



ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME 1: WRITTEN STATEMENT INCL. NON-TECHNICAL SUMMARY

**PROPOSED LARGE-SCALE RESIDENTIAL
DEVELOPMENT ON LANDS AT MONALEEN ROAD,
CASTLETROY, LIMERICK**

FEBRUARY 2026



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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

CHAPTER 15: CULTURAL HERITAGE-ARCHAEOLOGY & BUILT HERITAGE

**SUTTONS LRD
MONALEEN ROAD**

FEBRUARY 2026



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15 CULTURAL HERITAGE: ARCHAEOLOGY AND BUILT HERITAGE

15.1 Introduction

This report assesses the impact of a residential development in Newcastle townland, Castletroy, Limerick City (Figs 15: 1–3) on the archaeological and cultural heritage landscape. The report was commissioned by Genesis Planning Consultants to assess the archaeological component of a proposed residential development and associated works.

Cultural Heritage includes visible archaeological monuments and sub-surface archaeological remains. The monuments and sub-surface sites are the vestiges of past human interaction with the landscape. Knowledge of these sites is achieved by survey and excavation and by comparison with similar sites within the archaeological record. The architectural record, both upstanding and levelled is included in Cultural Heritage and comprises structures, the curtilage and setting context of structures; groups of structures and buildings and places of historic, archaeological, artistic, cultural, scientific, social or technical interest.

Archaeological sites within the hinterland of the development include a castle (RMP¹ LI005-025), the site of a medieval church (RMP LI005-026-001) and graveyard (RMP LI005-026-001) in Kilmurry townland and the site of a prehistoric *Fulacht Fia* (RMP LI 006-088) to the east and in Newcastle townland. Two ringforts (RMP LI005-035 and 037) are recorded to the south-west in Kilbane townland. There are four Protected Structures close to the development landbank and six within the wider catchment area. Test excavation recorded one archaeological site identified as a probable *Fulacht Fia* within the landbank.

The study included an examination of existing documentary sources, walkover survey, a magnetic gradiometer survey and test trenching.

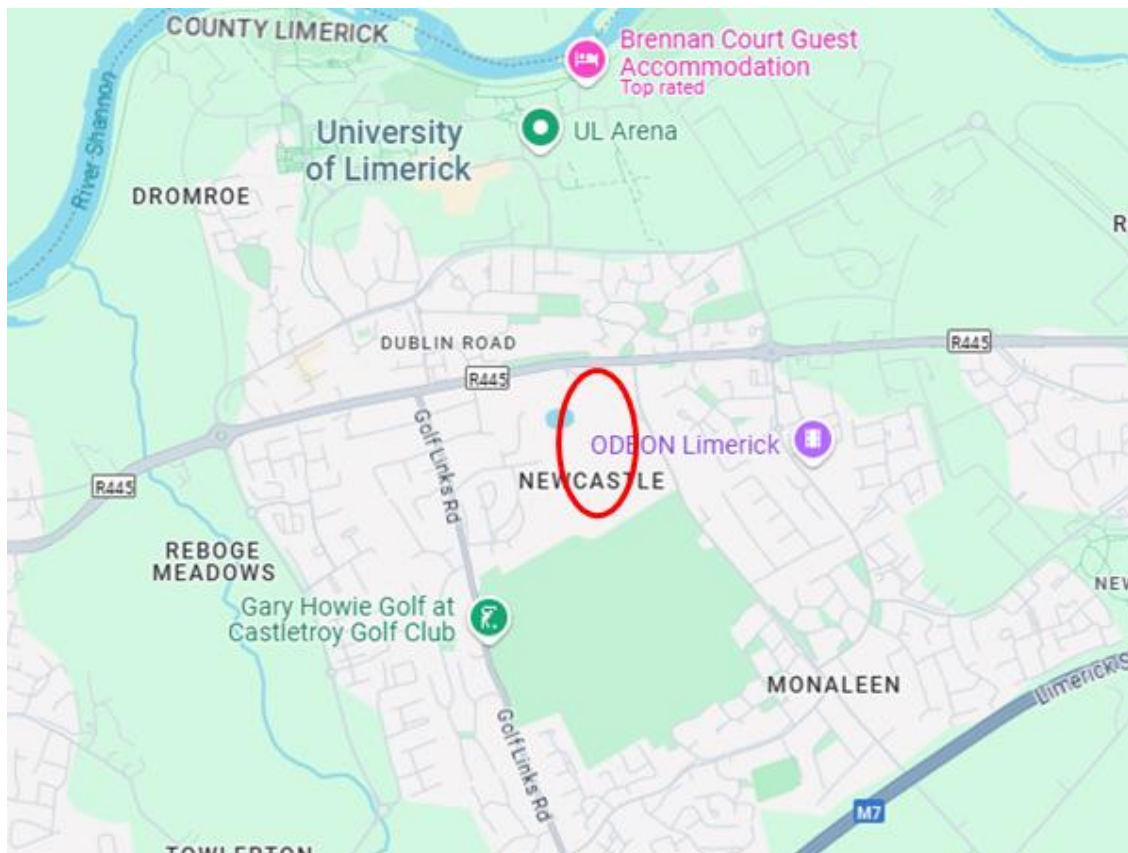


Fig. 15.1: Site location

¹ RMP = Record of Monuments and Places; LI = Limerick

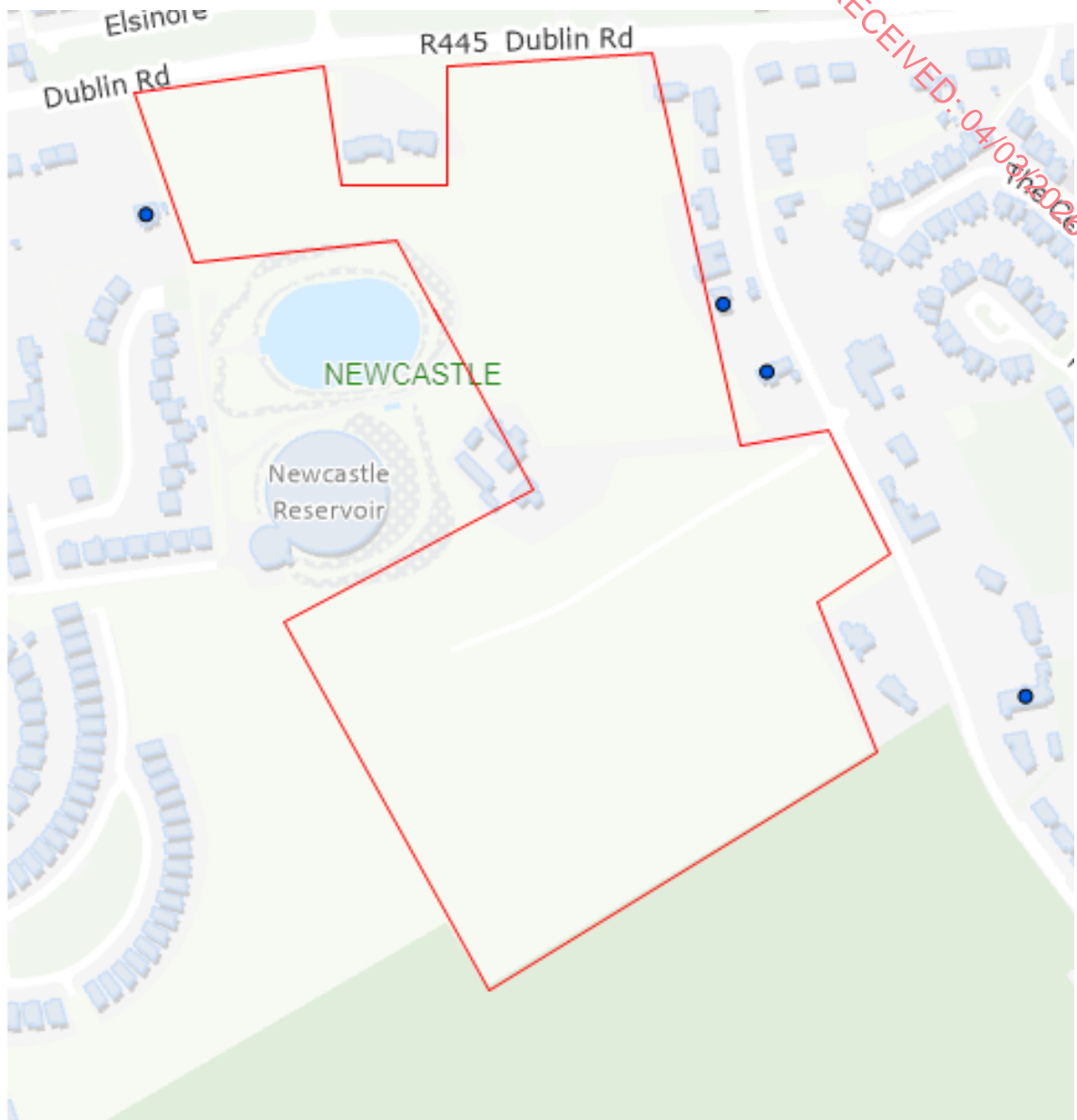


Fig. 15.2: Site Location



Fig. 15.3: Site location

15.2 Expertise

The study was undertaken by Dr. Rose M. Cleary BA; MA; D.Litt (hc); Member Institute of Archaeologists of Ireland (MAI); Fellow Society of Antiquaries London (FSA), archaeologist. She has several years' experience in archaeology including field survey, excavation and has published extensively on the subject.

15.3 Project Description

The development comprises 523 residential units including ancillary works within a 9.7 hectare site (Fig. 15: 4). The development will be on a phased basis with six discrete units, each subject to separate planning applications. Construction work will involve ground reduction. The assessment reviews the potential impact of the development on the archaeological landscape within the curtilage and environs of the development site.

A full development description is detailed in Chapter 2 and illustrated with relevant layout and architectural plans and sections.

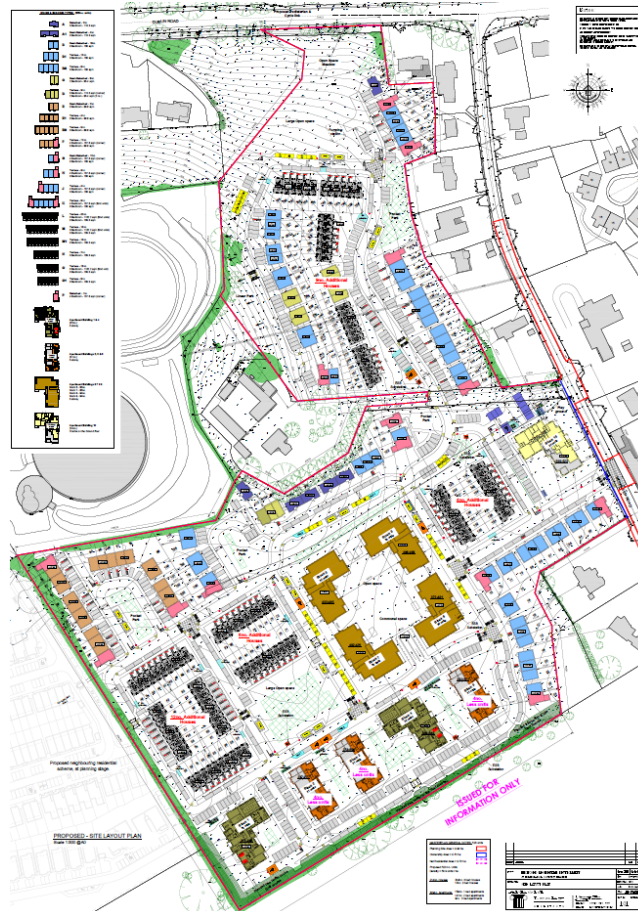


Fig. 15: 4: Layout of proposed development

15.4 Methodology

The Cultural Heritage - Archaeology and Built Heritage assessment included a desk-based study where relevant databases and sources were consulted to determine the archaeological potential of the general area. These sources included:

- Record of Monuments and Places (RMP)/ Sites and Monuments Record. The Record of Monuments and Places (RMP) is a statutory inventory of archaeological sites protected under the National Monuments Acts 1930-2024 (Section 12, 1994 Act), compiled and maintained by the Archaeological Survey of Ireland (ASI). The inventory is mainly on pre-1700 AD sites and is based on a previous inventory known as the Sites and Monuments Record (SMR) which does not have legal protection or status (see www.archaeology.ie).
- Aerial photography.
- Historical maps.
- Documentary research.
- Relevant on-line databases (e.g. Excavation Bulletin; NRA Archaeological Database).

The desk-based study was supported by site inspection. This was undertaken on 18th November 2024 and involved a systematic, non-intrusive walkover survey assessing current land-use patterns, site topography, site access and the presence of any previously unrecorded sites of archaeological and cultural heritage interest.

This site was further assessed by a geophysical survey (25R0014) and licensed archaeological test-excavations undertaken in February 2025. The test excavations were carried out under licence 23E0056 issued by the Department of Housing, Local Government and Heritage (DHLGH) in consultation with the National Museum of Ireland (NMI).

15.4.1 Guidance and Legislation

Guidelines for the compilation of Archaeological, Architectural and Cultural Heritage Assessments include EU Directives and Planning and Development Acts². Of particular relevance to this report are:

- Frameworks and Principles for the Protection of Archaeological Heritage. Department of Arts, Heritage, Gaeltacht and the Islands, 1999. The Framework and Principles for the Protection of the Archaeological Heritage (1999) publication outlines the State's general principles in relation to the management and protection of archaeological heritage. It states that avoidance of developmental impacts on archaeological heritage and preservation in situ of archaeological sites and monuments are always the preferred option. When a site, or part of a site, must be removed due to development, then preservation by record must be undertaken (i.e. through licensed excavation and recording).
- Policy and Guidelines on Archaeological Excavation. Department of Arts, Heritage, Gaeltacht and the Islands, 1999.
- National Monuments Legislation (1930-2024)
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements, (EPA) 2003.
- Guidelines for Planning Authorities and An Bord An Pleanála (now An Coimisiún Pleanála) on carrying out Environmental Impact Assessment. Department of Housing, Planning and Local Government, 2018.
- Architectural Heritage Protection, Guidelines for Planning Authorities. Department Environment, Heritage and Local Government, 2004.
- Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports – Draft (EPA, 2022).

Archaeological and cultural heritage protection in Ireland is provided by several international and national mechanisms including:

- National Monuments Acts 1930-2024;
- Architectural Heritage & Historic Properties Act. 1999;
- Planning & Development Act. 2000 (as amended);
- European Convention on the Protection of the Archaeological Heritage. 1992.

Volume 5 of the County Development Plan 2022-2028 establishes Limerick City and County Council's policies and proposals for the protection, conservation and enhancement of the heritage of the city and county.

In line with The National Policy Objectives (NPOs), the Council policy is to:

Enhance, integrate and protect the special physical, social, economic and cultural value of built heritage assets through appropriate and sensitive use now and for future generations.

Conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance. In line with the National Planning Framework and the Regional Spatial

² EU Directive 85/337/EEC [Amended Directives 97/11/EC, 2003/35/EC; 2009/31/EC; 2011/92/EU; 2014/52/EU2]; Planning and Development Acts 2000–2015 and Planning and Development Regulations 2001–2015.

and Economic Strategy (RSES) for the Southern Region, also recognises that cultural heritage is the fabric of our lives and societies, that it surrounds us in the buildings of our towns and cities, our landscapes, natural sites, monuments and archaeological sites and that it brings communities together and builds shared understandings of the places we live in. It contains a number of relevant objectives relating to strengthening and protecting our region's diversity, language and culture, our recreational assets and our natural and built heritage.

15.5 Baseline/Receiving Environment

The development is located within an area that is mainly residential, retail and leisure facilities (Figs 15: 1–3). Castletroy Golf Course is immediately to the south and the site is bounded on the north side by the Dublin Rd. (R445) and ribbon development housing separates the site from the Monaleen Road on the east side. Both the Dublin Road and Monaleen Road were in place in the mid-nineteenth century and are recorded by on First (c. 1839) and Second (c. 1904) Editions Ordnance Survey maps (Figs 15: 5 and 6).

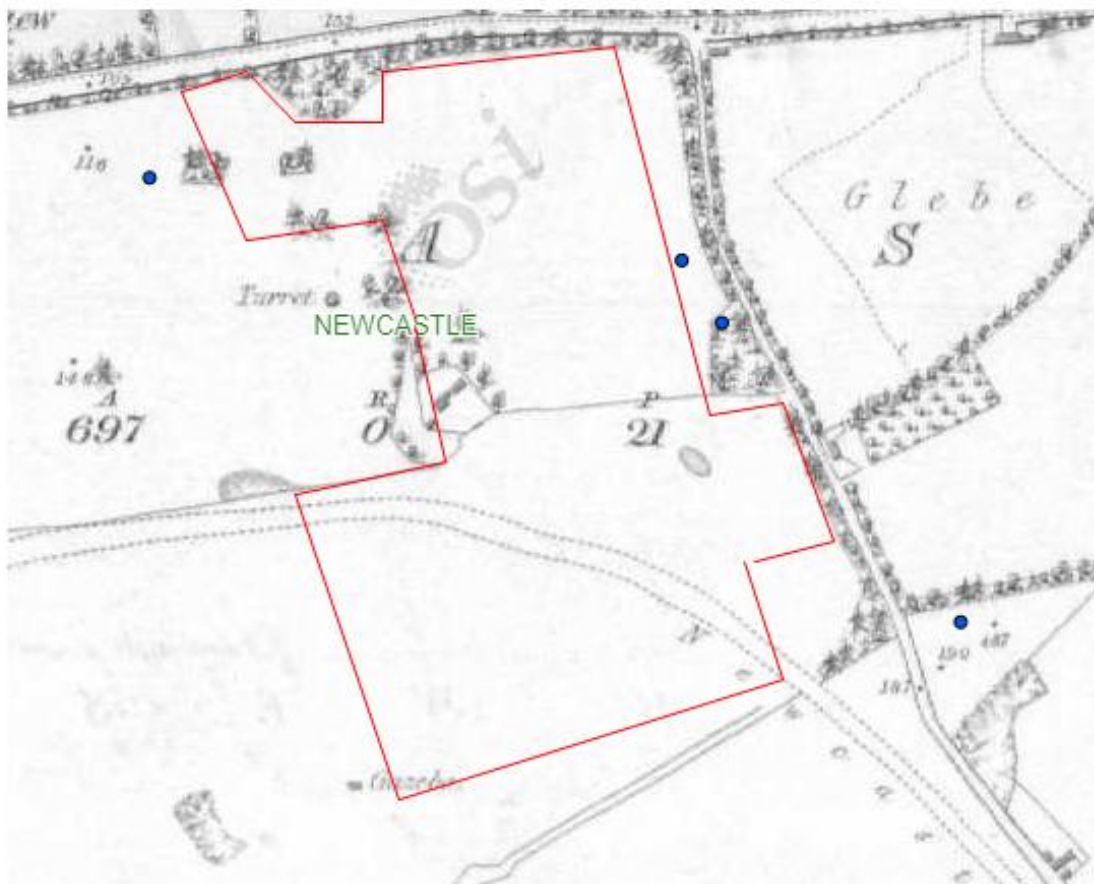


Fig. 15: 5: First Edition Ordnance Survey map (c. 1839); development site outlined in red

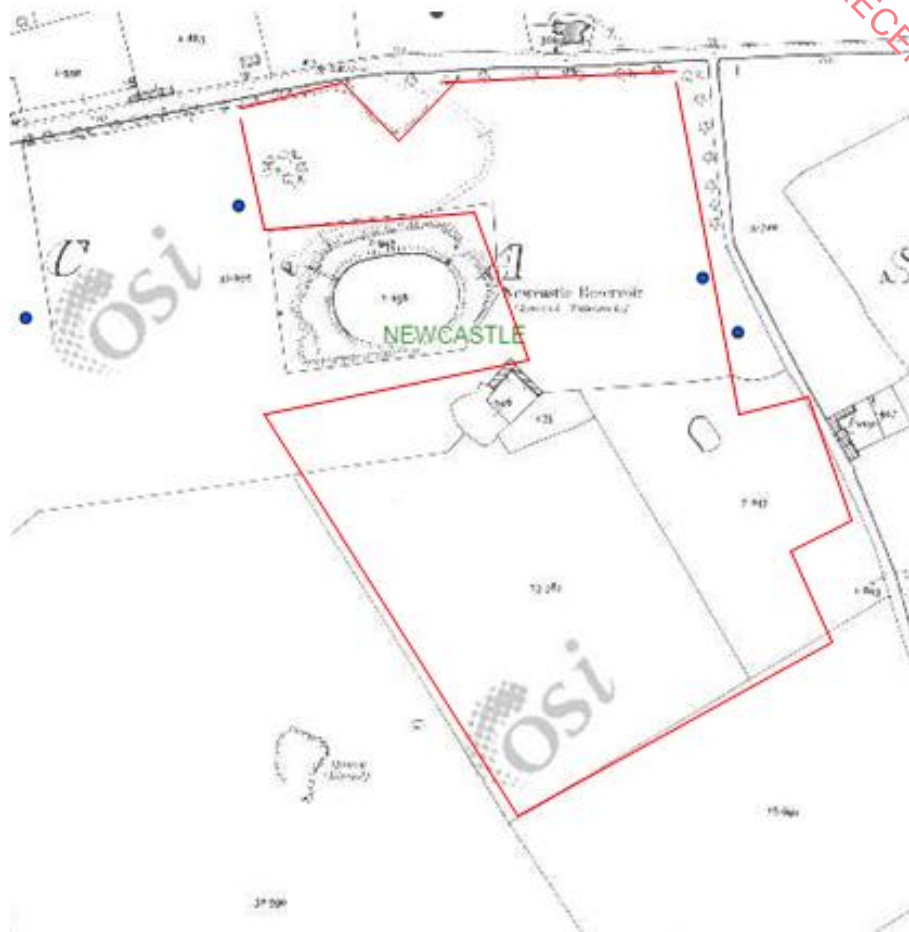


Fig. 15: 6: Second Edition Ordnance Survey map (c. 1904); development site outlined in red

A farm house and yard are located on the west (Fig. 15: 7). A tarred access road leads to the farm house from the Monaleen Rd and is on the line of the access road shown on the First and Second editions of the Ordnance Survey maps. The house is recorded as 'Chapel View' on the Third Edition Ordnance Survey map (Fig. 15: 8), presumably as the line of sight to the south-east is to the Church of St. Mary Magdalen. The present house appears relatively modern and may be a replacement of the original farmhouse or upgraded. The farm buildings include a hay barn and outbuildings.



Fig. 15: 7: Farm house and yard on west side of development

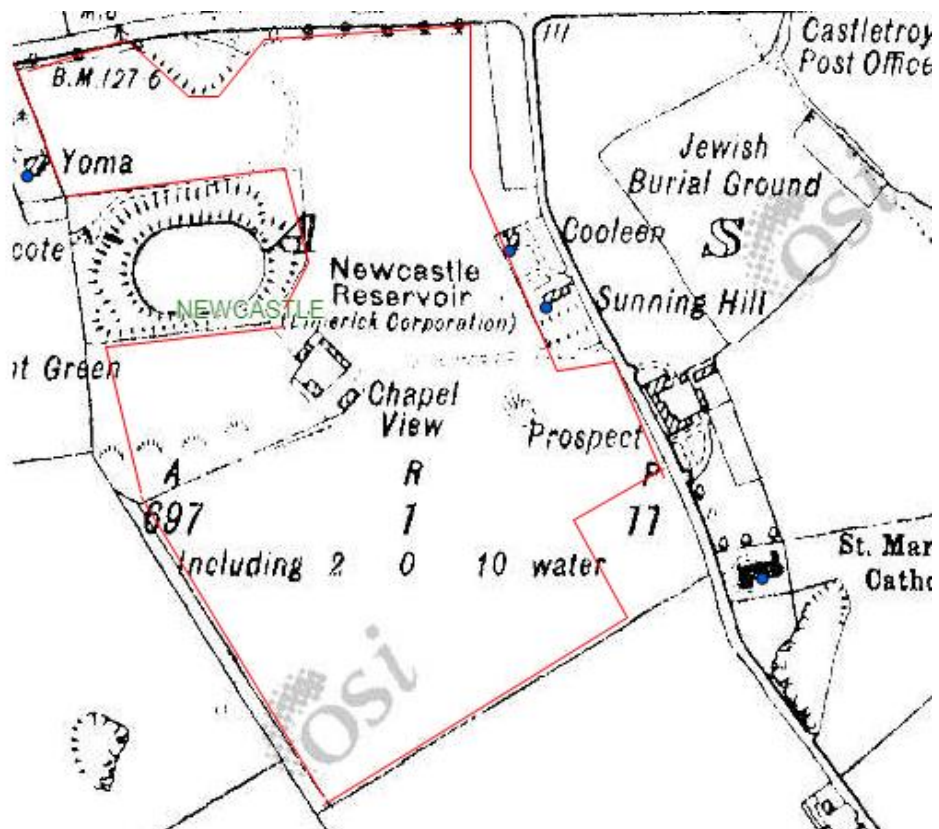


Fig. 15: 8: Third Edition Ordnance Survey map (c. 1938); development site outlined in red

Newcastle Reservoir (Fig. 15: 9) is situated on the crest of the slope on the west side of the site and housing is located west of the reservoir. The reservoir is enclosed on the east side by a high metal fence and scrub vegetation is visible inside the fence.



Fig. 15: 9: Newcastle Reservoir (Looking North)

The development site slopes downwards to the north and east and the terrain in the central section and south-east is relatively level. Vegetation cover is largely low grass (Figs 15: 10–17).



Fig. 15: 10: South-East section of development site (Looking South-East)



Fig. 15: 11: Southern section of development site (Looking North)



Fig. 15: 12: Southern section of development site (Looking East)



Fig. 15: 13: Central section of development site (Looking East)



Fig. 15: 14: Central section of development site (Looking East from crest of hill)



Fig. 15: 15: Looking South-West from North end of site



Fig. 15: 16: Looking North towards Dublin Road from North end of site



Fig. 15: 17: Looking North from Central area of site

The development is c. 1km south of the River Shannon and east of the Groody River valley. The Shannon and its tributaries including the Groody River were pivotal for accessibility into the hinterland of the Shannon estuary in the prehistoric period.

The sub-surface geology is basalt. The soils immediate to the development derived from fluvio-glacial drift predominately of sandstone origin with some shale and limestone (Finch and Ryan 1966).

The development is within a suburb of Limerick City and the built environment is largely housing estates, shopping centres, schools, hotel, leisure and sports facilities and restaurants/public houses. The hinterland of the development area was originally a rural landscape; settlement nuclei such as Monaleen, Newcastle and Annacotty have developed into a conurbation. The Old Dublin Road (R445) to the north of the development led from Limerick City towards Annacotty to the east of the development; the M7 to the south of the development is a recent construct. New local road networks have been developed since the area was first mapped for the First Edition (1839) Ordnance Survey map (Fig. 15: 5) and the landscape was also largely rural when the Second Edition Ordnance Survey was compiled in c. 1904 (Fig. 15: 6). A field recorded in 1839 east of the development (Fig. 15: 5) as ‘Glebe’ was probably part of land attached to the medieval parish church of Kilmurry (RMP LI005-026-001) to the north-east of the development. A Jewish cemetery now occupies this field (Fig. 15: 8). The cemetery site was purchased by the Lithuanian Jewish community in Limerick in 1902 and contains twelve headstones of which six are upstanding (Source: Limerick Life Archive).

15.5.1 Archaeological and historical background

The development site was mapped by the Ordnance Survey in 1839 (Fig. 15: 5) and in 1904 (Fig. 15: 6) and no archaeological sites were recorded. Field inspection did not identify any visible monuments and an examination of aerial photographs did not detect any anomalies that might indicate low-visibility archaeological remains.

There are five known archaeological sites within 1km of the development (Fig. 15: 18). The closest site is the parish church of Kilmurry (RMP LI005-026-001) which is c. 0.5km to the north-east. The church was built in the late thirteenth century and dedicated to St. Mary Magdalen (Westropp 1904-5, 365). The adjacent graveyard (RMP LI005-026-002) was probably contemporary with the original church but continued in use until the twentieth century. The present Church of Ireland in Newcastle townland was built around 1810 on the site of the medieval parish church.

The castle (RMP LI005-025) from which the townland (Newcastle; *Caisléan Nua*) takes its’ name is located c. 0.7km to the west of the development and is classified as a fortified house. The castle was a Bourke castle in the late sixteenth century and passed to the Roches in the seventeenth century (Westropp (1906-7, 87; Simington, 1938). The castle is a five-storey tower house which now stands to a height of 15m apart from the west wall which has fallen. The castle was surrounded by a bawn wall. The fortified stone residences built by Anglo-Norman lords and Gaelic chiefs from about 1380–1600 AD are known as ‘tower houses’ or sometimes ‘peel towers’ which to all intents and purposes were castles and included defensive as well as administrative functions and were also

family homes. Tower houses are particularly common in areas where the land was of good agricultural quality, such as Co. Limerick.

A ringfort (RMP LI 005-035) was recorded on the Third Edition (1938) Ordnance Survey map as a large circular enclosure of 60m diameter, and was c. 0.8km south-west of the development site (Fig. 15: 18). It was levelled during house construction. A second ringfort (RMP LI006-092-006) was excavated as part of the M7 (Unpublished record NM database) archaeological works (Fig. 15: 19). This ringfort is dated to the eighth century. The site also included hut sites and earlier strata dated to the Bronze Age including a cremation burial. An enclosure (RMP LI006-092-001) excavated on the M7 was 16m x 27m and included Early Medieval (400–900 AD) artefacts suggesting it may have been a ringfort.

