Geophysical Survey Report
Fortfield Road, Terenure,
Co. Dublin.

Prospection Licence No. 24R0359

Applicant: 1 Celbridge West Land Limited

Issue Date: August 2024

Prepared by: Michael Greiner & Seán Shanahan, Shanarc Archaeology Ltd.

shanarc archaeology

Contents

Figures

Plates

Tables

1. Introduction

A detailed geophysical Magnetometry survey was carried out by Shanarc Archaeology Ltd. under licence 24R0359 in relation to the proposed development of a Large-Scale Residential Development (LRD) on a site at Fortfield Road, Terenure, Co. Dublin.

As part of pre-planning mitigation, the site was subjected to a Cultural Heritage Impact Assessment (Quinn & Moore, 2024). The Cultural Heritage Impact Assessment recommended that a programme of archaeological testing be conducted prior to any development works on the site, and a decision was made that a geophysical survey be carried out in advance to inform archaeological testing.

The geophysical survey area comprised a c. 2.5 hectare greenfield portion of the wider c. 4.64 hectare site (Figures 1–3), with this 2.5 hectare area being the primary proposed development area (Figure 4).

The general purpose of the geophysical survey was to establish the potential presence of any subsurface archaeological features or remains located within the geophysical survey area. The results of the geophysical survey will be used to inform a subsequent programme of archaeological test-excavation, and may potentially be used to determine the necessity for any further archaeological mitigation with regards to the proposed development.

Figure 1: Location of wider site (*in red*) and geophysical survey area (*in blue)* in Terenure, Dublin (Tailte Eireann Licence No. CYAL50392781).

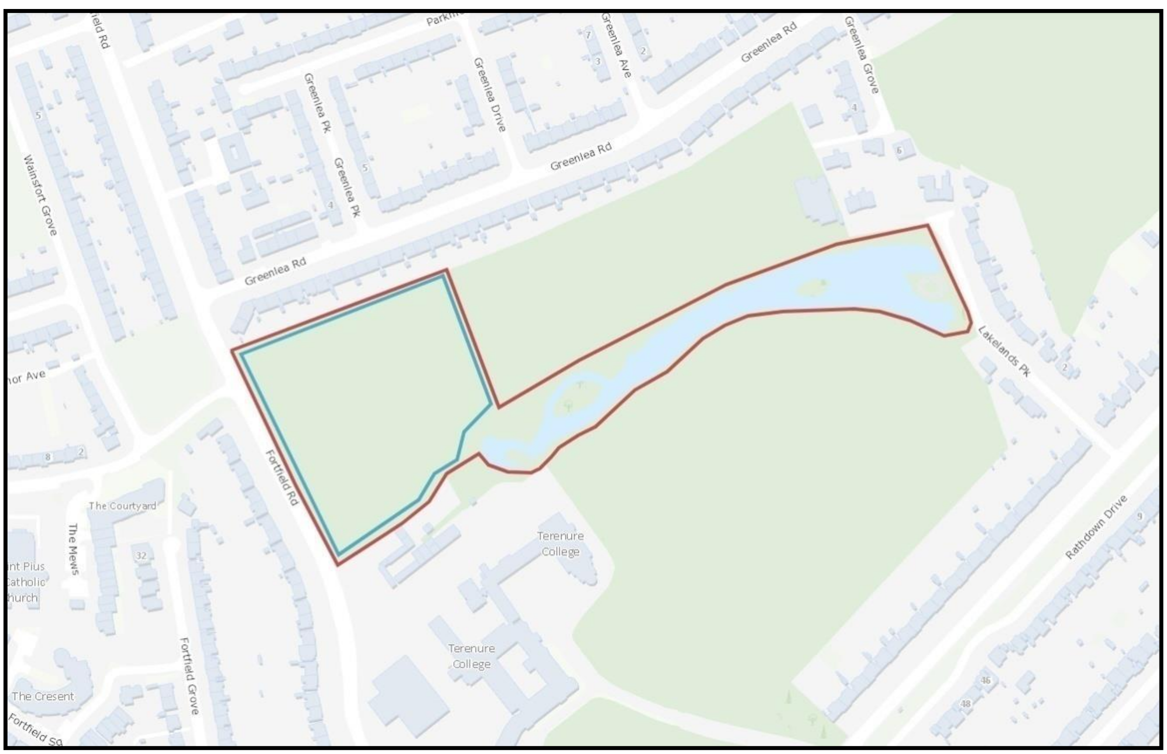


Figure 2: Location overview of wider site (*in red*) and geophysical survey area (*in blue*) in local context (Tailte Eireann Licence No. CYAL50392781).

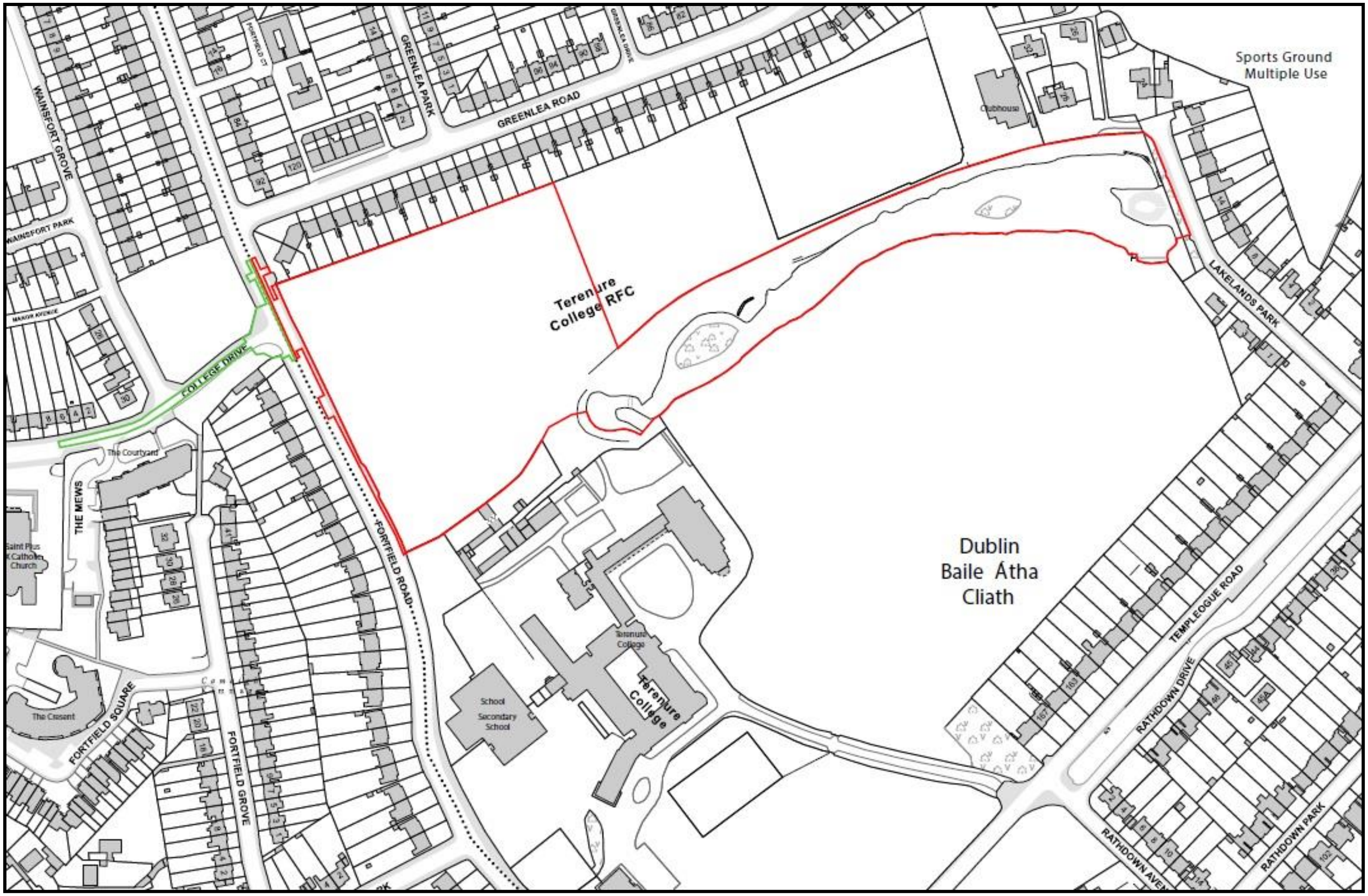


Figure 3: Site location plan of proposed development site (Source: supplied by Client).

Figure 4: Proposed site plan (Source: supplied by Client).

2. Archaeological Context

The proposed development is located within the townland of Terenure, in the Civil Parish of Rathfarnam in the Barony of Rathdown, in Co. Dublin.

The site is located in an area with a relatively high concentration of recorded archaeological sites, with the SMR/RMP records showing sixty-two recorded sites within a 2.5km radius of the proposed development; though of these only eight fall within a 1km radius of the subject site.

The existing archaeological record demonstrates human activity in the wider surrounding area dating to at least the Bronze Age. A flat cemetery (DU022-002----) comprising a number of Bronze Age cist burials with associated urns and food vessels (Waddell, 1970 /

Plunkett, 1898–1900) was identified at Greenhills c. 2.3km to the northwest of the proposed development site.

With the exception of the Bronze Age flat cemetery, the remaining sixty-one recorded SMR/RMP sites with c. 2.5km of the proposed development site are all medieval and post-medieval in date.

In the nearer vicinity of the site, a medieval church (DU022-013001-) and graveyard (DU022-013002-) are located at Rathfarnam c. 795m to the southeast of the site. The earliest reference to the church is 1225, though at least one grave slab (DU022-013001-) in the graveyard dates from the pre-Norman period between the 9th & 12th centuries (Breen, 1981).

Medieval watermills (DU022-070---- & DU022-044001-) are recorded in Rathfarnam c. 915m to the south-southeast and c. 575m to the east-southeast of the site. A bridge (DU022-044002-) over the river Dodder at Rathfarnham c. 575m to the east-southeast of the site is recorded as early as 1381 A. D (NMS Scope Notes).

