Cooil Road, Braddan,
Isle of Man

Archaeological Desk-based Assessment

Oxford Archaeology North

March 2008

TEP

Issue No: 2007 -2008/822
OAN Job No: L9984
NGR: SC 344 757

Document Title: **COOIL ROAD, BRADDAN, ISLE OF MAN**

Document Type: **Archaeological Desk-based Assessment**

Client Name: **TEP (The Environment Partnership)**

Issue Number: 2007 - 2008/822
OA Job Number: L9984

National Grid Reference: **SC 344 757**

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SUMMARY

This desk-based archaeological assessment was commissioned by TEP (*The Environment Partnership*) on behalf of the Isle of Man Government Department of Local Government and the Environment (DoLGE) on 4 February 2008. The assessment forms part of a broader environmental impact assessment in support of a Development Order.

The site is centred on SC 344 757 and largely consists of agricultural land, with some industrial and retail units.

The assessment has been carried out by Oxford Archaeology North (OA North). The work comprised the collection and assessment of information available from documentary and other sources, both published and unpublished. A site walkover was undertaken to enhance awareness of the context and assess the site's potential to preserve archaeological remains.

The *National Monuments Record* (NMR) maintained by Manx National Heritage (MNH) contains no entries which fall within the area of the scheme. The assessment has been able to show that this is a partial picture and that there are a number of reasons to be cautious about the archaeological potential of the area occupied by the scheme. These include prehistoric utilisation of resources within, or in the vicinity of the scheme, the persistence of medieval features and the presence of a complex of buildings belonging to a quarterland farm unit.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank The Environment Partnership (TEP) and the Isle of Man Government Department of Local Government and the Environment (DoLGE) for commissioning the project. Thanks are also due to Manx National Heritage (MNH), in particular Andrew Johnson, Curator of Field Archaeology, and all the staff of the Manx Museum Library for their assistance with this project.

The desk-based assessment was undertaken and written up by Nick Johnson, with maps produced by Adam Parsons and Alix Sperr. The project was managed by Nick Johnson; Gill Hey edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 The Environment Partnership (TEP) prepared a Scoping Report for the Isle of Man Government Department of Local Government and the Environment (DoLGE) in December 2007 (ref. 1531.005) to inform the process of developing an Environmental Impact Assessment preparatory to an application for a Development Order on land to the south of Cooil Road, Braddan (Fig. 1). As the statutory archaeological authority, Manx National Heritage (MNH) were invited to comment. In a letter to Chris Chadwick (TEP) and Emily Curphey (DoLGE) dated 23 January 2008, MNH recommended that 'further desk-based assessment be undertaken, so that a single professional assessment exists for the site-specific purposes of the Environmental Impact Assessment and the Development Order'. The same correspondence from MNH also details specific areas of desktop research; these were further refined and developed in conversation with the Curator of Field Archaeology at MNH on 8 February 2008.

1.1.2 The desk-based assessment comprised a search of both published and unpublished records held by MNH. In addition, a site walkover was carried out on the site of the proposed development, in order to relate the landscape itself to the results of the desk-based assessment. This report sets out the results of the desk-based assessment in the form of a short document, outlining the findings, followed by a statement of the archaeological potential and significance, and an assessment of the impact of the proposed development. The sites identified in this work are shown on Figure 2, and are listed in Section 4.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 The study area lies south-west of the Isle of Man Business Park on Cooil Road in the parish of Braddan. It occupies a position at the head of two small valleys on otherwise relatively level ground. The valleys drain south-west into a larger valley forming the upper reaches of the Middle River.

1.2.2 The solid geology consists of Manx Group rocks of the Lonan Formation *ie* pale to dark grey mudstone, siltstone and sandstone, laminated or very thinly bedded (British Geological Survey 2001). A diorite dyke traverses the site: the former quarry (Fig. 2, site **04**) appears to have targeted an outcrop of this rock.

1.2.3 The drift geology is formed of diamicton of the Snaefell Formation, locally thin (British Geological Survey 2001). It is noticeably rich in clay within the scheme area, holding water well.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 This desk-based assessment has been carried out in accordance with IFA guidelines (Institute of Field Archaeologists, 1999 *Standard and guidance for archaeological Desk-based Assessments*). In addition it adheres to English Heritage Guidelines (English Heritage, 2006 *Management of Research Projects in the Historic Environment* [MoRPHE]) and generally accepted best practice.

2.2 DESK-BASED ASSESSMENT

2.2.1 The study area was defined by a drawing supplied by TEP and consists of land to the south of Cooil Road, Braddan, extending west as far as the Cooil crossroads and east to the access road to Ballavagher farm (Fig. 2). The sources consulted include the latest aerial photographic layer incorporated into the Isle of Man Government MANNGIS Corporate Project 1.1; the collection of aerial photographs taken by the RAF in 1946 and held in the Manx Museum Library; estate maps held in the Manx Museum Library; the *National Monuments Record* (NMR) maintained by MNH; and relevant published works on place-names, geological and archaeological research. A site walkover was undertaken on 13 February 2008. The results were analysed using criteria of significance used in the UK to assess the national importance of ancient monuments, suitably adapted for the Manx context.

2.2.2 ***Manx National Heritage:*** MNH holds extensive collections of maps, historical and modern, together with aerial photographs and archaeological site records. The latter form the *National Monuments Record*.

2.2.2 ***Oxford Archaeology North:*** OA North has an archive of secondary sources relevant to the study area, as well as numerous unpublished client reports on work carried out in the Isle of Man. These were consulted where necessary.

2.3 SITE WALKOVER

2.3.1 The aim of the site walkover was to enhance awareness of the local context and assess the potential for preservation of archaeological features and remains. It was undertaken on 13 February 2008.

2.3.2 The walkover focused on those features which the desk-based research had highlighted as potentially significant, while also gathering data to characterise the landscape and the changes and developments which will tend to have influenced the state of preservation of any archaeological remains.

3. HISTORICAL BACKGROUND

3.1 INTRODUCTION

3.1.1 The following section presents a summary of the historical and archaeological background of the general area. This is shown by historical period, and has been compiled in order to place the study area into a wider archaeological context.

