, like a stream, or in wet marshy areas (Ó Drisceóil 1988).

There is also evidence of funerary activity taking place in the same townland of Ballybar Lower during the Bronze age. One site that reflects this activity is a flat cemetery (CW012-142----) located c. 1.8 km north-east of the proposed development in the townland of Ballybar Lower. Three cremations and four token burials were found at this site. There are three further cremation pits in this townland (CW012-160----; CW012-159----; CW012-158----). In addition, the 12 undated enclosures located within the study area could be prehistoric in date.

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3.4.2 Medieval period (AD 400–1540)


The early medieval period (AD 400–c. 1169) was a time of rapid expansion of agriculture. Throughout this period Ireland was a predominantly rural society characterised by dispersed settlement. The economy was based on mixed agriculture though the rearing of cattle was seen as very important. Ringforts and enclosures are indicative of settlement at this time.

Ringforts are undoubtedly the most widespread and characteristic archaeological field monument in the Irish countryside. There are two known ringforts (CH009; CH012) within the study area. However, some of the 12 enclosures within the study area could possibly be ringforts. If not, some of the undated enclosures may also be early medieval in date. Ringforts are usually known by the names *ráth* or *lios*, forming some of the most common placename elements in the countryside. The ringfort is basically a circular or roughly circular area enclosed by an earthen bank formed of material thrown up from concentric fosse (ditch) on its outside. Generally, the diameter of the enclosure is between 25 m and 50 m. A single bank and fosse (univallate) are the most usual form; double rings (bivallate) or triple rings (trivallate) are rarer. The number of rings of defence are thought to reflect on the status of the site, rather than the strengthening of its defences. These sites have endured centuries of erosion, reuse and sometimes deliberate destruction and it is not always possible to distinguish original features; the overgrown nature of many sites compound the problem of field recording. However, entrances may be detected where a clear break in the bank is in line with an uncut causeway over the fosse. Souterrains are often found in association with ringforts (Power 1992, 131).

Archaeological excavation has shown that the majority of ringforts were enclosed farmsteads, built in the early medieval period. Though not forts in the military sense, the earthworks acted as a defence against natural predators like wolves, as well as human threats. Local warfare and cattle raiding were commonplace at this time. The construction of so many throughout the country, in a relatively short period (400–500 years), reflects on the stability and wealth of society at the time, and also its homogeneity. As well as farming-related activities like corn-grinding and animal husbandry, the ringfort was home to a wide variety of craft industries, including spinning, weaving, metal- and glass-working. A limekiln was also record in association with ringfort. Dwellings and outhouses were built on timber posts, with walls of wattle, mud or sods, which usually leave no trace above ground today. Excavation can trace the remains of these structures by revealing features like post-holes, stake-holes and sunken hearths. The favoured locations for ringforts are on the shoulder of ridges or at breaks of slopes. Many have level interiors created by scarping-up on the downslope and cutting into the upslope. The enclosing element can change dramatically from a downslope scarped edge to a well-defined bank and fosse on the upslope. Thus sited, they are often overlooked close-in on one side but otherwise command an extensive view (Power 1992, 131).

Other evidence of early medieval activity includes ecclesiastical settlement within the study area. There is evidence of early medieval activity at the church site (CH024) in Kellistown East, which translates as *Cill Osna Thiar* in Irish. This evidence is indicated by 18th-century drawings of the ruin of a round tower at the site. Round towers were constructed between the 10th and 12th centuries at early medieval church sites, where they functioned as bell towers (NMS 2023). It is suggested that existing belfry of the church was built in the previous location of the round tower. This site may contain the placename element *Cill*, which is also indicative of an early medieval date.

The end of 12th century saw the conquest of Ireland by the Anglo-Normans. Two moated sites (CH026, CH104) in the study area reflect the expansion of Anglo-Norman colony during the 13th century (O’Keefe 1988, 134). From the late 14th/15th century, the Anglo-Norman settlement in Carlow went into

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decline due to a variety of factors such as the Black Death and Gaelic resurgence (O’Keefe 1988, 134; Stout and Stout 1997,57). By the early 16th century, with the exception of walled towns, Norman controlled territory was reduced to an eastern coastal strip, incorporating counties Dublin, Louth, Meath and Kildare (Stout and Stout 1997, 57-58). The 15th and 16th century saw the construction of tower houses in Gaelic and Norman area. These were small stone castles linked to walled enclosures or bawns (*Ibid*, 58). The tower houses reflected the unrest and insecurity of this time. The study area contains a single tower house named Ballyloo castle (CH010). This site has a possible bawn (CH011) associated with it.

3.4.3 Post-medieval (AD 1540–1700) and early modern period (AD 1700–1850)

Evidence of modern activity is indicated by Kilballyhue House (CH032), which was built in 1808. Associated with this house is a farmyard (CH034) and an outbuilding (CH030). The house and associated buildings are depicted on the 6-inch OS map (1840). This map also shows the landed demesne land associated with Kilballyhue House. According to the Griffith Valuation, in 1852 the house, offices and land was held in fee by a John Nolan (Griffith 1852, 53).

Other evidence of early modern activity is indicated by Graiguenaspiddoge School (CH033), which was built in 1845 by the Faulkners of Castletown (NBHS 2025a). The Faulkners had a country house (Reg. No. 10300742) located c. 2.7 km north-west of the school. This Tudor Revival house was designed by Daniel Roberston, and it is suggested that school may have also been designed by Roberston as it is also in the Tudor Revival style (NBHS 2025a, NBHS 2025b). In 1852, a ‘Hugh Falkner’ is recorded by the Griffith Valuation (1852, 53).

The Griffith Valuation also records that the land in which the substation is proposed was occupied by a James Little, who leased it from a Henry Bruen (Griffith 1852, 53). The lands at the east end of the proposed development were held by a Samuel Elliot from a Robert Doyne (*ibid*, 48).

3.5 Toponymy of Townland/s

The Irish landscape is divided into approximately 60,000 townlands and the system of landholding is unique in Western Europe for its scale and antiquity. Many townlands predate the arrival of the Anglo-Normans, and Irish historical documents consistently use townland names throughout the historic period to describe areas and locate events accurately in their geographical context. The townland names and boundaries were standardised in the 19th century when the Ordnance Survey began to produce large-scale maps of the country. The original Irish names were eventually anglicised to varying degrees, depending in part upon the linguistic skills of the surveyors and recorders. A study of the townland names can provide information on aspects of cultural heritage including descriptions of the use of the landscape by man and the potential presence of archaeological or cultural heritage sites or features.

There are 12 townlands within the study area (see Section 1.3;Table 14).

Table 14 — Townland placename evidence (after Irish Placenames Committee 2013)

| English Name | Irish Name | Glossary |
|----------------|-----------------------------------|----------------------------------|
| Ballybar Upper | <i>Baile Uí Bhairr Íochtarach</i> | ‘Town of the Top’ |
| Ballyloo | <i>Baile Lú</i> | Lughaidh's town |
| Castletown | <i>Baile an Chaisleáin</i> | The town of the castle |
| Garryhondon | <i>Garraí Uí Bhruacháin</i> | Garden or court of Uí Bhruacháin |



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| English Name | Irish Name | Glossary |
|-------------------|-------------------------------|---|
| Graiguenaspiddoge | <i>Gráig na Spideog</i> | 'Graigue or village of the robin red breasts' |
| Kellistown East | <i>Cill Osna Thoir</i> | Church Osna |
| Kellistown West | <i>Cill Osna Thiar</i> | Church Osna |
| Kilballyhue | <i>Cill Bhealach Aoidh</i> | church of Hugh's town ? |
| Knockbower | <i>An Cnoc Bodhar</i> | Deaf hill |
| Leagh Or Ballybeg | <i>Baile Beag na Leamhach</i> | the place of elm-trees |
| Linkardstown | <i>Baile an Laingeartaigh</i> | Linkardstown |
| Moyle Big | <i>Maothail Mhór</i> | Soft ground |


3.6 Intangible Heritage/Irish Folklore Commission

Cultural Heritage is a broad term that includes Archaeological Heritage, Built Heritage, Portable Heritage, and other resources inherited from the past by contemporary society. It consists of the tangible and intangible traces of the interactions between people and places, people and nature and people and objects through time (TII 2022, 8). Folklore and local tradition are examples of intangible interactions between people and places where they live. In Ireland, work was done by the Irish Folklore Commission, and its successors, to collect and preserve Irish folklore. Folklore and local tradition are examples of intangible interactions between people and places where they live. In Ireland, work was done by the Irish Folklore Commission, and its successors, to collect and preserve Irish folklore. The Schools' Collection, for example, collected folklore and local traditions from pupils of 5,000 primary schools (Dúchas 2025).

One of the products of this work was the Main Manuscript collection, which contains folklore record by folklore collectors across Ireland. Within the study area, work was done by Peadar Mac Domhnaill (1937) to record local folklore and local tradition. Of relevance to the study is that Mac Domhnaill (1937, 103-104) included a map with his work which depicted archaeological monuments within a rough outline of the townland boundaries. For example, the 'old graveyard' (CH087) is shown within the townland of Linkardstown. The entry is important as it shows an awareness of these monuments within the landscape.

Another product was the School's Collection, which are a compilation of folklore and local traditions collected by pupils of 5,000 primary schools. The children collected this material from family members and neighbours (Dúchas 2025). Examination of the School's Collection found two school entries for the study area, one by Tinryland National School and the other by Grangeford National School. These entries preserve the folklore and local traditions of those living in the locality. They also record monuments within the landscape, and the beliefs surrounding them. For example, both collections contain a story about St Patrick's Well (CH023). The entry from Grangeford contains two stories which record miracles associated with the well including cures from drinking the water. They also record the Pattern Day which took place at the well on St Patrick's Day, which no longer takes place as the well is closed (Doyle 1938, 250–251).

Both collections contain a story about how people were punished for interfering with the holy well and its surroundings. In both stories, a man with differing names tries to cut down a tree near the holy well. As he does so, the man sees his house on fire and stops to rush to his house. On arrival, he finds that his house is ok. The man returns and cuts down the tree, but when he returns home, his house has

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burnt down completely. The house of the man is ok the first time because he had not succeeded in cutting down the tree. However, when he ignores this warning and finishes cutting down this tree, he is punished by the loss of his house (Doyle 1938, 252; Ó Seidhin 1938, 478).

The collections from these schools are important as they preserve the intangible way the local people interacted with these monuments. The stories they shared about them, and the beliefs they held. These are not something that can be gleaned from studying the physical remains of the monuments.

Table 15 — Schools which took part in the School's Collection (<https://www.duchas.ie/en/places>)

| School Name, Address | Vol. No | Date | Teacher Name |
|----------------------------|---------|------|-------------------|
| Tinryland National School | 0907 | 1938 | Leanne Doyle |
| Grangeford National School | 0907 | 1938 | Pádraig Ó Seidhin |


3.7 Recent Excavations

The Excavations Bulletin is an annual account of all excavations carried out under license. The database is available online at www.excavations.ie and includes excavations from 1970 onwards. This database was consulted as part of the desktop research for this report to establish if any archaeological investigations had been carried out within the study area (see Section 1.3). The database produced two results for archaeological excavations undertaken within the study area (Appendix 6). One of the excavations (CH037) under Licence No. 08E0275 did not produce anything of archaeological significance.

The proposed location of the substation was the subject of a previous test excavation (CH038) undertaken by Rubicon Archaeology Limited (formerly Rubicon Heritage Ltd.) under Licence No. 24E1035 (McCarthy 2024). This was carried out in advance of the Ballyloo Solar Farm (PI Ref. 2460043). As noted in Section 1.1, as part of the Ballyloo Solar Farm planning application, the NMS confirmed that the location of the substation was acceptable in principle. Within the boundary of the permitted solar farm, the test excavation revealed a series of pits, linear features, ditches, one possible post-hole and one irregular feature within development area of the solar farm (McCarthy 2025).


The location of the test trenches was based on the results of a preceding programme of geophysical survey by G. Dowling (2024) under Licence No.24R0349. The test excavation targeted the anomalies identified by the survey including Anomaly 2 and Anomaly 5 within the field of the proposed substation location.

The test excavation did not confirm the location of either anomaly within this field. It is possible that test trenches targeted an area where the possible feature had been destroyed. This is highlighted by the fact that several features within the adjacent, southern field of Area 6 were thought to correspond to Anomaly 2 and Anomaly 5 (McCarthy 2024, 14–25). Although the dense volume of linears and ditches made it difficult to identify either the path of the probable trackway or the extent of Anomaly 5 (McCarthy 2024, 27). Within this field, the test excavation did identify two ditches (C.111 and C.115) and a drain (C.113), which were not interpreted as corresponding to the anomaly 5 (McCarthy 2024, 22).

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3.8 Topography and Soils

The proposed development is situated on an undulating landscape. According to the Teagasc Soil Information System (<http://gis.teagasc.ie/soils/index.php>), the most dominant soil association in the study area are Glaciofluvial sands and gravels comprising Limestone sands and gravels. The underlying geology comprises Dolomitised dark-grey muddy limestone to the west (Ballysteen Formation), with Pale, fine to coarse-grained granite to the east (Tullow Type).

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4. IMPACT STATEMENT

4.1 Development Description

The proposed development comprises a substation located in the townland of Ballyloo. The proposed substation will be either an Air Insulated Switchgear (AIS) or Gas Insulated Switchgear (GIS) tail fed substation with the associated grid connection comprising underground cabling which will connect into the existing 220/110kV Kellis substation (See Figures 7.1–7.3).

The applicant proposes design flexibility for the development, as follows:

1. The substation will be either 110kV or 220kV voltage. The 110kV substation will use Air Insulated Switchgear (AIS) switchgear, whilst the 220kV substation might use AIS or Gas Insulated Switchgear (GIS) depending on the requirements of EirGrid.
2. The underground cable grid connection from the proposed substation to the existing 110/220kV Kellis substation will be at either 110kV or 220kV voltage.
3. The underground cable grid connection is located primarily in the public road network. However, there are two options proposed for its final entry into the existing 220/110kV Kellis substation.
 - Option A is to leave the L30535 local road and enter onto private lands where it will cross agricultural farmland into the existing 220/110kV Kellis substation.
 - Option B is to be situated within the L30535 local road which provides road access into the existing 220/110kV Kellis substation.

It should be noted that the options described above apply to both the 110kV and 220kV underground grid connection cables.


The operational lifetime of the solar farms is assumed to be 40 years. However, following the decommissioning of the solar farm, it is envisaged that the substation (and underground cable grid connection) will remain in situ as a valuable functioning and operational part of the electricity transmission network managed by the Transmission Systems Operator, EirGrid.

The proposed substation will be connected to the existing Kellis 220/110 kV substation via the proposed underground grid connection. This will cross through the townlands of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballyeg, Linkardstown and Moyle Big. The proposed grid connection is approximately 8.9 km in length and is located primarily in the public road network. The route travels east on the L3050 before turning north onto the L30504. The cable would then cross the N80 at Castletown Cross Roads and enter the L7148 before turning south onto the L3053. The cable would then turn east onto the L30535.

110kV AIS Substation

The substation will be based on EirGrid design specifications. The 110kV AIS substation will consist of both EirGrid and Independent Power Producer (IPP) including IPP Control Room buildings, HV electrical equipment and associated infrastructure including palisade fences and concrete post and rail fences. The installation of HV electrical equipment will include a Transformer (TRAFO) with associated equipment along with:

- Cable Sealing End (CSE);

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- Surge Arrestor (SA);
- Earth Disconnect (DT);
- Current /Voltage Transformer (CT/VT);
- House Transformer (HT);
- Circuit Breaker (CB);
- Lightning Mast (LM);
- Diesel Generator;
- Security Fencing and Cameras;
- Drainage, access etc.

220kV AIS Substation

The 220kV AIS substation will comprise the same infrastructure and equipment as the 110kV AIS substation option. The key difference is that the clearance distances required between individual components becomes greater at 220kV and therefore it has a larger footprint.

The substation will be based on EirGrid design specifications. The substation compound will consist of a two storey GIS substation building, IPP Control Room building, High Voltage (HV) electrical equipment and associated infrastructure including palisade fences and concrete post and rail fences. The installation of HV electrical equipment will include a transformer with associated equipment along with:

- Lightning Masts (LM);
- Back-Up Diesel Generator;
- Harmonic filters if required by EirGrid;
- Capacitor Bank if required by EirGrid;
- Fire/Blast Wall;
- Telecoms Pole.

Substation Access


Construction access to the substation will be provided by private lands, with an entrance from the public road L3050. The entrance will be suitably splayed and has been subject to sight line and autotrack analysis, with the latter including modelling of abnormal load delivery for the transformer.

A compacted access track will extend from the entrance to the substation compound. The track will include a geotextile base and filter membrane and 200 mm of Clause 804 sub-base. There will be sections of temporary track alongside the permanent track to facilitate delivery of the transformer within the site. The autotrack analysis has demonstrated that delivery of the substation transformer can be safely accommodated.

Substation Temporary Construction Compound

As outlined in the submitted site layout plans, it is proposed to provide a temporary construction compound within the substation site. The temporary compound will include the following facilities at a minimum:

- Adequate canteen space to allow for all workers during the peak period;
- Office space with lighting, heating and internet facilities;

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- Toilets and adequate welfare facilities for construction staff in accordance with the relevant statutory Health & Welfare guidelines;
- Parking space for both light and heavy vehicles;
- Designated skips and temporary storage areas.

Substation Water Drainage

Surface water drainage for the substation compound have been designed to mimic the natural drainage patterns of the site and thereby be in accordance with the Best Management Practices (BMPs) of Sustainable Drainage Systems (SuDS).

This is achieved when the following parameters are considered:

- The compound construction is formed with permeable stone thus mimicking a soakaway scenario. ESB compound stone is single sized for the first 150mm for safety purposes. It then changes to a graded 6F2 material. The area of this permeable surface is circa 8,315m² for the 110kV AIS substation option and 13,600m² for the 220kV AIS substation option.
- The main areas to be drained includes the roofs and the compound road. These equate to approximately 1,592m² for the 110kV AIS substation option and 2,023m² for the 220kV AIS substation option. These areas are modest in themselves and in comparison to the overall compound area. The compound road will be drained via series of road gullies.
- Assuming even the most basic of infiltration rates down through the permeable compound stone, the existing greenfield situation is easily maintained.


The surface water generated in the hardstanding areas and in the bunded areas within the substation compound will discharge to soakaway via Class 1 Full Retention Oil Separators. The electrical transformer in the substation is oil filled equipment and, as such, is protected with impermeable bunds. Surface water generated in this bund will be pumped out by an oil sensitive pump ensuring that only non-contaminated water enters the site drainage network.

Substation Foul Water Drainage

Foul holding tanks are normally used in EirGrid and ESB substations. The foul holding tanks will have a capacity of 5m³ which is a multiple of the foul water generated over three months of normal operation of the station. The foul holding tank will also be inspected by a suitably qualified and indemnified person at these intervals and records of inspections will be held on site for inspection by the local authority.

Substation Water Supply

It is proposed to provide the required potable water demand of the station (all options) with a bored well on site. The potable water demand within the site will be low as the proposed station is to be unmanned. To avoid issues like stagnation in the water supply line and problems resulting from this, there will be a continual water demand of 24 litres per week from automatically flushing WCs within the station.

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Grid Connection

The substation will connect to the existing 220/110 kV Kellis substation via a proposed 110kV or 220 kV underground grid connection cable.


The overall length of the grid connection is approximately 9km. All works will be carried out in accordance with international best practice and full compliance with health and safety requirements. The route of the cable travels east from the proposed substation on the L3050 before turning north onto the L30504. It then crosses the N80 at Castletown Cross Roads and continues east on the L7148 before turning south onto the L3053. The cable would then turn east onto the L30535 which is the main road access to the existing 220/110kV Kellis substation. There are two options proposed for accessing the substation. One option is within privately owned agricultural lands and the other option is via the L30535 local road.

4.2 Summary Baseline Environment Summary (Figures 2.0–2.2)

The proposed development site has identified 51 sites of archaeological, and/or cultural heritage significance within the defined study areas (see Section 1.3; Table 16).

Table 16 — Summary of baseline environment

| Site Type | Summary |
|--|--|
| <ul style="list-style-type: none"> - RMPs - SMRs - National Monuments - Sites with Preservation Orders - Sites listed in the Register of Historic Monuments | There are 28 known or suspected monuments located within the study area (CH001–CH029). None are located within the application boundary of the proposed substation and cable route. However, the route of proposed grid connection crosses the statutory Zone of Notification for six RMPs, CH021, CH024– CH028. Five of the RMPs (CH024–CH028) are a group situated in the same location. |
| <ul style="list-style-type: none"> - Protected Structures | There are six Protected Structures (CH030–CH035) located within the study area. None are located within the footprint of the proposed substation and cable route. |
| <ul style="list-style-type: none"> - Architectural Conservation Areas (ACAs) | There are no ACAs incorporated by the study area. |
| <ul style="list-style-type: none"> - Sites Listed in the NIAH | There are four NIAH registrations (CH030–CH033) within the study area. None are located within the footprint of the proposed substation and cable route. |
| <ul style="list-style-type: none"> - Unregistered Cultural Heritage Sites | There are 10 townland boundaries from these early cartographic sources (CH039–CH048). |
| <ul style="list-style-type: none"> - Areas/features of archaeological potential | <p>There are three additional areas of archaeological potential (CH049–CH050) incorporated by the proposed development. One (CH049) was identified based on landscape characteristics.</p> <p>Two (CH050–CH051) were revealed by geophysical survey.</p> |

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| Site Type | Summary |
|--|---|
| <ul style="list-style-type: none"> - Previous Archaeological excavation - National Museum of Ireland Topographical Finds | <ul style="list-style-type: none"> - There were two previous excavations (CH037–CH038) found within the study area. One (CH038) was carried out within the location of the proposed substation (CH038). - The database produced a single result (CH036) for the study area. |

4.3 Impact Assessment

This section assesses the likely significant impacts that the proposed development will have on the baseline/receiving environment, prior to the implementation of any mitigation measures. The methodology used in ascertaining the baseline value of sites, the type, magnitude and significance level of impacts is set out in Section 2 above.

Mitigation measures to avoid, reduce or offset these impacts and the residual impact that the project will have on each site of cultural heritage significance and/or potential are provided in Sections 5 and 6 below.

4.3.1 Direct effects

Proposed Substation


As noted in Section 1.1, the location of the proposed substation was deemed acceptable in principle by the NMS as part the permitted Ballyloo Solar Farm application. The design for the proposed substation will include a provision for design flexibility. The 110kV substation will use Air Insulated Switchgear (AIS) switchgear, whilst the 220kV substation might use AIS or Gas Insulated Switchgear (GIS) depending on the requirements of EirGrid.

One of the two anomalies identified by the previous geophysical survey is located within the application boundary. This is Anomaly 5 (CH051) which is a linear response which was subject to test excavation (CH038). This anomaly could not be verified within the trench. It is possible that the test trench targeted an area where the possible feature had been destroyed, as similar linear responses were clearly identified in the same area. The proposed substation will have a permanent, localised direct impact on part of this possible linear feature.

The test excavation (CH038) did identify a separate ditch (C.111) within the footprint of the proposed substation. This ditch was not interpreted by McCarthy (2024) as corresponding to Anomaly 5. The proposed substation will have a permanent, localised direct impact on part of this ditch

Proposed underground grid connection

The proposed substation will be connected to the existing Kellis 220/110 kV substation via the proposed underground grid connection. This will cross through the townlands of Ballyloo, Castletown, Graiguenaspiddoge, Kellistown East, Kellistown West, Kilballyhue, Knockbower, Leagh Or Ballyeg, Linkardstown and Moyle Big. The proposed grid connection is approximately 9 km in length and is located primarily in the public road network. The route of the cable travels east from the proposed substation on the L3050 before turning north onto the L30504. It then crosses the N80 at Castletown Cross Roads and continues east on the L7148 before turning south onto the L3053. The cable would then turn east onto the L30535 which is the main road access to the existing 220/110kV Kellis substation.

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There are two options proposed for accessing the existing substation, which applies to both the 110kV and 220kV underground grid connection cables:

- **Option A:** is to leave the L30535 local road and enter onto private lands where it will cross agricultural farmland into the existing 220/110kV Kellis substation.
- **Option B:** is to be situated within the L30535 local road which provides road access into the existing 220/110kV Kellis substation.

Examination of the cartographic record identified a stream (CH049) which is an AAP at the location where the proposed grid connection leaves the L3050 to enter the proposed substation. This is a stream depicted on the 6-inch and 25-inch OS map although it is more drain like on the 25-inch OS map. On the 6-inch OS map, this stream was shown to demarcate the townland between Linkardstown and Ballyloo (CH039).

The proposed crossing will comprise a dry deck cable bridge, and therefore no in stream works are proposed. As a result, there should be no effect on the townland boundary (CH039). However, there is the potential for unknown archaeology associated and located adjacent to the stream (CH049). Any subsurface works undertaken adjacent to the stream for the proposed grid connection could have a potential direct and permanent effect on this unknown, subsurface archaeology.

Proposed site access and internal tracks

The substation will be accessed from a new trackway leading from a new site entrance off the L3050. The proposed crossing will comprise a dry deck cable bridge, and therefore no in stream works are proposed. However, subsurface works undertaken adjacent to the stream for the proposed access track could have a potential direct and permanent effect on unknown, subsurface archaeology associated with the stream (CH049).

4.3.2 Indirect effects

Proposed Substation


The proposed substation will have a long-term, indirect effect on the setting of Ballyloo castle (CH010). This is an upstanding tower house located c. 84 m south of the proposed substation.

Proposed Underground Grid Connection

The route of proposed grid connection crosses the statutory Zone of Notification for six RMPs. The first is CH021, which is an enclosure and associated field system depicted on aerial photography. The site is located within the field to the immediate east of the proposed substation, on the opposite side of the L3050. The Zone of Notification incorporates this field and possible extends as far as the hedgerows along the western side of the L3050, which it includes. The proposed grid connection crosses the Zone of Notification where it travels along the L3050 and enters into the proposed substation.

The remaining five RMPs are a group which form the Kellistown church site. This includes a church (CH024), graveyard (CH025), graveslab (CH026), round tower (CH027) and font (CH028). The proposed grid connection crosses the Zone of Notification where the cable follows the L7148 to the junction with L3053.

There is the potential for unknown, subsurface archaeology within these Zones of Notification. An indirect effect arises where the zone of archaeological potential of a site is affected but whereby the actually site itself is not physically affected. The proposed grid connection will have direct effect on this

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zone of archaeological potential and as a result, will have an indirect effect on the monuments themselves. The effect on the potential archaeology is reduced where the proposed cable will be located within the existing road network (L3050, L7148, L3053) which is previously disturbed made ground.

Proposed site access and internal tracks

The proposed access track also crosses the Zone of Notification for CH021 where it breaks through the hedgerows on the western side of the L3050. There is the potential for unknown subsurface archaeology. The proposed access track will have direct effect on this zone of archaeological potential and as a result, will have an indirect effect on the site itself. This area may have been previously disturbed by groundworks associated with the road and hedgerow, thus reducing the potential for unknown archaeology.



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Table 17 – Summary of effect and effect magnitude prior to mitigation

| CH No. | Category | Summary | Baseline Value | Effect Type | Description of Impact | Effect Magnitude | Significance of Effect |
|--|------------|--|----------------|-------------|---|------------------|------------------------|
| CH010 | RMP | Ballyloo Castle located c. 84 m south | Very High | Indirect | The proposed substation will have a long-term, indirect effect on the setting of the substation. | Slight | Moderate |
| CH021 | RMP | Enclosure and field system, located within the field to the immediate east of the proposed substation, whose ZoN is crossed by the route of the proposed underground grid connection | Very High | Indirect | The proposed grid connection and access road will have indirect effect on the monument by having a permanent, direct effect the Zone of Notification and unknown subsurface archaeology. The effect on the potential archaeology is reduced where the proposed cable will be located within the existing road network (L3050) which is previously disturbed made ground. Works within the Zone of Notification require notice to be given in writing to the Minister for Housing, Local Government and Heritage two months before commencing that work. | Moderate | Moderate |
| CH024, CH025 CH026 CH027 CH028 | RMPs (x 4) | Kellistown church site whose ZoN is crossed by the route of the proposed underground grid connection | Very High | Indirect | The proposed grid connection will have indirect effect on the monuments by having a permanent, direct effect the Zone of Notification and unknown subsurface archaeology. The effect on the potential archaeology is reduced where the proposed cable will be located within the existing road network (L7148, L3053) which is previously disturbed made ground. Works within the Zone of Notification require notice to be given in writing to the Minister for Housing, Local Government and Heritage two months before commencing that work. | Moderate | Moderate |

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| CH No. | Category | Summary | Baseline Value | Effect Type | Description of Impact | Effect Magnitude | Significance of Effect |
|--------|------------|--|----------------|-------------|---|------------------|------------------------|
| CH038 | Excavation | Test excavation, preceded by geophysical survey carried out within the private lands of Ballyloo Solar Farm. | Very High | Direct | The proposed substation will have a permanent, direct effect to the archaeology revealed by the test excavation. | Significant | Significant |
| CH049 | AAP | Stream depicted on the 6-inch and 25-inch OS maps, which marked the Linkardstown/Ballyloo townland boundary | Medium/High | Direct | The proposed development will comprise a dry deck cable bridge, and therefore no in stream works are proposed. However, there is the potential for unknown archaeology associated and located adjacent to the stream (CH049) to be directly and permanently effected by the proposed grid connection and access route | Moderate | Slight |
| CH051 | AAP | Anomaly No.5 identified by the preceding geophysical survey | High | Direct | The proposed substation will have a permanent, localised direct impact on part of this possible linear feature. | Significant | Moderate |

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4.3.3 Cumulative effects

Cumulative effect is defined as ‘The addition of many small impacts to create one larger, more significant, impact’ (EPA 2017). Cumulative impacts encompass the combined effects of multiple developments or activities on a range of receptors. In this case the receptors are the archaeological monuments and architectural/cultural heritage sites in the immediate vicinity of the proposed scheme. Cumulative impacts at the construction and operational stages are considered. The development considered are summarised in Table 18, and further detail is given in Appendix 10.

The present landscape of the proposed development predominantly comprises almost entirely farmland. Other developments include one-off housing and agricultural buildings. One-off housing and buildings are not considered to be detrimental to the setting of archaeological monuments and will not contribute to cumulative effects occurring.

The proposed substation and grid connection are the same infrastructure referenced in three Solar Farms located nearby whose planning applications are at different stages. This includes Park Solar Farm (Planning Ref. 2460205) which has been granted permission and Ballybannon Solar Fram Solar Farm (Planning Ref. 2560137) which is currently subject to request for further information. The last solar farm is Ballyloo Solar Farm (Planning Ref. 2460043, PL01.322347) which has been granted permission by *An Coimisiún Pleanála*. The proposed substation and grid connection are proposed to connect these three solar farms to the National Grid via the existing Kellis 220/110kV substation.

Three separate archaeological impact assessments were carried out for Ballyloo Solar Farms and Park Solar Farm (O’Sullivan and O’Flaherty 2024a; O’Sullivan and O’Flaherty 2024b, O’Sullivan 2025). The impact assessments identified the same archaeological monuments and architectural/cultural heritage receptors within the landscape, with some minor differences. It also highlighted the effect of these solar farms on the cultural heritage receptors.

In addition, there are seven applications for solar farms (Planning Ref.24/60295, ABP-318475, Planning Ref. 23/92, Planning Ref. 22/163, Planning Ref. 22/142 Planning Ref. 20/143/ABP-ABP-307891-20, Planning Ref. 21/23). Two of the solar farms will be connected to the existing Kellis substation via an underground grid connection. The first is an application for the underground grid connection (ABP-322690) associated with the permitted Solar farm at Grangeford Old, and Friarstown, Co. Carlow (Planning Ref. 21/23, ACP- 309987). Like the proposed development, this grid connection will connect to the existing Kellis substation. It will follow the same route as Option B along the L30535 local road. Similarly, the route suggested for the underground grid connection (Planning Ref. 24/60223, ABP-313139-22) for) for permitted Garreenleen Solar Farm (20/143 & ABP-307891-20) also follows the same route as Option B. The proposed development will combine with the other developments to have a cumulative effect on the archaeological monuments and architectural/cultural heritage sites.

However, given the sub-surface nature of potential archaeology, the potential to investigate some AAP areas prior the construction phase will provide data to the archaeological community. The potential to gain knowledge outweighs the negative effects. Furthermore, the implementation of mitigation measures for the proposed development will ensure that the cumulative effect is neutral and not significant.


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Table 18 – Summary of relevant planning applications in the area

| Ref. Number | Distance | Status | Summary |
|-----------------------|--|--|--|
| 25/60137 | 0km | Notification to grant - 31/10/25 | A 10 Year Planning Permission for Ballybannon Solar Farm |
| 24/60205 | 0 km | Granted with Conditions - 24/04/2025 | A 10 Year Planning Permission for a Park Solar Farm |
| 24/60043, PL01.322347 | Proposed substation located within the boundary of the Ballyloo Solar Farm | Refused by Carlow County Council (25/03/2025)Appealed and granted permission by An Coimisiún Pleanála (05/09/2025) | A 10 Year Planning Permission for Ballyloo Solar Farm |
| 24/60410 | 0.1km | Granted Permission – 06/06/25 | The replacement (“restringing”) of the existing overhead line circuit conductor wires |
| ABP-322690 | c.0km | Live Application - due to be decided by 01/12/2025 | Proposed 110kV electrical substation and grid connection. |
| ABP-321416 | c.3km | Live Application – undetermined at present | Proposed development along a section of the N80 Road known as the N80 Leagh Bends Scheme. |
| 24/60223 | 0.1km | Granted Permission – 20/09/2024 | 110kV underground electricity cabling and all associated ancillary site development works |
| 24/60295 | 2.0km | Live Application, Decision Due – 07/01/2026 | Ten year planning permission for the construction of a solar farm. |
| 24/60332 | c. 1.8km | Granted Permission – 12/12/2024 | The demolition of all existing structures within the Tinryland Wastewater Treatment Plant and the construction on an extended site |
| ABP-318295 | c. 3.7km | Granted Permission – 21/11/2024 | Construction of five wind turbines, and all associated works |
| ABP-320354 | c. 5.5km | Live Application, Decision Due – 04/12/2024 (Decision delayed at Board) | Permission for the construction of 7 wind turbines and all associated works. |
| 24/60149 | c. 1.4km | Granted Permission – 27/09/2024 | The expansion of the existing commercial store. |
| ABP-318475 | c. 8km | Granted Permission – 04/06/2024 | A ten year planning permission for a solar energy development. |




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| Ref. Number | Distance | Status | Summary |
|------------------------|----------|--------------------------------------|--|
| ABP-315063 | c. 0.1km | Granted Permission – 02/05/2024 | Development of a synchronous condenser grid support facility and all associated works |
| 23/92 | c.3.85km | Granted - 04/06/2024 | A ten year planning permission for a solar energy development |
| 22/163 | 7 km | Grant with Conditions - 22/03/2023 | A 10 year planning permission for a solar farm and associated works |
| ABP-315365 | c. 5.5km | Granted Permission – 21/11/2023 | Wind energy development consisting of 7 no. wind turbines and all associated works. |
| 22/142 | c.3km | Granted Permission – 22/03/2023 | Clonmacshane Solar Farm. |
| 313139-22 | 0.1km | Granted Permission – 03/11/2022 | Proposed 110kV substation and underground grid connection. |
| ABP-314421 | c. 460m | Granted Permission – 26/07/2022 | To construct a 30m multi-user lattice telecommunications support structure |
| 20/143 & ABP-307891-20 | 0.1km | Granted Permission – 2/09/2021 | A 10-year Planning Permission for a solar farm at Garreenleen , Bendinstown Tinnaclash and , Ardbearn, Co Carlow |
| 21/23 & ABP 309987 | c.3.75km | Granted - 26/10/21 | Construction of a Solar PV development and all associated site works. |
| ABP-303821 | 0.2km | Granted Permission – 23/09/2019 | 10 year permission for an up to 100MW Battery Energy Storage Facility |
| SU01.300037 | 1.4 km | Application granted - 14/12/2018 | Plant Area |
| SU01.300034 | 1.4 km | Application granted - 14/12/2018 | Quarry |
| 3611 | 74. 6 m | Granted with conditions - 24/11/2003 | Construction of a single storey, four bedroomed bungalows |

4.3.4 Visual Amenity

As outlined in section 3, the study area contains 51 sites of archaeological, and/or cultural heritage significance within the defined study areas. These comprise 36 sites with historic protection, two excavations, three areas of archaeological potential and ten townland boundaries.

The sites with historic protection are considered visual amenities due to their known protection or preservation status (statutory or otherwise), and the potential for upstanding remains to survive. The vast majority of the identified CH sites have no above grounds elements with many being identified through aerial photography. Many of the sites are far enough away not to be visually impacted by the proposed solar farm.

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There are 15 sites with upstanding remains with the vast majority being far enough away not to be visually affected by the proposed substation. The closest site is Ballyloo Castle (CH010) which is located c. 85 m south of the proposed substation. The proposed development will have a visual effect on the setting of the castle.

The underground nature of the proposed grid connection means that it will have no visual effect on any known CH site.

5. MITIGATION STRATEGY

The following mitigation measures proposed are subject to approval by the National Monuments Service and the local planning authority. They have been compiled with reference to the *Framework and Principles for the Protection of the Archaeological Heritage* (1999) as well as the National Monuments Service Solar Farm Developments- Internal Guidance Document (2016).


The current state policy is that preservation *in situ* of archaeological material is the preferred option. Where this cannot be achieved then appropriate measures need to be adopted to ameliorate the impacts that the proposed development may have on features of archaeological, architectural and/or cultural heritage within the study area (see Section 1.3) during both the construction and operational phases of the works.

The below recommendations have been compiled with reference to the Framework and Principles for the Protection of the Archaeological Heritage (1999) as well as the following:

- Environmental Protection Agency (2003) *Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements)*
- Environmental Protection Agency (2022) *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR)*
- Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI) (1999) *Frameworks and Principles for the Protection of the Archaeological Heritage*
- Department of the Environment, Heritage and Local Government (2011) *Architectural Heritage Protection Guidelines for Planning Authorities*
- National Monuments Service Solar Farm Developments – Internal Guidance Document (2016)

The proposed substation is located within the boundary of the permitted Ballyloo Solar Farm (Planning Ref. 2460043, PL01.322347). In a statement issued by the National Monument Service in March 2025 as part of the Ballyloo Solar Farm application, the NMS confirmed that the proposed substation location was acceptable in principle. A copy of the National Monuments Service submission on that permitted planning application is included in Appendix 9.


The site of the substation was subject to a separate impact assessment for the Ballyloo Solar Farm (O'Sullivan and O'Flaherty 2024a) which outlined the mitigations for the solar farm. This recommended preservation *in situ* as the preferred option but where preservation *in situ* is not achievable, either in whole or in part, then a programme of archaeological excavation should be proposed, to ensure the preservation by record of the identified archaeology (O'Sullivan and O'Flaherty 2024a, 51). In the statement from the NMS, they agreed with the recommended mitigations in the impact assessment (O'Sullivan and O'Flaherty 2024a) for the Ballyloo Solar Farm. However, the NMS also confirmed that

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it would provide a formal comment on the substation in its own respective application to *An Coimisiún Pleanála*.

The following mitigation measures are recommended:

1. The location of the proposed substation was the subject of a previous geophysical survey and test trenching, which identified features of archaeological potential. Mitigation by *in situ* preservation would be the preferable option. Where preservation *in situ* cannot be achieved, then a programme of full archaeological excavation should be undertaken in order to ensure the preservation by record of all the subsurface archaeology that will be directly impacted upon by the proposed development. This work should be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2014. The results of any archaeological test trenching, surveys and/or excavation will be submitted in a report to the Local Authority, the Heritage and Planning Division, Department of Housing, Local Government and Heritage and the National Museum of Ireland.
2. As part of the programme of advance archaeological works prior to construction, a combination of geophysical survey and archaeological test trenching will be undertaken under license to the National Monuments Service Section of the Department of Housing, Local Government and Heritage by a suitably qualified archaeologist ahead of construction. This shall target the footprint of the proposed grid connection cable route in areas not previously disturbed by services, roads, or other modern construction.
3. A suitably qualified archaeologist under license to the National Monuments Service Section of the Department of Housing, Local Government and Heritage, will monitor any sub-surface groundworks undertaken in proximity to RMPs. These areas shall include entirely (but not be limited to) the statutory zone of notification for the monument and shall be inspected and established by the archaeologist prior to the commencement of works in the vicinity of the recorded monument.
4. Should any archaeological material be encountered during monitoring or testing, works will cease, and the Planning Authority and National Monuments Service shall be notified. A strategy will be proposed to the Planning Authority and National Monuments Service to suitably record any archaeological material identified, and preserve any archaeological material *in situ*, where possible. Where preservation *in situ* cannot be achieved, either in whole or in part, then a programme of archaeological excavation will be proposed, to ensure the preservation by record of the area of the development that will be directly impacted upon. Further work will then only be carried out following consultations with the Planning Authority and the National Monuments Service.
5. Appropriate screening should be planted along the border to reduce the visual effect of the proposed development site.
6. Where a cable crosses an extant stream, a wade survey and a metal detector survey will be carried out by a suitably qualified archaeologist to assess the riverbed and banks for any archaeological and cultural heritage.

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7. The resulting archaeological report will be submitted to the National Monuments Service Section of the Department of Housing, Local Government and Heritage.



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Table 19 — Summary of effect and effect magnitude after mitigation

| CH No. | Phase | Effect Type | Mitigation Measures | Magnitude of Effect after Implementation of Mitigation Measures | Significance of Effect after Implementation of Mitigation Measures |
|--|--------------|-------------|---------------------------|---|--|
| CH010 | Operation | Indirect | Mitigation No. 6 | Not-significant | Slight |
| CH021 | Construction | Indirect | Mitigation Nos. 1, 3–5, 8 | Slight | Slight |
| CH024, CH025 CH026 CH027 CH028 | Construction | Indirect | Mitigation Nos. 3–5, 8 | Slight | Slight |
| CH038 | Construction | Direct | Mitigation Nos.1, 8 | Moderate | Moderate |
| CH049 | Construction | Direct | Mitigation Nos. 1, 7–8 | Slight | Imperceptible |
| CH051 | Construction | Direct | Mitigation Nos. 1, 8 | Moderate | Slight |

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6. CONCLUSIONS

6.1 Archaeological Findings Summary

The archaeological assessment has identified 51 sites of archaeological, and/or cultural heritage significance within the study area. These include 29 known or suspected monuments (CH001–CH029), six Protected Structures (CH030–CH035) including four NIAH sites (CH030–CH033). There is a single topographical find (CH036) and ten townland boundaries (CH039–CH048).


There were two previous excavations (CH037–CH038) including one carried out within the footprint of the proposed substation (CH038). The location of the proposed substation was also the subject of a preceding geophysical survey which identified two anomalies, CH050–CH051). There was a single area of archaeological potential (CH049) identified by landscape characteristic.

As noted in Section 1.1, the NMS, as part of the Ballyloo Solar Farm, confirmed that the location of the proposed substation was acceptable in principle. As currently laid out, the proposed development will have direct effect on four CH sites (CH038, CH049, CH051). It will have an indirect effect on seven CH sites (CH010, CH021, CH024–CH028).

6.2 Recommendations

It is recommended that the mitigation strategy outlined in Section 5 above be adopted. If the design of the proposed development is altered this assessment will need to be updated accordingly.

Please note all recommendations are subject to the approval of the National Monuments Service and the local planning authority archaeologist.

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APPENDIX 1 INVENTORY OF IDENTIFIED SITES OF CULTURAL HERITAGE SIGNIFICANCE AND/OR POTENTIAL WITHIN STUDY AREA

| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|--|---------------------|--------------|----------------|--------|--------|
| CH001 | SMR | CW012-091002- | Aerial photographs (GB89.O.26, ASIAP (12) 13-14) show cropmark of a complex sequence of fosses defining three conjoined enclosures incorporating curvilinear, rectilinear and trapezoidal components (Barrett 1989). | Enclosure | Linkardstown | Very High | 674857 | 670991 |
| CH002 | SMR | CW012-091003- | Aerial photographs (GB89.O.26, ASIAP (12) 13-14) show cropmark of a complex sequence of fosses defining three conjoined enclosures incorporating curvilinear, rectilinear and trapezoidal components (Barrett 1989). | Enclosure | Linkardstown | Very High | 674875 | 670972 |
| CH003 | RMP | CW012-017---- | Polygonal cist constructed mainly on old ground surface, covered by low mound (diam. c. 25 m) of yellow clay with 'kerb' of smaller stones. Cist had multiple side stones and two capstones; contained a disarticulated inhumation of an adult, sherds of three necked vessels, and polished stone axe head. Discovered during ploughing and excavated in 1944. (JRSAI 1944, 61-2) | Linkardstown burial | Linkardstown | Very High | 674545 | 670786 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|---|-----------|----------------|----------------|--------|--------|
| CH004 | RMP | CW012-018001- | Also known as 'Tullynahinnera'. Present remains consist of foundations and discontinuous lower courses of rectangular structure aligned NE-SW standing in graveyard (CW012-018003-). Small piscina in S wall, close to E gable. No other features visible. O'Donovan (OSL 1839, 26) records that church measured 17.4 m x 2.1 m and had ' <i>semi-circular window of cut stones ...</i> ' in remains of E gable. Plain square font removed to Tinryland Church (ITA Survey 1945); present location unknown. | Church | Linkardstown | Very High | 674672 | 670582 |
| CH005 | RMP | CW012-018002- | Plain square font removed to Tinryland Church (ITA Survey 1945), present location unknown. | Font | Linkardstown | Very High | 674668 | 670574 |
| CH006 | RMP | CW012-018003- | A sub-rectangular area (map dims. <i>c.</i> 35 m NW-SE; <i>c.</i> 33 m NE-SW) with a church (CW012-018001-) roughly centrally placed. On the 1839 'OS 6-inch' map the graveyard is depicted as being oval in shape with a trackway running NW-SE along the SW edge of the graveyard. | Graveyard | Linkardstown | Very High | 674668 | 670574 |
| CH007 | RMP | CW012-016---- | Shown on 1938-9 'OS 6-inch' map as slightly elongated raised oval platform on slight rise which may incorporate part of site (est diam. <i>c.</i> 40 m N-S). Possibly a ringfort. | Enclosure | Ballybar Upper | Very High | 673613 | 670801 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|---|----------------------|-------------|----------------|--------|--------|
| CH008 | RMP | CW012-028---- | Traces of oval enclosure visible on AP (GSIAP R5/31) and OSI orthophotos. Area was ploughed at time of inspection by ASI in 1988 and there were no visible surface traces. | Enclosure | Garryhundon | Very High | 673272 | 669831 |
| CH009 | RMP | CW012-029---- | Oval area (52 m NW–SE, 38 m NE–SW) of sloping, uneven ground, surrounded by earthen bank (max. H. at S 3 m) with external fosse (max. D. at S c. 1 m). Entrance not identifiable. Bank from N to ENE is fairly straight and low, suggesting it formed field boundary. | Ringfort - rath | Ballyloo | Very High | 673884 | 669844 |
| CH010 | RMP | CW012-031---- | Ballyloo Castle-Rectangular structure (int. dims. c. 5 m x c. 9 m) of two storeys plus loft below vault. Built with massive walls of roughly coursed granite boulders. Ground floor entrance in W wall by SW corner, leading to main chamber with barrel vault aligned N–S. Loops and embrasures in E, N, and S walls. Small vaulted chamber in thickness of W wall. Access to upper floor via mural stairs immediately inside entrance. Garderobe chute at NE angle. (JRSAI 1987, 33; Carloviana 1956, 14) | Castle - tower house | Ballyloo | Very High | 674266 | 669851 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|--|-----------------|----------|----------------|--------|--------|
| CH011 | SMR | CW012-031001- | In tillage. An oval area (dims. c. 63 m N-S; c. 50 m E-W) identified as a cropmark on Google Earth Pro imagery (imagery date 14 July 2018) by Jean-Charles Caillère. A tower house (CW012-031----), 'Ballyloo Castle', is located on the ESE edge of the enclosure. The enclosure is defined by a wide fosse (Wth. c. 4–5m) visible as a cropmark. A stream running NNE-SSW, depicted on the 2nd ed. OS 6-inch map running immediately W of the enclosure, may have fed into the fosse. It is likely that the enclosure is a bawn associated with the tower house. | Bawn | Ballyloo | Very High | 674254 | 669864 |
| CH012 | RMP | CW012-030---- | Marked on 1938–39 'OS 6-inch' map (max. diam. c. 45 m). No visible surface traces. | Ringfort - rath | Ballyloo | Very High | 673960 | 669540 |
| CH013 | SMR | CW012-192---- | Identified as a cropmark on the 2005 OSI orthophotos, in tillage. A circular enclosure (diam. c. 69 m) defined by a fosse. There are two other similarly sized enclosures (CW012-210----; CW012-211----) c. 230 m and c. 330 m to the ENE. | Enclosure | Ballyloo | Very High | 674243 | 669351 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|---|------------------|----------|----------------|--------|--------|
| CH014 | SMR | CW012-211---- | Identified as a cropmark on the 2005 OSI orthophotos, in tillage. A roughly circular enclosure (overall diam. c. 69 m) defined by a fosse, with a suggestion of an internal central enclosure (diam. c. 30-35 m). The NE arc of the outer enclosing element is the most visible. The NE quadrant had been truncated by a field boundary running NW-SE, also visible as a cropmark. There is an adjacent enclosure (CW012-210----) c. 17 m to the NE and another (CW | Enclosure | Ballyloo | Very High | 674541 | 669402 |
| CH015 | SMR | CW012-210---- | Identified as a cropmark on the 2005 OSI orthophotos, in tillage. A roughly circular enclosure (internal diam. c. 50 m; overall diam. c. 64-66m), defined by an inner and outer fosse. There is an adjacent enclosure (CW012-211----) c. 17 m to the SW and another (CW012-192----) c. 330 m to the SW. | Enclosure | Ballyloo | Very High | 674623 | 669440 |
| CH016 | RMP | CW012-032---- | This record was formerly classed as 'Potential site - aerial photograph' in the SMR (1986) based on its appearance on GSIAP R 5/31. A reappraisal of the photograph indicates that this is a 'non-antiquity'. | Redundant record | Ballyloo | Low | 674444 | 669980 |
| CH017 | RMP | CW012-084---- | Local tradition of a burial ground at this location. | Burial ground | Ballyloo | Very High | 674184 | 669731 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|--|--------------|--------------|----------------|--------|--------|
| CH018 | SMR | CW012-090001- | Aerial photograph (GB89.O.24) shows cropmark of a sub-circular enclosure defined by two concentric fosses. Part of a complex cropmark landscape comprising three contrasting enclosures (Barrett 1989). | Enclosure | Linkardstown | Very High | 674547 | 670273 |
| CH019 | SMR | CW012-090003- | Aerial photographs (GB89.O.23,24 & 25) shows cropmarks of a series of fosses extending from enclosures indicating an associated field system but complicated by irregular cropmarks of geomorphological origin indicating patterned ground resulting from frost action. Part of a complex cropmark landscape comprising three contrasting enclosures (Barrett 1989). | Field system | Linkardstown | Very High | 674656 | 670237 |
| CH020 | SMR | CW012-090002- | Aerial photograph (GB89.O. 24) shows cropmarks of a complex series of contiguous enclosures defined by fosses, comprising a central circular enclosure with two curvilinear annexes and a trapezoidal annexe. Part of a complex cropmark landscape comprising three contrasting enclosures (Barrett 1989). | Enclosure | Linkardstown | Very High | 674684 | 670116 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|---|-------------------------|-----------------|----------------|--------|--------|
| CH021 | RMP | CW012-090---- | Aerial photographs (GB89.O.23 and 24) shows cropmark of a large curvilinear enclosure defined by a wide fosse with a complex multi-ditched entrance facing east and a simple entrance facing south. A third possible entrance leads into a rectilinear annexe, defined by two fosses, on western side. A circular pit adjoins the fosse within the curvilinear enclosure. Curvilinear fosses extend from both enclosures indicating an associated field system but complicated by irregular cropmarks of geomorphological origin indicating patterned ground resulting from frost action. Part of a complex cropmark landscape comprising three contrasting enclosures. Curved modern field boundary respects eastern boundary of enclosure. The three contrasting enclosures are not necessarily contemporaneous (Barrett 1989). | Enclosure | Linkardstown | Very High | 674850 | 670235 |
| CH022 | SMR | CW012-220---- | In tillage. A roughly oval enclosure (dims. c. 50 m N-S; c. 40 m E-W) identified as a cropmark on Google Earth Pro imagery (imagery date 14 July 2018) by Jean-Charles Caillère. The enclosure narrows towards the S. | Enclosure | Ballyloo | Very High | 674934 | 669824 |
| CH023 | RMP | CW013-001---- | Now closed. About 350 m SE of Kellistown Church (CW008-036001-). | Ritual site - holy well | Kellistown East | Very High | 679113 | 671781 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|---------------|--|-----------|-----------------|----------------|--------|--------|
| CH024 | RMP | CW008-038001- | In the S sector of the graveyard (CW008-038006-), the S wall of the church forming the S boundary of the graveyard. Dedicated to St Patrick (OSL 1839, 11-15, 100-1). Church consists of rectangular structure of large, uncoursed mortared granite boulders (min. L. 14 m; Wth. 5.6 m), subsequently enlarged and modified by removing and replacing wall at N to give width of 6.4 m, adding chancel of small granite stones (min. L. 5.3 m; Wth. c. 3.9 m), and large round ashlar chancel arch. Blocked round-arched entrance in S wall of nave. Small piscina in S wall. Lying within nave are (1) large fragment of finely dressed polygonal font, (2) single basin bullaun (diam. 0.3 m D. 0.2 m). No trace of round tower. (JKAS 1933, 271-7; JAPMD 1902, 148) | Church | Kellistown East | Very High | 678778 | 671887 |
| CH025 | RMP | CW008-038006- | A rectangular enclosure (map dims. c. 37 m N–S; c. 79 m E–W) with the medieval church (CW008-038001-) in the S sector of the graveyard, the S wall of the church forming the S boundary of the graveyard. A later, probably 19th century, church was built to the NW of the earlier church. | Graveyard | Kellistown East | Very High | 678760 | 671909 |
| CH026 | RMP | CW008-038005- | A vault with an inscription dating to 1603 was noted at Kellistown Church (CW008-038001-) (O' Flanagan 1934, 47). This could not be located. | Graveslab | Kellistown East | Very High | 678753 | 671880 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|----------------|--|---------------|-----------------|----------------|--------|--------|
| CH027 | RMP | CW008-038002- | <i>The Anthologia Hibernica</i> (Vol. IV., p. 105 July - December 1794) contains a sketch of a Round Tower in ruins at Kellistown (JKAS 1933, 271-7). A drawing by J. Saunders TCD, believed to date to c. 1797 also depicts the round tower in ruins. The OS Letters (O' Flanagan 1934, 44) note that the belfry of the church (CW008-038001-) was built where the round tower stood. | Round tower | Kellistown East | Very High | 678753 | 671880 |
| CH028 | RMP | CW008-038003- | Large fragment of finely dressed polygonal font (CW008-038002-) and single basin bullaun (CW008-038004-) lying within nave of church (CW008-038001-) | Font | Kellistown East | Very High | 678753 | 671880 |
| CH029 | SMR | CW008-060---- | Visible on aerial photographs (ASIAP (49) 12-14). | Enclosure | Kellistown East | Very High | 679851 | 671837 |
| CH030 | NIAH/PS | 10300803/CW308 | Remains of detached three-bay Board of First Fruits style Church of Ireland church, built 1810, on site of earlier church with pointed-arch openings and entrance tower having pinnacles. Now in ruins. | Church/chapel | Kellistown East | Very High | 678762 | 671892 |
| CH031 | NIAH/PS | 10301238/CW313 | Detached single-bay former boiler house, c. 1805, with brick chimney flue. Truncated, c. 1990. | Outbuilding | Kilballyhue | Very High | 676450 | 670617 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|----------------|--|-----------------------------------|-------------------|----------------|--------|--------|
| CH032 | NIAH/PS | 10301234/CW312 | Detached three-bay three-storey over basement house, c. 1808, with round-headed door opening having Doric doorcase, gable ends and railings to open basement area. Interior retains original joinery, decorative cornices and an original chimney piece. Group of detached two-storey outbuildings to site. | Kilballyhue house | Kilballyhue | Very High | 676506 | 670618 |
| CH033 | NIAH/PS | 10301235/CW293 | Detached two-bay single-storey Tudor Revival school with attic, c. 1845, with square-headed openings having hood mouldings, projecting porch to side and teacher's block to rear. Built by the Faulkners of Castletown, therefore possibly designed by Daniel Robertson. | Graiguenaspiddoge National School | Graiguenaspiddoge | | 677102 | 669513 |
| CH034 | PS | CW311 | This is a very fine square-plan yard with farm buildings round three sides and an entrance arch and the house on the fourth side. The buildings are of two storeys and built of coursed-rubble granite and with various openings including narrow, ventilation slits on the first floor. There is a brick-headed arched entrance to the yard and an arch opposite. This one of the finest farmyard complexes in the whole country and borders on being of National Importance. | Farmyard, Kyleballyhue House, | Kilballyhue | Very High | 676491 | 670610 |
| CH035 | PS | CW402 | A wall-mounted letter box with an ER VII insignia. The wall is part of the former entrance gates to Moyle House. | Letter Box | Moyle Big | Very High | 676964 | 671817 |

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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|---------------------|---------------------------|---|---|--------------|----------------|--------|--------|
| CH036 | Topographical Files | 1944: 65, 65A, 66, 67 A-E | Human skeleton (65), Pig tooth (65A), Stone axehead (66), Pottery representing 5 vessels (67 A-E) | Human skeleton (65), Pig tooth (65A), Stone axehead (66), Pottery representing 5 vessels (67 A-E) | Linkardstown | Very High | 674530 | 670782 |

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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|------------|----------|---|--------------------------------|--------------|----------------|--------|--------|
| CH037 | Excavation | 08 E0275 | Carlow County Council requested an impact assessment at Linkardstown, Tinryland, Co. Carlow, in advance of a decision on a planning application for two single houses. The proposed development area was located c. 150 m from the area of constraint for CW012-09001 to CW012-09003 (enclosures) and c. 400 m from the area of constraint for CW012-017 (Linkardstown burial). An archaeological air survey (Barrett 2002) identified the previously unknown sites CW012-09101-03 (enclosures) in an oblique aerial photograph (GB89.O.26), which showed cropmarks forming a complex sequence of fosses defining three conjoined enclosures incorporating curvilinear, rectilinear and trapezoidal components. The Linkardstown cist burial was discovered in 1944 during ploughing (Raftery 1944, 61-2). Today the site is covered by an orchard and there is no surface trace of it. Testing failed to uncover anything of archaeological significance within the cuttings opened. | No archaeological significance | Linkardstown | Low | 674560 | 670632 |

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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|------------|---------|---|---------|--|----------------|--------|--------|
| CH038 | Excavation | 24E1035 | A programme of archaeological test-trenching was undertaken at Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown, Co. Carlow from the 16th to the 31st of October 2024 in accordance with Licence No. 24E1035. The proposed development is centred on ITM coordinates E673867, N669760. The combined area was c. 192 ha. The programme of archaeological testing comprised the excavation of a total of 152 test trenches, totalling 6,054 m. To aid the recording process, the proposed development area was divided into 10 areas (Area 1–6 and 8–11). Area 7 was removed from the trenching array at the request of the National Monuments Service due to the presence of recorded monument CW012-090---- which including its zone of notification, encompassed the entirety of the area. The trenches were excavated within the footprint of the proposed development to assess the potential for subsurface archaeological remains. A series of pits, linear features, ditches, one possible post-hole and one irregular feature were identified during testing. | Testing | Ballybar Upper, Ballyloo, Ballyryan, Garryhundon, Linkardstown | Very High | 674236 | 670095 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|------|--|---|---|----------------|--------|--------|
| CH039 | TB | TB01 | Linkardstown/Ballyloo townland boundary on the 6-inch OS map and 25-inch map. At this point, the townland boundary is demarcated by a stream on the 6-inch map. It is straightened by the 25-inch map and follows the route of the road. | Linkardstown/Ballyloo townland boundary | Ballyloo/Linkardstown | Medium/High | 674369 | 670088 |
| CH040 | TB | TB04 | Linkardstown/Knockbower townland boundary on the 6-inch map | Linkardstown/Knockbower townland boundary | Linkardstown/Knockbower | Medium/High | 676101 | 670012 |
| CH041 | TB | TB03 | Kilballyhue/Knockbower townland boundary on 6-inch OS map | Kilballyhue/Knockbower townland boundary | Kilballyhue/Knockbower | Medium/High | 676338 | 670010 |
| CH042 | TB | TB02 | Kilballyhue/Graiguenaspiddoge townland boundary on 6-inch map | Kilballyhue/Graiguenaspiddoge townland boundary | Kilballyhue/Graiguenaspiddoge | Medium/High | 676684 | 669890 |
| CH043 | TB | TB05 | Graiguenaspiddoge northern boundary with Kilballyhue/Leagh of Ballybeg on 6-inch OS map | Graiguenaspiddoge/Kilballyhue/Leagh of Ballybeg townland boundary | Graiguenaspiddoge/Kilballyhue/Leagh of Ballybeg | Medium/High | 676880 | 670016 |



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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|-------|---|---|---------------------------------------|----------------|---------|---------|
| CH044 | TB | TB06 | Kilballyhue/Leagh of Ballybeg townland boundary on 6-inch map. | Kilballyhue /Leagh of Ballybeg townland boundary | Kilballyhue/Leagh of Ballybeg | Medium /High | 676618 | 670668 |
| CH045 | TB | TB07 | Kilballyhue/Castletown townland boundary on 6-inch OS map. Boundary is marked as centre of road. | Kilballyhue /Castletown townland boundary | Kilballyhue/Castletown | Medium /High | 676,621 | 670,667 |
| CH046 | TB | TB08 | Kilballyhue northern boundary with Moyle Big on 6-inch map. Marked as centre of the road. | Kilballyhue /Moyle Big townland Boundary | Kilballyhue/Moyle Big | Medium /High | 677157 | 671774 |
| CH047 | TB | TB09 | Kellistown West western Kilballyhue townland boundary with Killballyhue and Moyle Big on 6-inch map. The road marks and the crosses this townland boundary. | Kellistown West/Kilballyhue/Moyle Big townland boundary | Kellistown West/Kilballyhue/Moyle Big | Medium /High | 677327 | 671762 |
| CH048 | TB | TB10 | Kellistown West/Kellistown East Townland boundary on 6-inch map. The boundary is marked as centre of road | Kellistown West/Kellistown East Townland boundary | Kellistown West/Kellistown East | Medium /High | 679077 | 671609 |
| CH049 | AAP | AAP01 | Low-lying Stream shown on 6-inch map, marking the Ballyloo/Linkardstown townland boundary. | Stream | Ballyloo/Linkardstown | Medium /High | 674375 | 670098 |

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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|-----------|--|-------------------------|----------|----------------|--------|--------|
| CH050 | AAP | Anomaly 2 | Anomaly 2 was identified by the geophysical survey carried out under Licence No.24R0349. This is a probable former road/track network extending across much of the survey area. Seemingly defined by a pair of narrow, closely-set ditches, averaging about 3–6 m apart. Gaps visible along line of some examples may have facilitated access to neighbouring fields. Putative roads/tracks on east appear to converge on enclosure (Anomaly 1) identified by the geophysical survey where they can be seen to curve around its northern and western perimeter. Longest running road/track mapped on W for a distance of approx. 350 m. Not recorded on early historical maps (Dowling 2024, 26). This anomaly was the subject of test excavation under Licence No. 24E1035 which identified several features which were thought to correspond to this probable road/trackway although its exact path was difficult to determine (McCarthy 2024, 14–25). | Probable road/track way | Ballyloo | High | 674118 | 669948 |

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| CH No. | Category | ID | Description | Summary | Townland | Baseline Value | ITM E | ITM N |
|--------|----------|-----------|---|---------------------|----------|----------------|--------|--------|
| CH051 | AAP | Anomaly 5 | Anomaly 5 was identified by the geophysical survey carried out under Licence No.24R0349. This was a complex mosaic of individual and interconnected ditches indicative of former field system/s. Extends over much of the survey area, with individual rectilinear and ovaloid [e.g., Anomaly 3 and 4] enclosures/fields discernible. Difficult to disentangle on the basis of geophysics alone but likely attests to multiple phases of field division and land use. Not recorded on early historical maps (Dowling 2024, 26). This anomaly was the subject of test excavation under Licence No. 24E1035 which identified several features which were thought to correspond and supporting Dowling's interpretation. (McCarthy 2024, 14–25). J. McCarthy (2024, 27) suggested that the anomaly may represent relict field systems associated with a medieval settlement near Ballyloo Castle (RMP no. CW012-031----) and/or later activity associated with Ballyloo House. | Former field system | Ballyloo | High | 674199 | 669988 |

Note: The abbreviations that have been used for the 'Category' section are as follows:

RMP: Recorded archaeological monument
NIAH: National Inventory of Architectural Heritage
PS: Protected Structure

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TB: Townland Boundary
 AAP Area of Archaeological Potential;

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APPENDIX 2 LEGISLATIVE AND POLICY FRAMEWORK

EIA Legislation

EIA Directive 85/337/EEC as amended by 97/11/EC and 2003/35/EC requires that certain developments be assessed for likely environmental effects before planning permission can be granted. The EIA Amendment Regulations, SI 93 OF 1999 specifies in Section 2(b) of the Second Schedule, 'Information to be contained in an Environmental Impact Statement', that among other factors, information is to be provided on:

'Material assets, including the architectural and archaeological heritage, and the cultural heritage'

Each of these assets is addressed within this assessment report.

Cultural Heritage Legislation

Archaeological Monuments/Sites

Archaeological heritage is protected primarily under the edited. Section 2 of the 1930 National Monuments Act defines the word 'monument' as including:

'any artificial or partly artificial building, structure, or erection whether above or below the surface of the ground and whether affixed or not affixed to the ground and any cave, stone, or other natural product whether forming part of or attached to or not attached to the ground which has been artificially carved, sculptured or worked upon or which (where it does not form part of the ground) appears to have been purposely put or arranged in position and any prehistoric or ancient tomb, grave or burial deposit, but does not include any building which is for the time being habitually used for ecclesiastical purposes'.


Under the 1994 Act, provision was made for a Record of Monuments and Places (RMP). The RMP is a revised set of SMR (Sites and Monuments Record) maps, on which newly discovered sites have been added and locations which proved not to be of antiquity have been de-listed by the National Monuments Service.

In effect, the National Monuments Act 1930–2014, as amended provide a statutory basis for:

- Protection of sites and monuments (RMPs)
- Sites with Preservation Orders
- Ownership and Guardianship of National Monuments
- Register of Historic Monuments (pre-dating AD 1700)
- Licensing of archaeological excavations
- Licensing of Detection Devices
- Protection of archaeological objects
- Protection of wrecks and underwater heritage (more than 100 years old)

In relation to proposed works at or in the vicinity of a recorded archaeological monument, Section 12 (3) of the National Monuments (Amendment) Act 1994 states:

'When the owner or occupier (not being the Commissioners) of a monument or place which has been recorded [in the Record of Monuments and Places] or any person proposes to carry out, or to cause or permit the carrying out of any work at or in relation to such monument or place, he shall give notice in writing of his proposal to carry out the work to the Commissioners and shall not, except in the case of

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urgent necessity and with the consent of the Commissioners, commence the work for a period of two months after having given the notice.'

Archaeological artefacts

Section 2 of the 1930 National Monuments Act (amended) defines an archaeological object as (in summary) any chattel in a manufactured or partly manufactured state or an unmanufactured state but with an archaeological or historical association. This includes ancient human, animal or plant remains.

Section 9 (1) of the National Monuments (Amendment) Act 1994 states that any such artefact recovered during archaeological investigations should be taken into possession by the licensed archaeological director and held on behalf of the state until such a time as they are deposited accordingly subsequent to consultation with the National Museum of Ireland.

Architectural Sites

In 1997 Ireland ratified the Granada Convention on architectural heritage. This provided the basis for a national commitment to the protection of the architectural heritage throughout the country. The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 and Local Government (Planning and Development) Act 2000 made the legislative changes necessary to provide for a strengthening of the protection of architectural heritage. The former Act has helped to provide for a forum for the strengthening of architectural heritage protection as it called for the creation of a National Inventory of Architectural Heritage which is used by local authorities for compiling the Record of Protected Structures (RPS). The Record of Protected Structures (RPS) is set out in each respective county's Development Plan and provides statutory protection for these monuments.

Section 1 (1) of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999 states:


'architectural heritage means all—

- (a) structures and buildings together with their settings and attendant grounds, fixtures and fittings,
- (b) groups of such structures and buildings, and
- (c) sites, which are of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest"

The 1999 Act was replaced by the Local Government (Planning and Development) Act 2000 where the conditions relating to the protection of architectural heritage are set out in Part IV of the Act. Section 57 (1) of the 2000 Act states that:

'...the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of –

- (a) the structure, or
- (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest'


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APPENDIX 3 TERMS AND DEFINITIONS USED

The following sets out the definitions of the terms which are used throughout the report:

- (i) The phrase ‘cultural heritage’ is a generic term used in reference to a multitude of cultural, archaeological and architectural sites and monuments. The term ‘cultural heritage’, in compliance with Section 2(1) of the Heritage Act (1995), is used throughout this report in relation to archaeological objects, features, monuments and landscapes as well as all structures and buildings which are considered to be of historical, archaeological, artistic, engineering, scientific, social or technical interest.
- (ii) For the purpose of this assessment, each identified cultural heritage site is assigned a unique cultural heritage number with the prefix ‘CH’.
- (iii) A feature recorded in the ‘Record of Monuments and Places’ (RMP) refers to a recorded archaeological site that is granted statutory protection under the National Monuments Act 1930–2014, as amended. When reference is made to the distance between an RMP and the proposed development site (see below), this relates to the minimal distance separating the site from the known edge of the RMP. Where the edge of the RMP is not precisely known, the distance relates to that which separates the site from the boundary of the RMP zone of archaeological potential as represented on the respective RMP map; where this is applied, it is stated accordingly.
- (iv) An ‘area of archaeological potential’ refers to an area of ground that is deemed to constitute one where archaeological sites, features or objects may be present in consequence of location, association with identified/recorded archaeological sites and/or identifiable characteristics.
- (v) The term ‘proposed development site’ refers to the defined area of land within which the proposed development, including access tracks etc, may be constructed.
- (vi) In relation to the term ‘study area’ please see Section 1.3 above.
- (vii) The term ‘receiving environment’ refers to the broader landscape within which the study area is situated. Examination of the site’s receiving environment allows the study area to be analysed in its wider cultural context.
- (viii) The terms ‘baseline environment’ and ‘cultural heritage resource’ refer to the existing, identifiable environment against which potential effects of the proposed scheme may be measured.

Note: Information regarding archaeological site types and periods is provided in a glossary in Appendix 4.

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APPENDIX 4 GLOSSARY AND DEFINITION OF ARCHAEOLOGICAL TERMS

Bridge: A structure of wood, stone, iron, brick or concrete, etc., built to span a river or ravine in order to facilitate the crossing of pedestrians or vehicles. These date from the medieval period (5th–12th centuries AD) onwards.

Castle – motte: An artificial, steep-sided, earthen mound on or in which is set the principal tower of a castle. Constructed by the Anglo-Normans in the late 12th and early 13th century AD.

Castle - tower house: A fortified residence in the form of a tower, usually four or five storeys high, and for the most part slightly more rectangular than square in plan. They were constructed by a lord or landholder and were often partially or completely enclosed by a bawn. The majority date to the 15th and 16th centuries AD.

Cathedral: The principal church of a diocese in which the cathedra or bishop's throne may be found. These date from the 12th to the 19th century AD.

Church: A building used for public Christian worship. These can be of any date from c. AD 500 onwards.

Cist: A rectangular or polygonal structure used for burial purposes, constructed from stone slabs set on edge and covered by one or more horizontal slabs or capstones. Cists may be built on the surface or sunk into the ground or set within a cemetery cairn or cemetery mound. They date to the Bronze/Iron Ages (c. 2400 BC–AD 400).

Coffin-resting stone: A stone found on route to a graveyard on which the coffin is rested during transportation. These can date from the late medieval period (c. AD 1400) onwards.


Burnt mound: A circular or irregularly shaped mound of material consisting of burnt stones, ash and charcoal with no surface evidence of a trough or depression. Levelled examples can appear as a spread containing burnt stones. These can be of any date from the Bronze Age (c. 2400–500 BC) to the early medieval period (5th–12th century AD). See also *Fulacht fia*.

Earthwork: An anomalous earthen structure usually raised and occurring in a variety of shapes and sizes, that on field inspection was found to possess no diagnostic features which would allow classification within another monument category. These may date to any period from prehistory onwards.

Enclosure: An area defined by an enclosing element (e.g. bank, wall, fosse, scarp), or indicated as such cartographically, and occurring in a variety of shapes and sizes, possessing no diagnostic features which would allow classification within another monument category. These may date to any period from prehistory onwards.

Field boundary: A continuous linear or curving bank, wall or drain which defines the limits of a field. These date to any period from the Neolithic (c. 4000–2400 BC) onwards.

Fulacht fia: A horseshoe-shaped or kidney-shaped mound consisting of fire-cracked stone and charcoal-enriched soil built up around a sunken trough located near or adjacent to a water supply, such

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as a stream or spring, or in wet marshy areas. The first recorded use of the Irish term '*fulacht fiadh/fia*' (cooking pit of the deer or of the wild) as relating to ancient cooking sites was in the 17th century. These are generally interpreted to have been associated with cooking and date primarily to the Bronze Age (c. 2400–500 BC).

Furnace: A chamber in which minerals, metals, etc., are subjected to continuous intense heat. These can date from the Bronze Age (c. 2400–500 BC) to the 17th century AD.

Hearth: A place where a fire is made but where there is insufficient evidence to indicate habitation. These may date to any period from prehistory (c. 8000 BC–AD 400) to the medieval period (5th–16th centuries AD).

Hillfort: A large area, from 3 to 22 hectares, located on and often following the natural contours of a hill, enclosed by an earth or stone bank/banks and fosse/fosses which can be internal or external. They may have been important ceremonial tribal centres and/or permanent or temporary settlements. They have been dated to the Late Bronze Age (c. 1000–500 BC) with examples of reoccupation in the later Iron Age (c. AD 100–400).

House – vernacular house: A house which is non-formal, built of local materials using local skills and craftsmen within the parameters of their own local building tradition. In Ireland the majority are single storey, rectangular in plan and only one room deep, with the main hearth/kitchen forming the core of the house for domestic and social activities. These date from the 17th to the early 20th century AD.

Megalithic tomb - passage tomb: A round mound, usually surrounded by a kerb of large stones, enclosing a burial chamber, usually with a corbelled roof, which is entered by a passage, usually lintelled. Many tombs have side and end recesses opening off a central chamber, resulting in a cruciform plan. Cremation was the predominant burial rite in passage tombs which primarily date from 3300 to 2900 BC though some simpler tombs in Carrowmore, Co. Sligo have produced radiocarbon dates suggesting use even earlier in the Neolithic, c. 4000 BC.


Metalworking site: A place where metal is produced. These may date from the Bronze Age (c. 2400–500 BC) onwards.

Midden: A refuse heap sometimes surviving as a layer or spread. These may be of any date from prehistory (c. 8000 BC–AD c. 400) up to the medieval period (5th–16th centuries AD).

Pit: A circular or sub-circular cropmark/maculae or soil-mark, usually identified from aerial photography, which appears to be the visible evidence of a filled-in excavated hole or cavity in the ground. These may date to any period from prehistory onwards.