The nearest recorded monument to the proposed development site comprises an unclassified castle (DU022-095----) predating Terenure House c. 80m–120m to the south of the proposed development site. The castle was supposedly built around 1590 by Peter Barnewell (www.dublincity.ie). In the 17th century a castle and six other dwellings stood upon the lands of Terenure occupied by Terenure College. They were in the possession of the Barnewall family (Simington 1945, 290). At the end of the 17th century Major Deane of Crumlin built a mansion on the site. It was his residence until 1699 (Mac Giolla-Phadraig 1954, 8, 10, 11) (NMS Scope Notes). In 1785 Robert Shaw a descendant of William Shaw, a Captain in King William's army, who fought at the Battle of the Boyne, leased Terenure House, an estate of 35 acres, and in 1787 Shaw rebuilt part of the house, now the front portion of Terenure College (Quinn & Moore, 2024). In 1860, the Carmelite Order purchased the house and opened a Secondary School for boys, and between 1870 and 1890 the school was extended (Quinn & Moore, 2024).

The Sites and Monuments Record (SMR) records eight sites within c. 1km radius of the proposed development site; these are listed in Table 1 and their locations are indicated in Figure 5.

Table 1: Recorded Monuments within a c. 1km radius of the proposed development site.

SMR No.	Class	Townland	ITM (E/N)	Distance (m) *	Number on Figure 5
DU022-095----	Castle - unclassified	Terenure	713474, 729606	c. 80m	1
DU022-104----	Ritual site - holy well	Terenure	714181, 730221	c. 485m	2
DU022-044001-	Water mill - unclassified	Rathfarnam	714425, 729709	c. 575m	3
DU022-044002-	Bridge	Rathfarnam	714416, 729692	c. 575m	4
DU022-013001-	Church	Rathfarnam	714284, 729164	c. 795m	5
DU022-013002-	Graveyard	Rathfarnam	714289, 729149	c. 795m	6
DU022-013003-	Graveslab	Rathfarnam	714290, 729149	c. 795m	
DU022-070----	Water mill - unclassified	Rathfarnam	714125, 729047	c. 915m	7

* *Distances are measured from the edge of an SMR sites Zone of Notification to the boundary of the proposed development area.*

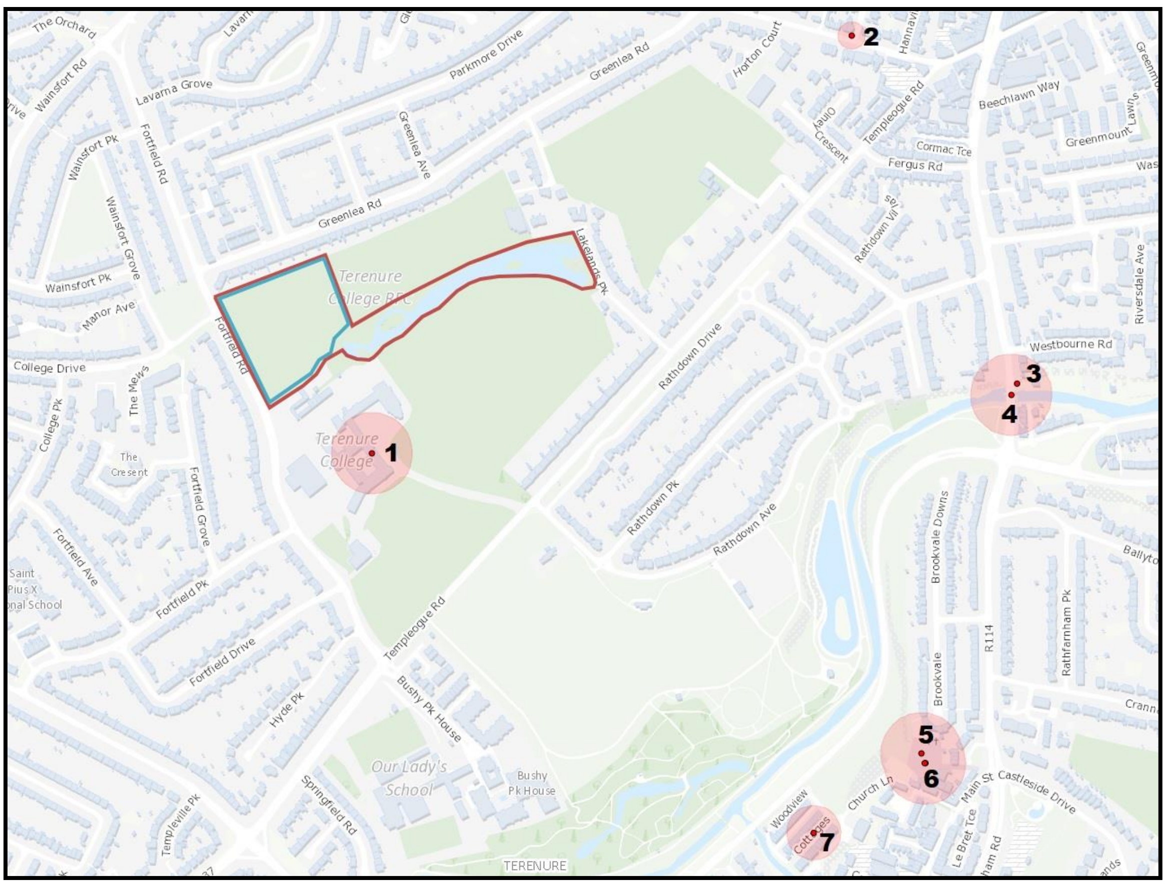


Figure 5: Distribution map of SMR/RMP sites (*red dots*), with their Zones of Notification (*shaded pink*), within a c. 1km radius of the subject site (*in red*) and geophysical survey area (*in blue*) (Tailte Eireann Licence No. CYAL50392781).

3. Previous Archaeological Investigations

The excavations bulletin (www.excavations.ie) records no previous archaeological excavations within the proposed development site. A single previous excavation is recorded within 600m of the site.

Testing was carried out at Terenure College (Excavation Licence No. 99E0695 / Excavation Bulletin entry 1999:277) prior to the construction of a proposed extension. A single trench was cut along the length of the proposed extension. The stratigraphy revealed reflected the use of this area as a garden, as depicted on the first-edition Ordnance Survey map. There was no indication of any features or structural remains that could be associated with the castle (Swan, 1999).

4. Site Description and Survey Conditions

The subject site is located on the eastern side of Fortfield Road in Terenure, Dublin 6 (Figures 1–2). The site is located immediately to the north of Terenure College, and immediately to the west of the Terenure College Rugby Club rugby pitches.

The geophysical survey area comprises a c. 2.5 hectare greenfield portion of a wider c. 4.64 hectare site, and is approximately centred on ITM coordinates E 713356, N 729796.

An initial site inspection was conducted by Thaddeus Breen of Shanarc Archaeology Ltd. on 20th June 2024.

At the time of the site inspection, the proposed geophysical survey area consisted of a single field of grass. It was previously part of a larger sports ground. A small strip along the southern edge has been kept mown (Plate 1), the remainder had grown unchecked. The vegetation of the overgrown area consists mainly of grasses, with only occasional clumps of taller plants such as thistles and dock. Variations in the types of grass and associated wild flowers suggest that there is corresponding variation in soil moisture. Most of the grass was 0.40m–0.50m high, but was longer along the west side.

The field is bounded on the west by an overgrown stone wall with bushes on the inside to a depth of 2m to 3m (Plates 3–4). It is bounded on the north by the rear wall of the gardens of houses on Greenlea Road. There is a line of trees inside the wall (Plate 2), with a long strip of nettles growing up to 1.50m tall. To the east the field is bounded by a tall metal mesh fence which separates the site from existing rugby pitches (Plate 7).

There are no surface traces of any archaeological features at the geophysical survey area. The only feature within the field is the track of a former field boundary which can be seen on the historic Ordnance Survey maps; this is clearly visible as a line of taller vegetation at the centre of the field (Plates 5 & 6). The ground surface appears to be slightly higher along this line, about 0.20m high and 3m wide. There appears to be a narrow strip (0.60m wide) running along the west side of this, which is about 0.20m lower than the surrounding ground.

One standpipe, about 0.30m tall, was noted (Plate 10). The top is broken over and there are no instruments inside.

The field can be accessed through a lockable panel of HERAS fencing reached via a lawn at the back of the school buildings (Plates 5, 6 & 9). However, vehicles could also access the site through a pair of steel gates on Fortfield Road where the entrance to the former Lakelands House stood (Plate 3). These gates are locked and are probably rarely used.

There were no visible constraints on the proposed geophysical survey methodology.

The geophysical survey under licence no. 24R0359 was carried out on 1st July 2024. At the time of the geophysical survey, the site was under long grass, c. 0.5m in height. Weather conditions during the geophysical survey were mild and overcast with light rain, and ground conditions were firm. There were no survey constraints.

Site Inspection Plates

Plate 1: Area of mown grass at southwest of proposed survey area; looking west (Source: Shanarc Archaeology – 20.06.2024).

Plate 2: Overview of geophysical survey area; looking north (Source: Shanarc Archaeology – 20.06.2024).

Plate 3: Overview of geophysical survey area; looking north along western boundary (Source: Shanarc Archaeology – 20.06.2024).

Plate 4: Overview of proposed survey area; looking south along western boundary (Source: Shanarc Archaeology – 20.06.2024).

Plate 5: Overview of geophysical survey area; looking south (Source: Shanarc Archaeology – 20.06.2024).

Plate 6: Overview of geophysical survey area; looking southeast (Source: Shanarc Archaeology – 20.06.2024).

Plate 7: Overview of geophysical survey area; looking south along eastern boundary (Source: Shanarc Archaeology – 20.06.2024).