Period	Date Range
Mesolithic	10,000 – 3500 BC
Neolithic	3500 – 2200 BC
Bronze Age	2200 – 500 BC
Iron Age	500 BC – AD 500
Early Medieval	AD 500 – AD 1000
Late Medieval	AD 1000 – AD 1406
Post-medieval	AD 1406 – *c* 1750
Industrial	*c* AD 1750 – 1901
Modern	Post-1901

Table 1: Summary of Manx archaeological periods and date ranges

3.2 BACKGROUND

3.2.1 ***Prehistoric Period:*** the earliest known archaeological remains on the Island date from the retreat of the ice at the conclusion of the last Ice Age in 10,000 BC. This, the Mesolithic period, is characterised by a relatively minimal human impact on the landscape, as the population pursued a hunter-gatherer lifestyle, without permanent settlement. The archaeological artefacts recovered consist of flint tools. Neolithic archaeological remains are characterised by the appearance in the landscape of standing monuments such as burial chambers together with the first settlement sites. Flint tools and stone axes may be found in association with these sites, but also as scatters and individual finds. Fragments of pottery may also survive. The Bronze Age may be similarly characterised, with the addition of the appearance in the archaeological record of metal artefacts, such as axeheads. The practice of cremation burial in ceramic urns in this period means that more pottery fragments and even near-complete vessels have survived. The Iron Age on the Isle of Man is aceramic, *ie* pottery does not appear to have been in use; Manx sites of this period otherwise appear little different from their Bronze Age equivalents. The conclusion of the Iron Age is marked by the christianisation of the population.

3.2.2 The rock forming the solid geology of the study area was studied petrologically by Professor GR Coope and Dr LS Garrad in a wide-ranging assessment of the Manx Neolithic stone axes in 1988 (Clough and Cummins 1988, 67 – 70). Their findings led to a unique classification for some of the

Manx examples. Such axes are characterised by a trimmed roughened butt and have been classified within the scheme of stone axe sources in Britain and Ireland as Group XXV. Two potential sources for the rock used in their manufacture have been proposed. Coope and Garrad proposed the site at Ballapaddag, which lies within the study area, while Darvill has suggested the outcrop at Oatlands (centred on SC 3222 7241) (Andrew Johnson, pers. comm.). Both are or have been the sites of quarries in the more recent past. While the quarry at Ballapaddag does not necessarily mark the precise source of the material collected and used during the Neolithic, it is in the nature of the formation process of the rock—igneous intrusion—that it is relatively localised. The most recent geological mapping marks the site (British Geological Survey 2001). The manufacturing of stone axes often included 'roughing out' likely pieces or blanks at the source of the stone; successful blanks were then transported elsewhere for final finishing.

3.2.3 No known prehistoric sites lie within the study area. Careful examination of the 1946 aerial photographs, however, revealed defined 'wetter' areas where moisture was retained as a result of inconsistencies in the soil profile. This may arise for purely geological reasons; it may also be a consequence of human intervention.

3.2.4 ***Early Medieval Period:*** christianisation of the Island marks the onset of the medieval period, and probably began during the sixth century. It is represented most strongly in the Manx landscape by the widespread remains of *keeills* or chapels, and by the discovery of many carved stones crosses with Christian iconography. In the later phases of their development these crosses exhibit a fusion of indigenous and Norse motifs and personal names. Norse Viking settlement began in the tenth century. In common with the preceding Iron Age, the period is aceramic; artefacts dating from this time include stone moulds for metalworking and domestic and military equipment from Norse graves.

3.2.5 There are no certain remains of early medieval sites within the study area. The boundaries of the quarterlands (see next section) are, however, believed to originate in the Norse period and there is consequently a strong likelihood that those farm settlements which preserve the names of the quarterlands they occupy, *eg* Ballavagher (Fig. 2, site **07**), lie in the same location as their Norse predecessors. Excavations in the farmyard at Kerrowdhoo, Bride (NX 4639 0267) in 1993 recovered fragments of later medieval pottery suggesting continuity of settlement on the site from at least that period (Davey *et al* 1995, 61 – 62).

3.2.6 ***Late Medieval Period:*** the Norse Kingdom of Mann and the Isles became firmly established in this period and continued until 1266, when the Island was ceded to Scotland. As a significant strategic prize, it was then fought over by the Scots and English for almost 150 years until the ascendancy of the English culminated in the establishment of the Stanley family as Lords of Man in 1406. This marks the conclusion of the Manx Late Medieval Period. With the concentration of power in the hands of one individual, larger, more complex archaeological sites develop, representing the political and strategic instruments and alliances of the king. These include the castles at Peel and Rushen, and the development of sites occupied by the Cistercian religious order. Administrative developments include a durable system of land tenure,

the establishment of parishes and the international diplomacy of the king. A wide range of domestic, ecclesiastical and military archaeological sites belong to this period, with a concomitant range of artefacts, including pottery, coins, personal adornments, weapons and tools. Perhaps the most significant artefact to have survived from this period is the system of land division which underpinned the farm rents: the alignments of the boundaries between the quarterland farms are almost all intact and while the hedges and walls which mark them may not be original, their position and the ground surfaces they seal may well be.

3.2.7 There are no certain remains of archaeological sites from the Late Medieval Period within the study area. It is, however, possible that the surfaces upon which the quarterland boundaries were constructed have, in places, not been disturbed since this period and their foundations may be original. Soils buried by such construction may return radio-carbon dates and preserve pollens useful to palaeo-environmental study. As noted above (*section 3.2.5*) Ballavagher farm (Fig. 2, site 07) may lie on the site of the medieval farm associated with the Ballavagher quarterland.

3.2.8 ***Post-medieval Period:*** during the era of the Stanley family (the Derbys) and subsequently the Atholls there were extensions and additions to the apartments at both Castle Rushen and Peel Castle. Both were permanently garrisoned throughout most of the period. Military concerns were paramount, with the construction of gun batteries elsewhere on the Island, and concerns about attacks from Scotland and Spain. Although the habitations of the majority of the population at the time are invisible, documents show that there was increasing unrest, mainly directed against the Stanleys and culminating in Commonwealth control of the Island. Ceramics recovered from urban excavations in Castletown reveal that the town developed considerably during this period and that the town's inhabitants had distinct aspirations to wealth and finery. The earlier part of the period witnessed the dissolution of Rushen Abbey which was asset-stripped and quarried almost to the ground.

