

SECTION 10: Archaeology, Architectural and Cultural Heritage

10.1 Introduction

This section presents the findings of an archaeological and cultural heritage impact assessment on the site of the Proposed Development of the Castletroy Wastewater Treatment Plant (WwTP) at Dromroe townland in Castletroy, Co. Limerick (ITM 560696, 658505;). The site measures 3.166 hectares and is located within a Conservation Area as marked on *Map 7.7.4 Castletroy* on the Limerick County Council Development Plan 2010–2016. The location of the site is located adjacent to the Lower River Shannon and within the floodplains associated with it. The river was an important waterway since antiquity.

The proposed works are within the existing Castletroy Wastewater Treatment Plant constructed in the early 1990s. The works will include the retention and upgrade of the existing infrastructure and the installation of a new rectangular stormwater storage tank and associated installations. A detailed project description can be found in Section 4 of this EIAR.

The site was not subject to archaeological assessment previously.

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Magda Lyne holds a master's degree in Archaeology from the University of Adam Mickiewicz in Poznan, Poland (NFQ Level 9) and is excavation licence eligible since 2019. She is a member of the Institute of Archaeologists of Ireland. She specialises in archaeological desktop assessments and environmental impact assessments and has over 12 years of post-graduation experience. Magda has worked in Poland, Ireland, Denmark and Norway. She excavated sites for her home university and then worked as a curator's assistant in the Archaeological Museum in Poznan. Her career in Ireland began in 2006 working on a variety of large-scale infrastructural projects (e.g. M3, N9/10, N18 and N22 road projects), as well as with the School of Archaeology in University College Dublin. Between 2011 and 2017 she worked as an archaeologist for governmental institutions in both Denmark and Norway, including works on behalf of the Museum of Copenhagen (Copenhagen Metro Project) and the Norwegian Institute for Cultural Heritage Research (Tonsberg). Magda has worked with ACSU since 2019.

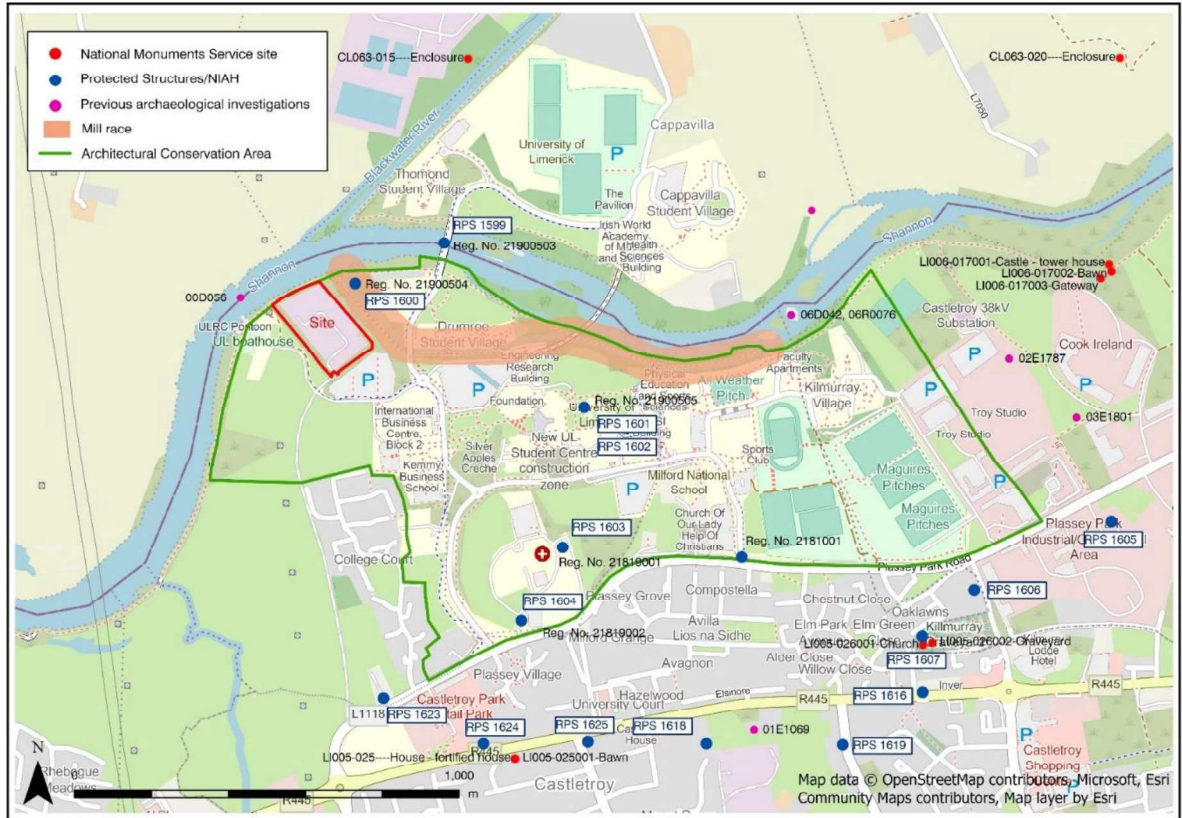


Figure 10-1: Location of the site in relation to Recorded Monuments; Protected Structures; NIAH structures; Architectural Conservation Area; Mill Race and previous excavations