Ringforts are the visible remains of farmsteads dating to the period c. 400–900 AD (or Early Medieval Period). The 'fort' of the nomenclature is misleading as most sites were of a domestic nature. A single or double bank usually encloses the sites and the enclosed area is typically circular in plan with diameters ranging from 20–60m. The existence of ringforts in an area suggests that the land was cultivated or under pasture in the Early Medieval Period.

Archaeological excavations in the environs of the development landbank are an indicator of the potential for encountering previously unknown archaeological sites within the proposed development site. There are a number of recorded archaeological sites found mainly to the south of the development (Table 15.1). Most of the remains of these early populations, including settlement and burial sites, do not leave above ground traces and are only discovered once ground disturbance takes place and were recorded during archaeological monitoring in the course of construction works. The sites date to the prehistoric period, particularly the Bronze Age (2000–700BC).

Fulachta Fia or ancient cooking sites are a common occurrence and date to the Bronze Age (2000–700 BC). The site of a *Fulachta Fia* (RMP LI 006-088) is c. 1km to the east of the development in Newcastle townland (Fig. 15: 18). This was uncovered during a test excavation in 2002 in advance of a housing development. Two possible *Fulachta Fia* (RMP LI005-088-008 and 010) were excavated in the Glantan housing complex to the south-west of the development in Kilbane townland (Fig. 15: 19). Both comprised spreads of charcoal-enriched soil and heat-shattered stones. The spreads appears to have been dispersed albeit likely to have been the remains of *Fulachta Fia* (O'Callaghan 2006). A *Fulachta Fia* (RMP LI-005-073) in Towlerton townland to the west of the development (Fig. 15: 19) was discovered during monitoring of topsoil stripping associated with the construction of the Castletroy distributor road (Cummins 2004). South of the development (Fig. 15: 19), three *Fulachta Fia* (RMP LI 006-087-001 and 002, 096) were recorded during motorway construction (M7). These sites were previously unknown prior to topsoil stripping on the motorway.

Fulachta Fia probably represent communal feasting and are associated in folklore with the Fianna warriors. They are one of the most frequent monuments in Ireland and are commonly interpreted as ancient cooking-sites, which usually survive as small horseshoe-shaped mounds of charcoal-enriched soil packed with fragments of heat-shattered stones. They are also frequently located close to a water source. The cooking took place in a water-filled rectangular trough where the water was probably boiled using hot stones taken from a nearby fire (O'Kelly 1954). This resulted in the heat-shattered stones being discarded to one side when the cooking was complete. The majority of available radiocarbon dates place these monuments in the Bronze Age.

A drainage scheme in 2002 traversed a site immediately east of Groody Road in Kilbane townland and was archaeologically monitored. Bronze Age burial sites (RMP LI005-085-001–004; RMP LI005-034-001 and 002) were excavated (Fig. 15: 19). Eight pits (RMP LI005-085-001) of which five of the pits contained cremated bone and two pits contained fragments of Bronze Age pottery (Hayes 2002 and 2003). A site (RMP LI005-085-003) was recorded as four pits and two sections of a ditch (RMP LI005-085-002); the pits contained cremated bone and pottery fragments (Cummins 2002). A bowl furnace of historic date was also recorded. A pit (RMP LI005-085-004) which was oxidized on the base and included minute fragments of cremated bone may be the vestiges of a Bronze (2000–700BC) or Iron Age (700BC–400AD) burial (Collins 2002; Cummins 2002). A third site (RMP LI005-034-002) is recorded as a burial ground and is located beside Mary Magdalene's Well (RMP LI005-034-001). The excavated features were two pits, c. 100m apart. One pit contained unidentified burnt bone. A pit with iron-working residues (RMP LI005-084) to the south and may date to the early historic period.

Archaeological monitoring on a housing scheme known as 'Glantan' west of the proposed development site recorded six areas where archaeological features were uncovered (Fig. 15: 19; Table 15.1). A flat cemetery (RMP LI005-088-005) comprised 90 pits that included cremated bone and some had Late Bronze Age pottery (Hurley 2003). A second flat cemetery (RMP LI005-088-002) contained four cremation pits which were situated c. 15m to NE of a site recorded as 'Miscellaneous Excavation' (RMP LI005-088-003 [Fig. 15: 19]). These contained fragments of cremated bone and pottery sherds were recorded in two examples (Hurley 2003). A third flat cemetery (LI005-088-004) had seven cremation pits with evidence that some were sequential, post-dating an earlier phase of burial (Hurley 2003; O'Callaghan 2006). Other sites are recorded as 'Miscellaneous Excavation'. One site (RMP LI005-088-001) had undated linear features and a spread of burnt soil. Site (RMP LI005-088-007) included a large irregularly-shaped feature with burnt stone and charcoal, a large teardrop-shaped feature containing charcoal and fragments of burnt bone and five pits (Hurley 2003). A ring-ditch and cremation pits (RMP LI005-088-006) of prehistoric date were also recorded during archaeological monitoring and excavation (Hurley 2003; O'Callaghan 2006). Site (RMP LI005-086) comprised thirteen prehistoric pits, some with cremated bone.

Archaeological monitoring during the construction of student accommodation in Kilbane townland uncovered a keyhole-shaped kiln (RMP LI005-034-003) that may have been a corn-drying kiln of early historic date (Collins 2002a).

Table 15.1: Previous archaeological excavations in environs of development

Excavation No.	RMP	OS Ref	Location	Excavation Bulletin Ref	Author
02E1402	LI006-088	562953; 657240	Newcastle	2002	T. Collins
LI006-088----- : Fulacht fia Description: At the S end of Carrowkeel Housing development, 320m S of the R445. Not marked on any of the OS maps. Archaeological testing of a mound of archaeological potential. The results were summarised as follows: Three trenches were dug by machine confirming the mound was a natural feature. However, in the longest trench a spread of stony burnt material was discovered, along with two circular pits, which were also filled with the burnt material. These features were interpreted as the remains of a burnt mound, perhaps a fulacht fiadh, with two associated pits, which may have functioned as troughs. The burnt stone material was recorded for a length of 24m N-S while the associated pits were 1m in diameter.					
03E1382/03E1717	LI005-088-010	561921; 656054	Kilbane	2003; 2006	F. Hurley/ N. Callaghan
LI005-088-010- : Fulacht fia Description: N side of Schoolhouse Road, Castletroy. Identified during monitoring for Glantan housing scheme known and excavated in 2003. In Area 7, the remains of a fulachta fiadh (FF3) were found as a result of this excavation of fulacht fiadh (FF2) (LI005-088010-). It comprised of a smaller black silty spread containing heat-shattered stone.					
03E1382/03E1717	LI005-088-009	561066; 656211	Kilbane	2003; 2006	F. Hurley/ N. Callaghan
LI005-088-009- : Fulacht fia Description: N side of Schoolhouse Road, Castletroy. Identified during monitoring for Glantan housing scheme and excavated in 2003. In Area 7, the remains of a fulachta fiadh (FF2) were excavated. It comprised of a black silty spread (10.5m x 8.5m; D 0.2m) containing heat-shattered stone and was located approximately 5m from a small stream. Two large, shallow rectangular-shaped features (possible troughs) and five small circular pits were recorded under the remains of the burnt spread and were all filled with heat-shattered stone. A second fulacht fiadh (FF3) (LI005-088010-) was found as a result of this excavation.					
03E1382/03E1717	LI005-088-008	562003; 656155	Kilbane	2003; 2006	F. Hurley/ N. Callaghan
LI005-088-008- : Fulacht fia Description: N side of Schoolhouse Road, Castletroy. Identified during monitoring for Glantan housing scheme known and excavated in 2003. In Area 8, the remains of a possible fulacht fiadh (6m x 5m; D 0.3m) were recorded and consisted of a layer of black silt with heat-shattered stones. There were no features recorded below it, suggesting that this material may have been <i>ex situ</i> .					
04E0437	LI005-073	561036; 656054	Towlerton	2004	T. Cummins
LI005-073----- : Fulacht fia Description: Discovered during monitoring associated with the construction of the Castletroy distributor road. Roughly circular-shaped spread (9m E-W; 9m N-S; T 0.03m) of heat-shattered stone in a black soil matrix.					
01E0406	LI006-096	562854; 656150	Newtown	2001	M. Connolly
LI006-096----- : Fulacht fia Description: Fulacht fia excavated prior to the construction of the section of the M7; described as a spread of burnt soil, shattered stone and charcoal c. 20m in diameter. Excavation exposed the remains of a crescentic mound of burnt material surrounding a natural depression, which appears to have been used as the trough. A shallow, circular area of fire-reddened subsoil, 2.5m in diameter, was 3.6m south-west of the main burnt spread. Four post-holes were excavated around the fire-reddened spread, with a possible function as the supports for a cooking-spit over the fire. No artefacts were recovered from the site.					
01E0056	LI006-087-002	563403;656463	Newtown	2001	A. Hayes

<p>LI006-087-002- : Fulacht fia : Description: Fulacht fia that was excavated prior to the construction of the M7 known. Identified as a fulacht fia during testing. Hut site (LI006-086) 150m to the west, fulacht fia (LI006-087-001) c. 20m to the west. The was a low mound of fulacht material (dims. 18.4m N-S 15.5m E-W, D 0.4m), and continued beyond the line of the road to the south.</p>					
01E0056	LI006-087-001	563384, 656456	Newtown	2001	A. Hayes
<p>LI006-087-001- : Fulacht fia Description: Fulacht fia that was excavated prior to the construction of the M7 known. Identified during the archaeological monitoring. Hut site (LI006-086) 150m to the west, fulacht fia (LI006-087-002) c.20m to the east. It consisted of moderately loose dark blackish brown sandy silt composed mainly of angular fragments of burnt stone. The deposit measured 15.5m east-west by 18.4m and was 0.4m in depth. The uppermost fulacht fiadh material was heavily disturbed and cut by two furrows. A large pit was located under the fulacht fiadh material to the north of the western example. It was sub-circular in shape and contained four fills. It measured 5.6m by 4.5m and was 2m deep. This pit may have been the area in which the trough was located. The basal fill consisted of a series of randomly arranged planks and branches which may have formed the lining of the trough but which were subsequently obscured by a dump of material and collapse from the side of the pit. Fragments of animal bone were recovered from the basal fill.</p>					
03E1382/03E1717	LI005-088-002	561921; 656054	Kilbane	2003	F. Hurley/ N. O'Callaghan
<p>LI005-088-002- : Flat cemetery Description: On the N side of Schoolhouse Road, Castletroy. Identified during monitoring for the Glantan housing scheme and excavated in 2003. Area 6 (50m to S of Area 1) contained four cremation pits which were situated c. 15m to NE of miscellaneous excavation (LI005-088-003). These were similar in size and form to those excavated in Areas 1 and 2. They all contained fragments of cremated bone and a small number of pottery sherds were recorded in two examples. Two of the cremation pits were oval-shaped and two were circular-shaped and all contained charcoal and burnt bone within the deposits.</p>					
03E1382/03E1717	LI005-003	561911; 656040	Kilbane	2003	F. Hurley/ N. O'Callaghan
<p>LI005-088-003- : Excavation - miscellaneous: N side of Schoolhouse Road, Castletroy. Identified during monitoring for Glantan housing scheme. A number of features comprised 9 small features all < 1m in maximum dimensions, including one probable cremation containing charcoal and burnt bone, 7 small charcoal spreads and one linear feature containing a clayey silt.</p>					
03E1343	LI005-086	561923, 656027	Kilbane	2003	S. McCutcheon
<p>LI005-086---- : Excavation - miscellaneous 600m to E of the Groody River. Identified during monitoring on Phase 1, Castletroy distributor road. This revealed a series of features in three fields. Field 1 contained three pits, four further pits containing cremated burials which were excavated, including one pit with multiple burials; two other pits which might contain cremations were recorded. In Field 2 twenty small pits/deposits, two linear features, a rectangular feature and a possible drain were recovered, most of which proved post-medieval in date. Six trenches/drains, six pits, five possible post-pits and eleven stake-holes were also recorded within Field 2, in addition to a shallow, roughly circular-shaped trench (diam. 4.2m). In Field 3, there were six possible pits and four small concentrations of charcoal uncovered. The road was 400m in length and the initial 220m was in cut and all features were excavated. It would appear that those features found across the second half of the scheme were in a fill area and retained <i>in situ</i>.</p>					
03E1382/03E1717	LI005-088-006	561846, 656086	Kilbane	2003	F. Hurley/

					N. O'Callaghan
<p>LI005-088-006- : Excavation - miscellaneous Description: On N side of Schoolhouse Road, Castletroy. Identified by Flor Hurley in 2003 during monitoring of Glantan housing estate and excavated in 2003. In Area 1 (east), a number of features (F58-F74 and F81-F88) were recovered and excavated including a ring-ditch (int. diam. 4m; ext. diam. 5.6m; D 0.24m). There was no stratigraphic relationship between it and the cremation burials. There were two internal pits, although these did not contain cremation burials.</p>					
02E1717	LI005-088-001	561988, 656127	Kilbane	2006	N. O'Callaghan
<p>LI005-088-001- : Excavation - miscellaneous Description: On the N side of Schoolhouse Road, Castletroy. Situated due N of miscellaneous excavations identified in 2003 during monitoring for Glantan housing. The features (F1-F6) consisted of three linear features and three sub-circular-shaped features. The former consist of a linear feature (L 7m; Wth 1.3m) aligned NW-SE, a second linear feature (L c. 9m; Wth 0.75-0.9m) aligned ENE-WSW and a third linear feature (L 3m; Wth 0.27m) aligned N-S. The latter consist of an irregular sub-circular-shaped feature (L 1.17m E-W; 1.07m N-S), a sub-circular-shaped spread (0.42m N-S; 0.34m E-W) and an oval-shaped spread of burnt soil (0.64m N-S; 1.04m E-W).</p>					
03E1382/03E1717	LI005-088-007	561829, 656149	Kilbane	2003/2006	F. Hurley/ N. O'Callaghan
<p>LI005-088-007- : Excavation - miscellaneous Description: On N side of Schoolhouse Road, Castletroy. Identified during monitoring for Glantan housing scheme. Situated c. 15m to SW of flat cemetery (F85-F88) (LI005-088-002-). Nine features were excavated (F75-79 and F92-93) including a large irregular-shaped feature (2.45m N-S; 2.13m E-W) containing burnt stone and charcoal and a large teardrop-shaped feature containing charcoal and fragments of burnt bone. There were also two circular-shaped and three roughly oval-shaped pits containing charcoal and two spreads one of which contained charcoal.</p>					
03E1382/03E1717	LI005-088-004	561895, 656101	Kilbane	2003/2006	F. Hurley/ N. O'Callaghan
<p>LI005-088-004- : Flat cemetery Description: Identified during monitoring for Glantan housing scheme. Features included 7 roughly circular-shaped cremation pits (average diam. 0.5m; D 0.2m). A substantial amount of bone was recovered from 4 of the features and occasional sherds of pottery were recorded in three examples. Three phases of cremation burial have been interpreted on the site. The earliest phase involves a linear feature with two cremations cut into the base. There were two stake-holes associated with one of the cremations and the second was surrounded by a circle of ten stake-holes. The second phase of cremations were cut into the fill of another feature, while the final phase consisted of a single cremation.</p>					
03E1382/03E1717	LI005-088-005	561843, 656225	Kilbane	2003/2006	F. Hurley/ N. O'Callaghan
<p>LI005-088005- : Flat cemetery Description: On N side of Schoolhouse Road, Castletroy. Identified during monitoring for Glantan housing scheme and excavated in 2003. In Area 2 (125m to N of Area 1), a number of features (F25-F56) were recovered and consisted of 90 circular pits (F25-F56) covering a roughly rectangular-shaped area (12m x 6m). There was no evidence for an enclosing element or superstructure recorded in this area. All but twelve pits contained fragments of cremated bone. One of the cremations was contained in a pot. A capstone which had helped to cover the pot had assisted in the preservation of the cremated remains contained within. Out of 90 pits excavated, 22 contained fragments of Late Bronze Age pottery and 6 had a substantial quantity of sherds.</p>					
02E1787	LI005-	561378, 656198	Kilbane	2003	A. Hayes