3.2.9 There are no known archaeological remains from the fifteenth – mid-eighteenth centuries within the study area.

3.2.10 ***Industrial Period:*** significant agricultural improvements and the development of extractive industries aided by mechanisation, marked a shift away from dependency on manpower alone from the later eighteenth century onwards. Many of the earlier phases of extant Manx agricultural buildings date from this period, which also witnessed enhancements to the road system, with the construction of new and stronger bridges, and the establishment of the rail network. Industrialisation also brought about the construction of new mills, mineral water factories, brickworks and lime kilns. Centralised settlements increased in size and the working population diversified, with many dividing their time between agriculture and other industries such as fishing or mining.

3.2.11 It is very likely that the earlier elements of the extant farm buildings at both Ballapaddag and Ballavagher belong to this period. The size of Ballavagher farmhouse is indicative of wealth; Ballapaddag is likewise sizeable. Both may have benefited from the expansion of Douglas. The presence, on the other side of Cooil Road, of two former smithies, in close proximity, also suggests a thriving economy. The fine detail of the layout of the fields and the tracks

serving them were probably settled at the same time, with changes since confined to the enlargement of fields by the removal of intervening boundaries. The increasing size of Douglas, particularly from the eighteenth century onwards, will most likely have meant that the fields of the scheme area were in receipt of night soil removed from the town. Such material is now apparent in the archaeological record by the number and types of fragments of pottery spread across the fields.

3.2.12 ***Modern Period:*** the majority of recent developments have focused on two main areas: the improvement of infrastructure and the provision of new housing and business sites.

3.2.13 Recent developments in and around the site include: improvements to Cooil Road itself, in connection with the establishment of the Spring Valley Industrial Estate and the Isle of Man Business Park; extensions to the warehousing available to Robinsons at Ballapaddag; the construction of the Eden Park retail outlet south of Ballapaddag; extensions to the covered space at Ballavagher farm; the construction of the natural gas pipeline parallel and to the south of Cooil Road.

3.3 MAP REGRESSION ANALYSIS

3.3.1 Three sets of mapping are relevant to an understanding of the study area. These are: the latest MANNGIS coverage; the first edition of the Ordnance Survey mapping, which dates to 1868 – 70; and the tithe maps surveyed here in 1839 – 40. The *Atlas* produced by James Woods, which is a frequent reference in Manx archaeological assessments, is less relevant here since it repeats, without addition, the information available from the tithe maps. The principal changes since the earliest mapping are relatively limited. A few field boundaries have been removed (Fig. 3); the quarry south-west of Ballapaddag has been filled in; the agricultural buildings at both farms, Ballapaddag and Ballavagher have increased in number and extent; and the industrial units operated by Robinsons and Rileys (Eden Park) have been constructed south and south-east of Ballapaddag. It is also apparent that the open drainage consisting of small streams running southwards to join the Middle River have been modified into below-ground drains sometime since the nineteenth-century Ordnance Survey publication.

3.4 PREVIOUS ARCHAEOLOGICAL WORK

3.4.1 No below-ground archaeological investigations are known within the study area. The Ballapaddag igneous intrusion has been the target of petrological investigations focused on improved understanding of the Manx Neolithic stone axes (*eg* Coope and Garrad 1988).

3.5 SITE WALKOVER

3.5.1 A site walkover was undertaken on 13 February 2008. The aim of the walkover was to enhance awareness of the local context and assess the potential for preservation of archaeological features and remains. This was

particularly targeted on the features identified by examination of the aerial photographs and nineteenth-century maps.

4. GAZETTEER OF SITES

Site number	**01**
Site name	Ballacottier boundary
NGR	linear feature: point at SC 3429 7591 coincides
Statutory Designation	None
Site type	Quarterland boundary
Period	Early Medieval
Sources	Woods' *Atlas*; site walkover
Description	Earth bank forming field hedge, with established trees and other hedge species, lies on the alignment of the medieval boundary used in rental assessments.
Assessment	This extant feature lies on western boundary of the scheme. Although probably subject to frequent maintenance work over the centuries it remains possible that its lowest levels seal an early medieval original ground surface.

Site number	**02**
Site name	Ballapaddag trackway
NGR	linear feature: point at SC 3437 7589 coincides
Statutory Designation	None
Site type	Trackway
Period	not known
Sources	MANNGIS aerial photograph coverage; site walkover
Description	A continuation of the track leading westwards from Ballapaddag farm buildings was apparent on the aerial photograph, marked by wetter ground. No indication of the trackway was apparent at the time of the site walkover.
Assessment	Site lies within the scheme. As part of the infrastructure associated with Ballapaddag farm, a relatively late development perhaps only dating from the end of the eighteenth century, and designed only for the purpose of providing access to the field, this is of low local significance.

Site number	**03**
Site name	Ballapaddag stream features
NGR	SC 3435 7573
Statutory Designation	None
Site type	Habitation?
Period	Prehistoric?
Sources	1946 aerial photograph; site walkover
Description	A set of anomalous features characterised by moisture retention are visible within this field on the 1946 aerial photograph held in the Manx Museum Library. The photograph shows that the field has recently been cropped which renders the anomalies more apparent.
Assessment	Moisture retention may occur where modifications to the ground have altered the soil profile. Such modifications can include localised compaction; excavation and subsequent backfilling of ditches; and accumulations of material. In the prehistoric period these features may all result from domestic activity, and may represent habitation sites, cooking places, even funerary sites. This site is now 'sour', overgrown with *Juncus* sp and no longer in cultivation: it is likely that the exigencies of the Second World War forced it into cultivation.

Site number	**04**
Site name	Ballapaddag quarry
NGR	SC 3442 7566
Statutory Designation	None

Site type	Quarry
Period	Industrial
Sources	First Edition Ordnance Survey 1868 – 70; site walkover
Description	Marked on the First Edition Ordnance Survey 1:2500 mapping of the Island. Possesses an access route from Ballapaddag farm and occupies an area of approximately 1000 m^2.
Assessment	Quarry is focused on the outcrop of the diorite dyke marked on the British Geological Survey map of 2001. The same outcrop could also have been the source of stone used in the Neolithic period. It is now backfilled and overfilled with waste.