Plate 8: Overview of geophysical survey area; looking southwest from north-eastern corner of site (Source: Shanarc Archaeology – 20.06.2024).

Plate 9: Overview of geophysical survey area; looking northeast from south-western area of site (Source: Shanarc Archaeology – 20.06.2024).

Plate 10: Stand-pipe in east-southeast area of site (Source: Shanarc Archaeology – 20.06.2024).

5. Cartographic Analysis

The Ordnance Survey (OS) maps covering the wider site and the geophysical survey area have been consulted. The first ever large-scale survey of Ireland was undertaken by the Ordnance Survey between 1829 and 1842, producing highly accurate maps at different scales.

The first-edition 6-inch OS map for the subject site (OS Sheet: DN022) was surveyed in 1836 and published in 1843 (Figure 6). It shows the geophysical survey area as comprising portions of two fields, separated by a tree-lined path which divides the proposed survey area from north-northwest to south-southeast. In the southern corner of the proposed survey area a curved boundary separates the field from what appears to be a yard area associated with the grounds of Terenure House. The eastern extension of the site which currently comprises the wooded area and pond/lake, is shown as a large fish pond with a tree-lined path along its northern edge.

The fields containing the subject site are bordered to the west and the north by the existing roads, by the grounds of Terenure House to the south-southwest, and in all other directions by fields and/or parklands associated with Terenure House.

The wider surroundings of the site are generally comprised of agricultural fields and extensive parklands associated with numerous large country houses. The village of Round Town is located c. 500m to the northeast of the site. The first-edition OS map does not suggest the presence of any previously unrecorded archaeological sites or features within or in the immediate vicinity of the proposed development site.

The OS 25-inch map surveyed in 1907 and published in 1911 (Figure 7) shows some minor changes within the geophysical survey area, with the north-northwest to south-southeast central field boundary now being shown as a narrow drain or channel with a spring at its southern end. The curved boundary at the southwest of the proposed survey area is now flanked by a pathway on its southern side, and another small plot or yard is located just to its east. The eastern section of the wider site is still shown as a lake bounded by a strip of woodland along its northern edge, with a boat house at its western end. The large building immediately to the south of the site within the grounds of Terenure House is now named as Lakelands and an area with several smaller houses on the northeast corner of the lake is named as Lakeland Park. Terenure House c. 120m to the south of the site is now named as Terenure College.

The wider surroundings of the site are still generally comprised of agricultural fields and parklands associated with numerous large country houses, though there are now additional smaller houses to the northwest, with the village expanding in the direction of the site. This village, which was named as Round Town in the first-edition OS map, is now labelled as Terenure.

The OS Cassini 6-inch map of 1940 (Figure 8) shows no further changes within, or immediately adjacent to the site. In the wider vicinity, the 1940 OS map shows considerable expansion of Terenure village, to the south, east and north of the subject site.

As with the first-edition OS map, the historic 25-inch OS map and the later Cassini 6-inch OS map do not suggest the presence of any previously unrecorded archaeological sites or features within or in the immediate vicinity of the proposed development site.

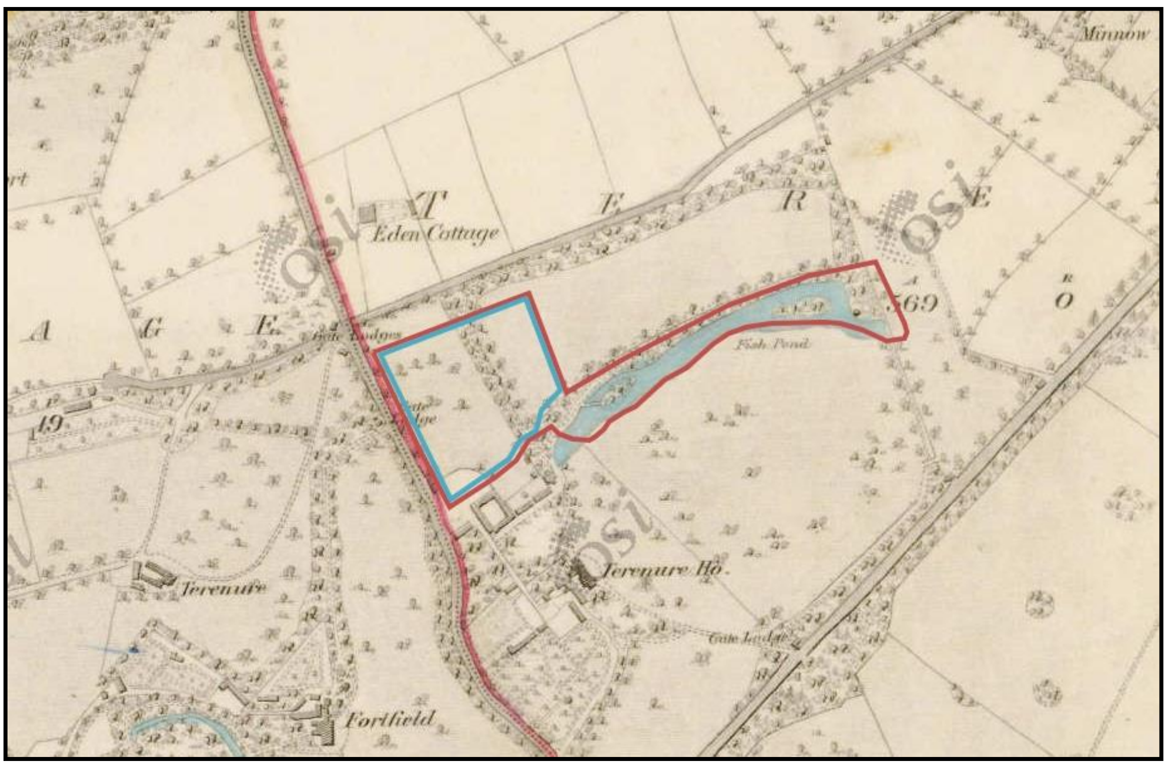


Figure 6: Location of wider site (*in red*) and geophysical survey area (*in blue*) on first-edition OS map (Sheet: DN022), 1843 (Tailte Eireann Licence No. CYAL50392781).

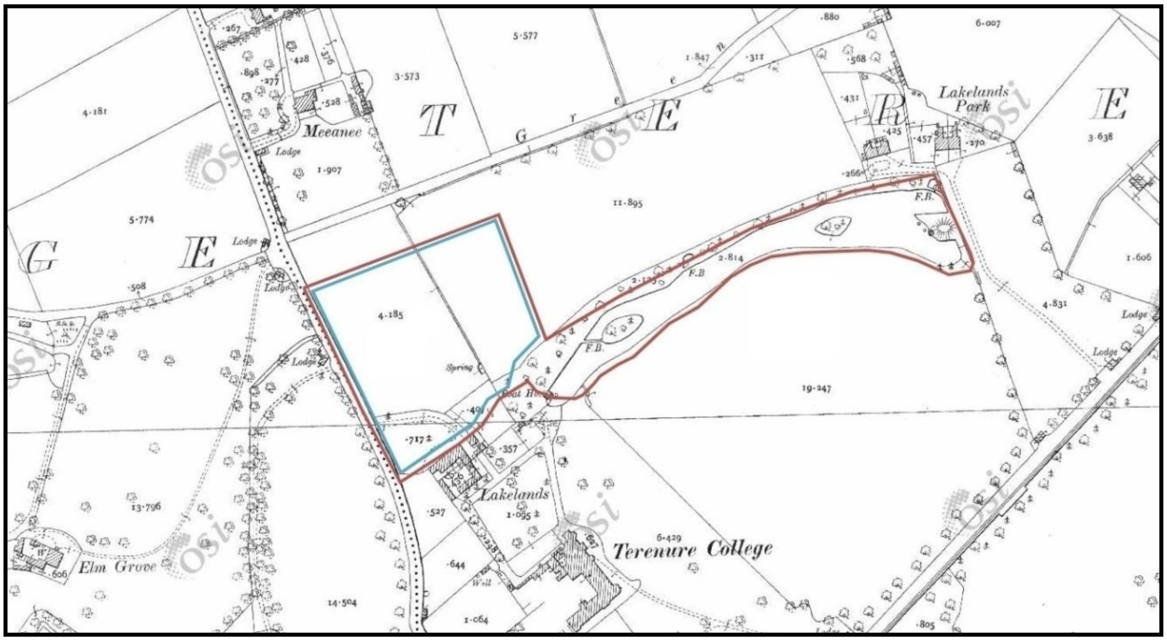


Figure 7: Location of wider site (*in red*) and geophysical survey area (*in blue*) on historic 25-inch OS map, 1911 (Tailte Eireann Licence No. CYAL50392781).