	085-001		561378, 656198		
LI005-085001- : Excavation - miscellaneous Description: C. 185m E of the Groody River. Identified in 2002 during monitoring in advance of a residential development including private houses, student accommodation and support facilities. Topsoil stripping in Field 1 uncovered eight pits and one deposit. Five of the pits contained cremated bone and two pits contained fragments of Bronze Age pottery.					
02E1787	LI005-085-003	561351, 656313	Kilbane	2003	A. Hayes
LI005-085-003- : Excavation - miscellaneous Description: C. 200m NE of the Groody River. Identified during testing and monitoring in Fields 2 and 3 in advance of a residential development including private houses, student accommodation and support facilities. In Field 2 this uncovered four pits and two sections of a ditch (LI005-085-002). In Field 3 a number of cremations and one bowl furnace were revealed. Fragments of pottery were also recovered from the excavation.					
02E1787	LI005-085-002	561322, 656287	Kilbane	2003/2004	A. Hayes
LI005-085-002- : Enclosure Description: C. 200m NE of the Groody River. Identified in 2002 during testing in Field 2 in advance of a residential development including private houses, student accommodation and support facilities. This uncovered two sections of a ditch, having a U-shaped cut as well as four pits (LI005-085-003). Subsequent monitoring of topsoil stripping in Field 2 uncovered the remainder of the ditch. It was a circular-shaped ditch (int. diam. 40m) and enclosed a circular-shaped feature (diam. 5m) in the SW quadrant. This levelled monument was excavated when it was recorded as a sub-triangular-shaped, double-ditched enclosure. The structure within is of probable Bronze Age in date and possible cremation and burial pits are thought to be contemporary. Stratigraphic evidence shows that one of the pits predates the enclosure and two sherds of Beaker pottery also suggest earlier activity in the area.					
02E1787/04E1454	LI005-085-005	561322, 656287	Kilbane	2003/2004	A. Hayes
LI005-085-005- : Cremation pit Description: C. 200m NE of the Groody River. Identified within the interior of enclosure (LI005-085002-) in Field 2 in advance of a residential development including private houses, student accommodation and support facilities. This uncovered a circular-shaped cremation pit (diam. 5m) which was then excavated.					
02E1615/02E1772	LI005-085-004	561233, 656386	Kilbane	2002	T. Collins/ T. Cummins
LI005-085004- : Cremation pit Description: C. 315m to NE of the Groody River. Identified during monitoring along the line of a drainage wayleave. Sub-rectangular-shaped pit (1m N-S; 0.7m E-W; D 0.1m) with bright red oxidised boulder clay on sides and base suggesting <i>in situ</i> burning. The black, charcoal-rich fill contained a few tiny fragments of burnt bone but no artefacts. A second pit and a shallow deposit are located c. 100m to S.					
02E1615/02E1772	LI005-084	561213, 656296	Kilbane	2002	T. Collins/ T. Cummins
LI005-084---- : Excavation - miscellaneous Description: C. 315m to NE of the Groody River. Identified in 2002 during monitoring along the line of a drainage way-leave. Excavated as a small pit, with a small charcoal-rich deposit, c. 7m to NE. The circular-shaped pit (diam. 0.3m; D 0.05m) had a charcoal-rich fill, contained a number of small fragments of metal slag and appeared to have been truncated. The shallow deposit (diam. 0.3m; D 0.02m) consisted of a black, charcoal-rich soil, which may form the remains of the basal part of a truncated pit feature. A cremation pit (LI005-084-004) lies c. 100m to N.					
02E1615/02E1710	LI005-	561359, 656144	Kilbane	2002	T. Collins

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	034-003				
<p>LI005-034003- : Excavation - miscellaneous Description: C. 95m to E of Groody Road and c. 140m to E of the Groody River. Mary Magdalene's Well (LI005-034001-) and a burial ground (LI005-034002-) are located c. 66m to SW. Discovered during archaeological monitoring and excavated. A keyhole-shaped feature, consisting of a sub-circular-shaped pit (L 1.4m; max. Wth 0.8m; D 0.4m) filled with a deep black deposit mixed with boulder clay and having an oily texture. There were small amounts of charcoal inclusions and some organic material and the edge of the pit showed evidence of burning. A linear flue (L 0.8m; Wth 0.2m; D 0.25m) projected from the pit to the SW and was filled with a mix of redeposited boulder clay, some stones and flecks of charcoal; its edges had some evidence of heat exposure. This feature is likely to have had an industrial function.</p>					
02E1615	LI005-034-002	561311, 656091	Kilbane	2002	T. Collins
<p>LI005-034002- : Burial ground Description: C. 70m to E of the Groody River. Depicted on the revised 1938 ed. OS 25-inch map as a sub-rectangular-shaped enclosure (approx.12m NW-SE; 9.5m NE-SW). An excavation recorded consisting of two small pits and a small charcoal-rich deposit. The two pits were 100m apart, and the small deposit was 7m to the north-east of the southern pit. The northern pit was sub-rectangular, measuring 1m by 0.7m, and was 0.1m deep. Oxidised boulder clay at the sides and base of the pit indicated that it was associated with <i>in situ</i> burning. The black, charcoal-rich fill contained a few tiny fragments of burnt bone but no artefacts. The southern pit appeared to have been truncated; it was 0.3m in diameter and 0.05m deep. The charcoal-rich fill contained a number of small fragments of metal slag, but there was no evidence of <i>in situ</i> burning, and the feature contained no artefacts. The shallow deposit was 0.3m in diameter and 0.02m deep and consisted of charcoal-rich soil, which may form the remains of the basal part of a truncated pit feature.</p>					
02E1615/02E1772	LI005-085-004	561233, 656386	Kilbane	2002	T. Collins/ T. Cummins
<p>LI005-085004- : Cremation pit : KILBANE Description: C. 315m to NE of the Groody River. Identified during monitoring along the line of a drainage way-leave. Sub-rectangular-shaped pit (1m N-S; 0.7m E-W; D 0.1m) with sides and base were defined by bright red oxidised boulder clay suggesting <i>in situ</i> burning. The black, charcoal-rich fill contained a few tiny fragments of burnt bone but no artefacts. A second pit and a shallow deposit (LI005-084) are located c. 100m to S.</p>					
02E1787	LI005-085-002	561322, 656287	Kilbane	2003/2004	A. Hayes/ A. Purcell
<p>LI005-085002- : Enclosure Description: C. 200m NE of the Groody River. Identified during testing in advance of a residential development including private houses, student accommodation and support facilities. Two sections of a ditch, with a U-shaped profile and four pits (LI005-085-003) were recorded. The ditch was a circular-shaped (int. diam. 40m) and enclosed a circular-shaped feature (diam. 5m) in the SW quadrant. Further excavation recorded a sub-triangular-shaped, double-ditched enclosure. The structure within is of probable Bronze Age in date and possible cremation and burial pits are thought to be contemporary. Stratigraphic evidence shows that one of the pits predates the enclosure and two sherds of Beaker pottery also suggest earlier activity in the area</p>					
02E1787/04E1454	LI085-006	561342, 656293	Kilbane	2003/2004	A. Hayes/ A. Purcell
<p>LI005-085006- : Kiln - corn-drying : KILBANE Description: C. 200m NE of the Groody River. Identified in the vicinity of enclosure (LI005-085-002) during testing in advance of a residential development including private houses, student accommodation and support facilities. This uncovered a corn-drying kiln (L 2.06m; Wth 0.7m; D 0.48m) which was a slight keyhole-shaped feature orientated N-S. This opened out into a slightly wider circular-shaped bowl (diam. 0.75m) at the N end. The bowl was identified by its size and oxidised clay indicating that it was the location of the fire pit.</p>					

02E1787/04E1454	LI005-085-006	561342, 656293	Kilbane	2003/2004	A. Hayes/ A. Purcell
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LI005-085006- : Kiln - corn-drying

Description: C. 200m NE of the Groody River. Identified in the vicinity of enclosure (LI005-085-002) during testing in advance of a residential development including private houses, student accommodation and support facilities. Testing uncovered a corn-drying kiln (L 2.06m; Wth 0.7m; D 0.48m) with a slight key-hole-shaped feature orientated N-S. This opened out into a slightly wider circular-shaped bowl (diam. 0.75m) at the N end. The bowl was identified by its size and oxidised clay indicating that it was the location of the fire pit.



Fig. 15: 18: Archaeological sites in environs of the proposed development (site outlined in red)



Fig. 15: 19: Archaeological sites to the south of development (site outlined in red)

The development site is located within the modern boundary of Limerick City but about 4km from the original Viking and Medieval core. The earliest Viking (Norse) fortification (a 'longphort') on the River Shannon may have been established in the 840s at Athlunkard, Co. Clare, c. 2km north of the historic core of Limerick City. Earthworks at Athlunkard have been identified as the likely location of the 'longphort' (Kelly and O'Donovan 1998). Limerick City developed from a ninth century Viking settlement. Based on annalistic evidence, Hall (2007, 88) suggested a date before 887 A.D. The precise location of the settlement within the modern city has not yet been fully identified by archaeological investigation but is possibly in the area around the St. Mary's Cathedral and King John's Castle. The Viking settlement was captured by Brian Boru and he made it his capital by 1100. There is very little archaeological evidence for occupation in Limerick City before the twelfth century (O'Rahilly, 1995).

The city expanded under Anglo-Norman influence in the late twelfth century and became the major urban centre of the west coast of Ireland (Thomas 1992, 142). The city is divided into English Town and Irish Town. The walled town of English Town extended from the bridge at Ballsbridge to the east bank of the Shannon River and northward to Thomand Gate and thereafter extended northwards, and the east section continued southward along the line of Island Road to link to the bridge at Ballsbridge. Irish Town was smaller, extended south from Ballsbridge and included the area west of Charlotte's Quay to St. John's Church and the west circuit extended to West Water Gate St. Notable features in Limerick City include King John's Castle built in the early thirteenth century, St Mary's Cathedral founded by Donál Mór O'Brien in the late twelfth century, remains of medieval monasteries and upstanding medieval town walls. Limerick was captured by the Confederate Army in 1642, fell to the Cromwellian New Army under Ireton in 1651 and the Williamite forces in 1691. Like many Irish cities, Limerick expanded outside the confines of the walled town in the eighteenth century.

The parish of Kilmurry where the development is located was described by Lewis (1837) as being 3,277 acres. Industries in the parish included quarries at Newcastle and elsewhere, a paper and oil mill at Ballyclough, a paper mill at Annacotty and flour mills in Ballysimon³. Small quarries are recorded c. 320m south-west of the development and near the castle in Newcastle and were disused by the early twentieth century. The glebe house was erected in 1790 and a Glebe was probably part of land attached to the medieval parish church of Kilmurry (RMPLI005-026-001) to the north of the development and dedicated to St. Mary Magdalen. John O'Donovan recorded in the Ordnance Survey Letters (O'Flanagan 1924, 8) that there was nothing of antiquarian interest in the parish.

The soil in Newcastle townland was described (Lewis 1837) as 'deep' and land was used in the mid-nineteenth century for growing potatoes, oats and wheat. The proprietor was Sargent Gould who had let the land to tenant farmers at a yearly rent of £2 to £2.16s per acre. Bog in the townland was also harvested for turf. The placename Monaleen (*Móin an Lin*) is translated as 'Bogland of the Flax', reflecting the local topography and land use.

The social landscape around Kilmurry parish was dominated in the eighteenth century by the Fitzgibbon family, Earls of Clare of Mount Shannon House, Castleconnell (Cherry 2009). The Earls owned 10,316 acres and remodelled the original eighteenth century house into the neo-classical style around 1813. The last Earl of Clare became impoverished and the house was finally sold to the Nevin family in 1893. It is now a ruin. The estate itself was sold off as part of the Land Acts in 1885 and 1903.

15.5.2 Record of Monuments and Places

The Record of Monuments and Places (RMP) is a statutory inventory of archaeological sites protected under the National Monuments Acts 1930-2004 (Section 12, 1994 Act), compiled and maintained by the Archaeological Survey of Ireland (ASI). The main focus of the inventory is pre-1700 AD sites and is based on a previous inventory known as the Sites and Monuments Record (SMR) which does not have legal protection or status (see www.archaeology.ie).

There are no recorded monuments located within the site.

³ The mills were removed as part of the work on the M7 construction.

15.5.3 Cartographic Sources

No archaeological features were recorded within the development site on the Ordnance Survey maps (Figs 15.5–6; Fig. 15: 8). The First Edition Ordnance Survey map (Fig. 15:5) shows part of the Newcastle Racecourse traversing the development site from the south-east to the north-west. This was not recorded on the Second Edition Ordnance Survey map (Fig. 15:6) and an east-west linear land division extended from the farmhouse to the Monaleen Road. A north-south land division to the south of the farmhouse traversed the landbank and was recorded only on the Third Edition Ordnance Survey map (Fig. 15:8) and is now removed. Two track-ways were recorded on the Third Edition Ordnance Survey (Fig. 15:8); one extending from the farmhouse to the east and one from the reservoir towards the Dublin Rd. Several diffuse positive and negative linear features recorded by the geophysical survey (see Appendix) are interpreted as possible relict field boundaries.

15.5.4 Aerial Photography

Aerial photography (or other forms of remote sensing) may reveal certain archaeological features or sites (earthworks, crop marks, soil marks) that for many reasons may not be appreciated at ground level. Online orthostatic photographs of the site were examined (Ordnance Survey Ireland 1995, 2000 & 2005; Google/Bing Maps 2020). No features of archaeological potential were noted during analysis of aerial photography (Fig. 15:3).