Site number	**05**
Site name	Ballapaddag field, plot number 522156
NGR	SC 345 756
Statutory Designation	None
Site type	Field scatter
Period	Neolithic?
Sources	Site walkover
Description	Fragments of diorite, of varying sizes are common in the central part of this field, in the vicinity of the quarry.
Assessment	These fragments could have arrived in the field by a variety of agencies, both human and natural; it is possible that they originate in the field. Material from the diorite dyke may have been incorporated into the local soil structure by glacial and post-glacial action. Equally human activity may have spread the material further away from its precise source. The chief value of these fragments to an understanding of the site lies in the fact that they confirm the presence, locally, of a source of raw material valuable in both the prehistoric and industrial periods.

Site number	**06**
Site name	Ballacottier/Ballavagher quarterland boundary
NGR	linear feature: point at SC 3468 7580 coincides
Statutory Designation	None
Site type	Quarterland boundary
Period	Early Medieval
Sources	Woods' *Atlas*; site walkover
Description	Earth bank forming field hedge divides the Ballavagher quarterland from the Ballocottier quarterland to the west. The section of the hedge near Cooil Road itself was cut through by the insertion of the natural gas pipeline in 2003.
Assessment	This extant feature lies on a boundary of the scheme where it adjoins land occupied by Robinsons' warehousing. The majority of the boundary runs south-west from this point through the heart of the area occupied by the scheme. Although probably subject to frequent maintenance work over the centuries it remains possible that its lowest levels seal an early medieval original ground surface. It is also worth noting that this boundary, in contrast to others of the same type in the vicinity, has a remarkably straight alignment. This suggests that agreement was sought between the land holders to straighten out what is more normally a sinuous arrangement (as exhibited by **01**).

Site number	**07**
Site name	Ballavagher farmhouse
NGR	SC 3468 7555
Statutory Designation	None
Site type	Farmhouse
Period	Industrial
Sources	First Edition Ordnance Survey 1868 – 70; site walkover

Description	Extant five-bay Manx farmhouse. Stone construction, cement-rendered, with south-east facing wall slate-hung. Slate roof, windows replaced with 1970s transom design. The building appears to have experienced little recent modification or modernisation.
Assessment	As a five-bay example, this quarterland farmhouse is a large and affluent example of its type. It will date from the early nineteenth century. No evidence was apparent during the site walkover to suggest the location of its predecessor. As the quarterland farm units themselves date from the medieval period, it is possible that the farmhouses and farm complexes which bear the names of those units mark the site of their earliest habitations. This renders them nationally significant.

Site number	**08**
Site name	Ballavagher agricultural buildings
NGR	SC 3468 7552
Statutory Designation	None
Site type	Agricultural buildings
Period	Industrial
Sources	First Edition Ordnance Survey 1868 – 70; site walkover
Description	Extant range of buildings shown on the First Edition Ordnance Survey mapping with more recent extensions and modifications. Stone construction, with slate roofing. Some extant fenestration, in nineteenth-century design.
Assessment	The earlier elements of these buildings will date from at least the early nineteenth century, and may possibly be older.

Site number	**09**
Site name	Ballavagher formal garden
NGR	SC 3471 7555
Statutory Designation	None
Site type	Garden
Period	Industrial
Sources	Tithe map, dated 1839; site walkover
Description	The earliest mapping available for this site shows that the area still occupied by a garden was, in 1839, occupied by a garden of formal design. The site is at present relatively overgrown, with no sign of the earlier layout, although it is surrounded by mature trees some of which may date to the period of the formal garden.
Assessment	Formal gardens are rare in the Island. The presence of such a feature is in keeping with the wealth and aspiration obvious in the design of the farmhouse itself.

Site number	**10**
Site name	Ballavagher quarterland boundary
NGR	SC 3487 7565
Statutory Designation	None
Site type	Quarterland boundary
Period	Early Medieval
Sources	Woods' *Atlas*; site walkover
Description	Earth bank with mature ash trees forming field hedge lies on the alignment of the medieval boundary used in rental assessments. The section of the hedge near Cooil Road itself was cut through by the insertion of the natural gas pipeline in 2003. This section lacks any trees.
Assessment	This extant feature lies on the eastern boundary of the scheme. The majority of the boundary runs south-west from this point to Ballavagher farm. A number of the trees on its alignment are likely to be in excess of a hundred years old. Although probably subject to frequent maintenance work over the centuries it

remains possible that the lowest levels of the hedge seal an early medieval original ground surface.

5. SIGNIFICANCE OF THE REMAINS

5.1 INTRODUCTION

5.1.1 The documentary research and site walkover of the scheme area have identified a total of ten archaeological sites requiring comment. This total includes three sites for which the principal evidence derives from the walkover; five where the evidence is mainly cartographic, and two which were identified from aerial photographs (Table 2).

5.1.2 There are no sites within the scheme area which are recorded in the *National Monuments Record* maintained by Manx National Heritage.

Period	No of Sites	Site Type
Neolithic	1	Stone fragments (**05)**
Bronze Age	1	Aerial photograph anomalies (**03**)
Iron Age		
Early Medieval	3	Quarterland boundaries (**01**, **06**, **10**)
Late Medieval		
Post-medieval		
Industrial	5	Trackway, quarry, farmhouse, agricultural buildings, formal garden (**02**, **04**, **07 – 09**,)
Modern		

Table 2: Number of sites by period

5.2 CRITERIA

5.2.1 There are a number of different methodologies used to assess the archaeological significance of sites; that which provides a convenient and objective scheme for use here is the UK 'Secretary of State's criteria for scheduling ancient monuments' which is appears as Annex 4 of *Planning Policy Guidance Note 16* (DoE 1990). Some modification of the terms used for 'importance' has been made to take appropriate account of the Manx context. The sites previously listed (Section 4, above) were each considered using the criteria, with the results below.

5.2.2 ***Period:*** The Neolithic Group XXV stone axes, which petrological study has suggested use rock from the diorite dyke at Ballapaddag (sites **04** and **05** are relevant) as their raw material, are unique to the Isle of Man.

5.2.3 Few Bronze Age sites of any type have been recorded and understood by excavation on the Island: if the features represented by site **03** are of this period, any impact upon them by the development scheme would be significant.