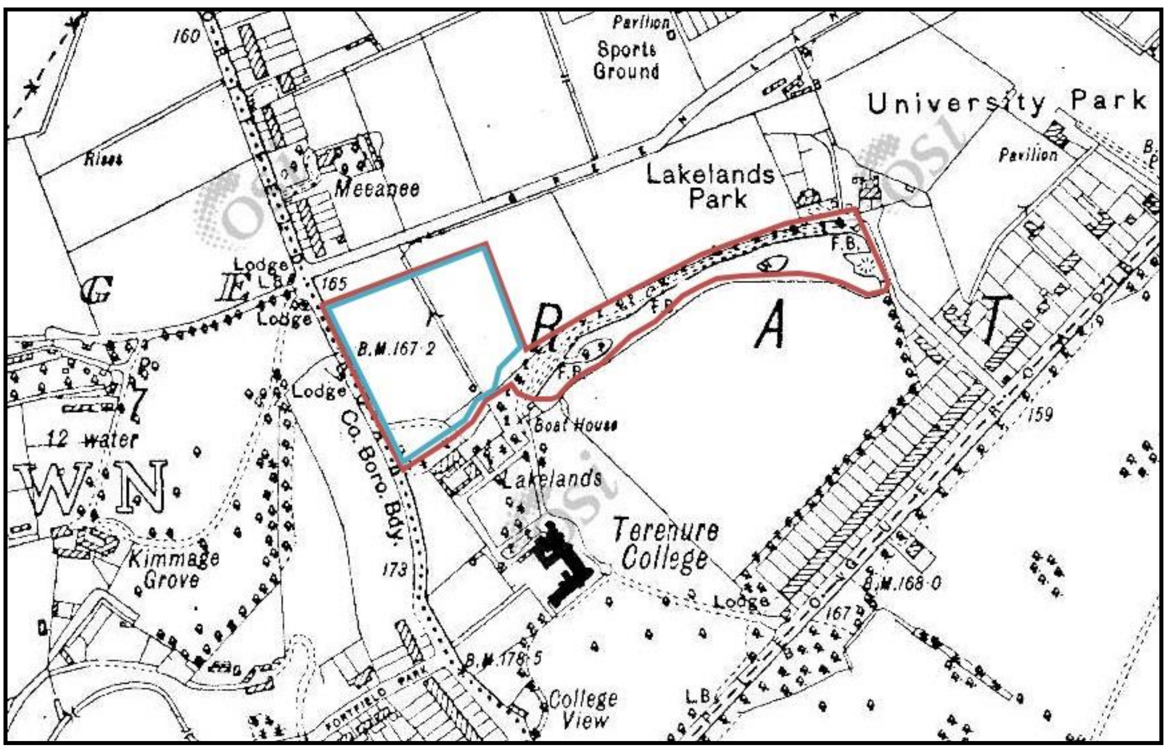


Figure 8: Location of wider site (*in red*) and geophysical survey area (*in blue*) on Cassini 6-inch OS map, 1940 (Tailte Eireann Licence No. CYAL50392781).

6. Aerial Imagery and LiDAR

In addition to the historic OS maps available aerial photographs were also examined. The following aerial photographs, accessible on the Tailte Eireann website Geohive (http://map.geohive.ie), were consulted: 1995, 1996–2000, 2001–2005, 2006–2012, Digital Globe 2011–2013, and Aerial Premium 2013–2018 (Figures 9–14).

The successful detection of archaeological sites through aerial photography varies, and depends on several factors including the position of the sun, the type of crop growing and the amount of rainfall in a growing season. In some years, such as during the drought of 2018, sites were clearly visible, while in others the same site could be undetectable from the air.

All of the consulted aerial photographs (Figures 9–14) show the geophysical survey area as comprising a greenfield site, which from at least 1996–2000 onwards (Figures 10–14) appears to be in use as training pitches. The internal north-northwest to south-southeast field boundary is visible in all aerial photographs as a boundary and/or cropmark. The curved boundary/path at the southwest of the geophysical survey area, which is shown in the historic OS maps (Figures 6–8), is clearly visible in the 1995 aerial photograph (Figure 9). The eastern section of the wider site where the lake is shown in the historic OS maps is shown in all the aerial photographs as a lake/pond surrounded by a wooded area.

The aerial photographs give no indication of any anomalies within or in close proximity to the site which could potentially suggest the presence of any previously unrecorded archaeological features.

In addition to the aerial photographs, LiDAR data recorded as part of the Office of Public Works (OPW) National Aerial Survey Contract (NASC) in 2011 was also consulted. The consulted LiDAR image comprised the Hillshade OPW NASC 2m Digital Surface Model (DSM) (Figure 15). Digital Surface Models (DSM) are current state earth models. For example, a DSM includes elevations from buildings, tree canopy, electrical power lines and other features.

The LiDAR image shows evidence of the interior north-northwest to south-southeast field boundary and the former curved boundary/path at the southwest of the site, as well as some evidence of agricultural furrows; aside from this there are no anomalies in the LiDAR data which could suggest the presence of any potential archaeological features within the site.

Figure 9: Location of wider site (*in red)* and geophysical survey area (*in blue*) on aerial photograph, 1995 (Tailte Eireann Licence No. CYAL50392781).

Figure 10: Location of wider site (*in red*) and geophysical survey area (*in blue*) on aerial photograph, 1996–2000 (Tailte Eireann Licence No. CYAL50392781).

Figure 11: Location of wider site (*in red*) and geophysical survey area (*in blue*) on aerial photograph, 2001–2005 (Tailte Eireann Licence No. CYAL50392781).

Figure 12: Location of wider site (*in red*) and geophysical survey area (*in blue*) on aerial photograph, 2006–2012 (Tailte Eireann Licence No. CYAL50392781).

Figure 13: Location of wider site (*in red*) and geophysical survey area (*in blue*) on Digital Globe 2011–2013 (Tailte Eireann Licence No. CYAL50392781).

Figure 14: Location of wider site (*in red*) and geophysical survey area (*in blue*) on Aerial Premium 2013–2018 (Tailte Eireann Licence No. CYAL50392781).

Figure 15: LiDAR image of wider site (*in red*) with geophysical survey area (*in blue*), Hillshade OPW NASC 2m Digital Surface Model (DSM), 2011 (Source: https://data.gov.ie/).

7. Site Geology

The site is situated on level terrain with an elevation of approximately 47m–48m OD.

The geophysical survey area is impacted by one sedimentary bedrock formation type; namely the Lucan Formation (dark limestone & shale 'calp') (www.gsi.ie). The lithological description states that the formation comprises dark-grey to black, fine-grained, occasionally cherty, micritic limestones that weather paler, usually to pale grey. There are rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcareous shale (www.gsi.ie).

Geologically, the Quaternary refers to the present era, having begun 2.6 million years ago; much of this time period relates to the Ice Age. Quaternary sediments (glacial sediments) refer to the soft material that has been deposited during this time; in the Irish context much of this relates to the movement of glaciers or ice-sheets. The principle types of associated sediments comprise tills (boulder clays), gravels, sands and peat. Over most parts of

Ireland, these sediments cover the bedrock (solid rock at or below the land surface) (www.geohive.ie).

The quaternary in the proposed development area is recorded as 'till derived from limestones' (www.gsi.ie).

Bonsall (2014) outlines the idealised performance of geophysical techniques upon principle Irish geologies, based on a five-scale performance rating (poor, moderate to poor, moderate, moderate to good, & good). This scale is applied to Magnetometer, Resistance and Electromagnetic techniques (Bonsall et al., 2014).

In general, limestone based bedrock types rate as 'moderate', while shale based bedrock types rate as 'good' in the geophysical survey suitability/performance range for Magnetometry.

Tills can give a generally poor response to a Magnetometry survey; though the use of narrower 0.5m traverse separations can increase the chances of successfully identifying archaeological features for detailed magnetometer surveys (Bonsall et al., 2014). The tills in the geophysical survey area are derived from limestone, which generally rates as 'moderate' for Magnetometry.

8. Geophysical Survey

The geophysical survey, carried out under licence no. 24R0359, was undertaken on 1st July 2024. At the time of the geophysical survey, the site was under long grass c. 0.5m in height. Weather conditions during the geophysical survey were mild and overcast with light rain, and ground conditions were firm. There were no survey constraints.

8.1 Introduction to Geophysical Survey

Geophysical survey is a systematic measurement of a physical property related to the earth. There are numerous sources of disturbance of this property, some owing to cultural heritage features, some owing to the measuring method, and others that relate to the environment in which the measurement is made. No disturbance, or 'anomaly', is capable of providing an unambiguous and comprehensive description of a feature, in particular in archaeological contexts where there are a myriad of factors involved.

The measured anomaly is generated by the presence or absence of certain materials within a feature, not by the feature itself. Not all archaeological features produce disturbances that can be detected by a particular instrument or methodology. For this reason, the absence of an anomaly must never be taken to mean the absence of an archaeological feature. The best surveys are those that use a variety of techniques over the same ground at resolutions adequate for the detection of a range of different features.

In general, topsoil is more magnetic than subsoil, which can be slightly more magnetic than parent geology, whether sands, gravels or clays; however, there are exceptions to this. The reasons for this are natural, and are due to biological processes in the topsoil that change iron between various oxidation states, each differently magnetic. Where there is an accumulation of topsoil, or where topsoil has been incorporated into other features, a greater magnetic susceptibility will result.

Within landscapes, soil tends to accumulate in negative features like pits and ditches, and will include soil particles with thermoremanent magnetization (TRM) through exposure to heat if there is settlement or industry nearby. In addition, particles slowly settling out of stationary water will attempt to align with the ambient magnetic field at the time, creating a deposit with depositional remanent magnetization (DRM).

As a consequence, magnetic survey is nearly always more a case of mapping accumulated magnetic soils than structures, which would not be detected unless they were magnetic in their own right e.g. built of brick or tile. As a prospecting tool, the magnetic survey is thus indirect. Fortunately, the mechanisms outlined above are commonplace and favoured by human activity, and it is nearly always the case that cut features will alter in some way the local magnetic field.

8.2 Survey Methodology

The survey area at Fortfield Road, Terenure, Co. Dublin was subjected to a detailed Magnetometry survey. Data was collected using a SENSYS MAGNETO® MX V3 magnetometer survey system.

The SENSYS MAGNETO® MX V3 is a cart based, large area magnetometer survey system which can host up to 16 fluxgate gradiometers. The modular trailer can be set up in various configurations to be carried, pushed or pulled. The survey width can be adjusted from 1m to 4m. This system is perfectly suited for rapid non-invasive geophysical survey on land. The system used at Fortfield Road was configured as a 4m wide, vehicle towed cart system equipped with 16 sensors of type FGM650/3 with a spacing of 0.25m. The FGM650/3 is a vertical Fluxgate gradiometer with a measurement range of ±3,000 nanoTesla (nT), making it ideal for surveying in a diverse range of archaeological, geological and soil morphological conditions.

The SENSYS MAGNETO® MX V3 utilises GPS continuous measurement, whereby data is measured and saved continuously during a chosen measuring period, and the data position is determined by a GPS receiver. Measurements are conducted in straight lines avoiding overlapping tracks and maintaining a steady walking speed, or a vehicle towed cart speed of no more than 15km/h.