15.5.5 Previous Archaeological excavations

The Excavation Bulletin is a database of summary accounts of archaeological excavations in Ireland and Northern Ireland from 1970 onwards. Summaries relating to archaeological excavations undertaken by the National Roads Authority are also available on-line and were consulted for any adjacent sites. Reports on licensed archaeological works are also held by the Archive Unit of the National Monuments Section.

There were no previous archaeological excavations within the development landbank. There are however, a number of recent archaeological excavations in the environs of the development (Table 15. 1)

15.5.6 Architectural Heritage

Local Authorities have a statutory responsibility to safeguard architectural heritage in accordance with Part IV of the Planning and Development Act 2000. Under S.51 (1), a County Council must compile a Record of Protected Structures (RPS), which lists all structures which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest.

The National Inventory of Architectural Heritage (NIAH) was established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. Its purpose is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage.

A number of Protected Structures are located in the environs of the development. There are five houses built between 1936–40 (Fig. 15: 20) and known as 'International Style houses'; these are regarded as important architectural buildings in Castletroy. The houses were designed by the architects Messrs Clifford and Newenham for a specific socio-economic group of middle class professional men, Cooleen⁴ and Sunninghill⁵ were built in 1936 and front onto Monaleen Road, immediately east of the development. The houses have a shared entrance exiting onto Monaleen Road with a stone boundary wall. Cooleen and Sunninghill were built for two brothers – Richard and Victor Hewson, who were both executives in Rank Mills. Sunninghill was the larger of the two houses and accommodated Richard and his family. Yoma House⁶ and Cooltara House⁷ to the west of the development are also in the International Style and were built in 1937. Cooltara House was owned by the stockbroker Vivian St Clare Gloster. Glanleam House⁸ is to the west of the development and is a detached house, built c. 1940.

⁴ Architectural Inventory Reg. 21821002

⁵ Architectural Inventory Reg. 21821003

⁶ Architectural Inventory Reg. 21821001

⁷ Architectural Inventory Reg. 21820004

⁸ Architectural Inventory Reg. 21820002

Older houses include a house⁹ on the Dublin Road which was originally a two-storey farmhouse built in c. 1830 with a modern (1970) thatched building attached and is now known as 'The Hurler's Pub'. Castleview House¹⁰ near Newcastle Castle is a two-storey house built in c. 1850. The house was used as an RIC Barracks in the early twentieth century. The Demesne Walls, Gates and Railings¹¹ were formerly the entrance to Plassey House¹² and are north of the development. The monolith limestone piers were built in c. 1890. Plassey House is a Georgian villa-style Country House, originally the estate of Robert Clive who renamed it Plassey after his victory in India. He later became Lord Clive of Plassey. The Russell family, who owned the nearby Plassey Mills, extended it in the 1860s, under the guidance of the architect William Fogarty. The house is now part of the University of Limerick campus. Milfort Gate Lodge¹³ was built in c. 1870 and replaced an earlier Gate Lodge recorded on the First Edition Ordnance Survey map. Milfort House¹⁴ was originally a Country House and is now a Care-Centre.

St. Mary Magdalen's Roman Catholic Church¹⁵ immediately south-east of the development site is a Protected Structure built in 1873 and now serves as a parish church. The church is gable-fronted and built in the Gothic Revival style.

The modern industrial architectural heritage of the area around Newcastle reflects landscape use from the late seventeenth century. Watermills at Annacotty¹⁶ and Ballyclough¹⁷ are both Protected Structures to the east of the development and on the Mulkear River. Ballyclough mill was built c. 1760 and produced paper and oil while Annacotty was slightly later, built c. 1790 and was a paper mill. The industrial architectural heritage includes the water reservoir on the western boundary of the site. This is not a Protected Structure. The reservoir was built by the Limerick Waterworks Company who were in operation since the mid-nineteenth century and was acquired by Limerick Corporation in 1883 (Limerick Archives). The Reservoir is not recorded on the First Edition (1839) Ordnance Survey map (Fig. 15: 5) but is on Second Edition (1904) Ordnance Survey map (Fig. 15: 6). The precise construction date is unknown but it was in operation in the 1870s. When acquired by Limerick Corporation in 1883, the site comprised the reservoir, house and lands at Newcastle. The site was an open reservoir with a capacity of 5 million gallons. A turret recorded on the First Edition (1839) map (Fig. 15: 5) was on the site of the reservoir and was presumably demolished during the construction of the reservoir. A gazebo c. 265m south-west of the farmhouse (Chapel View) was also recorded on the First Edition Ordnance Survey map but was removed by the Second Edition of 1904. Both the turret and gazebo may have been estate features or follies.

The Planning and Development Act 2000 (as amended), provides that all development plans must now include objectives for preserving the character of Architectural Conservation Areas (ACAs). An ACA is a place, area, groups of structures or townscape of special architectural historical, archaeological, artistic, cultural, scientific, social or technical interest, or which contribute to the appreciation of protected structures, and whose character it is an objective of a development plan to preserve. The subject site does not lie within an Architectural Conservation Area.

⁹ Architectural Inventory Reg. 21821005

¹⁰ Architectural Inventory Reg. 21820003

¹¹ Architectural Inventory Reg. 21818001

¹² Architectural Inventory Reg. 21900505

¹³ Architectural Inventory Reg. 21819002

¹⁴ Architectural Inventory Reg. 21819001

¹⁵ Architectural Inventory Reg. 21821604

¹⁶ Architectural Inventory Reg. 21900605

¹⁷ Architectural Inventory Reg. 21900608



Fig. 15: 20: Sites of Architectural Significance (Development site encircled in red)

15.5.7 Site Inspection

The site was visited in December 2024 (see Figs 15: 10–17). The landbank comprises pasture with low grass cover which facilitates the recognition of low-visibility archaeological sites which have little surface expression. There were no surface anomalies which suggested previously unknown archaeological sites.

The landscape slopes downwards to the north and east and the terrain in the central section and south-east is relatively level. Vegetation cover is largely low grass.

15.5.8 Geophysical Survey

Geophysical survey was undertaken June 2025 by Dr. Ger Dowling (Figs 15. 21 and 22). The objective of the survey was to identify and describe magnetic anomalies within the site that may represent unrecorded archaeological features or deposits. The survey covered an area of approximately 9.5 hectares (ha). High resolution magnetic gradiometer survey was undertaken on the landbank and there were no constraints.

The survey located a variety of magnetic anomalies which are potentially archaeological in origin. The findings and interpretations are listed below (see Appendix).

1. Strongly enhanced, discontinuous, arcuate positive band. Possible curving 'ditch-type' feature (length of chord c.95m N-S). May extend beyond the survey area to the S. Interpretation as archaeology is highly tentative. Anomaly may instead reflect a naturally-occurring igneous seam.
2. Enhanced, diffuse curving positive band. Possible curving 'ditch-type' feature Interpretation of [2] as archaeology is speculative, as anomaly may also represent a band of igneous bedrock.
3. Slender, curvilinear positive anomaly. Possible small, oval enclosure (approximately 13m N-S by 10m E-W), seemingly represented by slender, 'ditch-type' anomaly. Appears to connect to a second, curving 'ditch-type' response on N. Tentative interpretation. Natural (i.e., geological) origin also possible.
4. Cluster of strongly enhanced discontinuous, arcuate anomalies. Two curvilinear features which may represent some enclosing features. Possibly archaeological. Possible footprint of two, possibly three, circular enclosures, each measuring about 25m in diameter. Several fainter anomalies (marked as trends on Figure 7) may represent associated features, though this is speculative. Magnetic signature is diffuse and possibility that anomalies collectively reflect underlying igneous bedrock cannot be dismissed. Several 'pit-type' responses. Possible isolated pits/deposits. Some may contain burnt/fired material in their fill. Archaeological interpretation is tentative. Responses may have a modern (i.e., ferrous/agricultural) origin and/or reflect 'noise' from natural soil variation or igneous geology.

The original report is included as an Appendix.

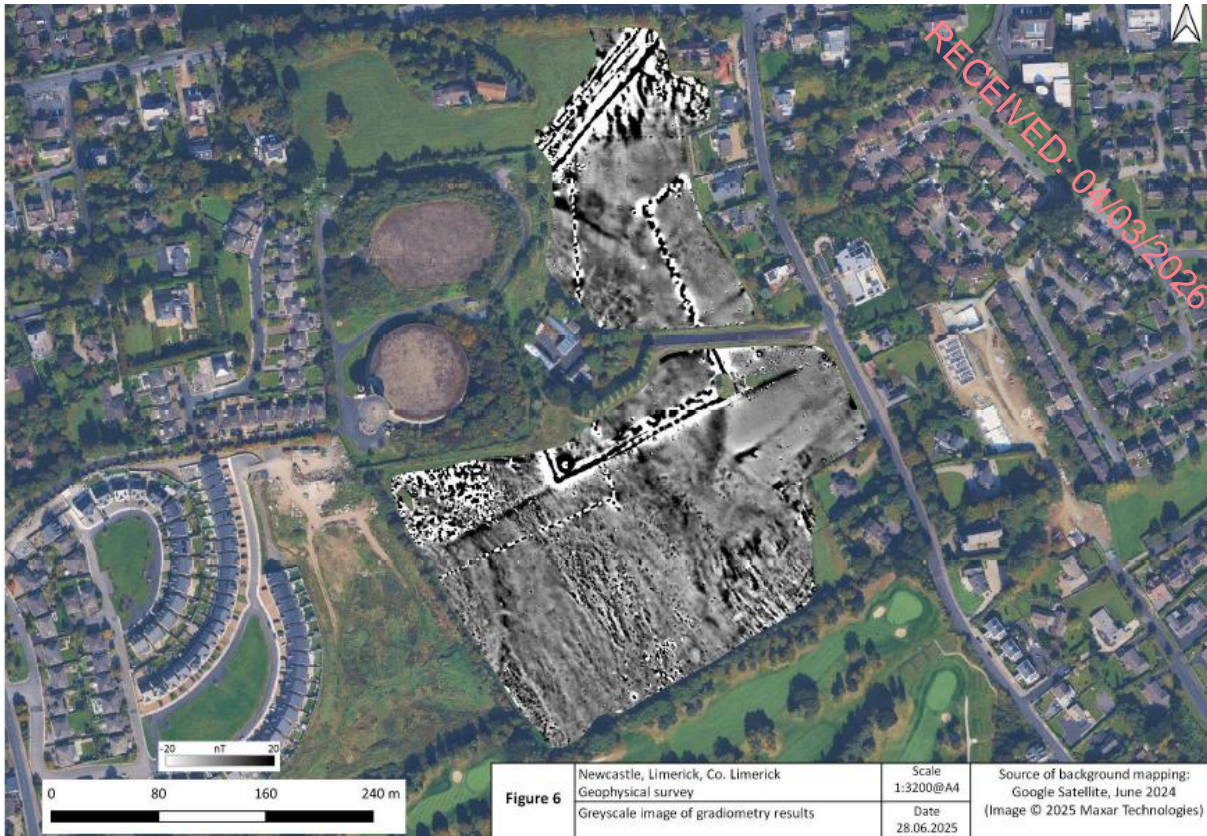


Fig. 15.21: Greyscale plot of geophysical anomalies (after Ger Dowling [see Appendix])

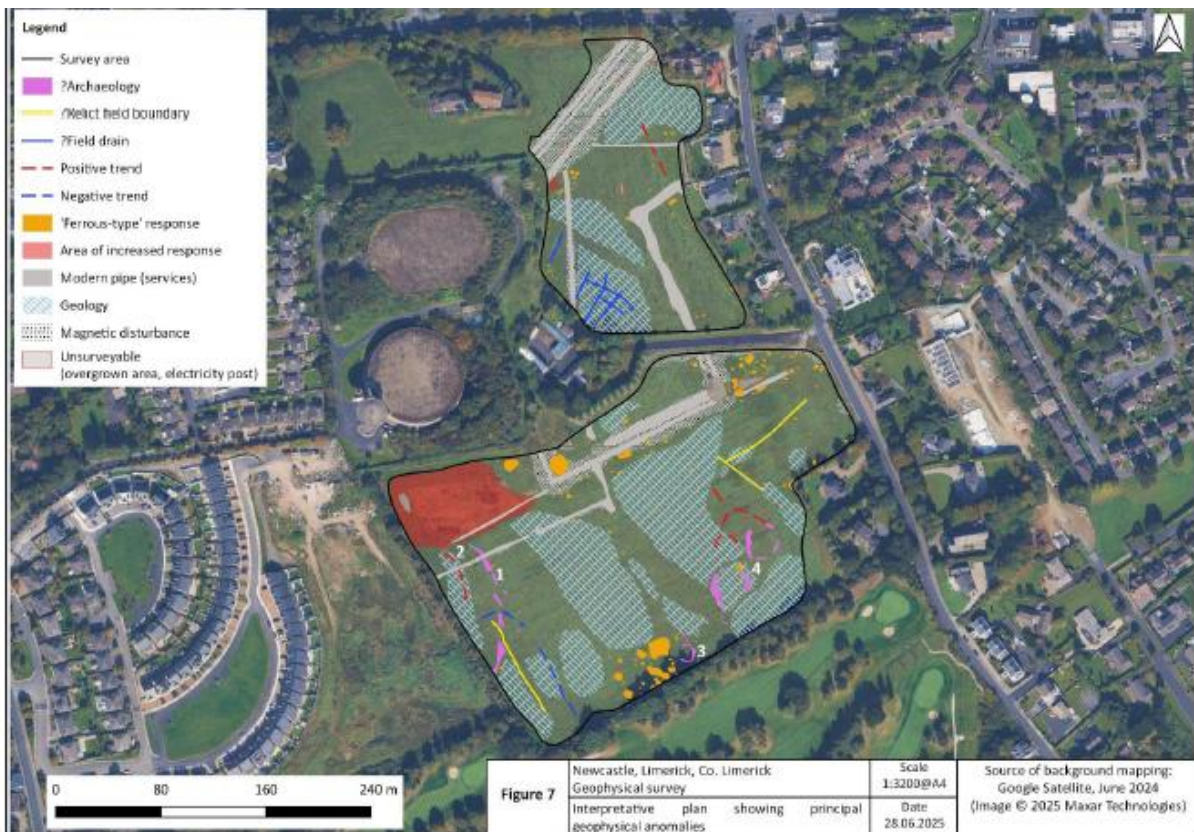


Fig. 15.22: Interpretative plan showing principal geophysical anomalies (after Ger Dowling [see Appendix]).

15.5.9 Test Excavation

Test excavation was undertaken by Rose Cleary in October 2025. The aim of the pre-development test excavation was to determine if the site has any archaeological potential and if sub-surface archaeological features exist on the site. The cuttings were located (Fig. 15. 23) within the development footprint and the strategy provided an indication of any archaeological material exists below the surface. The test trenches were guided by the results of the Geophysical Survey (see Appendix).