5.2.4 The quarterland boundaries (sites **01**, **06**, and **10**), which cross and bound the site, have the potential to seal early medieval ground surfaces beneath them

from which radiocarbon dating evidence may be recovered and, in some circumstances, palynological (pollen) evidence, useful in the reconstruction of past vegetational environments.

5.2.5 Two of the remaining sites are significant: the farmhouse (**07**) and the formal garden (**09**). The garden may no longer be extant in any form, but it is possible that it is preserved beneath the present garden and later accumulations of soil and woodland debris. The farmhouse may occupy the site of an earlier version and is itself important as a five-bay example of its type. The other sites of this period, **02**, **04**, and **08**, are either lost or without substantial significance.

5.2.6 ***Rarity:*** the sites within the scheme area cover the range from very rare through to commonplace. The source site of the raw material for a specific group of Neolithic stone axes (Group XXV) is very rare and is nationally significant (site **05** and potentially **04**). A five-bay quarterland farmhouse (**07**) is relatively rare, as is its association with a formal garden (**09**). The potential Bronze Age domestic site represented by **03** is rare in a Manx context, but requires further testing to ascertain the survival of any remains. The remaining features are common on the Island but are likely to become a matter of interest where total loss through development is contemplated.

5.2.7 ***Documentation:*** for the most part the documentation available for the scheme area does not contain details which are out of the ordinary in the Manx context. The exception to this is the 1839 tithe map for Ballavagher, which reveals the formal garden south-east of the frontage of the farmhouse.

5.2.8 ***Group Value:*** Ballavagher farm buildings (**07** and **08**) remain within the extant identifiable boundaries of the quarterland which gives the farm its name. This includes the access road to the farm, from Cooil Road, which runs immediately adjacent to and parallel with the quarterland boundary (**10**).

5.2.9 There is a potentially significant connection between the field scatter of diorite fragments (**05**), the diorite dyke and the quarry (**04**) even though the precise chronological relationship between them is uncertain. The Group XXV Neolithic stone axes may have been manufactured from erratics recovered from the fields at Ballapaddag; it is also possible that there was a stone axe factory, exploiting a local outcrop. At present there is insufficient evidence to support either scenario. The source of the raw material for these axes is, however, a matter of national archaeological significance.

5.2.10 ***Survival/Condition:*** Of the three quarterland boundaries within the scheme, **01** possesses the greatest archaeological potential, on the grounds that it is the only example which appears not have been re-aligned (to a greater or lesser extent) within the last two hundred years and may, therefore, be more likely to preserve a medieval ground surface beneath it.

5.2.11 The potentially Bronze Age features represented by **02** may have been truncated by ploughing. The area occupied by the site has, however, fallen into agricultural disuse since 1946, which suggests that it could still be reasonably well-preserved. Should these features be the remains of a Bronze Age domestic site then, as a type of site rarely investigated on the Island, it possesses a higher archaeological value.

5.2.12 Ploughing, quarrying and tipping may have obliterated all traces of any Neolithic stone-axe factory. However, it appears likely that debris (**05**)

associated with the diorite dyke, some of which may be anthropogenic, remains in the local ploughsoil. This material may include 'rough-outs' of stone axes or even semi-finished examples. Both are nationally significant.

5.2.13 The farmhouse (**07**) survives in an un-modernised condition which will make it easier to identify and record features it possesses which belong to the nineteenth century when it was likely constructed.

5.2.14 The formal garden (**09**) may survive beneath the present garden or may have been obliterated by subsequent gardening.

5.2.15 ***Fragility/Vulnerability:*** All the sites identified by the desk-based assessment and site walkover are vulnerable to development. Boundaries (**01**, **06** and **10**) may be lost or significantly modified by new planting; ground surfaces (**02**, **03**, **04**, **05** and **09**) and the features below them or contained within them may be truncated and/or built over; buildings may be demolished (**07** and **08**).

5.2.16 ***Diversity:*** More than one type of activity would likely be represented at a Bronze Age settlement site (potentially **03**). The complex of features represented by the farmhouse (**07**), the farm out-buildings (**08**) and the formal garden (**09**) can provide diverse data potentially of several periods, allowing insights into economy, trade and spatial organisation.

5.3 SIGNIFICANCE

5.3.1 Table 3 shows the terms used to describe the sensitivity of a site scaled in accordance with its relative importance to cultural heritage and archaeology issues, with guideline recommendations for a mitigation strategy.

Importance	Examples of Site Type	Negative Impact
National	Listed Monuments and Buildings	To be avoided
Regional	Sites and Monuments Record entries	Avoidance recommended
Local	Sites with a local value or interest for cultural appreciation Sites that are so badly damaged that too little remains to justify inclusion into a higher grade	Avoidance not envisaged
Low Local	Sites with a low local value or interest for cultural appreciation Sites that are so badly damaged that too little remains to justify inclusion into a higher grade	Avoidance not envisaged
Negligible	Sites or features with no significant value or interest	Avoidance unnecessary

Table 3: Criteria used to determine Importance of Sites

5.3.2 All the sites identified by the desk-based assessment and site walkover have a significance in the interpretation of the past history and archaeology of the scheme area. Some of these are, however, of minor significance. Sites **02** (the trackway) and **04** (the quarry) are likely to have been lost altogether: even if not, the information they are likely to preserve is of little value. The formal

garden, site **09**, is significant if extant, however the site walkover showed that there was little evidence for its likely survival (unless this can be recovered by excavation). Its one-time existence nevertheless adds to the overall value of the farm buildings. The provenance and survival of site **03** is unknown. If the localised moisture retention in this area represents a Bronze Age site then it is potentially nationally significant, but this remains to be shown. Sections of the quarterland boundaries (**01**, **06** and **10**) as they traverse the scheme area may remain on their original alignments. Two of the boundaries (**06** and **10**) appear to have been re-aligned, however, so the locations of the earliest sections are unknown. Only **01** seems to have remained in its original position and provides the best opportunity to locate and scientifically investigate any early medieval ground surfaces sealed by the construction of the hedge above. Such data is locally and nationally significant. The complex of farm buildings at Ballavagher is locally and nationally significant on the basis of their survival without recent modification, and the aspiration and wealth represented by the construction of a five-bay farmhouse. Any evidence for Neolithic stone axe manufacture would be nationally significant and of great importance in the context of British and Irish Neolithic studies. At the moment, the fragments of diorite (**05**) noted on the surface of the field (plot 522156) during the site walkover are the only field evidence for the source of the stone used for the Group XXV axes. The presence of these fragments may either be due to natural processes, or represent debris from either prehistoric or nineteenth-century extraction.