Survey related GPS data was recorded using a Trimble R12i GPS unit with real-time VRS Now technology. Accurate GPS information is an essential part of gathering quality survey data that can be easily identified again in the field. The Trimble R12i GPS has an accuracy tolerance of 0.01m. This potential inaccuracy is augmented by the type of survey employed. Generally, gradiometry data can have a displacement of up to 25cm, due in part to the strength of the readings and/or the depth of the recorded response.

A number of GPS coordinates are show on the included figures, and more detailed survey tie-in information can be made available upon request.

8.3 Data Display

Summary grayscale images of the Magnetometry data were produced. The grayscale Magnetometry data is presented in Figure 16, while interpretative images of the Magnetometry data are presented in Figures 17 & 18.

Georeferenced geotiff images where created for the Magnetometry data. A 50Hz filter was applied to the Magnetometry data prior to clipping, and the Magnetometry grayscale images were produced with a dynamic range of between -10nT (white) to 10nT (black).

To provide a location context, survey data images are overlaid on Tailte Eireann Surveying map data of the site, and ITM coordinate reference points are provided in the figures; additional coordinates and survey tie-in information is available upon request.

Detailed data images of the geophysical survey area were produced at a scale of 1:1000 (Figures 16 & 17), with additional interpretative images at a scale of 1:1200 (Figure 18), while in-set site overviews in relevant figures are presented at a scale of 1:5000 (Figures 16 & 17). Appropriate scale bars, grayscale palettes and keys are presented on all relevant figures.

8.4 General Survey Results

The geophysical survey area comprised a c. 2.5 hectare greenfield portion of the wider c. 4.64 hectare site, with this 2.5 hectare area being the primary focus of development. The final surveyed area within the 2.5 hectare greenfield plot measured 2.15-hectares.

The data collected during the geophysical survey revealed a large number of anomalies across the site. The majority of the identified anomalies comprise small ferrous anomalies and a number of areas of concentrated magnetic response, all likely representing modern disturbance. The geophysical survey data also produced evidence of a number of clear linear anomalies, several of which appear to relate to features indicated in the historic OS maps. In addition to these features, a number of smaller isolated anomalies were interpreted as potential archaeology, possibly representing small to medium sized pit type features.

The grayscale Magnetometry data results of the geophysical survey are shown in Figure 16, while Figure 17 shows the interpretations of the various anomalies. Additionally Figure 18 shows the Interpretative Geophysical survey data relative to the historic map data from the OS first-edition and 25-inch maps. The various types of anomaly identified in the Magnetometry data, along with their interpretations and their potential archaeological significance are discussed below.

8.4.1 Detailed Results of Magnetometry Survey

The geophysical survey identified multiple anomalies across the survey area. These identified anomalies are generally interpreted in five categories: modern magnetic interference, ferrous, areas of concentrated magnetic response, linears, and potential archaeology.

Modern Magnetic Interference:

The geophysical survey data showed several areas of magnetic interference along the eastern and southern edges of the geophysical survey area. This interference is modern in nature, being caused by the presence of metal HERAS fencing in these areas. The areas of modern magnetic interference are indicated as black hatched areas in Figures 17 & 18.

Ferrous:

The Magnetometry data produced multiple small anomalies interpreted as modern ferrous disturbance. These are indicated in yellow-brown on Figures 17 & 18. These anomalies are found in all areas of the site, occurring both in isolation and in clusters, with a higher concentration towards the south and southwest. These anomalies primarily comprise small to medium sized dipolar anomalies, the magnetic strength of which suggests they are ferrous in nature. While most of the ferrous anomalies across the site likely represent modern ferrous disturbance, probably associated with agricultural activity, it must be noted that strong ferrous anomalies may on occasion mask smaller archaeological finds or features.

Areas of Concentrated Magnetic Response:

As well as numerous small isolated magnetic responses across the site, there were also a small number of larger areas of concentrated magnetic response; these are represented as orange hatched areas on Figure 17 & 18. In these areas, the detected magnetic anomalies are so tightly grouped, and often of such amplitude, that it is impossible to define where the individual anomalies begin or end. In so far as these anomalies can be individually analysed, they appear to be generally strongly dipolar in nature, which could derive from numerous different causes, ranging from burning to the presence of subsurface structural or construction debris or modern ferrous disturbance.

It is likely that these areas of concentrated magnetic response are associated with modern disturbance from agricultural or landscaping activity and/or the removal of the former field boundaries found in these areas on the historic OSi maps (Figure 18).

It must be noted, that even in such instances where large areas of concentrated magnetic response clearly represent modern disturbance, such large areas of disturbance may also on occasion mask smaller anomalies associated with potential archaeological finds or features.

Linears:

The geophysical survey data produced evidence of four linear anomalies. Two straight northwest–southeast linears bisecting the centre of the site, and two smaller curved linears in the site's south-western corner. The identified linears are indicated in purple on Figures 17 & 18.

The larger and more westerly of the two northwest–southeast linears at the centre of the survey area matches the location of a tree-lined pathway shown on the first-edition OSi map (Figures 6 & 18) and a subsequent drain connected to a spring shown on the 25-inch OSi map (Figures 7 & 18). This linear is visible as a cropmark on all the examined aerial photographs (Figures 9–14). The 2011–2013 aerial image (Figure 13) appears to show a number of posts, possibly flood-lights for the training pitches located along this line; the former locations of these appear as slightly larger circular negative/white anomalies in the survey data (Figure 16). The strongly bipolar nature of this linear anomaly suggests that a modern drain and/or service ducts likely still follow the line of the former path/drain at this location.

The second northwest–southeast linear is located c. 12m to the east of the previously discussed linear, and comprises a faintly positive/black anomaly (Figures 16–18). This linear does not match any features shown on the historic OSi maps though its alignment generally matches agricultural marks visible in several of the examined aerial photographs. It is likely that this anomaly represents a modern feature either in the form of an agricultural furrow/track or possible small field drain.

Two curved linears are located at the south-western corner of the site. The southernmost of these appears to match the location of a curved boundary and pathway shown on the historic 25-inch OSi map (Figures 7 & 18). The smaller curved linear just to the north of this likely represents modern agricultural activity, either associated with machines following the outer line of the former boundary and/or activity associated with the removal and levelling of said boundary.

Potential Archaeology:

In addition to multiple ferrous anomalies, linears and areas of concentrated magnetic response, a small number of anomalies across the site were interpreted as potential archaeology. These anomalies, which are indicated in blue on Figures 17 & 18, are primarily small to medium sized dipolar anomalies with a strongly positive polarity, and lesser, at times almost imperceptible negative response. Such anomalies tend to be indicative of pit type features.

Anomalies interpreted as potential archaeology were found across all areas of the site, though slightly more concentrated in the eastern half of the survey area. These anomalies generally occurred in isolation with no visible trends to suggest any associations, or that any of them formed part of any larger features.

While the geophysical data suggests the majority of potential archeological anomalies may be pit type features, excavation would be required to confirm whether or not they are archaeological in nature.

9. Conclusions

The Magnetometry survey data produced a large number of anomalies across the geophysical survey area. While the majority of the identified anomalies appear to be related to modern activity and/or disturbance, there are also a number of linear features, as well as a small number of isolated anomalies that are interpreted as potential archaeology.

The features identified as modern generally comprise small ferrous anomalies and a number of areas of concentrated magnetic response and magnetic interference. Of the four identified linears, two appear to match boundaries/features shown on the historic OS maps.

Aside from the two linears associated with the historic boundaries/features shown on the historic OS maps, there is no evidence of obvious archaeology within the survey area. However, a small number of anomalies were identified as potential archeology. These potential archeological anomalies likely represent small to medium sized pit type features. Given that the site has clearly been subjected to agricultural and/or landscaping activity, and presumably to extensive levelling when the site was in use as training pitches, there is a high probability that some or all of these potential archaeological anomalies are in fact also the result of modern disturbance.

While geophysical survey is a useful tool in identifying the location of sub-surface features or anomalies, the interpretation of geophysical survey data is not an exact science; and although the interpretation of detected anomalies is based on known scientific principles relating to the employed survey techniques combined with detailed historical research, the exact nature and/or archaeological significance of individual detected anomalies can only be definitively confirmed through excavation.

Although the geophysical survey data does not indicate any definite archaeological features or obvious archaeological activity within the site, an examination of the local archaeological record and cartographic resources shows the subject site to be located in an area of some archaeological potential, and as such it is recommended that the proposed development area be subjected to a programme of targeted archaeological test-excavation prior to the commencement of any development related groundworks on the site.

10. Interpretive classes

Introduction

Key to interpretation is separation of each anomaly into broad classes, namely whether caused by agricultural processes (e.g. ploughing, composting, drainage etc.), geological factors or whether a structure or feature of archaeological interest is likely. Within these, anomalies are in turn classified by whether they most likely represent a fill or a drain, or a region of differing data texture etc. More detailed descriptions are included below.

The actual means of classification is based upon geophysical understanding of anomaly formation, the behaviour of soils, landscape context and structural form. For example, to consider just one form of anomaly: weakly dipolar discrete magnetic anomalies of small size are likely to have shallow non-ferrous sources and are therefore likely to be pits. Larger ones of the same class could also be pits or locally-deeper topsoil, but if strongly magnetic could also be hearths. Strongly dipolar discrete anomalies are in all cases likely to be ferrous or similarly magnetic debris, although small repeatedly heated and *in situ* hearths can produce similar anomalies.

Agriculture – field boundaries

Coherent linear dipolar enhancement of magnetic field strength marking ditch fills, narrow bands of more variable magnetic field or changes in apparent magnetic susceptibility are all included within this category if they correlate with boundaries depicted on the Ordnance Survey maps. If there is no correlation, then these anomaly types are not categorised as field boundaries.