The excavation was carried out to an agreed specification with the Licensing Section of the Department of Housing, Heritage and Local Government (Licence No. 25E0954). The excavation was by means of test trenches and the location and size of the test trenches was subject to a Methods Statement approved by the National Monuments Division, Department of Housing, Heritage and Local Government. Eleven trenches were excavated with a total linear extent of 930m.

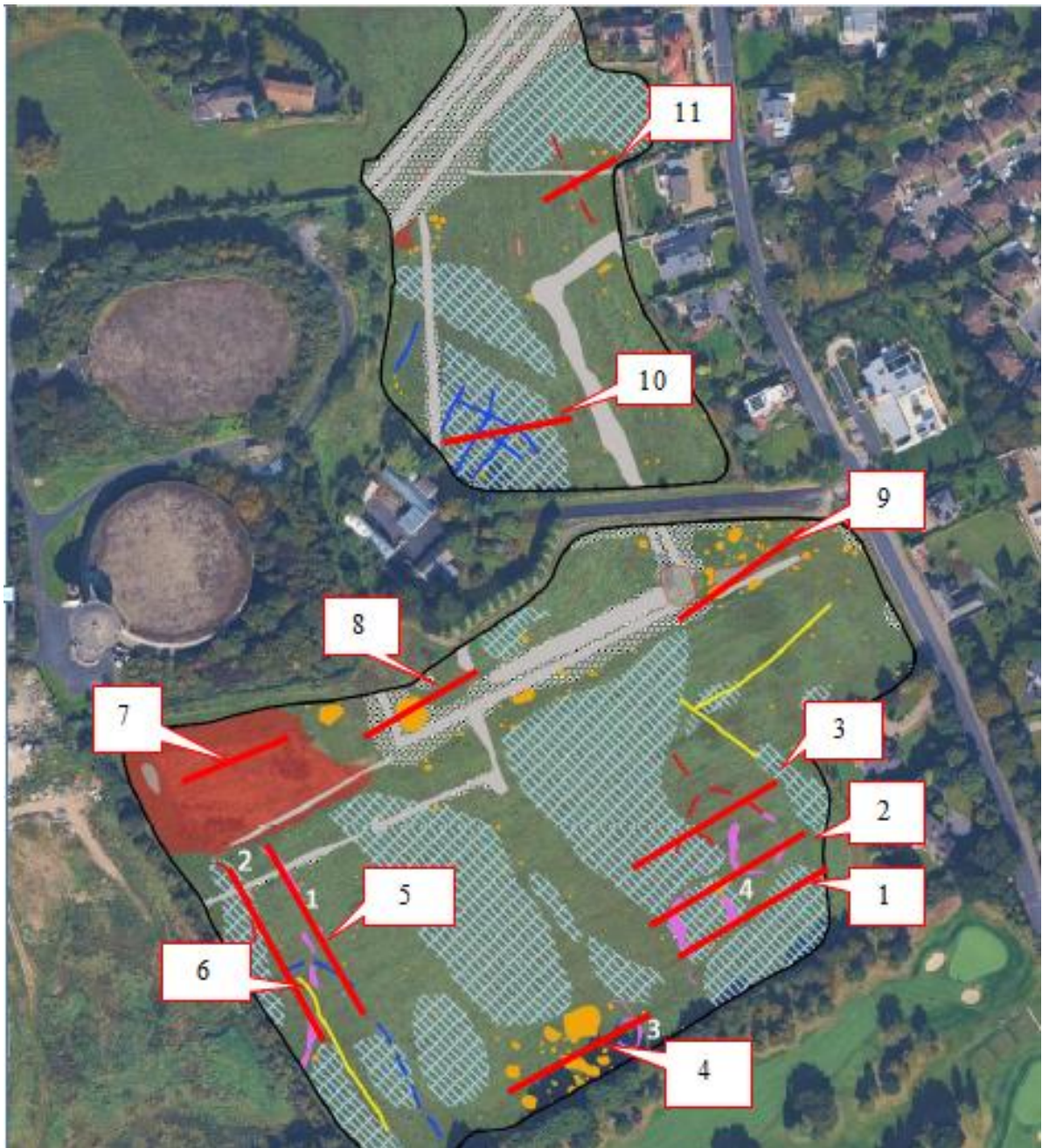


Fig. 15. 23: Layout excavation test trenches; numbers in white were identified in the geophysical survey as possibly archaeological in origin.

Methodology

The test trenches were excavated using a 1.2m wide, bladed bucket of a mechanical excavator. The ground level was reduced in 0.10m lenses until sterile levels were reached. The upcast from test trenching was examined for archaeological finds and none were recovered.

The stratigraphy

The underlying geology of the area is volcanic in origin and identified as basalt¹⁸. The bedrock is covered by a layer of boulder clay of glacial origin. The modern soil level (sod and topsoil) developed above the boulder clay.

Results

Trenches 1–3 were 100m in length and located within in the south-east area of the development (Fig. 15: 23) where anomalies were identified in the Geophysical Survey (see Appendix). Topsoil cover varied from 0.15–0.30m over boulder clay. The geophysical anomalies were represented as a cluster of strongly enhanced discontinuous arcs in the subsoil. The geophysical data interpretation suggested the possible footprint of two or possibly three circular enclosures, each measuring about 25m in diameter and several fainter anomalies representing associated features. The report also indicated that the anomalies may be due to the diffuse magnetic signature reflecting underlying igneous bedrock. Trenches 1–3 did not expose any archaeological features and the identification of anomalies as the result of diffuse magnetic signature reflecting underlying igneous bedrock is most likely correct.

Trench 4 was on the southern boundary of the development site, 100m long with topsoil cover of c. 0.40m (Fig. 15: 23). Geophysical survey data recorded ferrous-type responses which may indicate ferrous debris or weakly magnetised material or naturally-occurring volcanic stones/pebbles. Fractured basalt bedrock was exposed under the topsoil midway along the trench. The trench was sterile of archaeological remains.

Trenches 5–6 were on the western boundary of the development site (Fig. 15: 23). The geophysical survey identified two curving 'ditch-type' features; that on the east side was identified as c. 95m (N/S) in length and the inner feature towards the boundary ditch was c. 35m in length. The identification of these linear bands as of archaeological origin is described as tentative and an alternative explanation is given as reflecting igneous bedrock. Excavation of both trenches confirmed that there were no archaeological features and the origin of the anomalies is due to the subsurface basalt bedrock.

Trench 7 was 35m long and immediately south of the boundary with the reservoir (Fig. 15: 23). Geophysical survey data recorded an area of 'increased response' and suggested an area of probable disturbed ground. Topsoil cover was on average 0.20m deep and overlay modern fill comprising tarmacadam fragments and grit. The trench was in previously disturbed ground and sterile of archaeological remains.

Trench 8 was 35m long and topsoil was on average 0.20m deep (Fig. 15: 23). Geophysical survey data recorded a ferrous-type response which may indicate ferrous debris or weakly magnetised material or naturally-occurring volcanic stones/pebbles. The subsoil (boulder clay) included a basalt outcrop midway along the trench and fractured basaltic stones at the interface with boulder clay levels. The trench was sterile of archaeological remains.

Trench 9 was 100m long and topsoil cover was on average 0.35–0.40m deep (Fig. 15: 23). Geophysical survey data recorded ferrous-type responses which may indicate ferrous debris or weakly magnetised material or naturally-occurring volcanic stones/pebbles. The trench sloped upwards towards the west. The subsoil (boulder clay) included some fractured basaltic stones. A 4m wide (North-South) spread of heat-shattered stones in a matrix of charcoal-rich soil was recorded c. 0.40m below the surface (Figs 15: 24–25). This spread is archaeological in origin and the burnt spread is possibly part of a Fulacht Fia.

¹⁸ The bedrock is a mix of basalt, trachyte, syenite and tuffs



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Fig. 15.24 : Trench 9 (Looking West)



Fig. 15. 25 : Trench 9 – North-South Spread of burnt material

Trenches 10 and 11 were 80m in length (Fig. 15: 23) with topsoil cover c. 0.15–0.40m deep over boulder clay mixed with varying-sized basaltic stones. The geophysical survey recorded diffuse, positive and negative linear features which were interpreted as possible field drains at the location of Trench 10 and a positive trend and a ferrous-type response on the east side of the Trench 11. The trenches were sterile of archaeological remains.

15.5.10 Summary of Baseline Data

This report aims to identify and describe known and potential archaeological and cultural heritage constraints within the site and offer recommendations for the mitigation of such impacts. The following factors were identified in the course of archaeological assessment:

- The subject site is large in scale at c.12 hectares.
- There are no recorded monuments located within the site.
- No potential archaeological features were recorded within the subject site during analysis of historical mapping or aerial photography.
- There are two Protected Structures or entries on the NIAH within or in the immediate environs of the site.
- The subject site does not lie within an Architectural Conservation Area.
- Nothing of archaeological significance was noted during the walkover survey.
- The geophysical survey (25R0200) located a variety of magnetic anomalies; some were identified as potentially archaeological. Excavation of Trenches 1–8; 10–11 confirmed that there were no archaeological features and the origin of the anomalies is due to the subsurface basalt bedrock.
- Trenching was undertaken in October 2025. A 4m wide (North-South) spread of heat-shattered stones in a matrix of charcoal-rich soil was recorded c. 0.40m below the surface within Trench 9 on the east side of the development landbank (Figs 15: 24–25). This spread is archaeological in origin and the burnt spread is possibly part of a *Fulacht Fia*.

The above factors indicated that there is a moderate - high potential for the continued survival of additional buried archaeological sites or features within the site.

15.6 Do Nothing Scenario

If the proposed development were not undertaken, any potential buried archaeological features within the subject site would be preserved in-situ beneath the existing ground surface. The site is however zoned for housing and planning for this will be progressed.

15.7 Difficulties Encountered

No difficulties were encountered during field inspection, geophysical survey and test trenching.

15.8.1 Consultation

Consultation with the National Monument Service was undertaken in September 2025 when a Licence Application was submitted requesting permission to conduct archaeological test trenching on the development landbank. This was followed by a reply from the National Monument Service in mid-October 2025, granting permission to conduct the assessment under Licence No 23E0954.

15.9 Impact Assessment

15.9.1 Construction Phase

The characterisation of potential impacts is based on the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

Buried archaeology has been identified on the east of the site in the form of a spread of burnt stone in a matrix

of charcoal-enriched soil. This is archaeological in origin and probably part of a *Fulacht Fia*. *Fulachta fia* are one of the most frequent monuments in Ireland and are commonly interpreted as ancient cooking-sites, which usually survive as small horseshoe-shaped mounds of charcoal-enriched soil packed with fragments of heat-shattered stones. They are usually located close to a water source. The cooking was within a rectangular pit, lined with wooden planks, wicker or stone slabs to form a trough which was filled with water. The water was probably boiled using hot stones taken from a nearby fire, which resulted in the heat-shattered stones being discarded to one side when the cooking was complete (O'Kelly 1954). The majority of available radiocarbon dates place these monuments in the Bronze Age (2300–800 BC). There are seven *Fulachta Fia* (LI-005-073; 006-088; LI005-088-008 and 010; LI 006-087, 096 and 097) in the environs of the development.

Should development proceed, there are significant direct impacts on this site during the construction phase of the proposed development. The greatest threat to these buried archaeological sites would occur during large-scale removal of topsoil during the initial construction phase groundworks and associated construction traffic. It is concluded that, in the absence of the mitigation measures described below, significant impacts on the known buried archaeological remains at the site would be direct, negative and permanent. The Frameworks and Principles for the Protection of Archaeological Heritage, Department of Arts, Heritage, Gaeltacht and the Islands (1999) states that avoidance of developmental impacts on archaeological heritage and preservation *in situ* of archaeological sites and monuments are always the preferred option. When a site, or part of a site, must be removed due to development, then preservation by record must be undertaken (i.e. through licensed excavation and recording). It may be possible to avoid the site of the *Fulacht Fia*, dependant on the location of deep excavation for construction.

There may also be other archaeological features on the site which were not detected by geophysical survey or test trenching. Archaeological features may be uncovered during the groundworks stage (topsoil stripping) and detected during archaeological monitoring. Any potential archaeological feature can be investigated and resolved during the construction stage.

15.9.2 Operational Phase

No potential negative effects are identified at the operational phase. It is anticipated that issues of archaeological and cultural heritage interest will have been resolved prior to or during the construction phase.

15.10 Mitigation Measures

Mitigation measures shall be undertaken as directed by the DHLGH in compliance with national policy guidelines and statutory provisions for the protection of archaeology and cultural heritage.

There were no visible archaeological features on the ground. The archaeological record including available aerial photographic coverage does not include any known archaeological sites or sites with a low surface expression. The geophysical survey detected a number of sub-surface anomalies which were largely caused by igneous bedrock. Test trenching in areas where anomalies were recorded indicated that the variations in the recorded geophysical data confirmed the anomalies were most-likely due to igneous bedrock and this interpretation was presented in the geophysical assessment. It was also noted in the geophysical survey report that large-scale, high intensity bipolar magnetic responses and multiple pit-type' and other discrete anomalies may mask any weaker anomalies of archaeological origin. It is therefore possible that unrecorded sub-surface archaeological deposits exist within the development landbank, albeit none were detected within the footprint of the test trenches (Trenches 1–8; 10–11). There is also a substantial landbank where test trenching was not undertaken and where archaeological deposits/features may not have registered in the geophysical survey data as they be masked by strong igneous responses.

Excavation of Trench 9 exposed a 4m wide spread of heat-shattered stones in a matrix of charcoal-rich c. 0.40m below the surface in Trench 9. The morphology of the spread suggests it was part of a Bronze Age *Fulacht Fia*. Mitigation measures to be considered are preservation *in situ* or further archaeological excavation and preservation by record. If the site is to be left *in situ*, a buffer/exclusion zone for construction of c. 20m should be created around the site.

All ground disturbance works across the remainder of the development site will be monitored by a suitably qualified archaeologist. In the event that archaeological material is recorded during monitoring, further

discussion/consultation with the DHLGH will be sought in order to ascertain the appropriate treatment (i.e. preservation by record/preservation *in situ*) of any additional archaeological remains.

15.11 Residual Impact Assessment

It is not anticipated that there will be any residual impacts with the appropriate mitigation measures in place. Potential residual impacts may arise should archaeological sites or features be recorded during monitoring of groundworks as per the Recommended Construction Phase Mitigation measures as outlined above. In this instance, further discussion/consultation with the DHLGH would be sought to ascertain the appropriate treatment (i.e. preservation by record/preservation *in situ*) of any additional archaeological remains.

15.12 Residual Impact Assessment

Should archaeological material be recorded in the course of monitoring, this may necessitate areas being left open to the elements for a period in order to facilitate consultation with DHLGH, processing of licences and/or full excavation/preservation-by-record of archaeological features. Consequently, in this scenario, there could be slight, short-term and negative effects on land and soils. These would be confined in extent to the putative new archaeological area.