6. IMPACT AND RECOMMENDATIONS

6.1 IMPACT

6.1.1 In its *Planning Policy Guidance Note 16*, the UK Department of the Environment (DoE) advises that archaeological remains are continually diminishing and '*should be seen as finite, and non-renewable resource, in many cases, highly fragile and vulnerable to destruction. Appropriate management is therefore essential to ensure that they survive in good condition. In particular, care must be taken to ensure that archaeological remains are not needlessly or thoughtlessly destroyed*'. It has been the intention of this study to identify the archaeological potential of the study area, and assess the impact of redevelopment. Assessment of impact has been achieved by the following method:

- assessing any potential impact and the significance of the effects arising from redevelopment;
- reviewing the evidence for past impacts that may have affected the archaeological sites;
- outlining suitable mitigation measures, where possible at this stage, to avoid, reduce or remedy adverse archaeological impacts.

6.1.2 The impact is assessed in terms of the sensitivity or importance of the site to the magnitude of change or potential scale of impact during the future redevelopment scheme. The magnitude, or scale, of an impact is often difficult to define, but will be termed as substantial, moderate slight, or negligible, as shown in Table 4, below.

Scale of Impact	Description
Substantial	Significant change in environmental factors; Complete destruction of the site or feature; Change to the site or feature resulting in a fundamental change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Moderate	Significant change in environmental factors; Change to the site or feature resulting in an appreciable change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Slight	Change to the site or feature resulting in a small change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.
Negligible	Negligible change or no material changes to the site or feature. No real change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.

Table 4: Criteria used to determine Scale of Impact

6.1.3 The interaction of the scale of impact (Table 4) and the importance of the archaeological site (Table 3) produce the impact significance. This may be calculated by using the matrix shown in Table 5, below.

Resource Value (Importance)	**Scale of Impact Upon Archaeological Site**			
	Substantial	**Moderate**	**Slight**	**Negligible**
National	Major	Major	Intermediate/ Minor	Neutral
Local	Intermediate	Intermediate	Minor	Neutral
Local (low)	Intermediate / Minor	Minor	Minor/ Neutral	Neutral
Negligible	Neutral	Neutral	Neutral	Neutral

Table 5: Impact Significance Matrix

6.1.4 The extent of any previous disturbance to buried archaeological levels is an important factor in assessing the potential impact of the development scheme. This factor applies to several sites. The trackway, **02**, may well have been totally ploughed out. The quarterland boundaries numbers **06** and **10** have, on cartographic evidence, been re-aligned wholly or in part throughout their length within the scheme area. The area showing anomalies on the 1946 aerial photograph, **03**, was certainly under the plough at this time and may, therefore, have suffered an unknown degree of damage. The formal garden, **09**, may have been damaged or totally lost as a result of later gardening.

6.2 IMPACT ASSESSMENT

6.2.1 Following on from the above considerations, the significance of effects has been determined based on: (1) an assumption that there will be earth-moving works associated with the development; and (2) the present condition of the archaeological sites. The results are summarised in Table 6, below.

Site Number	Nature of Impact	Importance	Scale of Impact	Impact Significance
01	Removal, whole or in part; planting of trees or hedge species	Local	Where removed: substantial. Planting: negligible	Intermediate
02	Removal	Local (low)	Substantial	Neutral
03	Removal	National (potentially)	Substantial	Major
04	Loss	Local	Substantial	Neutral
05	Removal	National (potentially)	Substantial	Major
06	Removal, whole or in part; planting of trees or hedge species	Local	Where removed: substantial. Planting: negligible	Intermediate
07	Demolition or adaptation	National	Substantial to moderate	Major to intermediate
08	Demolition or adaptation	Local	Substantial to moderate	Intermediate
09	Removal	Local	Substantial	Intermediate
10	Removal, whole or in part	Local	Substantial	Intermediate

Table 6: Assessment of the impact significance on each site during development

7. RECOMMENDATIONS FOR ARCHAEOLOGICAL MITIGATION

7.1 INTRODUCTION

7.1.1 In terms of the requirement for further archaeological investigation and mitigation, it is necessary to consider only those sites that will be affected by the proposed development. Sites perceived to be of national importance may require preservation *in situ*, whilst those of lesser significance may undergo preservation by record, where high local significance can be demonstrated.

7.2 FURTHER ASSESSMENT

7.2.1 It is strongly emphasised that there is a substantial lack of knowledge about the archaeology of this site due to a lack of opportunity for field investigation and survey in the past. The evidence which is available tends to emphasise the site's potential significance. A fuller assessment of the risks to extant archaeology is recommended in order to reduce the risks during construction and development which may arise from the presence of archaeological remains. Fuller assessment would include: ploughing and subsequent structured fieldwalking of the fields occupied by the scheme; and geophysical survey of the area of the scheme.

7.2.2 These investigations would significantly improve knowledge of the prehistoric and medieval archaeology of the site and would provide the means to produce a more definitive and substantial archaeological assessment.

7.3 RECOMMENDATIONS

Site Number	Significance	Impact Significance	Recommendations
01	Local	Intermediate	Scheme may allow boundary to remain intact; otherwise series of narrow sections cut mechanically and cleaned by hand to assess preservation of buried ground surfaces
02	Local (low)	Neutral	No further work
03	National (potentially)	Major	Further recommendations dependent on fieldwalking and geophysical survey; at a minimum may require ground truthing by excavation of trial trenches
04	Local	Neutral	No further work
05	National (potentially)	Major	Further recommendations dependent on fieldwalking and geophysical survey; at a minimum may require ground truthing by excavation of trial trenches
06	Local	Intermediate	Series of narrow sections cut mechanically and cleaned by hand to assess preservation of buried ground surfaces
07	National	Major to intermediate	Preliminary building survey in accordance with recognised, published standards (*eg* UK Royal Commission on Ancient and Historical Monuments)
08	Local	Intermediate	Preliminary building survey in accordance with recognised, published standards (*eg* UK Royal Commission on Ancient and Historical Monuments)
09	Local	Intermediate	Further recommendations dependent on geophysical survey; at a minimum may require ground truthing by excavation of trial trenches
10	Local	Intermediate	Scheme may allow boundary to remain intact; otherwise series of narrow sections cut mechanically and cleaned by hand to assess preservation of buried ground surfaces