Agriculture – cultivation

Banded variations in apparent magnetic susceptibility caused by a variable thickness of topsoil, depositional remanent magnetisation of sediments in furrows or susceptibility enhancement through heating (a by-product of burning organic matter like seaweed) tend to indicate past cultivation, whether ridge-based techniques, medieval ridge and furrow or post medieval 'lazy beds'. Modern cultivation, e.g. recent ploughing, is not included.

Agriculture – drains

In some cases it is possible to identify drainage networks either as ditch-fill type anomalies, noisy or repeating dipolar anomalies from terracotta pipes or reduced magnetic field strength anomalies from culverts, plastic or non-reinforced concrete pipes. In all cases, identification of a herringbone pattern to these is sufficient for inclusion within this category.

Archaeology – fills

Any linear or discrete enhancement of magnetic field strength, usually with a dipolar character of variable strength that cannot be categorised as a field boundary, cultivation or as having a geological origin, is classified as a fill of potential archaeological interest. Fills are normally earthen, and include an often invisible proportion of heated soil or topsoil that augments local magnetic field strength. Inverted anomalies are possible over non-earthen fills, e.g. those that comprise peat, sand or gravel within soil. This category is subject to the 'habitation effect' where, in the absence of other sources of magnetic material, anomaly strength will decrease away from sources of heated soil and sometimes to the extent of non-detectability.

Former enclosure ditches that contained standing water can promote enhanced volumetric magnetic susceptibility through depositional remanence and remain detectable regardless of the presence of other sources of magnetic material.

Archaeology – other discrete

This category is secondary to fills and includes anomalies that by virtue of their character are likely to be of archaeological interest but cannot be adequately described as fills. Examples include strongly magnetic bodies lacking ferrous character that might indicate hearths or kilns. In some cases, anomalies of ferrous character may be included.

Archaeology – structures

On some sites the combination of plan form and anomaly character, e.g. rectilinear reduced magnetic field strength anomalies, might indicate the likely presence of masonry, robber trenches or rubble foundations. Other types of structure are only included if the evidence is unequivocal, e.g. small ring ditches with doorways and hearths. In some circumstances, a less definite category may be assigned to the individual anomalies instead.

Archaeology – zones

On some sites it is possible to define different areas of activity on the basis of magnetic character, e.g. texture and anomaly strength. These might indicate the presence of middens or foci within larger complexes. This category does not indicate a presence or absence of anomalies of possible archaeological interest.

Geology – discrete

On some sites, there will be anomalies, e.g. some gravels and alluvial contexts, which can obscure those potentially of archaeological interest. They may have a strength equal to or greater than that associated with more relevant sources, e.g. ditch fills, but can normally be differentiated on the basis of anomaly form coupled with geological understanding. Where there is ambiguity, or relevance to the study, these anomalies will be included in this category.

Geology – zones

Not all changes in geology can be detected at the surface, directly or indirectly, but sometimes there will be a difference evident in the geological data that can be attributed to a change, e.g. from alluvium to tidal flat deposits, or bedrock to alluvium. It some cases the geophysical difference will not exactly coincide with the geological contact and this is especially the case across transitions in soil type.

Services

All overhead (OH) and underground (UG) services are depicted where these are detectable in the data or where they may influence aspects of the interpretation.

Texture

Geophysical data varies in character across areas owing to a range of factors, including soil chemistry, near surface geology, hydrology and land use past and present. Where these variations are of interest or relevance to the study they are included in this category.

11. Interpretation of Magnetometry data

Anomaly classification used to interpret Magnetometry data

After Smalley (2013).

Polarity:

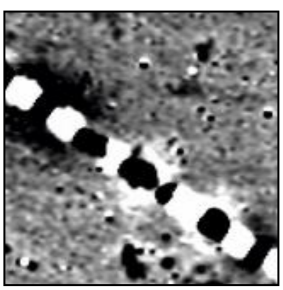
Polarity is the general term used to describe the measurement of a magnetic response. An anomaly may have a positive polarity (values above 0nT) and/or a negative polarity (values below 0nT).

Strength of response:

The amplitude of a magnetic response is important when assigning an interpretation to a specific anomaly. For example, a positive anomaly with extremely high nT values may often be caused by modern magnetic interference, while a similarly sized and shaped anomaly with significantly lower nT values may have a natural origin.

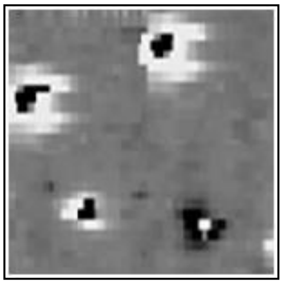
Thermoremanent response:

When an object or feature has been subjected to prolonged or intense heat it may acquire a magnetic field. This can be anything up to approximately +/-100 nT in value. Typically, such features include kilns, clay fired drain pipes, tiles and bricks, hearths or bonfires. If heating has occurred *in situ*, as with a kiln, the response is likely to be bipolar, whereas if the heated objects have been disturbed or moved relative to each other they may take an irregular form and display a more debris style response (e.g. ash).



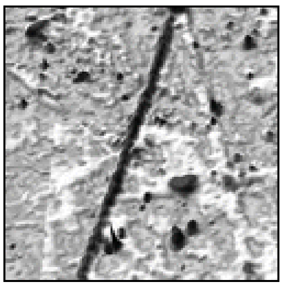
Bipolar:

Bipolar anomalies are composed of both positive and negative responses. A bipolar anomaly can be made up of any number of positive responses and negative responses. A pipeline consisting of alternating positive and negative anomalies is a typical example of a bipolar anomaly. In contrast, a dipolar anomaly has only one area of each polarity. Interpretation of a bipolar anomaly may depend on the strength of the magnetic field. A weak response may be caused by a clay field drain while a strong response may be caused by a metallic service.



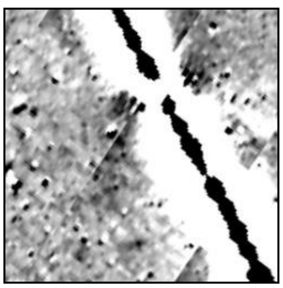
Dipolar:

A dipolar anomaly comprises a single positive anomaly with an associated negative response. There should be no separation between the two polarities of response. These responses are created by a single feature. The interpretation of a dipolar anomaly will depend on the strength of the magnetic measurements. Very strong anomalies are likely to be caused by ferrous objects.



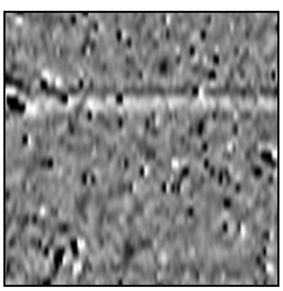
Positive linear:

A positive linear is a linear response which is entirely positive in polarity. These are typically related to in-filled cut features where the fill material is magnetically enhanced when compared to the surrounding matrix. Positive linear anomalies may be caused by ditches of an archaeological nature, former field boundaries or agricultural activities related to ploughing; some may even have a natural origin.



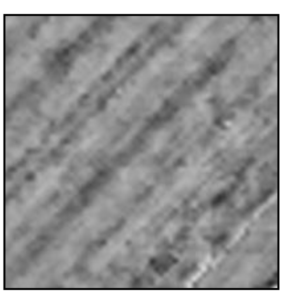
Positive linear with associated negative response:

A positive linear anomaly that has an associated adjacent negative anomaly is generally caused by a single feature. In the example shown, this is likely to be a single length of wire or cable probably relating to a modern service. Magnetically weaker responses may indicate field boundaries or earthwork style features.



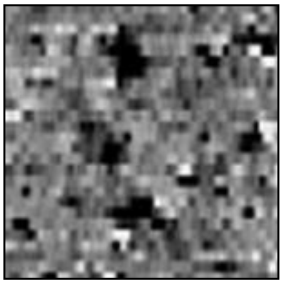
Negative linear:

A negative linear is a linear response that is entirely negative in polarity. These are generally caused by earthen banks where material with a lower magnetic magnitude relative to the background topsoil is built up. Negative linears may be caused by earthen banks of an archaeological nature, former field boundaries or plough activity.



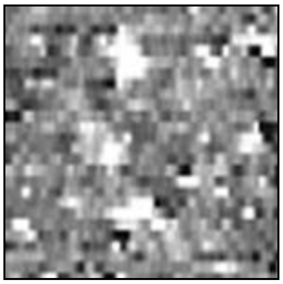
Ploughing activity:

Ploughing activity can often be indicated by a series of parallel linear anomalies. These linear anomalies may be of either positive polarity or negative polarity depending on site specifics. It can sometimes be difficult to distinguish between ancient or more modern plough furrows; indicators such as the separation of each linear, their straightness, strength of response and cross cutting relationships can be used to aid interpretation, although none of these can necessarily differentiate between various phases of activity.



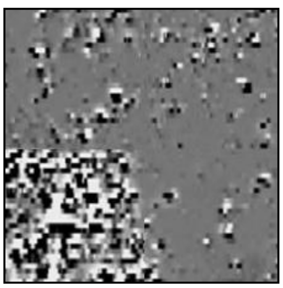
Positive point/area:

This generally refers to spatially small responses, perhaps covering just 3 or 4 reading nodes. They are entirely positive in polarity, and similar to positive linear anomalies, they are usually caused by in-filled cut features. They may indicate pits of an archaeological origin, as well as tree bowls or other naturally occurring depressions in the ground.



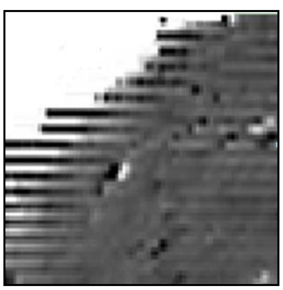
Negative point/area:

These are the opposite of positive point anomalies. Negative point responses may be caused by raised areas or earthen banks, which may be either archaeological or natural in origin.