15.13 Monitoring

It is anticipated that monitoring of topsoil stripping for the proposed development will be undertaken at construction Phase. This will be undertaken under licence to the DHLGH and be subject to a licence application process and reporting requirement to the DHLGH.

15.14 Worst Case Scenario

Should the development proceed without appropriate mitigation measures, archaeological remains would be removed without preservation by record.

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Limerick City and County Council Development Plan 2021-2027



ENVIRONMENTAL IMPACT ASSESSMENT REPORT

CHAPTER 16: INTERACTIONS OF THE FOREGOING

**PROPOSED LARGE-SCALE RESIDENTIAL
DEVELOPMENT ON LANDS AT MONALEEN ROAD,
CASTLETROY, LIMERICK**

FEBRUARY 2026



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16 INTERACTIONS OF THE FOREGOING

16.1 Introduction

Each chapter of the EIAR evaluates the construction, operational, and cumulative effects of the proposed development. This chapter focuses on identifying interactions that may be considered significantly impactful.

As a requirement of Planning Regulations and the Environmental Protection Agency's 'Guidelines on information to be contained in Environmental Impact Assessment Reports', interrelationships between various environmental aspects must be considered when assessing the impact of the Proposed Development, as well as individual significant impacts.

The significant impacts of the Proposed Development and the proposed mitigation measures have been detailed in the relevant chapters of this report. However, as with all developments that pose potential environmental impacts, there also exists potential for interactions/interrelationships between the impacts of different environmental aspects.

The results may exacerbate or ameliorate the magnitude of impacts. This chapter of the EIAR addresses the interactions between the various environmental factors of the Proposed Development.

The following Section is directed by Article 3 section 1(e) of the EIA Directive. Article 3 of the Directive states:

1. *The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*
 - a) *population and human health;*
 - b) *biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
 - c) *land, soil, water, air and climate;*
 - d) *material assets, cultural heritage and the landscape;*
 - e) *the interaction between the factors referred to in points (a) to (d).*

This chapter has been prepared by Ronan Woods, EIAR Manager, with assistance from Niall Carr, EIAR Co-ordinator at Genesis Planning. Ronan has 24 years professional experience of town planning in Ireland, is a Corporate Member of both the Irish Planning Institute and the RTPI. Niall has 4 years professional experience in the planning field, has a MSc in Planning, Regeneration and Development and is also a corporate member of the RTPI.

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16.2 Population and Human Health

Summary: Chapter 4 of this EIA, Population and Human Health, details the direct and indirect effects of the proposed development on Population and Human Health; and sets out any required mitigation measures where appropriate.

The proposed development has the potential to cause dust nuisances during the construction phase as well as noise and vibrations from plant machinery and traffic. No adverse effects are anticipated at operation stage.

Construction phase

Potential interactions include:

- **Landscape & Visual:** The impact on human beings primarily involves effects on dwellings. The visual changes caused by the development's construction could influence people's health and well-being.
- **Material Assets - Built Services:** Connecting to existing services might necessitate temporary disruptions to local services.
- **Material Assets - Waste:** Improper waste management during construction could lead to littering and attract vermin, potentially harming human health and affecting residential amenities.
- **Material Assets - Traffic and Transport:** The movement of construction traffic on-site may pose safety risks to road users.
- **Noise & Vibration:** Noise generated during construction could negatively affect human health.
- **Air Quality:** Dust from construction activities could pose health risks.

Operational phase

Potential interactions include:

- **Landscape & Visual:** The impact on human beings primarily concerns effects on residential properties. The visual changes brought about by the development could influence individuals' health and well-being.
- **Material Assets - Waste:** Poor waste management during this phase could lead to littering and attract vermin, potentially harming human health and disrupting residential amenities.
- **Material Assets - Traffic and Transport:** Vehicle movement on-site could pose safety risks to pedestrians and cyclists.
- **Noise & Vibration:** Operational noise may affect human health.
- **Air Quality:** Emissions from vehicles could reduce air quality, potentially impacting health.

Potential significant health impacts from these interactions have been evaluated within the relevant disciplines, with mitigation measures proposed where necessary. With these measures implemented, no substantial permanent negative impacts are expected.

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16.3 Noise and Vibration

Summary: Chapter 12 of this EIAR, Noise and Vibration, provides a description and assessment of the likely impact of the proposed activities from noise, and sets out appropriate mitigation measures where necessary.

The construction phase of the proposed development can potentially give rise to temporary to short term noise and vibration associated with the operation of on-site machinery will be intermittent and will not create any major negative impacts beyond the Site boundary. This increased noise and vibration will not have an adverse effect on biodiversity during the construction phase of the proposed development.

Increased traffic as a result the proposed development will have no significant impact in the local network and therefore no unacceptable noise impacts during both the construction and operational phase of the proposed development.

Construction Phase

Potential interactions include:

- **Population & Human Health:** There is potential for impact on human health associated with noise generated during the construction phase.
- **Traffic & Transport:** Construction traffic may give rise to localised noise and vibration effects.

Operation Phase

Potential interactions include:

- **Traffic & Transport:** The projected increase in operational traffic may give rise to increased noise levels and vibration effects.

The potential significant impacts on noise and vibration arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

The above-listed interactions have been addressed comprehensively in this Environmental Impact Assessment Report. No significant impacts are predicted in relation to any of these interactions.

The potential significant impacts on noise and vibration arising from these interactions have been assessed, and mitigation measures have been proposed where necessary. With these measures in place, no significant permanent residual negative impacts are anticipated from these interactions.

16.4 Biodiversity

Summary: Chapter 11 of this EIAR, Biodiversity, details the direct and indirect effects of the proposed development on the local flora and fauna; and sets out any required mitigation measures where appropriate.

Construction Phase

There is potential impact on receiving waterbodies, ecology and biodiversity in the vicinity of the site during the construction phase of the proposed development.

Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the proposed development will ensure that dust generation is minimised and the effect on biodiversity will be short term, imperceptible and neutral.

Operational Phase

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface waters. In this instance the surface water system discharges into the ground and the stormwater sewer which ultimately discharges into the watercourse bounding the northern extent of the residential development.

The design of sustainable urban drainage systems, along with the water treatment process in the Uisce Eireann Treatment Plant this will result in no potential for impact on biodiversity downstream. The impact upon biodiversity from hydrological impacts would be long-term and neutral.

Taking into account the design and mitigation measures set out in Chapter 11 of this EIA Report, the interaction between Hydrology, and Biodiversity during the operational phase is considered to be neutral, and long term.

The potential significant impacts on biodiversity from these interactions have been assessed, and mitigation measures have been outlined where necessary. With these mitigation measures in place, no significant permanent residual negative impacts are expected from these interactions.

16.5 Land and Soils

Summary: Chapter 9 of this EIA Report, Land and Soil, details the direct and indirect effects of the proposed development on the local land, soils, and geology; and sets out any required mitigation measures where appropriate.

Construction Phase

The following interactions with land and soils may result in significant effects in the absence of mitigation:

- **Water & Hydrology:** Site preparation activities, such as clearance and re-profiling, could affect local hydrology and hydrogeology by increasing the risk of suspended solids being carried into surface water runoff or through accidental spills.
- **Biodiversity:** Land clearance and site preparation could disturb or remove habitats, impacting local wildlife and biodiversity.
- **Traffic & Transport:** Construction activities will generate traffic, which could have associated effects on land and soil disturbance.
- **Air Quality:** Dust generated from earthworks and site preparation may affect air quality.

Operational phase

The following interaction may arise:

- **Water & Hydrology:** The conversion of soil to hard surfaces (e.g., roads, buildings) will increase water runoff, potentially altering the local hydrological conditions.

The potential impacts on land and soils from these interactions have been evaluated, and where necessary, mitigation measures have been identified. With these measures in place, no significant long-term residual negative effects are expected from these interactions.

16.6 Water and Hydrology

Summary: Chapter 10 of this EIAR, Hydrology and Hydrogeology, provides an assessment of the potential impacts of the Proposed Development on hydrology, water and hydrogeology and sets out any required mitigation measures where appropriate. There is a potential risk of adverse impacts in the form of pollution for Biodiversity and Land, Soil and Geology.

Construction phase

The following interactions with water and hydrology may result in significant effects in the absence of mitigation:

- **Material Assets - Built Services:** The construction of essential services (such as water supply, drainage) could affect the local hydrological and hydrogeological environment, with a potential risk of suspended solids being carried into runoff.
- **Land & Soils:** Site preparation activities, including site clearance and re-profiling, may disturb the soil and hydrological balance, potentially causing suspended solids to enter surface water runoff or leading to accidental spills that impact water quality.
- **Biodiversity:** Negative changes to water quality due to runoff or contamination could harm local biodiversity, as water quality is crucial for the survival of species in the area.

Operational phase

The following interactions may arise:

- **Material Assets - Built Services:** The operational phase will increase the demand for potable water and place additional stress on the municipal drainage system.

The potential significant impacts on water and hydrology from these interactions have been assessed, and mitigation measures have been outlined where necessary. With these mitigation measures in place, no significant permanent residual negative impacts are expected from these interactions.

16.7 Air Quality

Summary: Chapter 13 of this EIAR, Air Quality, provides an assessment of the potential impacts of the proposed development on ambient air quality.

Construction phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils.

As set out in Chapter 9 (Land and Soils) dust generation can occur during extended dry weather periods as a result of construction traffic. Dust suppression measures (e.g. dampening down) will be implemented as

necessary during dry periods and vehicle wheel washes will be installed, for example. The works involve excavations and will generate dust and potentially impact on the air quality in the locality. However, the generation of dust will be temporary during construction phase and is not anticipated to have a significant impact on biodiversity.

The impact of the interactions between land, climate, soils and geology, biodiversity and air quality are considered to be short-term, imperceptible and neutral in terms of impact and interactions.

Operational phase

The greatest potential effect on air quality during the Operational Phase of the Proposed Development is from traffic-related air emissions. However, these are not expected to have a significant impact as the operational phase impacts on Air Quality are considered to be neutral and non-significant.

No other significant interactions with air quality have been identified.

16.8 Climate

Summary: Climate has the potential to interact with a number of other environmental attributes. The impacts of flood risk, temperature changes and major storm damage have been assessed and the surface water drainage network will be designed to cater for run-off from the building and the surrounding hardscaped areas in accordance with, at minimum, 1 in 100-year event plus 30% climate change allowance.

Construction phase

Interactions across many areas can be used to minimise the GHG emissions from both the construction and operational and operational phases. For instance, waste management measures will be put in place to minimise the amount of waste entering landfill, which has higher associated embodied carbon emissions than other waste management such as recycling or incineration. Detailed design can ensure that the impact due to embodied carbon are minimised and also take into account energy efficiency measures to reduce operational carbon emissions.

Operational phase

The risk to dwelling and apartment building design in terms of material vulnerability to climate change, specifically extreme heat and cold, has been considered. These aspects of climate interacts with drainage design, landscaping and building design.

The potential significant impacts on climate arising from these interactions have been reviewed in the relevant disciplines, and appropriate mitigation measures have been outlined.

With these measures in place, no significant permanent residual negative impacts are expected in terms of interactions.

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16.9 Material Assets: Traffic & Transport

Construction phase

Potential interactions include:

- **Noise & Vibration:** An expected increase in heavy vehicle traffic along the designated construction haul route could lead to a slight rise in noise and vibration levels.
- **Air Quality:** Prolonged dry conditions may cause dust generation due to construction traffic. Additionally, vehicle emissions during construction could affect local air quality and contribute to increased greenhouse gas emissions, impacting the climate.

Operational phase

Potential interactions include:

- **Noise & Vibration:** Increased vehicle traffic during operation may slightly elevate noise levels, particularly during peak travel times.
- **Air Quality:** A moderate rise in vehicle emissions is anticipated due to higher traffic volumes on nearby roads. Emissions from vehicles associated with future site occupants could affect local air quality and contribute to greenhouse gas emissions, influencing the climate.

The potential effects during the construction phase are expected to be temporary and minor. Appropriate mitigation measures have been identified. With these measures in place, no substantial permanent residual negative impacts are anticipated in terms of interactions.

16.10 Services

Construction Phase

Potential Interactions include:

- **Population & Human Health:** Temporary disruptions to local utilities may occur during the process of connecting new services to existing networks.
- **Land and Soils:** Installing infrastructure such as water supply, drainage systems, power lines, and telecommunications may disturb the surrounding hydrological and hydrogeological environment, with a potential risk of sediment runoff.

Operational Phase

Potential Interactions include:

- **Water & Hydrology:** The proposed development will increase the demand for potable water resources.
- **Climate:** Built services interact with climate through their reliance on energy sources. The use of non-greenhouse gas-emitting energy systems will play a role in reducing climate-related impacts.

Any potential significant effects related to built services have been examined in the appropriate sections, and mitigation measures have been proposed where necessary. With these strategies in place, no lasting negative impacts are expected in terms of interactions.

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16.11 Material Assets: Waste

Construction Phase

During the construction phase the following interactions with potential impacts may arise, in the absence of mitigation:

- Land & Soils: Excavation work will generate soil and stone, which is necessary for site levelling, foundation construction, and the installation of site services.
- Traffic & Transport: The movement of excavated material will result in an increase in construction-related traffic, though this will be temporary.
- Population & Human Health: Improper waste management could lead to littering and vermin presence, potentially impacting human health and residential amenity.
- Climate: Efforts will be made to minimize waste sent to landfills, as landfills have higher embodied carbon emissions compared to alternative waste management methods, such as recycling.

Operational Phase

During the operational phase the following interactions may lead to likely significant effects, in the absence of mitigation:

- Traffic & Transport: Waste collection activities will increase vehicle movements, but these will be minimal in the context of overall traffic and transport growth.
- Population & Human Health: As with the construction phase, incorrect waste management could result in littering and vermin, potentially affecting human health and residential amenity.
- Climate: Measures will be taken to minimize the amount of waste directed to landfills, in favor of recycling, to reduce the higher embodied carbon emissions associated with landfill disposal.

The potential impacts related to waste management during both phases have been assessed, and where necessary, mitigation strategies have been proposed. With these measures in place, no significant long-term negative impacts are anticipated in terms of interactions.

16.12 Cultural Heritage

Mitigation measures shall be undertaken as directed by the DHLGH in compliance with national policy guidelines and statutory provisions for the protection of archaeology and cultural heritage.

No significant interactions with Archaeology are envisioned as the mitigation measures proposed are incorporated into the design and construction of the proposed development wherein it is recommended that all ground disturbance works across the remainder of the development site will be monitored by a suitably qualified archaeologist.

16.13 Landscape & Visual Impact Assessment

Construction phase

Potential interactions include:

- Population & Human Health: The appearance of machinery and unattractive structures needed for the development may create visual impacts that could affect the health and well-being of nearby residents.
- Land and Soils: Landscaping could be influenced by the reuse of fill material and the suitability of available soils during construction.