10.2 Assessment Methodology

This assessment was carried out in line with the *Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports* (Environmental Protection Agency, 2017). Cultural heritage incorporates archaeology, architectural heritage, folklore and history. The EPA guidelines were consulted and publications by the Department of Housing, Local Government and Heritage (DHLGH), including the *Framework and Principles for the Protection of the Archaeological Heritage* (originally published by the Department of Arts, Heritage, the Gaeltacht and the Islands, 1999); the *Architectural Heritage Protection Guidelines for Planning Authorities* (originally published by the Department of Arts, Heritage, and the Gaeltacht, 2011) and the relevant *Advice Series* publications by DHLGH (originally published by the Department of Arts, Heritage and the Gaeltacht, 2015).

This impact assessment included a literature review, consultation of the Record of Monuments and Places (RMP), and Sites and Monuments Record (SMR), compiled and updated by the National Monuments Service, and the National Historic Properties Service of the Department of Culture, Heritage and the Gaeltacht. The RMP is comprised of manuals that list all known archaeological sites and monuments in a county, with accompanying maps (based on Ordnance Survey (OS) six-inch maps) locating these sites. All sites included in the RMP are protected under the National Monuments Acts (1930–2004). The SMR consists of all records stored in the Archaeological Survey of Ireland national database and is presented in the Historic Environment Viewer, which also includes sites listed in the National Inventory of Architectural

Heritage. The last published RMP for County Limerick is dated 1997, and as such many of the sites listed in the SMR are scheduled for inclusion in the next revision of the RMP.

The Limerick County Development Plan 2010-2016 (updated in the Castletroy Local Area Plan 2019-2025) was consulted, as it contains a record of all Protected Structures and Architectural Conservation Areas for the county. In addition, the Draft Limerick Development Plan 2022-2028 was also reviewed. Further buildings and features of architectural interest in the area that may not be included in the Record of Protected Structures are detailed in the National Inventory of Architectural Heritage (NIAH) for county Limerick. NIAH make recommendations for sites to be added to the list of Protected Structures. In addition to the desk study, a site inspection was conducted which sought to identify current and previous land use and to locate any features of archaeological potential or items of cultural heritage interest on the site.

The Topographical Files of the National Museum of Ireland were also consulted to assess the area's archaeological potential. These files list, on a townland basis, all archaeological artefacts in the care of or known to the museum. Such a record can provide evidence for human settlement or activity in the absence of physical remains or documentary references. The results of previous and ongoing archaeological investigations were also taken into account in order to evaluate the level of archaeological remains coming to light in the area. Historical maps held by the Map Library of Trinity College Dublin and aerial photography from the Geological Survey of Ireland were both consulted. These sources can indicate areas of archaeological potential through features like curving field boundaries, cropmarks, and soil marks and can provide information regarding the nature and extent of recorded archaeological sites that have become denuded since the early 19th century. Historical maps are also useful in identifying other features of cultural heritage significance.

The Commons Sessional Papers (CSP) and Wreck Inventory of Ireland Database (WIID), were consulted. The Shipwreck Archive consists of over 18,000 paper files that hold information relating to each individual wreck recorded in the Wreck Inventory of Ireland Database (WIID) with known location. This data set does not define the level of legal protection that might be afforded any individual wreck under the provisions of the National Monuments (Amendment) Acts (1987 and 1994); however all wrecks that are over 100 years old and wrecks subject to an underwater heritage order are protected by Section 3 of the National Monuments (Amendment) Act 1987.

The sources listed in the sections below form the baseline information for the cultural heritage of the area, in order to enable assessment of the impacts that the Proposed Development may have.

10.3 Baseline Conditions

10.3.1 Archaeological and Historical Background

The site is situated c. 3km northeast of Limerick City and is adjacent to the University of Limerick. It lies in the north portion of Castletroy; within the site stands the Castletroy Wastewater Treatment Plant, constructed in the early 1990s. Furthermore, the site is located adjacent to and south of the Lower River Shannon that is both a Special Area of Conservation (Lower River Shannon) and a Special Protected Area (River Shannon and River Fergus estuaries). There are five enclosures located in the immediate environs of the site (CL063-015, CL063-018, CL063-020, CL063-024001, and CL063-024002); all to the north and northeast of the site and on the north side of the Lower River Shannon. On the south side of the Shannon, Castletroy town developed around monuments such as medieval Kilmurry church (LI005-026001) within associated graveyard (LI005-026002), a castle (LI006-017001) and associated

gateway (LI006-017003) and bawn (LI006-017002), and a fortified house (LI005-025) with a bawn (LI005-025001).