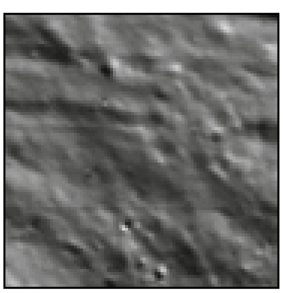
Magnetic debris:

Magnetic debris comprises numerous dipolar responses spread over an area. If the amplitude of response is low, the origin may represent general ground disturbance, something as simple as an area of mixed or dug earth. Moderately strong anomalies may indicate a spread of thermoremanent materials such as bricks or ash, while stronger anomalies are generally indicative of a spread of ferrous debris.



Magnetic disturbance:

Magnetic disturbance is a high amplitude response and may comprise either a bipolar anomaly or a single polarity response. It is generally associated with magnetic interference from modern ferrous materials or structures such as fencing, buildings or vehicles, and is most commonly found around the perimeter of a site in proximity to boundary fences.



Weak background variations:

Weakly magnetic wide scale variations within survey data may occasionally be seen across a site. These usually have no specific structure and can often appear curvy or sinuous in form. These are most likely caused by natural events or features, such as soil creep or dried up/seasonal streams, though they may also represent changes in the underlying geology or soil type that may contain unpredictable distributions of magnetic minerals. Such variations may be apparent in several locations across a site.

12. Technical Information

12.1 Instrumentation

Gradiometer Survey

A detailed gradiometer survey may be conducted to define any responses detected during scanning; alternatively it may be applied as a stand-alone methodology. Detailed survey is typically applied with a sample interval of 0.25m and a traverse interval of 1m, to allow for accurate detection of potential archaeological responses. Survey data is generally collected in grids of 40m x 40m, though occasionally grids of 20m x 20m or 10m x 10m and a transverse interval of 0.5m may be used if higher resolution data is found to be necessary.

In recording data using geophysical instruments, two traverse techniques can be applied, zig-zag or parallel. Parallel traverses offer more security from possible errors. Zig-zag traverses are quicker, giving rapid ground coverage. However, this traverse type has a tendency for disparity of responses in alternate traverses, which is generated by the mistiming of a surveyors walking speed. This can be treated during the processing stage; however, it can never be fully removed. Zig-zag traverses can also produce a stripping effect on the data. This is identified as alternating dark and light bands, but is only seen in gradiometer and GPR data. It is caused by the misalignment of the two magnetometers in gradiometry data, and is an effect of tilting and lifting of the antennae over differentiating ground cover within GPR results (Ernenwein and Kvamme 2008, 143). These however, can be removed during data processing. The similarities between this type of error, and that of the geophysical representation of cultivation marks, means such responses can be inadvertently processed out. Linear earthworks positioned parallel to traverses can also be mistaken as stripping.

Survey data at Fortfield Road, Terenure, Co. Dublin, was collected using a SENSYS MAGNETO® MX V3 Modular Large Area Magnetometer Survey System As this system is GPS tracked, it was not necessary to set out a geo-referenced survey grid prior to data collection, as is required with most traditional geophysical survey techniques. Measurements were conducted in straight lines avoiding overlapping tracks and maintaining a speed of less than 15km/h. The survey techniques employed when using the

GPS tracked SENSYS MAGNETO® MX V3 is comparable with the parallel traverse techniques of traditional gradiometer survey.

SENSYS MAGNETO® MX V3 Modular Large Area Magnetometer Survey System

The Magnetometry survey data at Fortfield Road, Terenure, Co. Dublin, was collected using a SENSYS MAGNETO® MX V3 Modular Large Area Magnetometer Survey System. The system comprises a modular, versatile, lightweight carrier system, a data acquisition unit; it can host up to 16 fluxgate gradiometers on a trailer having a width of 3.85m. The modular trailer can be set up in various configurations to be carried, pushed or pulled by person or by vehicle. The survey width can be adjusted from 1m to 4m. The system used at Fortfield Road was configured as a 4m wide, vehicle towed cart system equipped with 16 sensors of type FGM650/3 with a spacing of 0.25m. The FGM650/3 is a vertical Fluxgate gradiometer with a measurement range of ±3,000 nT. A compact data acquisition unit offers high sampling rates, 24Bit digitizing of all measurement data and an Ethernet interface to output the data. At maximum survey speed the system captures data every 20mm.

In order to reach a positioning accuracy of ±1cm for every measurement point, the MX V3 is equipped with a RTK DGPS. The GPS rover station is mounted to the cart while the GPS base station (reference point) is set next to the measurement area. As the MX V3 survey system is GPS tracked, it does not require the setting out of a survey grid prior to commencement of the survey. Measurements are conducted in straight lines avoiding overlapping tracks and maintaining a steady speed of no more than 15km/ph. For accurate results the measurement is started when the sensors are exactly at the start line and stopped when they are exactly at the end line before the vehicle is turned. High resolution magnetic gradiometry survey data (survey frequency 200Hz) is downloaded on-site to a laptop computer for initial processing and storage, and are later transferred to a desktop computer for further minimal processing, interpretation and archiving. The resulting data are processed using MAGNETO® MonMx geophysical software.

Trimble R12i GNSS System

A Trimble R12i with a TSC7 logger is a handheld GPS device which utilizes VRS Now real-time corrections to provide Real-time kinematic positioning (RTK) data, with a Network RTK accuracy of 8 mm + 0.5 ppm RMS (Horizontal) and 15 mm + 0.5 ppm RMS (Vertical).

This highly accurate device was used as part of the SENSYS MAGNETO® MX V3's GPS tracking system to precisely track and record geographical location data during the survey.

13. Bibliography

Aspinall, A., Gaffney, C. and Schmidt A., 2009. *Magnetometry for Archaeologists.* AltaMira Press.

Bonsall, J., Gaffney, C., and Armit, I., 2014. *Preparing for the Future: A reappraisal of archaeo-geophysical surveying on Irish National Road Schemes 2001-2010*. University of Bradford.

Breen, T., 1981. *A pre-Norman grave slab at Rathfarnham, County Dublin.* Journal of the Royal Society of Antiquaries of Ireland 3, 120-22.

Ernenwein, E.G. and Kvamme, K. L., 2008. "Data processing issues in large-area GPR surveys: correcting trace misalignments, edge discontinuities and striping." *Journal of Archaeological Prospection*. Vol. 15, Issue 2, pp. 133-149.

Gaffney, C.F., Gater, J.A., Linford, P., Gaffney, V.L. & White, R. 2000. '*Large-scale systematic fluxgate gradiometry at the Roman city of Wroxeter*', *Archaeological Prospection* 7: 81–99.

Gaffney, C. & Gater, J., 2003. *Revealing the Buried Past: Geophysics for Archaeologists.* Stroud: Tempus Publishing

Gimson, H., 2015. *Investigation of Land Surrounding Woodstock Castle, Athy, County Kildare*. Earthsound Archaeological Geophysics. Unpublished geophysical survey report. Detection Licence No. 15R0076.

Mac Giolla-Phádraig, B., 1954. *History of Tenure.* Dublin. Veritas.

Plunkett, Col. LT.G.T., 1898-1900. *On a cist and urns found at Greenhills Tallaght, Co. Dublin.* Proceedings of the Royal Irish Academy 21, 338-47.

Quinn, B. & Moore, D., 2024. *Cultural Heritage Impact Assessment – Proposed Development At Fortfield Road, Terenure, Dublin 6*. Moore Archaeological & Environmental Services Ltd. T/A Moore Group.

Schmidt, A. *et al*., 2015. *Guidelines for the use of Geophysics in Archaeology*. *EAC Guidelines 2*. Europae Archaeological Consilium (EAC), Belgium.

Smalley, R., 2013. South Bradwell, Great Yarmouth. Geophysical Survey Report. Archaeological Solutions Ltd.

Simington, R.C. (ed.), 1945. *The Civil survey, AD 1654-1656. Vol. VII: county of Dublin.* Dublin. Irish Manuscripts Commission.

Swan, R., 1999. *Terenure College, Terenure, Dublin.* Excavation Licence No. 99E0695. Unpublished Report.

Waddell, J., 1970. *Irish Bronze Age cists, a survey.* Journal of the Royal Society of Antiquaries of Ireland 100, 91-139.

Witten, J. A. 2014. *Handbook of Geophysics and Archaeology.* Routledge, London.

Electronic Sources:

Tailte Eireann, formerly Ordnance Survey of Ireland; maps and aerial photographs, sourced at www.geohive.ie and www.archaeology.ie (*accessed July 2024*), and used in accordance with Tailte Eireann Licence No. CYAL50392781.

Geological Survey Ireland; geological data and maps, sourced at www.gsi.ie (*accessed July 2024*).

SENSYS MAGNETO® MX V3 Modular Large Area Magnetometer Survey System, technical specifications information and user manuals (*accessed July 2024*); https://sensysmagnetometer.com/

Trimble R12i GNSS System and TSC7 logger (*accessed July 2024*) https://geospatial.trimble.com/products-and-solutions/trimble-r12#product-downloads

www.excavations.ie	Summary accounts of archaeological investigations
https://heritagemaps.ie/	OS maps and heritage data
https://data.gov.ie/	Government website containing LiDAR data
www.dublincity.ie	Planning details

https://www.myplan.ie/national-planning-application-map-viewer/

https://www.dublincity.ie/sites/default/files/2022-06/terenure-walking-trail-map-guide-2021.pdf

14. Figures

NOTES:

- For interpretative geophysical survey data see Figures 17 & 18.

SMR Site Info:
A = DU022-095---- (Castle - unclassified).

Background aerial image is Bing Aerial from c. 2020-2024 (Source: https://www.bing.com/maps).

nT
-10 10

Key:

Geophysical Survey Boundary
Site Boundary
SMR Site
Zone of Notification
Grid Peg (E xxx N xxx)

shanarc archaeology

Unit 39a,
Hebron Business Park,
Kilkenny,
Ireland
Mobile 086 3601564
Office 056 7722881
Email shanarc@gmail.com

CLIENT: Lioncor Ireland

PROJECT: Fortfield Road, Terenure, Dublin

TITLE: Grayscale Magnetometry Data

DRAWING NO.: Figure 16

LICENCE NO.: 24R0359

DATE: 09/07/2024

SCALE: 1:1000 & 1:5000

PRODUCED BY: MG

NOTES:

- For grayscale magnetometry data see Figure 16.
- For additional interpretative data see Figure 18 .