Ringfort – cashel: A roughly circular or oval area surrounded by a stone wall or walls. They functioned as residences and/or farmsteads and broadly date from 500 to 1000 AD. See Ringfort - rath for earthen equivalent.

Ringfort – rath: A roughly circular or oval area surrounded by an earthen bank with an external fosse. Some examples have two (bivallate) or three (trivallate) banks and fosses, but these are less common and have been equated with higher status sites belonging to upper grades of society. They functioned as residences and/or farmsteads and broadly date from AD 500 to 1000.

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Ringfort – unclassified: A roughly circular or oval area surrounded by an earthen bank with an external fosse (see Ringfort - rath) or a stone wall (see Ringfort - cashel). The term Ringfort - unclassified is used in instances where the surviving remains are insufficient to determine whether the monument was originally a rath or cashel. They functioned as residences and/or farmsteads and broadly date from 500 to 1000 AD.


Road - road/trackway: A way, or section thereof, which has been deliberately constructed between places. These may be of any date from prehistory onwards.

School: An establishment in which people, usually children, are taught. These date from the late medieval period (c. 15th to the 16th century AD) onwards.

Settlement deserted – medieval: An abandoned medieval settlement dating from the 13th century to 1550 AD consisting of a group of houses in close proximity with associated land plots, associated with a parish church and/or castle or tower house, often evident as earthworks.

Souterrain: An underground structure consisting of one or more chambers connected by narrow passages or creepways, usually constructed of drystone-walling with a lintelled roof over the passages and a corbelled roof over the chambers. Most souterrains appear to have been built in the early medieval period by ringfort inhabitants (c. 500–1000 AD) as a defensive feature and/or for storage.

Standing stone: A stone which has been deliberately set upright in the ground, usually orientated on a north-east–south-west axis, although other orientations do occur, and varying in height from 0.5 m up to 6 m. They functioned as prehistoric burial markers, commemorative monuments, indicators of routeways or boundaries and date from the Bronze and Iron Ages (c. 2400 BC–AD 500), with some associated with early medieval ecclesiastical and burial contexts (c. 5th–12th centuries).

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APPENDIX 5 CARLOW DEVELOPMENT PLAN EXCERPT

General: Built Heritage - Policies

It is the policy of the Council to:

BH. P1: Promote the conservation and reuse of early traditional structures, roofscapes of historic centres and the recognition of interrelationships between sites and landscape features in terms of the insertion of new buildings and managing their impact on the historic environment.

BH. P2: Promote the development of heritage-led regeneration, to plan for the reuse and conservation of core-built heritage and archaeological sites within urban centres as an integral part of the evolution of the historic place and its significance.

BH. P3: Promote best conservation practice and to lead by example through the management and safeguarding of historic sites and properties in the ownership of the Local Authority.

BH. P4: Support the development of sustainable infill in town back lands that is appropriate in scale and character to that of the historic centre, that transitions and accommodates surviving structures and retains the historic streetscape form particularly within sensitive areas of built and archaeological importance.

BH. P5: Co-ordinate significant infrastructural projects such as public realm works, flood relief works and new transport routes to the benefit of surviving historic sites in order to improve their enjoyment, presentation and enhanced accessibility.

BH. P6: Promote awareness and the appropriate adaptation of the County's architectural and archaeological heritage to deal with the effects of climate change.

10.12 Archaeological Heritage


It is the policy of the Council to:

AH. P1: Secure the preservation (either *in situ* or by record) of all archaeological monuments included in the Record of Monuments and Places (RMP) and their settings, and of all sites and features of significant archaeological or historical interest, including potential and previously unknown sites or features, in consultation with the National Monuments Service in the Department of Housing, Local Government and Heritage.

AH. P2: Protect and conserve underwater archaeological heritage in the inland waters of the County, including potential and previously unknown sites or features, in consultation with the National Monuments Service in the Department of Housing, Local Government and Heritage.

AH. P3: Protect, conserve and enhance the archaeological heritage of the County, and to manage development in a manner that avoids adverse impacts on sites, monuments, features or objects of significant archaeological or historical interest, including areas and sites of archaeological potential. There will be a presumption in favour of the 'preservation *in situ*' of archaeological heritage in accordance with the 'Framework and Principles for the Protection of Archaeological Heritage (DAGHI 1999) or any superseding national policy document.

AH. P4: Ensure that any development proposal that may, by reason of location, scale, nature, layout or design, have potential implications for archaeological heritage (including areas and sites of archaeological potential), shall be subject to an archaeological assessment. The archaeological assessment will seek to ensure that the development proposal can be sited and designed to avoid impacting on archaeological heritage. Any archaeological excavation shall be carried out in accordance with best practice outlined by the NMS, the National Museum of Ireland and the Institute of

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Archaeologists of Ireland. In all such cases the Planning Authority shall consult with the National Monuments Service in the Department of Housing, Local Government and Heritage.

AH. P5: Have regard to the Record of Monuments (RMP) and Places, the Urban Archaeology Survey and archaeological sites identified subsequent to the publication of the RMP when assessing planning applications for development. No development shall be permitted in the vicinity of a recorded feature, where it detracts from the setting of the feature or which is injurious to its cultural or educational value.

AH. P6: Protect the Zones of Archaeological Potential (Zones of Archaeological Notification) located within both urban and rural areas as identified in the Record of Monuments and Places (RMP).

AH. P7: Protect and conserve historic burial grounds within the County, including through the avoidance of extensions to them that would have an inappropriate level of impact on sub-surface archaeological remains or on their setting and amenity, and encourage their management and maintenance in accordance with best practice conservation principles, including 'Guidance for the Care, Conservation and Recording of Historic Graveyards' (The Heritage Council 2011) and 'Ireland's Historic Churches and Graveyards' (The Heritage Council), and in consultation with the National Monuments Service in the Department of Housing, Local Government and Heritage.

AH. P8: Promote public awareness of the archaeological heritage of the County, and encourage where appropriate and practicable, the provision of appropriately designed and located signage, interpretative material, and public access (including disabled access) for archaeological sites under the direct ownership, guardianship or control of the Council and/or the state.

AH. P9: Support community initiatives and projects regarding the preservation, presentation and access to archaeological heritage and underwater cultural heritage, provided such are compatible with appropriate conservation policies and standards, having regard to the guidance and advice of the Department of Housing, Local Government and Heritage.


AH. P10: Support the incorporation of recorded monuments into designated open spaces and public amenity spaces, provided this is done in a manner compatible with the protection and proper management and conservation of the monument in question. Accordingly, where such incorporation takes place an appropriate and enforceable permanent management and conservation plan will be required.

10.13 Architectural Heritage

The term architectural heritage can refer to structures, buildings (or groups of such), their settings, attendant grounds, fixtures and fittings, and sites, which are of a special architectural, historic, archaeological, artistic, cultural, scientific, social or technical interest.

The national commitment to the protection of architectural heritage can be traced to the 'Convention for the Protection of the Architectural Heritage of Europe'. Commonly known as the Granada Convention, it was drawn up and signed by the Council of Europe in 1985 and ratified by Ireland in 1997. It was international initiatives such as the Granada Convention that led to the legislative basis for the protection and enhancement of architectural heritage at a national level in Ireland, as now contained in Part IV the Planning and Development Act 2000 (as amended).

The Planning and Development Act 2000 (as amended) provides two key statutory mechanisms for the protection of architectural heritage in the County, which consist of the Record of Protected Structures (RPS) and Architectural Conservation Areas (ACAs). Specific guidance on implementing and managing the RPS and ACAs is given in the 'Architectural Heritage Protection: Guidelines for Planning Authorities' (Department of Arts, Heritage and the Gaeltacht, 2011). The Department also issued a range of publications under its 'Advice Series', aimed at providing detailed guidance on the repair and

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maintenance of historic buildings e.g. in relation to improving access, iron, brickwork, roofs, thatch, ruins, windows and energy efficiency.

The Department of Housing, Local Government and Heritage also administer the National Inventory of Architectural Heritage (NIAH). The role of the NIAH is to survey, record and evaluate post-1700 architectural heritage. The results of the surveys provide a basis for recommendations for the inclusion of particular structures in the Council's Record of Protected Structures (RPS). In 2002 the NIAH published 'An Introduction to the Architectural Heritage of County Carlow', the purpose of which was to identify and highlight a representative selection of the extant architectural heritage of the County. The NIAH, including a map viewer, can be accessed at www.buildingsofireland.ie

In many cases in the historic built environment, architectural heritage and archaeological heritage are not mutually exclusive, and therefore certain buildings, structures or features can have both qualities. This is reflected in the policies contained in this chapter of the Plan.

10.14 Protected Structure

It is the policy of the Council to:

PS. P1: Ensure the protection of the architectural heritage of County Carlow, through the identification of Protected Structures, the designation of Architectural Conservation Areas, and the recognition of structures and features in the County that make a positive contribution to vernacular and industrial heritage.

PS. P2: Ensure the protection and conservation of the character, setting and special interest of all buildings, structures (or parts of structures) and sites, listed in the Record of Protected Structures, including their curtilage, attendant grounds, and fixtures and fittings.

PS. P3: Ensure that all development proposals that affect a protected structure or a proposed protected structure, including proposals for modifications, alterations, refurbishment or extensions, are sympathetic to and protect, conserve and retain the character, setting and special interest of the protected structure or proposed protected structure, in accordance with the 'Architectural Heritage Protection: Guidelines for Planning Authorities' (Department of Arts, Heritage and the Gaeltacht, 2011).


PS. P4: Require development proposals involving protected structures or proposed protected structures, to be subject to an Architectural Heritage Impact Assessment as described in Appendix B of Department of Arts, Heritage and the Gaeltacht 'Architectural Heritage Protection: Guidelines for Planning Authorities' (2011).

PS. P5: Support and promote the use of expert conservation advice, best conservation practice, and the use of appropriately skilled and experienced contractors and specialists, for any works to protected structures, in accordance with the Department of Arts, Heritage and the Gaeltacht 'Architectural Heritage Protection: Guidelines for Planning Authorities' (2011) and their 'Advice Series' on how best to repair and maintain historic buildings.

PS. P6: Require that development proposals do not obscure views of the principal elevations of protected structures.

PS. P7: Prevent inappropriate alterations to protected structures, and to prohibit the demolition of any protected structure unless the Council is satisfied that exceptional circumstances exist. The demolition of a protected structure with the retention of its façade will likewise not generally be permitted.

PS. P8: Promote the sympathetic maintenance, adaptation and appropriate use and reuse of protected structures, and to actively encourage uses that are compatible with the character of protected structures.

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PS. P9: Retain where practicable a protected structure which has been damaged by fire, and to retain those elements of that structure that have survived (either in whole or in part) and that contribute to its special interest.

PS. P10: Promote the retention of any original or early building fabric including for example timber sash windows, stonework, brickwork, joinery, ironwork, traditional mortars, render and decorative or weather finishes and slate and vernacular architectural details. Likewise, the Council will encourage the re-instatement of historically correct traditional features.

PS. P11: Favourably consider the change of use of any structure included on the Record of Protected Structures, provided such a change of use does not adversely impact on the intrinsic character of the structure and is in accordance with the proper planning and sustainable development of the area.

PS. P12: Ensure that in the event of a planning permission being granted for development within the curtilage of a protected structure, the proposed works to the protected structure should occur, where appropriate, in the first phase of the development to prevent endangerment, abandonment and dereliction of the structure.

PS. P13: Ensure that measures to up-grade the energy efficiency of protected structures and historic buildings are sensitive to traditional construction methods and materials and do not have a detrimental physical, aesthetic or visual impact on such structures or buildings, in line with the guidance provided in the Department of the Environment, Heritage and Local Government Advice Series 'Energy Efficiency in Traditional Buildings' (2020).

Protected Structures - Objectives

It is an objective of the Council to:

PS. O1: Review and amend on an ongoing basis the Record of Protected Structures, and make additions, deletions or corrections as appropriate over the period of this Plan.

PS. O2: Prepare a Buildings at Risk Register to prevent the endangerment of protected structures, historic or vernacular buildings.

10.15 Architectural Conservation Areas

It is the policy of the Council to:

ACA. P1: Protect and enhance the historic character, heritage value and visual setting of Architectural Conservation Areas and to carefully consider any development proposals that would affect the special interest of such areas.


ACA. P2: Ensure that development proposals within or adjacent to an Architectural Conservation Area respect the character of the area and contribute positively to it in terms of design, height, scale, setting and material finishes.

ACA. P3: Avoid the removal of structures and distinctive features which make a positive contribution to the character of Architectural Conservation Areas, including buildings, building features, shop fronts, boundary treatments, street furniture, landscaping and paving.

ACA. P4: Ensure that all new signage, lighting, advertising and utilities to buildings within an Architectural Conservation Area are designed, constructed and located in a manner that is complementary to the character of the area.

ACA. P5: Ensure that external colour schemes in Architectural Conservation Areas enhance the character and amenities of the area and reflect traditional colour schemes.

Architectural Conservation Areas - Objectives

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It is an objective of the Council to:

ACA. O1: Investigate the designation of further Architectural Conservation Areas at appropriate locations throughout the County.

ACA. O2: Address dereliction and promote appropriate and sensitive reuse and rehabilitation of buildings, building features and sites within Architectural Conservation Areas.

10.16 Country Houses, Demesnes & Gardens

It is a policy of the Council to:

CH. P1: Encourage the protection, conservation, promotion and enhancement of Country Houses, Demesnes and Gardens in the County and support public awareness, enjoyment of and access to these sites where appropriate and in cooperation with owners and other interested parties, including Government Departments and state agencies.

CH. P2: Preserve and protect, where appropriate, historic gardens and designed landscapes identified in the National Inventory of Architectural Heritage.

CH. P3: Discourage development that would lead to a loss of, or cause damage to, the character, the principal components of, or the setting of Country Houses, Demesnes and Gardens.

CH. P4: Protect and promote heritage and traditional varieties of plants and trees within historic designed landscapes, demesnes and gardens, and to protect, preserve and enhance biodiversity within these places where appropriate.

CH. P5: Consider the "Guidance Notes for the Appraisal of Historic Gardens, Demesnes, Estates and their Settings" published by Cork County Council 2006, in the appraisal and description of the impacts of development proposals in County Carlow within or in close proximity to country houses and demesnes on historic designed landscapes, demesnes and gardens.

Country Houses, Demesnes and Gardens - Objectives

It is an objective of the Council to:

CH. O1: Assess the demesnes and historic designed garden landscapes and promote the protection and conservation of their special character, both built and natural, while facilitating reuse where appropriate.

10.17 Industrial and Transport Heritage


It is the policy of the Council to:

ITH. P1: Protect and conserve buildings, structures and features of industrial and transport heritage, such as historic mills, mill races, weirs, warehouses, bridges, canals and lock gates, railway structures, etc., and to promote their retention, sensitive maintenance, repair, and restoration.

ITH. P2: Encourage appropriate change of use and reuse of industrial heritage buildings, provided such a change does not seriously impact on the intrinsic heritage character of the buildings and that all works are carried out in accordance with best conservation practice.

ITH. P3: Seek the retention and appropriate maintenance and repair of the historic bridges of the County, whether protected or not.

It is an objective of the Council to:

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ITH. O1: Prepare a survey, inventory, and record of the County's industrial and transport heritage during the lifetime of the Plan.

10.18 Vernacular Architecture

It is the policy of the Council to:

VA. P1: Promote the protection, retention, public awareness, and appropriate renewal and regeneration of the vernacular architecture of the County, including the heritage-led revitalisation of the historic built fabric of urban areas.

VA. P2: Protect and conserve vernacular architecture through the use of the RPS, ACAs, and in the normal course of development management, which contributes to the character of areas and/or where it consists of rare or special interest examples of a building or structure type.

VA. P3: Require development proposals affecting vernacular buildings to be accompanied by a detailed measured survey, photographic record and written report carried out by a professional with appropriate conservation expertise and, preferably, an understanding of vernacular buildings. Early consultation with the planning authority is strongly advised.

VA. P4: Facilitate appropriate, high-quality design solutions for adaptations of vernacular buildings that carefully consider their vernacular qualities in terms of design, scale, setting and finishes. While new design can be expressed in contemporary architectural language, consideration should be given to exploring the use of appropriate vernacular features, building techniques and materials.

VA. P5: Ensure proposed extensions to vernacular houses are sympathetic to the design, scale, footprint and materials of the existing building and its setting. Extensions should generally be located to the rear and not obscure the form or layout of the existing building, the substantial removal of walling is not generally recommended, and connecting the existing building and extension should minimize the number of new openings and ideally use existing openings.

VA. P6: Resist and discourage the demolition of vernacular architecture, and promote the sympathetic renewal, maintenance, adaptation and re-use of historic building stock, and encourage the retention and repair of original fabric such as windows, doors, wall renders, roof coverings, shopfronts, pub fronts and other significant features, whether protected or not.

VA. P7: Preserve the character and setting of vernacular architecture (e.g. boundaries, fencing, gates, gate piers, courtyards etc.) where deemed appropriate by the Planning Authority.


VA. P8: Consider the guidance in 'Reusing Farm Buildings, A Kildare Perspective', published by Kildare County Council in assessing planning applications in County Carlow relating to traditional farm buildings.

VA. P9: Support proposals to retain, repair and refurbish vernacular buildings or structures that are in a rundown or derelict condition, subject to the use of appropriate traditional building materials and methods and provided that proposals for extensions are of an appropriate design and do not detract from the character of the original building or structure.

Vernacular Architecture - Objective

It is an objective of the Council to:

VA. O1: Identify and retain good examples of vernacular architecture in the County, including historic street furniture (e.g. gateways, gate piers, cast iron post boxes, milestones, water pumps etc.) and other features of historic and architectural interest.

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APPENDIX 6 PREVIOUS ARCHAEOLOGICAL EXCAVATIONS

Site name: Linkardstown

Sites and Monuments Record No.: Licence number: 08 E0275

Author: C  il  n    Drisceoil

Site type: No archaeological significance

ITM: E 674560 m, N 670632 m

Carlow County Council requested an impact assessment at Linkardstown, Tinryland, Co. Carlow, in advance of a decision on a planning application for two single houses. The proposed development area was located c. 150 m from the area of constraint for CW012-09001 to CW012-09003 (enclosures) and c. 400 m from the area of constraint for CW012-017 (Linkardstown burial). An archaeological air survey (Barrett 2002) identified the previously unknown sites CW012-09101-03 (enclosures) in an oblique aerial photograph (GB89.O.26), which showed cropmarks forming a complex sequence of fosses defining three conjoined enclosures incorporating curvilinear, rectilinear and trapezoidal components. The Linkardstown cist burial was discovered in 1944 during ploughing (Raftery 1944, 61-2). Today the site is covered by an orchard and there is no surface trace of it. Testing failed to uncover anything of archaeological significance within the cuttings opened.

Site name: Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown

Licence number:24E1035

Author: Jennifer McCarthy


Site type: Archaeological testing - various features

ITM: E 673867 m, N 669760 m

A programme of archaeological test-trenching was undertaken at Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown, Co. Carlow as part of a proposed solar farm development.

The test trenching was preceded by a geophysical survey, the results of which informed the layout of the trenches. Trenches targeted any geophysical anomalies of archaeological potential. The geophysical survey and archaeological testing were undertaken as recommended by an Archaeological Impact Assessment (O'Flaherty & O'Sullivan 2024). The combined area was c. 192 ha. The programme of archaeological testing comprised the excavation of a total of 152 test trenches, totalling 6,054 m.

A series of pits, linear features, ditches, one possible post-hole and one irregular feature were identified during testing. Prehistoric pottery was recorded within one of these linear feature.

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APPENDIX 7 PREVIOUS GEOPHYSICAL SURVEY

Geophysical Survey Report

Ballybar Upper, Ballyloo, Ballyryan, Garryhundon & Linkardstown, Co. Carlow

Part 1: Survey information

License No.: 24R0349

RMP: CW012-028, CW012-090, CW012-0901, CW012-09002,
CW012-210 & CW012-211 Enclosures; CW012-051 Concentric enclosure;
CW012-030, Ringfort-rath; CS012-0903, Field system;
& CW012-084, Burial ground

ITM (project centroid): 673600, 669600



Ger Dowling, PhD MIAI
September 2024

Summary

This report details the results of an archaeogeophysical survey (Licence No.: 24R0349) at lands at Ballybar Upper, Linkardstown, Garryhundon, Ballyloo and Ballyryan townlands, Co. Carlow. The investigation was requested by the Development Applications Unit (Department of Housing, Local Government and Heritage) as part of a Request for Further Information relating to a proposed development.

The geophysical survey, comprising high resolution magnetic gradiometry, was implemented over 11 discrete areas of pasture and tillage that encompass a combined area of approximately 63.25 hectares. The target areas are the recorded location of 10 sites, including enclosures and field systems.

This work resulted in the identification of features of archaeological and potential archaeological interest in at least nine of the areas targeted for investigation. Identified features include enclosures, relict field systems and a road/track network, alongside an array other potential features and structures of possible archaeological interest. The latter include possible pits/spreads, ditches and other tentative features. Modern features, including former land divisions, quarry pits and a possible well, were also mapped by the survey.

Survey details

Townlands: Ballybar Upper, Linkardstown, Garryhundon, Ballyloo & Ballyryan

Parishes: Clonmelsh (Ballybar Upper and Garryhundon), Tullowmagimma (Linkardstown and Ballyloo), & Tullowmagimma and Nurney (Ballyryan)

Baronies: Carlow (Ballybar Upper, Linkardstown, Garryhundon and Ballyloo) & Carlow and Idrone East (Ballyryan)

County: Carlow

RMP No.: CW012-028, CW012-090, CW012-0901, CW012-09002, CW012-210 & CW012-211 (Enclosures); CW012-051 (Concentric enclosure); CW012-030 (Ringfort-rath); CS012-0903 (Field system); & CW012-084 (Burial ground)

ITM (project centroid): 673600, 669600

Land use: Pasture & tillage

Geology: Dolomitised dark-grey muddy limestone (Ballysteen Formation: Ballybar Upper and Garryhundon townlands); pale, fine to coarse-grained granite (Tullow Type 2 Equigranular Granite: Linkardstown townland); granite, with some microcline phenocrysts (Tullow Type 2 Sparsely Porphyritic Granite: Ballyloo and Ballyryan townlands); and seams of limestone and dark-grey calcareous shale (Ballymartin Formation) and lenticular mudstone and coarse siltstone (Quinagh Formation)

Soils: Fine loamy drift with limestones (Elton Series)

Detection License No.: 24R0349

Planning Reference No.: See Part 2 of this report

Survey Type & Instrument: Fluxgate Gradiometer – Five-channel magnetometer
Sample/Transverse Interval: 0.10m/0.5m

Area Surveyed: c.63.25 ha
Survey Dates: 19–21, 24, 26 August & 04 September 2024

License Holder: Ger Dowling
Report Author: Ger Dowling
Report Date: 09 September 2024

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Abbreviations

| | |
|--------|--|
| CW | Carlow |
| DoHLGH | Department of Housing, Local Government and Heritage |
| GPS | Global Positioning System |
| ITM | Irish Transverse Mercator |
| nT | nanoTesla (unit of magnetic measurement) |
| OS | Ordnance Survey |
| QGIS | Quantum Geographical Information Systems |
| RMP | Record of Monument and Places |
| SMR | Sites and Monuments Record |

Coordinate System

All GPS coordinates given in this report are in Irish Transverse Mercator (ITM)

1 Introduction

This report details the results of an archaeogeophysical survey (Licence No.: 24R0349) of lands at Ballybar Upper, Linkardstown, Garryhundon, Ballyloo and Ballyryan townlands, Co. Carlow. The investigation was requested by the Development Applications Unit (Department of Housing, Local Government and Heritage, DoHLGH) as part of a Request for Further Information relating to a proposed development.

The geophysical survey, comprising high resolution magnetic gradiometry, was implemented over 11 discrete areas of pasture and tillage that encompass a combined area of approximately 63.25 hectares. The target areas are the recorded location of 10 sites, including enclosures and field systems. Two areas (designated as 'Areas 3 and 4' in the detection licence method statement) originally intended for investigation in the townland of Garryhundon were not surveyed as part of the present work.

The site has not previously been subjected to geophysical survey and the investigation was designed to help clarify the nature and significance of the previously recorded sites and identify any other unrecorded sub-surface archaeological sites or features that may be present.

2 Site Location

The survey area is located in the townlands of Ballybar Upper, Linkardstown, Garryhundon, Ballyloo and Ballyryan, Co. Carlow (Figure 1). The sites are dispersed across a broad area, extending roughly 1.5km to 4km north of Nurney.

The townlands of Ballybar Upper, Linkardstown, Garryhundon and Ballyloo are in the barony of Carlow, with Ballyryan in the baronies of Carlow and Idrone East.¹ The townlands are split between the parishes of Clonmelsh (Ballybar Upper and Garryhundon), Tullowmagimma (Linkardstown and Ballyloo), and Tullowmagimma and Nurney (Ballyryan).

¹ Ballybar Upper: [Baile Uí Bhairr Uachtarach/Ballybar Upper | logainm.ie](https://logainm.ie/Baile_Ui_Bhairr_Uachtarach/Ballybar_Upper); Linkardstown: [Baile an Laingearthaigh/Linkardstown | logainm.ie](https://logainm.ie/Baile_an_Laingearthaigh/Linkardstown); Garryhundon: [Garraí Uí Bhrúacháin/Garryhundon | logainm.ie](https://logainm.ie/Garraí_Uí_Bhrúacháin/Garryhundon); Ballyloo: [Baile Lú/Ballyloo | logainm.ie](https://logainm.ie/Baile_Lú/Ballyloo); & Ballyryan: [Baile Uí Riain/Ballyryan | logainm.ie](https://logainm.ie/Baile_Uí_Riain/Ballyryan): accessed on 12 June 2024.

3 Survey Background

The survey was requested by the Development Applications Unit, DoHLGH, as part of a Request for Further Information relating to the proposed development.

Details of the proposed development and the recommendations of the Development Applications Unit are found in Part 2 of this report.

4 Archaeological Background

4.1 Recorded/Known Archaeology

A total of 10 recorded monuments are located within the survey areas (Table 1; Figures 2–5). Other nearby monuments include enclosures (e.g., CW012-027, CW012-136 & CW012-192), an earthwork (CW012-052) and a tower house (CW012-031) with surrounding bawn (CW012-03101).

The survey areas are shown as farmland on early historical maps (Figures 6 & 7). Area 4 is depicted as wet, marshy terrain on the first-edition six-inch Ordnance Survey Map (1837–42). Two small vernacular buildings are recorded in Area 10 on the six-inch map but appear to have been levelled by the time the first-edition 25-inch Ordnance Survey Map (1888–1913) was compiled. A third small building/shed is marked at the northern end of the same area on the six-inch map but likewise seems to have been removed by the late nineteenth/early twentieth century.

Table 1: Recorded monuments in the survey areas

| Survey Area | Townland | SMR No. | Classification | ITM (centroid) | Notes ² |
|-------------|--------------|------------|----------------|-----------------|--|
| 3 | Garryhundon | CW012-028 | Enclosure | 673226 / 669832 | Cropmark |
| 5 | Ballyloo | CW012-030 | Ringfort-rath | 673961 / 669540 | Marked on 1938–39 six-inch map (max. diam. c.45m). No visible surface trace |
| 6 | Ballyloo | CW012-084 | Burial ground | 674182 / 669729 | Identified by local tradition. No visible surface trace |
| 7 | Linkardstown | CW012-090 | Enclosure | 674849 / 670234 | Cropmark. Large curvilinear enclosure defined by a wide fosse with complex, multi-ditched entrance facing E and simple entrance facing S. Third possible entrance leads into rectilinear annexe, defined by two fosses, on W. A circular pit adjoins the fosse within the main enclosure |
| 7 | Linkardstown | CW012-0901 | Enclosure | 674545 / 670273 | Cropmark. Sub-circular enclosure defined by two concentric fosses |
| 7 | Linkardstown | CW012-0902 | Enclosure | 674682 / 670115 | Cropmark. Complex series of contiguous enclosures defined by fosses, comprising a central circular |

² [Historic Environment Viewer \(arcgis.com\)](https://historicenvironmentviewer.arcgis.com/): accessed on 12 June 2024.

| | | | | | |
|----|--------------|------------|----------------------|-----------------|--|
| | | | | | enclosure with two curvilinear annexes and a trapezoidal annexe |
| 7 | Linkardstown | CW012-0903 | Field system | 674656 / 670237 | Cropmark. Series of fosses extending from enclosures indicating an associated field system but complicated by irregular cropmarks of geomorphological origin possibly resulting from frost action |
| 8 | Ballyloo | CW012-210 | Enclosure | 674622 / 669441 | Cropmark. Roughly circular enclosure (internal diam. c.50m; overall diam. c.64–66m), defined by an inner and outer fosse |
| 8 | Ballyloo | CW012-211 | Enclosure | 674541 / 669402 | Cropmark. Roughly circular enclosure (overall diam. c.69m) defined by a fosse, with suggestion of an internal central enclosure (diam. c.30–35m). The NE arc of outer enclosing element is most visible. NE quadrant truncated by a field boundary running NW–SE, also a cropmark |
| 11 | Ballyryan | CW012-051 | Concentric enclosure | 674547 / 668474 | Cropmark. Circular enclosure (diam. c.20m), with outer concentric enclosure at a distance of c.15m. Marked on 1938–39 6-inch map. Visible on Google Earth (imagery date 14 July 2018) as a circular enclosure (diam. c.34m) with an outer concentric sub-circular enclosure (overall diam. c.65m). The fosses are c.15–20m apart |

4.2 Previous Investigations

No recorded archaeological investigations have previously been conducted at the survey area.³

³ <https://excavations.ie>: accessed on 12 June 2024.

5 Survey Location and Aims

The investigation, comprising high resolution magnetic gradiometry, focused on 11 separate areas that together encompass approximately 63.25 ha (Table 2; Figure 8). As mentioned above, two areas (designated as 'Areas 3 and 4' in the detection licence method statement) originally intended for investigation in the townland of Garryhundon were not surveyed as part of the present work. The survey areas comprise:

Area 1 consists of portions of several separate fields of tillage and pasture (Plates 1 & 2). The fields are partitioned by tree-lined hedgerows and post-and-wire fences, with a small stream between the two westernmost fields. Directly north of the stream, the land rises to a low, east–west/oriented ridge, parts of which were too steep to survey (Plate 3). Elsewhere, the topography is flat. The M9 motorway runs roughly east–west about 100m to the north.

Area 2 comprises a long, narrow strip of land that extends north to south along the eastern edge of two flat pasture fields (Plate 4). It is located only 20m south of Area 1 at its nearest point.

Area 3 comprises central-western portion of a large, flat, irregular field of tillage (Plate 5). Several houses lie directly to the west and the approximate centre of the area is traversed from north to south by an overhead electricity cable.

Area 4 consists of a rectilinear field of pasture flanked to either side by portions of large tillage fields (Plates 6 & 7). Parts of the tillage field on the west and the pasture field on the north could not be surveyed owing to disturbed terrain. The pasture field is bordered by hedgerows supplemented by post-and-wire fences. A modern farm track lies immediately to the south.

Area 5 is defined by portions of four individual fields of tillage and pasture (Plates 8 & 9). Bisected north to south by a farm track, the area occupies the summit of a low rise immediately west of a modern farm complex. The site is traversed from northeast to southwest by an overhead electricity cable.

Area 6 consists of portions of two large tillage fields located north and south of one another and separated by a lane (Plates 10 & 11). The northern field is flat, while the southern field rises gradually to the east towards a modern farmhouse and shed. A minor, north–south/oriented road flanks the area on the west. An overhead electricity cable crosses the western part of the northern field from northeast to southwest.

Area 7 (Plates 12 & 13) is a large rectangular tillage field, oriented southwest–northwest. The topography rises steadily from the modern road on the southwest before flattening out on the elevated, northeast section of the field. Several modern houses flank the area on the south.

Area 8 occupies the upper, west-facing slope of a low rise at the eastern end of large tillage field and offers extensive panoramic views to the west and southwest (Plate 14). The field is bordered by low, well-maintained hedgerows and has been extensively tilled in modern times.

Area 9 consists of portions of three large fields of tillage (Plates 15 & 16). The terrain in the central part of the site ascends moderately to the east, while the eastern and western areas are flat. A farm track runs between the western and central sections, while modern farm sheds lie directly adjacent to the western part of the site on the north.

Area 10 encompasses part of the western section of a large tillage field and neighbouring, roughly linear tract of rough pasture (Plates 17 & 18). The areas are separated by a small stream/drainage channel. The tillage field is flat and was partly given over to wildflower meadow at the time of the investigation. The pasture field slopes moderately from west to east and is bordered by tree-lined hedgerows supplemented by post-and wire fences. A small parcel of land between the two fields contains modern dumped material.

Area 11 forms part of a large flat tillage field (Plate 19). A small conifer plantation lies directly to its east.

Table 2: Survey areas

| Survey Area | Townland | Area (ha) | ITM (centroid) |
|-------------|----------------------|-----------|-----------------|
| 1 | Ballybar Lower | 8 | 672700 / 671110 |
| 2 | Ballybar Lower | 0.8 | 672870 / 670970 |
| 3 | Garryhundon | 3.3 | 673226 / 669832 |
| 4 | Garryhundon–Ballyloo | 4 | 673630 / 669660 |
| 5 | Ballyloo | 2.5 | 673961 / 669540 |
| 6 | Ballyloo | 12.1 | 674182 / 669729 |
| 7 | Linkardstown | 12.25 | 674656 / 670237 |
| 8 | Ballyloo | 5.4 | 674541 / 669402 |
| 9 | Ballyloo–Ballyryan | 4.5 | 674400 / 668960 |
| 10 | Ballyloo–Ballyryan | 6.4 | 674100 / 668680 |
| 11 | Ballyryan | 4 | 674547 / 668474 |

The underlying bedrock of the locality is mixed, comprising dolomitised dark-grey muddy limestone (Ballysteen Formation: Ballybar Upper and Garryhundon townlands) and pale, fine to coarse-grained granite (Tulow Type 2 Equigranular Granite: Linkardstown townland) on the north, and granite, with some microcline phenocrysts (Tulow Type 2 Sparsely Porphyritic Granite: Ballyloo and Ballyryan townlands) on the south.⁴ The limestone of the Ballysteen Formation and the Tulow Type 2 granite are separate by northeast–southwest/aligned seams of limestone and dark-grey calcareous shale (Ballymartin Formation) and lenticular mudstone and coarse siltstone (Quinagh Formation).⁵ By contrast, the local soils are more uniform, being dominated by fine loamy drift with limestones (Elton Series).⁶

The geophysical investigation aimed to:

- identify any geophysical anomalies of possible archaeological origin within the specified survey area
- accurately locate these anomalies and present the findings in map form
- describe the anomalies and discuss their likely provenance in a written report
- incorporate all of the above in a report to the Client

⁴ Geological Survey of Ireland Spatial Resources, Public Data Viewer Series: <https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228> [accessed on 12 June 2024].

⁵ Ibid.

⁶ Irish National Soils Map, 1:250,000k, V1b (2014): <http://gis.teagasc.ie/soils/map.php> [accessed on 12 June 2024].

6 Survey Methodology and Instrumentation

The survey involved high-resolution magnetic gradiometry survey (Table 3). This technique measures changes in the magnetic properties of the soil and is widely used in modern investigations due to its ability to detect a broad range of sub-surface archaeological remains, including ditches and pits, and industrial features associated with metalworking and pottery production.

The magnetic survey was conducted using a five-channel fluxgate gradiometer system, combining a Sensys MAGNETO MXPDA and Sensys FGM650 probes, with cm-precision GPS (Trimble R12 antenna and TSC5 controller) georeferenced to Irish Transverse Mercator and Ordnance Datum. Mounted on a cart and pulled by a quad bike (Suzuki King Quad 500cc), the system records magnetometer and GPS data simultaneously into a single data file. The data capture strategy involved logging readings every 0.10m intervals along transects spaced 0.5m apart, with a maximum traverse width of 2.5m.

The sampling strategy produces a high-resolution dataset, giving clarity to any archaeological features detected. The highly accurate positioning of the survey data provides strong confidence when integrating the geophysical results with other datasets such as aerial imagery in GIS, and also ensures repeatability should further investigation of anomalies (e.g., test excavation) be required.

Table 3. Geophysical survey details

| Technique | Instrumentation | Sensor spacing | Sample rate | Survey Area | Number of recorded data |
|----------------------|---|----------------|-------------|-------------|-------------------------|
| Magnetic Gradiometry | Five-channel fluxgate gradiometer array | 0.5m | 100 Hz | c.63.25 ha | 14,476,638 ⁷ |

⁷ Areas 1 & 2: 1,961,217 readings; Area 3: 780,084 readings; Area 4: 781,236 readings; Area 5: 506,076 readings; Area 6: 3,002,521 readings; Area 7: 2,850,037 readings; Area 8: 1,312,849 readings; Area 9: 1,056,903 readings; Area 10: 1,269,331 readings; & Area 11: 956,384 readings.

7 Data Management, Processing and Interpretation

Gradiometry data was logged to a laptop computer and archived daily to an external hard drive. The collated data was processed using the following methodology:

- Real-time positioning of magnetometer data based on GPS measurements;
- Processing (track correction and equalisation) of collated magnetometer data; and
- Export of georeferenced greyscale images at optimum visual range

The processed data was imported into QGIS for final image production (Figures 9–33). Final geophysical datasets have been formatted as raster data models/GeoTiffs (projected to ITM, EPSG:2157) to enable subsequent geospatial analysis. Fieldwork, data processing and reporting adhered to the most up-to-date guidelines for conducting archaeogeophysical surveys.⁸ All geophysical raster datasets will be digitally archived to best practice.⁹

⁸ Schmidt A., Linford P., Linford N., David, A., Gaffney C., Sarris A., and Fassbinder J. 2016. *EAC Guidelines for the Use of Geophysics in Archaeology: Questions to Ask and Points to Consider*. EAC Guidelines 2. [Online] Available from:

https://f64366e3-8f7d-4b63-9edf5000e2bef85b.filesusr.com/ugd/881a59_fdb1636e95f64813a65178895aea87cf.pdf

⁹ Niven, K. 2012. *Raster Images: A Guide to Good Practice*. Archaeology Data Service/Digital Antiquity, Guides to Good Practice. [Online] Available from: http://guides.archaeologydataservice.ac.uk/g2gp/RasterImg_Toc; & Schmidt, A. and Ernenwein, E. 2012. *Guide to Good Practice: Geophysical Data in Archaeology*. Oxford: Oxbow.

8 General Considerations and Complicating Factors

8.1 Access and Ground Conditions

The survey areas comprise flat to gently sloping fields of tillage and pasture. Most of the areas proved suitable for survey, apart from small tracts of steep terrain in Area 1 and disturbed (machine rutted) ground in Area 4.

8.2 Modern Interference

Numerous small-scale and zones of 'ferrous-type' (dipolar) responses are evident in the results from the gradiometry survey. These are a common occurrence in magnetic data and in most cases represent modern metal debris contained within the topsoil. However, given the presence of archaeology and potential archaeology in many of the survey areas, some of the ferrous responses mapped in those localities may reflect objects of archaeological interest.

Small areas of ferrous disturbance deriving from survey in proximity to field fences, field gates, modern houses and farm buildings were recorded in places along the edges of the survey area. The overhead electricity cables in Areas 5 and 6 represented another source of magnetic interference.

8.3 Former land use

Traces of former cultivation, registering as faint, multiple, closely-spaced, parallel, positive/negative linear anomalies, are evident in the magnetic results from Areas 6 and 10. These are at various orientations and likely relate to tillage farming in recent centuries. Modern cultivation is also discernible in the datasets.

Relict field boundaries depicted on the early historic maps in Areas 3, 6–11 also registered in the survey results, as did a number of possible examples in Areas 1, 3, 8 and 10. The latter are typically of linear or rectilinear form and while not recorded on early historical maps, they may relate to land division in recent centuries.

Areas of enhanced magnetic response mapped by the survey in Areas 5, 6, 9 and 10 may have an archaeological origin but may also be the result of imported material and/or dumping or the result of ground disturbance. Several possible in-filled quarry pits were also recorded in Areas 3, 6, 7 and 9; the putative quarries are not depicted on early historic maps. A possible back-filled well indicated in Area 3 on first-edition 25-inch Ordnance Survey map (1888–1913) was identified by the survey.

9 Survey Results

Table 4. Area 1: survey results

| Townland | Ballybar Lower | | |
|-----------------------|---|--------------------------------------|---|
| ITM (centroid) | 672700 / 671110 | | |
| Area surveyed | c.8 ha | | |
| Figure Numbers | 9, 10, 20, 21 & 31 | | |
| Anomaly Number | Form/nature of anomaly | Possible source(s) of anomaly | Interpretative discussion |
| 1 | Positive annulus | Possible archaeology | Ring-ditch, c.6m in overall diameter (N–S). Possible structure/building or burial site. See Figure 31 for detailed view. |
| 2 | Circular positive anomaly | Possible archaeology | Possible ring-ditch or circular structure, c.10m in overall diameter (N–S). Tentative feature. Located some 8m NW of [3]. See Figure 31 for detailed view. |
| 3 | Faint, discontinuous circular anomaly | Possible archaeology | Possible ring-ditch or circular structure, c.7m in overall diameter (N–S). Tentative feature. Located some 8m SE of [2]. See Figure 31 for detailed view. |
| 4 | Semi-circular anomaly | Possible archaeology | Possible northern arc of ring-ditch or circular structure, c.10m in overall diameter (NE–SW). Interpretation as archaeology is tentative. See Figure 31 for detailed view. |
| 5 | Diffuse, discontinuous circular anomaly | Possible archaeology | Potential enclosure, measuring about 20m in diameter (E–W). Speculative feature. May be associated with an internal ‘pit-type’ response (possible pit/spread). Perhaps associated with faint ‘ditch-type’ linear anomaly [9] that appears to extend from its southern circuit. See Figure 31 for detailed view. |
| 6 | Weak, slender semi-circular anomaly | Possible archaeology/natural | Possible eastern arc of small enclosure (c.14m in NE–SW diameter). Interpretation as archaeology is speculative. Natural (i.e., soil) origin also conceivable. |
| 7 | Faint, slender semi-circular anomaly | Possible archaeology/natural | Potential eastern arc of small enclosure (length of chord c.14m). Interpretation as archaeology is tentative. Natural (i.e., soil) origin also possible. |

| | | | |
|---|--|---|--|
| 8 | Positive linear | Possible archaeology/ agricultural | Linear 'ditch-type' feature traced for approximately 33 N–S. Appears to contain a significant volume of burnt/fired material in its fill. Unknown antiquity. Not marked on early historical maps. Located adjacent to several other slender linear anomalies (possible ditches), though relationship with them, if any, is unknown. See Figure 31 for detailed view. |
| 9 | Positive linear | Possible archaeology/ agricultural | Linear 'ditch-type' feature (c.40m in NW–SE length. Unknown antiquity. Not marked on early historical maps. Appears to extend from southern circuit of [5], though relationship, if any, is unknown. See Figure 31 for detailed view. |
| | Multiple, discrete 'pit-type' responses | Possible archaeology/ agricultural/natural | Possible pits/spreads, some may contain burnt/fired material in their fills. Concentration mapped in area of [2–4] in westernmost field. Archaeological interpretation is cautious. Modern (agricultural) and/or natural origin also possible. |
| | Several slender linear and rectilinear positive anomalies | Possible agricultural | Overlapping array of probable ditches suggestive of former rectilinear field system/s. Not marked on early cartographic sources but may relate land division in recent centuries. See Figure 31 for detailed view. |
| | Positive trends | Possible archaeology/ agricultural | Possible ditches/drains. |
| | Array of narrow, discrete and interconnected positive–negative linears | Possible agricultural | Possible field drains. |
| | High-intensity positive–negative (dipolar) linear | Modern | Wire fence. |
| | Multiple 'ferrous-type' responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Zones of magnetic disturbance | Modern | Disturbance from wire fences and field gates. |

Table 5. Area 2: survey results

| | | | |
|------------------------------|---|--|--|
| <i>Townland</i> | Ballybar Lower | | |
| <i>ITM (centroid)</i> | 672870 / 670970 | | |
| <i>Area surveyed</i> | c.0.8 ha | | |
| <i>Figure Numbers</i> | 9, 10, 20 & 21 | | |
| <i>Anomaly Number</i> | <i>Form/nature of anomaly</i> | <i>Possible sources(s) of anomaly</i> | <i>Interpretative discussion</i> |
| | Several slender positive–negative linears | Possible agricultural | Possible field drains. |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Zones of magnetic disturbance | Modern | Disturbance from wire fences and field gates. |

Table 6. Area 3: survey results

| Townland | Garryhondon | | |
|-----------------------|--|---|---|
| ITM (centroid) | 673226 / 669832 | | |
| Area surveyed | c.3.3 ha | | |
| Figure Numbers | 9, 11, 20 & 22 | | |
| Anomaly Number | Form/nature of anomaly | Possible source(s) of anomaly | Interpretative discussion |
| 1 | Slender positive arcuate | Possible archaeology/agricultural | Curving ditch (length of chord c.35m). Precise significance uncertain. May represent part of enclosure CW012-028 or former field boundary. Appears to connect to possible relict field boundary on W. |
| 2 | Several discrete 'pit-type' response | Possible archaeology/agricultural/natural | Possible pits/spreads, some may contain burnt/fired material in their fills. Archaeological interpretation is tentative. Modern (agricultural/ferrous) and/or natural (i.e., soil) origin also possible. Note that only representative sample labelled '2' on Figure 22 |
| 3 | Positive–negative–positive linear | Agricultural | Relict field boundary. Recorded on first-edition six-inch Ordnance Survey map (1837–42). Probably connect to [4] some 19m to NE. |
| 4 | Faint, diffuse, slender positive linear | Agricultural | Relict field boundary. Marked on first-edition six-inch Ordnance Survey map (1837–42). Probably connect to [3] some 19m to SW. |
| 5 | Strongly enhance positive linear | Agricultural | Relict field boundary/drain. Depicted on first-edition 25-inch Ordnance Survey map (1888–1913). |
| 6 | Faint positive linear with discrete 'ferrous-type' responses | Agricultural | Relict field boundary. Defined mainly by discrete 'ferrous-type' responses of varying magnitude, suggestive of buried iron material. Shown on first-edition 25-inch Ordnance Survey map (1888–1913). |
| | Several slender linear positive anomalies | Possible agricultural | Probable ditches, suggestive of former field system/s of potential recent origin. Not marked on early historical maps. |
| | Positive trends | Possible archaeology/agricultural | Possible ditches/drains. |
| | Strongly enhanced circular positive anomaly | ?Modern | Possible (backed-filled) well. Marked in this area on first-edition 25-inch Ordnance Survey map (1888–1913). |
| | Irregular zone of weak positive magnetism | ?Modern | Possible in-filled quarry pit (c.25m NW–SE by 10m NE–SW). Not marked on early historical maps. |

| | | | |
|--|---|----------------|---|
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, aligned E–W. <i>Not marked on Figure 22</i> |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Areas of magnetic disturbance | Modern | Disturbance from modern buildings. |

Table 7. Area 4: survey results

| | | | |
|---------------------------|---|---------------------------------------|---|
| Townland | Garryhundon–Ballyloo | | |
| ITM (centroid) | 673630 / 669660 | | |
| Area surveyed | c.4 ha | | |
| Figure Numbers | 9, 12, 20 & 23 | | |
| Anomaly Number | Form/nature of anomaly | Possible sources(s) of anomaly | Interpretative discussion |
| 1 | Three, closely set 'pit-type' responses | Possible archaeology/modern | Possible pits/spreads, some may contain burnt or fired material. Archaeological interpretation is cautious. Modern/ferrous origin also conceivable. |
| 2 | 'L-shaped' positive anomaly | Possible archaeology agricultural | Possible corner of ditched feature. Significance unknown. Modern (i.e., agricultural) origin also possible. |
| 3 | Short, slender positive linear | Possible archaeology/modern | Possible ditch/drain section. |
| 4 | 'Pit-type' response | Possible archaeology/modern /natural | Possible pit/spread. Tentative interpretation. Modern (agricultural/ferrous) and/or natural (i.e., soil) origin also possible. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, aligned E–W. Not marked on Figure 23 |
| | Multiple 'ferrous-type' responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Areas of magnetic disturbance | Modern | Disturbance from adjacent wire fences and field gate. |

Table 8. Area 5: survey results

| | | | |
|-----------------------|-----------------------------------|---------------------------------------|--|
| Townland | Ballyloo | | |
| ITM (centroid) | 673961 / 669540 | | |
| Area surveyed | c.2.5 ha | | |
| Figure Numbers | 9, 13, 20 & 24 | | |
| Anomaly Number | Form/nature of anomaly | Possible sources(s) of anomaly | Interpretative discussion |
| 1 | Slender positive linear | ?Modern | Possible pipe (services) or drain. Appears to extend from modern farm complex on east. |
| 2 | Slender positive linear | ?Modern | Possible pipe (services) or drain. |
| | Positive trends | Possible archaeology/ agricultural | Possible ditches/drains. Tentative features. |
| | Multiple 'ferrous-type' responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Areas of magnetic enhancement | Agricultural/modern | May reflect presence of imported material (e.g., gravel) or dumping or the result of ground disturbance. |
| | Zones of magnetic disturbance | Modern | Disturbance from adjacent modern farm sheds and overhead electricity cable. |

Table 9. Area 6: survey results

| Townland | Ballyloo | | |
|-----------------------|--|---------------------------------------|--|
| ITM (centroid) | 674182 / 669729 | | |
| Area surveyed | c.12.1 ha | | |
| Figure Numbers | 9, 14, 20, 255, 32 & 33 | | |
| Anomaly Number | Form/nature of anomaly | Possible sources(s) of anomaly | Interpretative discussion |
| 1 | Ovaloid positive anomaly | Archaeology | Ovaloid ditched enclosure, c.28m N–S by 33m E–W. May extend beyond limit of survey area on E. Appears to lie at junction of former road/track network [2] and surrounds multiple ‘pit-’ and ‘ditch-type’ responses that may reflect associated features (e.g., pits/spreads and ditches/trenches). Precise nature and significance of [1] uncertain, but this may be burial ground, CW012-084. Interpretation is cautious. Not depicted on early historical maps. See Figure 32 for detailed view |
| 2 | Multiple, slender, parallel, closely-set positive curvilinears | Archaeology | Probable former road/track network extending across much of the survey area. Seemingly defined by a pairs of narrow, closely-set ditches, averaging about 3–6m apart. Gaps visible along line of some examples may have facilitated access to neighbouring fields. Putative roads/tracks on E appear to converge on enclosure [1] where they can be seen to curve around its northern and western perimeter. Longest running road/track mapped on W for a distance of approx. 350m. Not recorded on early historical maps. See Figure 33 for suggested layout of former road/track network |
| 3 | Large, ‘D-shaped’ positive anomaly | Archaeology | Possible enclosure or former field (c.30m NW–SE by 28m NE–SW). |
| 4 | Small, ‘D-shaped’ positive anomaly | Archaeology | Possible enclosure or former field (c.13m NW–SE by 10m NE–SW). Appears to append to possible field ditch on S. |
| 5 | Array of slender, linear and curvilinear positive magnetic anomalies | Archaeology | Complex mosaic of individual and interconnected ditches indicative of former field system/s. Extends over much of the survey area, with individual rectilinear and ovaloid [e.g., 3 & 4] enclosures/fields discernible. Difficult to disentangle on the |

| | | | |
|--|---|--|--|
| | | | basis of geophysics alone but likely attests to multiple phases of field division and land use. Not recorded on early historical maps. |
| | Two, parallel, closely-set positive lineations | Agricultural | Relict field boundary. Marked on the first-edition six-inch Ordnance Survey Map (1837–42). |
| | Positive trends | Possible archaeology/agricultural | Possible ditches/drains. Tentative features. |
| | Negative trends | Possible archaeology/agricultural | Possible bands of compacted earth and/or in-filled ditches/drains. Tentative features. |
| | Multiple, closely spaced, parallel, positive and negative linear | Agricultural | Former cultivation. Various orientation. Only visible in parts of southern field. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, aligned NE–SW. <i>Not marked on Figure 25</i> |
| | Small amorphous area of weak positive magnetism | ?Modern | Possible in-filled quarry pit in northern field. Not depicted on early historical maps. |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Areas of low magnetic enhancement | Possible archaeology/agricultural/modern | May represent of weakly magnetised (top)soils and/or ground disturbance. An archaeological origin for some responses in this groups cannot be ruled out. |
| | Zones of magnetic disturbance | Modern | Disturbance from field fences and overhead electricity cable in north field. |

Table 10. Area 7: survey results

| Townland | Linkardstown | | |
|-----------------------|--|--------------------------------------|--|
| ITM (centroid) | 674656 / 670237 | | |
| Area surveyed | c.12.25 ha | | |
| Figure Numbers | 9, 15, 20 & 26 | | |
| Anomaly Number | Form/nature of anomaly | Possible source(s) of anomaly | Interpretative discussion |
| 1 | 'D-shaped' positive anomaly | Archaeology | Enclosure (CW012-090) defined by 'D-shaped' ditch (c.67m NE–SW by 60m NW–SE in max. dimensions). Boundary up to 3–4m wide in places and seemingly breached by one, possibly two, c.2m-wide entrance gaps on SE. Surrounds circular enclosure [2] and attached to rectangular annex [3] on SW. Also appears to be associated with an extensive network of possible ditches [5] that may reflect an associated field system/s that extends beyond enclosure to NW and SW. Several positive linears and 'pit-type' responses mapped both inside and immediately outside enclosure may represent associated features (e.g., ditch segments and pits/spreads), some possibly containing burnt/fired material in their fills. Enclosure lies about 150m NE of enclosure [6] and 210m E of enclosure [8]. |
| 2 | Slender, discontinuous positive anomaly | Archaeology | Circular enclosure, measuring about 42m in overall diameter. Located at centre of [1], though precise relationship between the two is uncertain. Enclosure [2] may originally have been defined by a narrow ditch or slot-trench for a timber palisade. Appears to be truncated by possible modern quarry pit on N. |
| 3 | Rectangular positive magnetic anomaly | Archaeology | Rectangular annex to enclosure [1]. Annex has internal dimensions of c.45m NW–SE by 30m NE–SW. May have been used by owner-occupiers of [1] for agricultural activities. Connects to slender, irregular, curving 'field ditch' on SW. |
| 4 | Semi-circular positive anomaly | Possible archaeology | Possible southern circuit of ring-ditch (approx. 10m in overall diameter). Potential structure (e.g., roundhouse) or burial site. Located immediately outside [1] on S. |
| 5 | Faint, irregular, integrated array of slender, linear, | Possible archaeology/ natural | Complex pattern of overlapping and interconnected ditches of varying length and morphology, likely indicative of ancient field |

| | | | |
|---|--|---------------------------------------|--|
| | curvilinear and circular positive magnetic anomalies | | system/s. Difficult to discern with clarity but several distinct possible 'fields' [e.g. 11 & 12] are visible within overall pattern. Putative field system/s occurs throughout much of the survey area and appears to broadly correspond to cropmark monument CW012-009003. May be associated with one or more of enclosures [1, 6 & 8], though precise relationship with them is uncertain. Possibility that some anomalies in this group represent natural features cannot be discounted on present evidence. |
| 6 | Circular positive anomaly | Archaeology | Circular ditched enclosure, c.32m in diameter (CW012-009002). Appears to abut [7] on N. Possible entrance gap on SW. Several amorphous positive anomalies and 'pit-type' responses mapped both inside and directly outside enclosure may represent associated features (e.g., ditch segments and pits/spreads). Bisected NE to SW by relict field boundary [15]. Enclosure [6] likely associated with probable field system [7], though relationship with boarder system [5] is unknown. Enclosure located about 145m SW of enclosure [1] and 155m SE of enclosure [8]. |
| 7 | Lengthy, irregular positive linear | Archaeology | Probable ditched field system connected to enclosure [6]. Field system extends over an area measuring about 118m NE-SW by 40m NW-SE. Adjoins [6] on N and seems to be breached by c.5m-wide entrance feature defined by a pair of parallel, NW-SE/oriented linear ditches on NE. [7] extends beyond limit of survey area on S. Relationship with putative field system/s [5] is unknown. |
| 8 | Two, closely-spaced circular positive anomalies | Archaeology | Enclosure (CW012-009001) defined by two, closely-spaced, concentric ditches of circular plan (c.50m in overall diameter NE-SW). Ditches set approx. 2m apart, with outer boundary perhaps comprising a narrow ditch/slot trench. Tentative suggestion. No obvious indication for an entrance, though it may be on W outside survey area. Bisected NE to SW by relict field boundary [15]. Array of potential features [e.g., 9 & 10] recorded outside [8], though relationship between them is uncertain. Enclosure lies some 210m NE of enclosure [1] and 145m NW of enclosure [6]. |
| 9 | Two, slender, parallel positive lineations | Possible archaeology/ agricultural | Possible laneway defined by pair of parallel ditches set about 3m apart. Mapped for a distance of approx. 55m NE-SW. |

| | | | |
|----|---|--|---|
| | | | Alternatively, anomaly may reflect former field boundary of more recent origin, albeit one not recorded on early historical maps. |
| 10 | Faint, rectangular positive anomaly | Possible archaeology | Possible rectangular structure/building (approx. 10m NE–SW by 7m NW–SE internally). Potential entrance on NE. Tentative feature. |
| 11 | Ovaloid positive anomaly | Possible archaeology | Possible small ovaloid ditched enclosure or field (c.12m N–S by 21m E–W). May form part of [5]. |
| 12 | Large square positive anomaly | Possible archaeology | Possible large square field with dimensions of c.50m NE–SW by 45m NW–SE. Appears to form part of [5]. |
| 13 | Small square positive anomaly | Possible archaeology | Possible footings of small square structure/building, c.8m NW–SW by 6m NE–SW. Magnetic strength (up to 23nT) of western boundary element suggests presence of burnt/fired material in its fill. |
| 14 | Sub-square area of enhanced magnetic variation | Possible archaeology/ modern | Possible spread of burnt material (c.15m N–S by 13m E–W). Modern origin (e.g., dumped material) also conceivable. |
| | Multiple, discrete, slender positive linears | Possible archaeology/ agricultural/natural | Possible ditches of varying length and form. Mapped across survey area. May relate to [5], though modern (i.e., agricultural) and/or natural origin also possible. |
| | Multiple ‘pit-type’ responses | Possible archaeology/natural | Possible pits/deposits. Some may reflect localised natural soil response. |
| 15 | Faint positive linear | Agricultural | Relict field boundary. Marked on early historical maps. |
| | Positive trends | Possible archaeology/ agricultural | Possible ditches/drains. Tentative features. |
| | Several amorphous areas of weak positive magnetism | ?Modern | Possible in-filled quarry pits. Not depicted on early historical maps. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, aligned NE–SW. Not marked on Figure 26 |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Zones of magnetic disturbance | Modern | Disturbance from field fences and houses. |

Table 11. Area 8: survey results

| | | | |
|-----------------------|--|---------------------------------------|---|
| Townland | Ballyloo | | |
| ITM (centroid) | 674541 / 669402 | | |
| Area surveyed | c.5.4 ha | | |
| Figure Numbers | 9, 16, 20 & 27 | | |
| Anomaly Number | Form/nature of anomaly | Possible sources(s) of anomaly | Interpretative discussion |
| 1 | Two, faint, slender diffuse, discontinuous, conjoined sub-circular anomalies | Possible archaeology | Two, possible conjoined ditched enclosures, long axis roughly NE–SW. Putative eastern enclosure measures c.68m NW–SE by 48m NE–SW. Hints of potential internal circular feature/enclosure (c.24m in diameter). Potential western enclosure may have maximum dimensions of c.44m NW–SE by 27m NE–SW. Several ‘pit-type’ responses mapped by the survey both inside and immediately outside [1] may represent associated features (e.g., pits/spreads). Magnetic signature of putative enclosure is barely visible against the background response and interpretation as archaeology is highly tentative. May correspond to recorded Enclosure CW012-210. |
| 2 | Discontinuous, slender semi-circular positive anomaly | Possible archaeology | Possible partial footprint of ring-ditch, with potential diameter of c.8m NE–SW). Tentative feature. Located about 56m W of [1]. |
| | Multiple ‘pit-type’ response | Possible archaeology/modern/natural | Possible pits/spreads. Tentative interpretation. Modern (agricultural/ferrous) and/or natural (i.e., soil) origin also possible. |
| 3 | Weak positive, with multiple, central dipolar (positive–negative) responses | Agricultural | Relict field boundary. Magnetic signature suggests former presence of accompanying metal fencing (e.g., barbed wire). May be associated with [4]. Recorded on early historical maps. |
| 4 | Faint positive linear | Possible agricultural | Possible relict field boundary. May be associated with [3]. Not recorded on early historical maps. |
| | Positive trends | Possible archaeology/agricultural | Possible ditches/drains. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, aligned E–W. Not marked on Figure 27 |

| | | | |
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| | Multiple 'ferrous-type' responses | Modern/natural | Ferrous debris and other weakly magnetised material. Possibility that some responses in this group reflect features/objects of archaeological interest cannot be dismissed. |
|--|-----------------------------------|----------------|---|

Table 12. Area 9: survey results

| | | | |
|-----------------------|---|---------------------------------------|--|
| Townland | Ballyloo–Ballyryan | | |
| ITM (centroid) | 674400 / 668960 | | |
| Area surveyed | c.4.5 ha | | |
| Figure Numbers | 9, 17, 20 & 28 | | |
| Anomaly Number | Form/nature of anomaly | Possible sources(s) of anomaly | Interpretative discussion |
| 1 | Large ‘pit-type’ response | Possible archaeology | Possible pit/spread (c.3m in diameter). May contain burnt or fired material in its fill. Located about 5m E of [3] at nearest point. |
| 2 | Large ‘pit-type’ response | Possible archaeology | Possible pit/spread (c.2m in diameter). May contain burnt or fired material in its fill. |
| 3 | Faint curvilinear positive trend | Possible archaeology/natural | Possible curving ditch/trench. Tentative feature. Located about 5m W of [1] at nearest point. |
| 4 | Sinuuous positive band | Agricultural | Relict field boundary. Marked on early historical maps. Townland boundary between Ballyloo and Ballyryan. |
| | Positive trends | Possible archaeology/agricultural | Possible ditches/drains. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, various orientations. Not marked on Figure 28 |
| | Ovaloid zone of weak positive magnetism | ?Modern | Possible in-filled quarry pit (c.18m NE–SW by 11m NW–SW). Not marked on early historical maps. |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material. |
| | Area of magnetic enhancement | Agricultural/modern | May reflect presence of imported material (e.g., gravel) or dumping or the result of ground disturbance. |
| | Zones of magnetic disturbance | Modern | Disturbance from modern buildings, parked agricultural machinery and field gates. |

Table 13. Area 10: survey results

| Townland | Ballyloo–Ballyryan | | |
|-----------------------|---|--------------------------------------|--|
| ITM (centroid) | 674100 / 668680 | | |
| Area surveyed | c.6.4 ha | | |
| Figure Numbers | 9, 18, 20 & 29 | | |
| Anomaly Number | Form/nature of anomaly | Possible source(s) of anomaly | Interpretative discussion |
| 1 | Integrated array of slender, linear and curvilinear positive magnetic anomalies | Possible archaeology/ agricultural | Network of overlapping and interconnected ditches and possible drains, likely indicative of a former field system/s. Extends over an area measuring about 270m NW–SE by 70m NE–SW in the western part of the target area. Not marked on early historical maps but may be associated with buildings depicted in the area on the first-edition six-inch Ordnance Survey Map (1837–42). |
| 2 | Strong circular positive anomaly | Possible archaeology/ agricultural | Possible spread. Magnetic strength (up to 22nT) suggestive of burnt or fired material, such as might be associated with a hearth- or oven-type feature. May relate to historic settlement recorded in this area on six-inch map. |
| 3 | Faint, sub-circular zone of low magnetic responses | Modern | Responses may be associated with buildings marked in this area on six-inch map. Tentative interpretation. |
| | Several slender positive linears | Agricultural | Relict field boundaries. Marked on early historical maps. |
| | Several slender positive linears | Agricultural | Possible relict field boundaries. Not depicted on early historical maps. |
| | Positive trends | Possible archaeology/ agricultural | Possible ditches/drains. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Past cultivation, western part of survey area only. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, western part of survey area only. Not marked on Figure 33 |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material. |

| | | | |
|--|---------------------------------------|---------------------|--|
| | Areas of magnetic enhancement | Agricultural/modern | May reflect presence of imported material (e.g., gravel) or dumping or the result of ground disturbance. |
| | Amorphous areas of increased response | Natural | Likely reflects natural soil variation and/or disturbance to (top)soils by agriculture. |
| | Zones of magnetic disturbance | Modern | Disturbance from field fences and dumped material. |

Table 14. Area 11: survey results

| Townland | Ballyryan | | |
|-----------------------|--|--------------------------------------|--|
| ITM (centroid) | 674547 / 668474 | | |
| Area surveyed | c.4 ha | | |
| Figure Numbers | 9, 19, 20 & 30 | | |
| Anomaly Number | Form/nature of anomaly | Possible source(s) of anomaly | Interpretative discussion |
| 1 | Two, widely-spaced circular positive anomalies | Archaeology | Enclosure (CW012-051) defined by two, widely spaced, concentric ditches of roughly circular plan (c.75m in overall diameter NE–SW). Ditches set approx. 11–18m apart (widest on NE), with inner boundary (c.33m in diameter) seemingly breached by an 4m-wide gap on SE; this may be an original entrance. Outer enclosing element appears to flatten out on N and is overlaid by a relict field boundary/drain [5] on S. Several ‘pit-type’ responses and positive linear and curvilinear trends mapped by the survey inside the enclosure may represent associated features (e.g., pits/spreads and/or structure/s). |
| 2 | Faint, slender, semi-circular positive | Possible archaeology | Possible ring-ditch, c.8m in diameter NE–SW. May represent structure/building or burial site. Tentative feature. Located about 11m S of [1], but relationship, if any, between them is unknown. |
| 3 | Strongly enhanced ‘pit-type’ response | Possible archaeology | Possible pit/spread. Magnetic strength (up to 80nT) indicative of significant volume of burnt or fired material, such as might be associated with an archaeological hearth- or oven-type feature. Located some 33m NE of [1]. |
| 4 | Strongly enhanced ‘pit-type’ responses | Possible archaeology/ modern | Possible pits/spreads. Magnetic strength (up to 130nT) indicative of significant volume of burnt or fired material, such as might be associated with an archaeological hearth- or oven-type feature. Modern (i.e., ferrous) origin also possible. Located some 60m NW of [1]. |
| 5 | Large ovaloid area of enhanced magnetism | Possible archaeology/natural | Spread of magnetised soils (c.17m NE–SW by 8m in NW–SE). Strong magnetic responses (up to 50nT) may indicate presence of burnt or fired material. Possible burnt spread. A number of ‘pit-type’ response mapped short distance to S may be associated features ((e.g., pits/spreads). Located about 105m SE of |

| | | | |
|---|---|---------------------------------------|---|
| | | | enclosure [1]. |
| 5 | Enhanced positive linear | Agricultural | Relict field boundary and drain. Recorded on early historical maps. |
| | Positive trends | Possible archaeology/ agricultural | Possible ditches/drains. |
| | Multiple, weak, closely spaced, parallel, positive–negative linears | Agricultural | Modern cultivation, aligned NE–SW. <i>Not marked on Figure 30</i> |
| | Two, weak, narrow positive linears | Agricultural | Possible drains. Appear to connect to [5]. |
| | Multiple ‘ferrous-type’ responses | Modern/natural | Ferrous debris and other weakly magnetised material |

10 Conclusion

The geophysical survey at Ballybar Upper, Linkardstown, Garryhundon, Ballyloo and Ballyryan townlands has revealed features of archaeological and potential archaeological interest in at least nine of the areas targeted for investigation. Particularly striking are a series of ditched enclosures of varying scale and morphology [7:1, 6 & 8; 11:1] in Areas 7 and 11 that correspond to previously recorded cropmark monuments CW012-090, CW012-00901, CW012-00902 and CW012-051. Another notable discovery is an extensive network of linear, curvilinear and circular/ovaloid anomalies [6:1–5] in Area 6. These are suggestive of a former road system, as well as multiple phases of field division and land use; one finding, namely ovaloid enclosure 6:1, may be the remains of burial ground CW012-084, though this is speculative. Also indicative of ancient settlement and agriculture is an integrated array of linear and curvilinear anomalies [7:5] and a host of discrete linear, rectangular and square anomalies [7:7, 9–14] in Area 7. Some of these probably correspond to cropmark field system CW012-00903 and may be associated with enclosures CW012-090, CW012-00901 and CW012-00902. In Area 1, the investigation revealed potential evidence for ancient settlement/agriculture and/or burial activity [1:1–9], while part of cropmark enclosure CW012-028 [3:1] may have been mapped by the survey in Area 3, though the geophysical evidence for this is not clear. No obvious sign of ringfort-rath CW012-030 was revealed by the survey in Area 5 and its exact location is unknown. Interestingly, moreover, the survey did not reveal any certain trace of cropmark enclosures CW012-210 and CW012-211 in Area 8. That said, there are hints in the dataset of what may be two, conjoined enclosures [8:1] that could represent enclosure CW012-210. Nevertheless, the magnetic signature of this putative enclosure is barely visible against the background response; this may, in part, relate to a dearth of magnetically enhanced material in its defining ditch/es and/or truncation of the upper, magnetised, ditch fills by modern ploughing. As such, the interpretation of anomalies 8:1 as archaeology is highly tentative and further work (e.g., test trenching) is required to establish the precise nature and significance of the mapped anomalies in this area. Similarly, the significance of the many possible ditches/drains (Areas 4, 36, 7, 10 and 11), ‘pit-type’ responses (Areas 1, 3, 4, 6, 7, 9, 10 and 11) and burnt spreads (Areas 7, 10 and 11) are equally uncertain and a natural/ferrous/agricultural origin for these is possible. It may be suggested, for instance, that many of the responses mapped by the investigation in Area 10 [e.g. 10: 1–9] reflect settlement and associated agriculture in recent centuries.

Evidence for agriculture in recent times is plentiful and includes a series of former field boundaries marked on early historical maps (Areas 3, 6–11), alongside traces of past cultivation (Areas 6 and 10).

Other probable relict field boundaries were also detected in Areas 1, 3, 8 and 10, and although not depicted on early cartographic sources, these may be relatively recent in date given their apparent linear and/or rectilinear layout. Features of modern origin comprise field drains in Areas 1, 2, 5 and 11, possible quarry pits in Areas 3, 6, 7 and 9 and what may be a backfilled well in Area 3. Modern cultivation is also represented in the collated data, while the deposits of magnetically enhanced soils registered by the survey in Areas 5, 6, 9 and 10 could be the result of imported material and/or dumping or the result of ground disturbance, though an archaeological origin for some anomalies in this group cannot be discounted on present evidence.

10.1 *Statement of Indemnity*

The geophysical properties of sub-surface features must contrast sufficiently with the surrounding soils/background variation to enable them to be detected and mapped using geophysical methods. As such, the clarity and definition of buried features can vary considerably, with some having well-defined signatures while others are only barely visible, or not discernible, in geophysical imagery. A lack of geophysical anomalies cannot be taken to imply the absence of archaeological features.

The interpretations presented here are invariably provisional and further work (e.g., test trenching) is required to fully assess the nature and archaeological potential of the anomalies identified by the present investigation.

11 Figures

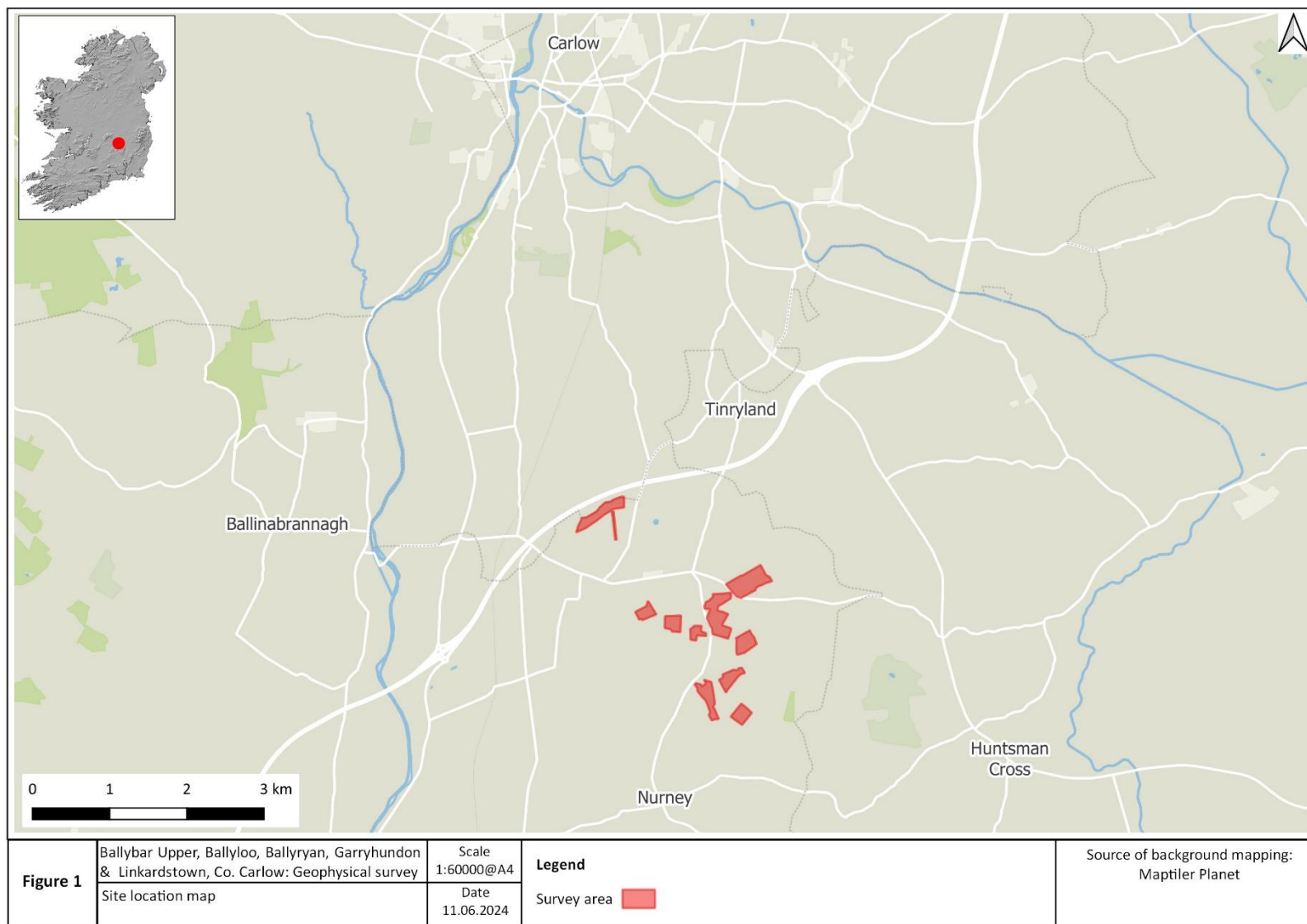


Figure 1. Site location map, showing survey area highlighted in red.