Castletroy

Castletroy comes from the Irish Caladh an Treoigh; Caladh translates as a river, meadow landing-place, while An Treoch derives from the surname de Treo. It is said that the O'Turraín clan used this area known as Troy's Landing as a safe harbour for navigating the river. Castletroy developed on the south side of the Lower River Shannon. The river was an important waterway since antiquity; it was used by the Vikings in the 10th century and was a physical barrier.

Castletroy, from the medieval period, was a vital link in the defence chain around Limerick. The Lower River Shannon played a significant role in the settlement in the Castletroy area. The historical development of Castletroy is tightly connected economically and geographically with Limerick and the Lower River Shannon. The town of Castletroy developed around Kilmurry Church (LI005-026001) standing within associated graveyard (LI005-026002). Westropp (1904-1905) mentions the church as A Parish in Clanwilliam. Kilmehurrok, 1291, 1302. The church was dedicated to Saint Mary Magdalen and was held by the Prior of Athissell in 1418. Since 1810 the site has been occupied by a modern I. C. church. The Ordnance Survey Letters (1840) record that the original church of Kilmurry, located in the glebe, is occupied by the protestant church. The medieval graveyard was incorporated into a rectangular area enclosed by a post-1700 stone wall depicted on the 1834 map. The graveyard was extended further eastwards in modern times.

On the south shore of the Shannon, west of the meeting point with the Mulcair River, stand the ruins of the castle of Caladh an Treoigh. The castle was mentioned in the 12th century, but by the mid-17th century, it is described as ruined, and in 1640 it was owned by Theobald Lord Baron of Brittas (Simington, 1938). The castle represents the recorded monument classed as Castle– tower house (LI006-017001). Two associated monuments consisting of a bawn (LI006-017002) and a gateway (LI006-017003), were both identified during a survey in 1991.

The house (LI005-025) classified as a fortified house and associated bawn (LI005-025001) were mentioned as Castellano Trylan and Nestermoy. The building is depicted on the Down Survey Map of 1654-58. In 1583 it was held by Bourke and in 1640 by Jordane Roche (Simington, 1938). By 1703 the Duke of York sold it to the Hollow Blades Company. In ruins since the 19th century, both the castle and bawn were the subject of a temporary preservation order in 1984.

Mills

The mill in Castletroy is depicted on the Down Survey Map of 1656, Figure 10-2. No record of this earlier structure survives; however, the site was used for Plassey Mills (RPS 1601; NIAH 21900504), and it is likely these extensive mills destroyed any remains of former structures. Plassey Mills was built in 1824 by Robert Hedges Maunsell. The mills are located in the neighbouring townland of Sreelane, with an extensive mill race to the south of the building. The 1847-1864 Griffith Valuation of County Limerick lists Reuben Harvey as the occupier of the Plassy Mills and yard with house, offices, land; leasing it from the Trustees of Mrs Hedges Maunsell and Commons of Public Works, respectively. The tenement is described as Plassy flour and corn mill, kiln and land, part of the yard, land, and the estate house to the southwest labelled as Plassy. It appears James Hefferan is listed as a tenant of the house and garden just to the northeast of the mills; leasing it from Trustees Mrs. Hedges Maunsell. The former T-shaped building within the southeast portion of the Proposed Development site has a tenant named Edmond O'Connor with lessor Reuben Harvey listed; and a tow-path with Commons Public Works as a tenant in fee. The remaining part of the site has Michael Richard O'Farrell

listed as the tenant, with house, offices and land leased from John Brown. It appears that in the late 1860s, the mills were taken over by the prominent millers in Munster – the Russell family (NIAH file). By 1910 the mill is labelled as corn mills Figure 10-4. It currently lies in ruins.

Flour mills process wheat to produce flour, and corn mills process oats in order to produce oatmeal. Both types are classed as grain mill. Oats were the dominant cereal grown in Ireland; therefore, corn mills are the most widespread type of mill in the country. Furthermore, corn mills were able to mill wheat into flour but not on the same scale as flour mills.

Mills were usually owned by local landowners, and the tenants were required to grind their grain in his mill. The landowner employed a miller directly or leased the mill. As a payment, a portion of the grain and meal ground was taken. This type of mill can be described as a '*manorial mill*'; the custom was known as milling soke. Early mills were relatively small in size, as there was no need for large storage, as the grain was processed depending on the size of the mill at 10-20 sacks over several days.