SMR Site Info:
A = DU022-095---- (Castle - unclassified).

Background aerial image is Bing Aerial from c. 2020-2024 (Source: https://www.bing.com/maps).

Key:

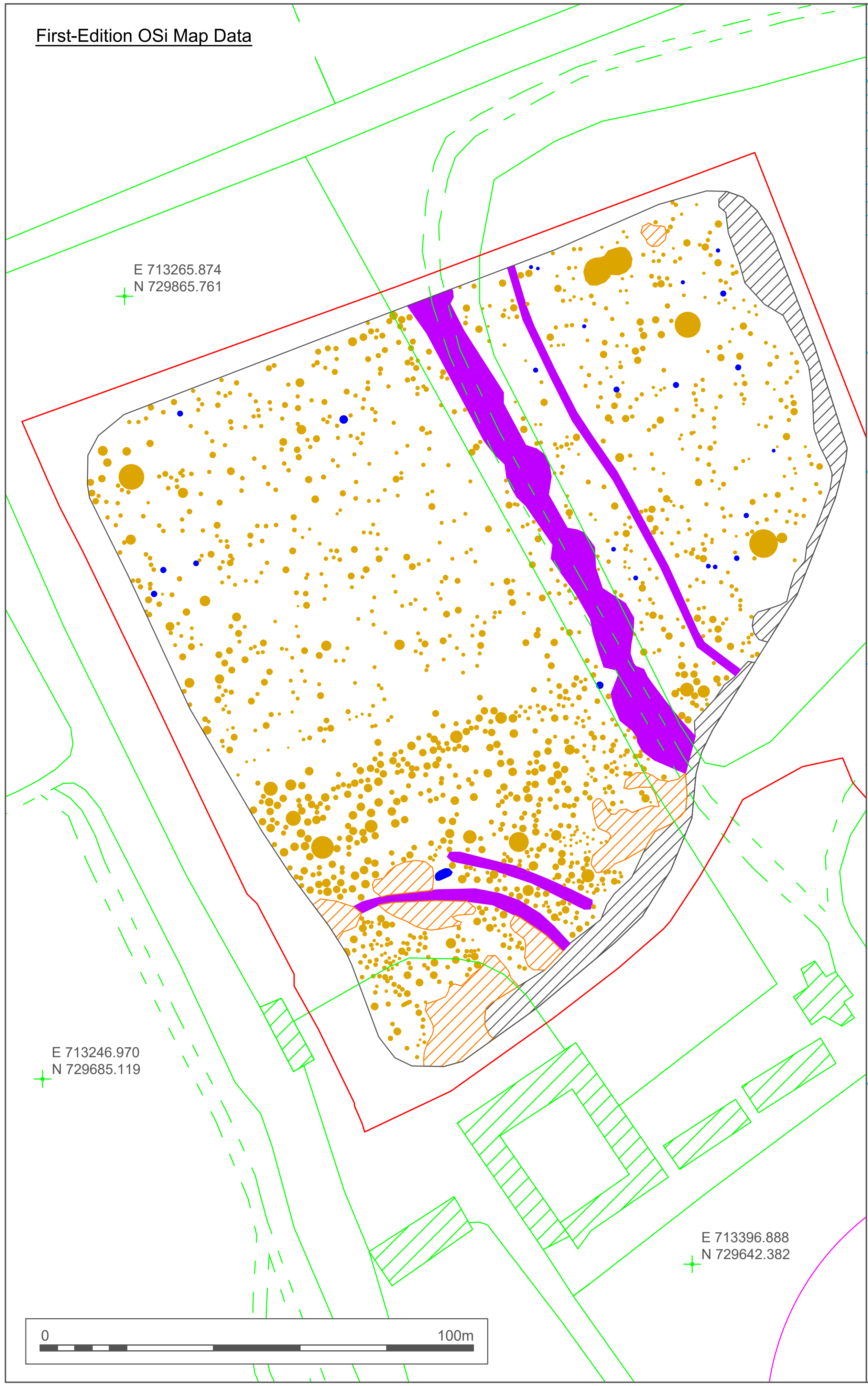
- Ferrous
- Potential Archaeology
- Linear
- Concentrated Magnetic Response
- Modern Magnetic Interference
- Site Boundary
- Geophysical Survey Boundary
- SMR Site
- Zone of Notification
- Grid Peg (E xxx N xxx)

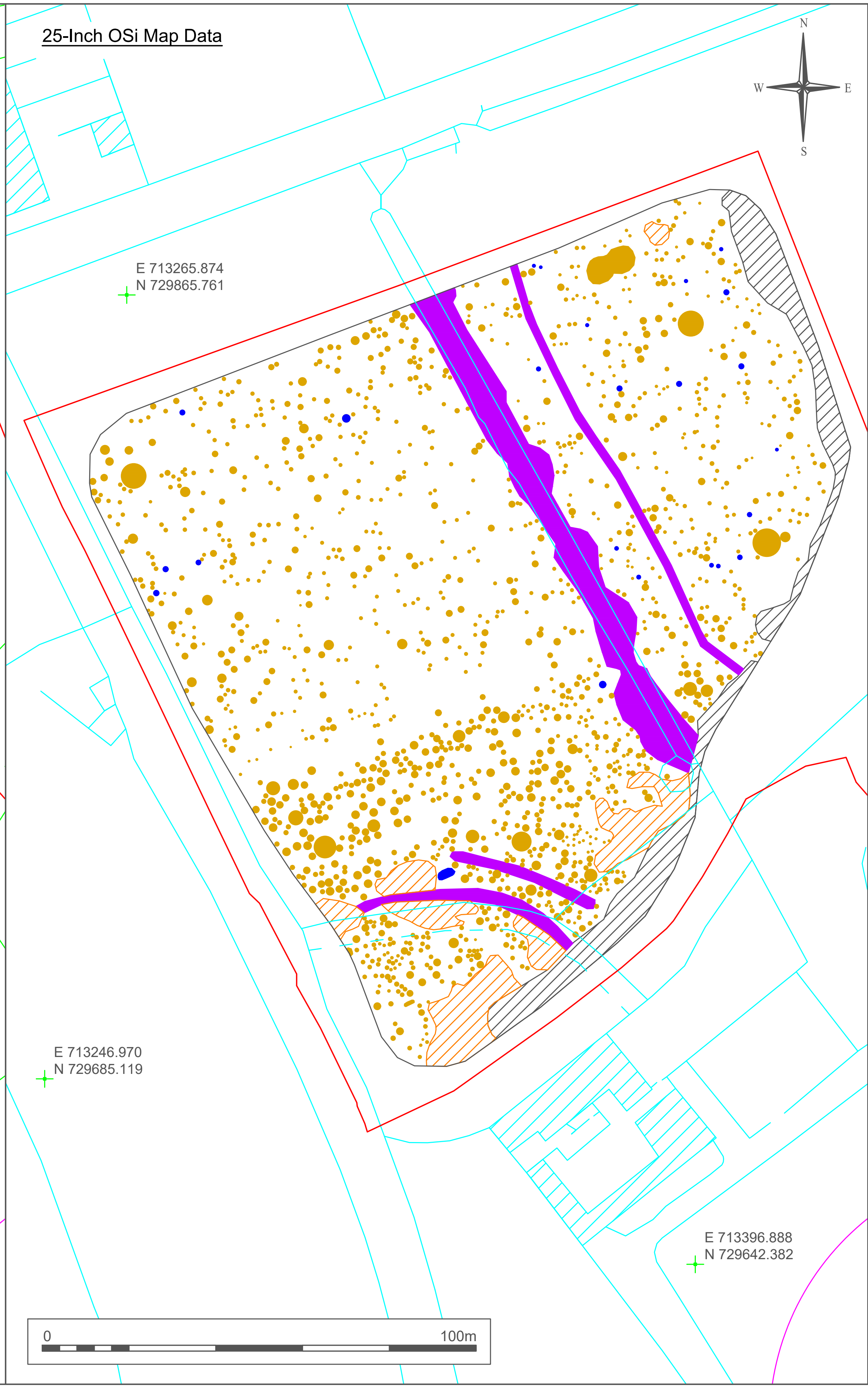
shanarc archaeology
Unit 39a,
Hebron Business Park,
Kilkenny,
Ireland
Mobile 086 3601564
Office 056 7722881
Email shanarc@gmail.com

CLIENT: Lioncor Ireland

PROJECT: Fortfield Road, Terenure, Dublin

TITLE:	DRAWING NO.:
Interpretative Magnetometry Data	Figure 17
DATE: 09/07/2024	LICENCE NO.: 24R0359
SCALE: 1:1000 & 1:5000	PRODUCED BY: MG





NOTES:

- For grayscale magnetometry data see Figure 16.
- For interpretative survey data see Figure 17.

Key:

- Ferrous
- Potential Archaeology
- Linear
- Concentrated Magnetic Response
- Modern Magnetic Interference
- Historic OSi Map Data First-Edition (1836-1843)
- Historic OSi Map Data 25-inch (1907-1911)
- Site Boundary
- Geophysical Survey Boundary
- SMR Site
- Zone of Notification
- Grid Peg (E xxx N xxx)

shanarc archaeology

Unit 39a,
Hebron Business Park,
Kilkenny,
Ireland

Mobile 086 3601564
Office 056 7722881
Email shanarc@gmail.com

CLIENT: Lioncor Ireland

PROJECT: Fortfield Road, Terenure, Dublin

TITLE: Interpretative Magnetometry Data; Overlaid with Historic OSi Map Data

DRAWING NO.: Figure 18

LICENCE NO.: 24R0359

DATE: 09/07/2024

SCALE: 1:1200

PRODUCED BY: MG