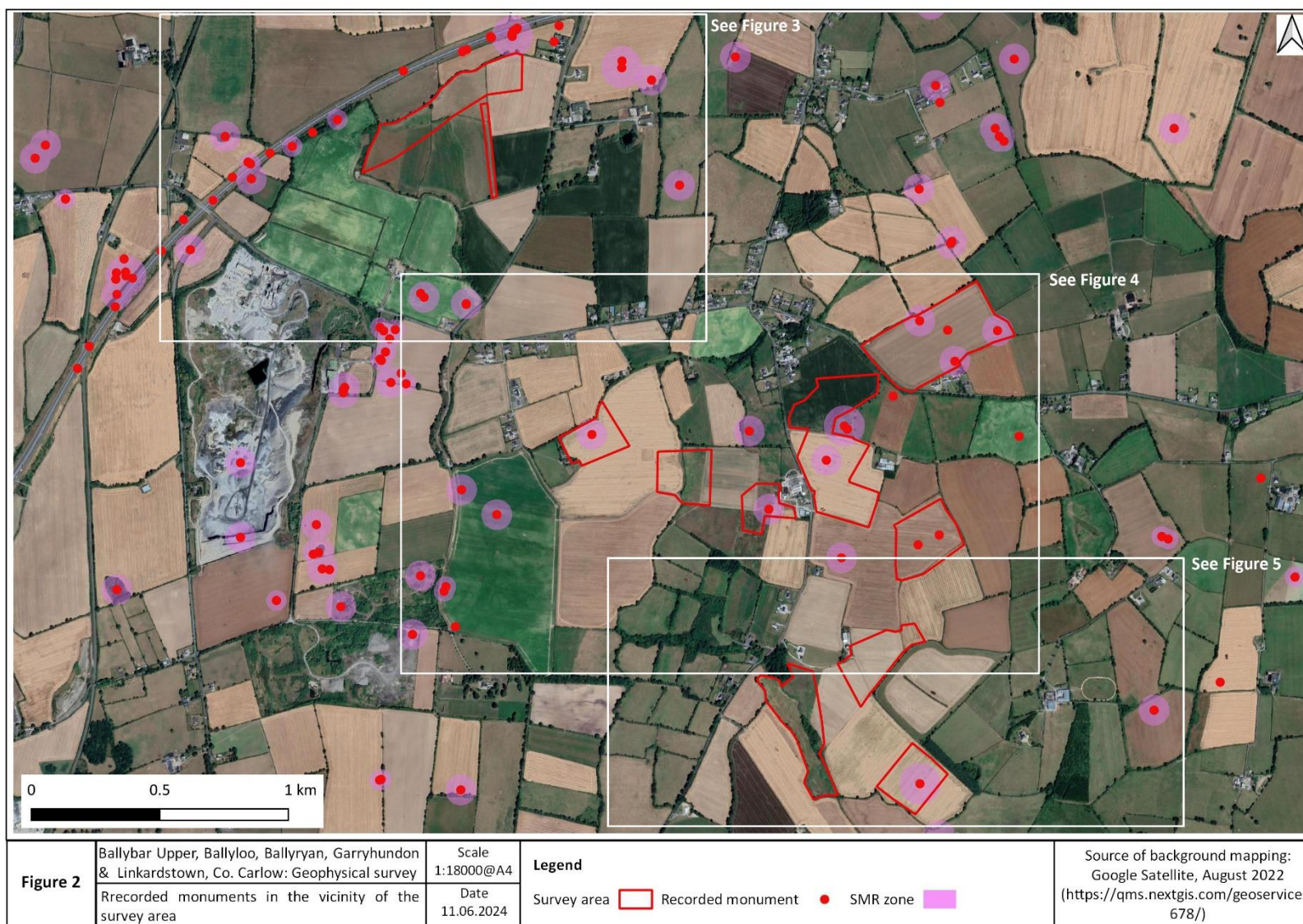


Figure 2. Location of recorded archaeological sites in the vicinity of the survey areas.

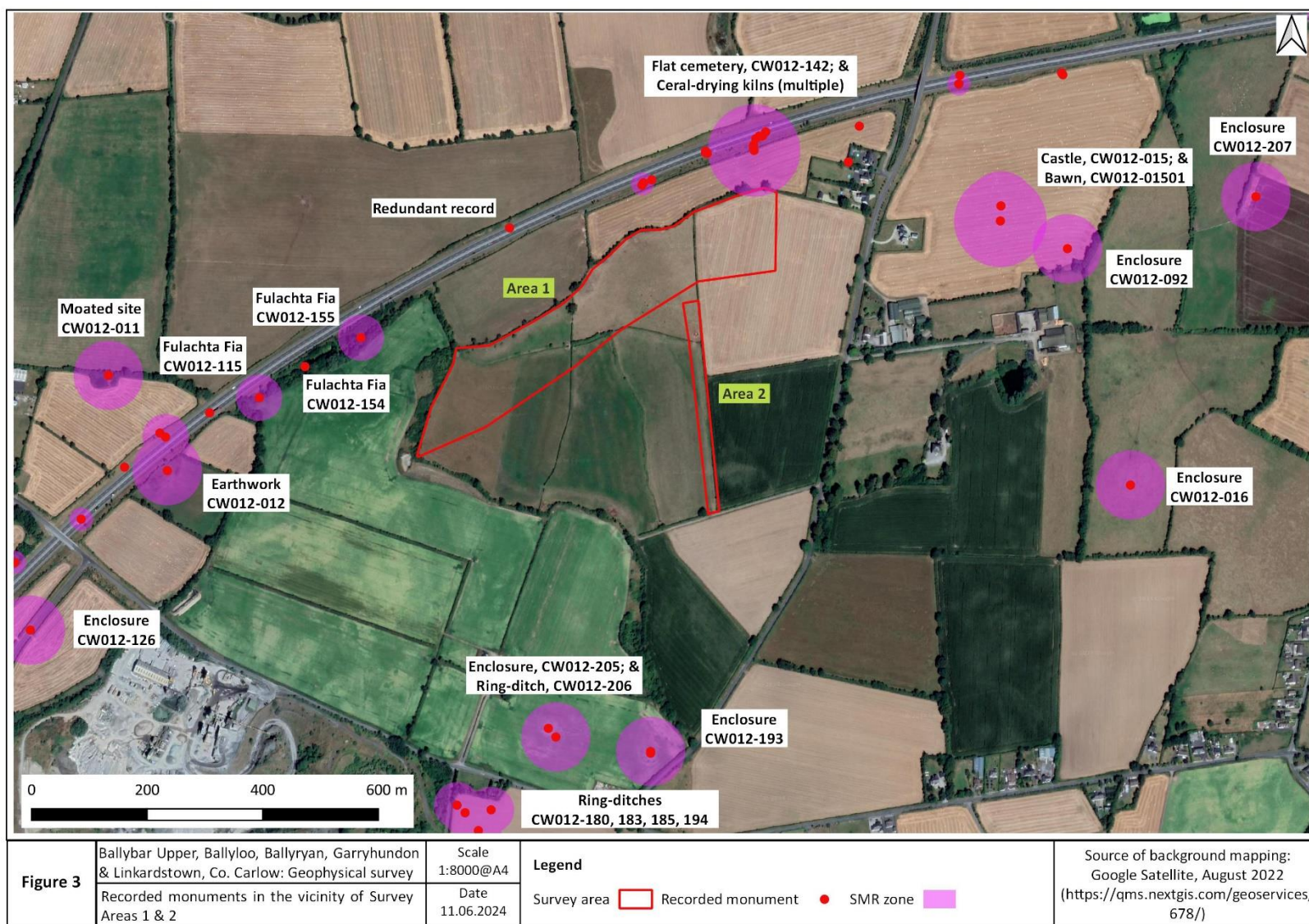


Figure 3. Recorded monuments in the vicinity of Survey Areas 1 & 2.

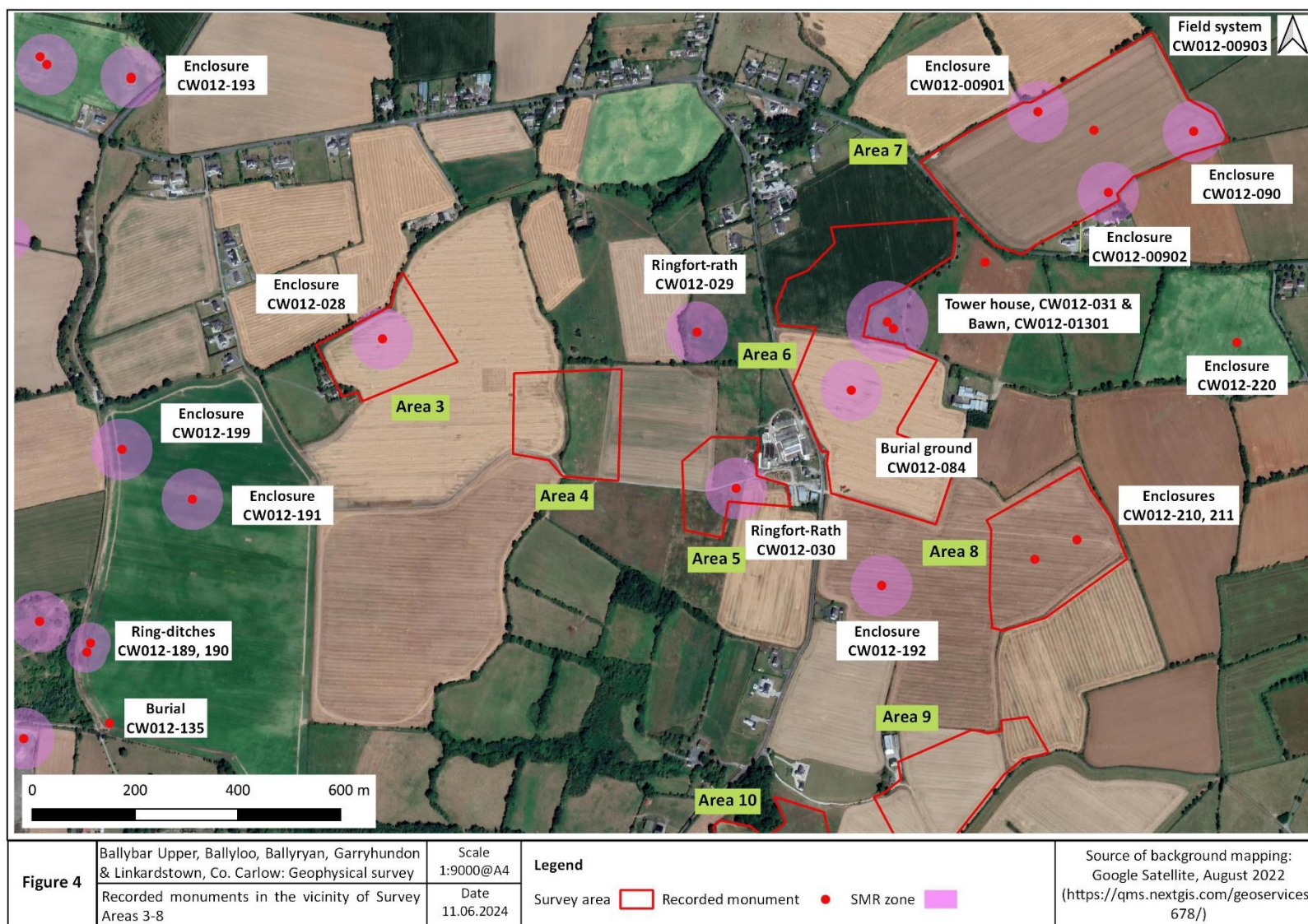


Figure 4. Recorded monuments in the vicinity of Survey Areas 3–8.

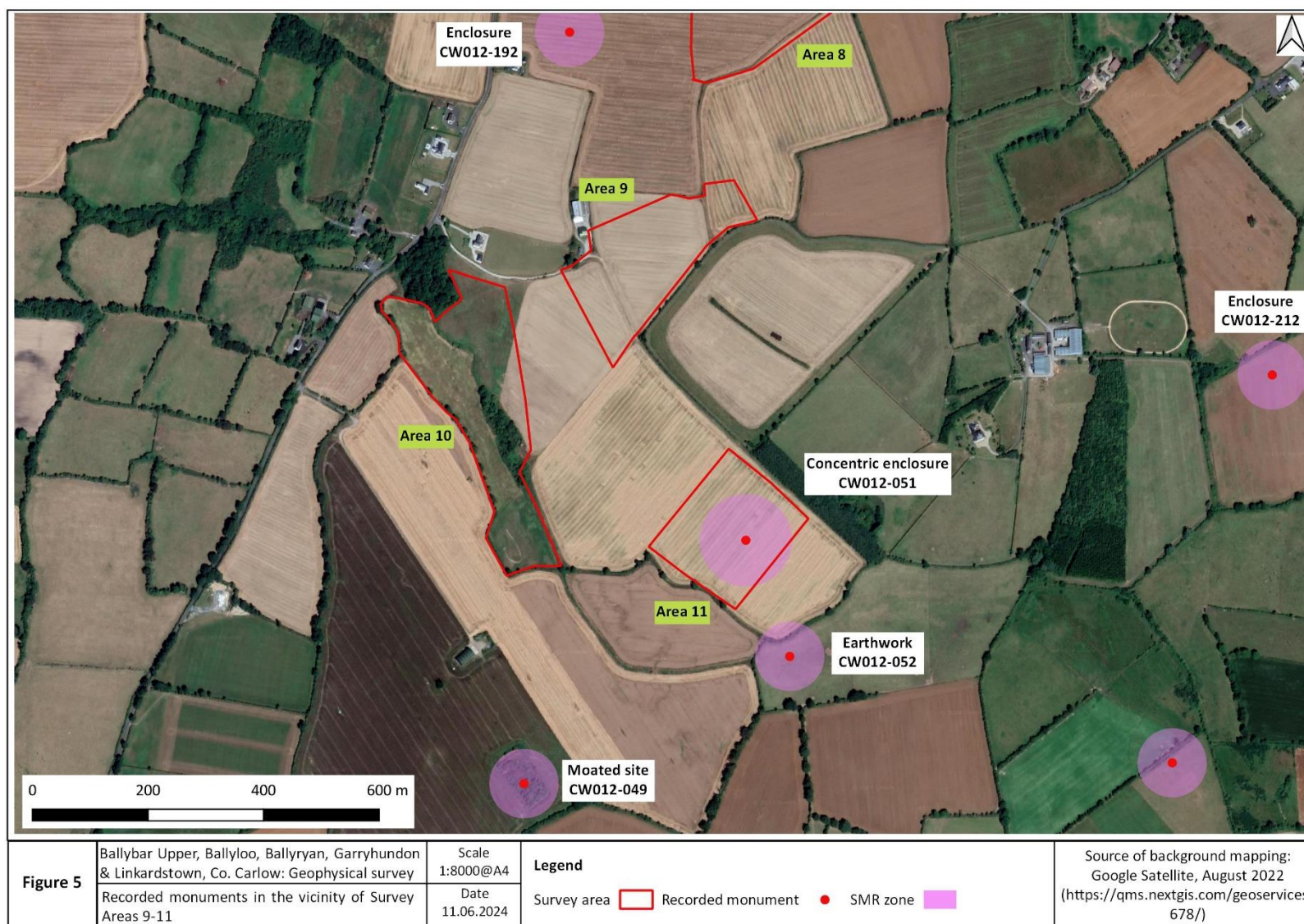


Figure 5. Recorded monuments in the vicinity of proposed Survey Areas 9–11.

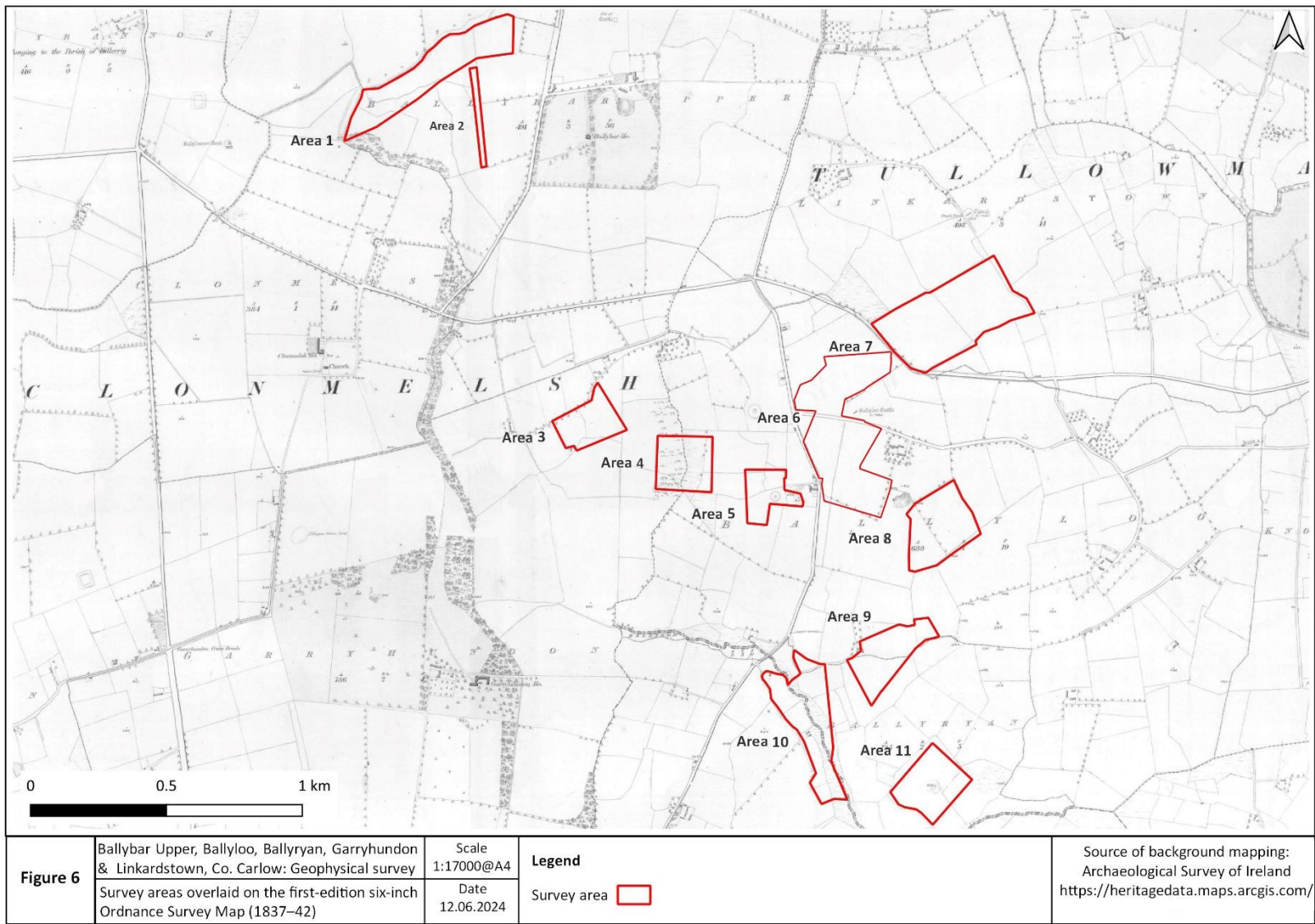


Figure 6. The survey areas overlaid on the first-edition six-inch Ordnance Survey Map (1837–42).

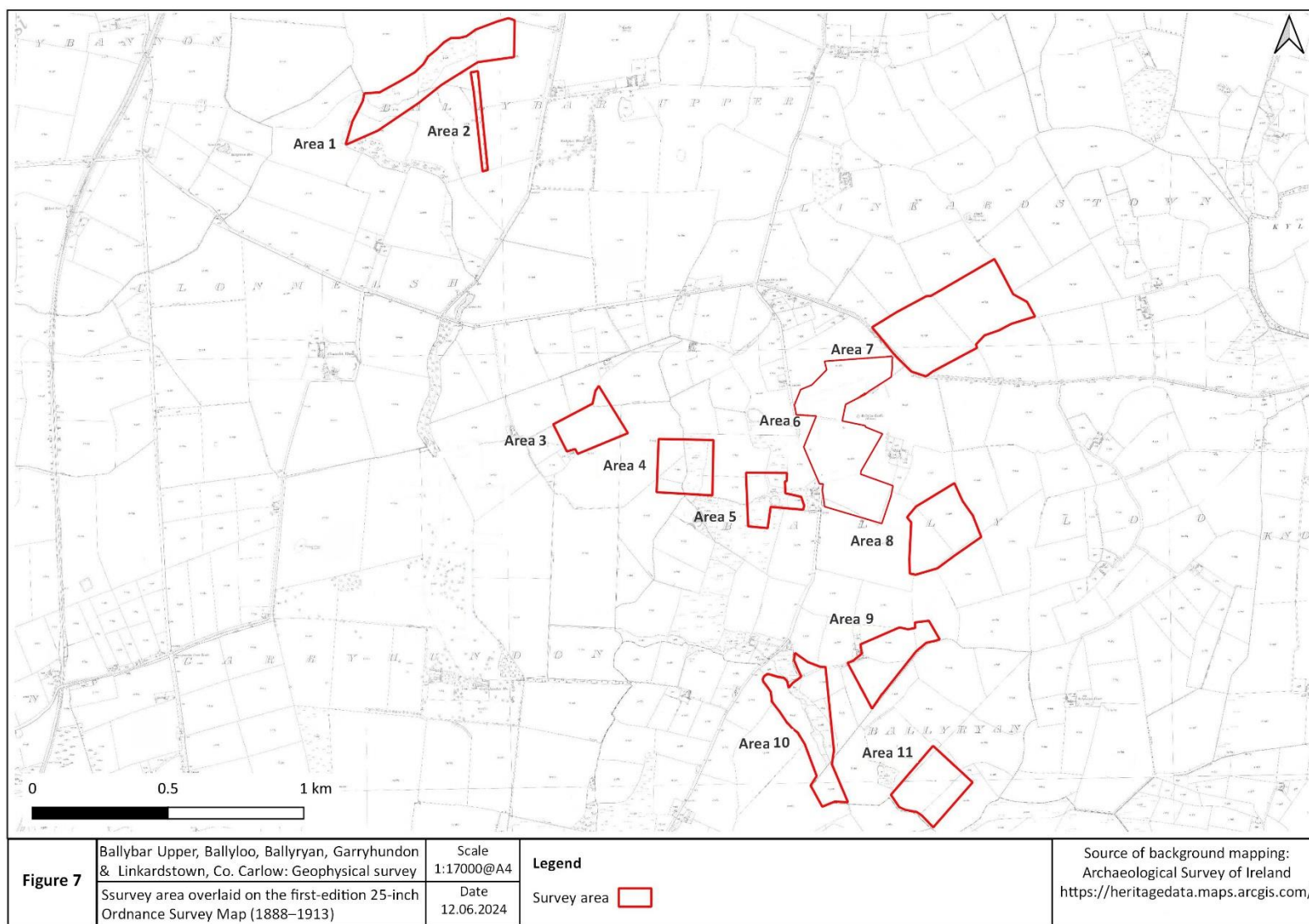


Figure 7. The survey areas overlaid on the first-edition 25-inch Ordnance Survey Map (1888–1913).

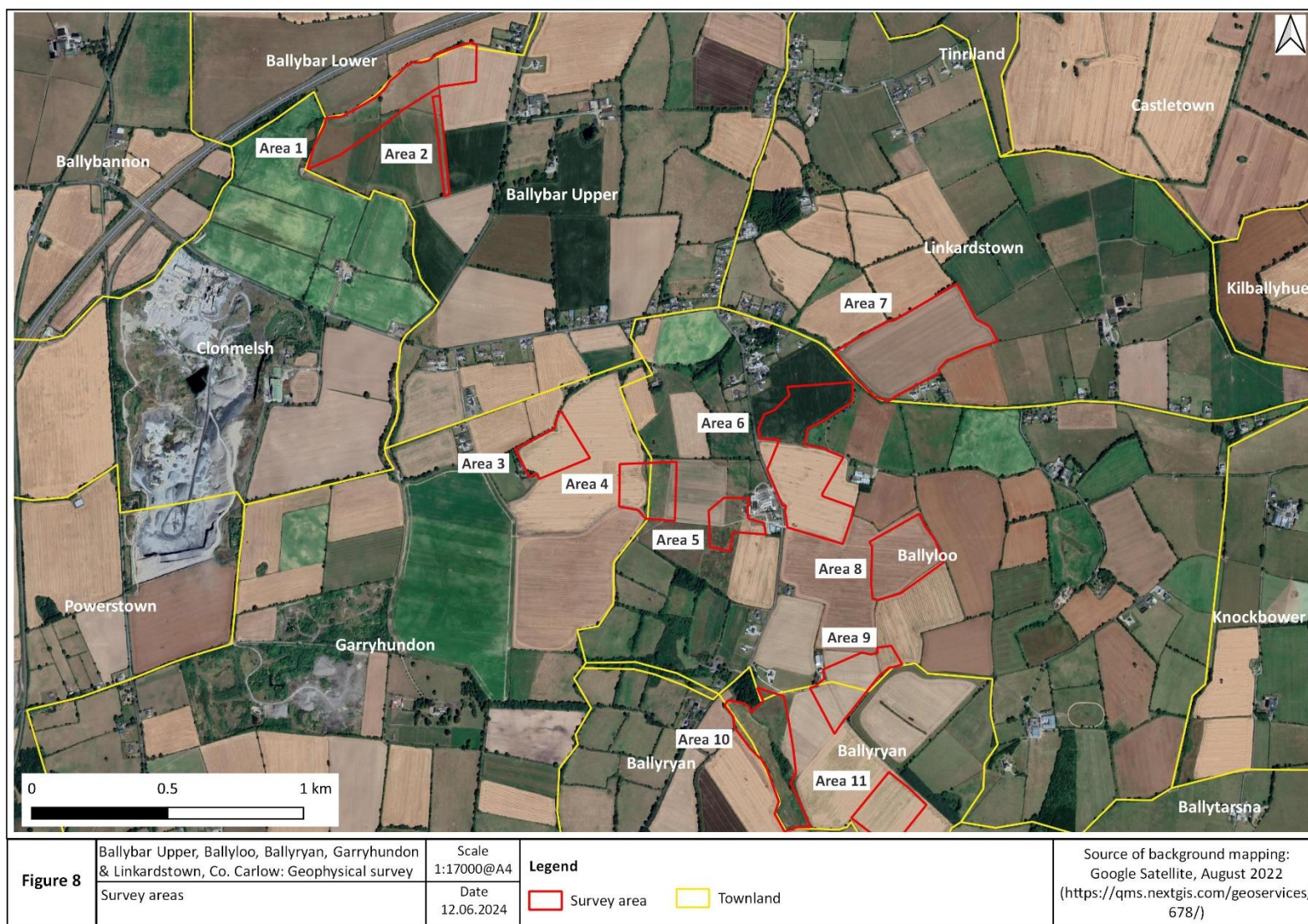


Figure 8. Survey areas.



Figure 9. Areas 1–11: greyscale image of gradiometry results.

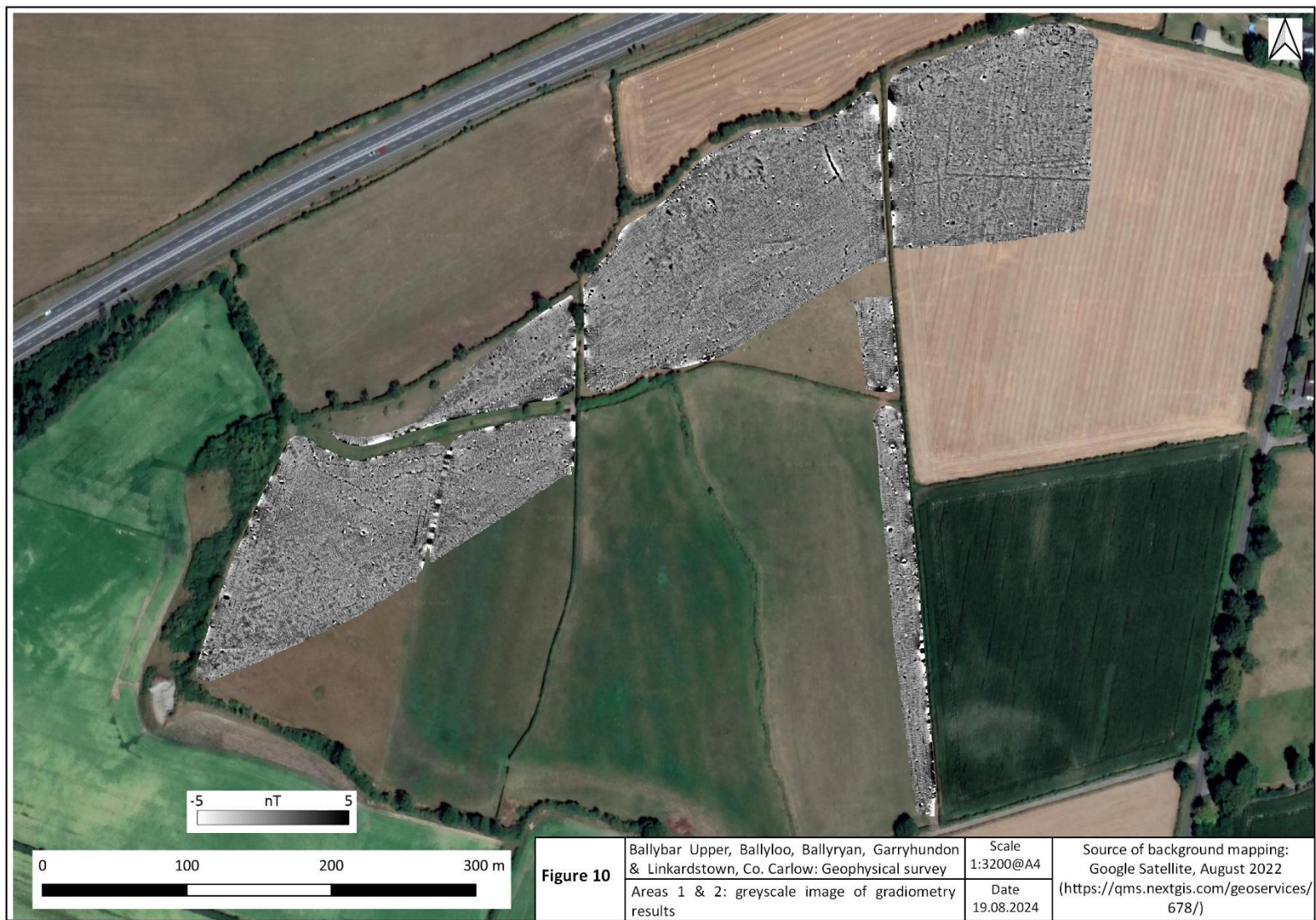


Figure 10. Areas 1 & 2: greyscale image of gradiometry results.



Figure 11. Area 3: greyscale image of gradiometry results.

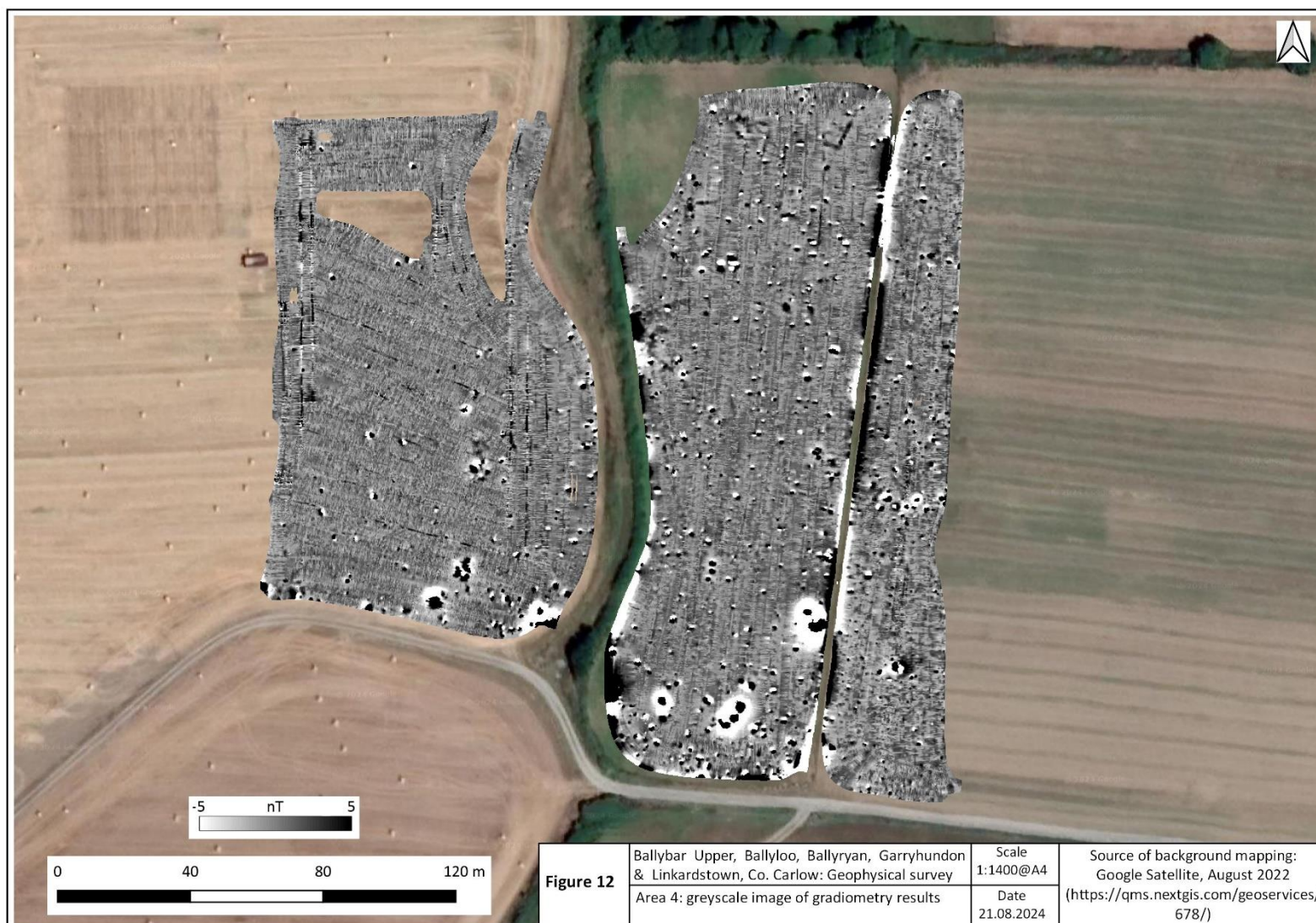


Figure 12. Area 4: greyscale image of gradiometry results.

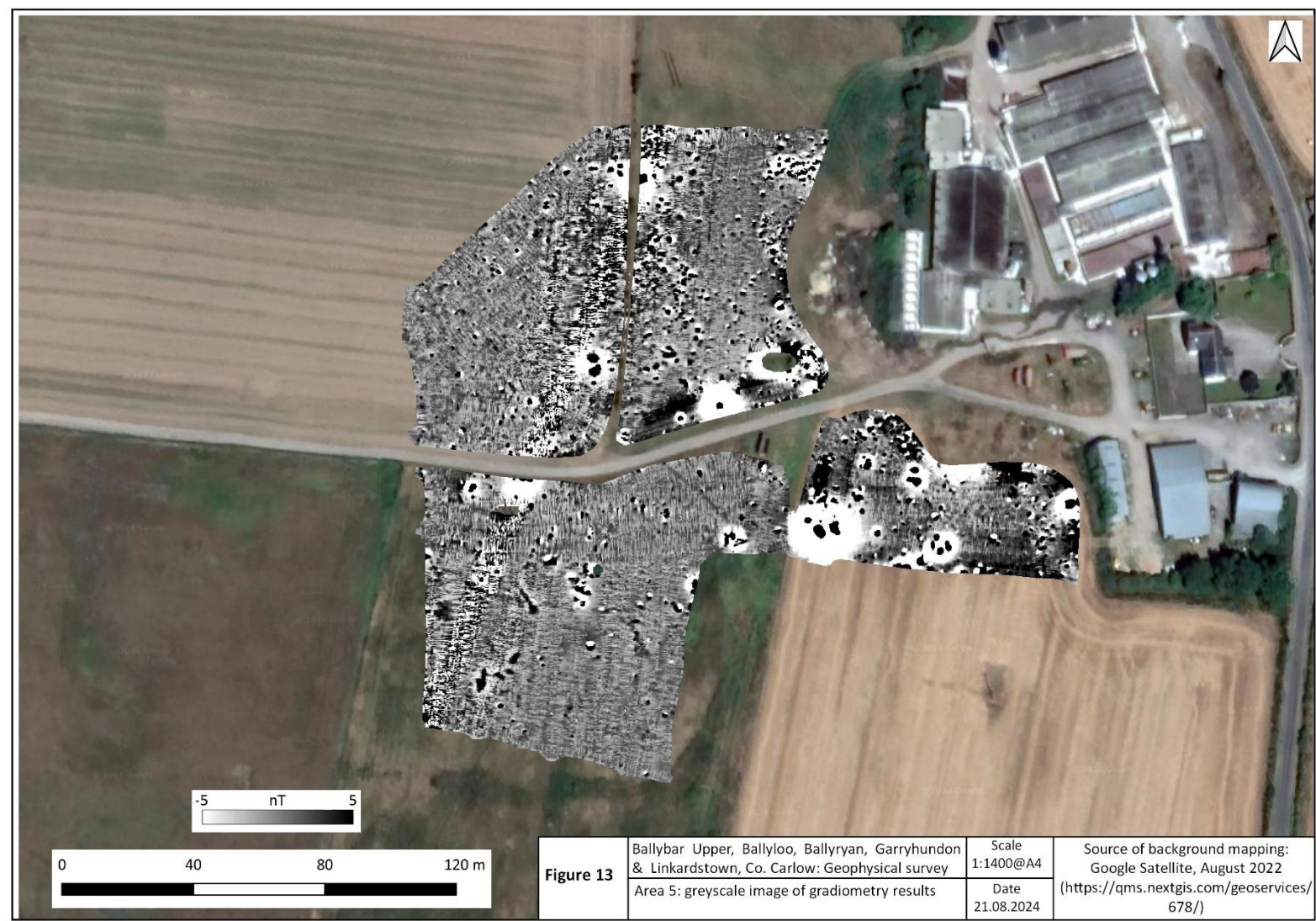


Figure 13. Area 5: greyscale image of gradiometry results.

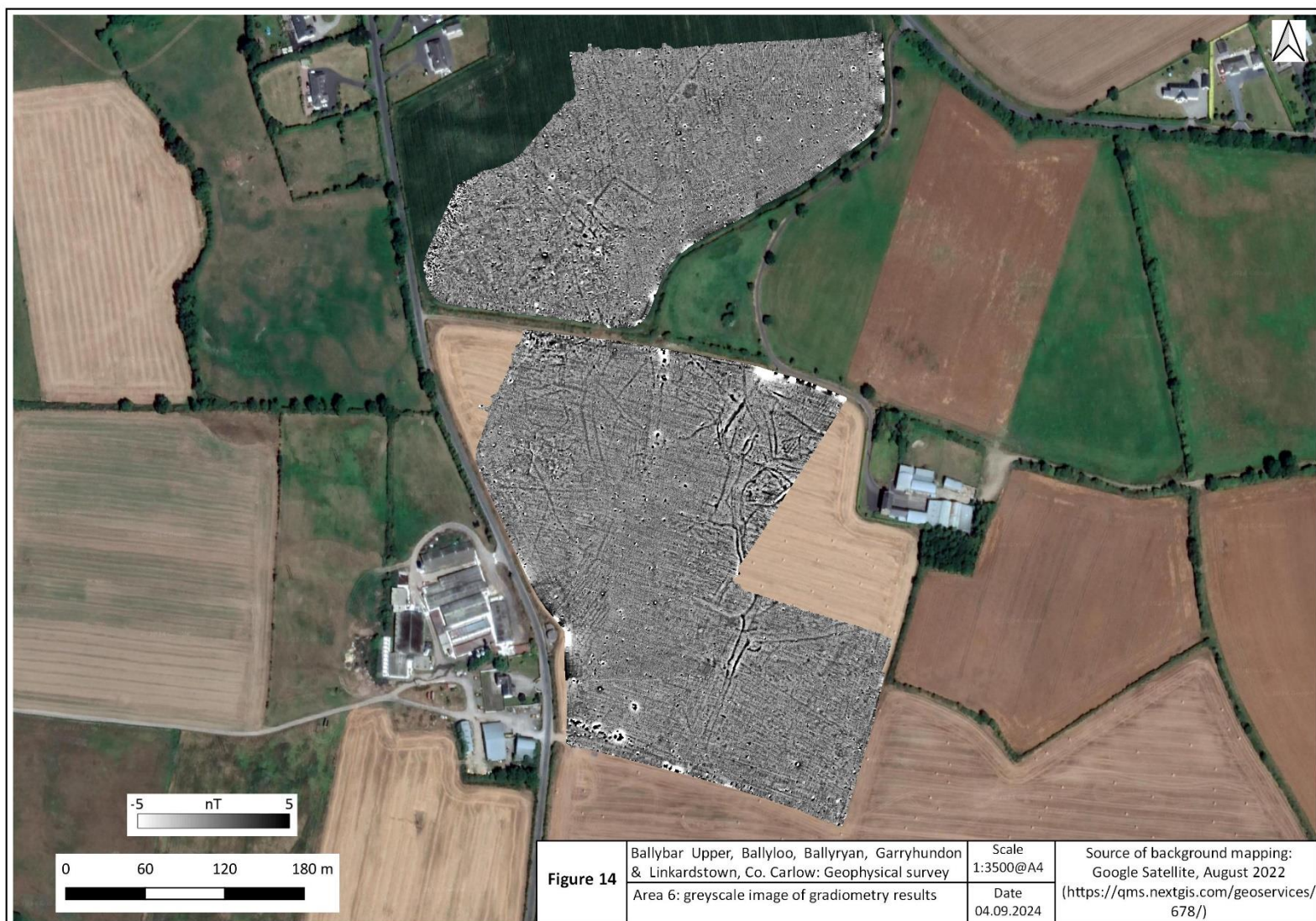


Figure 14. Area 6: greyscale image of gradiometry results.



Figure 15. Area 7: greyscale image of gradiometry results.

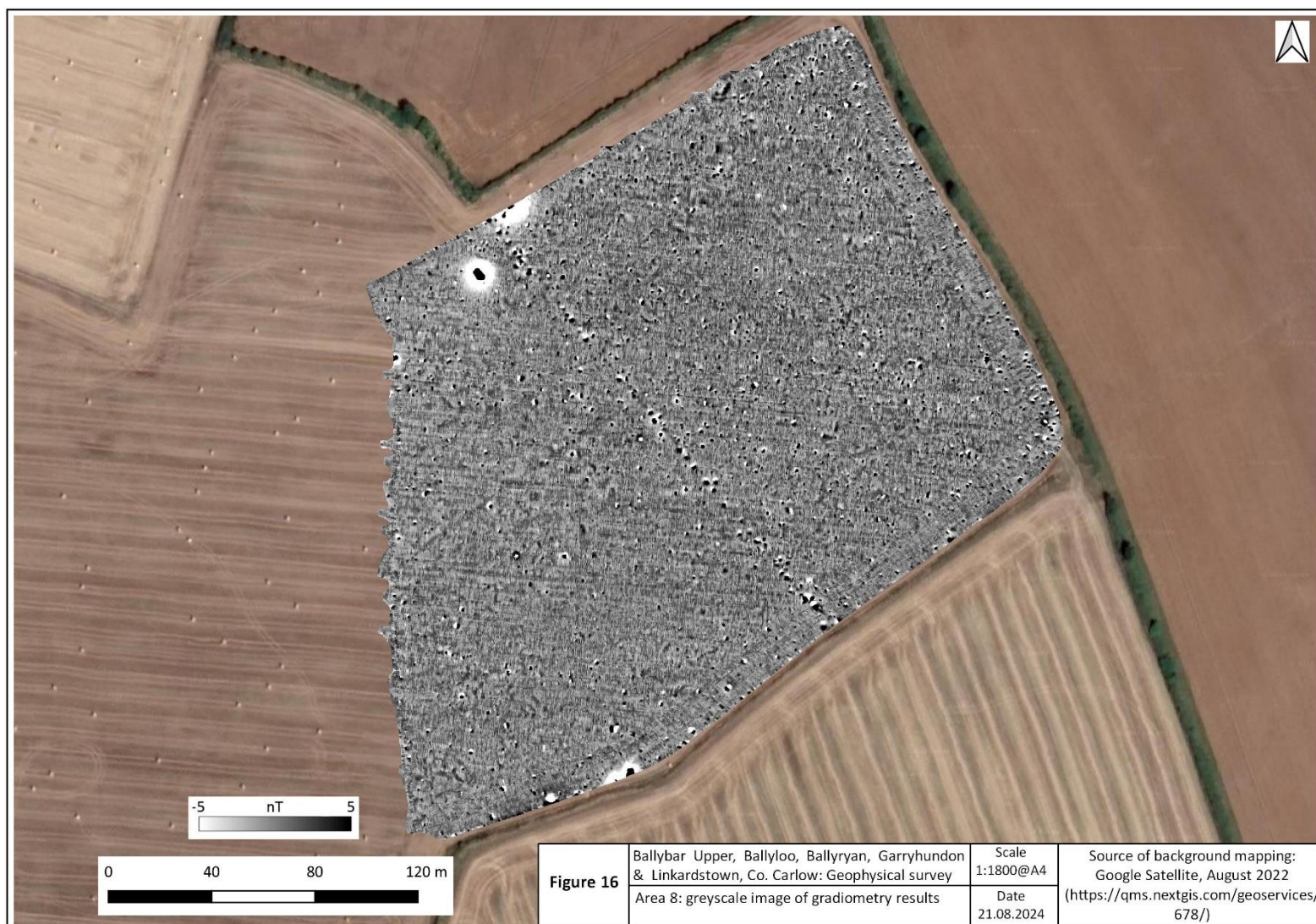


Figure 16. Area 8: greyscale image of gradiometry results.

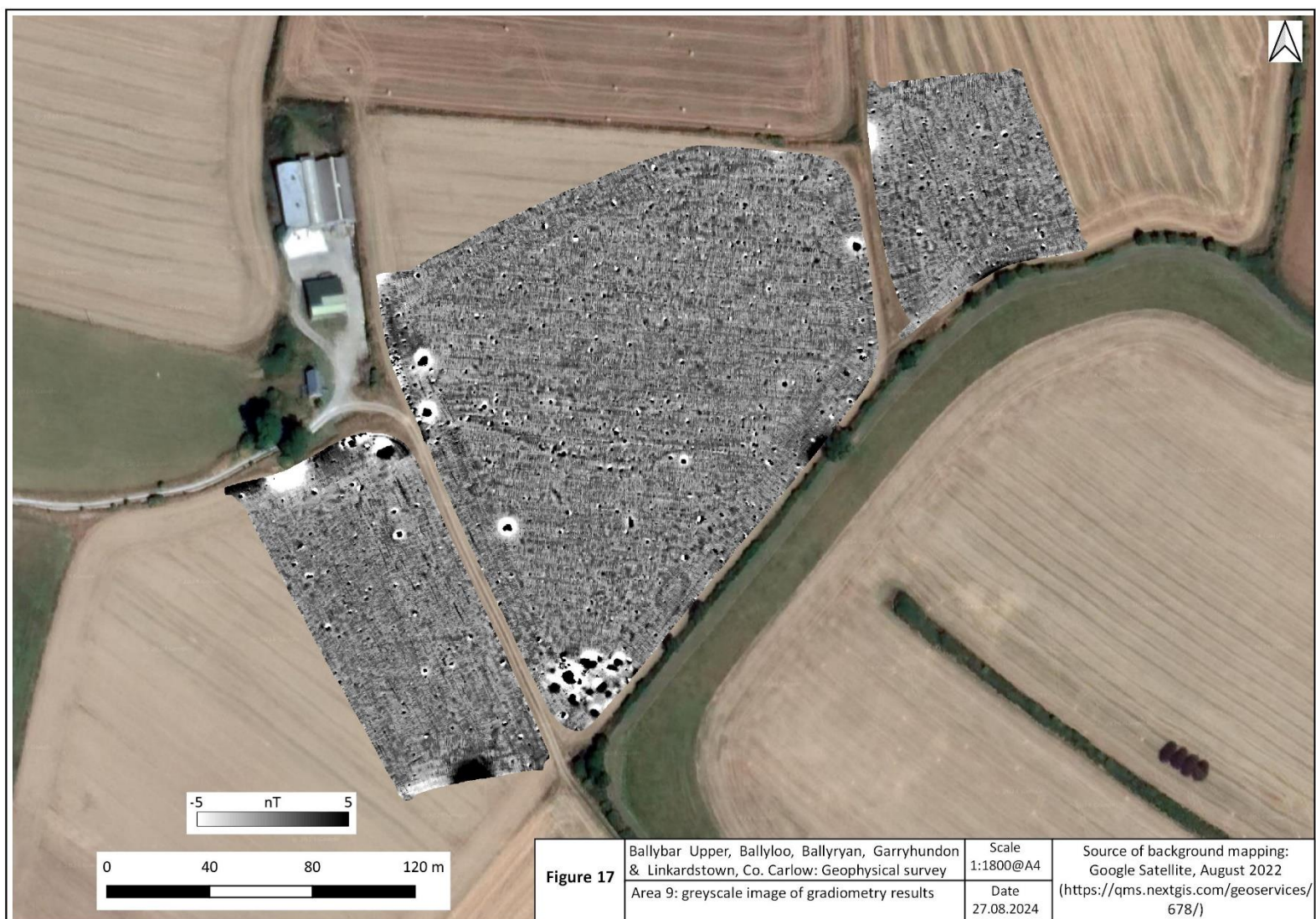


Figure 17. Area 9: greyscale image of gradiometry results.

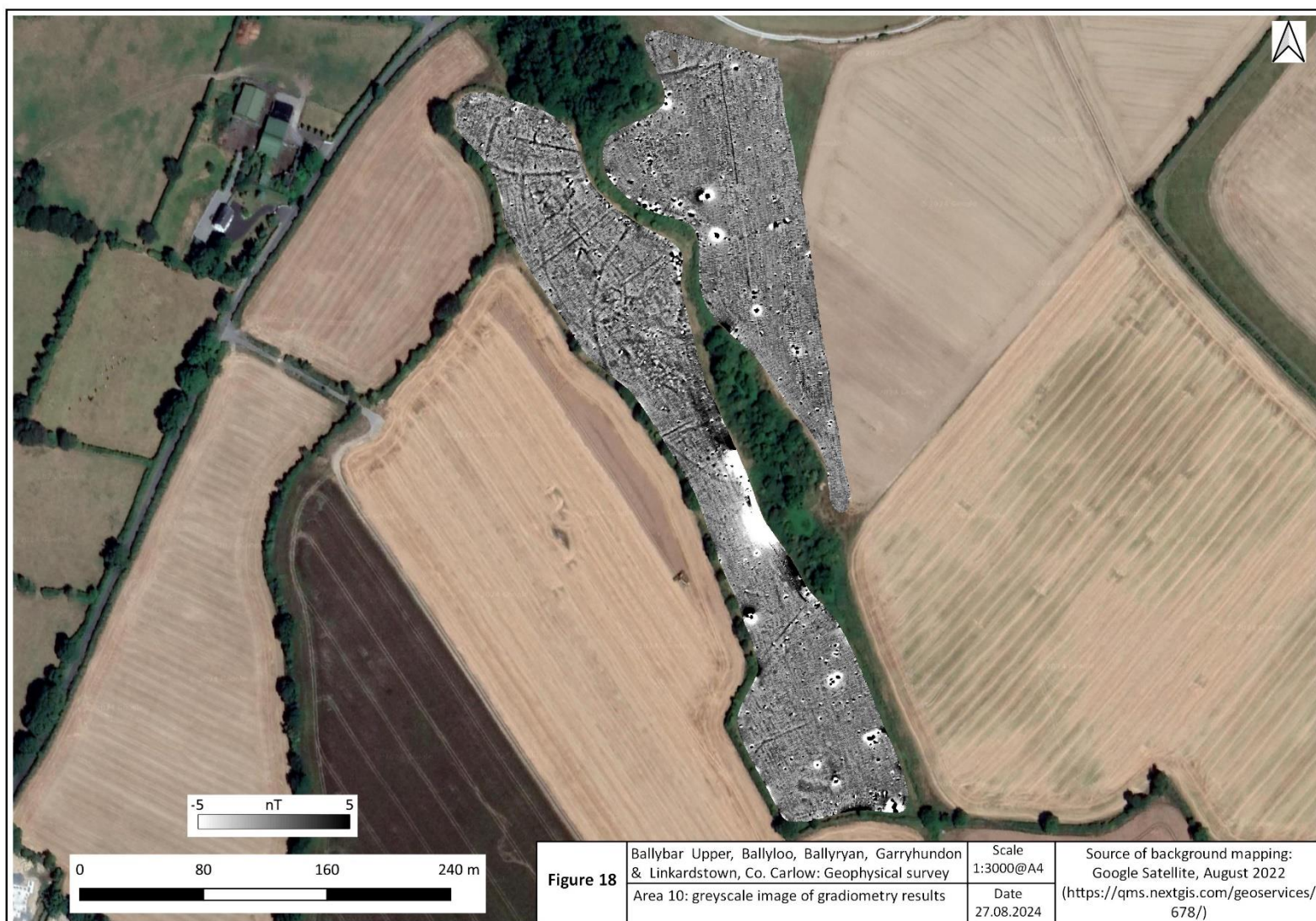


Figure 18. Area 10: greyscale image of gradiometry results.



Figure 19. Area 11: greyscale image of gradiometry results.



Figure 20. Areas 1–11: interpretative plan showing principal geophysical anomalies.



Figure 21. Areas 1 & 2: interpretative plan showing principal geophysical anomalies.

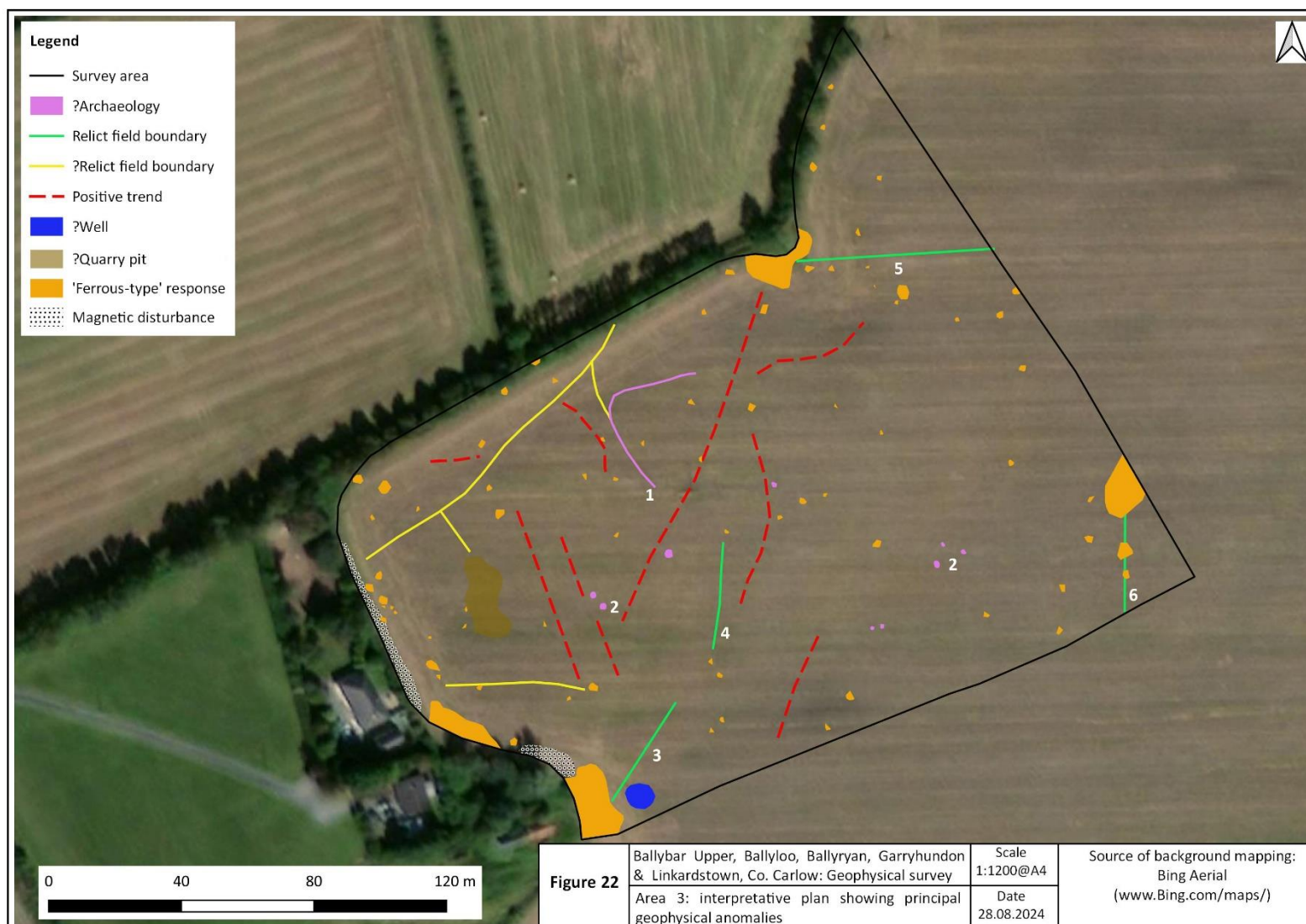


Figure 22. Area 3: interpretative plan showing principal geophysical anomalies.

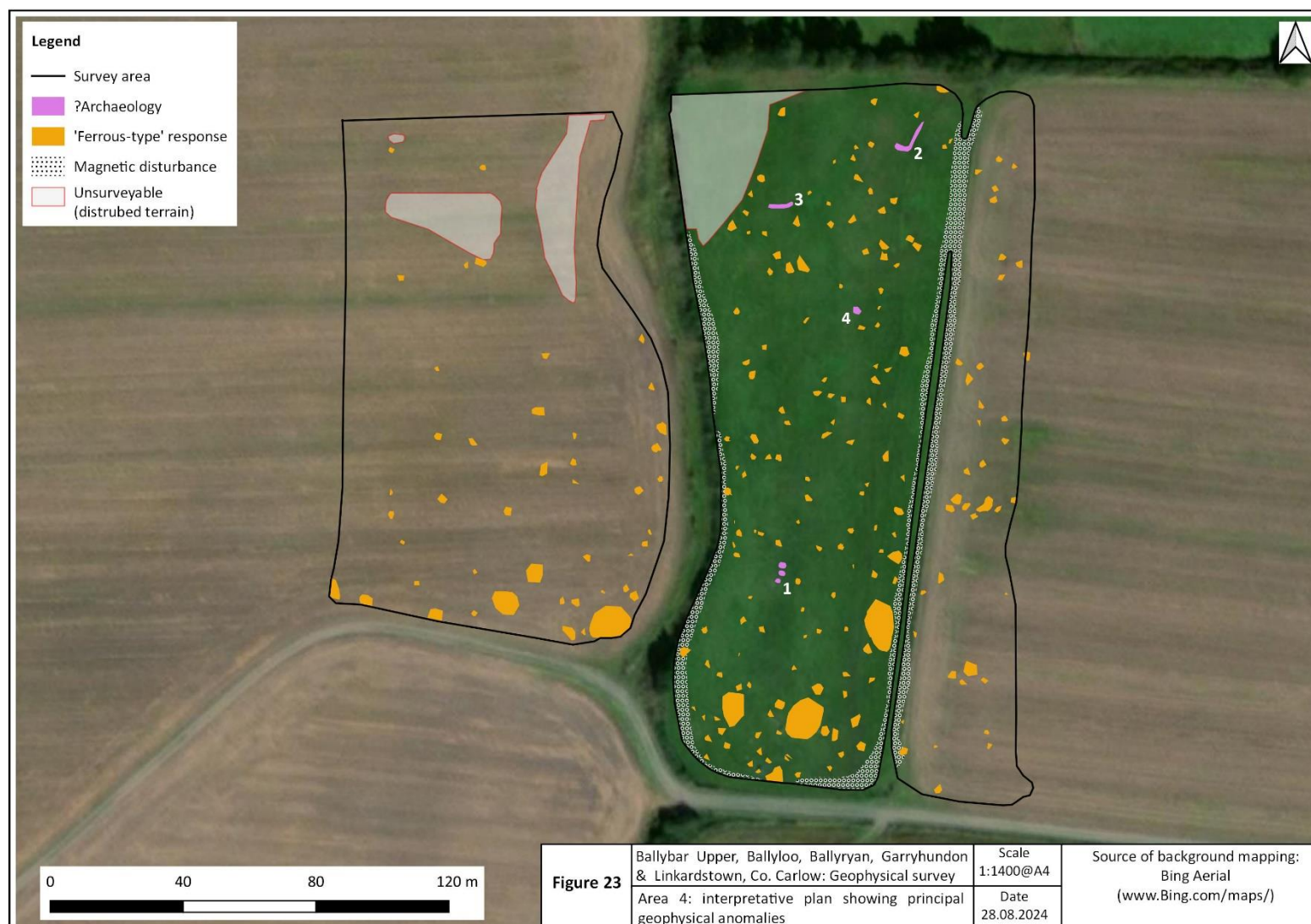


Figure 23. Area 4: interpretative plan showing principal geophysical anomalies.

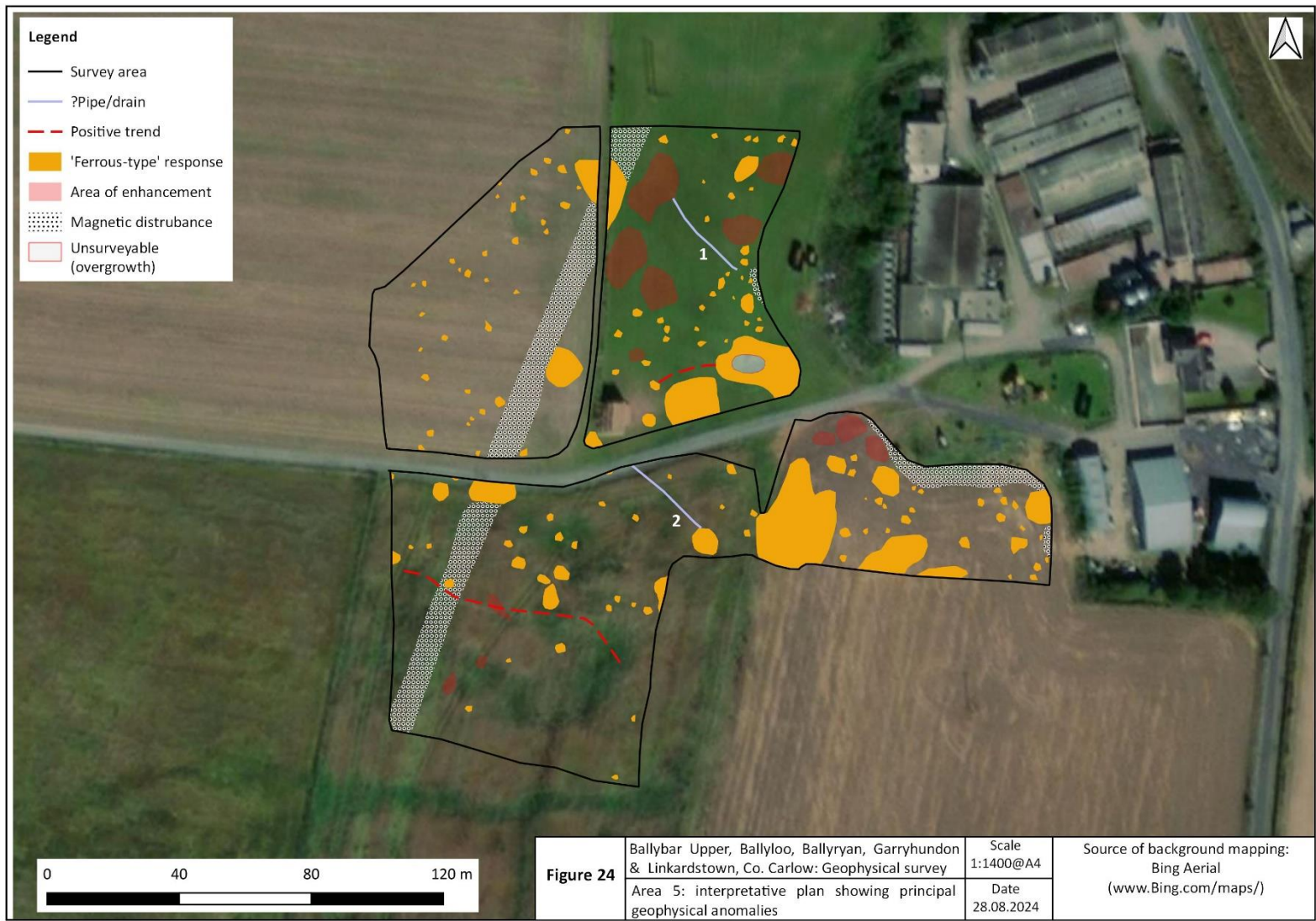


Figure 24. Area 5: interpretative plan showing principal geophysical anomalies.

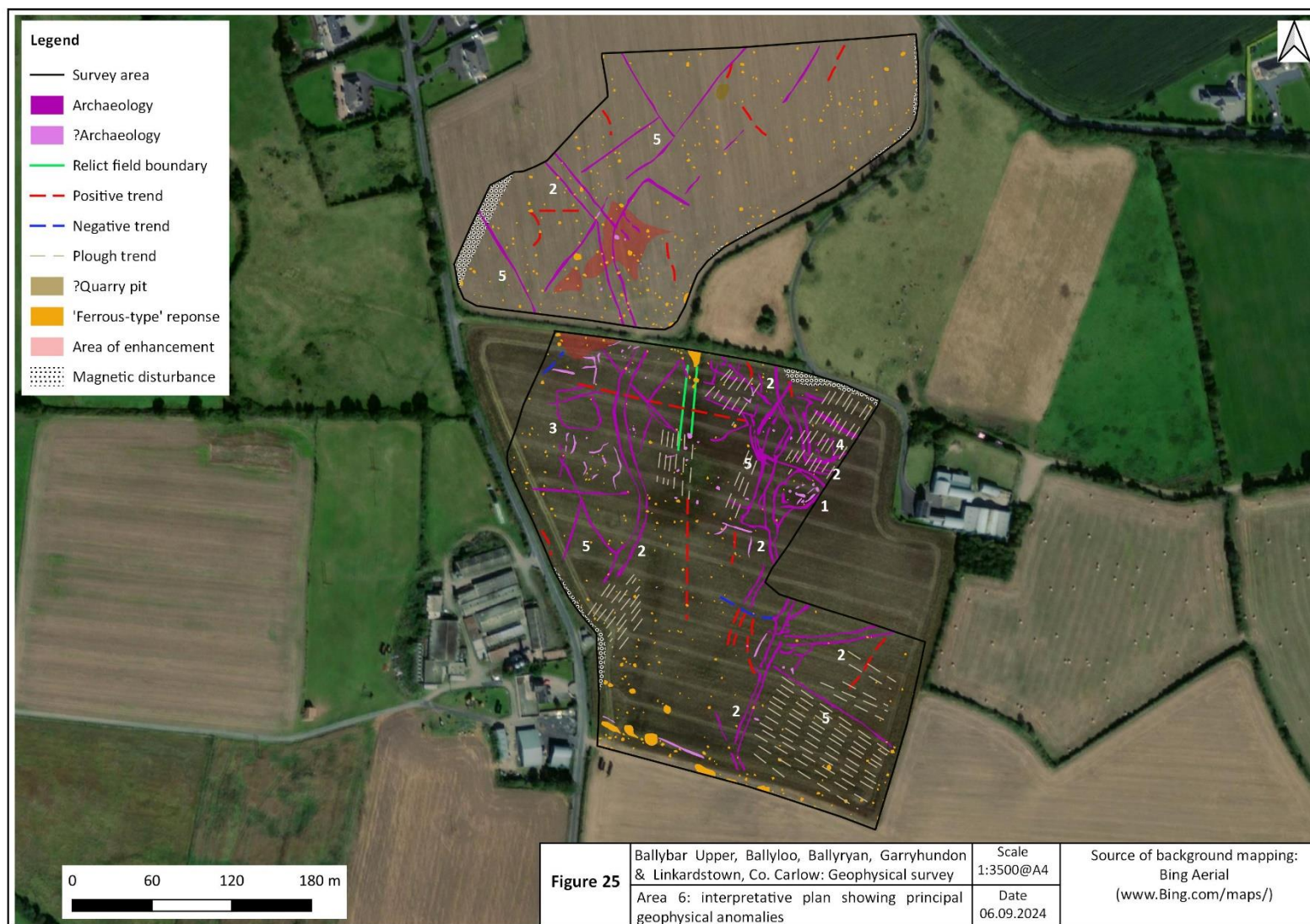


Figure 25. Area 6: interpretative plan showing principal geophysical anomalies.



Figure 26. Area 7: interpretative plan showing principal geophysical anomalies.

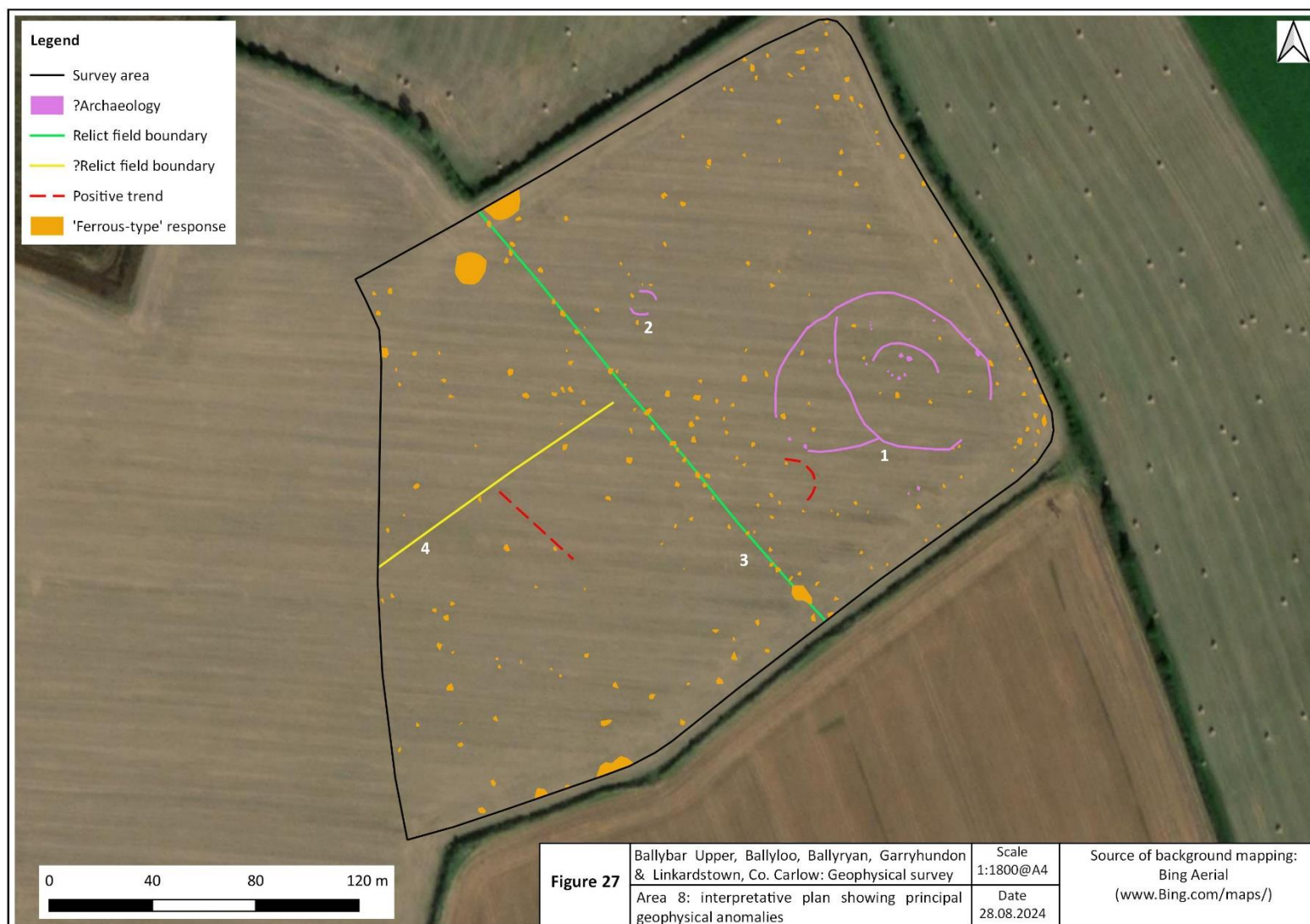


Figure 27. Area 8: interpretative plan showing principal geophysical anomalies.

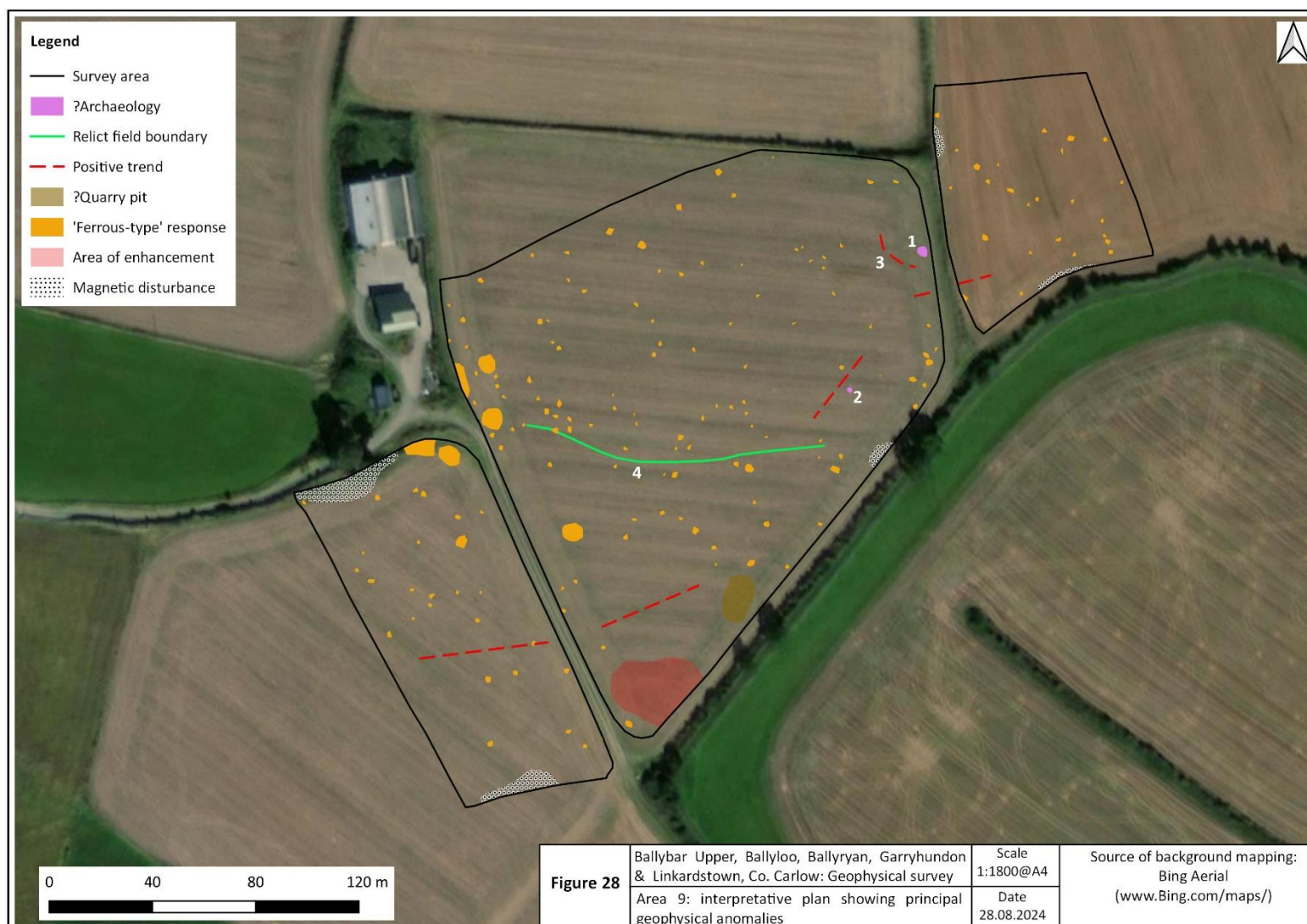


Figure 28. Area 9: interpretative plan showing principal geophysical anomalies.