Table 7: Summary of site-specific recommendations for further archaeological investigation and provisional mitigation

7. BIBLIOGRAPHY

7.1 CARTOGRAPHIC SOURCES

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7.2 SECONDARY SOURCES

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8. ILLUSTRATIONS

8.1 FIGURES

Figure 1: Site Location Map

Figure 2: Plan of Gazetteer Sites

Figure 3: Map of Field Boundary changes since the Tithe Maps

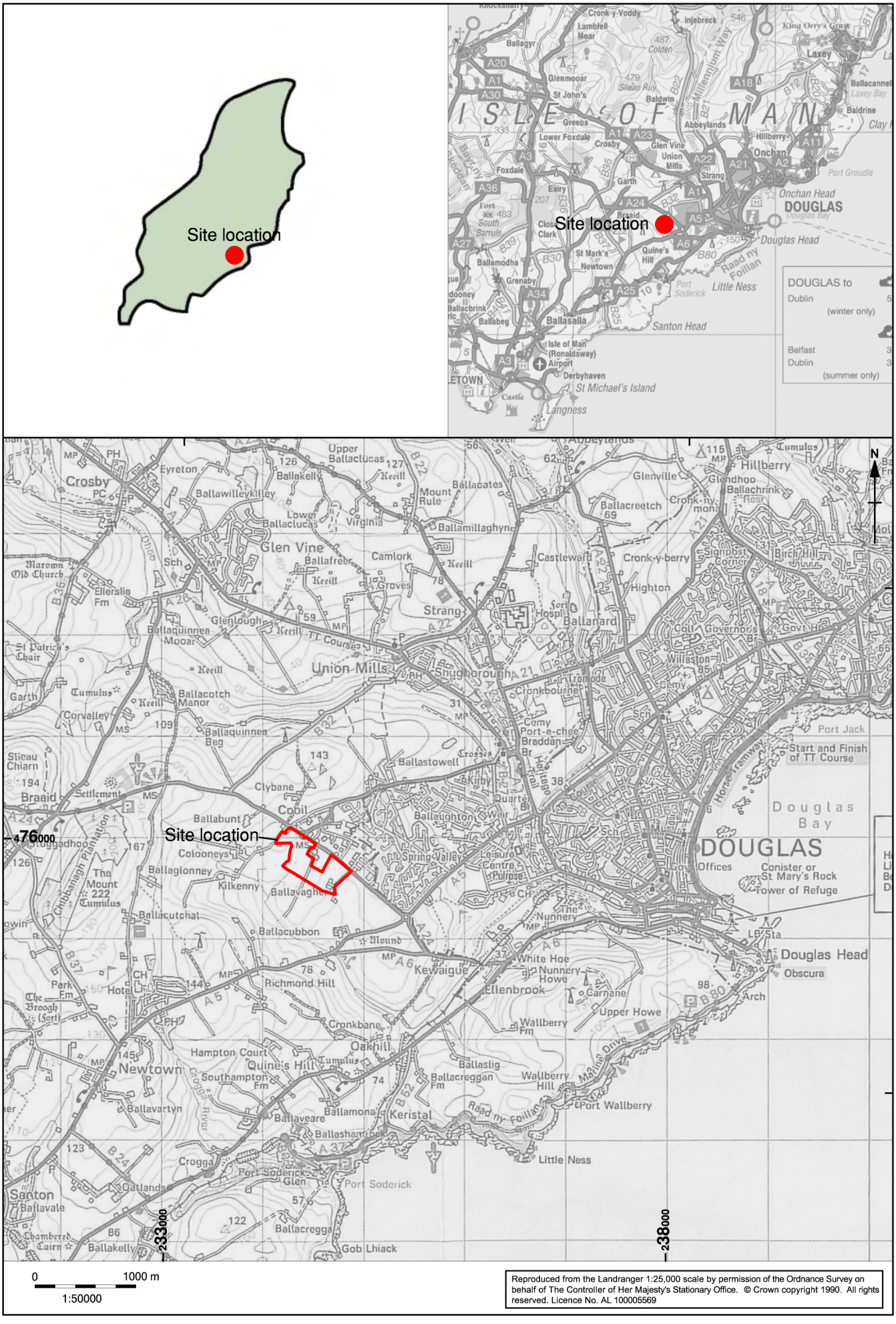

Figure 1: Site location

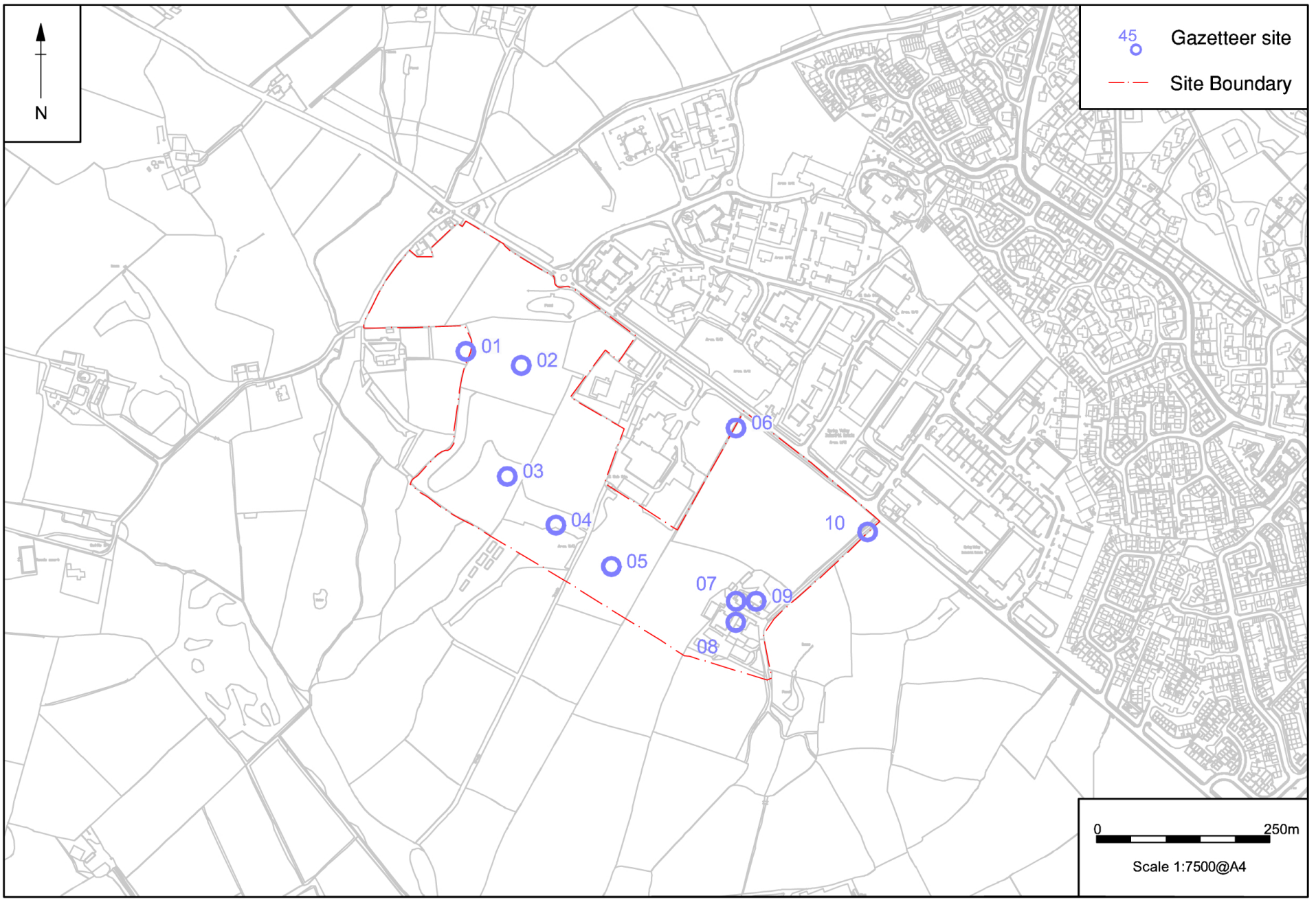

Figure 2: Gazetteer map

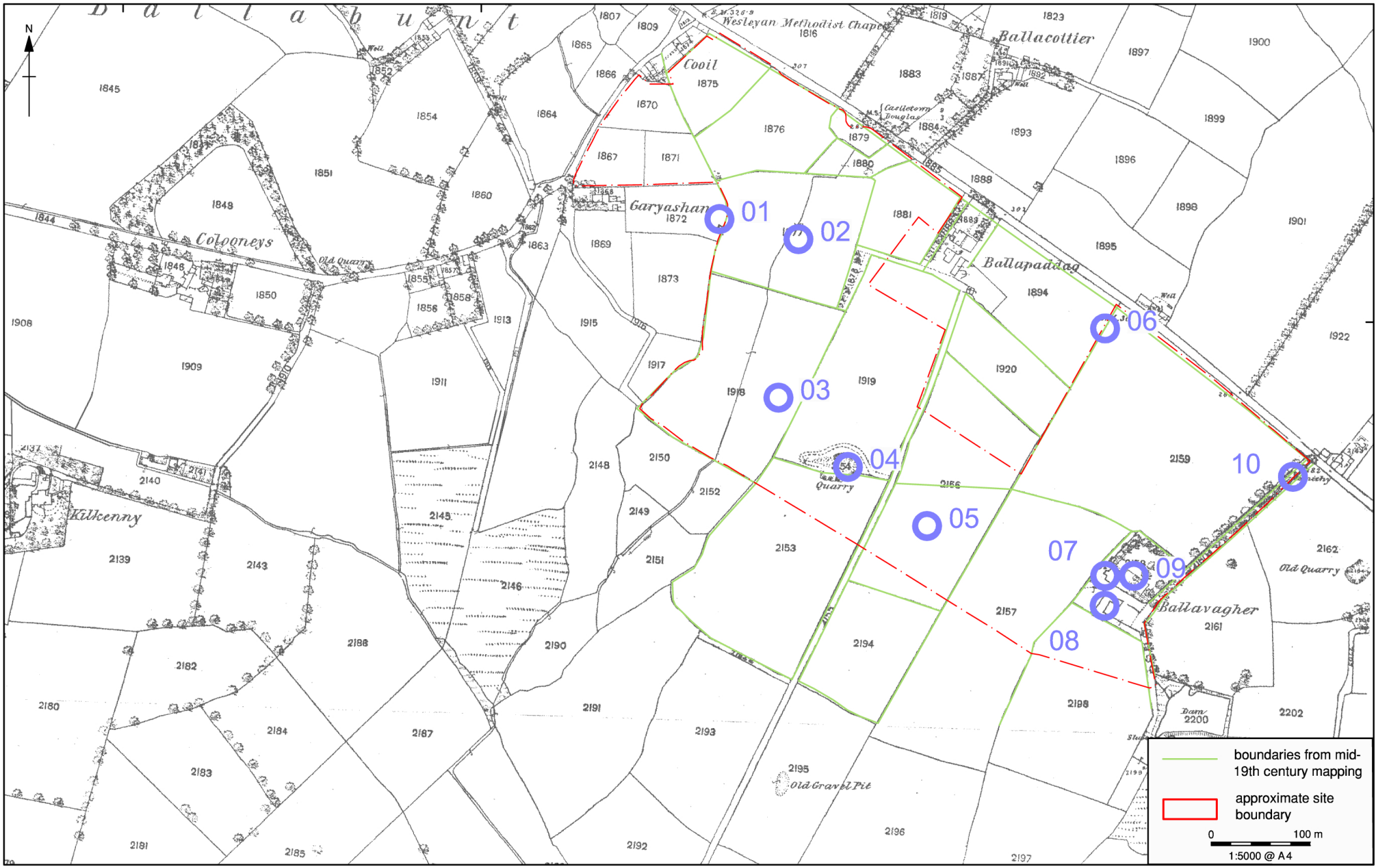

Figure 3: First Edition Ordnance Survey 1:2500 map of 1868/70 showing field boundaries present on early mid-nineteenth-century estate maps.

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