Operational phase

Potential interactions include:

- Population & Human Health: The visual and landscape effects primarily concern impacts on residential properties. The development's visual changes could influence the health and well-being of surrounding residents.
- Biodiversity: The proposed development is expected to have a positive long-term impact on tree cover. The landscaping plan also plays a significant role in supporting biodiversity through its planting strategy.

The landscape and visual impact of the proposed development can be related to cultural heritage, human beings, material assets and ecology.

All designated monuments, heritage sites or tourist attractions are distant enough from the project site to not be subject to any significant changes to their setting or amenity. No interactions are anticipated.

16.14 Conclusion

As detailed above the proposed development has the potential to impact various environmental aspects, with interactions and interrelationships between these factors considered.

The Environmental Impact Assessment Report (EIAR) has thoroughly examined these interactions throughout the evaluation process. This includes designing and laying out development to avoid impacts wherever possible, and selecting suitable mitigation strategies to minimize these impacts.



ENVIRONMENTAL IMPACT ASSESSMENT REPORT

CHAPTER 17: SUMMARY OF MITIGATION

**PROPOSED LARGE-SCALE RESIDENTIAL
DEVELOPMENT ON LANDS AT MONALEEN ROAD,
CASTLETROY, LIMERICK**

FEBRUARY 2026



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17 SUMMARY OF MITIGATION MEASURES

This chapter of the Environmental Impact Assessment Report (EIAR) summarises the proposed mitigation measures set out in Chapter 4 to Chapter 15 inclusive. These mitigation measures and any associated monitoring comprise what would be implemented during the Construction and Operational Phase to reduce the potential for significant adverse impact of the proposed development on the environment.

This chapter does not expand on the reasoning or expected effectiveness of the proposed mitigation or monitoring measures. For such descriptions, we refer to each of the individual chapters of the EIAR. A number of the recommended mitigation measures would be expected to be required as a condition of any grant of permission by Limerick City & County Council.

EIAR Chapter	Design Stage Mitigation
Chapter 4 Population & Human Health	Appointment of a project supervisor for the design process (PSDP) to oversee and coordinate the design work including: <ul style="list-style-type: none"> - Identification of hazards and managing the project to avoid adverse impacts on the recipient environment. - Adherence to best practice in the Construction Management Plan. - Ensure all work is carried out in a safe manner for surveys and site inspection - Design to achieve compliance with Building Regulations.
Chapter 5 Landscape & Visual	<ul style="list-style-type: none"> -Designing each building including apartments, duplex and dwellings in addition to the overall site layout to achieve integration with the wider Castletroy setting. -Interaction with the wider Castletroy and retention of boundaries where possible. -Incorporating new planting to provide high quality visual environment and enhancement of biodiversity.
Chapter 6 Material Assets: Traffic & Transport	<ul style="list-style-type: none"> -Provision of bicycle parking for active travel. -Extension and utilization of connections to existing footpaths that serve the Castletroy region. -Extension of existing access road to DMURS requirements. -Designing the entrances to DMURS requirements. -Utilising the existing Monaleen and Dublin road for pedestrian, cyclist and vehicular connectivity. -Providing an appropriate quantum of parking. -A Quality Audit also carried out.
Chapter 7 Material Assets: Built Services	<ul style="list-style-type: none"> -Designing the infrastructure and service connections to meet standards for water, foul, storm, ESB, gas and telecommunications.
Chapter 8 Material Assets: Waste	<ul style="list-style-type: none"> -Incorporating best practice for the 'Waste Hierarchy' and 'Circular Economy' is employed when considering all stages of waste production (both design, construction and operational phases).
Chapter 9 Land & Soils	<ul style="list-style-type: none"> -The CEMP Design and specification of earthworks to accommodate reuse of excavated subsoils including any testing regimes required during excavation and compaction. This will be informed by a cut and fill calculation on materials required to achieve finished ground levels. -The preparation of a siteworks specification which will outline the construction controls required during earthworks to minimise impacts on surrounding

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environment via noise, dust, vibration and construction traffic.

EIAR Chapter	Design Stage Mitigation
Chapter 10 Water & Hydrology	<p>Ground Water</p> <p>All foul and storm drainage lines will be designed in accordance with the Irish Water Code of Practice and requirements of Limerick City & County Council to ensure it operates appropriately and does not contribute to ground water contamination.</p> <p>-Connection made to the Irish Water foul mains network to ensure no risk of contamination of surrounding ground water.</p> <p>Surface Water</p> <p>-The surface water system is designed to be fully separate from the foul drainage system.</p> <p>-The surface water system is designed in accordance with Limerick City and County Council Surface Water/SuDs Specification 2022. and the Ciria SuDS manual. This will provide controls on flow rates during heavy rainfall events and water treatment processes to improve the quality of the runoff prior to discharge to water course.</p> <p>-All systems are designed to limit flooding to 100-year events and allow for 30% HEFS increase in rainfall due to climate change.</p> <p>Flooding</p> <p>The design of the surface water system and provision of adequate attenuation including allowance of 30% for climate change (HEFS), will prevent on site pluvial flooding. The correct design of flow control devices will prevent the site from contributing to downstream pluvial flooding.</p>
Chapter 11 Biodiversity	<p>-Drainage infrastructure designed to minimize pollution risk. Also retention of existing vegetation to the fullest practical extent.</p>
Chapter 12 Noise & Vibration	<p>- Noise emissions from the internal plant room and outdoor plant areas will be designed to ensure that noise levels at the façade of the noise-sensitive locations both within the development and in the surrounding area do not exceed the criteria discussed at Section 12.5.1.</p> <p>During the detailed design of the development, the selection and location of mechanical and electrical plant will be undertaken in order to ensure the noise emission limits set out above are not exceeded.</p>
Chapter 13 Air Quality	<p>-There are no mitigation measures proposed for the design of the proposed development.</p>
Chapter 14 Climate	<p>-To achieved compliance with requirements of the Near Zero Energy Building (NZEB) standards.</p> <p>-Incorporating provision for EV vehicle charging infrastructure.</p> <p>-Connecting to the existing footpath network for local sustainable journeys.</p>
Chapter 15 Cultural Heritage: Archaeology & Built Heritage	<p>All ground disturbance works across the development site will be monitored by a suitably qualified archaeologist.</p>

Table 17.1 Summary of Mitigation for Design Stage

EIAR Chapter	Construction Stage Mitigation
<p>Chapter 4 Population & Human Health</p>	<p>Appointment of a project supervisor for the design process (PSDP) to oversee and coordinate the design work including:</p> <ul style="list-style-type: none"> - Identification of hazards; - Elimination and / or reduction of hazards where possible; - Communication of necessary control measures and remaining risks to PSCS for addressal in safety and health plans; - Ensure that the work of designers is coordinated to ensure safety; and - Ensure compliance with Building Regulations.
<p>Chapter 5 Landscape & Visual</p>	<p>Orientation of buildings and spaces to achieve good wayfinding, permeability, access, aspect and microclimate, and coherence with the wider Castletroy setting.</p> <ul style="list-style-type: none"> ▪ Positive relationship of buildings, parking and open spaces areas to boundaries and streetscapes. ▪ Use of trees and design elements to enhance the usability of open spaces and mitigate wind. ▪ Introduction of vegetation and management of the landscape to provide high quality visual environment and enhancement of biodiversity. ▪ Sustainable management of water and enhancement of biodiversity.
<p>Chapter 6 Material Assets: Traffic & Transport</p>	<p>The proposed development incorporates secure bicycle parking facilities to encourage active travel modes for residents and visitors to the site. The location of bicycle storage areas has been selected to ensure convenience and accessibility to apartment entrances, in secure and well-lit areas.</p> <ul style="list-style-type: none"> ▪ As per section 4.4.4 and 4.4.5 of the Design Manual for Urban Roads and Streets, a Stopping Sight Distance of 45m is required on roads with a 50kph speed limit. The access proposed as part of this development shall meet the expectations of DMURS. The location of new trees, including the provision of a pedestrian footpath, grass verge, and straight road alignment, shall support good visibility. ▪ The traffic modelling analysis undertaken has shown that the proposed development will have an imperceptible effect on the surrounding road network. ▪ A Quality Audit accompanies the application and the recommendations will be implemented to ensure the road layout is safe for all users.
<p>Chapter 7 Material Assets: Built Services</p>	<p>The design has been prepared based on relevant codes of practice, design guidance and in consultation with relevant local and statutory authorities to ensure best practice design in respect of water supply, foul and surface water drainage, gas supply, electrical network and the telecommunication network.</p>

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EIAR Chapter	Construction Stage Mitigation
<p>Chapter 8 Material Assets: Waste</p>	<p>The concept of the 'Waste Hierarchy' and 'Circular Economy' is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The circular economy principle aims to keep materials, components, and products in-use in the economy for as long as possible. In circularity, the key objective is to design consumption and production systems to create and retain value. Both principles have been applied and will further be applied during the detailed design, construction and operational phases.</p>
<p>Chapter 9 Land & Soils</p>	<p>Design and specification of earthworks to accommodate reuse of all excavated subsoils including any testing regimes required during excavation and compaction.</p> <ul style="list-style-type: none"> ▪ A detailed cut and fill exercise (in addition to the cut and fill report which accompanies the application documentation) will be carried out across the development to determine the optimum finish floor levels of the unit to balance the volume of cut require with the volume of fill required. ▪ Preparation of an earthworks specification which will outline the construction controls required during earthworks to minimise impacts on surrounding environment via noise, dust, vibration and construction traffic
<p>Chapter 10 Water & Hydrology</p>	<p>Ground Water:</p> <ul style="list-style-type: none"> ▪ The water supply network is designed in accordance with Irish Water Code of Practice and details the sufficient capacity and onsite storage to accommodate the proposed development at low service pressures. ▪ The fitout design will include for the correct storage of hazardous materials if present including bunds to contain spills or leakage. ▪ All foul drainage lines will be designed in accordance with the Irish Water Code of Practice and requirements of Limerick City & County Council to ensure it operates appropriately and does not contribute to ground water contamination. ▪ The existing water treatment plant west of the site are in operation and were previously designed in accordance with best practice. <p>Surface Water:</p> <ul style="list-style-type: none"> ▪ The surface water system is designed to be fully separate from the foul drainage system. ▪ The surface water system is designed in accordance with Limerick City and County Council Surface Water/SuDs Specification 2022 and the SuDS manual. ▪ All systems are designed to limit flooding to 100-year events and allow for 30% increase in rainfall due to climate change. <p>Flooding:</p> <p>The design of the surface water system and provision of adequate attenuation including allowance of 30% for climate change (HEFS), will prevent on site pluvial flooding. The correct design of flow control devices will prevent the site form contributing to downstream pluvial flooding.</p>

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EIA Chapter	Construction Stage Mitigation
Chapter 11 Biodiversity	A project ecologist will be appointed to oversee all works.
Chapter 12 Noise & Vibration	<ul style="list-style-type: none"> • Selection of quiet plant; • Noise control at source; • Screening, • Hours of work; and; • Liaison with the public.
Chapter 13 Air Quality	<p>The key features with respect to control of dust will be:</p> <ul style="list-style-type: none"> • The specification of a site policy on dust and the identification of the site management responsibilities for dust issues; • The development of a documented system for managing site practices with regard to dust control; • The development of a means by which the performance of the dust minimisation plan can be regularly monitored and assessed; and <p>The specification of effective measures to deal with any complaints received.</p>
Chapter 14 Climate	<ul style="list-style-type: none"> • Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled. • Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. • Ensure all plant and machinery are well maintained and inspected regularly. • Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. • Sourcing materials locally where possible to reduce transport related CO₂ emissions. • Target embodied carbon rates for detailed design (LETI, 2020):
Chapter 15 Cultural Heritage: Archaeology & Built Heritage	All ground disturbance works across the development site will be monitored by a suitably qualified archaeologist.

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Table 17.2 Summary of Mitigation for Construction Stage

EIAR Chapter	Operation Stage Mitigation
Chapter 4 Population & Human Health	No operational stage mitigation measures are proposed.
Chapter 5 Landscape & Visual	Standard maintenance and management of landscaped areas.
Chapter 6 Material Assets: Traffic & Transport	No operational stage mitigation measures are proposed.
Chapter 7 Material Assets: Built Services	The design has been prepared based on relevant codes of practice, design guidance and in consultation with relevant local and statutory authorities to ensure best practice design in respect of water supply, foul and surface water drainage, gas supply, electrical network and the telecommunication network.
Chapter 8 Material Assets: Waste	<p>The Management Company for the residential development will ensure that all household and communal waste materials are stored in designated bins, refuse stores or other suitable receptacles located in clearly identified, easily accessible areas throughout the development.</p> <p>All waste materials will be segregated into appropriate categories (e.g., general waste, recyclables, organic waste, bulky waste) and will be temporarily stored in appropriate bins, communal storage rooms, or other suitable receptacles in designated, easily accessible locations serving the apartments, houses and duplexes.</p> <p>The Management Company will ensure that all waste collected within the residential development is reused, recycled or recovered where possible, except for waste streams for which appropriate recycling or recovery facilities are not currently available.</p> <p>The Management Company will ensure that all waste leaving the development is collected and transported by suitably permitted and authorised waste contractors and taken to registered, permitted or licensed waste management facilities.</p>
Chapter 9 Land & Soils	<p>Any waste(s) to be stored in accordance with best practice and in designated areas.</p> <p>Monitoring and inspection of the drainage network, with periodic desilting of the drainage network to remove sediment and no blockages arise.</p>
Chapter 10 Water & Hydrology	<p>Ground Water</p> <p>Monitoring and inspection of the drainage network, with periodic desilting of the drainage network to remove sediment and no blockages arise.</p> <p>The design will include for the correct storage of hazardous materials if present including bunds to contain spills or leakage.</p> <p>Surface Water</p> <p>The surface water system is designed to be fully separate from the foul drainage system.</p> <p>Monitoring and inspection of the drainage network, with periodic desilting of the drainage network to remove sediment and no blockages arise.</p> <p>Flooding</p> <p>Monitoring and inspection of the drainage network, with periodic desilting of the drainage network to remove sediment and no blockages arise.</p>

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EIAR Chapter	Operation Stage Mitigation
Chapter 11 Biodiversity	Post construction inspection by the appointed ecologist to ensure no pollution risk from the development when construction works are complete.
Chapter 12 Noise & Vibration	The selection of building services plant, which will be carried out at detailed design stage, shall be in accordance with the relevant criteria so that noise limits from the site do not exceed anticipated or acceptable noise limits set out in chapter 12 of the EIAR.
Chapter 13 Air Quality	There are no mitigation measures proposed for the operational phase of the proposed development.
Chapter 14 Climate	The accompanying Energy report by IN2 sets out mitigation measures incorporated into the design and reduce the impact to climate (and climate change) are the targets for the building energy rating, the energy performance targets for the warehouse and office spaces.
Chapter 15 Cultural Heritage: Archaeology & Built Heritage	No mitigation measures are required or proposed at operational stage.

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Table 17.3 Summary of Mitigation for Operational Stage