Figure 29. Area 10: interpretative plan showing principal geophysical anomalies.

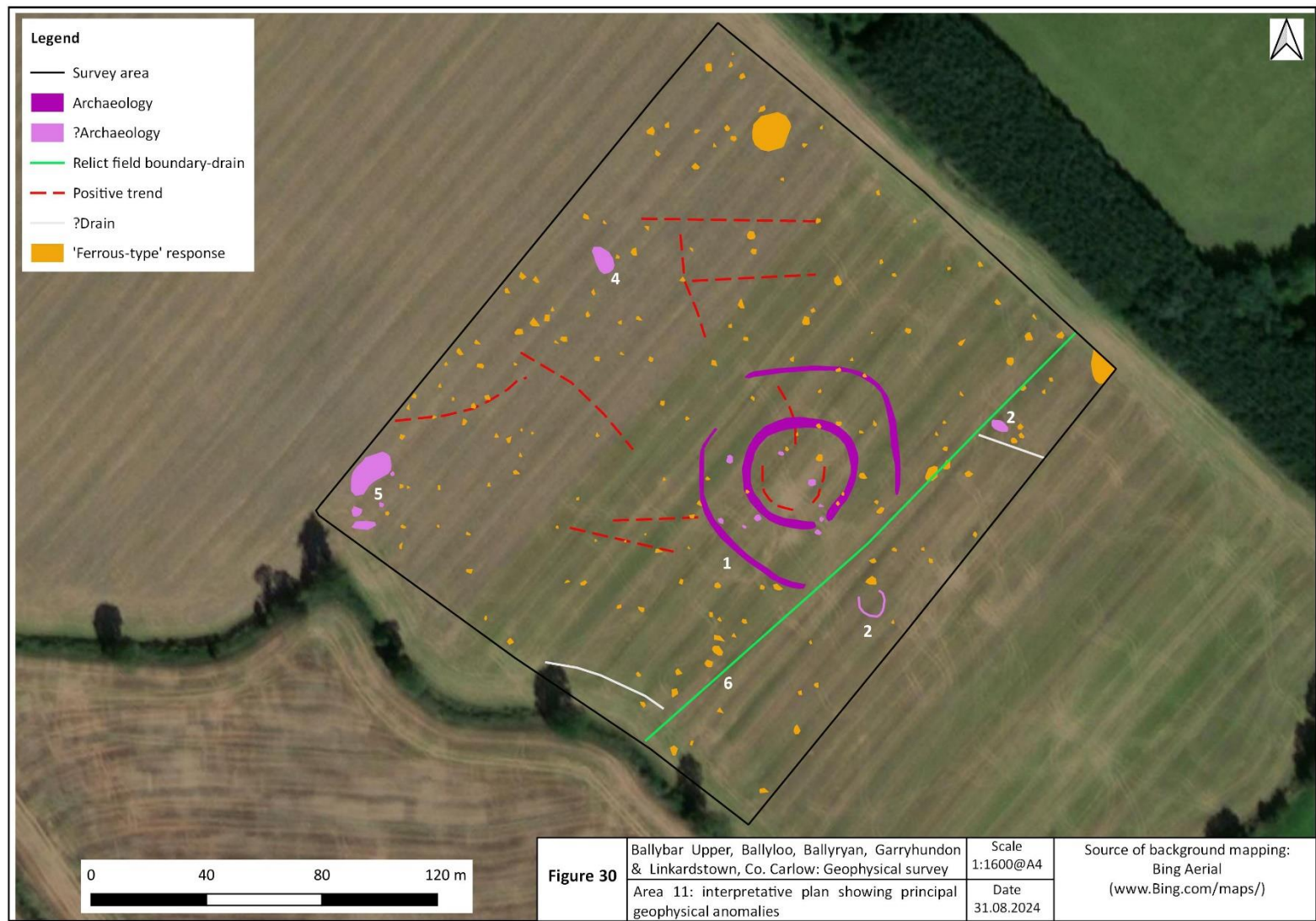


Figure 30. Area 11: interpretative plan showing principal geophysical anomalies.



Figure 31. Area 1: detail greyscale and interpretation plan of anomalies [1–5 & 8–9] and other possible features.

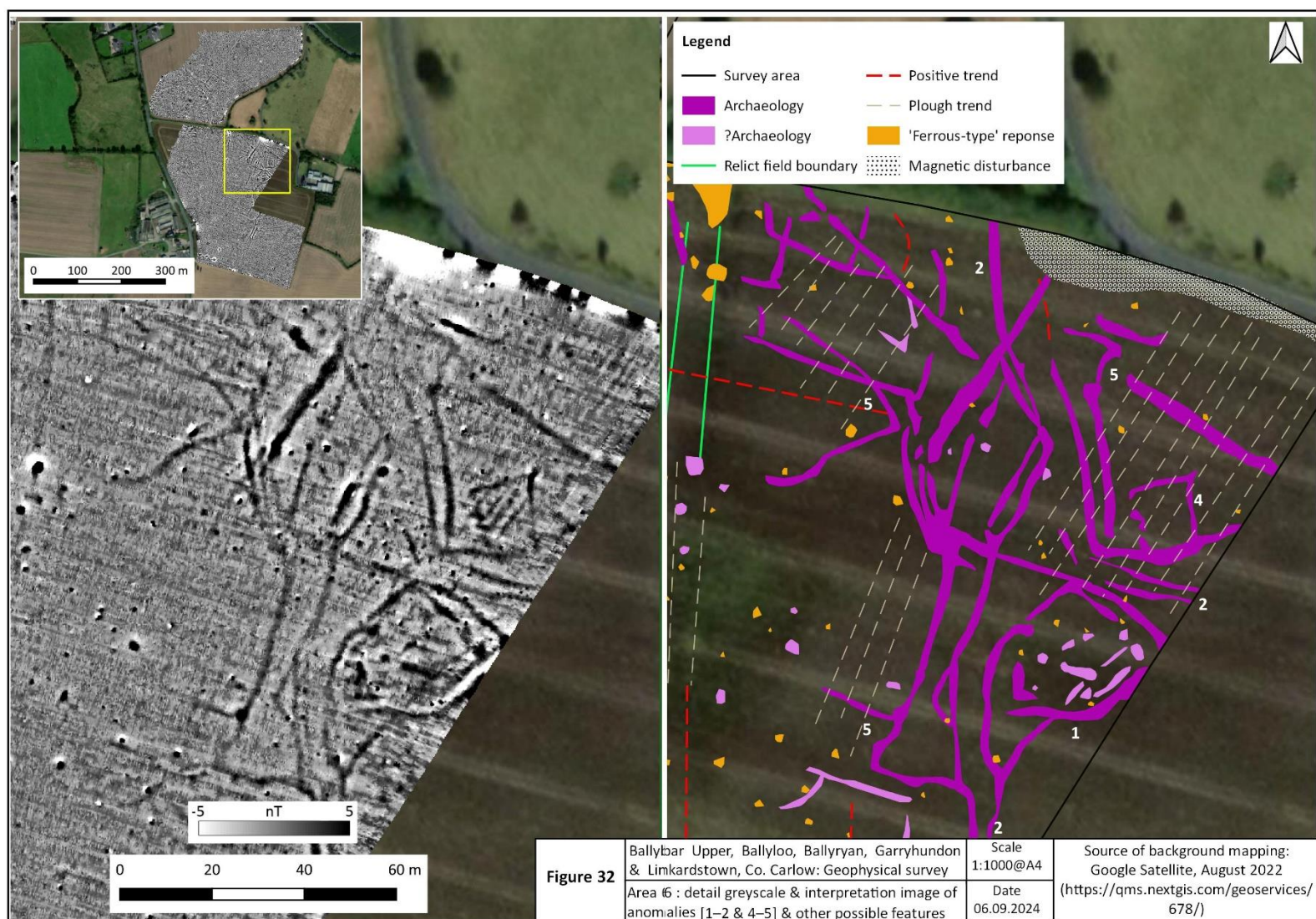


Figure 32. Area 2: detail greyscale and interpretation plan of anomalies [1-2 & 4-5] and other possible features.



Figure 33. Area 6: possible former road/track network.

12 Plates



Plate 1. View northwest across the easternmost field in Area 1.



Plate 2. Central field of Area 1, looking west.



Plate 3. Looking north across the westernmost fields of Area 1 towards low but steep ridge.



Plate 4. Northern segment of Area 2, looking south.



Plate 5. Area 3, looking north.



Plate 6. Central pasture field in Area 4, viewed from the south.



Plate 7. Southern tillage field of Area 4, looking northwest.



Plate 8. Pasture field on northwest of Area 5, looking north, with farm complex on right of image.



Plate 9. View west from southeast tillage field in Area 5.



Plate 10. Southern field in Area 6, looking east.



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Plate 12. Area 7, looking northeast.



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Plate 17. Eastern, meadow, portion of Area 10, viewed from the southeast.



Plate 18. Looking west towards sloping pastureland in Area 10.



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|  | No: | IRL-SF-155 | Version: | 4.0 | Effective Date: | 03/11/2025 |
| | Title: | An Archaeological, Architectural and Cultural Impact Assessment Report for the Proposed Ballyloo Substation and Grid Connection, Co. Carlow | | | | Page CXVI |

APPENDIX 8 PREVIOUS TEST EXCAVATION

**Final Report on the Results of
Archaeological Test-Trenching at Ballybar Upper,
Ballyloo, Ballyryan, Garryhundon, and Linkardstown,
Co. Carlow**

Project Code: RH1081

Client: Terra Solar

Date: 20 November 2024

Excavation Licence: 24E1081

Licensee: Jennifer McCarthy


Report Author: Jennifer McCarthy

Archaeological Consultant: Rubicon Heritage Services Ltd

ITM coordinates: E673867, N669760



**Rubicon
Heritage**

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|  | No: | SF-164 | Version: | 1.0 | Effective Date: | 20/11/2024 |
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PLANNING INFORMATION

Site Owner: Joe Walsh and Joe Regan
Address: Ballyloo and Ballybar Upper,
Co. Carlow

Planning Authority: Carlow County Council
Planning Reg. No.: Pre-planning
Excavation Type: Testing
[as per licence application]

Contractor/Developer: Terra Solar
Address: Nova UCD
Belfield,
Dublin 4.


Background to excavation:


A programme of archaeological test-trenching was undertaken at Ballybar Upper, Ballyloo, Ballyryan, Garryhundon, and Linkardstown, Co. Carlow from the 14th to the 31st of October 2024 in accordance with Licence No. 24E1035. These works were undertaken for Terra Solar by Rubicon Heritage Ltd. The local planning authority is Carlow County Council. The planning reference number is 2460043. The proposed development is centred on ITM coordinates E673867, N669760.

The proposed solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works (Figure 3). Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050.

Geophysical surveys were undertaken, the results of which informed the layout of the trenches. Trenches targeted any geophysical anomalies of archaeological potential, along with any proposed ground reduction areas for the development (access roads, transformer locations, site compounds etc).


The programme of archaeological testing comprised the excavation of a total of 152 test-trenches. To aid the recording process, the proposed development area was divided into 10 areas (Area 1–6 and 8–11). The trenches were excavated within the footprint of the proposed development to assess the potential for subsurface archaeological remains. A series of pits, linear features, ditches, one possible post-hole and one irregular feature were identified during testing.

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| Signed: |  | Date: | 20 November 2024 |
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VERSION CONTROL

| Version | Date | Description | By | Approved By |
|---------|------------|---|------|-------------|
| 0.1 | 12/11/2024 | First draft of report | JMcC | |
| 0.2 | 14/11/2024 | Edit of Unfinished report – recommendations to be completed | ROM | |
| 1.0 | 19/11/2024 | Edits incorporated; recommendations added | JMcC | BS |


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DISCLAIMER


This report was produced by Rubicon Heritage Services Ltd under the criteria set out by its Integrated Management System, which is ISO certified in Quality (ISO 9001:2015), Environmental (ISO 14001:2015), Occupational Health and Safety (ISO 45001:2018) by external auditor – DQS GmbH. The report itself was not audited or certified.

Please note that the archaeological recommendations, mitigation proposals and methodology followed in this report are like those used on previous similar projects approved by the Archaeological Planning and Licencing Unit, National Monuments Service, Room G50, Custom House, Dublin 1. The National Monuments Acts 1930-2014, The Planning and Development Act 2000 (plus any amendments) and the most recent EPA guidelines were consulted. Guidelines and Plans issued from time-to-time by the statutory bodies have also been consulted. These are listed in the reference section of this report (DAHGI 1999a; 1999b; EPA 2003; 2017; IAI 2006; NMS 2006).

The archaeological test-trenching has been undertaken under licence, which required an approved method statement. Every effort has been taken in the preparation and submission of this report to provide as complete an assessment as possible within the terms of the brief, and all statements and opinions are offered in good faith. However, Rubicon cannot accept responsibility for errors of fact or opinion resulting from the data supplied by any third party, for any loss or other consequences arising from decisions made or actions taken on the basis of facts and opinions expressed in this report, (and any supplementary information), howsoever such facts and opinions may have been derived, or as the result of unknown and undiscovered sites or artefacts.

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ABBREVIATIONS AND TERMS USED

| | |
|---------------------------------|---|
| Barony, Parish, Townland | These terms refer to land divisions in Ireland. The barony is the largest land division in a county, which is formed from a number of parishes. These parishes are in turn made up of several townlands, which are the smallest land division in the country. The origins of these divisions are believed to be in the early medieval/Christian period (AD 500–1000) or may date earlier in the Iron Age (500 BC–AD 500). |
| DHLGH | Department of Housing, Local Government and Heritage. |
| E | East. |
| First Edition | This relates to the OS 6-inch maps for each county. The first edition map completed for the area dates to the early 1840s and this is referred to in the text as the ‘6-inch map’. |
| km | Kilometre. |
| m | Metres, all dimensions are given in metres or part of a metre, unless otherwise stated. |
| N | North. |
| NGR | National Grid Reference. |
| NIAH | National Inventory of Architectural Heritage, see www.buildingsofireland.ie . |
| NMS | National Monuments Service. Regulatory body with the DHLGH with responsibility for archaeological heritage. |
| OS | Ordnance Survey. |
| OSI | Ordnance Survey of Ireland. |
| RMP | Record of Monuments and Places. An update of the older SMR, (sites and monuments record), on which all known archaeological sites are marked and listed in an accompanying list. The sites marked afford legal protection under the National Monuments Acts 1930-2004. The record is based on the 6-inch map series for the country and is recorded on a county basis. Each archaeological monument on the RMP has a unique code known as the RMP number prefixed by LI for Limerick. |
| RMP Number | This code is the number of the site on the RMP constraint map. It begins with the county code, for example LI for Limerick, the 6-inch sheet number, followed by the number of the archaeological monument on that sheet. |
| RPS | Record of Protected Structures. |
| S | South. |
| Second Edition | This relates to the OS 25-inch maps for each county. The second edition map completed for the area dates to the early 1900s and this is referred to in the text as the ‘25-inch map’. |
| Sheet | This relates to the 6-inch map for each county, which is divided into sheets. |
| SMR | Sites and Monuments Record. The precursor of the RMP, the SMR now commonly relates to the archive paper files of known archaeological monuments maintained by the Archaeological Survey of Ireland (ASI). These files are arranged according to RMP number. |
| W | West. |
| TR | Trench. |

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EXECUTIVE SUMMARY


A programme of archaeological test-trenching was undertaken at Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown, Co. Carlow from the 16th to the 31st of October 2024 in accordance with Licence No. 24E1035. The proposed development is centred on ITM coordinates E673867, N669760 (Figure 1).

The test trenching was preceded by a geophysical survey, the results of which informed the layout of the trenches (Dowling 2024). Trenches targeted any geophysical anomalies of archaeological potential. The geophysical survey and archaeological testing were undertaken as recommended by an Archaeological Impact Assessment (O’Flaherty & O’Sullivan 2024).

The combined area was c. 192 ha. The programme of archaeological testing comprised the excavation of a total of 152 test trenches, totalling 6054 m. To aid the recording process, the proposed development area was divided into 10 areas (Area 1–6 and 8–11). Area 7 was removed from the trenching array at the request of the National Monuments Service due to the presence of recorded monument CW012-090---- which including its zone of notification, encompassed the entirety of the Area. The trenches were excavated within the footprint of the proposed development to assess the potential for subsurface archaeological remains. A series of pits, linear features, ditches, one possible post-hole and one irregular feature were identified during testing.

The following mitigation measures are recommended:


1. The applicant should retain the services of a suitably qualified archaeologist to advise on and establish a 20m radius Exclusion Buffer Zone around the external-most elements of all RMPs located within the proposed development site. This should be undertaken prior to construction.
1. Where archaeology has been identified during test-trenching preservation *in situ* should be the preferred option. This should be achieved by establishing appropriate Exclusion and/or No-Dig Buffer Zones prior to construction. All Exclusion/No-Dig Buffer Zones should be maintained during construction, operation and decommissioning of the development.
2. Where preservation *in situ* is not achievable, either in whole or in part, then a programme of archaeological excavation should be proposed, to ensure the preservation by record of the identified archaeology. This should be carried out by a suitably qualified archaeologist under licence.
3. The remaining areas of the proposed development site not yet subject to advance geophysical survey and archaeological test trenching should be subject to the following:
 - Prior to construction a Phase II advance works programme of geophysical survey and archaeological test trenching should be carried out by suitably qualified archaeologists under licence.
 - Results from these advance works shall be compiled in a detailed report setting out any findings and outlining any further mitigation recommendations in relation to

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the proposed development. This report should be submitted to the National Monuments Service (DOHLGH) and the local planning authority.

4. All groundworks, including those related to the access tracks, cables, boundary fences, inverter/transformer stations, sub-stations and temporary compounds etc. should be monitored by a suitably qualified archaeologist under licence from the National Monuments Service (DOHLGH). Should archaeological material be identified the Local Authority and National Monuments Service should be notified and works at that location cease until an appropriate mitigation strategy has been agreed.
5. The results of any archaeological monitoring, surveys and/or excavation should be submitted in a report to the Local Authority, The National Monuments Service at the Department of Housing, Local Government and Heritage and the National Museum of Ireland.

Please note all recommendations are subject to the approval of the National Monuments Service and the local planning authority.

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1. INTRODUCTION

1.1 Site location and description

The development area is located in the townlands of Ballybar Upper, Ballyloo, Ballyryan, Garryhundon, and Linkardstown, in County Carlow comprising a total area of c. 192 hectares (Figure 1).

2. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND (After O'Flaherty & O'Sullivan 2024)

Prehistoric period


There is abundant evidence for prehistoric settlement within the study area, which is primarily in the form of burial activity. The earliest evidence dates from Neolithic period which is indicated by Linkardstown Burial (CH084), which is a cist burial containing the disarticulated inhumation of an adult. The site gives it name to this type of burial tradition during the Neolithic period. The Linkardstown-type burial dates to 3525–3350 cal. BC and was contemporary with the building of the early passage tombs (O'Sullivan and Downey 2019, 51).

There is ample evidence of Bronze age activity within the study area. This is reflected in three *fulachtaí fia* (CH022–CH024) in the townland of Ballybar Lower. *Fulachtaí fia* are the most numerous prehistoric site type in Ireland, and radiocarbon dating from excavated examples of *fulachtaí fia* generally date them to the Bronze Age. The most common interpretation for the function of this monument is as cooking places. However, a number of alternative functions have been put forward such as bathing, saunas, garment washing and dyeing (Hawkes 2015). It is not certain whether *fulachtaí fia* were elements temporary hunting camps or of permanent settlements (Power 1990, 13–17). *Fulachtaí Fia* generally survive as low mounds, usually horseshoe shaped, of charcoal-enriched soil packed with fragments of heat-shattered stones (termed 'burnt mound'). When levelled, they are often noticeable as black spreads in ploughed fields. They were usually situated close to a water source, like a stream, or in wet marshy areas (Ó Drisceóil 1988).

There is also evidence of funerary activity taking place in the study area during the Bronze Age. One site that reflects this activity is a flat cemetery (CH013) in the townland of Ballybar Lower. Three cremations and four token burials were found at this site. There are three further cremation pits in this townland (CH014–CH015, CH020) and two (CH035–CH036) in the adjoining townland of Ballybar Upper. There are also 15 ring-ditches recorded within the study area. The NMS (2023) state that ring-ditches may be 'the remains of ploughed out barrows, round houses or modern features' and as a result, may date from any period from prehistory onwards. This could mean that the 15 examples may date to prehistoric period, although it cannot be ruled out that they are a later date. A similar argument could be made for the 33 enclosures, and two earthworks (CH029, CH103) recorded within the study area.

Medieval period (AD 400–1540)

The early medieval period (AD 400–c. 1169) was a time of rapid expansion of agriculture. Throughout this period Ireland was a predominantly rural society characterised by dispersed settlement. The economy was based on mixed agriculture though the rearing of cattle was seen as very important. Ringforts and enclosures are indicative of settlement at this time. Ringforts are undoubtedly the most widespread and characteristic archaeological field monument in the Irish countryside. There are four

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known ringforts (CH092, CH098, CH105 and CH106) within the study area. However, some of the 33 enclosures within the study area could possibly be ringforts. If not, some of the undated enclosures may also be early medieval in date. The ringfort is basically a circular or roughly circular area enclosed by an earthen bank formed of material thrown up from concentric fosse (ditch) on its outside. Generally, the diameter of the enclosure is between 25 m and 50 m. A single bank and fosse (univallate) is the most usual form; double rings (bivallate) or triple rings (trivallate) are rarer. The number of rings of defence are thought to reflect on the status of the site, rather than the strengthening of its defences.

Archaeological excavation has shown that the majority of ringforts were enclosed farmsteads, built in the early medieval period. Though not forts in the military sense, the earthworks acted as a defence against natural predators like wolves, as well as human predators. Local warfare and cattle raiding were commonplace at this time. The construction of so many throughout the country, in a relatively short period (400–500 years), reflects on the stability and wealth of society at the time, and also its homogeneity. As well as farming-related activities like corn-grinding and animal husbandry, the ringfort was home to a wide variety of craft industries, including spinning, weaving, metal- and glass-working. (Power 1992, 131). Other evidence of farming related activity is represented by ten corn-drying kilns, and associated features, revealed by the N9/N10 Kilcullen-Waterford Road scheme. These monuments were used to dry cereals and other crops, and to harden it prior to grinding (O’Sullivan and Downey 2005,32). Six of the ten corn-drying kilns (CH007–CH012) are situated closely together in Ballybar Lower townland.

Other evidence of early medieval activity includes ecclesiastical settlement within the study area. One site is a burial ground (CH060) in Garryhundon, which is considered to be probably site of Cill Eogain. The early medieval date for this site is indicated by a high cross (CH061) and the ecclesiastical enclosure (CH059). An enclosure is one of the defining features of an early medieval ecclesiastical site (Edwards 1996, 106-107). There is also evidence of early medieval activity at the church site (CH108) in Kellistown East, which is translates as *Cill Osna Thiar* in Irish. This is indicated by the record of a round tower (CH111) at Kellistown East where the current belfry may stand. Both sites may contain the placename element Cill, which is also indicative of an early medieval date.

The end of 12th century saw the conquest of Ireland by the Anglo-Normans. Two moated sites (CH026, CH104) in the study area reflect the expansion of Anglo-Norman colony during the 13th century (O’Keefe 1988, 134). Moated sites or rectangular enclosures were constructed as part of the secondary sub-infeudation of Norman areas, which took place after original fiefs were granted. Excavated examples show that they were occupied at the end of the 13th century, continuing until the first half of the 14th century (Stout and Stout 1997, 57). From the late 14th/15th century, the Anglo-Norman settlement in Carlow went into decline due to a variety of factors such as the Black Death and Gaelic resurgence (O’Keefe 1988, 134; Stout and Stout 1997,57). By the early 16th century, with the exception of walled towns, Norman controlled territory was reduced to an eastern coastal strip, incorporating counties Dublin, Louth, Meath and Kildare (Stout and Stout 1997, 57–58). The 15th and 16th century saw the construction of tower houses in Gaelic and Norman area. These were small stone castles linked to walled enclosures or bawns (*Ibid*, 58). The tower houses reflected the unrest and insecurity of this time. The study area contains a single tower house named Ballyloo castle (CH093). This site has possible bawn (CH094) associated with it. There is also an unclassified castle (CH038) within the study area which could date from the later 12th to the 16th century (NMS 2032).

Post-medieval (AD 1540–1700) & early modern period (AD 1700–1850) Evidence of post-medieval activity is indicated by a human burial (CH033) found in Garryhundon. This was found in 1973 during

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work at a sandpit. A sample of the remains was sent to be radiocarbon dated, and it came back with a very broad date range of 1521–1955 (Prendergast 1973). Other evidence of modern activity includes a number of estates, which are depicted with landscaped estates on the First edition 6-inch Ordnance Survey map. This includes Garryhundon house (CH109), Kilballyhue house and Ballybar house.

2.1 Review of Statutory Designations

The proposed development was subject to an Archaeological, Architectural and Cultural Heritage Impact Assessment (O’Flaherty & O’Sullivan 2024), which included an assessment of archaeology and cultural heritage within a defined study area of 1 km surrounding the proposed scheme (Figure 2).

2.1.1 Record of Monuments and Places (RMPs)

Section 12 (1) of the National Monuments Act 1994 made provision the establishment and maintenance of a Record of Monuments & Places (RMP). Under this Act, each site recorded in the Record of Monuments and Places is granted statutory protection. When the owner or occupier of a property, or any other person proposes to carry out, or to cause, or to permit the carrying out of any work at or in relation to a recorded archaeological monument they are required to give notice in writing to the Minister for Housing, Local Government and Heritage two months before commencing that work.

In total, there are 106 RMPs are located within the study area for the proposed development. Sixteen RMPs lie within the application boundary of the proposed development: CH072; CH073; CH074; CH075; CH076; CH077; CH088; CH089; CH090; CH091; CH092; CH095; CH098; CH099; CH100; CH101; CH102.

An additional five RMPs lie marginally outside the proposed development, though their respective Statutory Zones of Notification are crossed by the application boundary: CH042; CH092 CH093; CH094; and CH103.

CH077, CH090 CH095 CH100 and CH101 lie within the application boundary but these monuments do not have defined Statutory Zones of Notification.

With the exception of CH093 (CW012-031---- Ballyloo Castle), all of the above RMPs located within or immediately adjacent to the application boundary have no above ground expression, and have been identified from cropmarks, historic mapping or other bibliographic sources. Table 1 shows details of all RMPs located within the study area.

There are no National Monuments incorporated by the proposed development.

| CH ID | Type | RMP No; | Short Description | Townland |
|-------|------|---------------|----------------------------|----------------|
| CH001 | RMP | CW007-163001- | Enclosure | Ballybar Lower |
| CH002 | RMP | CW007-163002- | Field system | Ballybar Lower |
| CH003 | RMP | CW007-168---- | Enclosure | Ballybar Lower |
| CH004 | RMP | CW007-045---- | Enclosure | Ballybar Lower |
| CH005 | RMP | CW012-167---- | Excavation - miscellaneous | Ballybar Lower |
| CH006 | RMP | CW012-014---- | Redundant record | Ballybar Lower |
| CH007 | RMP | CW012-166---- | Kiln - corn-drying | Ballybar Lower |
| CH008 | RMP | CW012-165---- | Kiln - corn-drying | Ballybar Lower |



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| CH ID | Type | RMP No; | Short Description | Townland |
|-------|------|---------------|----------------------------|----------------|
| CH009 | RMP | CW012-164---- | Kiln - corn-drying | Ballybar Lower |
| CH010 | RMP | CW012-163---- | Kiln - corn-drying | Ballybar Lower |
| CH011 | RMP | CW012-162---- | Kiln - corn-drying | Ballybar Lower |
| CH012 | RMP | CW012-161---- | Kiln - corn-drying | Ballybar Lower |
| CH013 | RMP | CW012-142---- | Flat cemetery | Ballybar Lower |
| CH014 | RMP | CW012-160---- | Cremation pit | Ballybar Lower |
| CH015 | RMP | CW012-159---- | Cremation pit | Ballybar Lower |
| CH016 | RMP | CW012-118---- | Kiln - corn-drying | Ballybar Lower |
| CH017 | RMP | CW012-156---- | Kiln - corn-drying | Ballybar Lower |
| CH018 | RMP | CW012-157---- | Kiln - corn-drying | Ballybar Lower |
| CH019 | RMP | CW012-117---- | Excavation - miscellaneous | Ballybar Lower |
| CH020 | RMP | CW012-158---- | Cremation pit | Ballybar Lower |
| CH021 | RMP | CW012-116---- | Redundant record | Ballybar Lower |
| CH022 | RMP | CW012-155---- | <i>Fulacht fia</i> | Ballybar Lower |
| CH023 | RMP | CW012-154---- | <i>Fulacht fia</i> | Ballybar Lower |
| CH024 | RMP | CW012-115---- | <i>Fulacht fia</i> | Ballybar Lower |
| CH025 | RMP | CW012-114---- | Excavation - miscellaneous | Ballybannon |
| CH026 | RMP | CW012-011---- | Moated site | Ballybannon |
| CH027 | RMP | CW012-153---- | Kiln - corn-drying | Ballybannon |
| CH028 | RMP | CW012-113---- | Ring-ditch | Ballybannon |
| CH029 | RMP | CW012-012---- | Earthwork | Ballybannon |
| CH030 | RMP | CW012-112---- | Redundant record | Ballybannon |
| CH031 | RMP | CW012-141---- | Excavation - miscellaneous | Ballybannon |
| CH032 | RMP | CW007-047---- | Enclosure | Ballybar Upper |
| CH033 | RMP | CW012-130---- | Burial | Ballybar Upper |
| CH034 | RMP | CW012-145---- | Excavation - miscellaneous | Ballybar Upper |
| CH035 | RMP | CW012-143---- | Cremation pit | Ballybar Upper |
| CH036 | RMP | CW012-144---- | Cremation pit | Ballybar Upper |
| CH037 | RMP | CW012-207---- | Enclosure | Ballybar Upper |
| CH038 | RMP | CW012-015---- | Castle - unclassified | Ballybar Upper |
| CH039 | RMP | CW012-015001- | Bawn | Ballybar Upper |
| CH040 | RMP | CW012-092---- | Enclosure | Ballybar Upper |
| CH041 | RMP | CW012-016---- | Enclosure | Ballybar Upper |
| CH042 | RMP | CW012-193-- | Enclosure | Clonmelsh |
| CH043 | RMP | CW012-208---- | Redundant record | Clonmelsh |
| CH044 | RMP | CW012-194---- | Ring-ditch | Clonmelsh |
| CH045 | RMP | CW012-183---- | Ring-ditch | Clonmelsh |
| CH046 | RMP | CW012-185---- | Ring-ditch | Clonmelsh |
| CH047 | RMP | CW012-180---- | Ring-ditch | Clonmelsh |
| CH048 | RMP | CW012-184---- | Ring-ditch | Clonmelsh |
| CH049 | RMP | CW012-187---- | Ring-ditch | Clonmelsh |
| CH050 | RMP | CW012-188---- | Ring-ditch | Clonmelsh |
| CH051 | RMP | CW012-182---- | Field system | Clonmelsh |
| CH052 | RMP | CW012-186---- | Ring-ditch | Clonmelsh |
| CH053 | RMP | CW012-181---- | Enclosure | Clonmelsh |



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| CH ID | Type | RMP No; | Short Description | Townland |
|-------|------|---------------|--------------------------|--------------|
| CH054 | RMP | CW012-024001- | Church | Clonmelsh |
| CH055 | RMP | CW012-024002- | Font | Clonmelsh |
| CH056 | RMP | CW012-024003- | Graveyard | Clonmelsh |
| CH057 | RMP | CW012-202---- | Ring-ditch | Powerstown |
| CH058 | RMP | CW012-209---- | Enclosure | Garryhundon |
| CH059 | RMP | CW012-025---- | Ecclesiastical enclosure | Garryhundon |
| CH060 | RMP | CW012-025001- | Burial ground | Garryhundon |
| CH061 | RMP | CW012-025002- | Cross - High cross | Garryhundon |
| CH062 | RMP | CW012-196001- | Enclosure | Garryhundon |
| CH063 | RMP | CW012-196002- | Field system | Garryhundon |
| CH064 | RMP | CW012-026---- | Enclosure | Garryhundon |
| CH065 | RMP | CW012-027---- | Enclosure | Garryhundon |
| CH066 | RMP | CW012-136---- | Enclosure | Garryhundon |
| CH067 | RMP | CW012-197001- | Ring-ditch | Garryhundon |
| CH068 | RMP | CW012-197002- | Ring-ditch | Garryhundon |
| CH069 | RMP | CW012-137---- | Enclosure | Garryhundon |
| CH070 | RMP | CW012-203---- | Enclosure | Garryhundon |
| CH071 | RMP | CW012-221---- | Enclosure | Garryhundon |
| CH072 | RMP | CW012-199---- | Enclosure | Garryhundon |
| CH073 | RMP | CW012-191---- | Enclosure | Garryhundon |
| CH074 | RMP | CW012-028---- | Enclosure | Garryhundon |
| CH075 | RMP | CW012-190---- | Ring-ditch | Garryhundon |
| CH076 | RMP | CW012-189---- | Ring-ditch | Garryhundon |
| CH077 | RMP | CW012-135---- | Burial | Garryhundon |
| CH078 | RMP | CW012-105---- | Enclosure | Tinriland |
| CH079 | RMP | CW012-201001- | Enclosure | Linkardstown |
| CH080 | RMP | CW012-201002- | Field system | Linkardstown |
| CH081 | RMP | CW012-091001- | Enclosure | Linkardstown |
| CH082 | RMP | CW012-091002- | Enclosure | Linkardstown |
| CH083 | RMP | CW012-091003- | Enclosure | Linkardstown |
| CH084 | RMP | CW012-017---- | Linkardstown burial | Linkardstown |
| CH085 | RMP | CW012-018001- | Church | Linkardstown |
| CH086 | RMP | CW012-018002- | Font | Linkardstown |
| CH087 | RMP | CW012-018003- | Graveyard | Linkardstown |
| CH088 | RMP | CW012-090---- | Enclosure | Linkardstown |
| CH089 | RMP | CW012-090001- | Enclosure | Linkardstown |
| CH090 | RMP | CW012-090003- | Field system | Linkardstown |
| CH091 | RMP | CW012-090002- | Enclosure | Linkardstown |
| CH092 | RMP | CW012-029---- | Ringfort - rath | Ballyloo |
| CH093 | RMP | CW012-031---- | Castle - tower house | Ballyloo |
| CH094 | RMP | CW012-031001- | Bawn | Ballyloo |
| CH095 | RMP | CW012-084---- | Burial ground | Ballyloo |
| CH096 | RMP | CW012-032---- | Redundant record | Ballyloo |
| CH097 | RMP | CW012-220---- | Enclosure | Ballyloo |
| CH098 | RMP | CW012-030---- | Ringfort - rath | Ballyloo |

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| CH ID | Type | RMP No; | Short Description | Townland |
|-------|------|---------------|----------------------|-----------------------------|
| CH099 | RMP | CW012-192---- | Enclosure | Ballyloo |
| CH100 | RMP | CW012-211---- | Enclosure | Ballyloo |
| CH101 | RMP | CW012-210---- | Enclosure | Ballyloo |
| CH102 | RMP | CW012-051---- | Concentric enclosure | Ballyryan (Carlow By.) |
| CH103 | RMP | CW012-052---- | Earthwork | Ballyryan (Idrone East By.) |
| CH104 | RMP | CW012-049---- | Moated site | Ballyryan (Idrone East By.) |
| CH105 | RMP | CW012-053---- | Ringfort - rath | Ballyryan (Idrone East By.) |
| CH106 | RMP | CW012-050---- | Ringfort - rath | Nurney |

Table 1—RMPs located within the study area

2.1.2 Protected Structures

The *Carlow County Development plan (2022-2028)* was consulted for schedules of Protected Structures. These are buildings that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social, and/or technical point of view. Protected Structures receive statutory protection from injury or demolition under Section 57 (1) of the Local Government (Planning and Development) Act 2000. Protected structure status does not exclude development or alteration but requires the developer to consult with the relevant planning authority to ensure that elements which make the structure significant are not lost during development.

If a structure is included in the RPS, the protection extends to:

- The interior of the structure
- The land in its curtilage. Curtilage means the land and outbuildings immediately surrounding a structure which is (or was) used for the purposes of the structure.
- Any other structures on that land and their interiors.
- All fixtures and features forming part of the interior and exterior of the protected structure or any structure on the grounds attached to it.

Inclusion of these structures in the RPS means that their importance is recognised, they are legally protected from harm and all future changes to the structure are controlled and managed through the development control process (for example, planning permission) or by issuing a declaration under Section 57 of the Planning and Development Act 2000.


There are two Protected Structures located within the study area. Both of these are also listed on the NIAH. They lie outside the redline boundary of the proposed development and will not be directly impacted.

| CH ID | Type | RPS. No; | Short Description | Townland |
|-------|------|----------------|-------------------|-------------|
| CH109 | PS | RPS. No. CW288 | Garryhundon House | Garryhundon |
| CH110 | PS | RPS. No. CW289 | Walled Garden | Garryhundon |

Table 2—Protected Structures located within the study area

2.1.3 NIAH

The National Inventory of Architectural Heritage (hereinafter the 'NIAH') is a state initiative under the administration of the DoHLGH and was established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act

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1999. Its purpose is to identify, record and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently, as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing, Local Government and Heritage to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

There are two sites from the NIAH register located within the study area; both of which are also Protected Structures. They lie outside the application boundary of the proposed development and will not be directly impacted.


| CH ID | Type | Reg. No./Site ID. | Short Description | Townland |
|-------|------|-------------------|-------------------|-------------|
| CH109 | NIAH | Reg. No. 10301231 | Garryhundon House | Garryhundon |
| CH110 | NIAH | Reg. No. 10301231 | Walled Garden | Garryhundon |

Table 2—NIAH registration located within the study area

2.2 Previous Archaeological Excavations

The Excavations Bulletin is an annual account of all excavations carried out under license. The database is available online at www.excavations.ie and includes excavations from 1985 to 2023. This database was consulted as part of the desktop research for this report to establish if any archaeological investigations had been carried out within the study area. The database produced 22 results for archaeological excavations undertaken within the study area. 21 of these excavations related to work undertaken in advance of the N9/N10 Kilcullen–Waterford Road Scheme. The excavated evidence indicates significant human settlement in the area from prehistoric times onward.

| CH ID | Type | Licence No. | Short Description | Townland |
|-------|------------|-------------|--|----------------|
| CH111 | Excavation | 08E0275 | No archaeological significance | Linkardstown |
| CH112 | Excavation | A021/030 | Four pits | Ballybar Upper |
| CH113 | Excavation | E002588 | Cremation pits, human remains | Ballybar Upper |
| CH114 | Excavation | A021/064 | Settlement | Ballybar Lower |
| CH115 | Excavation | E002622 | Prehistoric activity/cremation burial site | Ballybar Lower |
| CH116 | Excavation | A021/063 | Prehistoric? | Ballybar Lower |
| CH117 | Excavation | E002621 | Possibly prehistoric activity | Ballybar Lower |
| CH118 | Excavation | A021/062 | Prehistoric | Ballybar Lower |
| CH119 | Excavation | E002620 | Prehistoric activity | Ballybar Lower |
| CH120 | Excavation | A021/061 | Pit | Ballybar Lower |
| CH121 | Excavation | E002619 | No archaeological significance | Ballybar Lower |
| CH122 | Excavation | A021/060 | Prehistoric | Ballybar Lower |
| CH123 | Excavation | E002618 | Burnt mounds, prehistoric activity | Ballybar Lower |
| CH124 | Excavation | A021/059 | Burnt-mound material | Ballybannon |
| CH125 | Excavation | E002617 | Pits, burnt-mound material | Ballybannon |
| CH126 | Excavation | A021/058 | Ditch, pits | Ballybannon |
| CH127 | Excavation | A021/057 | Earthwork site | Ballybannon |
| CH128 | Excavation | E002615 | No archaeological significance | Ballybannon |
| CH129 | Excavation | A021/056 | Enclosure | Ballybannon |

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| CH ID | Type | Licence No. | Short Description | Townland |
|-------|------------|-------------|---|-------------|
| CH130 | Excavation | E002614 | No archaeological significance | Ballybannon |
| CH131 | Excavation | A021/055 | Various | Ballybannon |
| CH132 | Excavation | E002613 | Possible trackway, prehistoric activity | Ballybannon |

Table 4—Previous excavations located within the study area

2.3 Cartographic Analysis

The cartographic record from the 17th century onwards for the study area was examined for the purposes of an impact assessment report in advance of the proposed development. They were consulted to identify undesignated cultural heritage sites that may be impacted on by the proposed scheme. The First Edition 6-inch Ordnance Survey (1840), First Edition 25-inch Survey (1907) and the First Edition 6-inch Cassini Survey (c. 1940) were consulted to identify undesignated cultural heritage sites that may be impacted on by the proposed scheme (Figures 4 and 5). The maps show that there were changes to the field system between the 6-inch and 25-inch maps, with fields being subdivided. Some wet, marshy land was also changed over to rough pasture.

There are no undesignated cultural heritage sites identified which may be directly impacted by the proposed development.

3. OBJECTIVES AND METHODOLOGY

3.1 Objectives


The objective of the archaeological testing programme was to identify the presence or absence of archaeological remains within the proposed development area and to establish the nature, character, extent and significance of any archaeological features or deposits which will be potentially impacted by the development.

3.2 Methodology

The work scope entailed a programme of archaeological testing. The archaeological works were carried out in accordance with the requirements of the Employer, the Contractor and the conditions associated with an excavation licence. Additionally, the works complied with the following:

- *The National Monuments Acts 1930–2004.*
- *Framework and Principles for the Protection of the Archaeological Heritage*, Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI 1999a).
- *Policy and Guidelines on Archaeological Excavation*, Department of Arts, Heritage, Gaeltacht and the Islands (DAHGI 1999b).
- *Guidelines for Archaeologists*, Institute of Archaeologists of Ireland (2013).

Archaeological test trenching involved the mechanical excavation of 152 trenches totalling 6,054 linear meters, to test the veracity of the preceding geophysical survey (Figures 6–13). Test trenches were excavated using two tracked 14 t excavators fitted with a 1.80 m wide grading bucket.

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The exposed subsoil was examined for archaeological features. When potential archaeologically significant features/deposits were identified mechanical excavation ceased; the features were then cleaned, and exploratory sections dug by hand.

Recording was carried out using the Rubicon Heritage Services Ltd standard method and was undertaken on *pro forma* record sheets. All contexts and trenches have been given unique numbers. Photographic recording was carried out using a 12 MegaPixel iPhone SE and two 12 MegaPixel Olympus Tough cameras.

Excavation took place to the uppermost archaeological horizons only, where they survive. Where archaeological material was shown to be present, the archaeologist suspended the works and trenches backfilled, following recording of archaeological material. Please note that all features/archaeological surfaces within the test trenches were hand-cleaned and clearly visible for photographic purposes.

3.3 Constraints on the archaeological methods

Tr. 6.16 was not excavated due to being located on an existing farm track. This trench was not targeting any geophysical anomaly.

Area 7 was omitted from the trenching array at the request of the National Monuments Service.

4. RESULTS

The following results only discuss archaeological or possible archaeological features uncovered during archaeological testing (Figures 14–34). The remaining features are considered non-archaeological/agricultural in origin and can be viewed in Appendix 1.


4.1 Archaeological features

Area 1

The geophysical survey recorded several anomalies as possible archaeology. These anomalies were interpreted as possible ring-ditches, structures, potential enclosures and ditch type features (Dowling 2024; Figure 6).

Within Tr. 1.01 there were two curvilinear features C261 and C269, and one linear feature C271. Curvilinear feature C261 was to the north-eastern limits of the trench (Plate 1). It traversed the trench from the north-west and curved to the south-west. This feature was 0.75 m wide and 0.10 m deep. Curvilinear feature C261 corresponded to an unnumbered anomaly—‘possible archaeology’. To the south-western limits of the trench was curvilinear feature C269. This feature had a south-east to south-west orientation and measured 0.57 m wide by 0.11 m deep. Its fill, C270, consisted of black sandy silt with inclusions of charcoal. This feature is likely associated with geophysical anomaly 4.

Located c. 16.5 m to the south-west of curvilinear feature C269 was linear feature C271. This feature had an SE–NW orientation and measured 0.85 m wide by 0.30 m deep. Its fill, C272 was of mid-brown silty sand. This feature corresponded with geophysical anomaly 4.

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Within Tr. 1.04 were two possible pits—C287 and C293 and linear feature C291. Possible pit C287 was recorded approximately mid-way along Tr. 1.04. This was circular in plan and measured 1.44 m long, 0.80 m wide and 0.18 m deep. Its fill C279, consisted of dark brown sandy clay. This feature corresponded to an unnumbered anomaly—‘possible archaeology’.

Situated to the north-western limits of Tr. 1.04, was possible pit C293. This was circular in plan and measured 0.45 m long, 0.43 m wide and 0.19 m deep. It was filled by C294—dark brown sandy clay.

Linear feature C291 was orientated east–west and measured 1 m wide by 0.23 m deep. It was filled by C292 and consisted of mid-brown sandy clay. This was located at unnumbered anomaly—‘possible archaeology’. This feature did not continue into Tr. 1.03 and Tr. 1.05.

Tr. 1.05 contained linear feature C281. This was orientated SE–NW with a terminus to the south-east end. It was 1.20 m wide and 0.50 m deep. Its fill, C282 comprised of mid-brown sandy silt. It was not observed as continuing into Tr. 1.01.

Geophysical anomalies 1 and 2 interpreted as possible ring-ditches or structure were flagged within Tr. 1.01 and Tr. 1.06. These were not visible within the trenches.

Linear feature C295 and possible pit C283 was located within Tr. 1.10. This feature had an NE–SW orientation and was 1.20 m wide. It’s fill, C296 was of light brown silty sand. This feature corresponded to geophysical anomaly 8. Pit C283 was sub-circular in plan and only partially exposed. It was 1.75 m wide and 0.25 m deep. Its fill, C284 was of blackish-brown silty sand with inclusions of charcoal flecks.


Situated mid-way along Tr. 1.11 was linear feature C307 with a north–south orientation. This measured 1.25 m wide and 0.36 m deep. This feature also corresponded to geophysical anomaly 8.

Within Tr. 1.13 were pits C309, C310 and C315 and curvilinear feature C313. Pit C309 was partially exposed and continued under the baulk. It measured 2.20 m in width and 0.05 m in depth. This pit was filled by charcoal-rich black sandy silt. Located c. 4 m to the south-west of pit C309, was pit C310. Pit C310 was partially exposed and continued under the baulk. It measured 0.90 m wide by 0.40 m deep. It was filled by C311 and was composed of dark blackish-brown silty sand with inclusions of charcoal. This feature corresponded to an unnumbered geophysical anomaly—‘possible archaeology’. Situated c. 1 m to the south-west of pit C310, was C315. Pit C315 was partially exposed and continued under the baulk. It measured 0.50 m in width and was 0.05 m deep.

Curvilinear feature C313 was oriented NW–SE and measured 0.65 m wide by 0.20 m deep (Plate 2). It’s fill, C318 was of black sandy clay and was charcoal-rich. This feature partially corresponded to geophysical anomaly 5. The geophysical survey interpreted this feature as a possible ring-ditch, however it’s return in Tr. 1.14 and Tr. 1.13 was not recorded.

Within Tr. 1.14 was liner feature C317. This feature had a SE–NW orientation and measured 0.65 m wide by 0.20 m deep. It’s fill—C318—was of mid-brown silty sand.

Situated within Tr. 1.16 were pits C303 and C305 and linear features C299 and C301. Pit C303 was circular in plan and was only partially exposed. This feature measured 0.90 m and 0.30 m deep. It was filled by C304 and consisted of mid-brown silty sand. Situated c. 10 m to the south-east of pit C303 was

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pit C305. This pit was sub-circular in plan and measured 1 m long, 0.60 m wide and 0.10 m deep. It was filled by C306 and was comprised of mid-brown silty sand.

Linear feature C299 was to the immediate south-east of pit C303 with an SE–NW orientation (Plate 3). This feature measured 0.40 m wide and was 0.40 m deep. It was filled by C300 – mid-brown silty sand and prehistoric pottery was noted on its surface and left *in situ*. To the south-east of this feature was linear feature C301 with a NE–SW orientation. This measured 1 m wide and 0.25 m deep. Its fill C302, was of mid-brown silty sand.

Located within Tr. 1.17 was pit C297 at the north-western limits. It was only partially exposed and measured 1.30 m wide and 0.40 m deep. Its fill consisted of dark blackish-brown silty sand with flecks of charcoal and animal bone.

Two pits were within the south-western end of Tr. 1.19 – C285 and C289. Pit C285 was partially exposed and measured 0.50 m wide and 0.10 m deep. This feature was filled by mid-blackish-brown silty sand with charcoal flecks. This feature corresponded to unnumbered geophysical anomaly – ‘possible archaeology’. Pit C285 was c. 8 m to the north-east of pit C289. Pit C289 was partially exposed and measured 0.50 m wide and 0.08 m deep. It was comprised of mid-blackish-brown silty sand with flecks of charcoal.

Relict field systems were observed within the geophysical survey in Area 1. These were only visible within one trench – Tr. 1.01.

Area 2

Other than occasional ferrous type responses, the geophysical survey had not identified any anomalies in this area. No remains of archaeological nature were observed in the trial trenches excavated in this area.

Area 3


Geophysical anomalies recorded within Area 3 included a curving ditch (anomaly 1), possible pits/spreads (anomaly 2), relict field boundaries (anomaly 3–6) and several unnumbered anomalies.

A curvilinear and linear feature were recorded in Tr. 3.07 – C171 and C174. Curvilinear feature C171 was sub-circular in plan and measured 0.95 m wide and 0.20 m deep (Plate 4). The upper fill C172, consisted of mid-brown silty clay, while the lower fill – C173 – was of dark brownish-black sandy silt with frequent charcoal inclusions. Linear feature C174 was located to the immediate north-east of curvilinear feature C171 (Plate 5). This feature was orientated east–west. It was filled by C175 which consisted of dark brownish-black sandy silt with frequent inclusions of heat-affected stones and charcoal. The relationships between these two features are unclear but it is possible that they are related due to their proximity and similarities between fills C173 and C175.

Area 4

There were four numbered anomalies on the geophysical survey. These consisted of possible pits/spread (anomalies 1 and 4), and two ditches (anomalies 2 and 3). Nothing of archaeological nature was observed within the trenches in this area.

Area 5

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Two numbered anomalies were noted within Area 5. These comprised of a possible service pipe and possible ditches/drain.

Nothing of archaeological nature was observed within the trenches in this area.

Area 6

The geophysical survey noted 6 numbered anomalies in Area 6—an ovaloid ditched enclosure (anomaly 1), a probable former road/track network (anomaly 2), possible enclosures or former field systems (anomalies 3 and 4) and a complex mosaic of individual and interconnected ditches indicative of former field systems (Anomaly 5).

This area consisted of the densest concentration of features which comprised of 12 pits, one possible post-hole, 52 linear features, one irregular feature and nine ditches.

Within Tr. 6.3 was pit C107. This pit was circular in plan and measured 0.60 m long, 0.52 m wide and 0.32 m deep. Its fill on the eastern end, C108 was of brownish-grey silty clay.

Irregular feature C066 was recorded in the northern end of Tr. 6.08 (Plate 8). This was generally orientated east-west. This measured 1.70 m wide and 0.30 m deep. The eastern portion of the feature was filled by C078, and was of mid-brown clayey silt, while the western portion was filled by charcoal-rich sandy silt—C067. The trench was extended to the east to allow for further investigation. It is possible that this feature represents a cereal drying kiln.


Pits C165, C161, C157 and C153 were within Tr. 6.9. Pit C165 was circular in plan with a diameter of 1.26 m and was 0.21 m deep. Its fill, C166 was of light grey silty sand. Pit C161 was circular in plan and measured 0.40 m long, 0.32 m wide and 0.12 m deep. This was filled by C162—dark grey sandy clay. Pit C165 corresponded to an unnumbered geophysical anomaly 'archaeology-possible'.

Pit C157 was sub-circular in plan and measured 0.76 m long, 0.64 m wide and 0.12 m deep. Its fill, C158 was of dark grey sandy clay. Near the north-eastern limits of the trench was pit C153. This feature was sub-circular in plan and measured 0.57 m long, 0.49 m wide and 0.16 m deep. This was filled by C154 and comprised of mid-grey silty clay.

Midway along Tr. 6.11 was pit C137. This was partially exposed and measured 0.55 m wide and 0.12 m deep. This pit was filled by C138 and was of brownish-grey silty clay. This feature partially corresponded to geophysical anomaly 5.

Two pits were recorded midway along Tr. 6.12—C081 and C083. Pit C081 was sub-circular in plan and measured 1.63 m long, 1.38 m wide and 0.10 m deep (Plate 6). This was filled by C082 and consisted of grey silty clay with inclusions of bone.

Pit C083 was to the immediate south of pit C081. This was circular in plan and measured 0.52 m in diameter and was 0.12 m deep. This was filled by C082 and was of grey silty clay with inclusions of bone. Following consultation with our in-house osteoarchaeologist, Dr Dawn Gooney, regarding the bone from pits C083 and C081, these were deemed to be of animal origin and those from C081 to include an animal skull (D. Gooney, pers. Comm.; Plate 8). These features partially accounted for geophysical anomaly 5, along with several linear and ditch features listed in Table 3.

| | | | | | | |
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A pit and a possible post-hole were with Tr. 6.15—C050 and C052. Pit C050 was circular in plan and measured 0.45 m long, 0.40 m wide and a minimum of 0.20 m deep. This was filled by C051—mid-greyish-brown-silty clay. Possible post-hole C056 was c. 12.50 m to the north-east of pit C050. This feature was sub-circular in plan and measured 1.30 m long, 1.10 m wide and 0.20 m deep. This pit was filled by C053 and was of mid-greyish-brown silty clay.

Within Tr. 6.17 was pit C042. This feature was sub-circular in plan and measured 1.20 m long, 0.90 m wide and was 0.16 m deep. Its fill comprised of light brown silty sand—C043.

Two pits were within Tr. 6.19—C008 and C018. Pit C008 was to the south-east of the trench while pit C018 was to the south-west. Pit C008 was sub-circular in plan and measured 0.95 m long by 0.75 m wide and 0.40 m deep. Its fill, C009 was of blackish-brown silty sand with frequent charcoal inclusions. This pit partially corresponds to geophysical anomaly 2. Pit C018 was sub-circular in plan and measured 0.36 m long, 0.30 m wide and 0.12 m deep. It was filled by C019—mid-brown silty sand. This feature was in the immediate vicinity of geophysical anomaly ‘positive trend’.

Within Area 6 was a dense concentration of individual and interconnected ditches and linear features. They were mostly densely concentrated in Tr. 6.09–6. 12. Some of these features may have formed sub-rectangular enclosures as in Tr. 6.08. Several of these features truncated others, particularly evident in Tr. 6. 12. The number of ditches converging in Tr. 6.11 and Tr. 6.12 also suggests they are multiperiod. No finds were retrieved within the entirety of Area 6. Due to the high volume of these features, they are displayed on table 3 below.

Table 3—Ditch and linear features of likely archaeological origin within Area 6.

| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|--|
| 004 | 6.20 | Cut | N/A | C005 | 3.10 | 0.75 | 0.27 | Linear in plan | Cut of linear feature C005 in Tr. 6.20 |
| 005 | 6.20 | Fill | C004 | N/A | 3.10 | 0.75 | 0.27 | Mid-brown silty sand | Fill of C004 in Tr. 6.20 |
| 006 | 6.20 | Cut | N/A | C007 | 2.0+ | 1.30 | 0.35 | Linear in plan, oriented NW–SE | Cut of linear feature C007 in Tr. 6.20 |
| 007 | 6.20 | Fill | C006 | N/A | 2.0+ | 1.30 | 0.35 | Mid-brown silty sand | Fill of C006 in Tr. 6.20 |
| 010 | 6.19 | Cut | N/A | C011 | 2.0+ | 1.20 | 0.50 | Linear in plan, oriented NE–SW | Cut of linear feature C011 in Tr. 6.19 |
| 011 | 6.19 | Fill | C010 | N/A | 2.0+ | 1.20 | 0.50 | Mid-brown silty sand | Fill of C010 in Tr. 6.19 |
| 012 | 6.19 | Cut | N/A | C013 | 2.0+ | 2.10 | 0.40 | Linear in plan, oriented NE–SW | Cut of linear feature C013 in Tr. 6.19 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|--|
| 013 | 6.19 | Fill | C012 | N/A | 2.0+ | 2.10 | 0.40 | Mid-brown silty sand | Fill of C012 in Tr. 6.19 |
| 014 | 6.18 | Cut | N/A | C015 | 2.0+ | 1.07 | 0.30 | Linear in plan, oriented NE-SW | Cut of linear feature C015, anomaly 2 in Tr. 6.18 |
| 015 | 6.18 | Fill | C014 | N/A | 2.0+ | 1.07 | 0.30 | Dark brown silty sand | Fill of linear feature C014 in Tr. 6.18 |
| 016 | 6.19 | Cut | N/A | C017 | 2.0+ | 1.80 | 0.40 | Linear in plan, oriented north-south | Cut of linear feature C017 in Tr. 6.19. Likely same as C028. |
| 017 | 6.19 | Fill | C016 | N/A | 2.0+ | 1.80 | 0.40 | Mid-brown silty sand | Fill of linear feature C016 in Tr. 6.19 |
| 020 | 6.19 | Cut | N/A | C021 | 2.0 | 0.75 | 0.15 | Linear in plan | Cut in linear feature C021 in Tr. 6.19 |
| 021 | 6.19 | Fill | C020 | N/A | 2.0 | 0.75 | 0.15 | Mid-brown silty sand | Fill of linear feature C020 in Tr. 6.19 |
| 022 | 6.19 | Cut | N/A | C023 | 2.0 | 0.80 | 0.15 | Linear in plan | Cut of linear feature C023 in Tr. 6.19 |
| 023 | 6.19 | Fill | C022 | N/A | 2.0 | 0.80 | 0.15 | Mid-brown silty sand | Fill of linear feature C022 in Tr. 6.19 |
| 024 | 6.19 | Cut | N/A | C025 | 2.0 | 4.0 | | Linear in plan | Cut of ditch C025 in Tr. 6.19 |
| 025 | 6.19 | Fill | C024 | N/A | 2.0 | 4.0 | | Mid-brown silty sand | Fill of ditch C024 in Tr. 6.19 |
| 026 | 6.18 | Cut | N/A | C027 | 2.0+ | 1.39 | 0.25 | Linear in plan, oriented NE-SW | Cut of linear feature C027, leg of Anomaly 2 in Tr. 6.18 |
| 027 | 6.18 | Fill | C026 | N/A | 2.0+ | 1.39 | 0.25 | Mid-brown silty sand | Fill of linear feature C026 in Tr. 6.18 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|---|
| 028 | 6.18 | Cut | N/A | C029 | 2.0+ | 2.15 | 0.39 | Linear in plan, oriented north-south | Cut of linear feature C029, outer linear feature of anomaly 2 in Tr. 6.18. Likely same as C016. |
| 029 | 6.18 | Fill | C028 | N/A | 2.0+ | 2.15 | 0.39 | Mid-brown silty sand | Fill of linear feature C028 in Tr. 6.18 |
| 032 | 6.16 | Cut | N/A | C033 | 2.0+ | 0.45 | 0.25 | Linear in plan | Cut of linear feature C033 in Tr. 6.16, possible drainage or cultivation |
| 033 | 6.16 | Fill | C032 | N/A | 2.0+ | 0.45 | 0.25 | Grey sandy silt | Fill of linear feature C032 in Tr. 6.16 |
| 034 | 6.16 | Cut | N/A | C035 | 2.0+ | 1.70 | 0.22 | Linear in plan | Cut of linear feature C035 in Tr. 6.16, drainage or cultivation |
| 035 | 6.16 | Fill | C034 | N/A | 2.0+ | 1.70 | 0.22 | Mid-greyish-brown sandy silt | Fill of linear feature C034 in Tr. 6.16 |
| 036 | 6.16 | Cut | N/A | C037 | 2.0+ | 1.60 | 0.40 | Linear immediately west of C34 | Cut of linear feature C037 in Tr. 6.16 |
| 037 | 6.16 | Fill | C036 | N/A | 2.0+ | 1.60 | 0.40 | Decayed granite and clay | Fill of linear feature C036 in Tr. 6.16 |
| 038 | 6.18 | Cut | N/A | C039 | 2.0+ | 0.92 | 0.21 | Linear at north end of trench | Cut of linear feature C039 in Tr. 6.18 |
| 039 | 6.18 | Fill | C038 | N/A | 2.0+ | 0.92 | 0.21 | Mid-brown silty sand | Fill of linear feature C038 in Tr. 6.18 |
| 040 | 6.18 | Cut | N/A | C041 | 2.0+ | 1.07 | 0.25 | Linear in plan at NW end of trench | Cut of linear feature C041 in Tr. 6.18 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|--|
| 041 | 6.18 | Fill | C040 | N/A | 2.0+ | 1.07 | 0.25 | Mid-brown silty sand | Fill of linear feature C040 in Tr. 6.18 |
| 044 | 6.17 | Cut | N/A | C045 | 2.0+ | 2.94 | 0.82 | Linear in plan, oriented NE-SW | Cut of ditch C045 in Tr. 6.17 |
| 045 | 6.17 | Fill | C044 | N/A | 2.0+ | 2.94 | 0.82 | Mid-brown sand | Fill of ditch C044 in Tr. 6.17 |
| 046 | 6.16 | Cut | N/A | C047 | 2.0+ | 0.90 | 0.25 | Linear, anomaly 5 | Cut of linear feature C047 in Tr. 6.16, probably modern agricultural |
| 047 | 6.16 | Fill | C046 | N/A | 2.0+ | 0.90 | 0.25 | Brown sandy gravel | Fill of linear feature C046 in Tr. 6.16 |
| 048 | 6.16 | Cut | N/A | C049 | 5.0+ | 1.25 | 0.20 | Linear, possibly anomaly 2 | Cut of linear feature C049 in Tr. 6.16 |
| 049 | 6.16 | Fill | C048 | N/A | 5.0+ | 1.25 | 0.20 | Mid-brown gravelly sand | Fill of linear feature C048 in Tr. 6.16 |
| 054 | 6.15 | Cut | N/A | C055 | 2.0+ | 0.75 | 0.25 | Linear in plan | Cut of linear C055 in Tr. 6.15 |
| 055 | 6.15 | Fill | C054 | N/A | 2.0+ | 0.75 | 0.25 | Mid-greyish-brown silty clay | Fill of linear feature C054 in Tr. 6.15 |
| 056 | 6.15 | Cut | N/A | C057 | 2.0+ | 1.10 | 0.20 | Linear in plan | Cut of linear feature C057 in Tr. 6.15 |
| 057 | 6.15 | Fill | C056 | N/A | 2.0+ | 1.10 | 0.20 | Mid-greyish-brown silty clay | Fill of linear feature C056 in Tr. 6.15 |
| 058 | 6.15 | Cut | N/A | C059 | 2.0+ | 1.60 | 0.30 | Linear, possible drain | Cut of linear feature C059 in Tr. 6.15 |
| 059 | 6.15 | Fill | C058 | N/A | 2.0+ | 1.60 | 0.30 | Mid-greyish-brown silty clay | Fill of linear feature C058 in Tr. 6.15 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|------------|------------|-----------|-----------|------------------------------------|---|
| 060 | 6.13 | Cut | N/A | C061 | 4.5+ | 0.40 | 0.22 | Linear in plan | Cut of linear feature C061 in Tr. 6.13 |
| 061 | 6.13 | Fill | C060 | N/A | 4.5+ | 0.40 | 0.22 | Mid-greyish-brown silty clay | Fill of linear feature C060 in Tr. 6.13 |
| 062 | 6.13 | Cut | N/A | C063 | 2.5+ | 1.40 | 0.16 | Linear in plan | Cut of linear feature C063 in Tr. 6.13 |
| 063 | 6.13 | Fill | C062 | N/A | 2.5+ | 1.40 | 0.16 | Mid-brownish-grey stony clay | Fill of linear feature C062 in Tr. 6.13 |
| 064 | 6.13 | Cut | N/A | C065 | 2.0+ | 0.60 | 0.40 | Linear in plan | Cut of linear feature C065 in Tr. 6.13 |
| 065 | 6.13 | Fill | C064 | N/A | 2.0+ | 0.60 | 0.40 | Mid-greyish-brown silty clay | Fill of linear feature C064 in Tr. 6.13 |
| 066 | 6.08 | Cut | N/A | C067, C078 | 2.6 | 1.70 | 0.30 | Irregular in plan | Cut of linear feature C067 and C078 in Tr. 6.08. Possible cereal drying kiln. |
| 067 | 6.08 | Fill | C066 | N/A | 1.55 | 0.84 | 0.07 | Charcoal-rich sandy silt | Fill of linear feature C066 in Tr. 6.08 |
| 068 | 6.13 | Cut | N/A | C069 | 2.0+ | 1.1 | 0.25 | Linear in plan | Cut of linear feature C069 in Tr. 6.13 |
| 069 | 6.13 | Fill | C068 | N/A | 2.0+ | 1.1 | 0.25 | Mid-greyish-brown silty clay | Fill of linear feature C069 in Tr. 6.13 |
| 070 | 6.13 | Cut | N/A | C071 | 2.0+ | 1.0 | 0.30 | Linear in plan | Cut of linear feature C071 in Tr. 6.13 |
| 071 | 6.13 | Fill | C070 | N/A | 2.0+ | 1.0 | 0.30 | Mid-greyish-brown silty clay | Fill of linear feature C070 in Tr. 6.13 |
| 072 | 6.08 | Cut | N/A | C073 | 1.82+ | 1.54 | 0.65 | V-shaped ditch, oriented east-west | Cut of linear feature C073 in Tr. 6.08 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|-----------------------------------|---|
| 073 | 6.08 | Fill | C072 | N/A | 1.82+ | 1.54 | 0.65 | Friable silty sand | Fill of linear feature C072 in Tr. 6.08 |
| 076 | 6.08 | Cut | N/A | C077 | 2.0+ | 0.85 | 0.40 | V-shaped, oriented east-west | Cut of linear C077 in Tr.8.05 |
| 077 | 6.08 | Fill | C076 | N/A | 2.0+ | 0.85 | 0.40 | Friable light brown silty sand | Fill of ditch C076 in Tr.8.05 |
| 078 | 6.08 | Fill | C066 | N/A | 1.72 | 1.35 | 0.30 | Mid-brown clayey silt | Fill of linear feature C066 in Tr. 6.08 |
| 079 | 6.12 | Cut | N/A | C080 | 2.0+ | 1.92 | 0.21 | Linear in plan | Cut of ditch C080 in Tr. 6.12, probable ditch |
| 080 | 6.12 | Fill | C079 | N/A | 2.0+ | 1.92 | 0.21 | Grey silty clay | Fill of ditch C079 in Tr. 6.12 |
| 085 | 6.12 | Cut | N/A | C086 | 2.0+ | 1.10 | 0.15+ | Linear in plan | Cut of probable drain C086 in Tr. 6.12 |
| 086 | 6.12 | Fill | C085 | N/A | 2.0+ | 1.10 | 0.15+ | Grey silty clay | Fill of drain C085 in Tr. 6.12 |
| 087 | 8.05 | Cut | N/A | C088 | 2.0+ | 1 | | Linear in plan | Cut of linear feature C088 in Tr.8.05 |
| 088 | 8.05 | Fill | C087 | N/A | 2.0+ | 1 | | Mid-greyish-brown silty clay | Fill of linear feature C087 in Tr. 8.05 |
| 089 | 6.12 | Cut | N/A | C090 | 2.0+ | 0.60 | 0.16 | Linear in plan | Cut of linear feature C090 in Tr. 6.12 |
| 090 | 6.12 | Fill | C089 | N/A | 2.0+ | 0.60 | 0.16 | Yellowish-grey silty clay | Redeposited fill of linear feature C089 in Tr. 6.12 |
| 091 | 6.12 | Cut | N/A | C092 | 2.0+ | 1.08 | 0.20 | Linear feature, truncated by C089 | Cut of linear feature C092 in Tr. 6.12 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| 092 | 6.12 | Fill | C091 | N/A | 2.0+ | 1.08 | 0.20 | Grey silty clay | Fill of linear feature C091 in Tr. 6.12 |
| 093 | 6.12 | Cut | N/A | C094 | 2.0+ | 0.65 | 0.16 | Linear in plan | Cut of drain C094 in Tr. 6.12 |
| 094 | 6.12 | Fill | C093 | N/A | 2.0+ | 0.65 | 0.16 | Stone | Fill of drain C093 in Tr. 6.12 |
| 095 | 6.12 | Cut | N/A | C096 | 2.0+ | 0.60 | 0.20 | Linear in plan | Cut of drain C096 in Tr. 6.12 |
| 096 | 6.12 | Fill | C095 | N/A | 2.0+ | 0.60 | 0.20 | Stone | Fill of drain C095 in Tr. 6.12 |
| 097 | 6.12 | Cut | N/A | C098 | 2.0+ | 1.90 | 0.57 | Linear in plan | Cut of linear feature C098 in Tr. 6.12 |
| 098 | 6.12 | Fill | C097 | N/A | 2.0+ | 1.90 | 0.57 | Light grey silty clay | Fill of linear feature C097 in Tr. 6.12 |
| 099 | 6.10 | Cut | N/A | C100 | 2.0+ | 0.78 | 0.40 | Linear in plan, oriented NW-SE | Cut of linear feature C100 in Tr. 6.10, outer linear of anomaly 2 |
| 100 | 6.10 | Fill | C099 | N/A | 2.0+ | 0.78 | 0.40 | Light greyish-brown silty sand | Fill of linear feature C099 in Tr. 6.10 |
| 103 | 6.11 | Cut | N/A | C104 | 2.0+ | 1.40 | 0.22 | Linear in plan | Cut of ditch C104 in Tr. 6.11 |
| 104 | 6.11 | Fill | C103 | N/A | 2.0+ | 1.40 | 0.22 | Mid-greyish-brown silty clay | Fill of ditch C103 in Tr. 6.11 |
| 105 | 6.11 | Cut | N/A | C106 | 2.0+ | 0.72 | 0.35 | Linear in plan | Cut of linear feature C106 in Tr. 6.11 |
| 106 | 6.11 | Fill | C105 | N/A | 2.0+ | 0.72 | 0.35 | Brownish-grey silty clay | Fill of linear feature C105 in Tr. 6.11 |
| 109 | 6.10 | Cut | N/A | C110 | 2.0+ | 0.92 | 0.18 | Linear in plan, | Cut of linear feature C110 in Tr. 6.10, |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| | | | | | | | | oriented NW-SE | inner linear of anomaly 2 |
| 110 | 6.10 | Fill | C109 | N/A | 2.0+ | 0.92 | 0.18 | Light greyish-brown silty sand | Fill of linear feature C109 in Tr. 6.10 |
| 111 | 6.02 | Cut | N/A | C112 | 2.0+ | 0.80 | 0.57 | Linear in plan | Cut of ditch C112 in Tr. 6.02 |
| 112 | 6.02 | Fill | C111 | N/A | 2.0+ | 0.80 | 0.57 | Brown silty sand | Fill of ditch C111 in Tr. 6.02 |
| 113 | 6.04 | Cut | N/A | C114 | 2.0+ | 1.05 | 0.46 | Linear in plan | Cut of drain C114 in Tr. 6.04 |
| 114 | 6.04 | Fill | C113 | N/A | 2.0+ | 1.05 | 0.46 | Brownish-grey silty clay | Fill of drain C113 in Tr. 6.04 |
| 115 | 6.04 | Cut | N/A | C116 | 2.0+ | 2.30 | 0.30 | Linear in plan | Cut of ditch C116 in Tr. 6.04 |
| 116 | 6.04 | Fill | C115 | N/A | 2.0+ | 2.30 | 0.30 | Mid-greyish-brown silty clay | Fill of ditch C115 in Tr. 6.04 |
| 121 | 6.10 | Cut | N/A | C122 | 2.0+ | 0.80 | 0.14 | Linear in plan, oriented NE-SW | Cut of linear feature C122 in Tr. 6.10, possibly associated with anomaly 2 |
| 122 | 6.10 | Fill | C121 | N/A | 2.0+ | 0.80 | 0.14 | Light grey sandy clay | Fill of linear feature C121 in Tr. 6.10 |
| 125 | 6.10 | Cut | N/A | C126 | 2.0+ | 0.98 | 0.28 | Linear in plan, oriented NW-SE | Cut of linear feature C126 in Tr. 6.10, possibly associated with anomaly 5 (Plate. 7) |
| 126 | 6.10 | Fill | C125 | N/A | 2.0+ | 0.98 | 0.28 | Dark grey silty clay | Fill of linear feature C125 in Tr. 6.10 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|--|
| 129 | 6.10 | Cut | N/A | C130 | 2.0+ | 0.97 | 0.33 | Linear in plan, oriented north-south | Cut of linear feature C130 in Tr. 6.10, possibly associated with anomaly 5 |
| 130 | 6.10 | Fill | C129 | N/A | 2.0+ | 0.97 | 0.33 | Mid-grey silty clay | Fill of linear feature C129 in Tr. 6.10 |
| 131 | 6.11 | Cut | N/A | C132 | 2.0+ | 1.15 | 0.32 | Linear in plan | Cut of linear feature C132 in Tr. 6.11 |
| 132 | 6.11 | Fill | C131 | N/A | 2.0+ | 1.15 | 0.32 | Brownish-grey silty clay | Fill of linear feature C131 in Tr. 6.11 |
| 133 | 6.11 | Cut | N/A | C134 | 2.0+ | 1.70 | 0.42 | Linear in plan | Cut of linear feature C134 in Tr. 6.11 |
| 134 | 6.11 | Fill | C133 | N/A | 2.0+ | 1.70 | 0.42 | Brownish-grey silty clay | Fill of linear feature C133 in Tr. 6.11 |
| 135 | 6.11 | Cut | N/A | C136 | 2.0+ | 0.77 | 0.17 | Linear in plan | Cut of linear feature C136 in Tr. 6.11 |
| 136 | 6.11 | Fill | C135 | N/A | 2.0+ | 0.77 | 0.17 | Brownish-grey silty clay | Fill of linear feature C135 in Tr. 6.11 |
| 139 | 6.11 | Cut | N/A | C140 | 2.0+ | 0.52 | 0.25 | Linear in plan | Cut of linear feature C140 in Tr. 6.11 |
| 140 | 6.11 | Fill | C139 | N/A | 2.0+ | 0.52 | 0.25 | Brownish-grey silty clay | Fill of linear feature C139 in Tr. 6.11 |
| 141 | 6.11 | Cut | N/A | C142 | 2.0+ | 1.0 | 0.50 | Linear in plan | Cut of ditch C142 in Tr. 6.11 |
| 142 | 6.11 | Fill | C141 | N/A | 2.0+ | 1.0 | 0.50 | Brownish-grey silty clay | Fill of ditch C141 in Tr. 6.11 |
| 143 | 6.10 | Cut | N/A | C144 | 2.0+ | 0.84 | 0.21 | Linear in plan, oriented NW-SE | Cut of linear feature C144 in Tr. 6.11, anomaly 5 |



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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 144 | 6.10 | Fill | C143 | N/A | 2.0+ | 0.84 | 0.21 | Mid-grey silty sand | Fill of linear feature C143 in Tr. 6.11 |
| 147 | 6.10 | Cut | N/A | C148 | 2.0+ | 1.50 | 0.20 | Linear in plan, oriented north-south | Cut of ditch C148, anomaly 5 in Tr. 6.10 |
| 148 | 6.10 | Fill | C147 | N/A | 2.0+ | 1.50 | 0.20 | Dark grey sandy clay | Fill of ditch C147 in Tr. 6.10 |
| 151 | 6.11 | Cut | N/A | C152 | N/A | N/A | | Same feature as C105 | Same feature as C105 |
| 152 | 6.11 | Fill | C151 | N/A | N/A | N/A | | Same feature as C105 | Same feature as C105 |
| 155 | 6.09 | Cut | N/A | C156 | 2.0+ | 0.59 | 0.23 | Linear in plan, oriented NW-SE | Cut of linear feature C156, anomaly 5 in Tr. 6.09 |
| 156 | 6.09 | Fill | C155 | N/A | 2.0+ | 0.59 | 0.23 | Dark grey sandy clay, animal bone and charcoal present | Fill of linear feature C155 in Tr. 6.09 |
| 159 | 6.09 | Cut | N/A | C160 | 3.6+ | 0.55 | 0.22 | Linear in plan | Cut of linear feature C160 in Tr. 6.09 |
| 160 | 6.09 | Fill | C159 | N/A | 3.6+ | 0.55 | 0.22 | Mid-greyish-brown sandy clay | Fill of linear feature C159 in Tr. 6.09 |
| 163 | 6.09 | Cut | N/A | C164 | 2.0+ | 1.0 | 0.23 | Linear in plan | Cut of linear feature C164 in Tr. 6.09 |
| 164 | 6.09 | Fill | C163 | N/A | 2.0+ | 1.0 | 0.23 | Light grey silty clay | Fill of linear feature C163 in Tr. 6.09 |
| 169 | 8.04 | Cut | N/A | C170 | 2.0+ | 1.35 | 0.28 | Linear in plan | Cut of ditch C170 in Tr. 8.04 |
| 170 | 8.04 | Fill | C169 | N/A | 2.0+ | 1.35 | 0.28 | Mid-brown sandy clay | Fill of ditch C169 in Tr. 8.04 |
| 319 | 6.9 | Cut | N/A | C320 | 2.0+ | 0.80 | 0.31 | Linear in plan, orientated NE-SW | Cut of linear feature C320 |

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| Context | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|-----------------------------|
| 320 | 6.9 | Fill | C319 | N/A | 2.0+ | 0.80 | 0.31 | Light greyish-brown silty sand | Fill of linear feature C319 |

Area 8

Nothing of archaeological nature was observed in this area.

Area 9

Pit C184 was situated towards the south-east of Tr. 9.6 (Plate 9). This pit was sub-circular in plan and measured 1.89 m long, 1.33 m wide and 0.29 m deep. Its fill—C185 was of black sandy clay. A second pit, C190 was observed within Tr. 9.1. This feature was circular in plan with a diameter of 0.39 and 0.13 m deep. Its fill, C191 was of blackish-brown silty sand.

Area 10

Pit C194 was midway along Tr. 10.17 (Plate 10). This feature was oval in plan and measured 0.90 m long, 0.47 m wide by 0.10 m deep. It was filled by black silty clay that was charcoal-rich—C195.


Area 11

Pit C236 was situated in the south-western portion of Tr. 11.06. This feature was irregular in plan and was orientated NE–SW. It measured 1 m long, 0.35 m wide and was 0.15 m deep. Its fill C237, was of mid-brown silty sand.

Located in Tr. 11.08 was pit C242. This feature was circular in plan and measured 0.35 m in diameter and was 0.12 m deep. It was filled by red silty sand and charcoal—C243.

Area 12

Nothing of archaeological nature was observed in this area.

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5. DISCUSSION

Several features archaeological significance was uncovered during the course of archaeological test-trenching at the proposed development site.

No remains of archaeological significance were identified in Area 2, 4, 5, 8 and 12.

Area 1

A total of 9 numbered anomalies consisting of 'possible archaeology' according to the geophysical survey, were located within Area 1. These included interpretations of several possible ring-ditches, circular structures or possible enclosures, linear 'ditch-type' features, possible pits/spreads. Several of the features uncovered within Area 1 partially correlated to a portion of these anomalies while others did not.

Definite archaeology consisted of linear feature C299 in Tr. 1.16 as evidenced by the presence of prehistoric pottery. Features C301, C303 and C305 may also be prehistoric in origin due to the close proximity. These features were consistent with unnumbered geophysical anomaly 'possible archaeology'.


Archaeological features that did correspond or partially correspond to geophysical anomalies were interpreted as curvilinear features C261, C269, C313 and linear features C219 and C317 which corresponded to unnumbered anomaly of 'possible archaeology'. Linear feature C271 lined up with geophysical anomaly 4 which was interpreted as a 'possible northern arc of ring-ditch or circular structure' by the geophysical survey however, no return of this feature was noted. Curvilinear feature C313 corresponded to geophysical anomaly 5 which was interpreted as a 'potential enclosure'. A return on this feature was not noted, however pit C309 was recorded at the location of its expected return. Pits C310 and C315 were located a short distance to the south-west of pit C310 and did not line-up with any anomaly.

Linear feature C281 within Tr. 1.05 did not correspond to the geophysical survey but appears archaeological in nature. Linear features C295 and C307 in Tr. 1.10 and Tr. 1.11 corresponded to geophysical anomaly 8 consisting of linear 'ditch-type' features. No evidence of consisted of burning as suggested in the geophysical survey was noted within the trenches.

Area 3

Two features of archaeological origin were within Tr. 3.07. Linear feature C174 and curvilinear feature C171. A 'positive trend' was noted on the geophysical survey in the form of a line orientated NE-SW at this location however the features uncovered do not take this orientation.

Linear feature C174 within Tr. 3.07 was filled with burnt mound material. The trench was extended to the north-east to allow for further investigation. The burnt mound material within the linear feature may have been intentional, or it may be that a burnt mound in the vicinity was levelled into the linear feature in antiquity or modern times. The latter seems more likely as there was a concentration of darker material reminiscent of burnt mound material that had been mixed with the plough soil in the immediate vicinity. This led to the opening of an additional trench to the south-west where this darker material was concentrated to allow for further investigation. Noting of archaeological origin was noted in this additional trench.

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Located to the immediate east of linear feature C174 was curvilinear feature C171. The trench was extended to the north-east to allow for further investigation. The origin of this feature is unclear; however, it is possible that it may represent a ring-ditch in which its shape has been obscured by ploughing and/or other agricultural activity. This feature may also be related to linear feature C174 as its lower fill was of similar composition to fill C173.

Area 6

Area 6 contained a dense array of ditch and linear features likely representing field boundaries and some possible sub-rectangular enclosures (Tr. 6.08). In the absence of modern finds or anything aligning with the first or second edition mapping, these features are likely to be Medieval in origin.


There are several separate geophysical anomalies that are numbered '2' and were interpreted by the geophysical survey as probable former road/track network that extend across much of the proposed development area. They were typically defined by narrow parallel ditches. At times, its path is unclear due to the dense volume of linear features and ditches present. The most southerly of these were observed within Tr. 8.18–8.20 and accounted for C004, C010, C012, C014, C016, C026, C028, C038 and C040. This road/track then extends outside the proposed development area but likely continues in a north-easterly direction and was observed in Tr. 6. 14. Some of the ditch/linear features within Tr. 6.12 may be related to this, however this is tentative due to the density of features within the trench. It is difficult to discern the direction, if continuous, of the road/track after this point.

A second probable former road/track was located to the north-west of the aforementioned trackway. This was observed within Tr. 6. 10 and possibly Tr. 6.9 and likely accounted for C099 and C319.

Geophysical anomaly 3 was interpreted as possible enclosure or field system on the geophysical survey. Two ditches were recorded which corresponded to geophysical anomaly 3—C072 and C076. Ditch C072 was orientated east–west and measured 1.54 m wide and 0.65 m deep and had a 'V'-shaped profile. It was filled by C073—mid-brown silty sand. Ditch C076 was orientated SE–NW and measured 0.85 m wide and 0.45 m deep. It was filled by C077 and consisted of light brown silty sand. The archaeological testing did not uncover dating evidence for this feature. Given its location and proximity to the dense cluster of ditch and linear features within Area 6, these ditches may be archaeological in origin.

The remaining features within Area 6 (Table 3) primarily correspond to geophysical anomaly 5 which was described by the geophysical survey as a 'complex mosaic of individual and interconnected ditches' and was confirmed by archaeological testing. The archaeological testing did not uncover evidence of the origin or purpose of these features. Some of these features may have formed sub-rectangular enclosures as in Tr. 6.08. Several of these features truncated others, particularly evident in Tr. 6. 12. The number of ditches converging in Tr. 6.11 and Tr. 6.12 also suggests they are multiperiod. It is possible that they may represent relict field systems associated with a Medieval settlement near Ballyloo Castle (RMP no) and/or later activity associated with Ballyloo House.

Within Area 6 was a dense concentration of individual and interconnected ditches and linear features. They were mostly densely concentrated in Tr. 6.09–6. 12. Some of these features may have formed sub-rectangular enclosures as in Tr. 6.08. Several of these features truncated others, particularly evident in Tr. 6. 12. The number of ditches converging in Tr. 6.11 and Tr. 6.12 also suggests they are multiperiod. No finds were retrieved within the entirety of Area 6. Due to the high volume of these features, they are displayed on table 3 below.

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Area 9

Pit C184 was situated towards the south-east of Tr. 9.6 and corresponded to unnumbered geophysical anomaly 'possible archaeology'. A second pit, C190 was observed within Tr. 9.1. This feature did not correspond directly to a geophysical anomaly; however, it was located in close proximity to unnumbered geophysical anomaly 'ferrous type response'.


Area 10

A single pit was noted in Tr. 10.17 and did not correspond to any geophysical anomalies.

Area 11

Two pits were within Area 11. Pit C236 was within Tr. 11.06 while pit C242 was within Tr. 11.08. Neither of these features corresponded to any geophysical anomalies.

Linear agricultural features such as plough furrows and field boundaries were observed across all areas.


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6. RECOMMENDATIONS

The archaeological test excavations at the proposed development at Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown Co. Carlow revealed previously unidentified features and deposits of archaeological significance.

The following mitigation measures are recommended:

2. The applicant should retain the services of a suitably qualified archaeologist to advise on and establish a 20m radius Exclusion Buffer Zone around the external-most elements of all RMPs located within the proposed development site. This should be undertaken prior to construction.
6. Where archaeology has been identified during test-trenching preservation *in situ* should be the preferred option. This should be achieved by establishing appropriate Exclusion and/or No-Dig Buffer Zones prior to construction. All Exclusion/No-Dig Buffer Zones should be maintained during construction, operation and decommissioning of the development.
7. Where preservation *in situ* is not achievable, either in whole or in part, then a programme of archaeological excavation should be proposed, to ensure the preservation by record of the identified archaeology. This should be carried out by a suitably qualified archaeologist under licence.
8. The remaining areas of the proposed development site not yet subject to advance geophysical survey and archaeological test trenching should be subject to the following:
 - Prior to construction a Phase II advance works programme of geophysical survey and archaeological test trenching should be carried out by suitably qualified archaeologists under licence.
 - Results from these advance works shall be compiled in a detailed report setting out any findings and outlining any further mitigation recommendations in relation to the proposed development. This report should be submitted to the National Monuments Service (DOHLGH) and the local planning authority.
9. All groundworks, including those related to the access tracks, cables, boundary fences, inverter/transformer stations, sub-stations and temporary compounds etc. should be monitored by a suitably qualified archaeologist under licence from the National Monuments Service (DOHLGH). Should archaeological material be identified the Local Authority and National Monuments Service should be notified and works at that location cease until an appropriate mitigation strategy has been agreed.
10. The results of any archaeological monitoring, surveys and/or excavation should be submitted in a report to the Local Authority, The National Monuments Service at the Department of Housing, Local Government and Heritage and the National Museum of Ireland.

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Please note all recommendations are subject to the approval of the National Monuments Service and the local planning authority.

7. ARCHIVE QUANTITIES


The site archive is comprised of the following materials:

Table 4—Site archive

| Item | Quantity |
|----------------------|----------|
| Photographs | 304 |
| Registers | 27 |
| Trench record sheets | 87 |

The archive material is contained within one box.

Storage of the archive in a suitable format and location is required to provide for any future archaeological research. It is proposed that in addition to the paper archive a digital copy is prepared. The archive is currently stored in the offices of Rubicon Heritage Services Ltd, Unit 2, Europa Enterprise Park, Middleton, Co. Cork P25 TV25. It is proposed that following completion of post-excavation the archive will be deposited with the National Monuments Service, Department of the Arts, Heritage and the Gaeltacht and the National Museum of Ireland.

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APPENDIX 1 CONTEXT REGISTER


| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|---------|---------|-----------|------------|-----------|------------|-------------------------------------|--|
| 001 | | All | Deposit | N/A | N/A | N/A | N/A | 0.30–0.50 | Mid-brown sandy silt | Topsoil |
| 002 | | All | Deposit | N/A | N/A | N/A | N/A | 0.30–0.50+ | Light orangish to yellow silty sand | Subsoil |
| 003 | | All | Deposit | N/A | N/A | N/A | N/A | 0.50+ | Gravel | Natural |
| 004 | 6 | 6.20 | Cut | N/A | C005 | 3.10 | 0.75 | 0.27 | Linear in plan | Cut of drain C005 in Tr. 6.20 |
| 005 | 6 | 6.20 | Fill | C004 | N/A | 3.10 | 0.75 | 0.27 | Mid-brownish silty sand | Fill of C004 in Tr. 6.20 |
| 006 | 6 | 6.20 | Cut | N/A | C007 | 2.0+ | 1.30 | 0.35 | Linear in plan, oriented NW–SE | Cut of linear feature C007 in Tr. 6.20 |
| 007 | 6 | 6.20 | Fill | C006 | N/A | 2.0+ | 1.30 | 0.35 | Mid-brownish silty sand | Fill of C006 in Tr. 6.20 |
| 008 | 6 | 6.19 | Cut | N/A | C009 | 0.95 | 0.75 | 0.40 | Sub-circular in plan | Cut of burnt pit C009 in Tr. 6.19 |
| 009 | 6 | 6.19 | Fill | C008 | N/A | 0.95 | 0.75 | 0.40 | Blackish-brown silty | Fill of C008 in Tr. 6.19 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|--|
| | | | | | | | | | sand with frequent charcoal inclusions | |
| 010 | 6 | 6.19 | Cut | N/A | C011 | 2.0+ | 1.20 | 0.50 | Linear in plan, oriented NE-SW | Cut of linear feature C011 in Tr. 6.19 |
| 011 | 6 | 6.19 | Fill | C010 | N/A | 2.0+ | 1.20 | 0.50 | Mid-brown silty sand | Fill of C010 in Tr. 6.19 |
| 012 | 6 | 6.19 | Cut | N/A | C013 | 2.0+ | 2.10 | 0.40 | Linear in plan, oriented NE-SW | Cut of linear feature C013 in Tr. 6.19 |
| 013 | 6 | 6.19 | Fill | C012 | N/A | 2.0+ | 2.10 | 0.40 | Mid-brown silty sand | Fill of C012 in Tr. 6.19 |
| 014 | 6 | 6.18 | Cut | N/A | C015 | 2.0+ | 1.07 | 0.30 | Linear in plan, oriented NE-SW | Cut of linear feature C015, anomaly 2 in Tr. 6.18 |
| 015 | 6 | 6.18 | Fill | C014 | N/A | 2.0+ | 1.07 | 0.30 | Dark brown silty sand | Fill of linear feature C014 in Tr. 6.18 |
| 016 | 6 | 6.19 | Cut | N/A | C017 | 2.0+ | 1.80 | 0.40 | Linear in plan, oriented north-south | Cut of linear feature C017 in Tr. 6.19. Likely same as C028. |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|----------------------|---|
| 017 | 6 | 6.19 | Fill | C016 | N/A | 2.0+ | 1.80 | 0.40 | Mid-brown silty sand | Fill of linear feature C016 in Tr. 6.19 |
| 018 | 6 | 6.19 | Cut | N/A | C019 | 0.36 | 0.30 | 0.12 | Sub-circular in plan | Cut of pit C019 in Tr. 6.19 |
| 019 | 6 | 6.19 | Fill | C018 | N/A | 0.36 | 0.30 | 0.12 | Mid-brown silty sand | Fill of pit C018 in Tr. 6.19 |
| 020 | 6 | 6.19 | Cut | N/A | C021 | 2.0 | 0.75 | 0.15 | Linear in plan | Cut in linear feature C021 in Tr. 6.19 |
| 021 | 6 | 6.19 | Fill | C020 | N/A | 2.0 | 0.75 | 0.15 | Mid-brown silty sand | Fill of linear feature C020 in Tr. 6.19 |
| 022 | 6 | 6.19 | Cut | N/A | C023 | 2.0 | 0.80 | 0.15 | Linear in plan | Cut of linear feature C023 in Tr. 6.19 |
| 023 | 6 | 6.19 | Fill | C022 | N/A | 2.0 | 0.80 | 0.15 | Mid-brown silty sand | Fill of linear feature C022 in Tr. 6.19 |
| 024 | 6 | 6.19 | Cut | N/A | C025 | 2.0 | 4.0 | | Linear in plan | Cut of ditch C025 in Tr. 6.19 |
| 025 | 6 | 6.19 | Fill | C024 | N/A | 2.0 | 4.0 | | Mid-brown silty sand | Fill of ditch C024 in Tr. 6.19 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|---|
| 026 | 6 | 6.18 | Cut | N/A | C027 | 2.0+ | 1.39 | 0.25 | Linear in plan, oriented NE-SW | Cut of linear feature C027, leg of Anomaly 2 in Tr. 6.18 |
| 027 | 6 | 6.18 | Fill | C026 | N/A | 2.0+ | 1.39 | 0.25 | Mid-brown silty sand | Fill of linear feature C026 in Tr. 6.18 |
| 028 | 6 | 6.18 | Cut | N/A | C029 | 2.0+ | 2.15 | 0.39 | Linear in plan, oriented north-south | Cut of linear feature C029, outer linear feature of anomaly 2 in Tr. 6.18. Likely same as C016. |
| 029 | 6 | 6.18 | Fill | C028 | N/A | 2.0+ | 2.15 | 0.39 | Mid-brown silty sand | Fill of linear feature C028 in Tr. 6.18 |
| 030 | 6 | 6.16 | Cut | N/A | C031 | 2.0+ | 2.80 | 0.50 | Linear in plan, orientated NE-SW | Cut of relict field boundary C031 on 6-inch map in Tr. 6.16 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|--|
| 031 | 6 | 6.16 | Fill | C030 | N/A | 2.0+ | 2.80 | 0.50 | Frequent large granite stones | Fill of relict field boundary C030 in Tr. 6.16 |
| 032 | 6 | 6.16 | Cut | N/A | C033 | 2.0+ | 0.45 | 0.25 | Linear in plan | Cut of linear feature C033 in Tr. 6.16, possible drainage or cultivation |
| 033 | 6 | 6.16 | Fill | C032 | N/A | 2.0+ | 0.45 | 0.25 | Grey sandy silt | Fill of linear feature C032 in Tr. 6.16 |
| 034 | 6 | 6.16 | Cut | N/A | C035 | 2.0+ | 1.70 | 0.22 | Linear in plan | Cut of linear feature C035 in Tr. 6.16, drainage or cultivation |
| 035 | 6 | 6.16 | Fill | C034 | N/A | 2.0+ | 1.70 | 0.22 | Mid-greyish-brown sandy silt | Fill of linear feature C034 in Tr. 6.16 |
| 036 | 6 | 6.16 | Cut | N/A | C037 | 2.0+ | 1.60 | 0.40 | Linear immediately west of C34 | Cut of linear feature C037 in Tr. 6.16 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 037 | 6 | 6.16 | Fill | C036 | N/A | 2.0+ | 1.60 | 0.40 | Decayed granite and clay | Fill of linear feature C036 in Tr. 6.16 |
| 038 | 6 | 6.18 | Cut | N/A | C039 | 2.0+ | 0.92 | 0.21 | Linear at north end of trench | Cut of linear feature C039 in Tr. 6.18 |
| 039 | 6 | 6.18 | Fill | C038 | N/A | 2.0+ | 0.92 | 0.21 | Mid-brown silty sand | Fill of linear feature C038 in Tr. 6.18 |
| 040 | 6 | 6.18 | Cut | N/A | C041 | 2.0+ | 1.07 | 0.25 | Linear in plan at NW end of trench | Cut of linear feature C041 in Tr. 6.18 |
| 041 | 6 | 6.18 | Fill | C040 | N/A | 2.0+ | 1.07 | 0.25 | Mid-brown silty sand | Fill of linear feature C040 in Tr. 6.18 |
| 042 | 6 | 6.17 | Cut | N/A | C043 | 1.20 | 0.90 | 0.16 | Sub-circular in plan at SE end of trench | Cut of pit C043 in Tr. 6.17 |
| 043 | 6 | 6.17 | Fill | C042 | N/A | 1.20 | 0.90 | 0.16 | Light brown silty sand | Fill of pit C042 in Tr. 6.17 |
| 044 | 6 | 6.17 | Cut | N/A | C045 | 2.0+ | 2.94 | 0.82 | Linear in plan, oriented NE-SW | Cut of ditch C045 in Tr. 6.17 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|------------------------------|--|
| 045 | 6 | 6.17 | Fill | C044 | N/A | 2.0+ | 2.94 | 0.82 | Mid-brown sand | Fill of ditch C044 in Tr. 6.17 |
| 046 | 6 | 6.16 | Cut | N/A | C047 | 2.0+ | 0.90 | 0.25 | Straight linear, anomaly 5 | Cut of linear feature C047 in Tr. 6.16, probably modern agricultural |
| 047 | 6 | 6.16 | Fill | C046 | N/A | 2.0+ | 0.90 | 0.25 | Brown sandy gravel | Fill of linear feature C046 in Tr. 6.16 |
| 048 | 6 | 6.16 | Cut | N/A | C049 | 5.0+ | 1.25 | 0.20 | Linear, possibly anomaly 2 | Cut of linear feature C049 in Tr. 6.16 |
| 049 | 6 | 6.16 | Fill | C048 | N/A | 5.0+ | 1.25 | 0.20 | Mid-brown gravelly sand | Fill of linear feature C048 in Tr. 6.16 |
| 050 | 6 | 6.15 | Cut | N/A | C051 | 0.45 | 0.40 | 0.20+ | Circular in plan | Cut of post-hole C051 in Tr. 6.15 |
| 051 | 6 | 6.15 | Fill | C050 | N/A | 0.45 | 0.40 | 0.20+ | Mid-greyish-brown silty clay | Fill of post-hole C050 in Tr. 6.15 |
| 052 | 6 | 6.15 | Cut | N/A | C053 | 1.30 | 1.10 | 0.20 | Sub-circular in plan | Cut of pit C053 in Tr. 6.15 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|------------------------------|---|
| 053 | 6 | 6.15 | Fill | C052 | N/A | 1.30 | 1.10 | 0.20 | Mid-greyish-brown silty clay | Fill of pit C052 in Tr. 6.15 |
| 054 | 6 | 6.15 | Cut | N/A | C055 | 2.0+ | 0.75 | 0.25 | Linear in plan | Cut of linear C055 in Tr. 6.15 |
| 055 | 6 | 6.15 | Fill | C054 | N/A | 2.0+ | 0.75 | 0.25 | Mid-greyish-brown silty clay | Fill of linear feature C054 in Tr. 6.15 |
| 056 | 6 | 6.15 | Cut | N/A | C057 | 2.0+ | 1.10 | 0.20 | Linear in plan | Cut of linear feature C057 in Tr. 6.15 |
| 057 | 6 | 6.15 | Fill | C056 | N/A | 2.0+ | 1.10 | 0.20 | Mid-greyish-brown silty clay | Fill of linear feature C056 in Tr. 6.15 |
| 058 | 6 | 6.15 | Cut | N/A | C059 | 2.0+ | 1.60 | 0.30 | Linear, possible drain | Cut of linear feature C059 in Tr. 6.15 |
| 059 | 6 | 6.15 | Fill | C058 | N/A | 2.0+ | 1.60 | 0.30 | Mid-greyish-brown silty clay | Fill of linear feature C058 in Tr. 6.15 |
| 060 | 6 | 6.13 | Cut | N/A | C061 | 4.5+ | 0.40 | 0.22 | Linear in plan | Cut of linear feature C061 in Tr. 6.13 |
| 061 | 6 | 6.13 | Fill | C060 | N/A | 4.5+ | 0.40 | 0.22 | Mid-greyish-brown silty clay | Fill of linear feature C060 in Tr. 6.13 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|------------|------------|-----------|-----------|------------------------------|---|
| 062 | 6 | 6.13 | Cut | N/A | C063 | 2.5+ | 1.40 | 0.16 | Linear in plan | Cut of linear feature C063 in Tr. 6.13 |
| 063 | 6 | 6.13 | Fill | C062 | N/A | 2.5+ | 1.40 | 0.16 | Mid-brownish-grey stony clay | Fill of linear feature C062 in Tr. 6.13 |
| 064 | 6 | 6.13 | Cut | N/A | C065 | 2.0+ | 0.60 | 0.40 | Linear in plan | Cut of linear feature C065 in Tr. 6.13 |
| 065 | 6 | 6.13 | Fill | C064 | N/A | 2.0+ | 0.60 | 0.40 | Mid-greyish-brown silty clay | Fill of linear feature C064 in Tr. 6.13 |
| 066 | 6 | 6.08 | Cut | N/A | C067, C078 | 2.6 | 1.70 | 0.30 | Irregular in plan | Cut of linear feature C067 and C078 in Tr. 6.08. Possible cereal drying kiln. |
| 067 | 6 | 6.08 | Fill | C066 | N/A | 1.55 | 0.84 | 0.07 | Charcoal-rich sandy silt | Fill of linear feature C066 in Tr. 6.08 |
| 068 | 6 | 6.13 | Cut | N/A | C069 | 2.0+ | 1.1 | 0.25 | Linear in plan | Cut of linear feature C069 in Tr. 6.13 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|-------------------------------------|---|
| 069 | 6 | 6.13 | Fill | C068 | N/A | 2.0+ | 1.1 | 0.25 | Mid-greyish-brown silty clay | Fill of linear feature C069 in Tr. 6.13 |
| 070 | 6 | 6.13 | Cut | N/A | C071 | 2.0+ | 1.0 | 0.30 | Linear in plan | Cut of linear feature C071 in Tr. 6.13 |
| 071 | 6 | 6.13 | Fill | C070 | N/A | 2.0+ | 1.0 | 0.30 | Mid-greyish-brown silty clay | Fill of linear feature C070 in Tr. 6.13 |
| 072 | 6 | 6.08 | Cut | N/A | C073 | 1.82+ | 1.54 | 0.65 | V'-shaped ditch, oriented east-west | Cut of ditch C073 in Tr. 6.08 |
| 073 | 6 | 6.08 | Fill | C072 | N/A | 1.82+ | 1.54 | 0.65 | Mid-brown silty sand | Fill of linear feature C072 in Tr. 6.08 |
| 074 | 6 | 6.08 | Cut | N/A | C075 | VOID | VOID | VOID | VOID Non-arch stone socket | VOID |
| 075 | 6 | 6.08 | Fill | C074 | N/A | VOID | VOID | VOID | VOID Non-arch stone socket | VOID |
| 076 | 8 | 6.08 | Cut | N/A | C077 | 2.0+ | 0.85 | 0.40 | Linear in plan, oriented SE-NW | Cut of ditch C077 in Tr. 8.05 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|-------------------------------------|---|
| 077 | 8 | 6.08 | Fill | C076 | N/A | 2.0+ | 0.85 | 0.40 | Light brown silty sand | Fill of ditch C076 in Tr8.05 |
| 078 | 6 | 6.08 | Fill | C066 | N/A | 1.72 | 1.35 | 0.30 | Mid-brown clayey silt | Fill of linear feature C066 in Tr. 6.08 |
| 079 | 6 | 6.12 | Cut | N/A | C080 | 2.0+ | 1.92 | 0.21 | Linear in plan | Cut of ditch C080 in Tr. 6.12, probable ditch |
| 080 | 6 | 6.12 | Fill | C079 | N/A | 2.0+ | 1.92 | 0.21 | Grey silty clay | Fill of ditch C079 in Tr. 6.12 |
| 081 | 6 | 6.12 | Cut | N/A | C082 | 1.63 | 1.38 | 0.10 | Sub-circular in plan | Pit C082 in Tr. 6.12 |
| 082 | 6 | 6.12 | Fill | C081 | N/A | 1.63 | 1.38 | 0.10 | Grey silty clay animal bone present | Fill of pit C081 in Tr. 6.12 |
| 083 | 6 | 6.12 | Cut | N/A | C084 | 0.52 | 0.52 | 0.12 | Circular in plan | Cut of small pit C084 in Tr. 6.12 |
| 084 | 6 | 6.12 | Fill | C083 | N/A | 0.52 | 0.52 | 0.12 | Dark grey silty clay | Fill of pit C083 in Tr. 6.12 |
| 085 | 6 | 6.12 | Cut | N/A | C086 | 2.0+ | 1.10 | 0.15+ | Linear in plan | Cut of probable |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|-----------------------------------|---|
| | | | | | | | | | | drain C086 in Tr. 6.12 |
| 086 | 6 | 6.12 | Fill | C085 | N/A | 2.0+ | 1.10 | 0.15+ | Grey silty clay | Fill of drain C085 in Tr. 6.12 |
| 087 | 8 | 8.05 | Cut | N/A | C088 | 2.0+ | 1 | | Linear in plan | Cut of linear feature C088 in Tr. 8.05 |
| 088 | 8 | 8.05 | Fill | C087 | N/A | 2.0+ | 1 | | Mid-greyish-brown silty clay | Fill of linear feature C087 in Tr. 8.05 |
| 089 | 6 | 6.12 | Cut | N/A | C090 | 2.0+ | 0.60 | 0.16 | Linear in plan | Cut of linear feature C090 in Tr. 6.12 |
| 090 | 6 | 6.12 | Fill | C089 | N/A | 2.0+ | 0.60 | 0.16 | Yellowish-grey silty clay | Redeposited fill of linear feature C089 in Tr. 6.12 |
| 091 | 6 | 6.12 | Cut | N/A | C092 | 2.0+ | 1.08 | 0.20 | Linear feature, truncated by C089 | Cut of linear feature C092 in Tr. 6.12 |
| 092 | 6 | 6.12 | Fill | C091 | N/A | 2.0+ | 1.08 | 0.20 | Grey silty clay | Fill of linear feature C091 in Tr. 6.12 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| 093 | 6 | 6.12 | Cut | N/A | C094 | 2.0+ | 0.65 | 0.16 | Linear in plan | Cut of drain C094 in Tr. 6.12 |
| 094 | 6 | 6.12 | Fill | C093 | N/A | 2.0+ | 0.65 | 0.16 | Stone | Fill of drain C093 in Tr. 6.12 |
| 095 | 6 | 6.12 | Cut | N/A | C096 | 2.0+ | 0.60 | 0.20 | Linear in plan | Cut of drain C096 in Tr. 6.12 |
| 096 | 6 | 6.12 | Fill | C095 | N/A | 2.0+ | 0.60 | 0.20 | Stone | Fill of drain C095 in Tr. 6.12 |
| 097 | 6 | 6.12 | Cut | N/A | C098 | 2.0+ | 1.90 | 0.57 | Linear in plan | Cut of linear feature C098 in Tr. 6.12 |
| 098 | 6 | 6.12 | Fill | C097 | N/A | 2.0+ | 1.90 | 0.57 | Light grey silty clay | Fill of linear feature C097 in Tr. 6.12 |
| 099 | 6 | 6.10 | Cut | N/A | C100 | 2.0+ | 0.78 | 0.40 | Linear in plan, oriented NW-SE | Cut of linear feature C100 in Tr. 6.10, outer linear of anomaly 2 |
| 100 | 6 | 6.10 | Fill | C099 | N/A | 2.0+ | 0.78 | 0.40 | Light greyish-brown silty sand | Fill of linear feature C099 in Tr. 6.10 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 101 | 6 | 6.11 | Cut | N/A | C102 | 0.3 | 0.25 | 0.07 | Circular in plan, west of C103 | Cut of pit C102 in Tr. 6.11 |
| 102 | 6 | 6.11 | Fill | C101 | N/A | 0.3 | 0.25 | 0.07 | Charcoal rich with inclusion of burnt bone | Fill of pit C101 in Tr. 6.11 |
| 103 | 6 | 6.11 | Cut | N/A | C104 | 2.0+ | 1.40 | 0.22 | Linear in plan | Cut of ditch C104 in Tr. 6.11 |
| 104 | 6 | 6.11 | Fill | C103 | N/A | 2.0+ | 1.40 | 0.22 | Mid-greyish-brown silty clay | Fill of ditch C103 in Tr. 6.11 |
| 105 | 6 | 6.11 | Cut | N/A | C106 | 2.0+ | 0.72 | 0.35 | Linear in plan | Cut of linear feature C106 in Tr. 6.11 |
| 106 | 6 | 6.11 | Fill | C105 | N/A | 2.0+ | 0.72 | 0.35 | Brownish-grey silty clay | Fill of linear feature C105 in Tr. 6.11 |
| 107 | 6 | 6.03 | Cut | N/A | C108 | 0.60 | 0.52 | 0.32 | Circular in plan | Cut of pit C108 in Tr. 6.03 |
| 108 | 6 | 6.03 | Fill | C107 | N/A | 0.60 | 0.52 | 0.32 | Brownish-grey silty clay | Fill of pit C107 in Tr. 6.03 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| 109 | 6 | 6.10 | Cut | N/A | C110 | 2.0+ | 0.92 | 0.18 | Linear in plan, oriented NW-SE | Cut of linear feature C110 in Tr. 6.10, inner linear of anomaly 2 |
| 110 | 6 | 6.10 | Fill | C109 | N/A | 2.0+ | 0.92 | 0.18 | Light greyish-brown silty sand | Fill of linear feature C109 in Tr. 6.10 |
| 111 | 6 | 6.02 | Cut | N/A | C112 | 2.0+ | 0.80 | 0.57 | Linear in plan | Cut of ditch C112 in Tr. 6.02 |
| 112 | 6 | 6.02 | Fill | C111 | N/A | 2.0+ | 0.80 | 0.57 | Brown silty sand | Fill of ditch C111 in Tr. 6.02 |
| 113 | 6 | 6.04 | Cut | N/A | C114 | 2.0+ | 1.05 | 0.46 | Linear in plan | Cut of drain C114 in Tr. 6.04 |
| 114 | 6 | 6.04 | Fill | C113 | N/A | 2.0+ | 1.05 | 0.46 | Brownish-grey silty clay | Fill of drain C113 in Tr. 6.04 |
| 115 | 6 | 6.04 | Cut | N/A | C116 | 2.0+ | 2.30 | 0.30 | Linear in plan | Cut of ditch C116 in Tr. 6.04 |
| 116 | 6 | 6.04 | Fill | C115 | N/A | 2.0+ | 2.30 | 0.30 | Mid-greyish-brown silty clay | Fill of ditch C115 in Tr. 6.04 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|--|
| 117 | VOID | | | | | | | | | VOID |
| 118 | VOID | | | | | | | | | VOID |
| 119 | VOID | | | | | | | | | VOID |
| 120 | VOID | | | | | | | | | VOID |
| 121 | 6 | 6.10 | Cut | N/A | C122 | 2.0+ | 0.80 | 0.14 | Linear in plan, oriented NE-SW | Cut of linear feature C122 in Tr. 6.10, possibly associated with anomaly 2 |
| 122 | 6 | 6.10 | Fill | C121 | N/A | 2.0+ | 0.80 | 0.14 | Light grey sandy clay | Fill of linear feature C121 in Tr. 6.10 |
| 123 | 6 | 6.10 | Cut | N/A | C124 | 2.0+ | 2.52 | 0.27 | Linear in plan, oriented north-south | Cut of relict field boundary on historic maps C124 in Tr. 6.10 |
| 124 | 6 | 6.10 | Fill | C123 | N/A | 2.0+ | 2.52 | 0.27 | Dark grey silty clay | Fill of field boundary |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|--|
| | | | | | | | | | | C121 in Tr. 6.10 |
| 125 | 6 | 6.10 | Cut | N/A | C126 | 2.0+ | 0.98 | 0.28 | Linear in plan, oriented NW-SE | Cut of linear feature C126 in Tr. 6.10, possibly associated with anomaly 5 |
| 126 | 6 | 6.10 | Fill | C125 | N/A | 2.0+ | 0.98 | 0.28 | Dark grey silty clay | Fill of linear feature C125 in Tr. 6.10 |
| 127 | 6 | 6.10 | Cut | N/A | C128 | 2.0+ | 0.75 | 0.24 | Linear in plan, oriented north-south | Cut of relict field boundary on historic maps C128 in Tr. 6.10 |
| 128 | 6 | 6.10 | Fill | C127 | N/A | 2.0+ | 0.75 | 0.24 | Light grey sandy clay | Fill of linear feature C127 in Tr. 6.10 |
| 129 | 6 | 6.10 | Cut | N/A | C130 | 2.0+ | 0.97 | 0.33 | Linear in plan, oriented north-south | Cut of linear feature C130 in Tr. 6.10, possibly associated |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------|---|
| | | | | | | | | | | with anomaly 5 |
| 130 | 6 | 6.10 | Fill | C129 | N/A | 2.0+ | 0.97 | 0.33 | Mid-grey silty clay | Fill of linear feature C129 in Tr. 6.10 |
| 131 | 6 | 6.11 | Cut | N/A | C132 | 2.0+ | 1.15 | 0.32 | Linear in plan | Cut of linear feature C132 in Tr. 6.11 |
| 132 | 6 | 6.11 | Fill | C131 | N/A | 2.0+ | 1.15 | 0.32 | Brownish-grey silty clay | Fill of linear feature C131 in Tr. 6.11 |
| 133 | 6 | 6.11 | Cut | N/A | C134 | 2.0+ | 1.70 | 0.42 | Linear in plan | Cut of linear feature C134 in Tr. 6.11 |
| 134 | 6 | 6.11 | Fill | C133 | N/A | 2.0+ | 1.70 | 0.42 | Brownish-grey silty clay | Fill of linear feature C133 in Tr. 6.11 |
| 135 | 6 | 6.11 | Cut | N/A | C136 | 2.0+ | 0.77 | 0.17 | Linear in plan | Cut of linear feature C136 in Tr. 6.11 |
| 136 | 6 | 6.11 | Fill | C135 | N/A | 2.0+ | 0.77 | 0.17 | Brownish-grey silty clay | Fill of linear feature C135 in Tr. 6.11 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| 137 | 6 | 6.11 | Cut | N/A | C138 | 0.8+ | 0.55 | 0.12 | Sub-circular in plan | Cut of pit C138 in Tr. 6.11 |
| 138 | 6 | 6.11 | Fill | C137 | N/A | 0.8+ | 0.55 | 0.12 | Brownish-grey silty clay | Fill of pit C137 in Tr. 6.11 |
| 139 | 6 | 6.11 | Cut | N/A | C140 | 2.0+ | 0.52 | 0.25 | Linear in plan | Cut of linear feature C140 in Tr. 6.11 |
| 140 | 6 | 6.11 | Fill | C139 | N/A | 2.0+ | 0.52 | 0.25 | Brownish-grey silty clay | Fill of linear feature C139 in Tr. 6.11 |
| 141 | 6 | 6.11 | Cut | N/A | C142 | 2.0+ | 1.0 | 0.50 | Linear in plan | Cut of ditch C142 in Tr. 6.11 |
| 142 | 6 | 6.11 | Fill | C141 | N/A | 2.0+ | 1.0 | 0.50 | Brownish-grey silty clay | Fill of ditch C141 in Tr. 6.11 |
| 143 | 6 | 6.10 | Cut | N/A | C144 | 2.0+ | 0.84 | 0.21 | Linear in plan, oriented NW-SE | Cut of linear feature C144 in Tr. 6.11, anomaly 5 |
| 144 | 6 | 6.10 | Fill | C143 | N/A | 2.0+ | 0.84 | 0.21 | Mid-grey silty sand | Fill of linear feature C143 in Tr. 6.11 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|--|
| 145 | 6 | 6.10 | Cut | N/A | C146 | 2.0+ | 0.62 | 0.20 | Irregular in plan | Cut of possible pit C146, pink curved anomaly in Tr. 6.10 |
| 146 | 6 | 6.10 | Fill | C145 | N/A | 2.0+ | 0.62 | 0.20 | Dark grey silty clay | Fill of pit C145 in Tr. 6.10 |
| 147 | 6 | 6.10 | Cut | N/A | C148 | 2.0+ | 1.50 | 0.20 | Linear in plan, oriented north-south | Cut of ditch C148, anomaly 5 in Tr. 6.10 |
| 148 | 6 | 6.10 | Fill | C147 | N/A | 2.0+ | 1.50 | 0.20 | Dark grey sandy clay | Fill of ditch C147 in Tr. 6.10 |
| 149 | 8 | 8.01 | Cut | N/A | C150 | 2.0+ | 1.20 | 0.25 | Linear in plan | Cut of relict field boundary on historic maps C150 in Tr. 8.01 |
| 150 | 8 | 8.01 | Fill | C149 | N/A | 2.0+ | 1.20 | 0.25 | Mid-brown friable clayey silt | Fill of linear feature C149 in Tr. 8.01 |
| 151 | 6 | 6.11 | Cut | N/A | C152 | N/A | N/A | N/A | Same as C105 | Same feature as C105 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 152 | 6 | 6.11 | Fill | C151 | N/A | N/A | N/A | | Same as C106 | Same feature as C106 |
| 153 | 6 | 6.09 | Cut | N/A | C154 | 0.57 | 0.49 | 0.16 | Sub-circular in plan | Cut of pit C154 in Tr. 6.09 |
| 154 | 6 | 6.09 | Fill | C153 | N/A | 0.57 | 0.49 | 0.16 | Mid-grey silty clay | Fill of pit C153 in Tr. 6.09 |
| 155 | 6 | 6.09 | Cut | N/A | C156 | 2.0+ | 0.59 | 0.23 | Linear in plan, oriented NW-SE | Cut of linear feature C156, anomaly 5 in Tr. 6.09 |
| 156 | 6 | 6.09 | Fill | C155 | N/A | 2.0+ | 0.59 | 0.23 | Dark grey sandy clay, animal bone and charcoal present | Fill of linear feature C155 in Tr. 6.09 |
| 157 | 6 | 6.09 | Cut | N/A | C158 | 0.76 | 0.64 | 0.12 | Sub-circular in plan | Cut of pit C158 in Tr. 6.09 |
| 158 | 6 | 6.09 | Fill | C157 | N/A | 0.76 | 0.64 | 0.12 | Dark grey sandy clay | Fill of pit C157 in Tr. 6.09 |
| 159 | 6 | 6.09 | Cut | N/A | C160 | 3.6+ | 0.55 | 0.22 | Linear in plan | Cut of linear feature C160 in Tr. 6.09 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| 160 | 6 | 6.09 | Fill | C159 | N/A | 3.6+ | 0.55 | 0.22 | Mid-greyish-brown sandy clay | Fill of linear feature C159 in Tr. 6.09 |
| 161 | 6 | 6.09 | Cut | N/A | C162 | 0.40 | 0.32 | 0.12 | Circular in plan | Cut of pit C162 in Tr. 6.09 |
| 162 | 6 | 6.09 | Fill | C161 | N/A | 0.40 | 0.32 | 0.12 | Dark grey sandy clay | Fill of pit C161 in Tr. 6.09 |
| 163 | 6 | 6.09 | Cut | N/A | C164 | 2.0+ | 1.0 | 0.23 | Linear in plan | Cut of linear feature C164 in Tr. 6.09 |
| 164 | 6 | 6.09 | Fill | C163 | N/A | 2.0+ | 1.0 | 0.23 | Light grey silty clay | Fill of linear feature C163 in Tr. 6.09 |
| 165 | 6 | 6.09 | Cut | N/A | C166 | 1.26 | 1.26 | 0.21 | Circular in plan | Cut of pit C166 in Tr. 6.09 |
| 166 | 6 | 6.09 | Fill | C165 | N/A | 1.26 | 1.26 | 0.21 | Light grey silty sand | Fill of pit C165 in Tr. 6.09 |
| 167 | 8 | 8.10 | Cut | N/A | C168 | 2.0+ | 0.74 | 0.30 | Linear in plan, oriented NW-SE | Cut of linear feature C168 in Tr. 8.10 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|------------|------------|-----------|-----------|--|---|
| 168 | 8 | 8.10 | Fill | C167 | N/A | 2.0+ | 0.74 | 0.30 | Dark brown silty clay | Fill of linear feature C167 in Tr. 8.10 |
| 169 | 8 | 8.04 | Cut | N/A | C170 | 2.0+ | 1.35 | 0.28 | Linear in plan | Cut of ditch C170 in Tr. 8.04 |
| 170 | 8 | 8.04 | Fill | C169 | N/A | 2.0+ | 1.35 | 0.28 | Mid-brown sandy clay | Fill of ditch C169 in Tr. 8.04 |
| 171 | 3 | 3.07 | Cut | N/A | C172, C173 | 2.0+ | 0.95 | 0.20 | Curvilinear in plan | Cut of curvilinear feature C172 and C173, anomaly on geophysics in Tr. 3.07 |
| 172 | 3 | 3.07 | Fill | C171 | N/A | 2.0+ | 0.95 | 0.20 | Mid-brown silty clay | Upper fill of curvilinear feature C171 in Tr. 3.07 |
| 173 | 3 | 3.07 | Fill | C171 | N/A | 2.0+ | 0.95 | 0.20 | Dark brownish-black sandy silt with frequent charcoal inclusions | Lower fill of curvilinear feature C171 in Tr. 3.07 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|---|--|
| 174 | 3 | 3.07 | Cut | N/A | C175 | 2.65 | 1.62 | 0.36 | Linear in plan. Orientated east-west | Cut of linear feature C175 in Tr. 3.07 |
| 175 | 3 | 3.07 | Fill | C174 | N/A | 2.65 | 1.62 | 0.36 | Dark brownish-black sandy silt with frequent inclusions of frequent heat-affected stones and charcoal | Fill of linear feature C174 in Tr. 3.07 |
| 176 | 3 | 3.06 | Cut | N/A | C177 | 2.0+ | 2.10 | 0.26 | Linear in plan, oriented NE-SW | Cut of relict field boundary on historic maps C177 in Tr. 3.06 |
| 177 | 3 | 3.06 | Fill | C176 | N/A | 2.0+ | 2.10 | 0.26 | Mid-brown sandy silt | Fill of linear feature C176 in Tr. 3.06 |
| 178 | 3 | 3.04 | Cut | N/A | C179 | | | | Non-archaeological | Non-archaeological |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|------------------------------|---|
| 179 | 3 | 3.04 | Fill | C178 | N/A | | | | Non-archaeological | Non-archaeological |
| 180 | 9 | 9.03 | Cut | N/A | C181 | 2.0+ | 1.60 | 0.90 | Linear in plan | Cut of relict fied boundary on historic maps C181 in Tr. 9.03 |
| 181 | 9 | 9.03 | Fill | C180 | N/A | 2.0+ | 1.60 | 0.90 | Mid-greyish-brown silty clay | Fill of ditch C180 in Tr. 9.03 |
| 182 | 10 | 10.01 | Cut | N/A | C183 | 2.0+ | 1.60 | 0.30 | Linear in plan | Cut of linear feature C183 in Tr. 10.01 |
| 183 | 10 | 10.01 | Fill | C182 | N/A | 2.0+ | 1.60 | 0.30 | Mid-greyish-brown silty sand | Fill of linear feature C182 in Tr. 10.01 |
| 184 | 9 | 9.06 | Cut | N/A | C185 | 1.89 | 1.33 | 0.29 | Sub-circular in plan | Cut of pit C185 in Tr. 9.06 |
| 185 | 9 | 9.06 | Fill | C184 | N/A | 1.89 | 1.33 | 0.29 | Black sandy clay | Fill of pit C184 in Tr. 9.06 |
| 186 | 10 | 10.03 | Cut | N/A | C187 | 2.0+ | 2.40 | 0.30 | Linear in plan | Cut of possible boundary |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|---|
| | | | | | | | | | | ditch C187 in Tr. 10.03 |
| 187 | 10 | 10.03 | Fill | C186 | N/A | 2.0+ | 2.40 | 0.30 | Mid-greyish brown silty sand | Fill of possible boundary ditch C186 in Tr. 10.03 |
| 188 | 10 | 10.03 | Cut | N/A | C189 | 2.0+ | 0.70 | 0.25 | Curvilinear in plan | Cut of curvilinear feature C189 in Tr. 10.03 |
| 189 | 10 | 10.03 | Fill | C188 | N/A | 2.0+ | 0.70 | 0.25 | Dark black silty sand, charcoal rich | Fill of curvilinear feature C188 in Tr. 10.03 |
| 190 | 9 | 9.01 | Cut | N/A | C191 | | | | Non-archaeological | Non-archaeological |
| 191 | 9 | 9.01 | Fill | C190 | N/A | | | | Non-archaeological | Non-archaeological |
| 192 | 10 | 10.03 | Cut | N/A | C193 | 2.0+ | 2.40 | 0.30 | Linear in plan | Cut of ditch C193 in Tr. 10.03 |
| 193 | 10 | 10.03 | Fill | C192 | N/A | 2.0+ | 2.40 | 0.30 | Light orangey- | Fill of ditch C192 in Tr. 10.03 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|---------------------------------|---|
| | | | | | | | | | brown silty sand | |
| 194 | 10 | 10.17 | Cut | N/A | C195 | 0.90 | 0.47 | 0.10 | Oval in plan | Cut of pit C195 in Tr. 10.17 |
| 195 | 10 | 10.17 | Fill | C194 | N/A | 0.90 | 0.47 | 0.10 | Black silty clay, charcoal rich | Fill of pit C194 in Tr. 10.17 |
| 196 | 10 | 10.17 | Cut | N/A | C197 | 2.0+ | 1.74 | 0.37 | Linear in plan | Cut of ditch C197 in Tr. 10.17 |
| 197 | 10 | 10.17 | Fill | C196 | N/A | 2.0+ | 1.74 | 0.37 | Brown silty clay | Fill of ditch C196 in Tr. 10.17 |
| 198 | 10 | 10.17 | Cut | N/A | C199 | 2.0+ | 1.70 | 0.50 | Linear in plan | Cut of ditch C199 in Tr. 10.17 |
| 199 | 10 | 10.17 | Fill | C198 | N/A | 2.0+ | 1.70 | 0.50 | Brown silty clay | Fill of ditch C198 in Tr. 10.17 |
| 200 | 10 | 10.18 | Cut | N/A | C201 | 2.0+ | 0.93 | 0.24 | Linear in plan | Cut of relict field boundary ditch as seen on historic maps C201 in |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|---------------------------------|--|
| | | | | | | | | | | Tr. 10.18. Likely same as C204. |
| 201 | 10 | 10.18 | Fill | C200 | N/A | 2.0+ | 0.93 | 0.24 | Mid-greyish-brown silty clay | Fill of boundary ditch C200 in Tr. 10.18 |
| 202 | 10 | 10.13 | Cut | N/A | C203 | 3.7+ | 1.0 | 0.15 | Linear in plan | Cut of linear feature terminus C203 in Tr. 10.13 |
| 203 | 10 | 10.13 | Fill | C202 | N/A | 3.7+ | 1.0 | 0.15 | Dark brownish-black stoney silt | Fill of linear feature terminus C202 in Tr. 10.13 |
| 204 | 10 | 10.19 | Cut | N/A | C205 | 2.0+ | 2.50 | 1.20 | Linear in plan | Cut of relict field boundary ditch as seen on historic maps C205 in Tr. 10.19. |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|-------------------------------------|---|
| | | | | | | | | | | Likely same as C200. |
| 205 | 10 | 10.19 | Fill | C204 | N/A | 2.0+ | 2.50 | 1.20 | Dark brown silty clay, organic rich | Fill of enclosure ditch C204 in Tr. 10.19 |
| 206 | 10 | 10.14 | Cut | N/A | C207 | 0.5 | 0.42 | 0.12 | Circular in plan | Cut of pit C207 in Tr. 10.14 |
| 207 | 10 | 10.14 | Fill | C206 | N/A | 0.5 | 0.42 | 0.12 | Greyish-brown silt | Fill of pit C206 in Tr. 10.14 |
| 208 | 10 | 10.14 | Cut | N/A | C209 | 2.0+ | 1.30 | 0.25 | Linear in plan | Cut of linear feature C209, red line on geophysics in Tr. 10.14 |
| 209 | 10 | 10.14 | Fill | C208 | N/A | 2.0+ | 1.30 | 0.25 | Brownish-grey silty sand | Fill of linear feature C208 in Tr. 10.14 |
| 210 | 10 | 10.10 | Cut | N/A | C211 | 2.0+ | 0.54 | 0.28 | Linear in plan | Cut of drain C211 in Tr. 10.10 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|--|
| 211 | 10 | 10.10 | Fill | C210 | N/A | 2.0+ | 0.54 | 0.28 | Brown silty clay | Fill of drain C210 in Tr. 10.10 |
| 212 | 10 | 10.10 | Cut | N/A | C213 | 2.0+ | 0.92 | 0.19 | Linear in plan, oriented NE-SW | Cut of drain C213 in Tr. 10.10 |
| 213 | 10 | 10.10 | Fill | C212 | N/A | 2.0+ | 0.92 | 0.19 | | Fill of drain C212 in Tr. 10.10 |
| 214 | 10 | 10.10 | Cut | N/A | C215 | 2.0+ | 0.92 | 0.19 | Linear in plan, oriented east-west | Cut of drain C215 in Tr. 10.10 |
| 215 | 10 | 10.10 | Fill | C214 | N/A | 2.0+ | 0.92 | 0.19 | Mid-greyish-brown silty clay | Fill of drain C214 in Tr. 10.10 |
| 216 | 10 | 10.05 | Cut | N/A | C217 | 2.0+ | 1.65 | 0.38 | Linear in plan, oriented north-south | Cut of linear feature C217, aligned with pink anomaly on geophysics in Tr. 10.05 |
| 217 | 10 | 10.05 | Fill | C216 | N/A | 2.0+ | 1.65 | 0.38 | Mid-brown silty sand | Fill of linear feature C216 |
| 218 | 10 | 10.06 | Cut | N/A | C219 | 2.0+ | 2.10 | 0.30 | Linear in plan, oriented east-west | Cut of drain C219 in Tr. 10.06 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|--|
| 219 | 10 | 10.06 | Fill | C218 | N/A | 2.0+ | 2.10 | 0.30 | Brown silty sand | Fill of drain C218 in Tr. 10.06 |
| 220 | 10 | 10.06 | Cut | N/A | C221 | 2.0+ | 1.20 | 0.16 | Linear in plan, oriented NW-SE | Cut of ditch C221 in Tr. 10.06 |
| 221 | 10 | 10.06 | Fill | C220 | N/A | 2.0+ | 1.20 | 0.16 | Brown silty sand | Fill of ditch C220 in Tr. 10.06 |
| 222 | 11 | 11.03 | Cut | N/A | C223 | 2.52 | 0.84 | 0.20 | Linear in plan, oriented NE-SW | Cut of linear feature C223 in Tr. 11.03 |
| 223 | 11 | 11.03 | Fill | C222 | N/A | 2.52 | 0.84 | 0.20 | Mid-brown silty clay | Fill of linear feature C222 in Tr. 11.03 |
| 224 | 11 | 11.03 | Cut | N/A | C225 | | | | Non-archaeological | Non-archaeological |
| 225 | 11 | 11.03 | Fill | C224 | N/A | | | | Non-archaeological | Non-archaeological |
| 226 | 11 | 11.03 | Cut | N/A | C227 | 2.0+ | 1.63 | 0.34 | Linear in plan, oriented NW-SE | Cut of linear feature C227 in Tr. 11.03 |
| 227 | 11 | 11.03 | Fill | C226 | N/A | 2.0+ | 1.63 | 0.34 | Mid-brown silty clay | Fill of linear feature C226 in Tr. 11.03 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------|---|
| 228 | 11 | 11.03 | Cut | N/A | C229 | 2.0+ | 1.30 | 0.30 | Linear in plan | Cut of linear feature C229, aligns with ferrous anomaly on geophysics, in Tr. 11.03 |
| 229 | 11 | 11.03 | Fill | C228 | N/A | 2.0+ | 1.30 | 0.30 | Mid-brown silty clay | Fill of linear feature C228 in Tr. 11.03 |
| 230 | 11 | 11.04 | Cut | N/A | C231 | 2.0+ | 1.30 | 0.15 | Linear in plan | Cut of drain C231, aligns with red linear anomaly on geophysics, in Tr. 11.04 |
| 231 | 11 | 11.04 | Fill | C230 | N/A | 2.0+ | 1.30 | 0.15 | Reddish-brown sandy silt | Fill of drain C230 in Tr. 11.04 |
| 232 | 11 | 11.05 | Cut | N/A | C233 | 2.0+ | 1.30 | 0.20 | Linear in plan | Cut of linear feature C233 in Tr. 11.05 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 233 | 11 | 11.05 | Fill | C232 | N/A | 2.0+ | 1.30 | 0.20 | Mid-greyish-brown sandy silt, burnt spread material found at top of fill | Fill of linear feature C232, agricultural activity likely pulled burnt spread material on to fill, in Tr. 11.05 |
| 234 | 11 | 11.05 | Cut | N/A | N/A | | | | Non-archaeological | Non-archaeological |
| 235 | 11 | 11.05 | Fill | N/A | N/A | | | | Non-archaeological | Non-archaeological |
| 236 | 11 | 11.06 | Cut | N/A | C237 | 1.0 | 0.35 | 0.15 | Irregular in plan and orientated SE-NW | Cut of pit C237 in Tr. 11.06 |
| 237 | 11 | 11.06 | Fill | C236 | N/A | 1.0 | 0.35 | 0.15 | Mid-brown silty sand | Fill of pit C236 in Tr. 11.06 |
| 238 | 11 | 11.06 | Cut | N/A | C239 | 2.0+ | 0.40 | 0.90 | Linear in plan | Cut of drain C239 in Tr. 11.06 |
| 239 | 11 | 11.06 | Fill | C238 | N/A | 2.0+ | 0.40 | 0.90 | Mid-brown silty sand | Fill of drain C238 in Tr. 11.06 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 240 | 11 | 11.08 | Cut | N/A | C241 | 2.0+ | 2.50 | 0.15 | Linear in plan | Cut of relict field boundary visible on historic maps C241 in Tr. 11.08 |
| 241 | 11 | 11.08 | Fill | C240 | N/A | 2.0+ | 2.50 | 0.15 | Mid-brown silty sand | Fill of linear feature C240 in Tr. 11.08 |
| 242 | 11 | 11.08 | Cut | N/A | C243 | 0.35 | 0.35 | 0.12 | Circular in plan | Cut of pit C243 in Tr. 11.08 |
| 243 | 11 | 11.08 | Fill | C242 | N/A | 0.35 | 0.35 | 0.12 | Red silty sand, charcoal and burning present | Fill of pit C242 in Tr. 11.08 |
| 244 | 11 | 11.08 | | | | | | | VOID | VOID |
| 245 | 11 | 11.08 | | | | | | | VOID | VOID |
| 246 | 11 | 11.08 | | | | | | | VOID | VOID |
| 247 | 11 | 11.08 | | | | | | | VOID | VOID |
| 248 | 11 | 11.08 | Cut | N/A | C249 | 2.0+ | 1.25 | 0.30 | Linear in plan | Cut of plough furrow C249, in close proximity to |

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|---|--------|---|----------|-----|-----------------|------------|
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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------|--|
| | | | | | | | | | | other features in Tr. 11.08 |
| 249 | 11 | 11.08 | Fill | C248 | N/A | 2.0+ | 1.25 | 0.30 | Mid-brown silty sand | Fill of plough furrow C249 in Tr. 11.08 |
| 250 | 11 | 11.08 | Cut | N/A | C251 | 2.0+ | 0.66 | 0.12 | Linear in plan | Cut of plough furrow C251, in close proximity to other features in Tr. 11.08 |
| 251 | 11 | 11.08 | Fill | C250 | N/A | 2.0+ | 0.66 | 0.12 | Orangey-brown silty sand | Fill of plough furrow C250 in Tr. 11.08 |
| 252 | 11 | 11.08 | | | | | | | VOID | VOID |
| 253 | 11 | 11.08 | | | | | | | VOID | VOID |
| 254 | 11 | 11.09 | Cut | N/A | C255 | | 0.39 | | Curvilinear in plan | Cut of curvilinear feature C255 in Tr. 11.09, anomaly 3 |
| 255 | 11 | 11.09 | Fill | C254 | N/A | | 0.39 | | Light orangey- | Fill of curvilinear |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|---------|---------|-----------|------------|-----------|-----------|--------------------------------------|---|
| | | | | | | | | | brown sandy silt | feature C254 in Tr. 11.09 |
| 256 | 11 | 11.10 | Cut | N/A | C257 | 5.0+ | 0.80+ | 0.08 | Linear in plan, oriented north-south | Cut of linear feature C257 in Tr. 11.10 |
| 257 | 11 | 11.10 | Fill | C256 | N/A | 5.0+ | 0.80+ | 0.08 | Mid-brown sandy silt | Fill of linear feature C256 in Tr. 11.10 |
| 258 | 11 | 11.10 | Cut | N/A | C259 | 1.80+ | 0.66 | 0.29 | Linear in plan, oriented east-west | Cut of linear feature C259 in Tr. 11.10 |
| 259 | 11 | 11.10 | Fill | C258 | N/A | 1.80+ | 0.66 | 0.29 | Mid-brown sandy silt | Fill of linear feature C258 in Tr. 11.10 |
| 260 | 11 | 11.10 | Deposit | N/A | N/A | | | | Non-archaeological | Non-archaeological |
| 261 | 1 | 1.01 | Cut | N/A | C262 | 2.0+ | 0.75 | 0.10 | Curvilinear in plan | Cut of curvilinear feature C262, aligns with pink anomaly at east end of Tr. 1.01 |
| 262 | 1 | 1.01 | Fill | C261 | N/A | 2.0+ | 0.75 | 0.10 | Dark brown silty clay, | Fill of curvilinear |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------|---|
| | | | | | | | | | charcoal present | feature C261 in Tr. 1.01 |
| 263 | 1 | 1.01 | Cut | N/A | C264 | 2.0+ | 1.20 | 0.35 | Linear in plan, oriented NE-SW | Cut of field boundary C264 in Tr. 1.01 |
| 264 | 1 | 1.01 | Fill | C263 | N/A | 2.0+ | 1.20 | 0.35 | Mid-brown sandy silt | Fill of field boundary C263 in Tr. 1.1 |
| 265 | 1 | 1.01 | Cut | N/A | C266 | 2.0+ | 1.17 | 0.34 | Linear in plan, oriented NE-SW | Cut of field boundary C266 in Tr. 1.01 |
| 266 | 1 | 1.01 | Fill | C265 | N/A | 2.0+ | 1.17 | 0.34 | Mid-brown sandy silt | Fill of field boundary C265 in Tr. 1.01 |
| 267 | 1 | 1.01 | Cut | N/A | C268 | 2.0+ | 1.05 | 0.20 | Linear in plan, oriented NW-SE | Cut of linear feature C268 aligned with yellow linear on geophysics in Tr. 1.01 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|------------------|------------|-----------|-----------|--|--|
| 268 | 1 | 1.01 | Fill | C267 | N/A | 2.0+ | 1.05 | 0.20 | Mid-brown sandy silt | Fill of linear feature C267 in Tr. 1.01 |
| 269 | 1 | 1.01 | Cut | N/A | C270 | 2.20 | 0.57 | 0.11 | Curvilinear in plan. This feature had a south-east to south-west orientation | Cut of curvilinear feature C270 in Tr. 1.01 |
| 270 | 1 | 1.01 | Fill | C269 | N/A | 2.20 | 0.57 | 0.11 | Black sandy silt with charcoal | Fill of curvilinear feature C269 in Tr. 1.01 |
| 271 | 1 | 1.01 | Cut | N/A | C272, C273, C274 | 2.0+ | 0.85 | 0.30 | Linear in plan | Cut of linear feature C272, C273 and C274, anomaly 4 in Tr. 1.01 |
| 272 | 1 | 1.01 | Fill | C271 | N/A | 2.0+ | 0.85 | 0.11 | Mid-brown silty sand | Top fill of linear feature C271 in Tr. 1.01 |
| 273 | 1 | 1.01 | Fill | C271 | N/A | 2.0+ | 0.85 | 0.13 | Black silty clay | Middle fill of linear feature C271 in Tr. 1.01 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|---|--|
| 274 | 1 | 1.01 | Fill | C271 | N/A | 2.0+ | 0.85 | 0.06 | Mid-brown clay | Base fill of linear feature C271 in Tr. 1.01 |
| 275 | 1 | 1.19 | Cut | N/A | C276 | 2.0+ | 1.10 | 0.20 | Linear in plan, oriented north-south | Cut of ditch C276 in Tr. 1.19 |
| 276 | 1 | 1.19 | Fill | C275 | N/A | 2.0+ | 1.10 | 0.20 | Mid-brown silty sand | Fill of ditch C275 in Tr. 1.19 |
| 277 | 1 | 1.19 | Cut | N/A | C278 | 2.0+ | 1.20 | 0.20 | Linear in plan, oriented north-south | Cut of ditch C278 in Tr. 1.19 |
| 278 | 1 | 1.19 | Fill | C277 | N/A | 2.0+ | 1.20 | 0.20 | Mid-brown silty sand | Fill of ditch C277 in Tr. 1.19 |
| 279 | 1 | 1.19 | Cut | N/A | C280 | 2.0+ | 0.80 | 0.15 | Linear in plan, oriented north-south | Cut of linear feature C280 in Tr. 1.19 |
| 280 | 1 | 1.19 | Fill | C279 | N/A | 2.0+ | 0.80 | 0.15 | Mid-greyish-brown silty sand | Fill of linear feature C279 in Tr. 1.19 |
| 281 | 1 | 1.05 | Cut | N/A | C282 | 5.0+ | 1.20 | 0.5 | Linear in plan, oriented SE-NW. Terminus to | Cut of linear feature C282 in Tr. 1.05 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|---|--|
| | | | | | | | | | the south-east end | |
| 282 | 1 | 1.05 | Fill | C281 | N/A | 5.0+ | 1.20 | 0.50 | Mid-brown sandy silt | Fill of linear feature C281 in Tr. 1.05 |
| 283 | 1 | 1.10 | Cut | N/A | C284 | 2.50+ | 1.75 | 0.25 | Sub-circular in plan | Cut of possible pit/tree bowl C284 in Tr. 1.10 |
| 284 | 1 | 1.10 | Fill | C283 | N/A | 2.50+ | 1.75 | 0.25 | Blackish-brown silty sand charcoal flecks | Fill of possible pit/treebowl C283 in Tr. 1.10 |
| 285 | 1 | 1.19 | Cut | N/A | C286 | 0.75+ | 0.50 | 0.10 | Sub-circular in plan | Cut of pit C286 in Tr. 1.19 |
| 286 | 1 | 1.19 | Fill | C285 | N/A | 0.75+ | 0.50 | 0.10 | Mid-blackish-brown silty sand, charcoal flecks. | Fill of pit C285in Tr. 1.19 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--|---|
| 287 | 1 | 1.04 | Cut | N/A | C288 | 1.44 | 0.80 | 0.18 | Sub-circular in plan | Cut of pit C288 in Tr. 1.04 |
| 288 | 1 | 1.04 | Fill | C287 | N/A | 1.44 | 0.80 | 0.18 | Dark brown sandy clay | Fill of pit C287 in Tr. 1.04 |
| 289 | 1 | 1.19 | Cut | N/A | C290 | 0.65+ | 0.50 | 0.08 | Circular in plan | Cut of pit C290 in Tr. 1.19 |
| 290 | 1 | 1.19 | Fill | C289 | N/A | 0.65+ | 0.50 | 0.08 | Mid-blackish-brown silty sand, charcoal flecking | Fill of pit C289 in Tr. 1.19 |
| 291 | 1 | 1.04 | Cut | N/A | C292 | 2.0+ | 1.0 | 0.23 | Linear in plan. Orientated north-south | Cut of ditch C292, aligns with nomaly in Tr. 1.04 |
| 292 | 1 | 1.04 | Fill | C291 | N/A | 2.0+ | 1.0 | 0.23 | Mid-brown sandy clay | Fill of ditch C291 in Tr. 1.04 |
| 293 | 1 | 1.04 | Cut | N/A | C294 | 0.45 | 0.42 | 0.19 | Circular in plan | Cut of pit C294 in Tr. 1.04 |
| 294 | 1 | 1.04 | Fill | C293 | N/A | 0.45 | 0.42 | 0.19 | Black sandy clay | Fill of pit C293 in Tr. 1.04 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|---|---|
| 295 | 1 | 1.10 | Cut | N/A | C296 | | 1.20 | | Linear in plan, oriented NE-SW | Cut of linear feature C296 in Tr. 1.10 |
| 296 | 1 | 1.10 | Fill | C295 | N/A | | 1.20 | | Light brown silty sand | Fill of linear feature C295 in Tr. 1.10 |
| 297 | 1 | 1.17 | Cut | N/A | C298 | 1.40 | 1.30 | 0.40 | Circular in plan | Cut of pit C298 in Tr. 1.17 |
| 298 | 1 | 1.17 | Fill | C297 | N/A | 1.40 | 1.30 | 0.40 | Dark blackish-brown silty sand with burning and animal bone present | Fill of pit C297 in Tr. 1.17. Animal bone noted |
| 299 | 1 | 1.16 | Cut | N/A | C300 | 2.8 | 0.40 | 0.40 | Linear in plan, orientated SE-NW | Cut of linear feature C300 in Tr. 1.16 |
| 300 | 1 | 1.16 | Fill | C299 | N/A | 2.8 | 0.40 | 0.40 | Mid-brown silty sand, with pottery (possibly prehistoric) | Fill of linear feature C299 in Tr. 1.16 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|--------------------------------------|---|
| 301 | 1 | 1.16 | Cut | N/A | C302 | 2.0+ | 1.0 | 0.25 | Linear in plan, oriented NE-SW | Cut of linear feature C302 in Tr. 1.16 |
| 302 | 1 | 1.16 | Fill | C301 | N/A | 2.0+ | 1.0 | 0.25 | Mid-brown silty sand | Fill of linear feature C301 in Tr. 1.16 |
| 303 | 1 | 1.16 | Cut | N/A | C304 | 0.5+ | 0.90 | 0.30 | Sub-circular in plan | Cut of pit C304 in Tr. 1.16 |
| 304 | 1 | 1.16 | Fill | C303 | N/A | 0.5+ | 0.90 | 0.30 | Mid-brown silty sand | Fill of pit C303 in Tr. 1.16 |
| 305 | 1 | 1.16 | Cut | N/A | C306 | 1.0 | 0.60 | 0.10 | Sub-circular in plan | Cut of pit C306 in Tr. 1.16 |
| 306 | 1 | 1.16 | Fill | C305 | N/A | 1.0 | 0.60 | 0.10 | Mid-brown silty sand | Fill of pit C305 in Tr. 1.16 |
| 307 | 1 | 1.11 | Cut | N/A | C308 | 2.0+ | 1.25 | 0.36 | Linear in plan, oriented north-south | Cut of linear feature C308, aligns with anomaly 8 in Tr. 1.11 |
| 308 | 1 | 1.11 | Fill | C307 | N/A | 2.0+ | 1.25 | 0.36 | Mid-brown silty clay | Fill of linear feature C307 in Tr. 1.11 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|-----------|------|---------|-----------|------------|-----------|-----------|--|---|
| 309 | 1 | 1.15 | Cut | N/A | C312 | 2.2 | 0.50+ | 0.05 | Sub-circular in plan | Cut of pit C312 in Tr. 1.15 |
| 310 | 1 | 1.15 | Cut | N/A | C311 | 1.1+ | 0.90 | 0.40 | Sub-circular in plan | Cut of pit C311 in Tr. 1.15 |
| 311 | 1 | 1.15 | Fill | C310 | N/A | 1.1+ | 0.90 | 0.40 | Dark blackish-brown silty sand, charcoal present | Fill of pit C310 in Tr. 1.15 |
| 312 | 1 | 1.15 | Fill | C309 | N/A | 2.2 | 0.50+ | 0.05 | Blackish-sandy silt, charcoal rich | Fill of pit C309 in Tr. 1.15 |
| 313 | 1 | 1.13/1.14 | Cut | N/A | C314 | 2.0+ | 0.65 | 0.20 | Curvilinear in plan, oriented NW-SE | Cut of curvilinear feature C314, aligns with anomaly 5 in Tr. 1.13 and Tr. 1.14 |
| 314 | 1 | 1.13/1.14 | Fill | C313 | N/A | 2.0+ | 0.65 | 0.20 | Black sandy clay, charcoal rich | Fill of curvilinear feature C313 in Tr. 1.13 and Tr. 1.14 |

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| Context | Area | Trench | Type | Fill of | Filled by | Length (m) | Width (m) | Depth (m) | Description | Interpretation |
|---------|------|--------|------|---------|-----------|------------|-----------|-----------|----------------------------------|---|
| 315 | 1 | 1.15 | Cut | N/A | C316 | 0.4+ | 0.50 | 0.05 | Sub-circular in plan | Cut of small pit C316 in Tr. 1.15 |
| 316 | 1 | 1.15 | Fill | C315 | N/A | 0.4+ | 0.50 | 0.05 | Mid-brown silty sand | Fill of small pit C315 in Tr. 1.15 |
| 317 | 1 | 1.14 | Cut | N/A | C318 | 2.0+ | 0.65 | 0.20 | Linear in plan, orientated NW-SE | Cut of linear feature C318 in Tr. 1.14 |
| 318 | 1 | 1.14 | Fill | C317 | N/A | 2.0+ | 0.65 | 0.20 | Mid-brown silty sand | Fill of linear feature C318 in Tr. 1.14 |
| 319 | 6 | 6.9 | Cut | N/A | C320 | 2.0+ | 0.80 | 0.31 | Linear in plan, orientated NE-SW | Cut of linear feature C320 |
| 320 | 6 | 6.9 | Fill | C319 | N/A | 2.0+ | 0.80 | 0.31 | Light greyish-brown silty sand | Fill of linear feature C319 |

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APPENDIX 2 PHOTO REGISTER

| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|--|
| 915 | 6 | 32 | NW | Tr. 6.20 |
| 916 | 6 | 32 | NW | Drain C004 in Tr. 6.20 |
| 917 | 6 | 32 | NW | Linear feature C006 in Tr. 6.20 |
| 918 | 6 | 32 | SW | Pit C008 in Tr. 6.19 |
| 919 | 6 | 32 | SW | Field drain in Tr. 6.19 |
| 920 | 6 | 32 | S | Linear feature C010 in Tr. 6.19 |
| 921 | 6 | 32 | SE | Linear feature C012 in Tr. 6.19 |
| 922 | 6 | 32 | SE | Linear feature C016 in Tr. 6.19 |
| 923 | 6 | 32 | E | Modern drain in Tr. 6.19 |
| 924 | 6 | 32 | W | Pit C018 in Tr. 6.19 |
| 925 | 6 | 32 | SE | Linear feature C020 in Tr. 6.19 |
| 926 | 6 | 32 | SE | Linear feature C022 in Tr. 6.19 |
| 927 | 6 | 32 | SW | Linear feature C024 in Tr. 6.19 |
| 928 | 6 | 32 | SE | Tr. 6.19 |
| 929 | 6 | 32 | NW | Drainage ditch C030 in Tr. 6.16 |
| 930 | 6 | 32 | NE | Drainage ditch C030 in Tr. 6.16 |
| 931 | 6 | 32 | SE | Linear feature C032 in Tr. 6.16 |
| 932 | 6 | 32 | NW | Linear feature C034 in Tr. 6.16 |
| 933 | 6 | 32 | SE | Linear feature C034 in Tr. 6.16 |
| 934 | 6 | 32 | NW | Linear feature C036 in Tr. 6.16 |
| 935 | 6 | 32 | SE | Linear feature C046 in Tr. 6.16 |
| 936 | 6 | 32 | N | Linear feature C048 in Tr. 6.16 |
| 937 | 6 | 32 | SE | Tr. 6.16 |
| 938 | 6 | 32 | NW | Tr. 6.16 |
| 939 | 6 | 32 | N | Linear feature C060 in Tr. 6.13 |
| 940 | 6 | 32 | S | Linear feature C062 in Tr. 6.13 |
| 941 | 6 | 32 | S | Linear feature C064 in Tr. 6.13 |
| 942 | 6 | 32 | SW | Tr. 6.13 |
| 943 | 6 | 32 | NE | Liner Feature C068 in Tr. 6.13 |
| 944 | 6 | 32 | NE | Liner Feature C070 in Tr. 6.13 |
| 945 | 6 | 32 | NW | Ditch in Tr. 6.12 |
| 946 | 6 | 32 | N | Shallow deposit within extension in Tr. 6.12 |
| 947 | 6 | 32 | S | Pit C081 containing animal bone in Tr. 6.12 |
| 948 | 6 | 32 | NW | Pit C083 in Tr. 6.12 |
| 949 | 6 | 32 | W | Ditch C085 in Tr. 6.16 |
| 950 | 6 | 32 | W | Shallow deposit in Tr. 6.12 |
| 951 | 6 | 32 | E | Linear feature C089 in Tr. 6.12 |



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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|------------------------------------|
| 952 | 6 | 32 | W | Linear feature C091 in Tr. 6.12 |
| 953 | 6 | 32 | W | Drain C093 in Tr. 6.12 |
| 954 | 6 | 32 | NE | Drain C095 in Tr. 6.12 |
| 955 | 6 | 32 | W | Drain C097 in Tr. 6.12 |
| 956 | 6 | 32 | SE | Linear C99, anomaly 2 in Tr. 6.10 |
| 957 | 6 | 32 | NE | Linear C109, anomaly 2 in Tr. 6.10 |
| 958 | 6 | 32 | S | Linear C121 in Tr. 6.10 |
| 959 | 6 | 32 | SE | Drain C123 in Tr. 6.10 |
| 960 | 6 | 32 | NE | Linear C125 in Tr. 6.10 |
| 961 | 6 | 32 | SE | Linear C127, anomaly 5 in Tr. 6.10 |
| 962 | 6 | 32 | SE | Linear C129 in Tr. 6.10 |
| 963 | 6 | 32 | SE | Linear C143, anomaly 5 in Tr. 6.10 |
| 964 | 6 | 32 | N | Linear C143, anomaly 5 in Tr. 6.10 |
| 965 | 6 | 32 | N | Pos pit C145 in Tr. 6.10 |
| 966 | 6 | 32 | SE | Ditch C147, anomaly 5 in Tr. 6.10 |
| 967 | 6 | 32 | SE | Ditch C147, anomaly 5 in Tr. 6.10 |
| 968 | 6 | 32 | NW | Tr. 6.10 |
| 969 | 6 | 32 | E | C141 in Tr. 6.11 |
| 970 | 6 | 32 | E | C139 in Tr. 6.11 |
| 971 | 6 | 32 | S | C137 in Tr. 6.11 |
| 972 | 6 | 32 | E | C135 in Tr. 6.11 |
| 973 | 6 | 32 | SE | C133 in Tr. 6.11 |
| 974 | 6 | 32 | SE | C131 in Tr. 6.11 |
| 975 | 6 | 32 | E | C101 in Tr. 6.11 |
| 976 | 6 | 32 | E | C103 in Tr. 6.11 |
| 977 | 6 | 32 | E | C151 in Tr. 6.11 |
| 978 | 6 | 32 | NE | C153 in Tr. 6.09 |
| 979 | 6 | 32 | NW | C147 in Tr. 6.09 |
| 980 | 6 | 32 | SW | C155 in Tr. 6.09 |
| 981 | 6 | 32 | SW | C157 in Tr. 6.09 |
| 982 | 6 | 32 | NW | C127 in Tr. 6.09 |
| 983 | 6 | 32 | NE | C159 and C161 in Tr. 6.09 |
| 984 | 6 | 32 | NE | C159 and C161 in Tr. 6.09 |
| 985 | 6 | 32 | NW | C123 in Tr. 6.09 |
| 986 | 6 | 32 | SW | C163 in Tr. 6.09 |



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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|-------------------|
| 987 | 6 | 32 | NW | C109 in Tr. 6.09 |
| 988 | 6 | 32 | NW | C165 in Tr. 6.09 |
| 989 | 6 | 32 | SE | Tr. 6.09 |
| 990 | 8 | 32 | SW | Tr. 8.03 |
| 991 | 8 | 32 | NE | Tr. 8.03 |
| 992 | 8 | 32 | E | Tr. 8.02 |
| 993 | 8 | 32 | W | Tr. 8.02 |
| 994 | 8 | 32 | W | C149 in Tr. 8.01 |
| 995 | 6 | 32 | W | Tr. 6.11 |
| 996 | 9 | 32 | NW | Tr. 9.04 |
| 997 | 9 | 32 | SE | Tr. 9.06 |
| 998 | 9 | 32 | SE | Tr. 9.06 |
| 999 | 9 | 32 | SE | C184 in Tr. 9.06 |
| 1000 | 9 | 32 | SE | Tr. 9.05 |
| 1001 | 9 | 32 | NW | Tr. 9.02 |
| 1002 | 9 | 32 | W | C190 in Tr. 9.01 |
| 1003 | 9 | 32 | E | Tr. 9.01 |
| 1004 | 9 | 32 | SW | Tr. 9.11 |
| 1005 | 9 | 32 | SE | Tr. 9.10 |
| 1006 | 10 | 32 | N | C204 in Tr. 10.19 |
| 1007 | 10 | 32 | N | Tr. 10.19 |
| 1008 | 10 | 32 | E | Tr. 10.20 |
| 1009 | 10 | 32 | S | Tr. 10.11 |
| 1010 | 10 | 32 | SW | C210 in Tr. 10.10 |
| 1011 | 10 | 32 | SE | C212 in Tr. 10.10 |
| 1012 | 10 | 32 | S | C214 in Tr. 10.10 |
| 1013 | 10 | 32 | S | Tr. 10.10 |
| 1014 | 10 | 32 | S | Tr. 10.07 |
| 1015 | 10 | 32 | SW | C218 in Tr. 10.06 |
| 1016 | 10 | 32 | SW | C220 in Tr. 10.06 |
| 1017 | 10 | 32 | N | Tr. 10.06 |
| 1018 | 1 | 32 | NE | C261 in Tr. 1.01 |
| 1019 | 1 | 32 | SW | C263 in Tr. 1.01 |
| 1020 | 1 | 32 | SW | C265 in Tr. 1.01 |
| 1021 | 1 | 32 | NW | C267 in Tr. 1.01 |
| 1022 | 1 | 32 | S | Tr. 1.09 |
| 1023 | 1 | 32 | S | C269 in Tr. 1.01 |
| 1024 | 1 | 32 | W | C271 in Tr. 1.01 |
| 1025 | 1 | 32 | E | Tr. 1.01 |
| 1026 | 1 | 32 | SE | Tr. 1.06 |
| 1027 | 1 | 32 | SW | Tr. 1.08 |



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|--------|---|----------|-----|-----------------|------------|
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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|---------------------------------------|
| 1028 | 1 | 32 | NE | Tr. 1.07 |
| 1029 | 1 | 32 | SE | C281 in Tr. 1.05 |
| 1030 | 1 | 32 | NW | Tr. 1.05 |
| 1031 | 1 | 32 | NW | C287 in Tr. 1.04 |
| 1032 | 1 | 32 | NW | C291 in Tr. 1.04 |
| 1033 | 1 | 32 | NW | C293 in Tr. 1.04 |
| 1034 | 1 | 32 | SE | Tr. 1.04 |
| 1035 | 1 | 32 | NW | Tr. 1.03 |
| 1036 | 1 | 32 | NW | Tr. 1.02 |
| 1037 | 1 | 32 | NW | Tr. 1.12 |
| 1038 | 1 | 32 | E | C307 in Tr. 1.11 |
| 1039 | 1 | 32 | E | Tr. 1.11 |
| 1040 | 1 | 32 | NE | C317 in Tr. 1.14 |
| 1041 | 1 | 32 | S | Tr. 1.14 |
| 1042 | 1 | 32 | E | C313 in Tr. 1.13 |
| 1043 | 1 | 32 | E | Tr. 1.13 |
| 1044 | 1 | 32 | SW | Tr. 1.18 |
| 3913 | 6 | 30 | NE | Tr. 6.21 |
| 3914 | 6 | 30 | E | Tr. 6.22 |
| 3915 | 6 | 30 | S | Pre-excavation, Area 6 |
| 3916 | 6 | 30 | N | Pre-excavation, Area 6 |
| 3917 | 6 | 30 | SW | C014 in Tr. 6.18 |
| 3918 | 6 | 30 | SE | C026 in Tr. 6.18 |
| 3919 | 6 | 30 | NW | Tr. 6.18 |
| 3920 | 6 | 30 | NW | C028 in Tr. 6.18 |
| 3921 | 6 | 30 | NW | C038 in Tr. 6.18 |
| 3922 | 6 | 30 | NW | C040 in Tr. 6.18 |
| 3923 | 6 | 30 | SW | C042 in Tr. 6.17 |
| 3924 | 6 | 30 | NW | C044 in Tr. 6.17 |
| 3925 | 6 | 30 | NE | C044 section in Tr. 6.17 |
| 3926 | 6 | 30 | NW | Tr. 6.17 |
| 3927 | 6 | 30 | SW | C050 in Tr. 6.15 |
| 3928 | 6 | 30 | SE | C052 in Tr. 6.15 |
| 3929 | 6 | 30 | W | C056 in Tr. 6.15 |
| 3930 | 6 | 30 | NW | C054 in Tr. 6.15 |
| 3931 | 6 | 30 | NE | Tr. 6.15 |
| 3932 | 6 | 30 | NW | C058 in Tr. 6.15 |
| 3933 | 6 | 30 | NW | C066 in Tr. 6.08 |
| 3934 | 6 | 30 | NW | C072 in Tr. 6.08 |
| 3935 | 6 | 30 | NW | VOIDED Non-archaeological in Tr. 6.08 |



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|--------|---|----------|-----|-----------------|------------|
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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|--------------------------------------|
| 3936 | 6 | 30 | E | C066 in Tr. 6.08 |
| 3937 | 6 | 30 | S | C066 in Tr. 6.08 |
| 3938 | 6 | 30 | S | C072 in Tr. 6.08 |
| 3939 | 6 | 30 | S | C076 in Tr. 6.08 |
| 3940 | 6 | 30 | S | Tr. 6.08 |
| 3941 | 6 | 30 | N | Tr. 6.08 |
| 3942 | 6 | 30 | E | C066 and extension in Tr. 6.08 |
| 3943 | 6 | 30 | S | C101 and C103 in Tr. 6.11 |
| 3944 | 6 | 30 | E | C101 in Tr. 6.11 |
| 3945 | 6 | 30 | NW | Ditch C111 in Tr. 6.02 |
| 3946 | 6 | 30 | WSW | Tr. 6.02 with sinkhole in foreground |
| 3947 | 6 | 30 | W | Tr. 6.01 |
| 3948 | 6 | 30 | S | C113 in Tr. 6.04 |
| 3949 | 6 | 30 | S | C115 in Tr. 6.04 |
| 3950 | 6 | 30 | W | Tr. 6.04 |
| 3951 | 8 | 30 | S | Tr. 8.09 |
| 3952 | 8 | 30 | SW | C167 in Tr. 8.10 |
| 3953 | 8 | 30 | E | Tr. 8.10 |
| 3954 | 8 | 30 | S | C169 in Tr. 8.04 |
| 3955 | 8 | 30 | N | Tr. 8.04 |
| 3956 | 3 | 30 | NE | C171 in Tr. 3.07 |
| 3957 | 3 | 30 | NE | C171 in Tr. 3.07 |
| 3958 | 3 | 30 | NE | C174 in Tr. 3.07 |
| 3959 | 3 | 30 | NW | C176 in Tr. 3.06 |
| 3960 | 3 | 30 | SE | Tr. 3.06 |
| 3961 | 3 | 30 | SE | Tr. 3.07 |
| 3962 | 3 | 30 | NW | Tr. 3.08 |
| 3963 | 3 | 30 | S | C178 in Tr. 3.04 |
| 3964 | 3 | 30 | NW | Tr. 3.04 |
| 3965 | 3 | 30 | NE | Tr. 3.05 |
| 3966 | 3 | 30 | E | Anomaly 6 decayed stone in Tr. 3.03 |
| 3967 | 3 | 30 | E | Tr. 3.03 |
| 3968 | 3 | 30 | NW | Tr. 3.02 |
| 3969 | 3 | 30 | NW | Tr. 3.01 |
| 3970 | 4 | 30 | NE | Tr. 4.11 |
| 3971 | 4 | 30 | SE | Tr. 4.15 |
| 3972 | 4 | 30 | NW | Tr. 4.14 |
| 3973 | 4 | 30 | NW | Tr. 4.14 |
| 3974 | 4 | 30 | NW | Tr. 4.12 |



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|--------|---|----------|-----|-----------------|------------|
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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|--|
| 3975 | 4 | 30 | NW | Tr. 4.13 |
| 3976 | 4 | 30 | W | Tr. 4.01 |
| 3977 | 4 | 30 | E | Tr. 4.02 |
| 3978 | 4 | 30 | E | Tr. 4.02 |
| 3979 | 4 | 30 | W | Tr. 4.03 |
| 3980 | 4 | 30 | NE | Tr. 4.04 |
| 3981 | 4 | 30 | NW | Tr. 4.06 |
| 3982 | 4 | 30 | NW | Tr. 4.05 |
| 3983 | 4 | 30 | SW | Tr. 4.07 |
| 3984 | 4 | 30 | SE | Tr. 4.08 |
| 3985 | 4 | 30 | NW | Tr. 4.10 |
| 3986 | 4 | 30 | SE | Tr. 4.09 |
| 3987 | 5 | 30 | SW | Tr. 5.04 |
| 3988 | 5 | 30 | W | Tr. 5.03 |
| 3989 | 5 | 30 | N | Tr. 5.02 |
| 3990 | 5 | 30 | NE | Tr. 5.01 |
| 3991 | 9 | 30 | N | Pink anomaly at SW end of Tr. 9.03 |
| 3992 | 9 | 30 | N | Red anomaly at SW end of Tr. 9.03 |
| 3993 | 9 | 30 | NNW | Ditch C180 in Tr. 9.03 |
| 3994 | 9 | 30 | SW | Ditch C180 in Tr. 9.03 |
| 3995 | 9 | 30 | SW | Tr. 9.03 |
| 3996 | 9 | 30 | NW | Tr. 9.09 |
| 3997 | 9 | 30 | NE | Tr. 9.08 |
| 3998 | 9 | 30 | NW | Tr. 9.07 |
| 3999 | 10 | 30 | S | Context shot of linear feature C182 in Tr. 10.01 |
| 4000 | 10 | 30 | S | Tr. 10.01 |
| 4001 | 10 | 30 | SE | Tr. 10.02 |
| 4002 | 10 | 30 | SE | C186 in Tr. 10.03 |
| 4003 | 10 | 30 | NW | C188 in Tr. 10.03 |
| 4004 | 10 | 30 | W | C188 in Tr. 10.03 |
| 4005 | 10 | 30 | E | C192 in Tr. 10.03 |
| 4006 | 10 | 30 | W | Tr. 10.03 |
| 4007 | 10 | 30 | N | C194 in Tr. 10.17 |
| 4008 | 10 | 30 | NW | C198 in Tr. 10.17 |
| 4009 | 10 | 30 | NW | Tr. 10.17 |
| 4010 | 10 | 30 | W | Tr. 10.17 |
| 4011 | 10 | 30 | SW | Tr. 10.18 |




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|--------|---|----------|-----|-----------------|------------|
| No: | SF-164 | Version: | 1.0 | Effective Date: | 20/11/2024 |
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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|---|
| 4012 | 10 | 30 | SW | Relict field boundary C196 in Tr. 10.18 |
| 4013 | 10 | 30 | SW | Tr. 10.13 |
| 4014 | 10 | 30 | SW | C204 in Tr. 10.13 |
| 4015 | 10 | 30 | SW | Tr. 10.12 |
| 4016 | 10 | 30 | SW | VOID |
| 4017 | 10 | 30 | SE | Tr. 10.15 |
| 4018 | 10 | 30 | SE | C206 in Tr. 10.14 |
| 4019 | 10 | 30 | SE | C208 in Tr. 10.14 |
| 4020 | 10 | 30 | SW | Tr. 10.14 |
| 4021 | 10 | 30 | SE | Tr. 10.16 |
| 4022 | 10 | 30 | SW | Tr. 10.09 |
| 4023 | 10 | 30 | SW | Tr. 10.08 |
| 4024 | 10 | 30 | SW | Tr. 10.05 |
| 4025 | 10 | 30 | NW | C216 in Tr. 10.05 |
| 4026 | 10 | 30 | NW | C216 in Tr. 10.05 |
| 4027 | 10 | 30 | SW | Tr. 10.04 |
| 4028 | 11 | 30 | S | Tr. 11.01 |
| 4029 | 11 | 30 | NW | C222 in Tr. 11.03 |
| 4030 | 11 | 30 | W | C224 in Tr. 11.03 |
| 4031 | 11 | 30 | SW | C226 in Tr. 11.03 |
| 4032 | 11 | 30 | NW | C228 in Tr. 11.03 |
| 4033 | 11 | 30 | E | Tr. 11.03 |
| 4034 | 11 | 30 | N | Tr. 11.02 |
| 4035 | 11 | 30 | SW | Drain C230 in Tr. 11.04 |
| 4036 | 11 | 30 | SW | Tr. 11.04 |
| 4037 | 11 | 30 | SE | Linear feature C232 in Tr. 11.05 |
| 4038 | 11 | 30 | SE | C234 in Tr. 11.05 |
| 4039 | 11 | 30 | SE | Tr. 11.05 |
| 4040 | 11 | 30 | N | Pit C236 in Tr. 11.06 |
| 4041 | 11 | 30 | N | Drain C238 in Tr. 11.06 |
| 4042 | 11 | 30 | N | Tr. 11.06 |
| 4043 | 11 | 30 | NW | Linear feature C240 in Tr. 11.08 |
| 4044 | 11 | 30 | SE | Tr. 11.08 |
| 4045 | 11 | 30 | NE | Pit C242 in Tr. 11.08 |
| 4046 | 11 | 30 | NE | C244 and C246 in Tr. 11.08 |
| 4047 | 11 | 30 | NW | C248 in Tr. 11.08 |
| 4048 | 11 | 30 | NW | C250 in Tr. 11.08 |
| 4049 | 11 | 30 | SW | Heat affected deposits C252 and C253 in Tr. 11.08 |

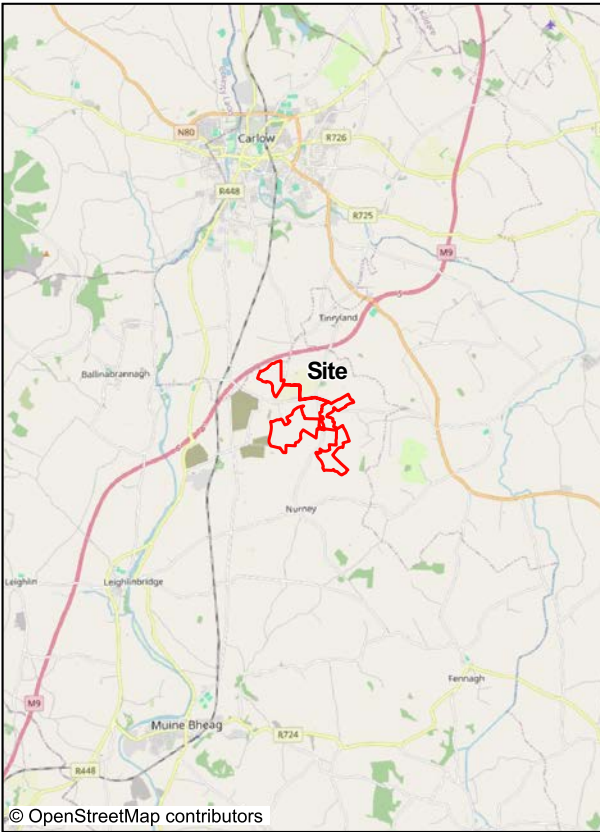


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| No: | SF-164 | Version: | 1.0 | Effective Date: | 20/11/2024 |
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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|---------------------------------------|
| 4050 | 11 | 30 | NE | Curvilinear feature C254 in Tr. 11.08 |
| 4051 | 11 | 30 | SW | Tr. 11.09 |
| 4052 | 11 | 30 | N | C256 in Tr. 11.10 |
| 4053 | 11 | 30 | SE | C258 in Tr. 11.10 |
| 4054 | 11 | 30 | SE | C260 in Tr. 11.10 |
| 4055 | 11 | 30 | SE | Tr. 11.10 |
| 4056 | 11 | 30 | NW | Tr. 11.07 |
| 4057 | 2 | 30 | N | Tr. 2.02 |
| 4058 | 2 | 30 | N | Tr. 2.01 |
| 4059 | 1 | 30 | NE | Tr. 1.20 |
| 4060 | 1 | 30 | NE | C275 and C277 in Tr. 1.19 |
| 4061 | 1 | 30 | NE | C279 in Tr. 1.19 |
| 4062 | 1 | 30 | NE | Tr. 1.19 |
| 4063 | 1 | 30 | NE | C283 in Tr. 1.10 |
| 4064 | 1 | 30 | SE | C289 in Tr. 1.19 |
| 4065 | 1 | 30 | NE | C285 in Tr. 1.19 |
| 4066 | 1 | 30 | NE | Tr. 1.10 |
| 4067 | 1 | 30 | NE | C295 in Tr. 1.10 |
| 4068 | 1 | 30 | NE | C295 in Tr. 1.10 |
| 4069 | 1 | 30 | SE | C297 in Tr. 1.17 |
| 4070 | 1 | 30 | SE | Tr. 1.17 |
| 4071 | 1 | 30 | SE | Tr. 1.16 |
| 4072 | 1 | 30 | NE | C303 in Tr. 1.16 |
| 4073 | 1 | 30 | NE | C299 in Tr. 1.16 |
| 4074 | 1 | 30 | N | C301 in Tr. 1.16 |
| 4075 | 1 | 30 | NE | C305 in Tr. 1.16 |
| 4076 | 1 | 30 | NW | C315 in Tr. 1.15 |
| 4077 | 1 | 30 | NW | C310 in Tr. 1.15 |
| 4078 | 1 | 30 | NW | C309 in Tr. 1.15 |
| 4079 | 1 | 30 | NE | General shot of Tr. 1.15 |
| 1413 | 8 | iPhone SE | N | Tr. 8.07 |
| 1443 | 8 | iPhone SE | E | Tr. 8.06 |
| 1442 | 8 | iPhone SE | E | Example stone socket Tr. 8.06 |
| 1456 | 8 | iPhone SE | N | Tr. 8.05 |
| 1456(i) | 8 | iPhone SE | S | C087 in Tr. 8.05 |

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|---|--------|---|----------|-----|-----------------|-------------|
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| Photo No. | Area | Camera No. | Direction Facing | Description |
|-----------|------|------------|------------------|--------------------------------|
| 1609 | 8 | iPhone SE | SW | Tr. 8.08 |
| 1612 | 8 | iPhone SE | NW | Area of green anomaly Tr. 8.08 |



Legend

 Site Boundary

Project Code: RH1081 - Ballyloo Solar

Prepared by: H.Sims

Status: Draft

Date: 26/06/2024

Approved by: E.O'Flaherty

Version: 1.0

Scale: 1:15,000 @ A3



150 300 450 600 750 m



**Rubicon
Heritage**

Figure 1 - Location of proposed development.



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Legend

- Site Boundary
- Site Study Area (1km)
- Townland Boundary
- RMP SMR Zone

CH Site_Baseline Value

- Very High
- Medium/High
- Low

Project Code: RH1081 - Ballyloo Solar

Prepared by: H.Sims

Status: Draft

Date: 26/06/2024

Approved by: E.O'Flaherty

Version: 1.0

Scale: 1:25,000 @ A3



250 500 750 1,000 1,250 m




**Rubicon
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Figure 2.1 - Cultural Heritage sites within the proposed development study area.



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Legend

- | | |
|---|---|
|  Site Boundary | CH Site_Baseline Value |
|  Site Study Area (1km) |  Very High |
|  Townland Boundary |  Medium/High |
|  RMP SMR Zone |  Low |

Project Code: RH1081 - Ballyloo Solar

Prepared by: H.Sims

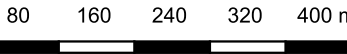
Status: Draft

Date: 26/06/2024

Approved by: E.O'Flaherty

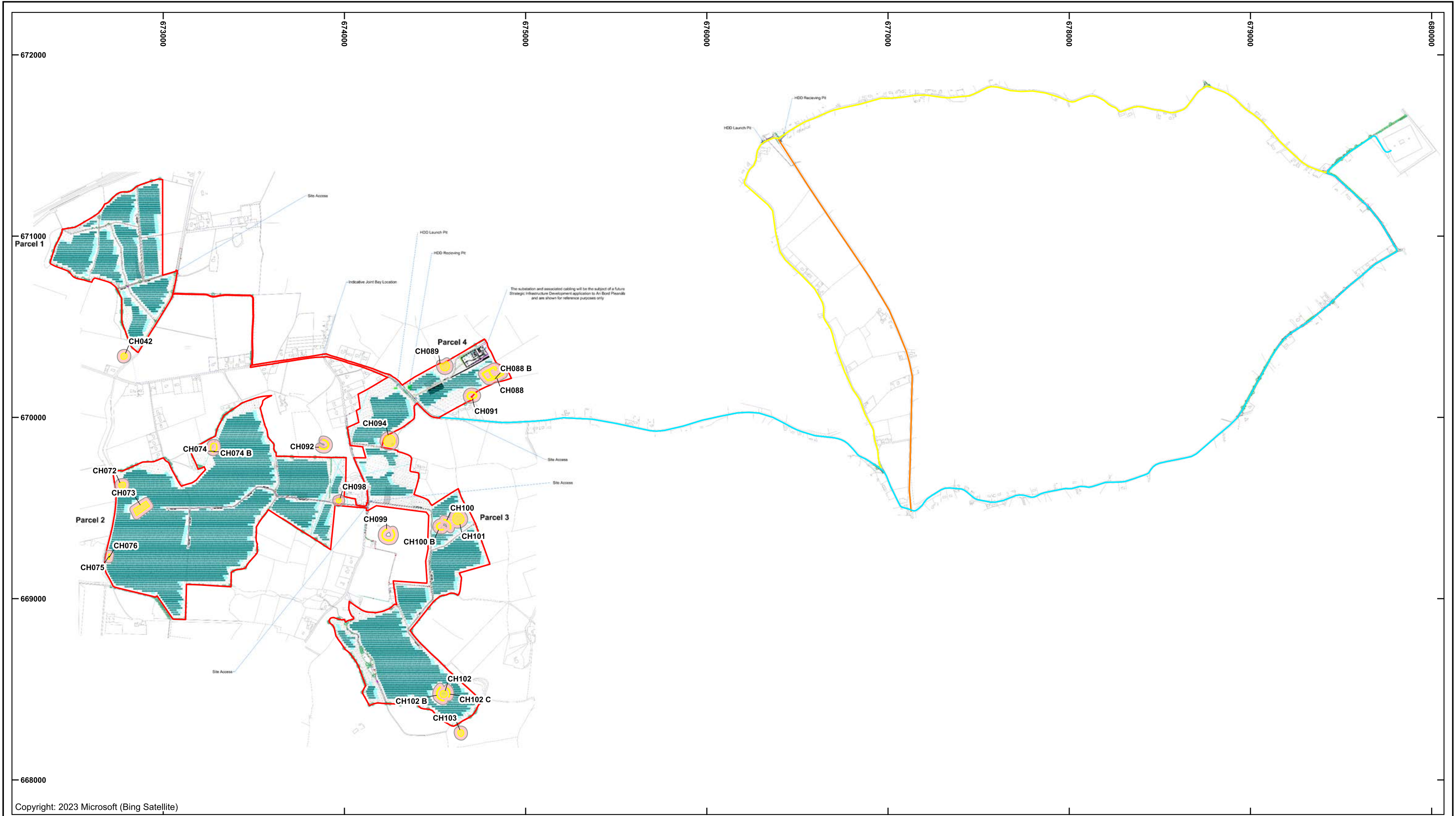
Version: 1.0

Scale: 1:8,000 @ A3



**Rubicon
Heritage**

Figure 2.2 - Cultural Heritage Sites within the proposed development study area (Detail of Parcel 1).



Legend

| | |
|---------------------|--|
| Site Boundary | Grid Route Option C |
| Grid Route Option A | Cropmarks from Aerial Photography |
| Grid Route Option B | Cropmarks from Aerial Photography_20m Buffer |

| | | |
|---------------------------------------|---------------|----------------------|
| Project Code: RH1081 - Ballyloo Solar | | |
| Prepared by: H.Sims | Status: Draft | Date: 26/06/2024 |
| Approved by: E.O'Flaherty | Version: 1.0 | Scale: 1:20,000 @ A3 |

Rubicon Heritage

Figure 3 - Proposed development site layout.

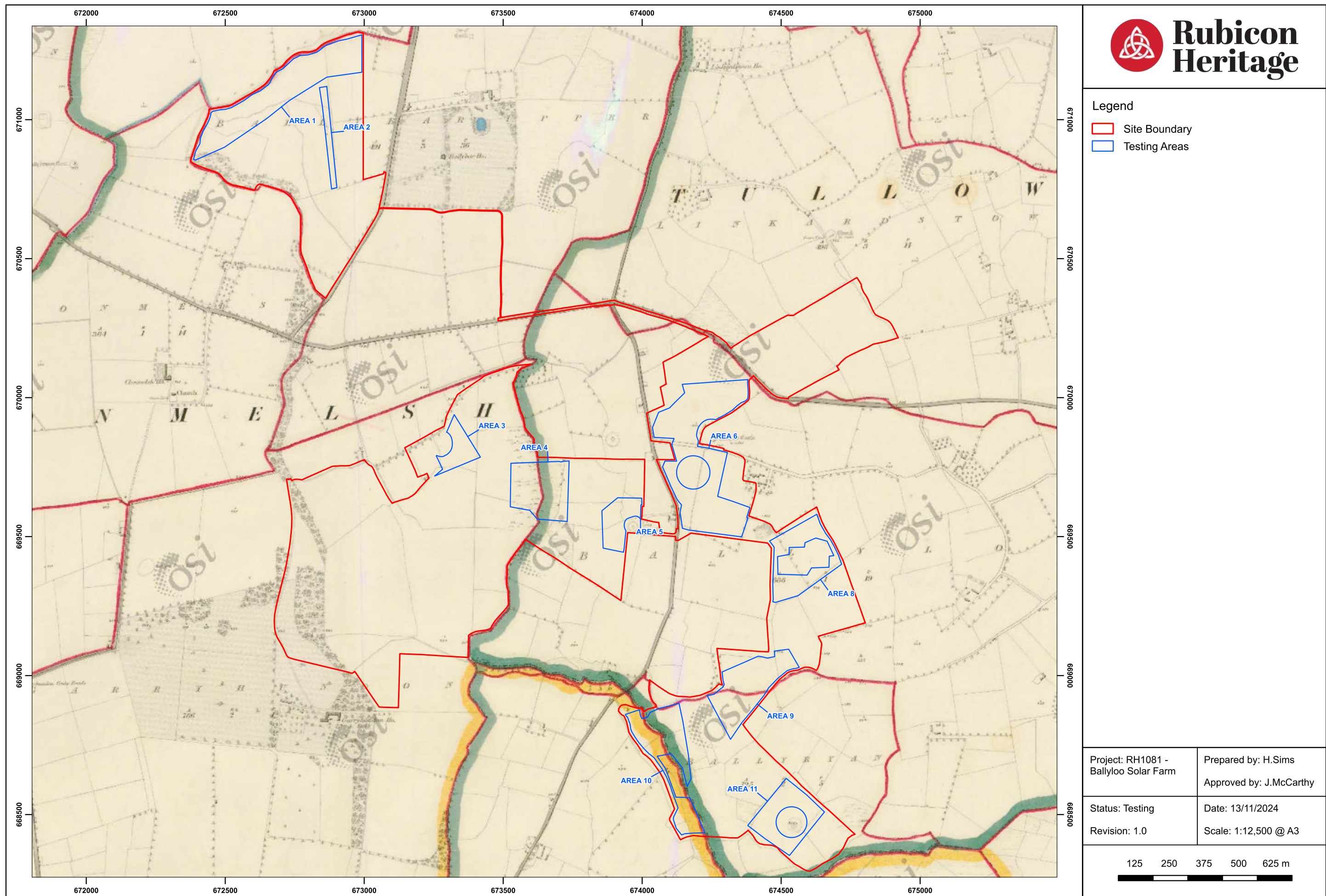


Figure 4 - First edition 6-inch Ordnance Survey map with the proposed development site.

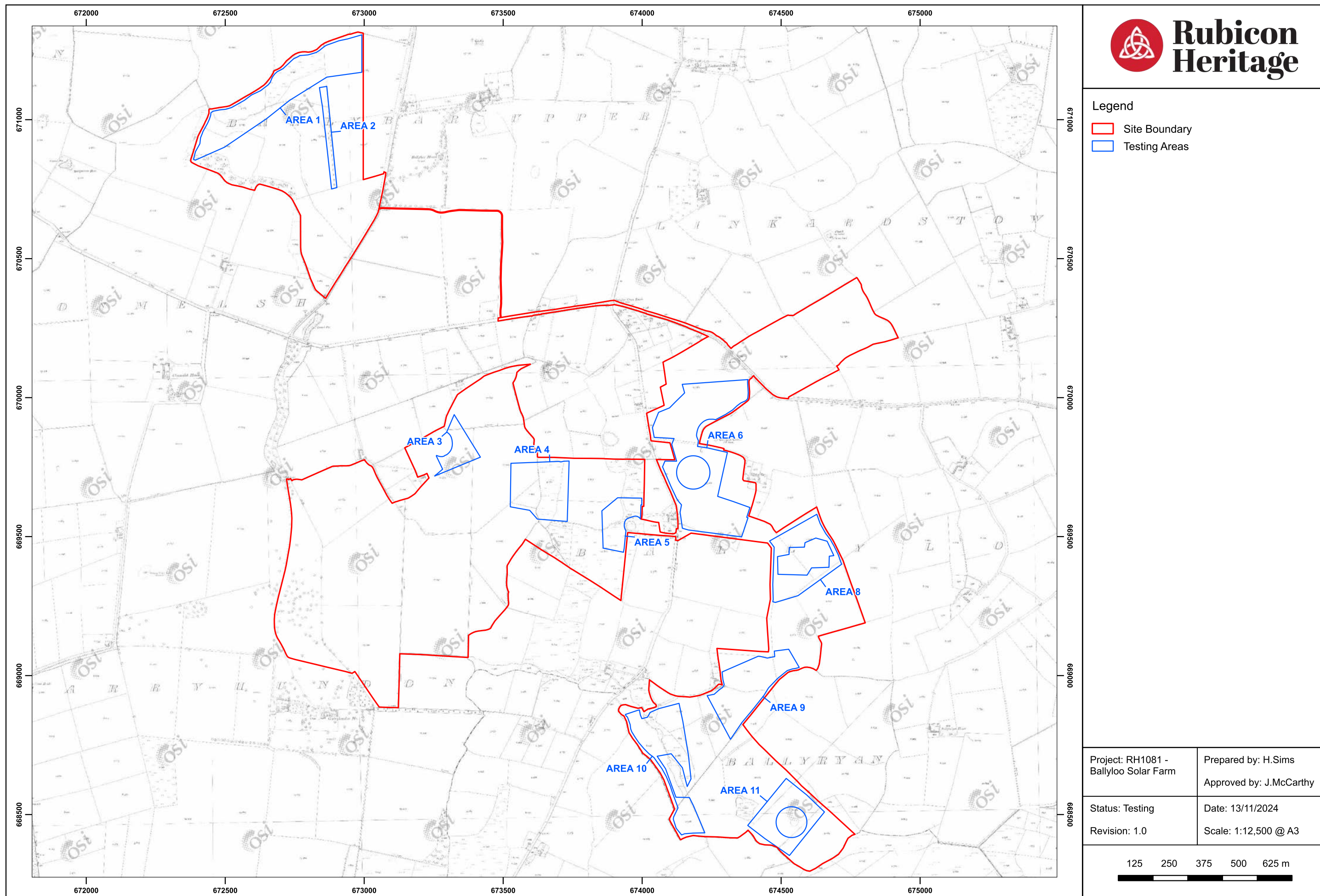
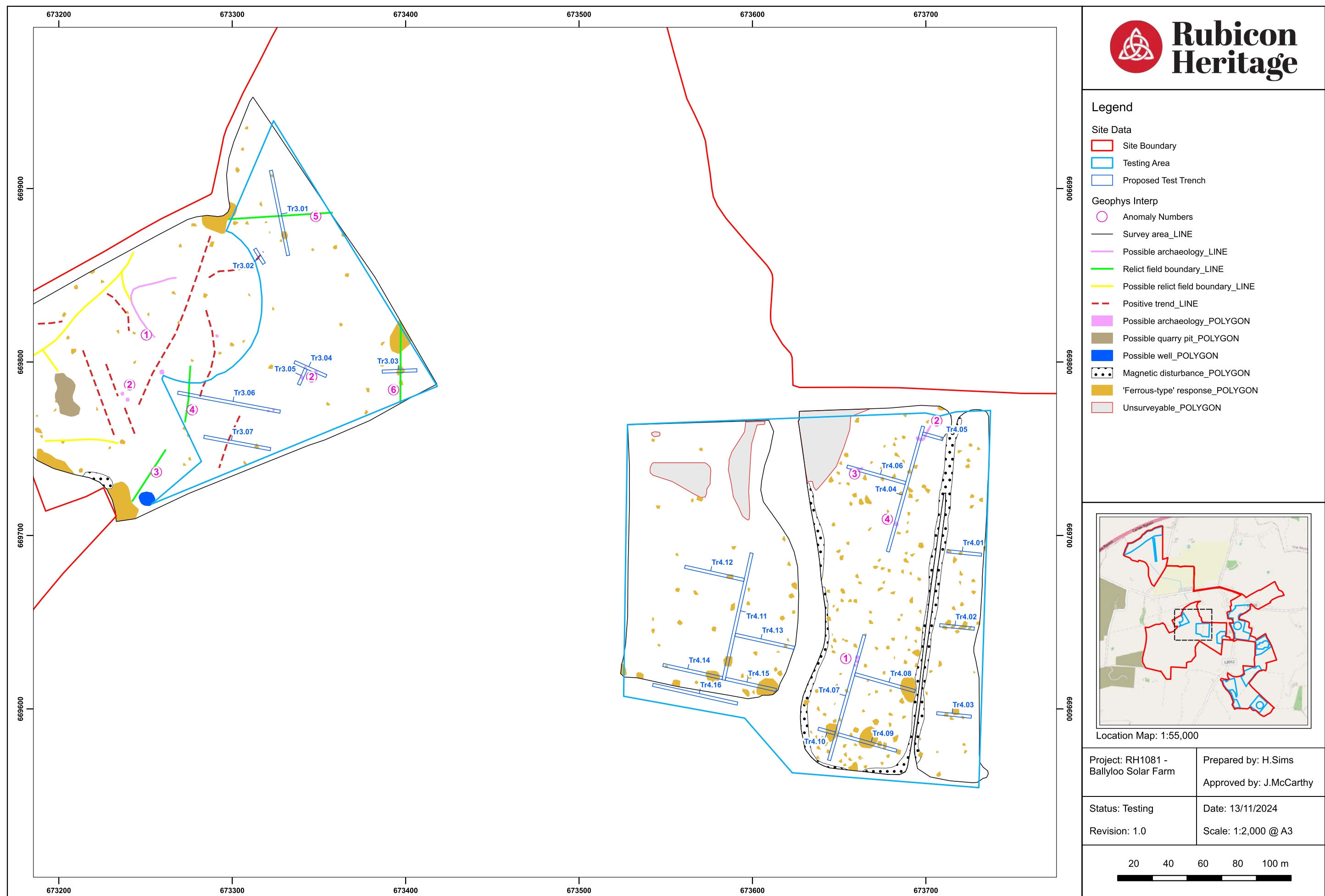
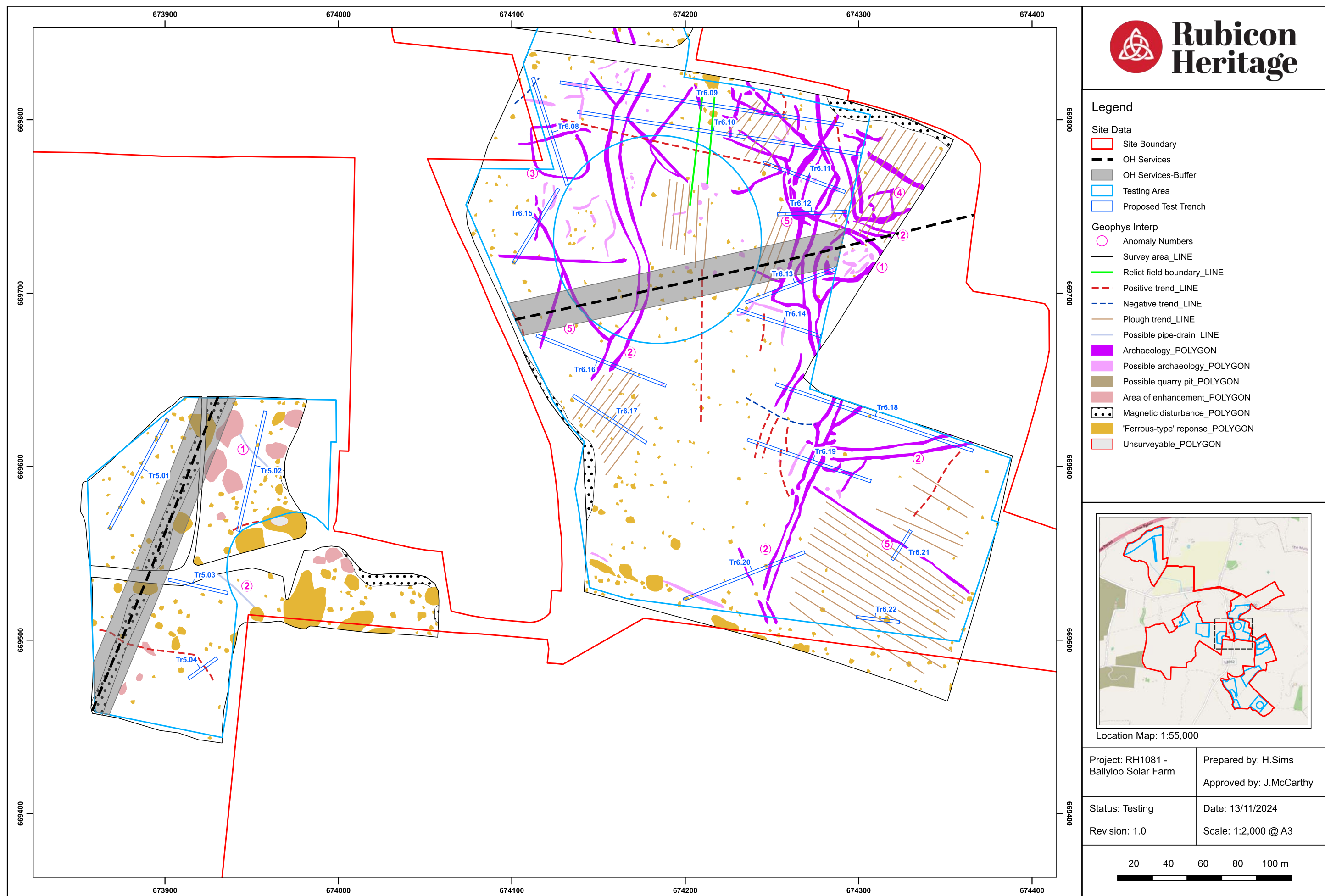


Figure 5 - First edition 25-inch Ordnance Survey map with the proposed development site.







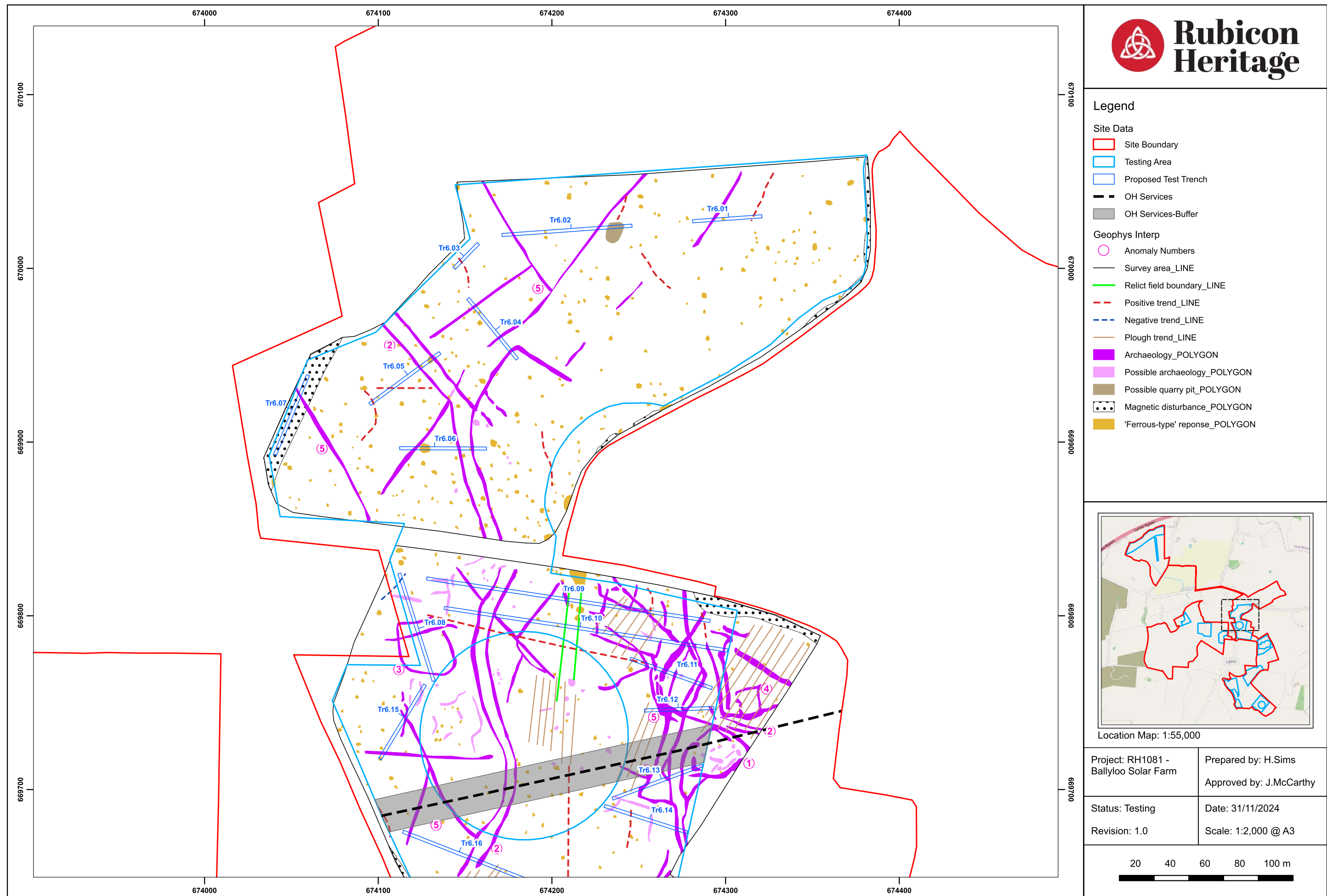
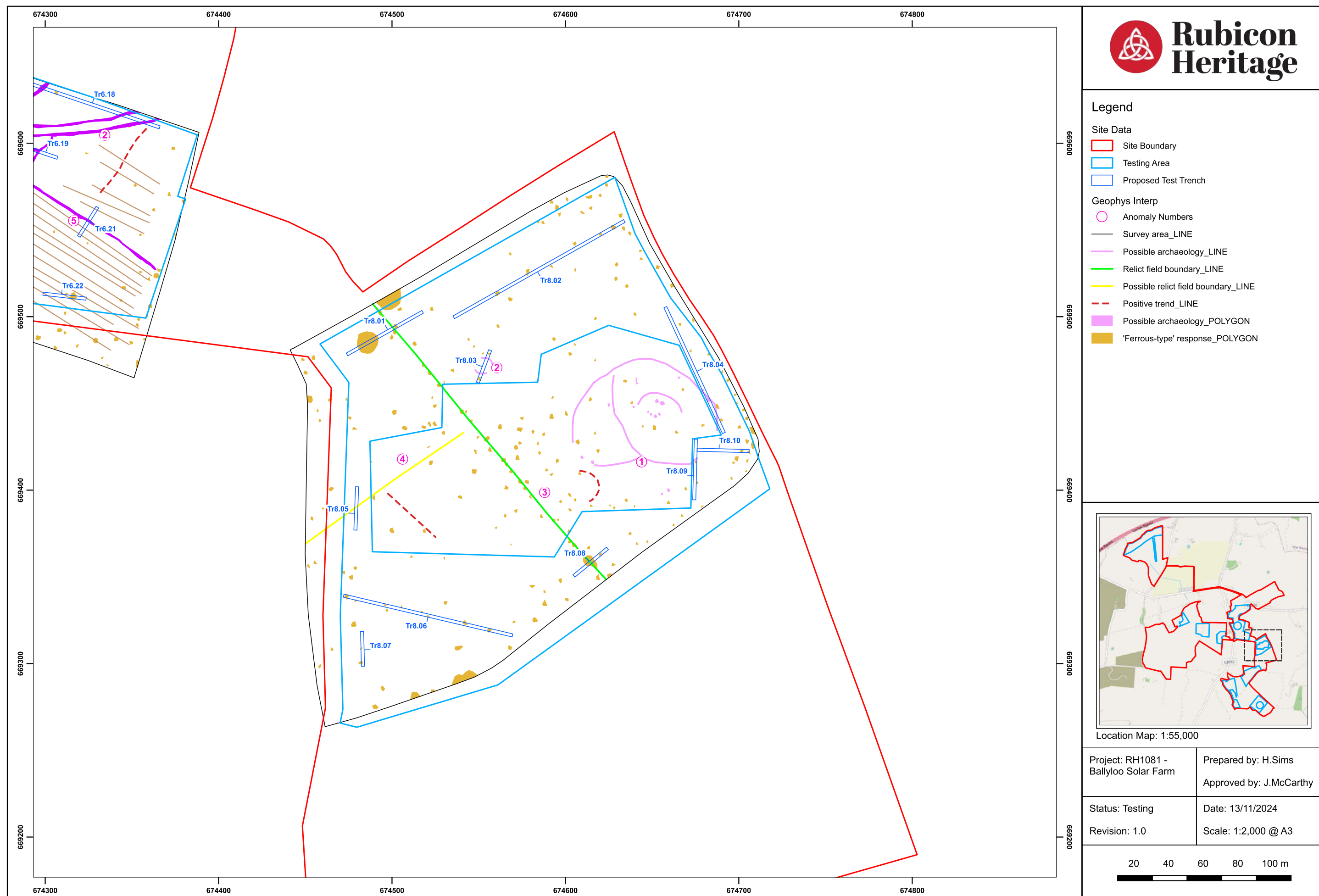


Figure 9 - Area 6 (north): test trench array overlaid on to the geophysical survey results.



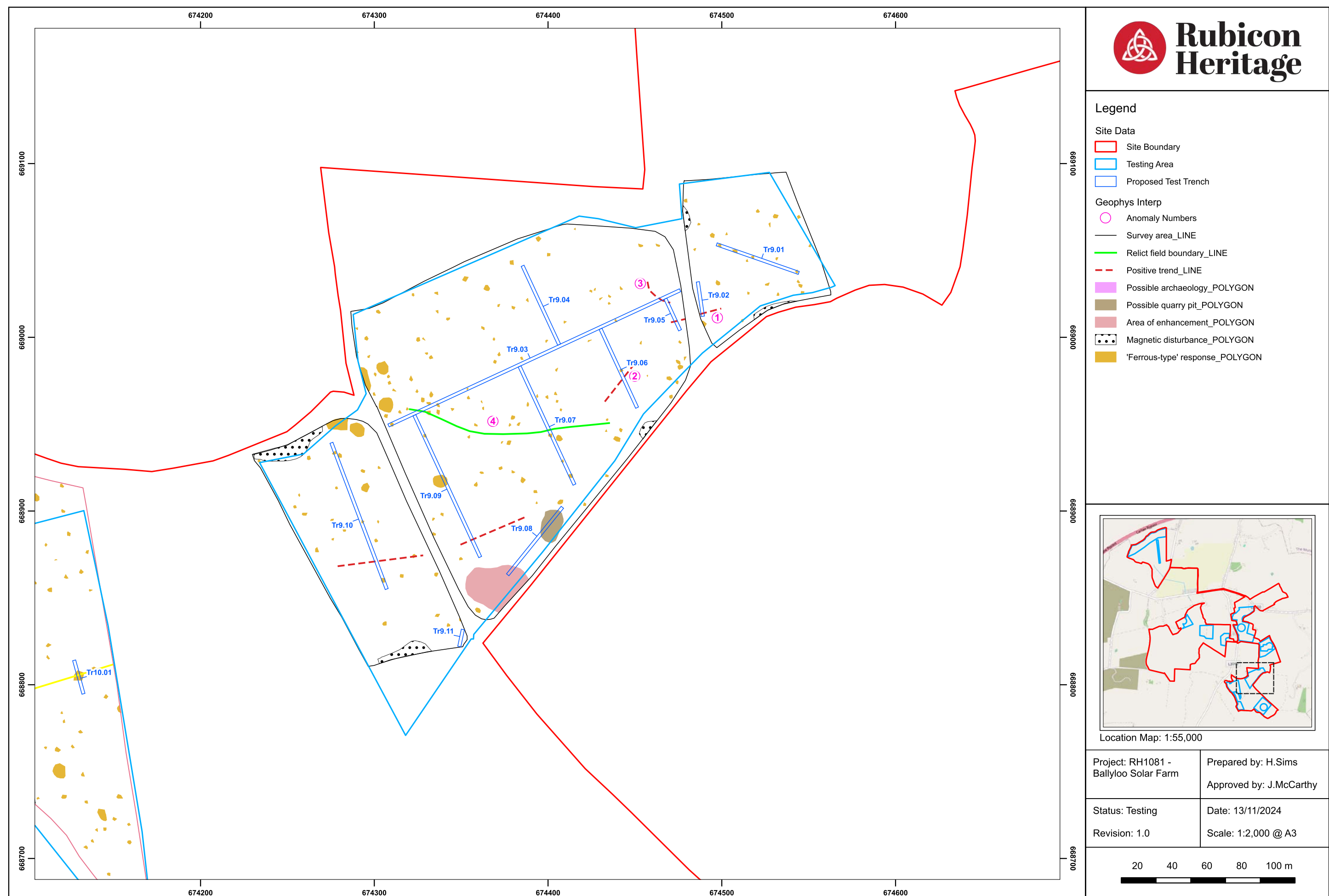


Figure 11 - Area 9: test trench array overlaid on to the geophysical survey results.

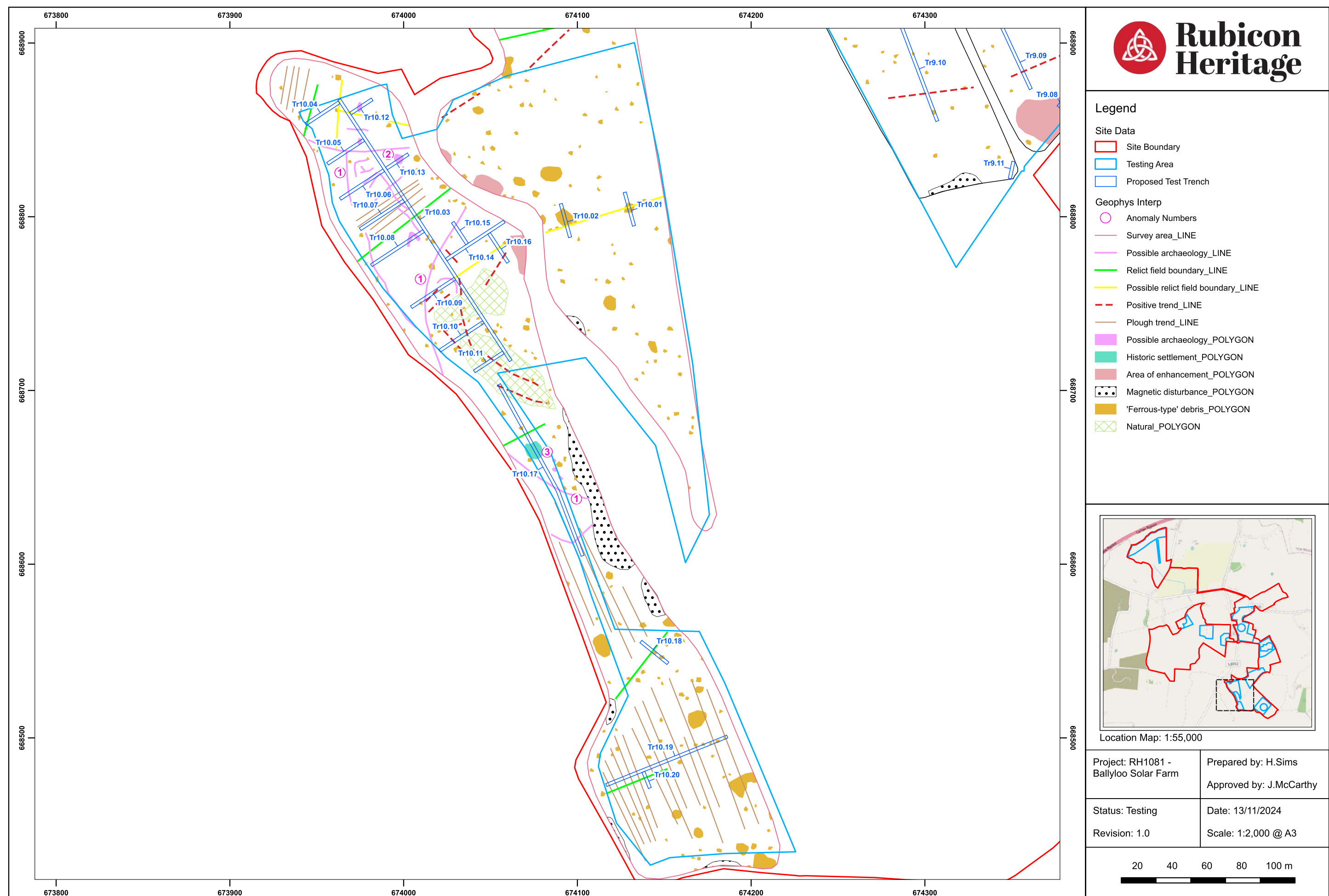


Figure 12 - Area 10: test trench array overlaid on to the geophysical survey results.

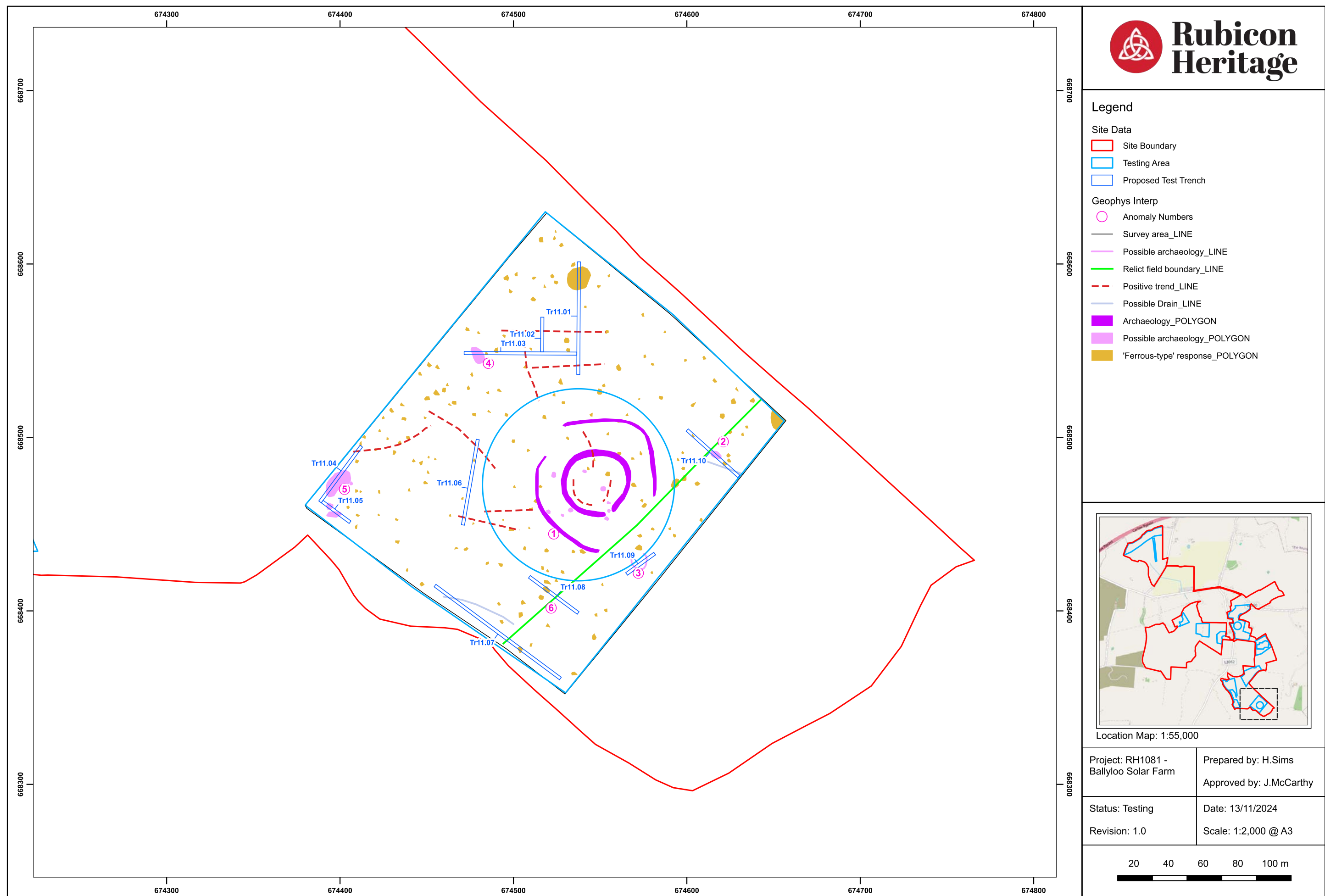
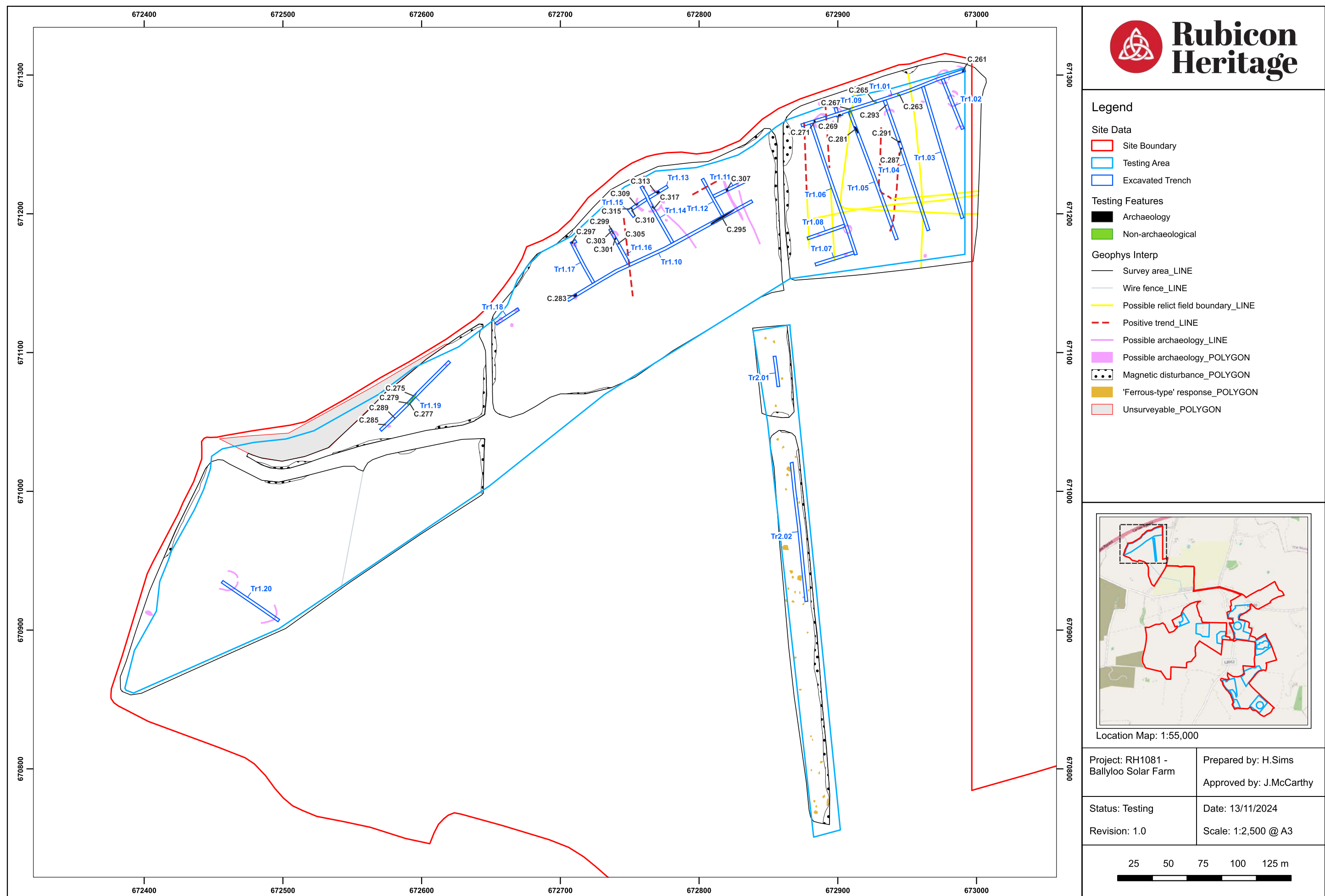
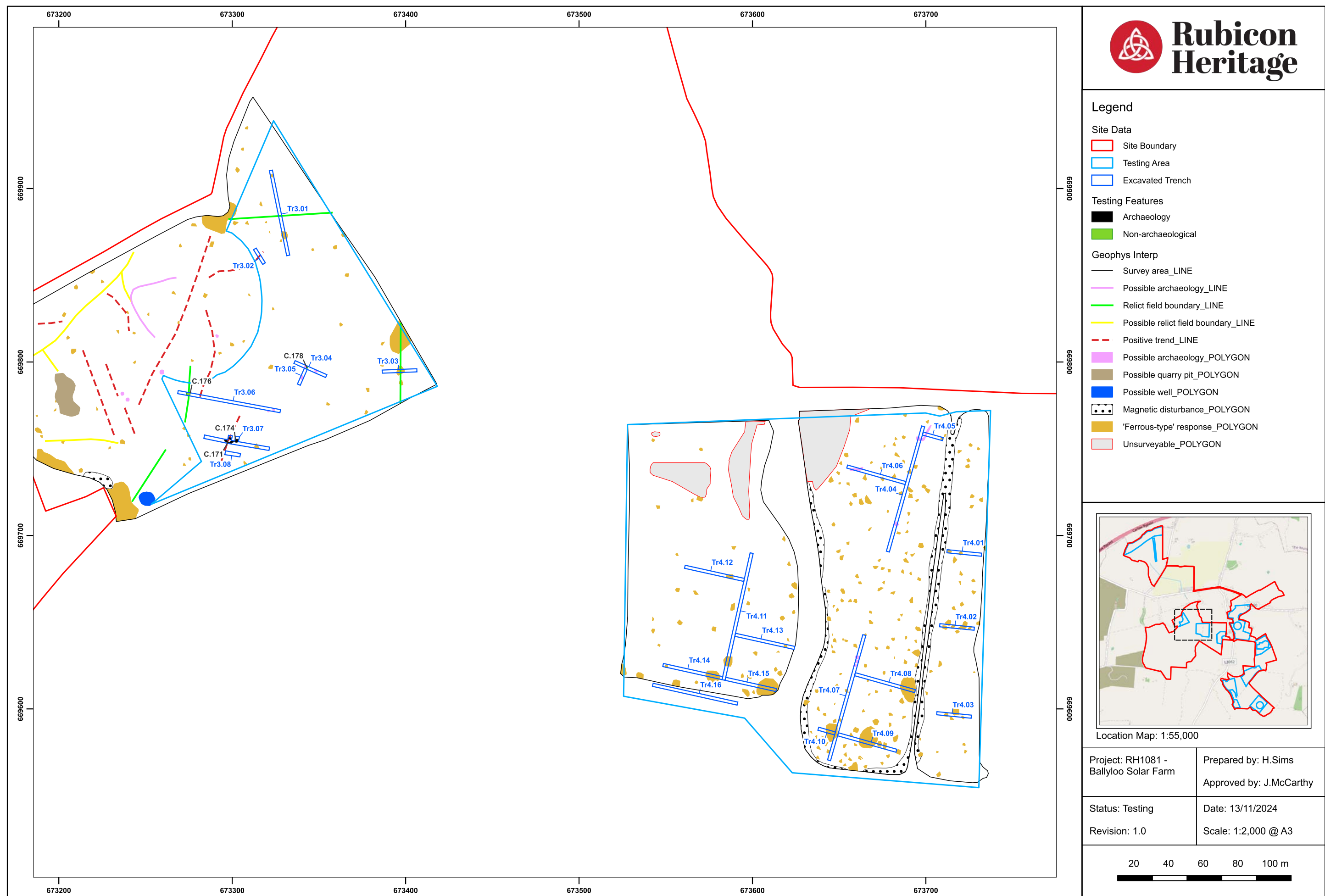


Figure 13 - Area 11: test trench array overlaid on to the geophysical survey results.





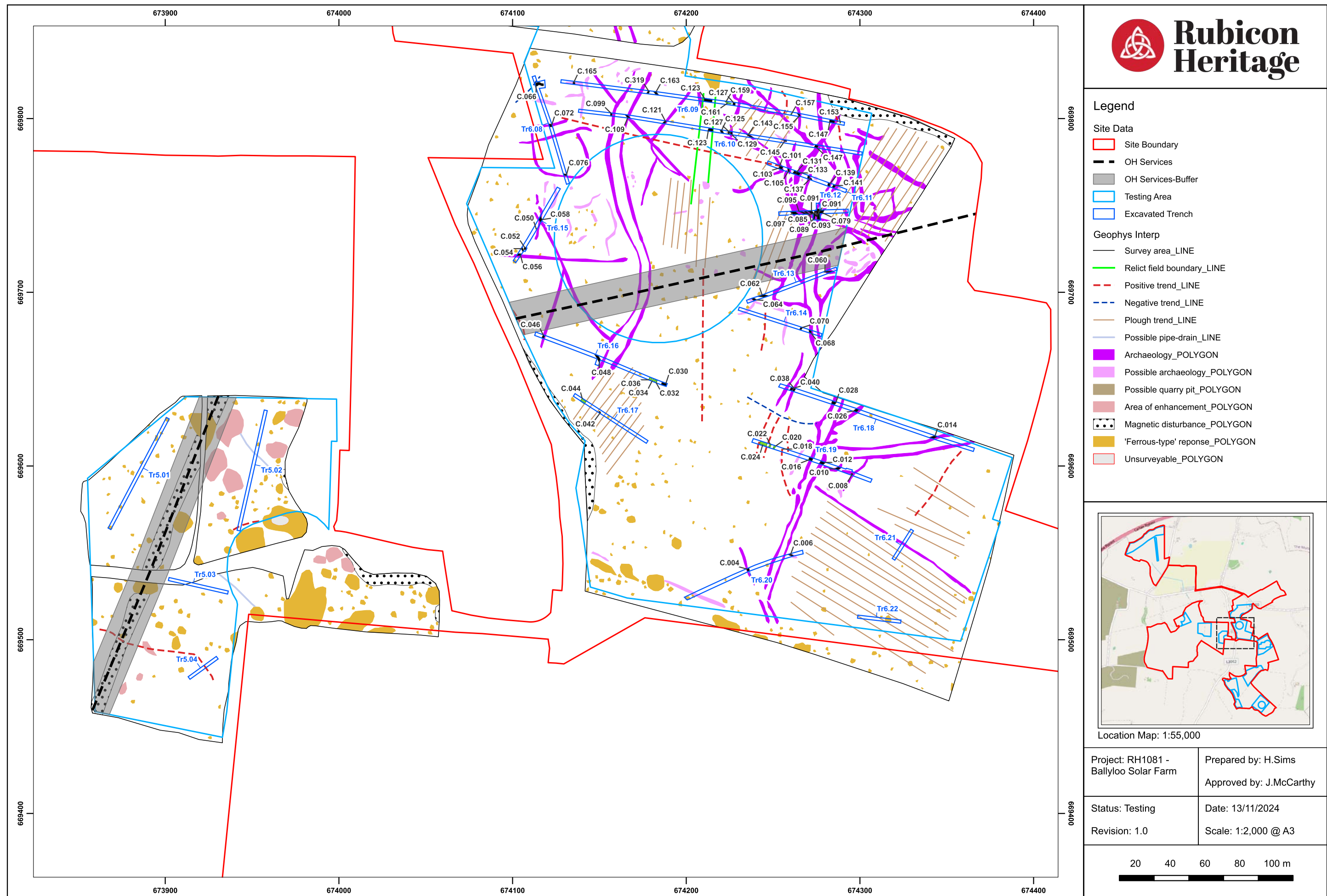


Figure 16 - Areas 5 & 6 (south): test trench results overlaid on to the geophysical survey results.

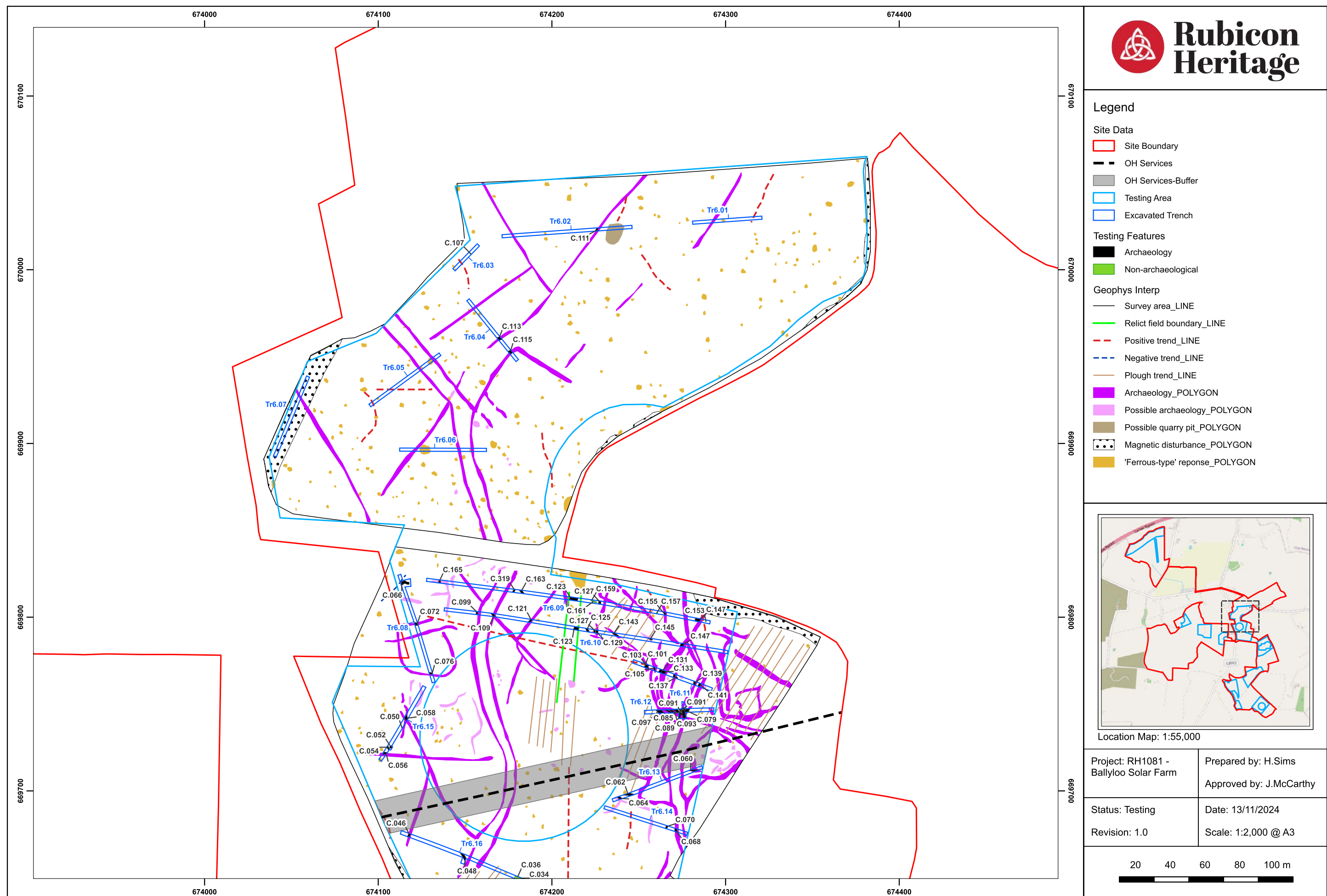


Figure 17 - Area 6 (north): test trench results overlaid on to the geophysical survey results.

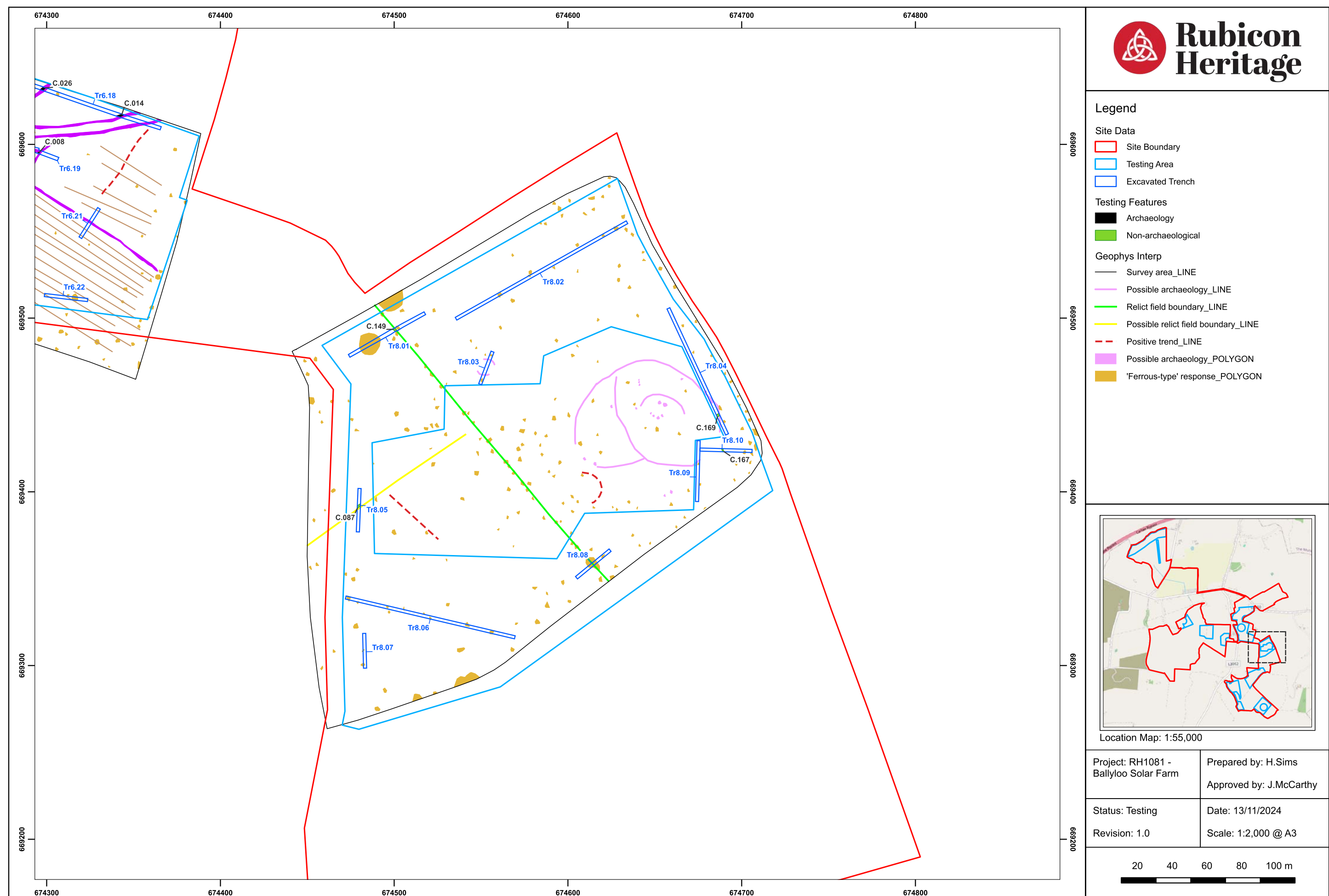
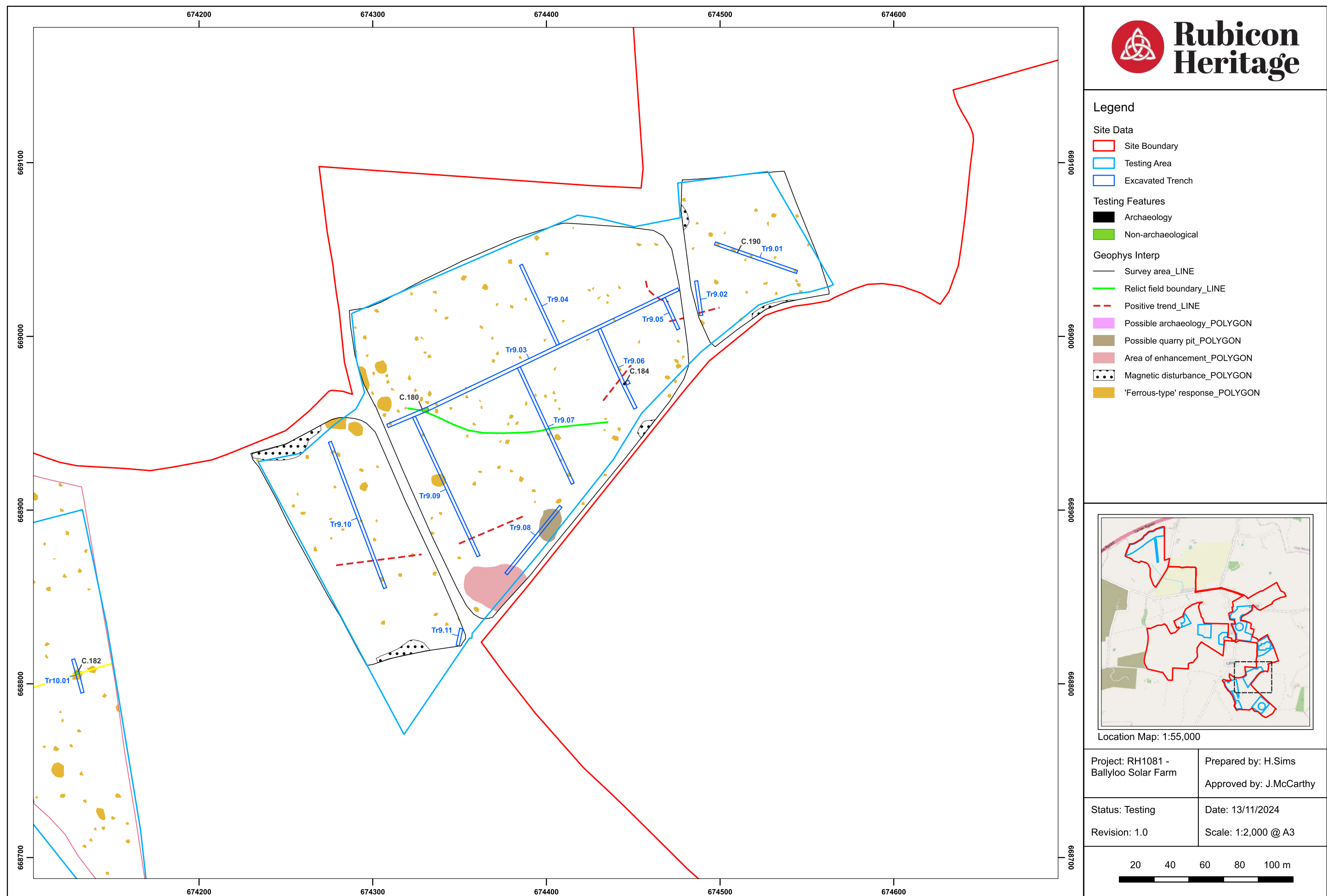


Figure 18 - Area 8: test trench results overlaid on to the geophysical survey results.



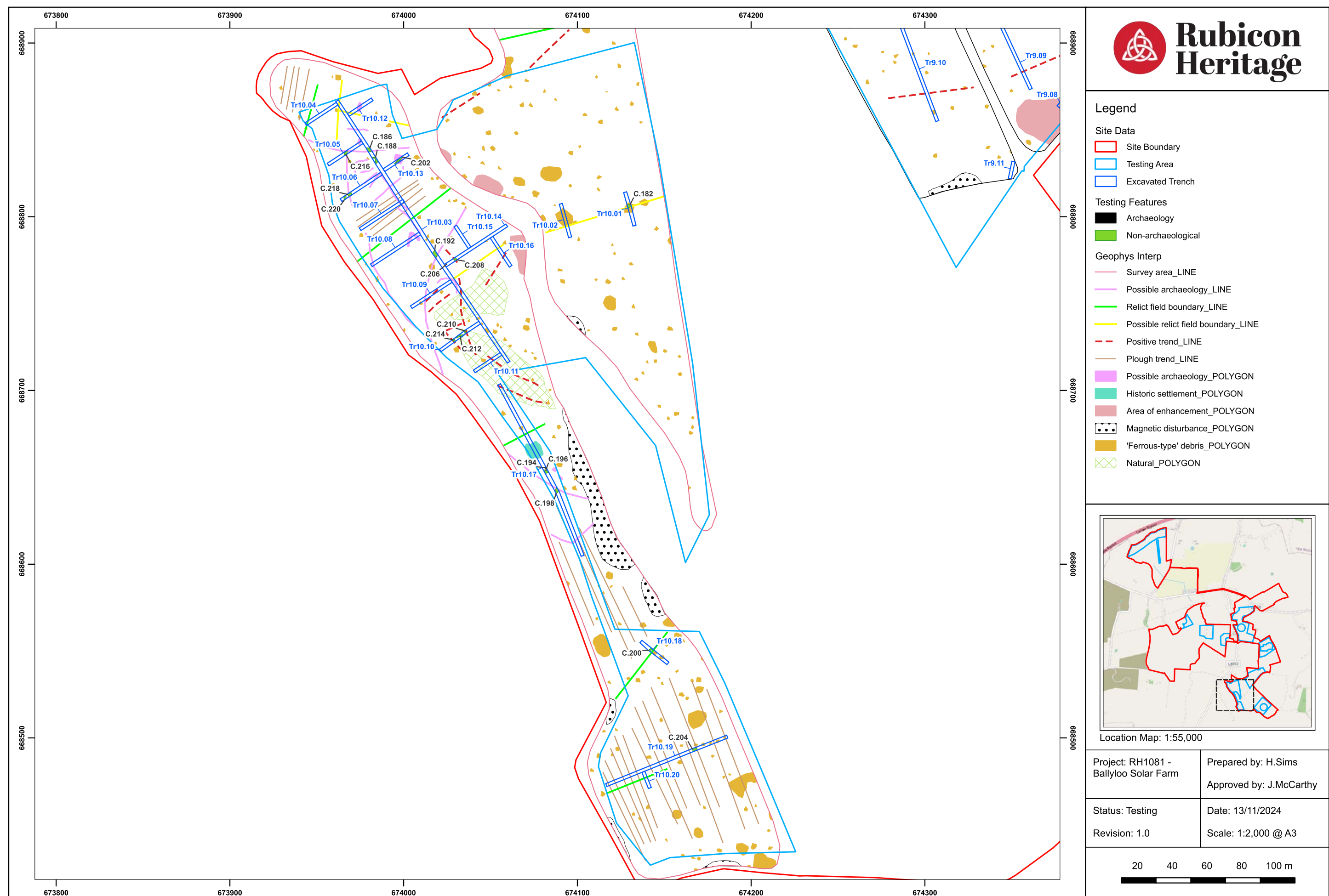
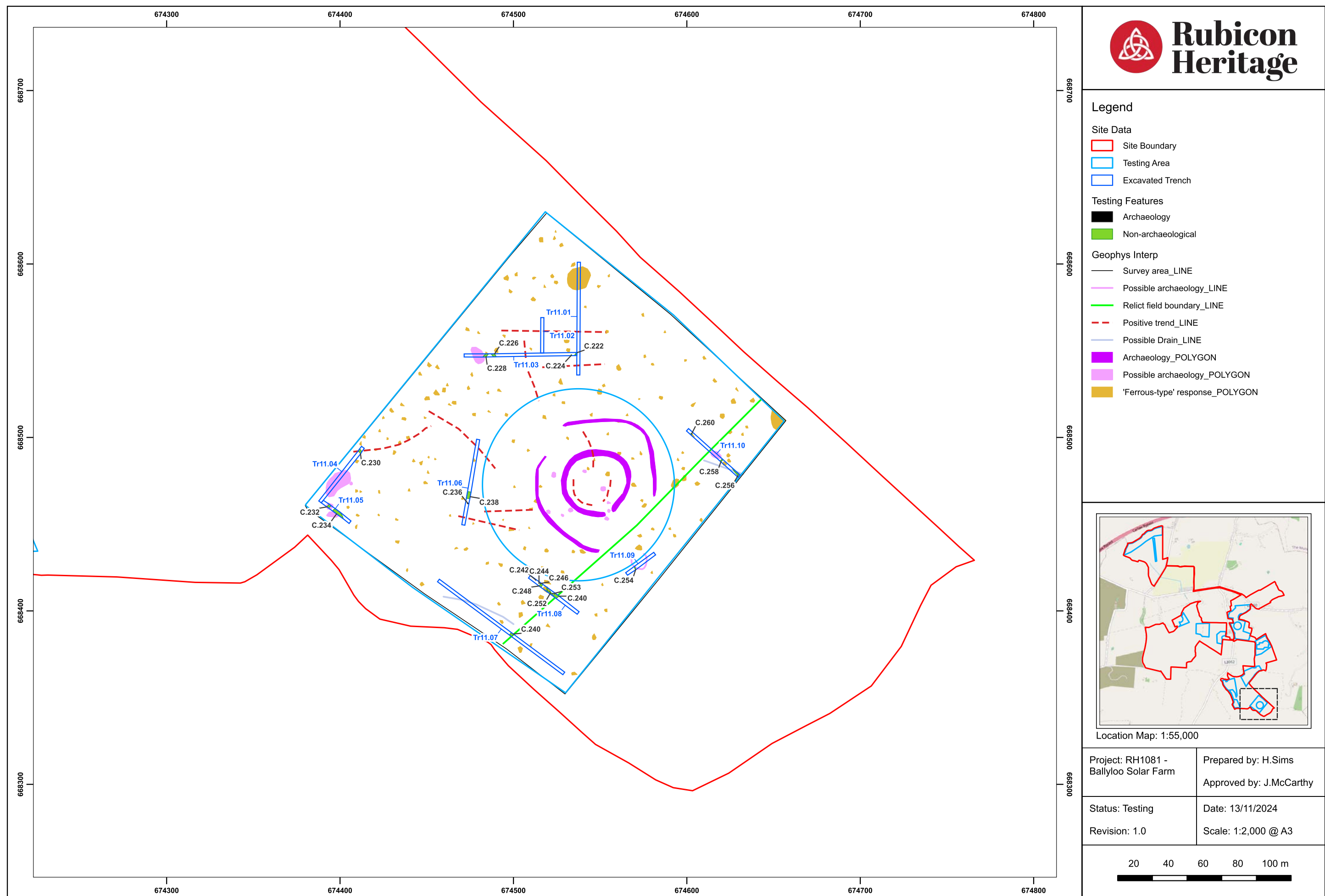


Figure 20 - Area 10: test trench results overlaid on to the geophysical survey results.



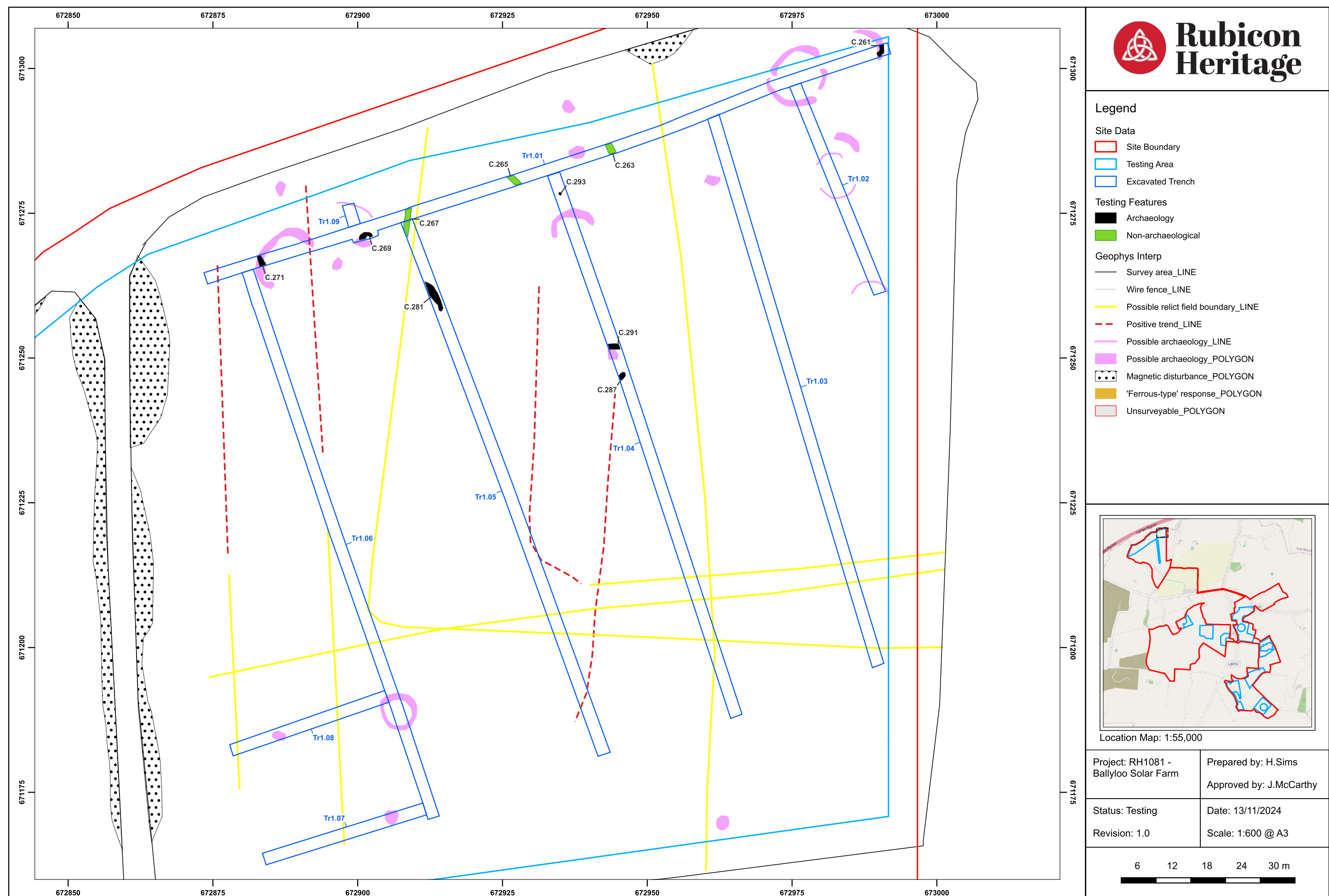


Figure 22 - Area 1: Detail of archaeology identified in Tr1.01, 1.04, and 1.05 overlaid on to the geophysical survey results.

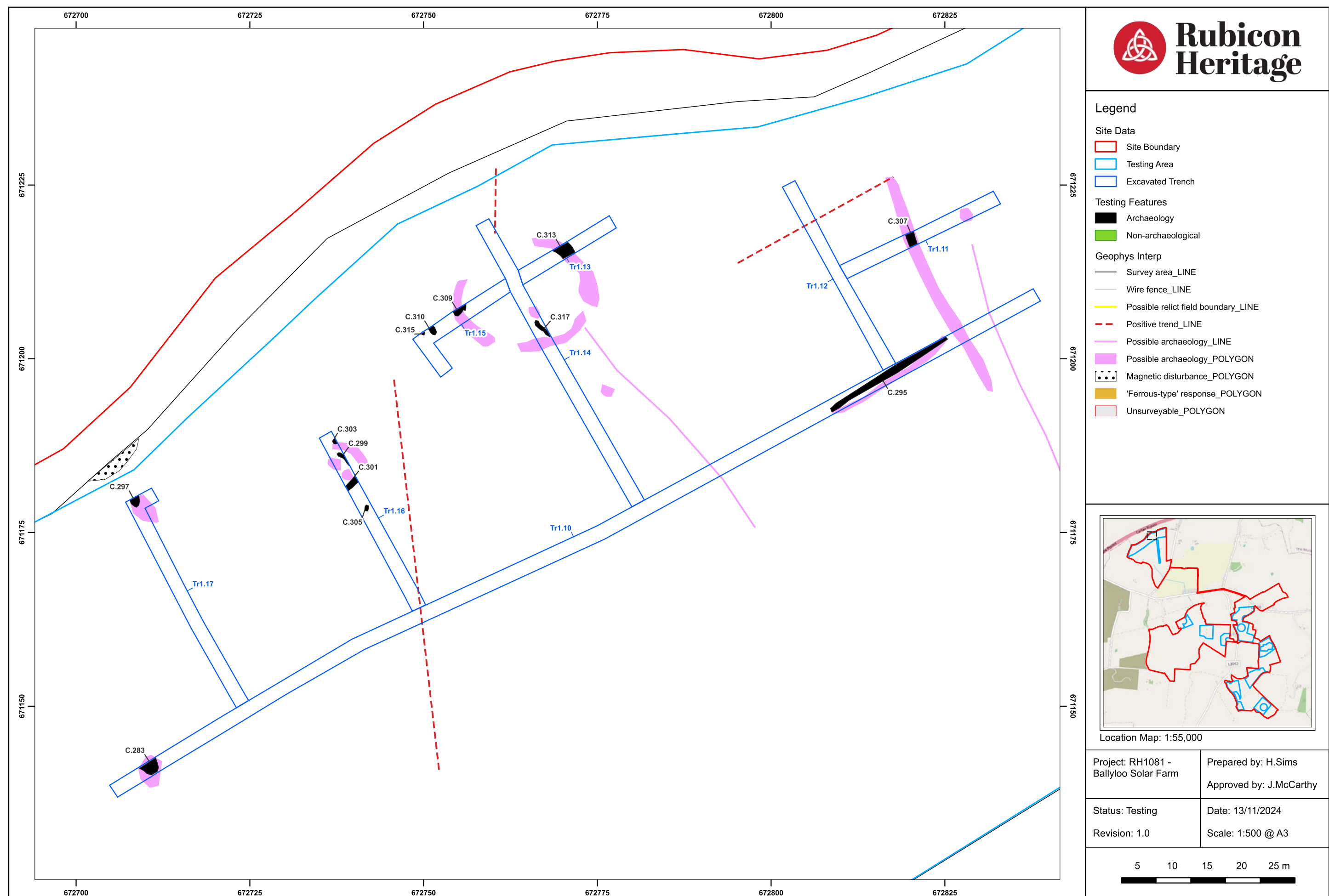
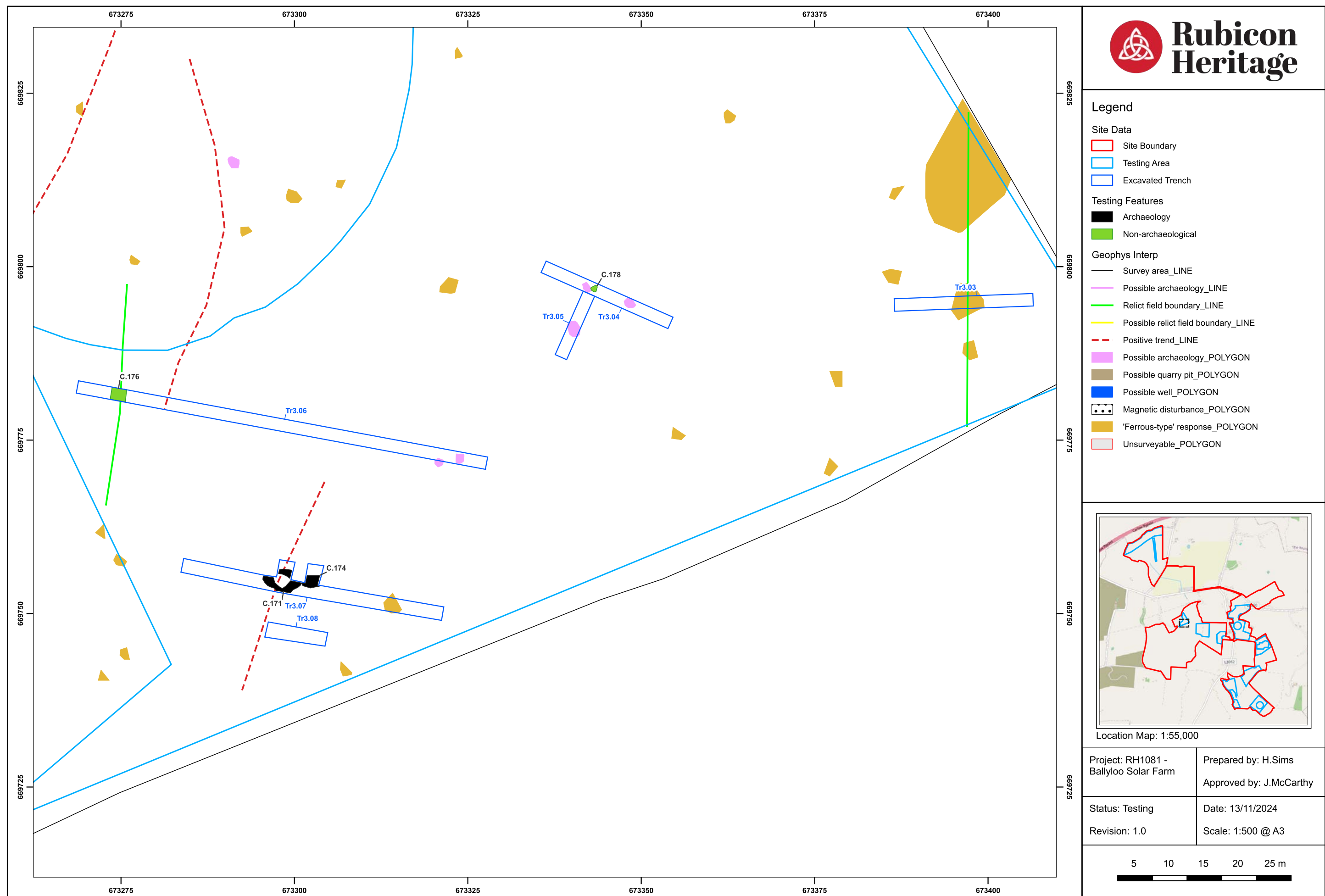
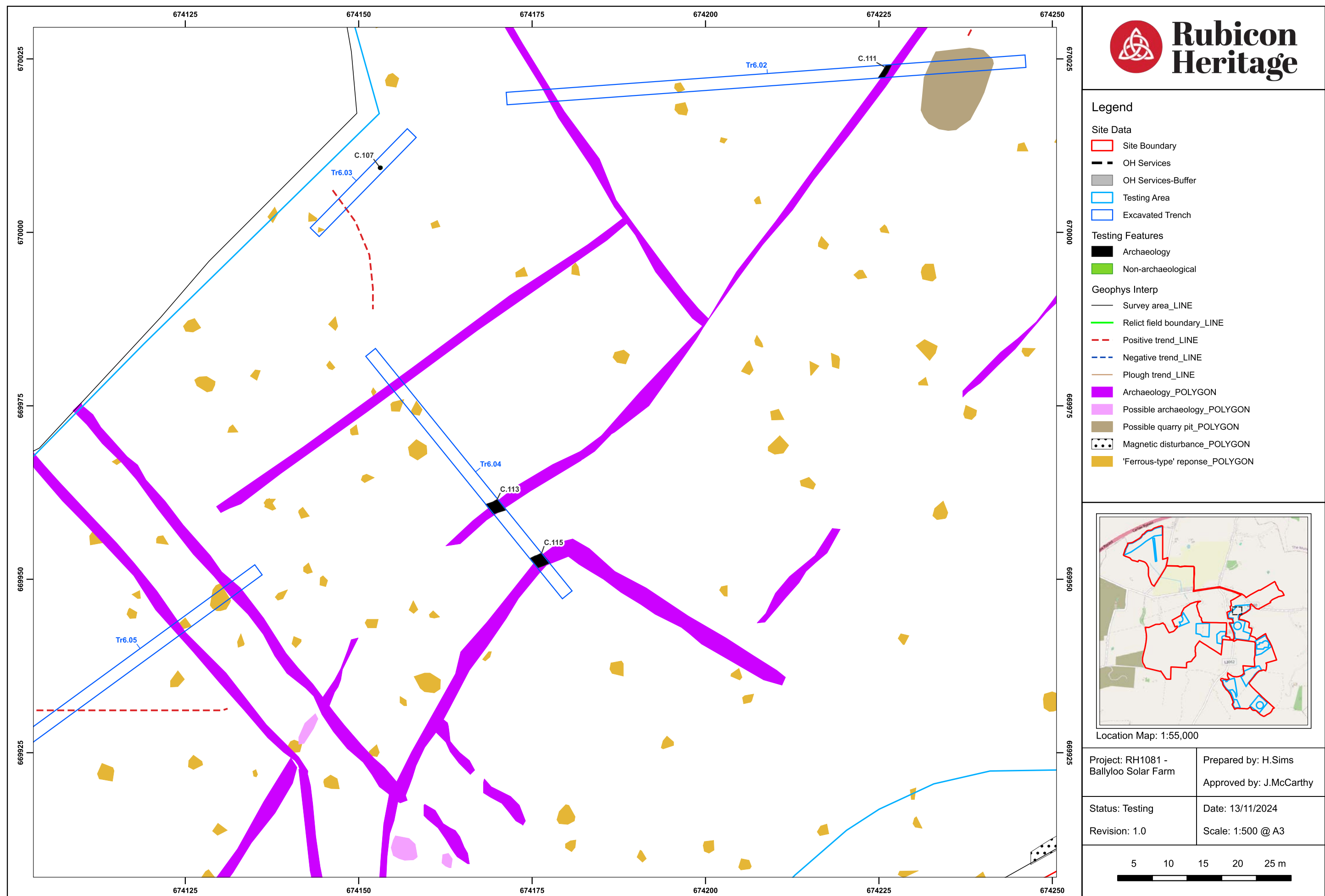


Figure 23 - Area 1: Detail of archaeology identified in Tr1.10, 1.11, 1.13, 1.14, 1.15, 1.16, and 1.17 overlaid on to the geophysical survey results.





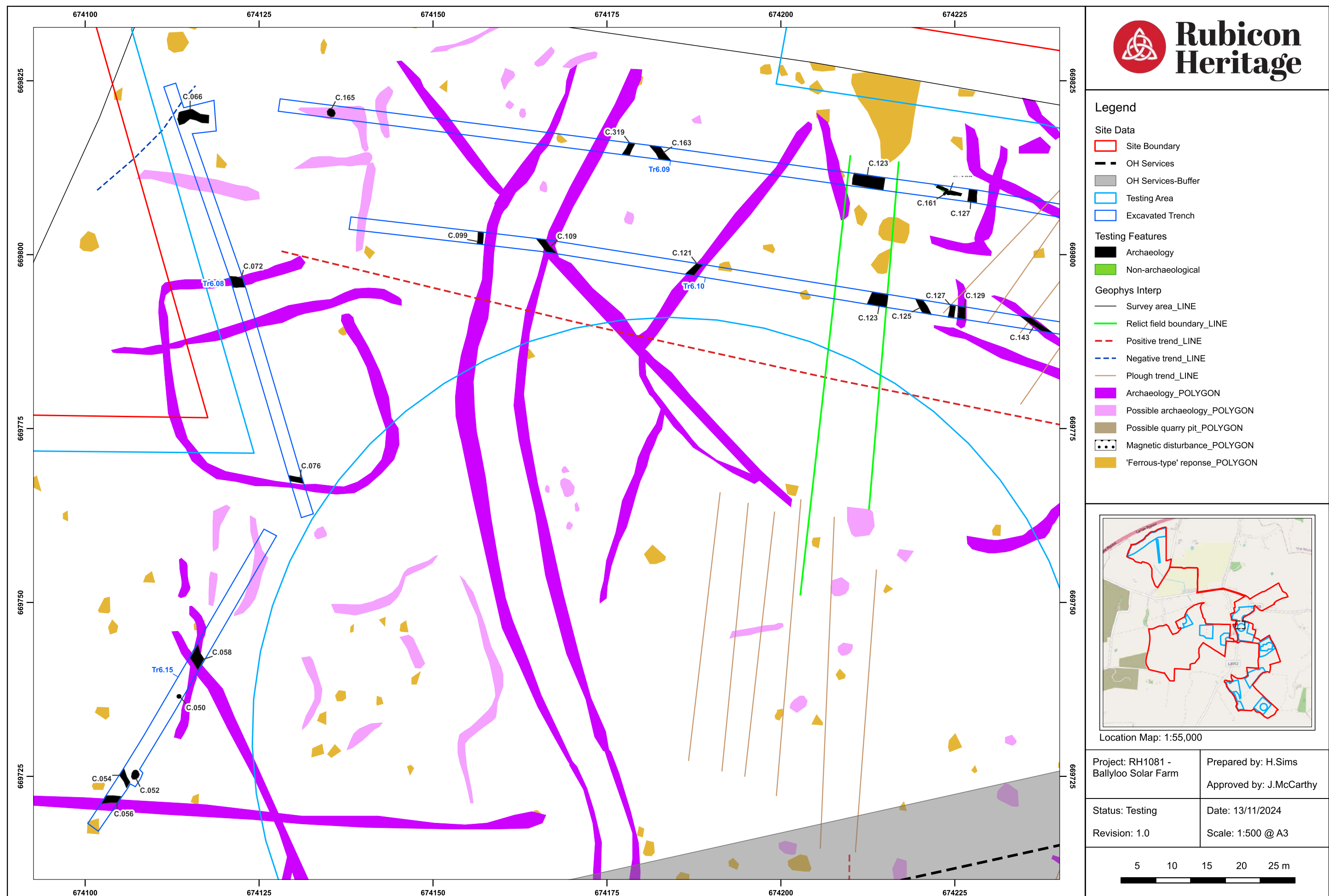


Figure 26 - Area 6: Detail of archaeology identified in Tr6.08, 6.09, 6.10, and 6.15 overlaid on to the geophysical survey results.

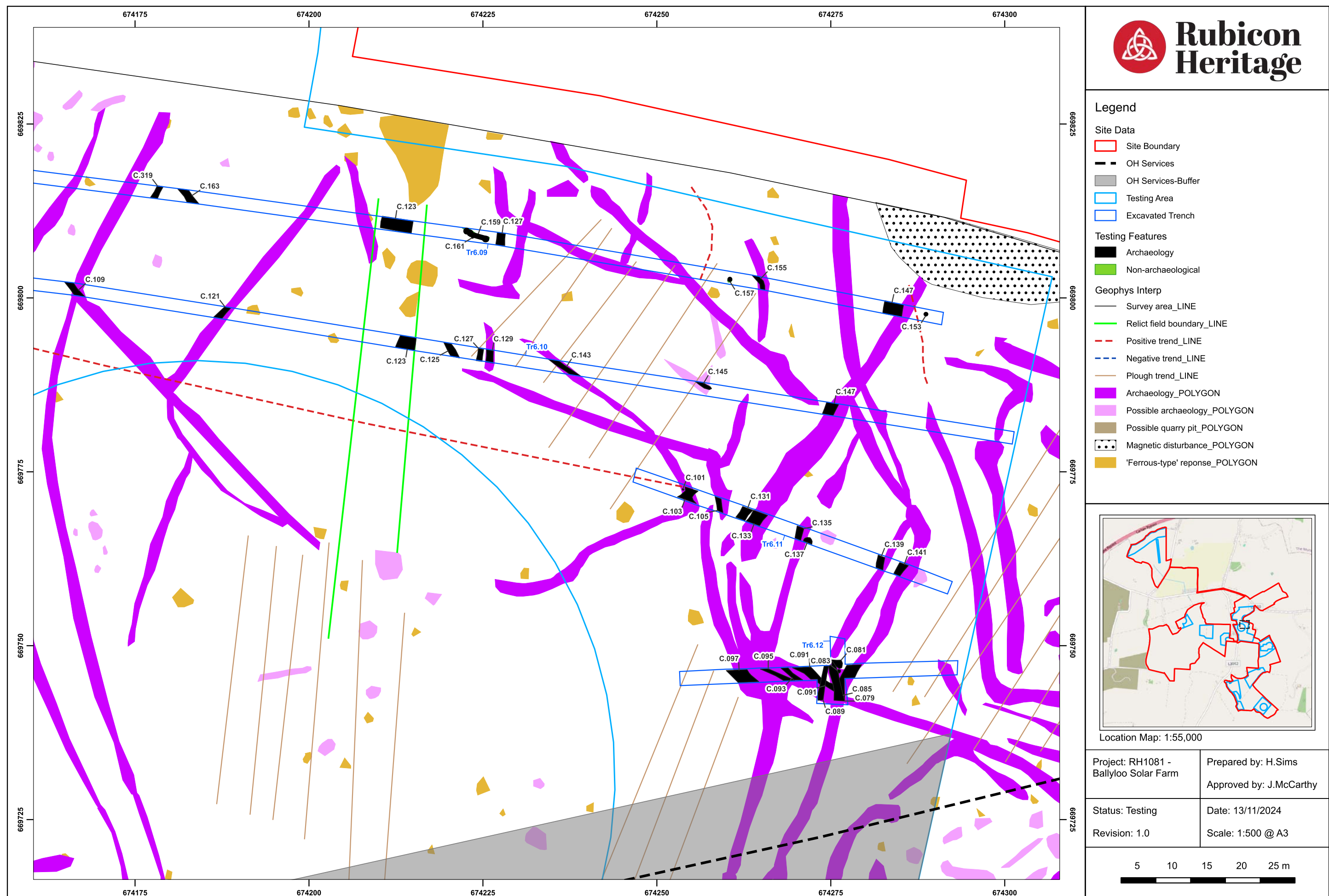


Figure 27 - Area 6: Detail of archaeology identified in Tr6.09, 6.10, 6.11, and 6.12 overlaid on to the geophysical survey results.

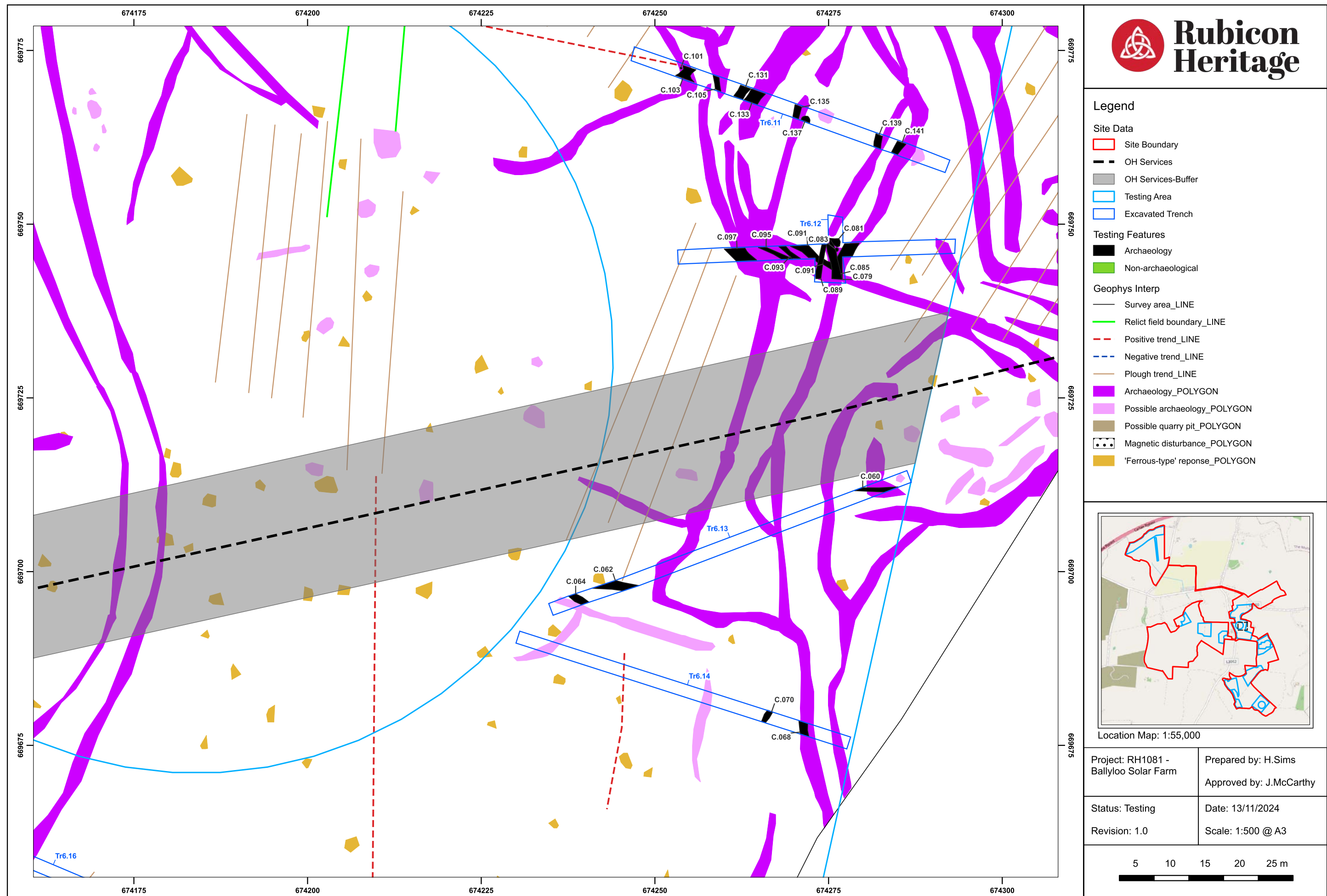
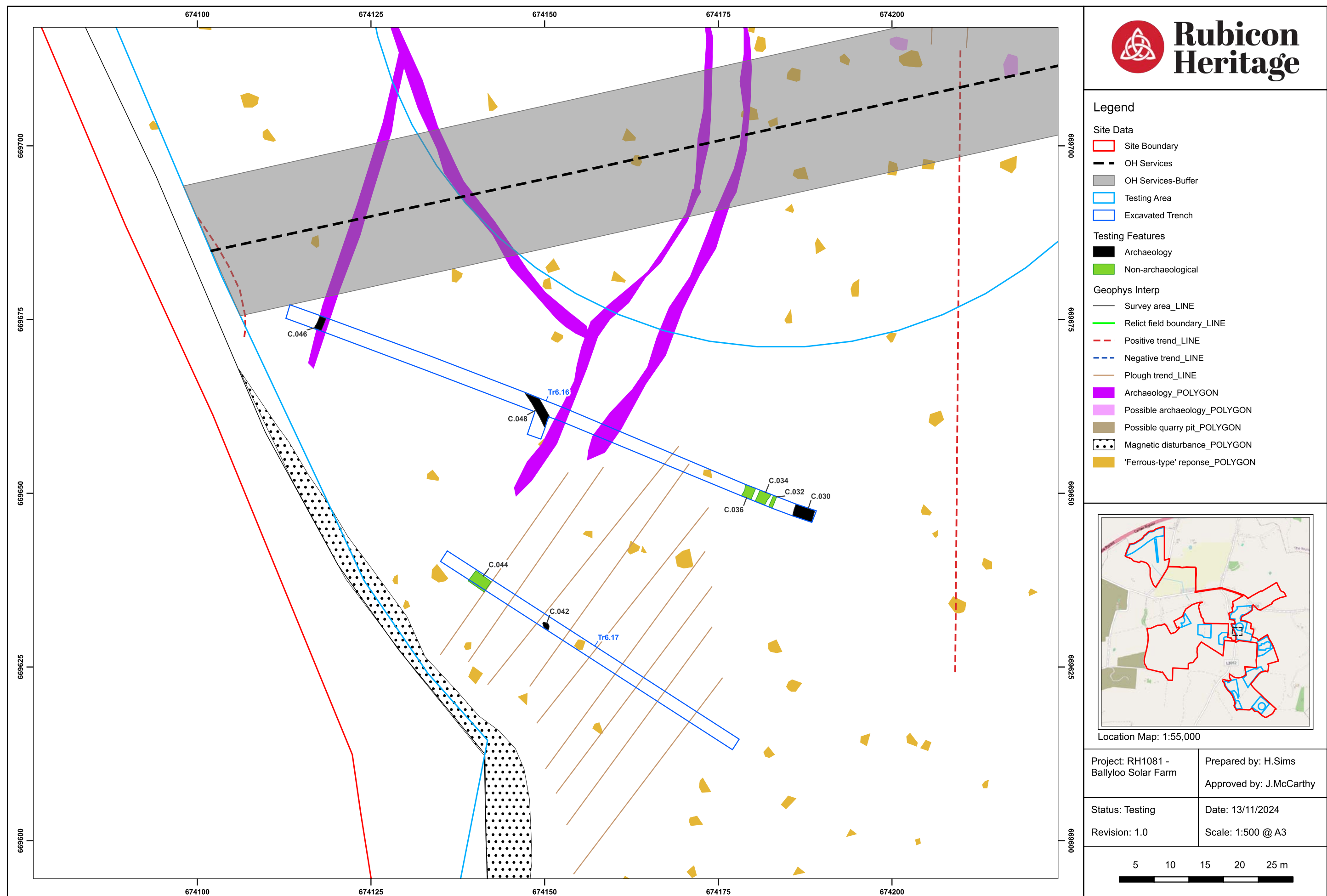


Figure 28 - Area 6: Detail of archaeology identified in Tr6.11,6.12, 6.13 and 6.14 overlaid on to the geophysical survey results.



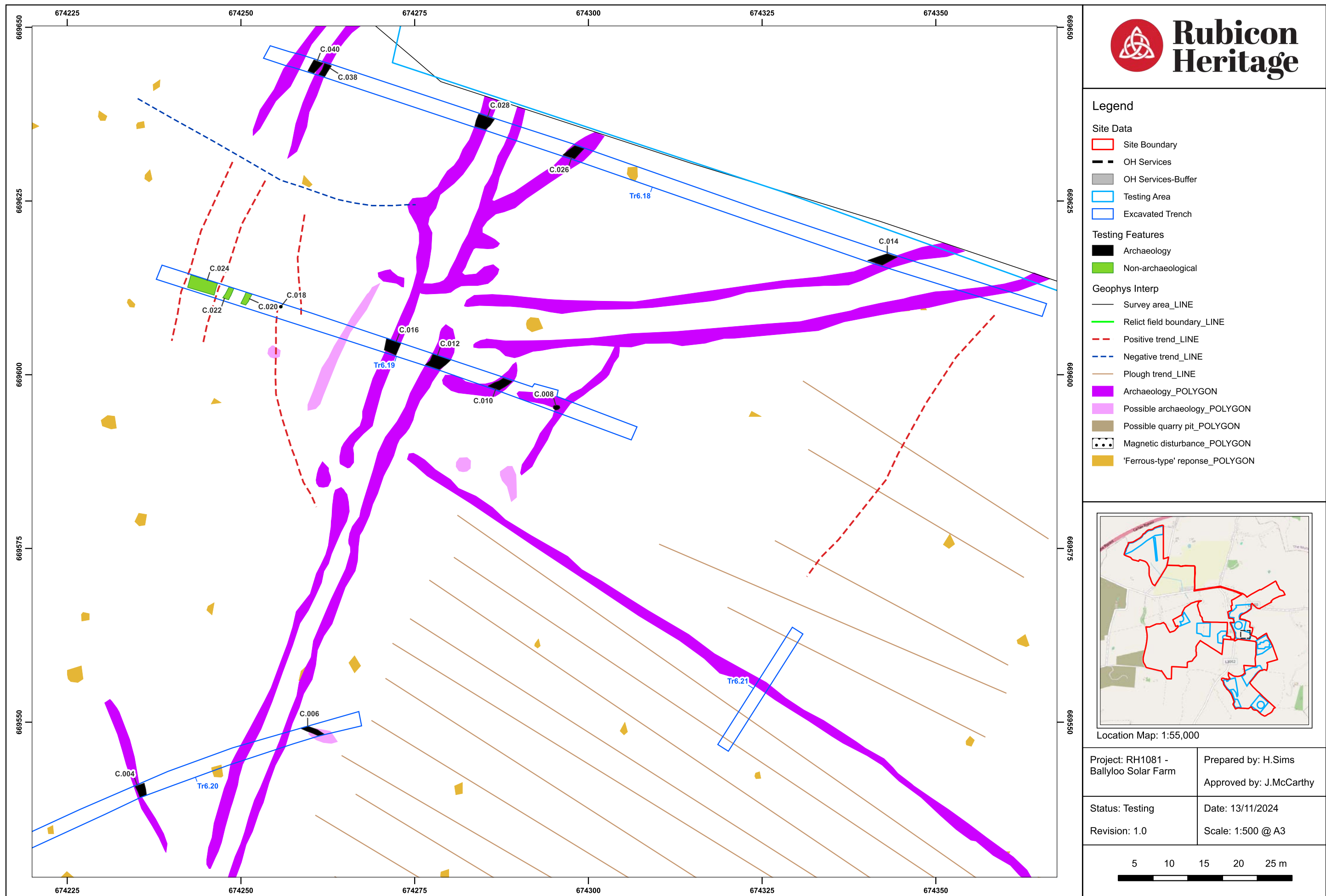
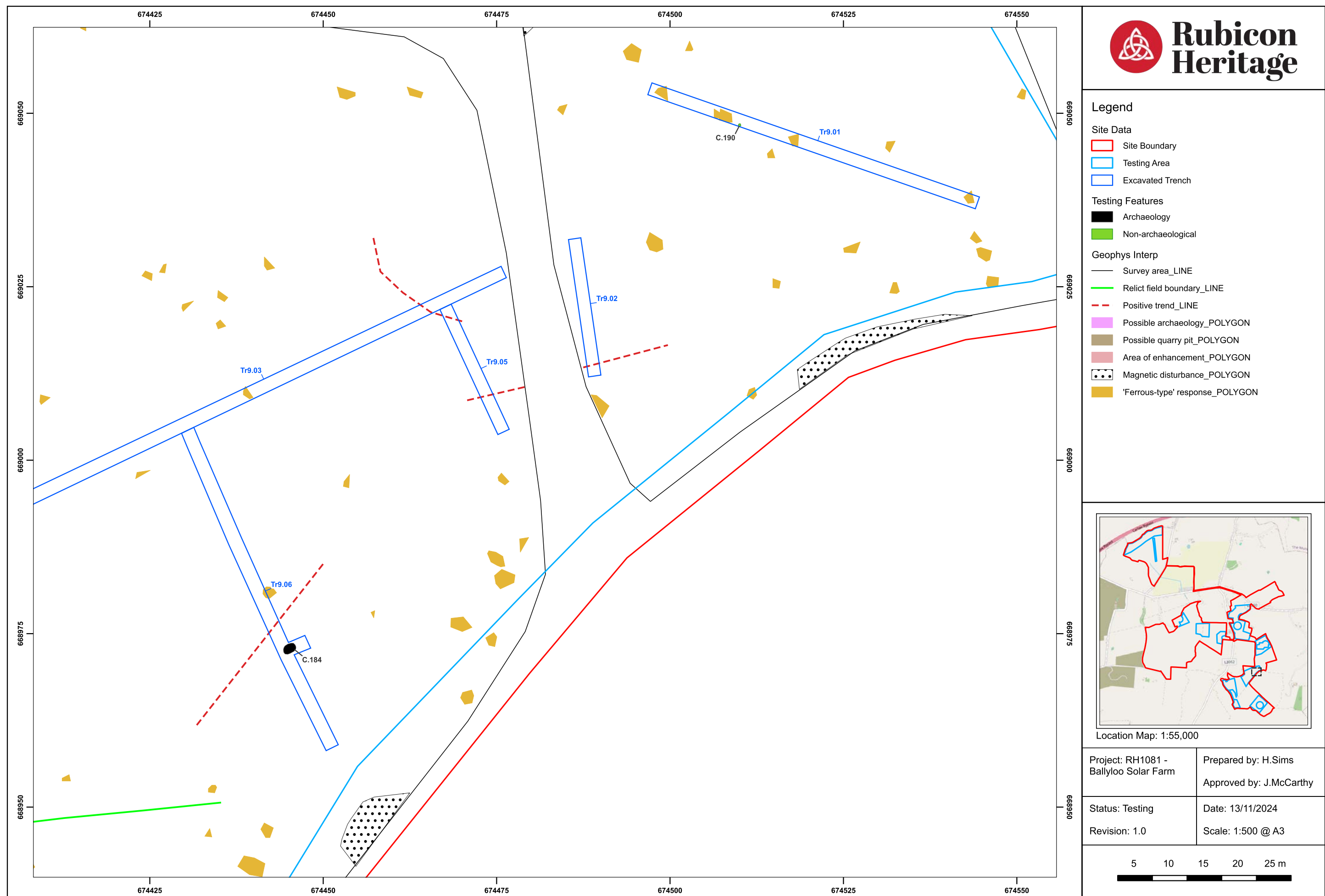
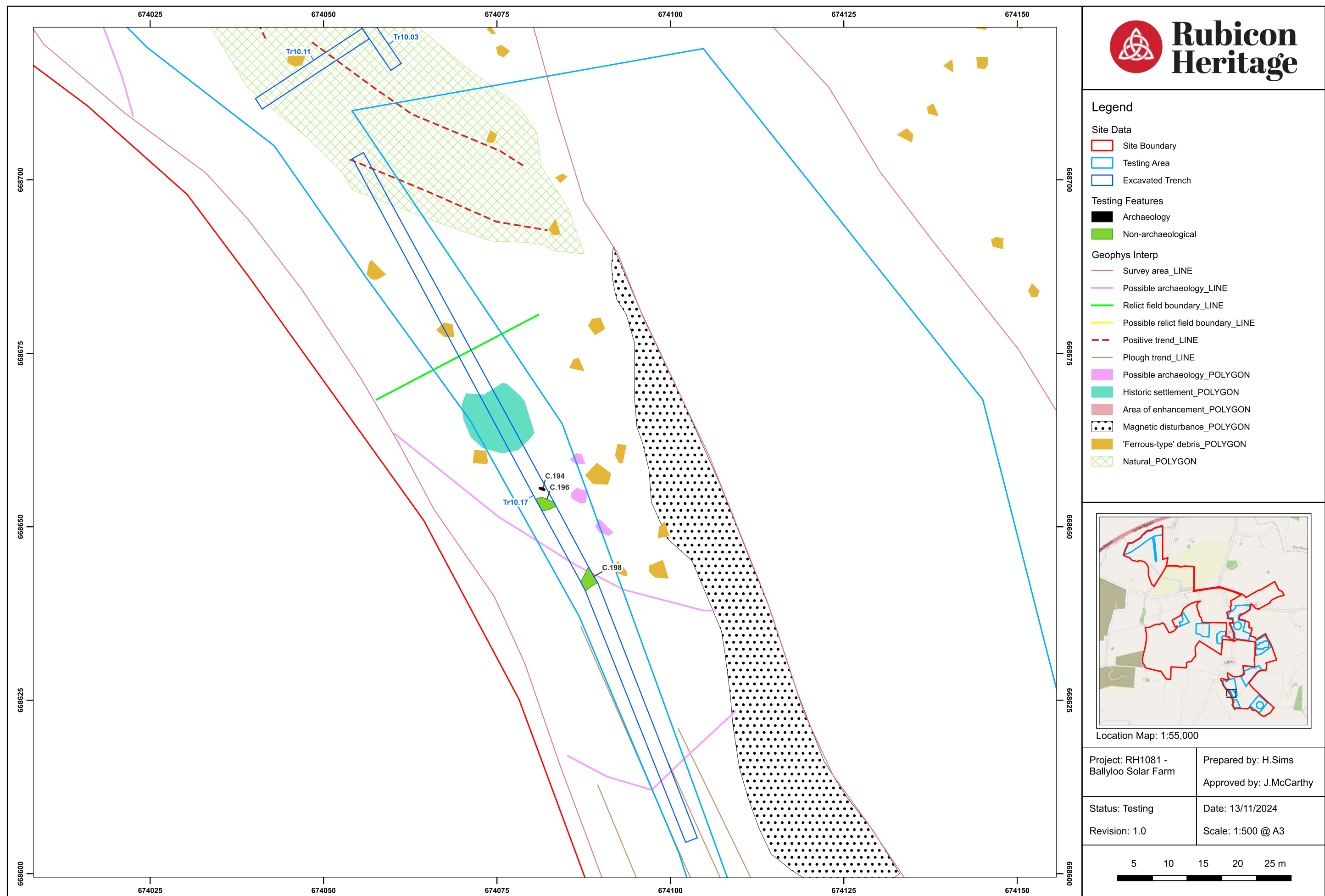


Figure 30 - Area 6: Detail of archaeology identified in Tr6.18, 61.9, and 6.20 overlaid on to the geophysical survey results.





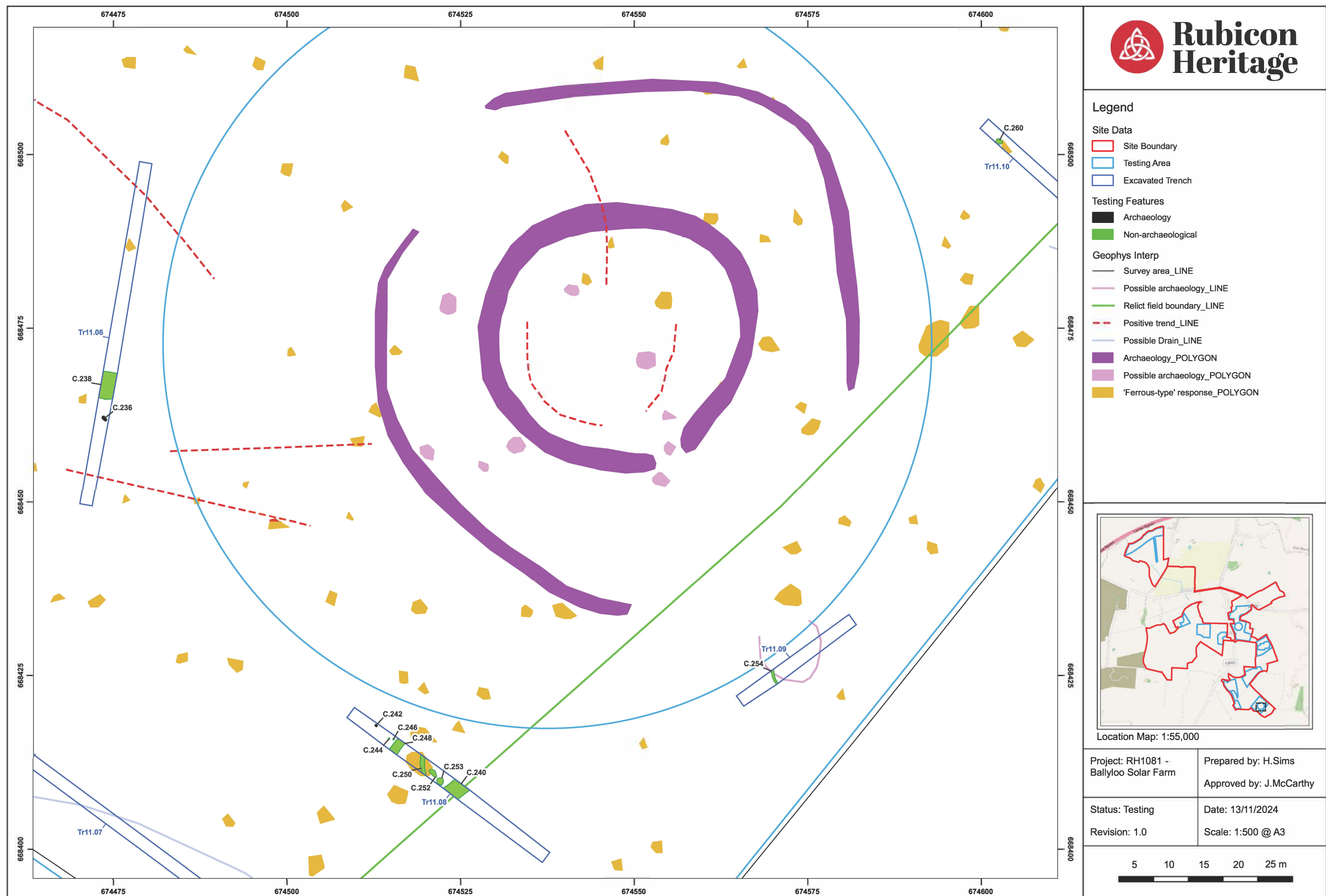


Figure 33 - Area 11: Detail of archaeology identified in Tr11.06 and 11.08 overlaid on to the geophysical survey results.



Plate 1 - Curvilinear feature C218 in Tr. 1.01, facing north-east.



Plate 2 - Curvilinear feature C313 in Tr1.13, facing east.



Plate 3 - Linear feature C299 in Tr. 1.16, facing north-east.



Plate 4 - Curvilinear feature C171 in Tr. 3.7, facing north-east.



Plate 5 - Linear feature C174 in Tr3.07, facing north-east.



Plate 6 - Pit C081 containing animal bone in Tr 6.12, facing south.



Plate 7 - Linear feature C125 in Tr. 6.10, facing north-east.




Plate 8 - Irregular feature C066 in Tr. 6.08, facing east.



Plate 9 - Pit C184 in Tr. 9.06, facing north-east.



Plate 10 - Pit C194 in Tr. 10.17, facing north.

| | | | | | | |
|---|--------|---|----------|-----|-----------------|------------|
|  | No: | IRL-SF-155 | Version: | 4.0 | Effective Date: | 03/11/2025 |
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APPENDIX 9 NATIONAL MONUMENT SERVICE ON BALLYLOO SOLAR FARM

Submission Details

Submitter

| | |
|----------------|--|
| Name | Department of Housing, Local Government and Heritage |
| Address | Custom House, Dublin, Ireland D01 W6X0 |
| Note | |

In relation to application

| | |
|--------------------|---|
| File Number | 2460043 |
| Name | Limited Ballyloo Solar Farm |
| Address | In the townlands of Ballybar Upper, Ballyloo, Ballyryan Garryhundon and Linkardstown County Carlow. |



Planning Ref: 2460043

(Please quote in all related correspondence)

4 March 2025

Director of Services-Planning
Carlow County Council
County Buildings
Athy Road
Carlow
R93 E7R7

Via: Online Planning Portal

Re: Notification under Article 28 (Part 4) or Article 82 (Part 8) of the Planning and Development Regulations, 2001, as amended.

Proposed Development: Planning Application by Ballyloo Solar Farm Limited for a 10 year planning permission for a solar farm with a total area of circa 192 hectares. The solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration in the townlands of Ballybar Upper, Ballyloo, Ballyryan, Garryhundon and Linkardstown, County Carlow

A chara,

I refer to correspondence dated 4 March 2024 and subsequent further information received in connection with the above.

Outlined below are heritage-related observations/recommendations co-ordinated by the Development Applications Unit under the stated headings.



RECEIVED: 04/03/2025

Archaeology

The Department has reviewed documents submitted in response to a request for Further Information issued by Carlow County Council. These include:

- An updated Archaeological, Architectural and Cultural Heritage Impact Assessment report and associated appendices. This report (prepared by Rubicon Heritage Services Ltd; dated November 2024) includes the results of geophysical survey and advance archaeological test excavation carried out under licence from this Department (Refs: 24R0349; Dowling, G., and 24E1081; McCarthy, F.).
- Updated Construction and Environmental Management Plan and Decommissioning and Restoration Management Plan for the proposed development.

The Department acknowledges the findings of the Archaeological, Architectural and Cultural Heritage Impact Assessment report, noting that of 152no. test trenches excavated within the proposed development site, approximately 78no. features/material of likely archaeological significance were identified (Areas 1, 3, 6, 9, 10 & 11). It is noted that Area 6 (Ballyloo townland) contains a relatively dense concentration of sub-surface archaeological features in proximity to, and likely associated with, Recorded Monuments – Ballyloo Castle, Bawn and Burial ground (RMPs: CW012-031----, CW012-031001- CW012-084----). These specific and verifiable indicators of archaeological potential make the area particularly vulnerable in relation to its archaeological heritage.

The Department broadly concurs with the archaeological impact statement and recommended archaeological mitigation strategy set out in Sections 4 to 6 of the Archaeological, Architectural and Cultural Heritage Impact Assessment report. It is noted and welcomed that the original location of the proposed substation (Parcel 4) has been moved to Parcel 3 to avoid impacts on the recorded archaeological heritage. As this substation and associated infrastructure will be the subject of a separate planning application to An Bord Pleanála, the Department will comment on that application under separate cover in due course.

In line with national policy¹ and the recommended mitigation strategy set out in the Archaeological, Architectural and Cultural Heritage Impact Assessment report, the Department recommends that further geophysical survey and archaeological test excavation (that is 'Phase 2' works as recommended in the AACHIA report) should be completed in

¹ Framework and Principles for the Protection of the Archaeological Heritage (Government of Ireland, 1999)



advance of commencement of the development. These works, together with licensed archaeological monitoring during construction stage, should be included as a condition of any grant of planning permission that may issue.

Note, these recommended conditions align with Sample Conditions C.2, C.3, C.4, C.5 and C.6 as set out in OPR Practice Note PN03: Planning Conditions (October 2022), with appropriate site-specific additions/adaptations based on the particular characteristics of this development and the findings of the Archaeological, Architectural and Cultural Heritage Impact Assessment report.

Archaeological Conditions – Pre-construction Stage

1. All mitigation measures in relation to archaeology and cultural heritage as set out in the Archaeological, Architectural and Cultural Heritage Impact Assessment (AACHIA) report (Rubicon Heritage Services Ltd; November 2024), submitted as Further Information, shall be implemented in full, except as may otherwise be required in order to comply with the below conditions relating to archaeological heritage. In this regard, the developer shall:
 - a. Retain/engage a suitably qualified archaeological geophysicist to carry out a programme of pre-development geophysical survey ('Phase 2') across all accessible areas of the development site not previously subject to survey ('Phase 1': Ref. 24R0349).
 - b. Retain/engage a suitably qualified Archaeologist (licensed under the National Monuments Acts) to carry out pre-development archaeological testing in areas of archaeological potential identified through 'Phase 2' geophysical survey and in all areas where ground disturbance is proposed.
 - c. A report on the results of these Phase 2 archaeological works shall be submitted for the written agreement of the Planning Authority, following consultation with the National Monuments Service of the Department, in advance of any site preparation/enabling works or groundworks, including but not limited to, site investigation works, topsoil stripping, site clearance and construction works. The report shall include an updated archaeological impact statement and mitigation strategy.
 - d. Where archaeological material is shown to be present, avoidance, preservation *in situ*, preservation by record (archaeological excavation) and/or monitoring may be



required. Any further archaeological mitigation requirements specified by the Planning Authority, following consultation with the National Monuments Service of the Department, shall be complied with by the developer. No site preparation/enabling works or construction works shall be carried out on site until the Archaeologist's report has been submitted to and approval to proceed is agreed in writing with the Planning Authority.

- e. Prior to commencement of the development, the Archaeologist shall advise and oversee the demarcation and installation of appropriate Exclusion Zones at all Recorded Monuments and No Dig Buffer Zones at areas of sub-surface archaeology identified through geophysical survey and/or verified through test excavation (Phases 1 and 2) within the development site. These zones shall be demarcated using appropriate fencing and shall be in place for the duration of all development and decommissioning works. No movement or storage of plant, machinery, equipment, vehicles, materials, spoils or sundries shall be permitted within the established and defined exclusion zones.
2. The final Construction and Environmental Management Plan (CEMP) and final Decommissioning and Restoration Management Plan (DRMP) shall include the locations of any and all archaeological or cultural heritage constraints relevant to the proposed development (as set out in the AACHIA report (Rubicon Heritage Services Ltd; November 2024) and as may be relevant subsequent to the Phase 2 archaeological works. The CEMP and DRMP shall clearly describe all identified likely archaeological impacts, both direct and indirect, and present all mitigation measures to be employed to protect the archaeological or cultural heritage environment during all phases of site preparation and construction activity. All construction personnel shall be apprised of the locations and sensitivities of identified heritage assets within the development site. This shall be done through the appropriate dissemination of the CEMP and DRMP together with pre-commencement and on-going tool-box talks.

Archaeological Conditions – Construction Stage

3. The developer shall retain/engage a suitably qualified Archaeologist to:
- a. Monitor (licensed under the National Monuments Acts) all site clearance works, topsoil stripping, groundworks, service trenching and the implementation of agreed preservation *in situ* measures associated with the development, following consultation with the National Monuments Service of the Department. The use of



appropriate machinery to ensure the preservation and recording of any surviving archaeological remains shall be necessary.

- b. Should archaeological remains be identified during the course of archaeological monitoring, all works shall be suspended in the area of archaeological interest pending a decision of the Planning Authority, in consultation with the National Monuments Service of the Department, regarding appropriate mitigation (preservation *in situ*/excavation).
 - c. The developer shall facilitate the archaeologist in recording any remains identified. Any further archaeological mitigation requirements specified by the planning authority, following consultation with the National Monuments Service of the Department, shall be complied with by the developer.
4. Following the completion of all archaeological work on site and any necessary post-excavation specialist analysis, the Planning Authority and the National Monuments Service of the Department shall be furnished with a final archaeological report describing the results of the monitoring and any subsequent required archaeological investigative work/excavation required. All resulting and associated archaeological costs shall be borne by the developer.

Reason: To ensure the continued preservation (either *in situ* or by record) of places, caves, sites, features or other objects of archaeological interest.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at: referrals@npws.gov.ie

Is mise, le meas,

Brian Bone
Development Applications Unit
Administration



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APPENDIX 10 RELEVANT PLANNING APPLICATIONS

| Ref. Number | Distance | Status | Description |
|-------------|----------|--|--|
| 25/60137 | 0km | Notification to grant - 31/10/25 | A 10 Year Planning Permission for a solar farm with a total area of circa 57 hectares. The solar farm will consist of solar panels on ground mounted frames, 8 no. single storey electrical inverter/transformer stations, 2 no. single storey spare parts containers, 1 no. Ring Main Unit, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L4038, L8185, R448, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 5 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings (under M9 motorway and the Dublin - Waterford railway), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. existing entrances from the R448 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farms proposed under Carlow County Council References 24/60043 and 24/60205, but will not alter infrastructure proposed under these applications. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application. |
| 24/60205 | 0 km | Granted with Conditions -24/04/2025 | A 10 Year planning permission for a solar farm with a total area of circa 73 hectares in the townlands of Ballybar Lower, Ballybar Upper, Ballycarney, Ballyloo, Linkardstown, Park and Tinryland in County Carlow. The solar farm will consist of solar panels on ground mounted frames, 11 no. single storey electrical inverter/transformer stations, 3 no. single storey spare parts containers, 2 no. Ring Main Units, 3 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L1010, L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 3 no. watercourse/drain deck crossings and 2 no. horizontal directional drill crossings |



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| Ref. Number | Distance | Status | Description |
|-----------------------|--|--|---|
| | | | (under M9 motorway and L3050), temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 2 no. entrances from the L1022 and L1010. Sections of the proposed underground electrical cabling will traverse the solar farm proposed under Carlow County Council Reference 24/60043, but will not alter infrastructure proposed under that application. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application |
| 24/60043, PL01.322347 | Proposed substation located within the boundary of the Ballyloo Solar Farm | Refused by Carlow County Council (25/03/2025)Appealed and granted permission by An Coimisiún Pleanála (05/09/2025) | A 10 Year Planning Permission for a solar farm with a total area of circa 192 hectares. The solar farm will consist of solar panels on ground mounted frames, 30 no. single storey electrical inverter/transformer stations, 4 no. single storey spare parts containers, 4 no. Ring Main Units, 8 no. weather stations, underground electrical ducting and cabling within the development site, private lands and within the L3051, L3052 and L3050 public roads to connect solar farm field parcels, security fencing, CCTV, access tracks, 2 no. stream deck crossings and 1 no. horizontal directional drill, temporary construction compounds, landscaping and all associated ancillary development and drainage works. Construction and operational access will be via 4 no. entrances from the L3051, L3052 and L3050. The operational lifespan of the solar farm will be 40 years and planning permission is requested for this duration. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application |
| 24/60410 | 0.1km | Granted Permission – 06/06/25 | The replacement (“restringing”) of the existing overhead line circuit conductor wires with a new higher capacity conductor • the strengthening of foundations at 7no. locations • shear block remedial works at 77no. locations • the strengthening of towers (i.e., member replacement) at 34no. locations • the replacement of 5.1km of earthwire • the painting of all structures • the replacement of insulating and ancillary hardware at structures • all associated works within the existing Kellis 220kV substation to |

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| Ref. Number | Distance | Status | Description |
|-------------|----------|--|--|
| | | | accommodate the uprated 220kV OHL including uprating of the Great Island bay in Kellis 220kV substation. |
| ABP-322690 | c.0km | Live Application - due to be decided by 01/12/2025 | Proposed 110kV electrical substation and grid connection. |
| ABP-321416 | c.3km | Live Application – undetermined at present | Proposed development along a section of the N80 Road known as the N80 Leagh Bends Scheme. |
| 24/60223 | 0.1km | Granted Permission – 20/09/2024 | 110kV underground electricity cabling and all associated ancillary site development works. The cabling will extend from and connect with permitted 110kV underground electricity cabling (under An Bord Pleanála reference ABP-313139-22) on the L30535 public road to a line bay in the Kellis 220kV substation. |
| 24/60295 | 2.0km | Live Application, Decision Due – 07/01/2026 | Ten year planning permission for renewable energy development comprising of the construction of a solar farm. |
| 24/60332 | c. 1.8km | Granted Permission – 12/12/2024 | the demolition of all existing structures within the Tinryland Wastewater Treatment Plant and the construction on an extended site (0.09 ha in total) which will consist of a new pumping station (17m ²), new below-ground storm tank (total storage of 123m ³), replacement welfare facility (33m ²), ground-mounted photovoltaic array (83 m ²), new palisade perimeter fencing (2.4m high) and associated works; the construction of a new rising main and gravity main (3.7km in length) along the Nurney Road, L1023 and N80, connecting to the existing wastewater sewer at Ballinacarrig; and all ancillary and associated temporary works. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application |



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| Ref. Number | Distance | Status | Description |
|-------------|----------|---|---|
| ABP-318295 | c. 3.7km | Granted Permission – 21/11/2024 | Construction of five wind turbines, meteorological mast, electricity substation and associated site works. The application is accompanied by a Planning Report, Environmental Impact Assessment Report and a Natura Impact Statement. |
| ABP-320354 | c. 5.5km | Live Application, Decision Due – 04/12/2024 (Decision delayed at Board) | Permission for the construction of 7 wind turbines and all associated works. A 10 year planning permission and 35 year operational life of the wind farm from the date of commissioning is sought. Environmental Impact Assessment Report and Natura Impact Statement submitted with application. |
| 24/60149 | c. 1.4km | Granted Permission – 27/09/2024 | The expansion of the existing commercial store into the adjoining agricultural use buildings including raised roof height to the unit to the east and the provision of a retention pond and all associated ancillary works, the buildings will be repurposed as whiskey maturation warehouses |
| ABP-318475 | c. 8km | Granted Permission – 04/06/2024 | A ten year planning permission for a solar energy development with a total site area of 77 hectares and all associated site works. |
| ABP-315063 | c. 0.1km | Granted Permission – 02/05/2024 | Development of a synchronous condenser grid support facility and all associated works |
| 23/92 | c.3.85km | Granted - 04/06/2024 | A ten year planning permission for a solar energy development with a total site area of 77 hectares and all associated site works. |
| 22/163 | 7 km | Grant with Conditions - 22/03/2023 | A 10 year planning permission for a solar farm and associated works, comprising (1) A solar farm which will connect to the national electricity grid on lands with a total area of circa 128 hectares, consisting of solar panels on ground mounted frames, 18 no. single storey electrical inverter/transformer stations, equipment container, underground cabling within the solar farm site and within the N80 and L3046 public roads to connect solar farm field parcels, security fencing, satellite communications pole, CCTV, access tracks inclusive of 9 no. agricultural bridges (including 1 no. bridge over the River Burrin), temporary construction compounds, landscaping and all associated ancillary development works. (2) minor amendments to a neighbouring |



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| Ref. Number | Distance | Status | Description |
|----------------------------|----------|---------------------------------|--|
| | | | solar farm planning permission (Carlow County Council planning reference 20143 & An Bord Pleanála reference: 307891-20) to facilitate future grid connection and additional access tracks for the proposed development. These amendments will comprise of the removal of 1,837 sqm of solar panels, provision of additional access tracks and focused removal of hedgerows to accommodate same, and the laying of 1,788 m of 33 kV underground cabling for the purposes of the future grid connection. (3) Construction and operational access for the solar farm will be via entrances from the L7111, L3046 and L3049. The operational lifespan of the solar farm will be 35 years. A Natura Impact Statement (NIS) has been prepared and will be submitted to the planning authority with the application |
| ABP-315365 | c. 5.5km | Granted Permission – 21/11/2023 | Wind energy development consisting of 7 no. wind turbines and all associated works. |
| 22/142 | c.3km | Granted Permission – 22/03/2023 | Clonmacshane Solar Farm. |
| 313139-22 | 0.1km | Granted Permission – 03/11/2022 | Proposed 110kV substation and underground grid connection. |
| ABP-314421 | c. 460m | Granted Permission – 26/07/2022 | To construct a 30m multi-user lattice telecommunications support structure, carrying antenna and dishes enclosed within a 2.4 metre high palisade fence compound together with associated ground equipment cabinets and associated site works including new access track and to replace existing gated access. The installation will form part of eir mobile telecommunications network. A Natura Impact Statement (N.I.S.) will accompany the planning application. |
| 20/143 & ABP-ABP-307891-20 | 10 km | Granted Permission – 2/09/2021 | A 10-year Planning Permission for a solar farm which will connect to the national grid on lands with a total area of c. 127 hectares, consisting of solar panels on ground mounted frames, 28 No. single storey electrical inverter/transformer stations and associated equipment container, security fencing, satellite communications pole, CCTV, upgrading to existing access tracks and new access tracks, temporary |



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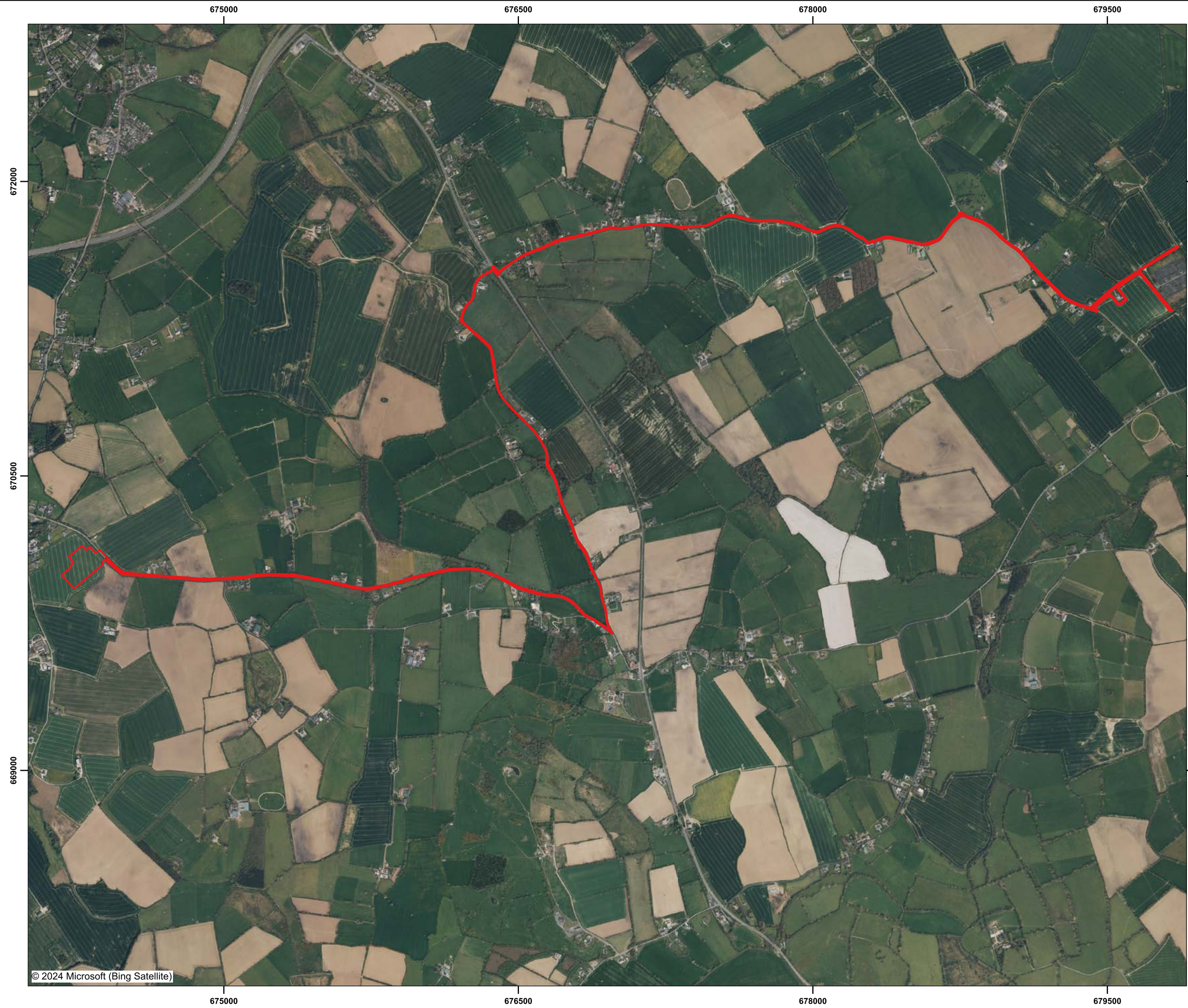
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| Ref. Number | Distance | Status | Description |
|-------------|----------|--------------------------------------|--|
| | | | construction compounds, landscaping and all associated ancillary development works. Construction and operational access will be via entrances from the L-7111 and L-7112. The operational lifespan of the solar farm will be 35 years. A Natura Impact Statement (NIS) has been prepared and will be submitted to the Planning Authority with the application. |
| 21/23 | c.3.75km | Granted - 26/10/21 | Construction of a Solar PV development and all associated site works. |
| ABP-303821 | 0.2km | Granted Permission – 23/09/2019 | 10 year permission for an up to 100MW Battery Energy Storage Facility providing energy services to the National Grid consisting of construction and operation of up to 34 metal containers. |
| SU01.300037 | 1.4 km | Application granted - 14/12/2018 | Plant Area |
| SU01.300034 | 1.4 km | Application granted - 14/12/2018 | Quarry |
| 3611 | 74. 6 m | Granted with conditions - 24/11/2003 | Construction of a single storey, four bedroomed bungalows with septic tank, percolation area and entrance |



Legend

-  Substation
-  Grid Connection



Location Map: 1:20,000

| | |
|---------------------------------|--|
| Project: RH1749 Ballyloo SID | Prepared by: J.Flynn Approved by: R.Morgan James |
| Status: AIA/DBA Version: 1.0 | Date: 12/08/2025 Scale: 1:20,000 @ A3 |

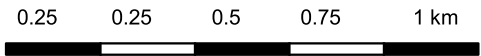


Figure 1 - Substation location and proposed cable route.

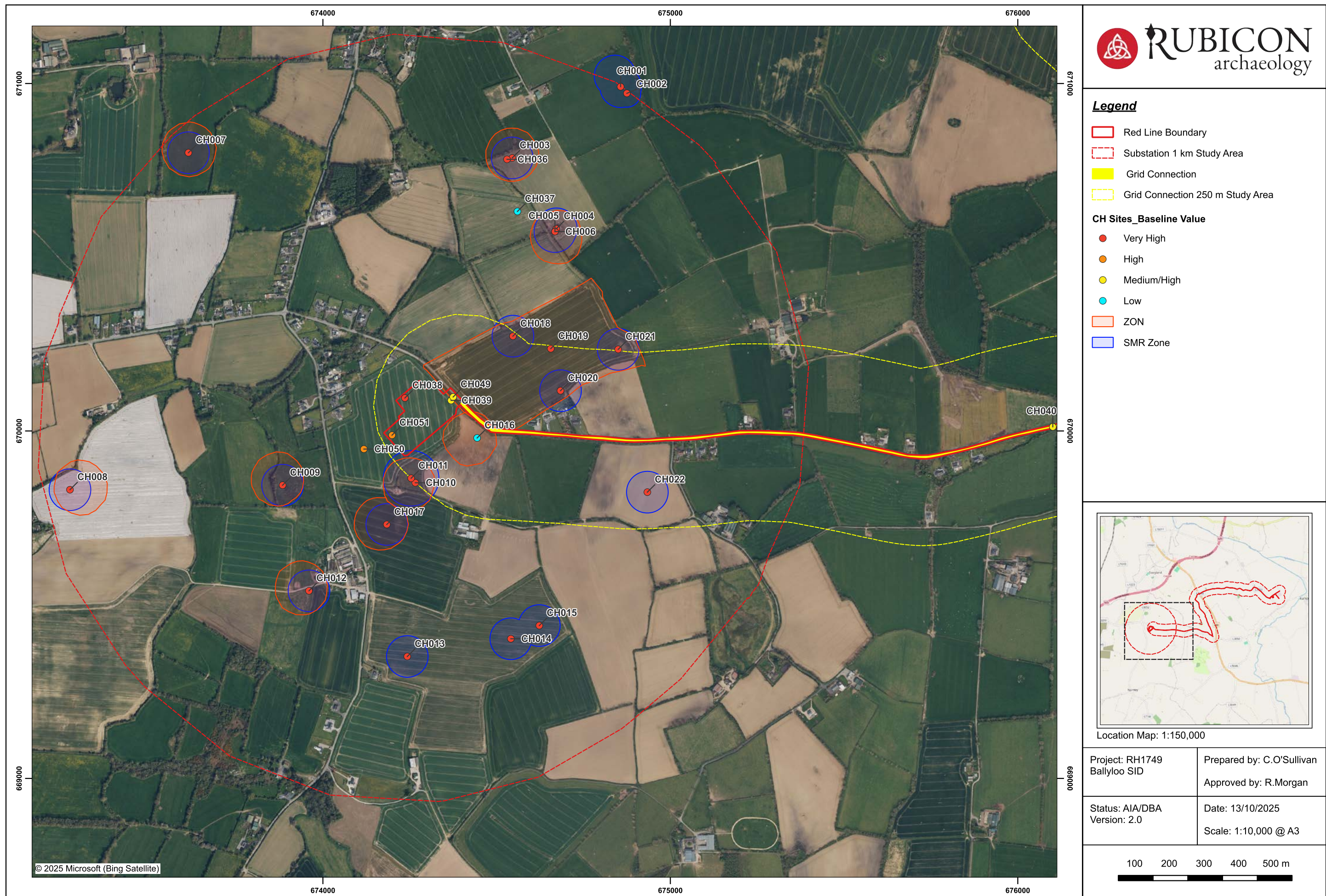
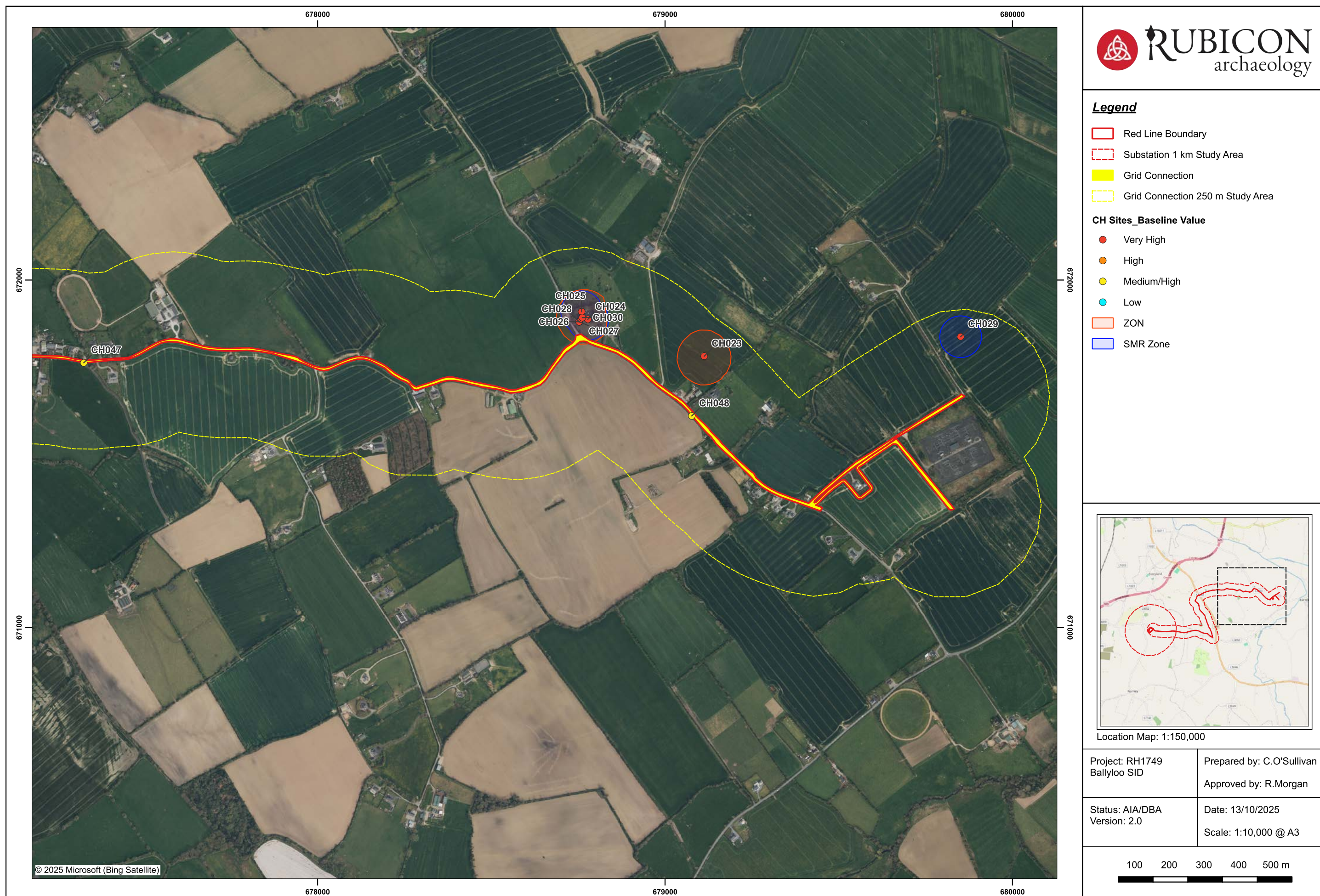


Figure 2.0 - Cultural Heritage sites within the proposed development study area.



Figure 2.1 - Cultural Heritage sites within the proposed development study area.



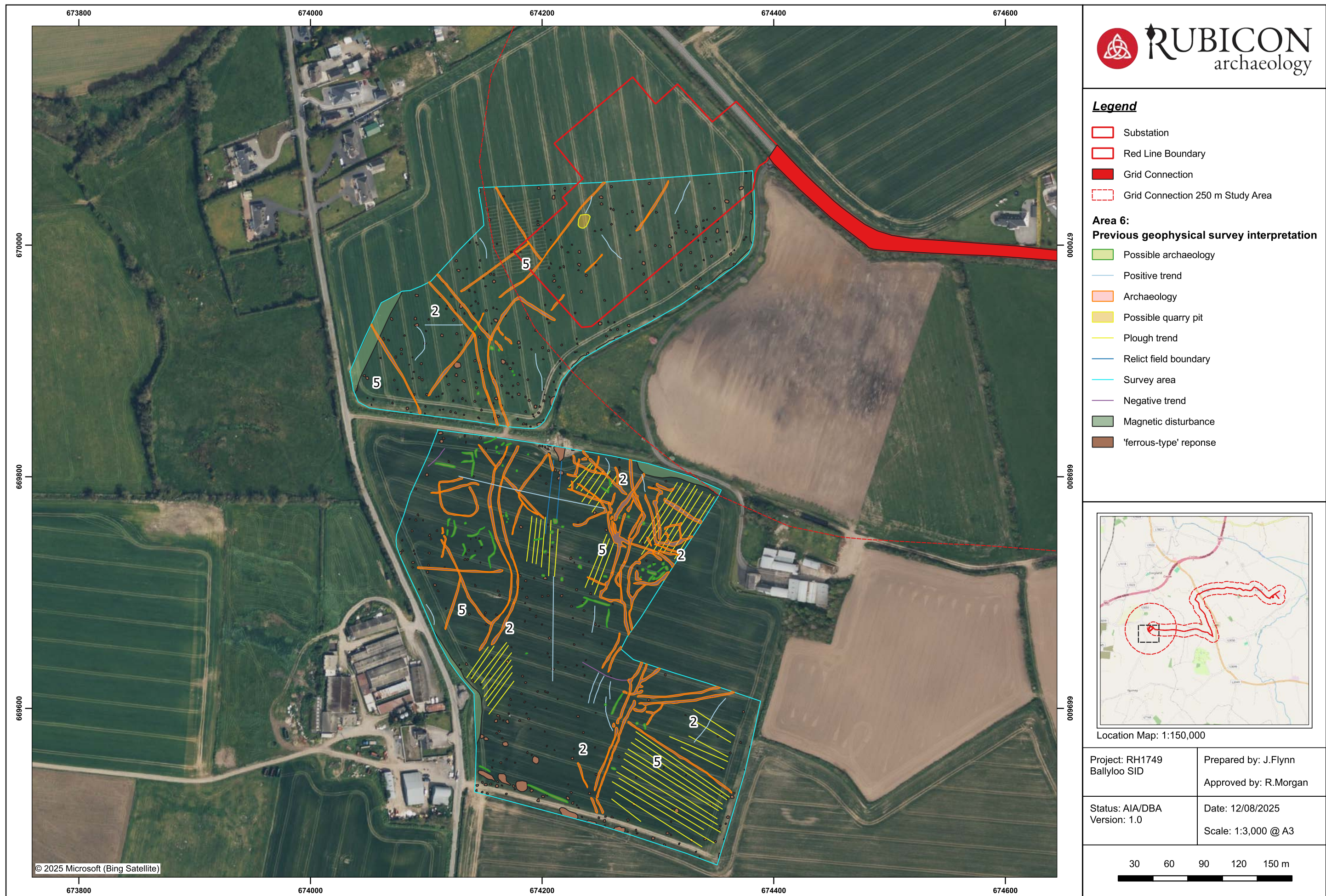


Figure 3 - Proposed Substation Layout with previous geophysical survey interpretation.

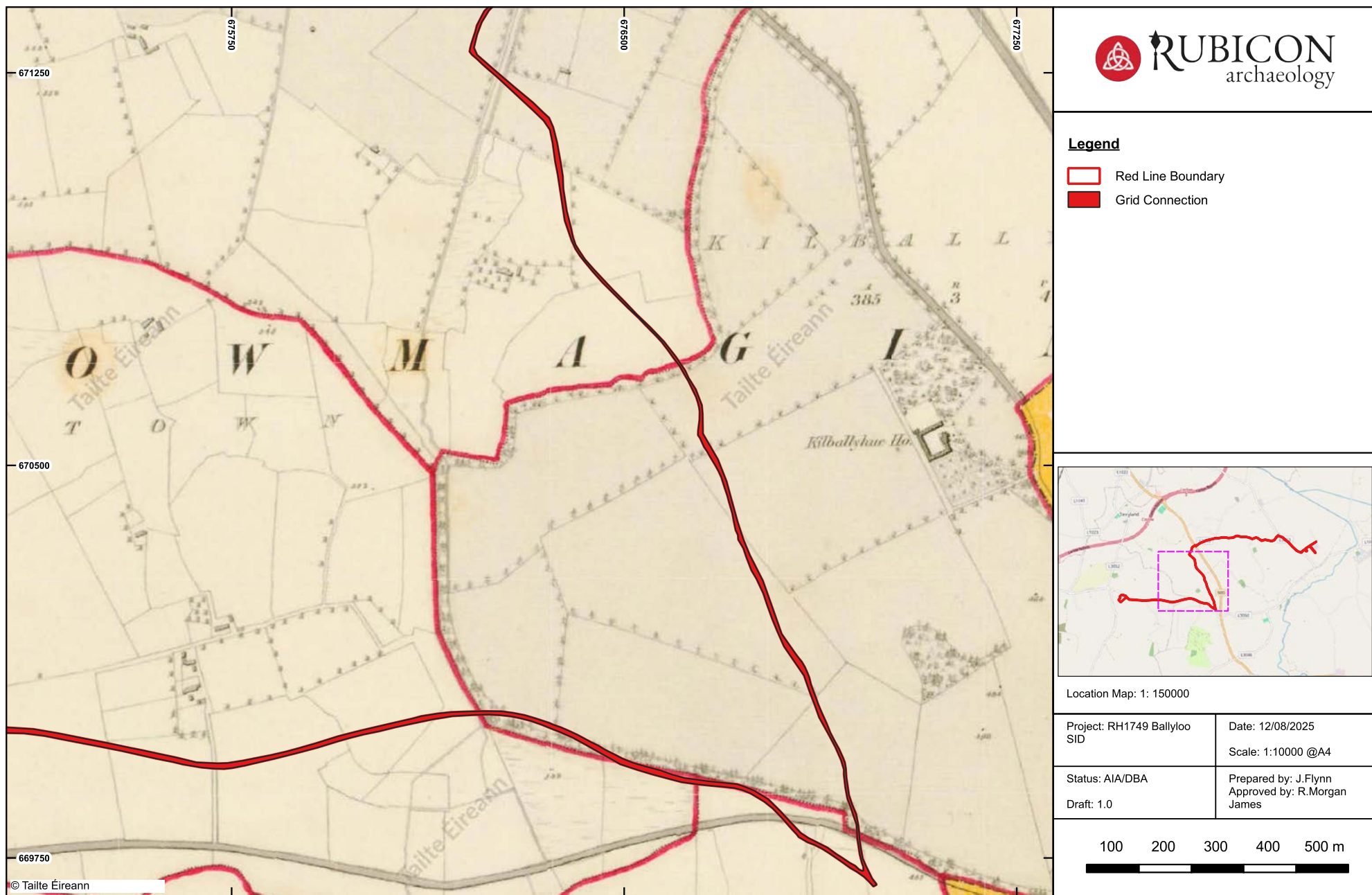


Figure 4.1 - First Edition 6-inch Ordnance Survey map with the proposed development and cable route

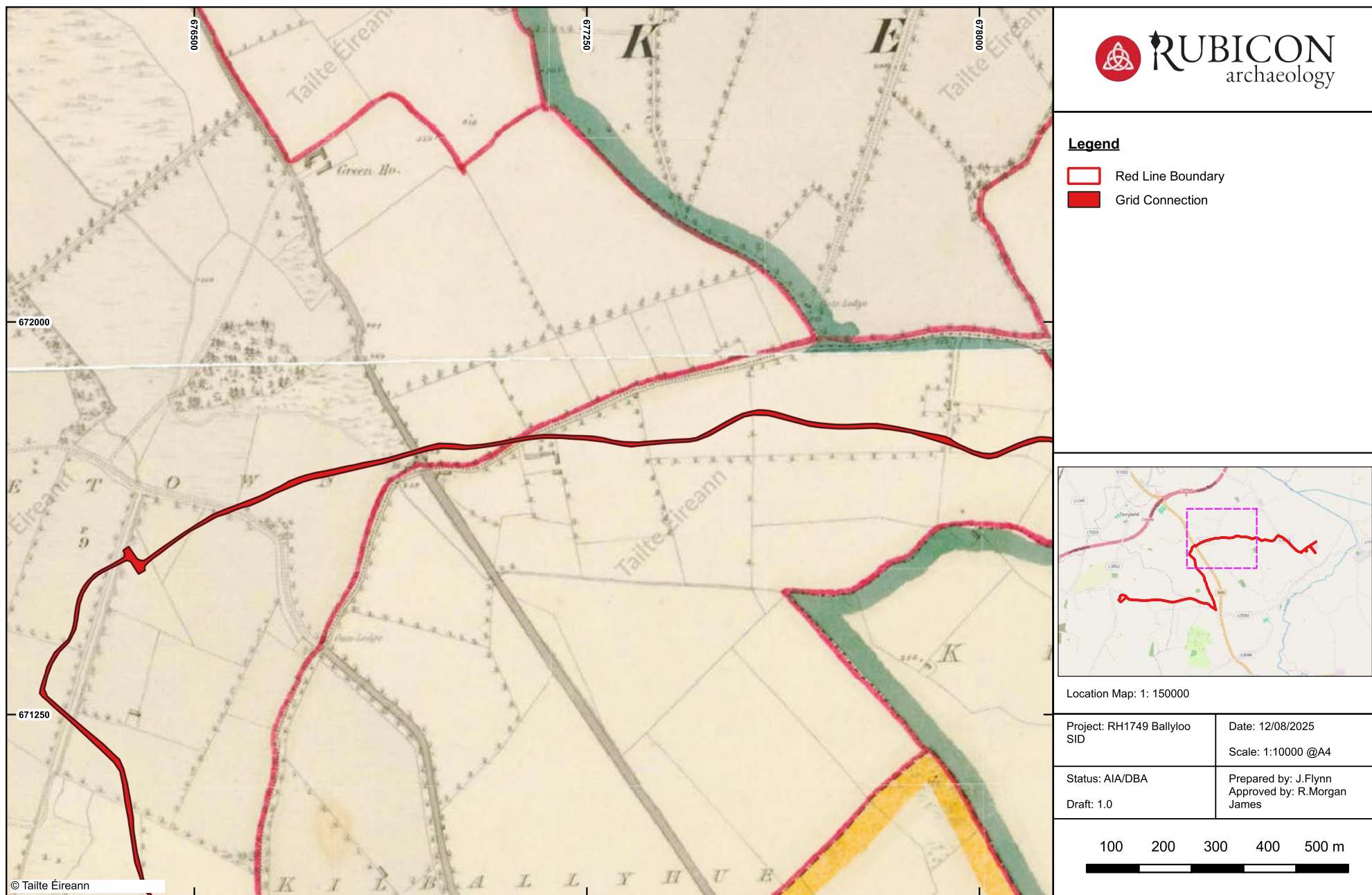


Figure 4.2 - First Edition 6-inch Ordnance Survey map with the proposed development and cable route

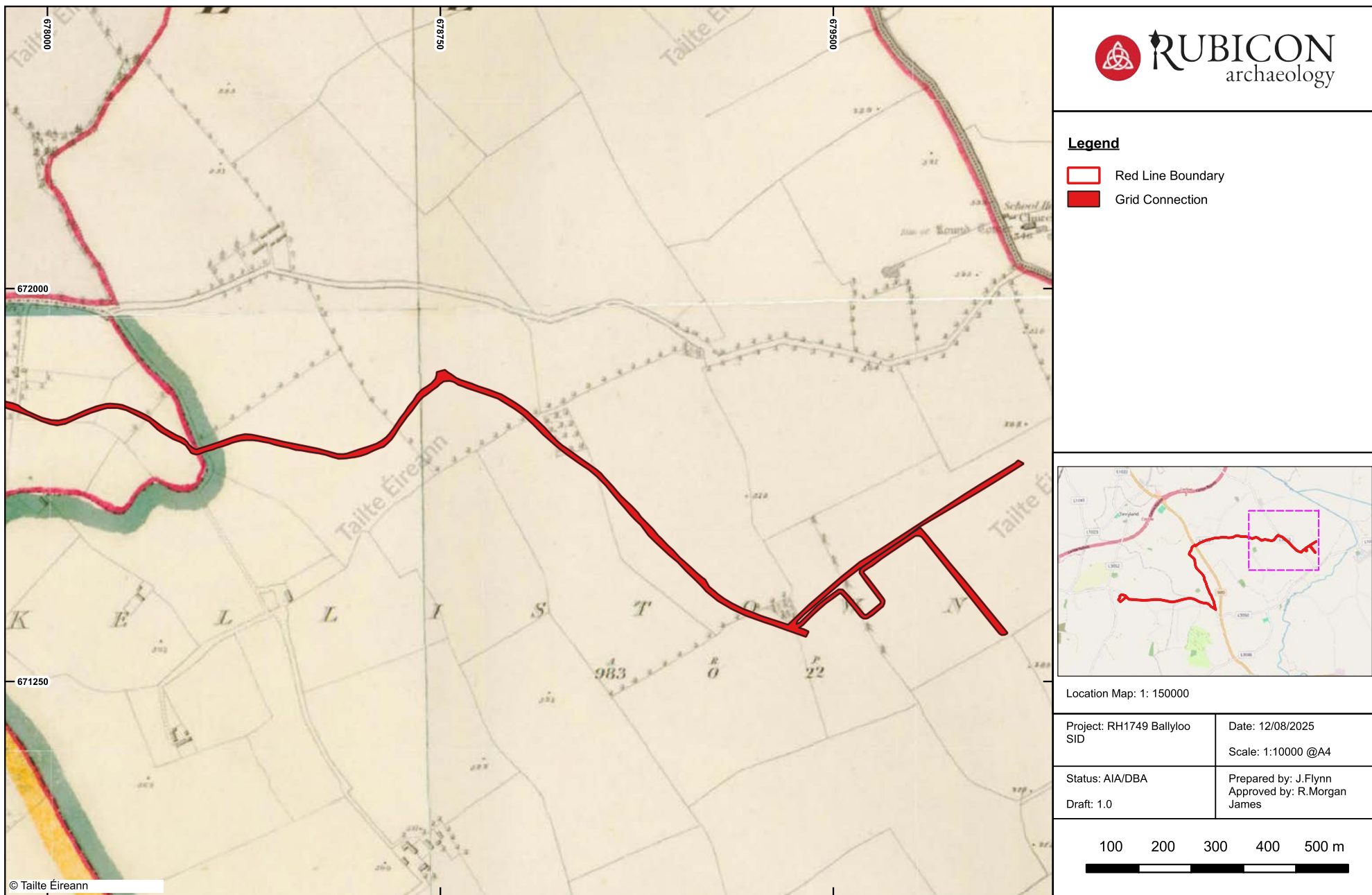


Figure 4.3 - First Edition 6-inch Ordnance Survey map with the proposed development and cable route

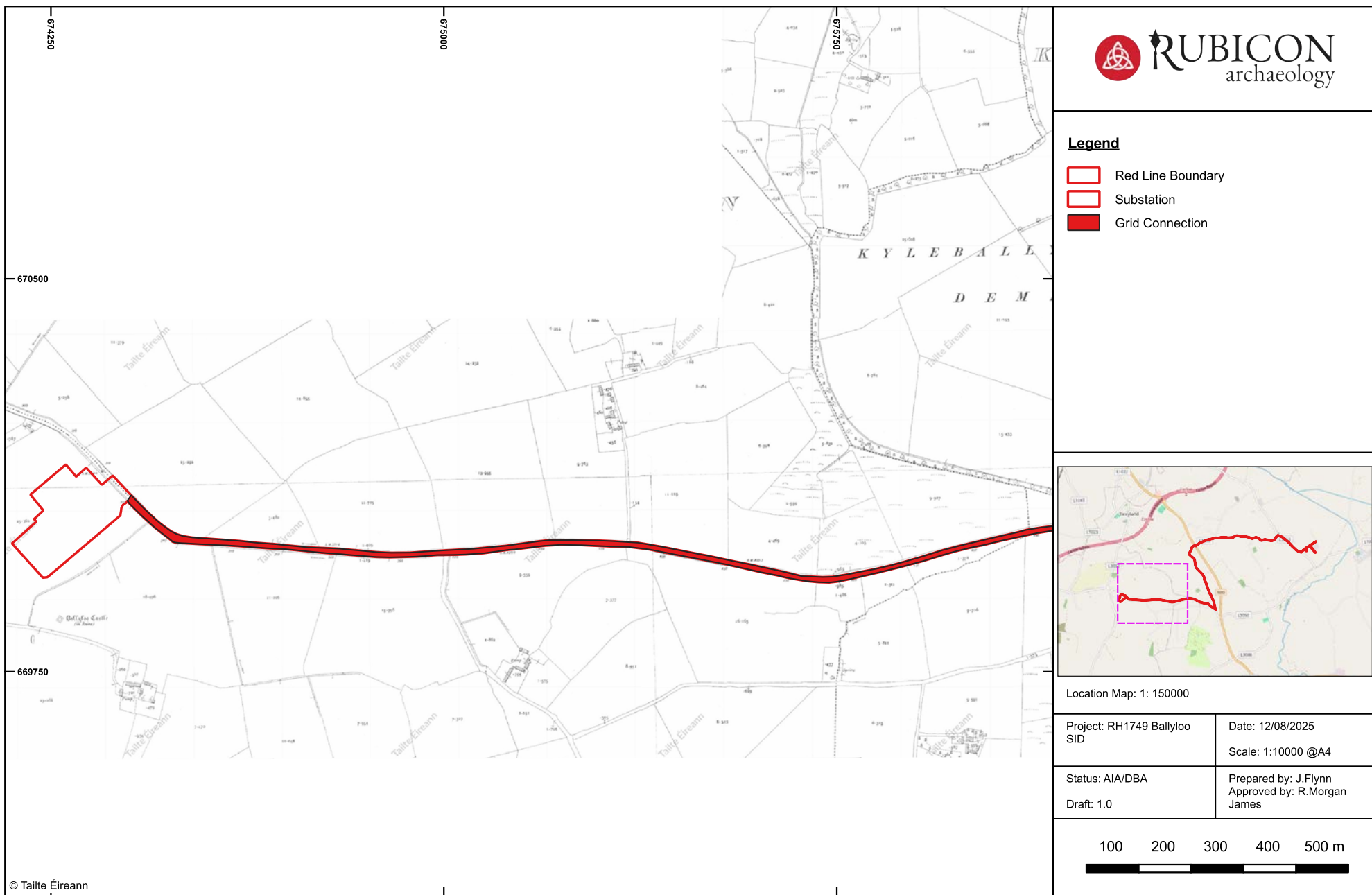


Figure 5.0 - First Edition 25-inch Ordnance Survey map with the proposed development and cable route.

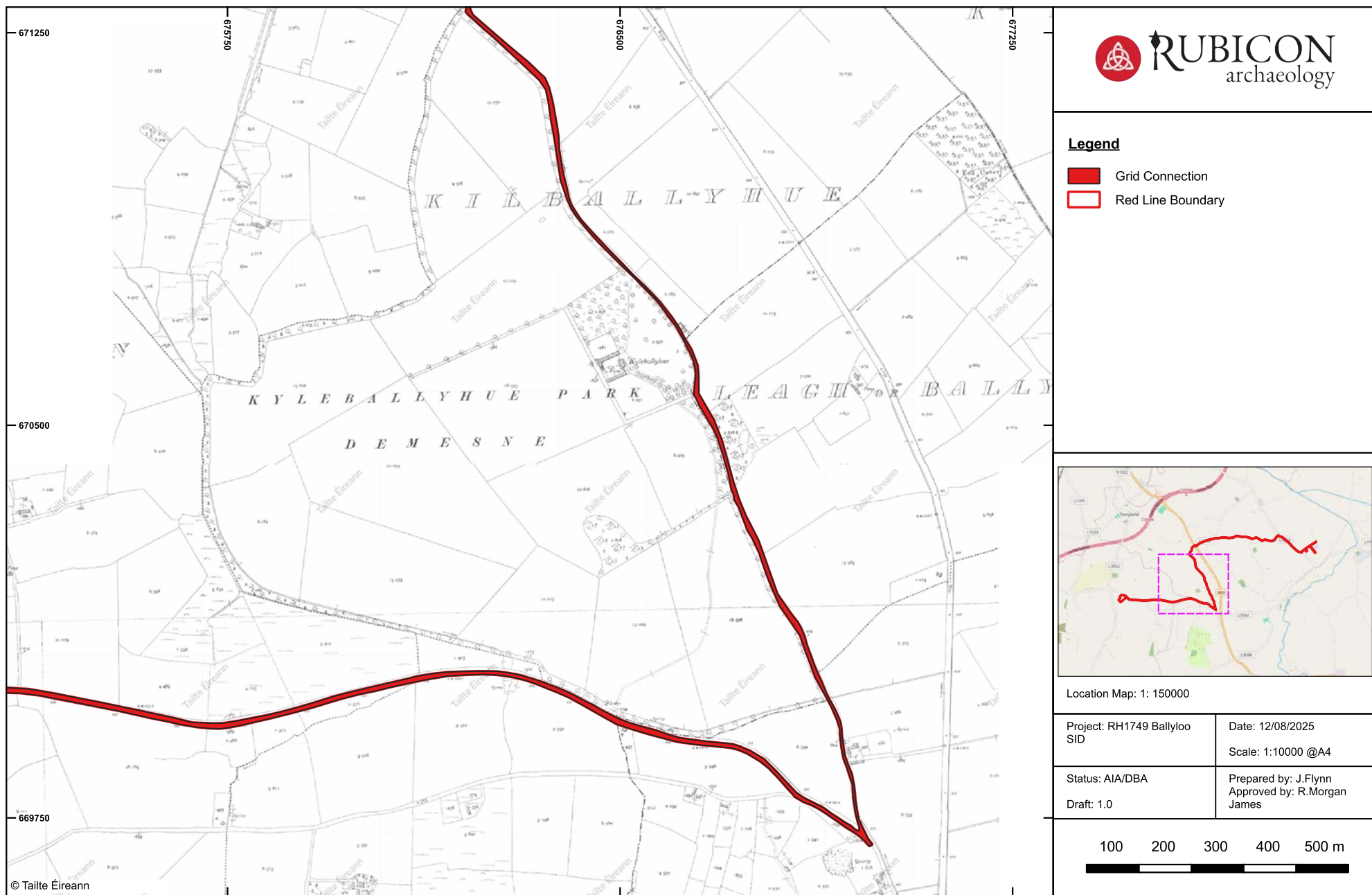


Figure 5.1 - First Edition 25-inch Ordnance Survey map with the proposed development and cable route.

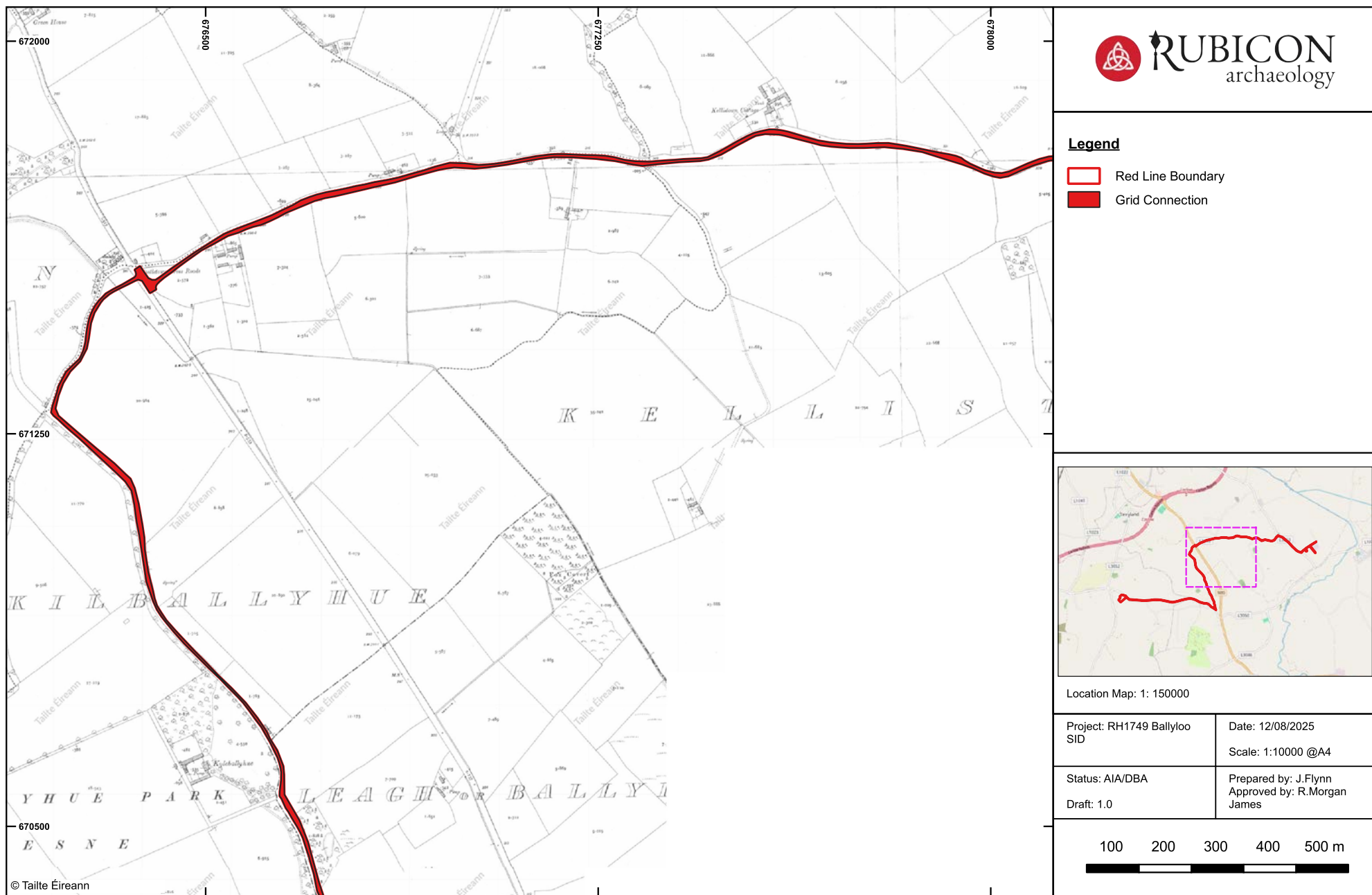


Figure 5.2 - First Edition 25-inch Ordnance Survey map with the proposed development and cable route.

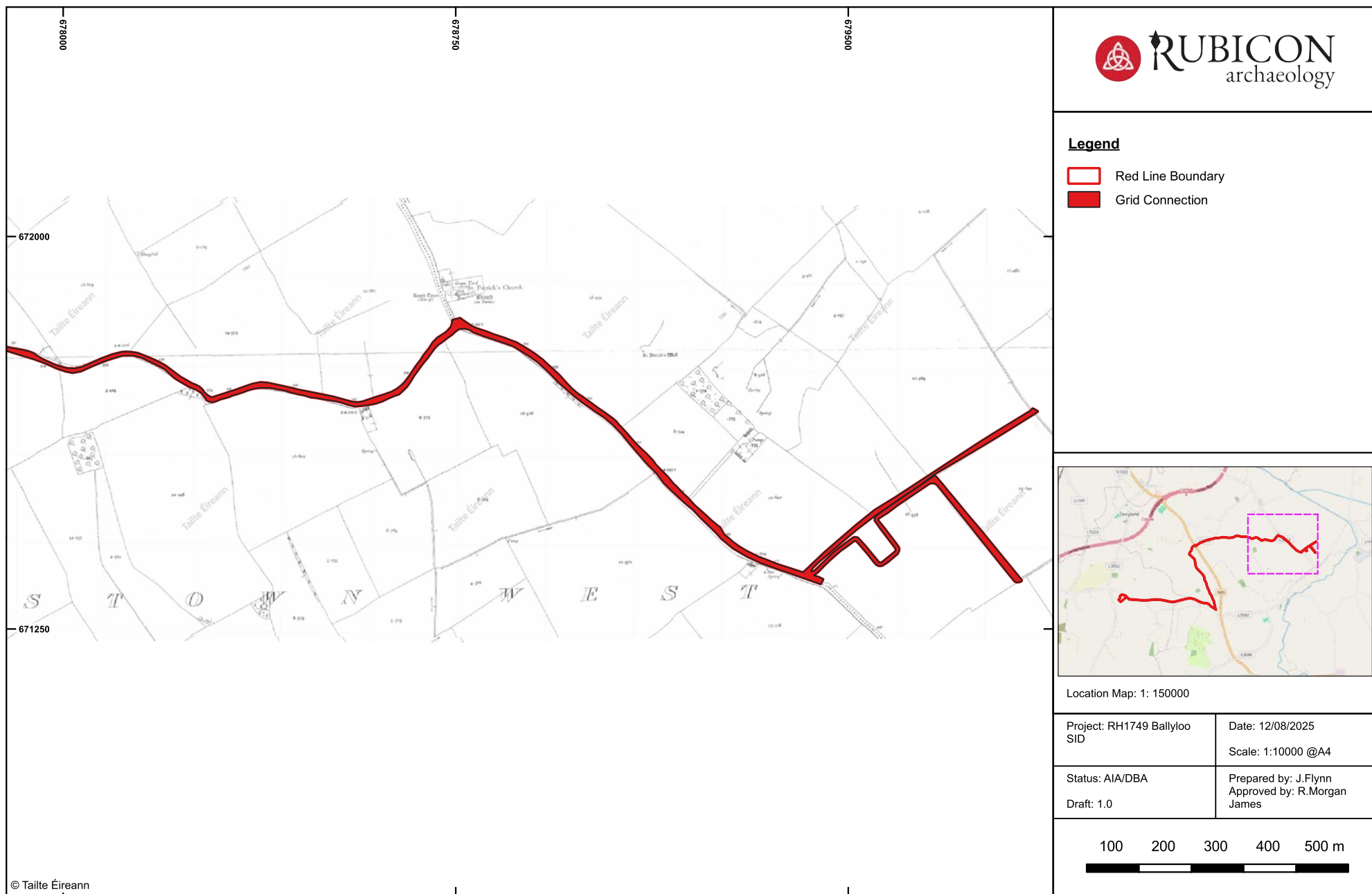


Figure 5.3 - First Edition 25-inch Ordnance Survey map with the proposed development and cable route.

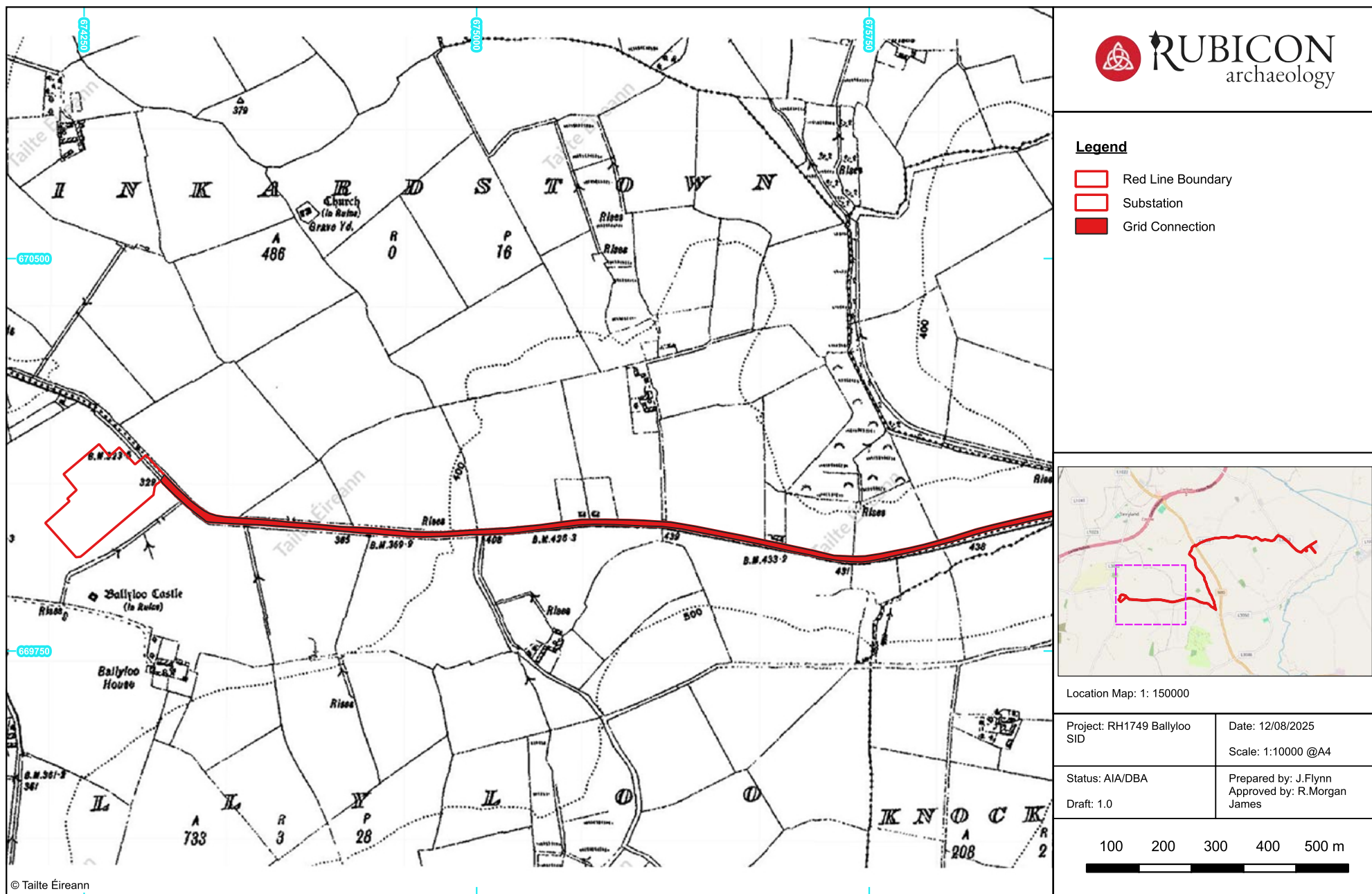


Figure 6.0 - First Edition 6-inch Ordnance Survey Cassini map with the proposed development and cable route.

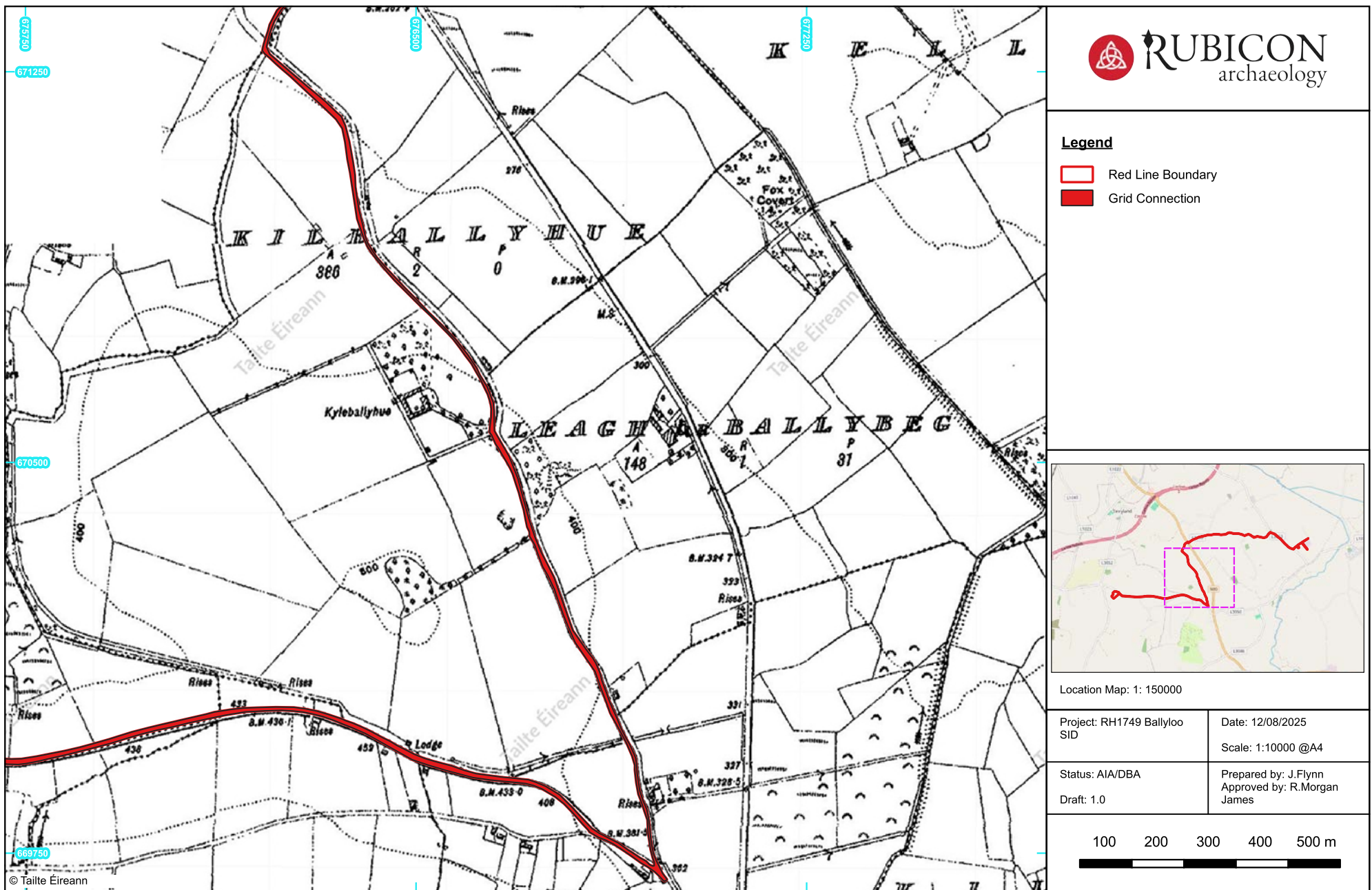


Figure 6.1 - First Edition 6-inch Ordnance Survey Cassini map with the proposed development and cable route.

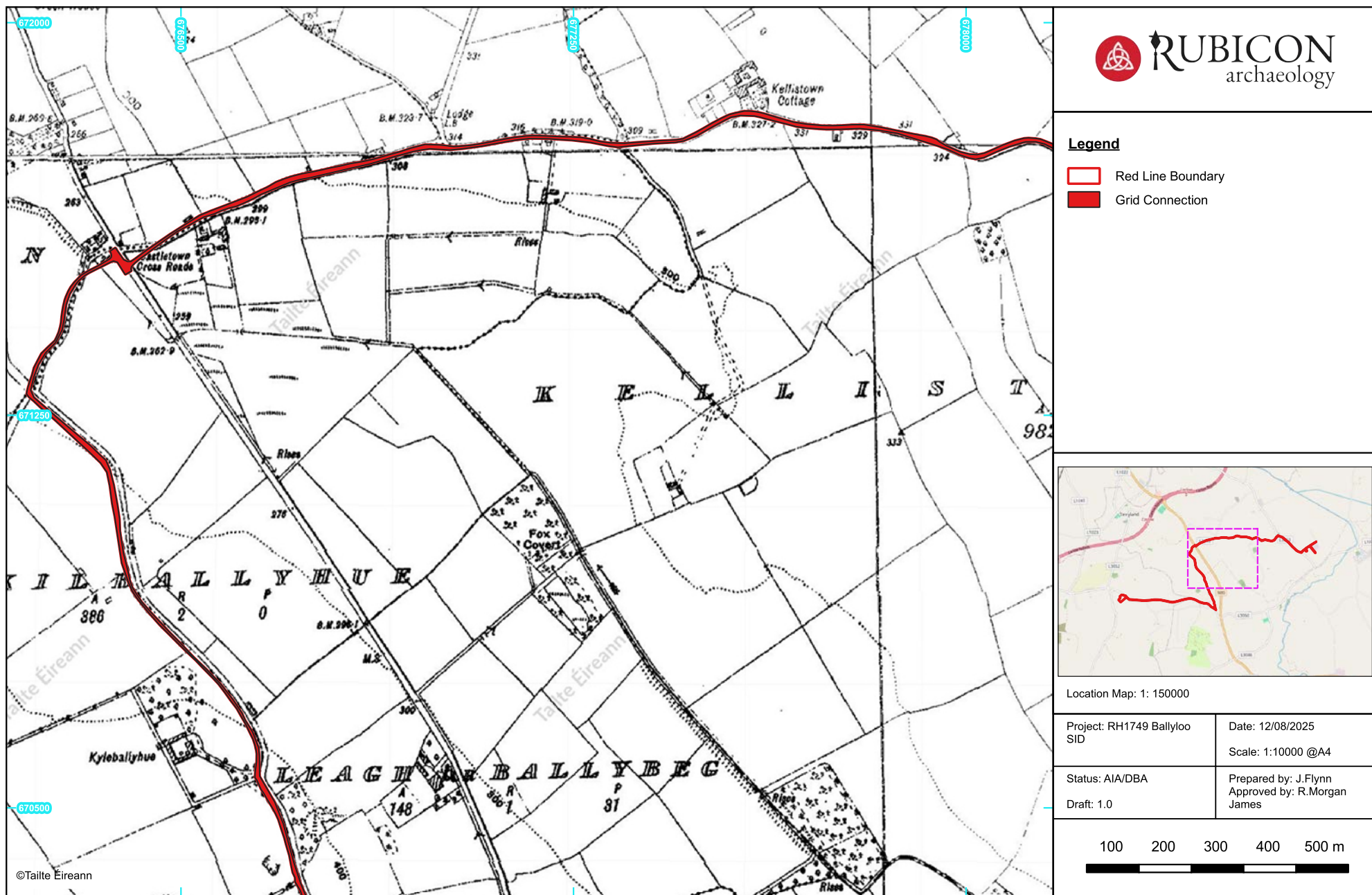


Figure 6.2 - First Edition 6-inch Ordnance Survey Cassini map with the proposed development and cable route.

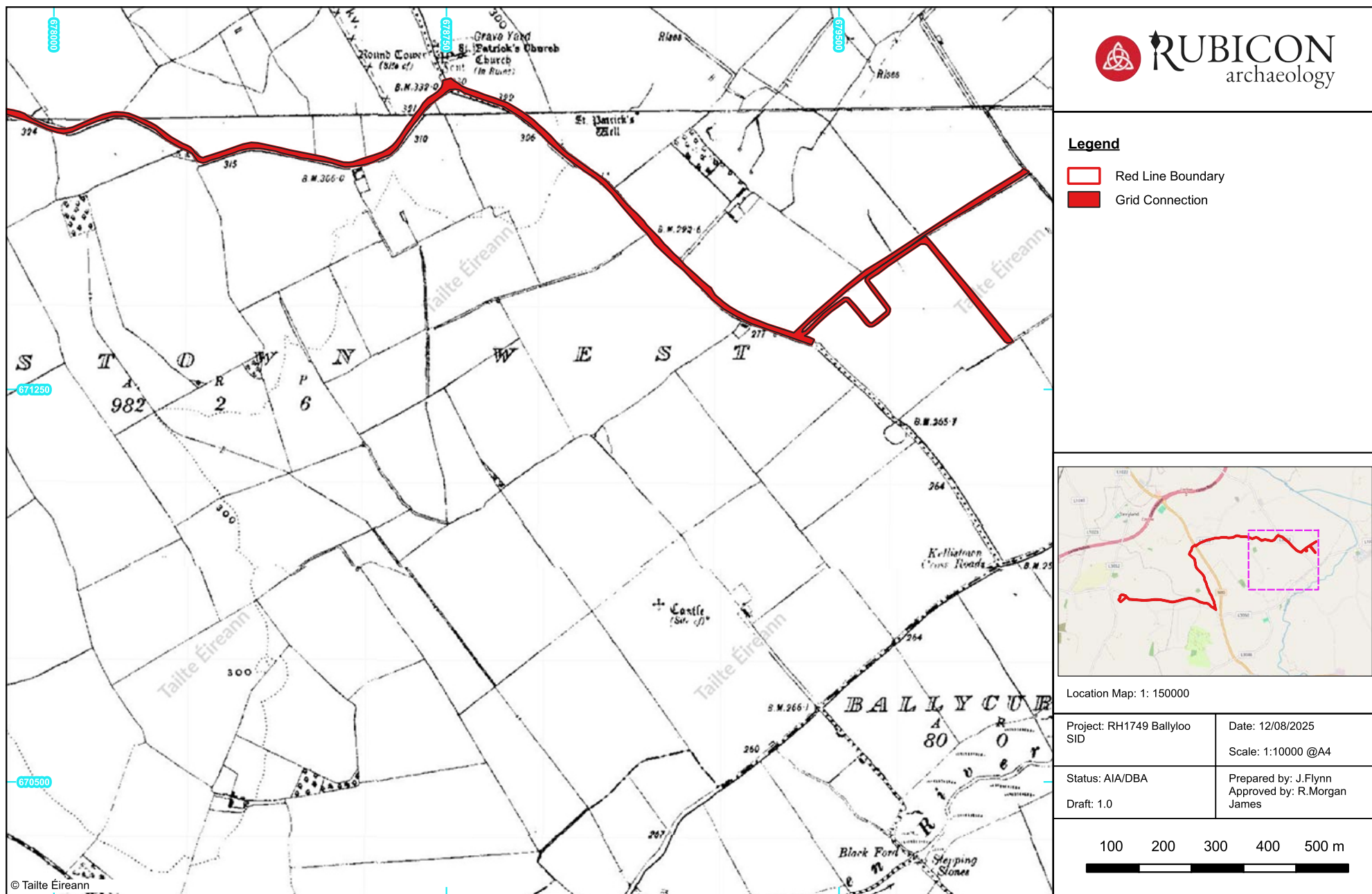


Figure 6.3 - First Edition 6-inch Ordnance Survey Cassini map with the proposed development and cable route.

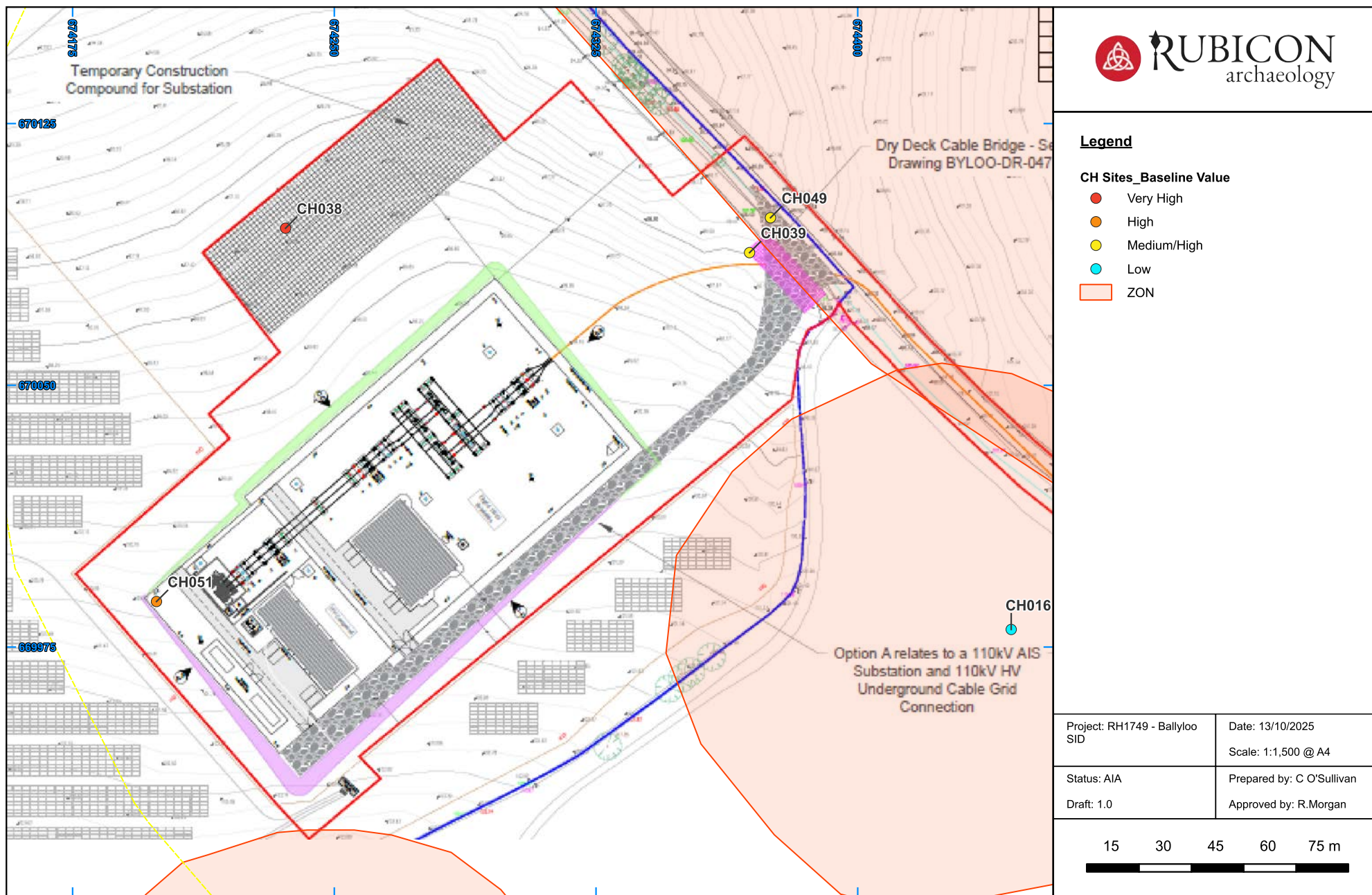


Figure 7.1 - Cultural Heritage sites with Option A of the proposed substation

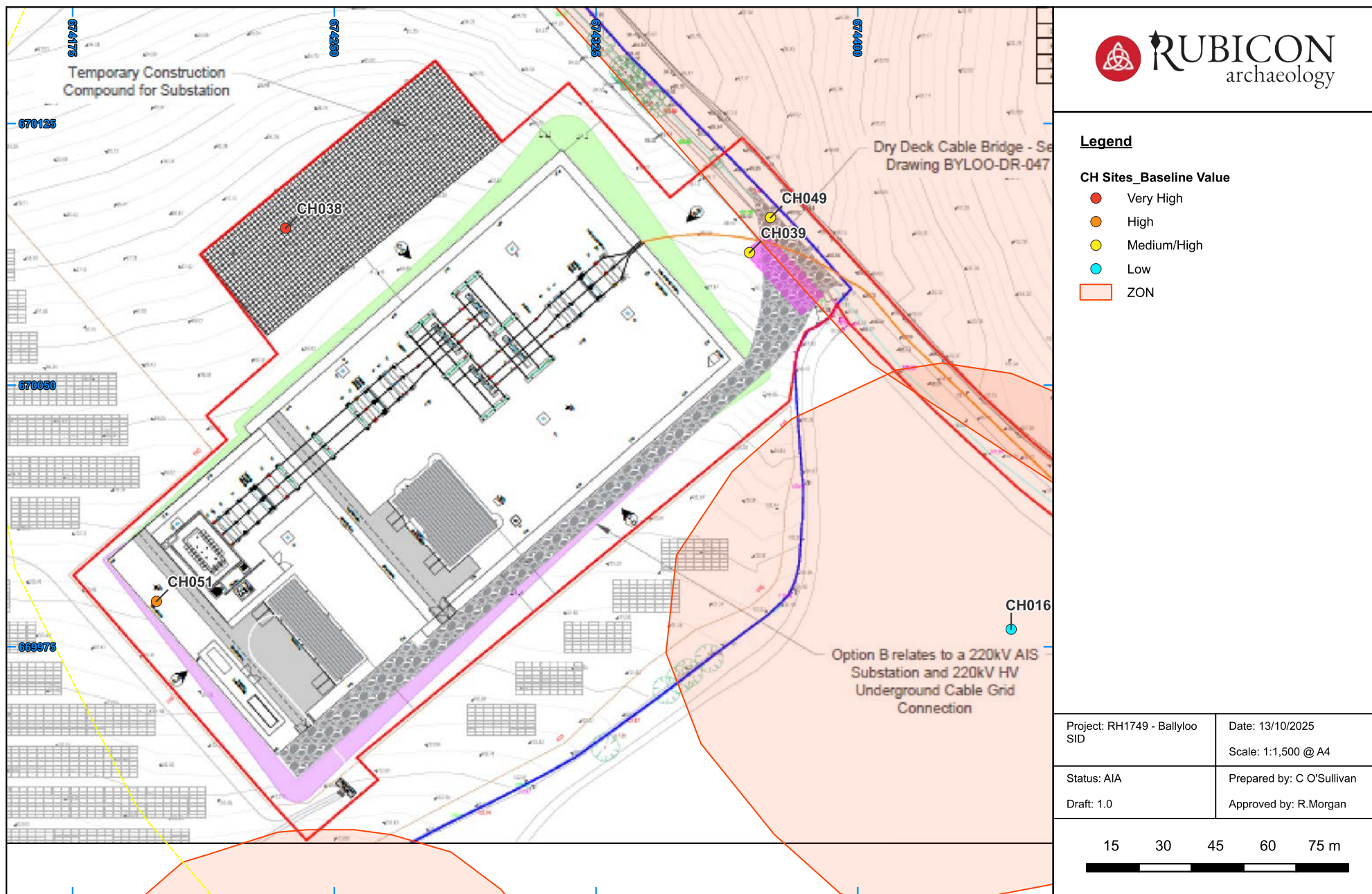


Figure 7.2 - Cultural Heritage sites with Option B of the proposed substation

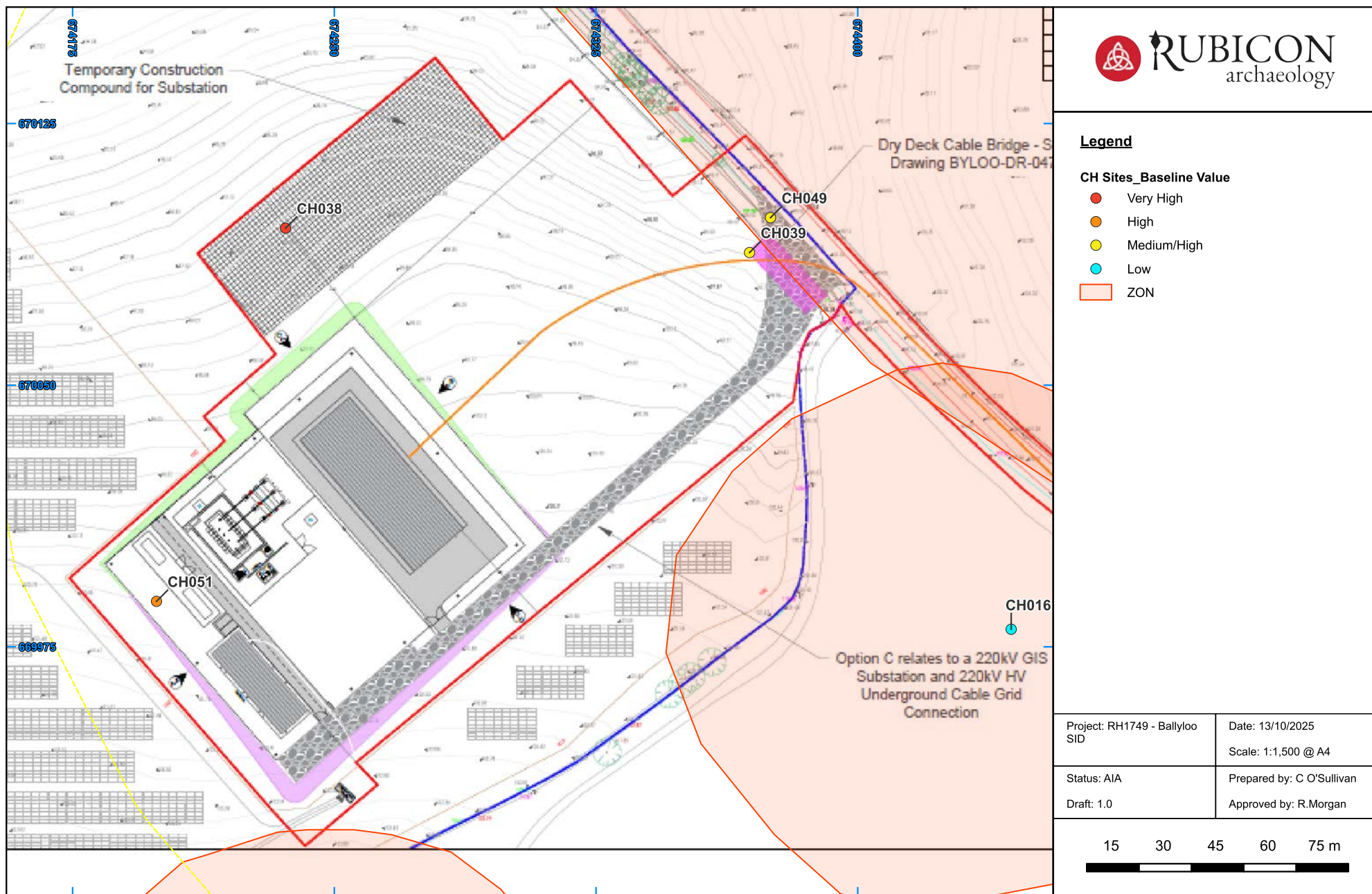


Figure 7.3 - Cultural Heritage sites with Option c of the proposed substation



Plate 1 - View of the location of the proposed substation, excavation (CH038), and geophysical anomalies (CH050 and CH051), facing west



Plate 2 - View of CH010 (Ballyloo Castle) and CH011 (Bawn), facing north-east