In order to produce oatmeal a two-stage process was required - shelling and grinding. Before shelling, the grain needed to be dried in a kiln. Shelling involved passing oats through a set of shelling stones to separate the shell that is the inedible outer part from the groat – the inner edible kernel. A set of fans then generated a current of air to separate the shells from the heavier groats, which were then processed through grinding stones; subsequently, oatmeal was sieved through different size sieves (Hammond, 2009).

In the late 1700s and early 1800s, wheat became very popular as it was used to make bread. Most flour mills were set up in Kilkenny, Meath and Tipperary, where the soil was more fertile. The war between Britain and France in 1793 caused disruption to the import of French wheat, and Ireland was used as a source of flour, meal and cereals, driving the prices up. Water wheels were commonly made of timber, but the import of timber was restricted due to the war. This forced mill owners to substitute wood for cast or wrought iron. Some Irish foundries were already manufacturing cast iron water wheel axles in the 1770s for export, and it is likely that they, too, were also used in Ireland (Rynne, 2015). The price of flour fell with the end of the war in 1815 when trade with France resumed. In the same year, the Government Corn Laws were introduced, imposing tariffs on cheap foreign grain imported into Britain and Ireland, but were abolished in 1846 with the beginning of the famine.

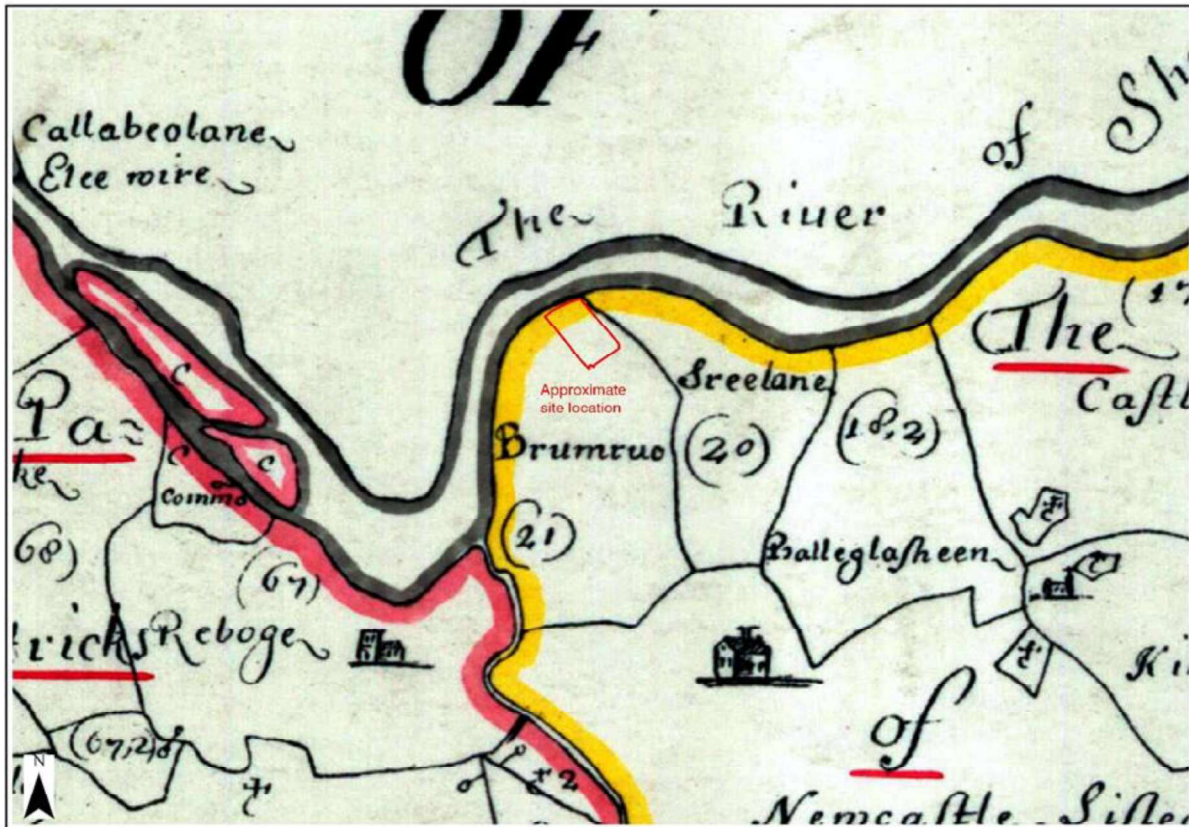


Figure 10-2: Approximate site location on The Down Survey Map of 1656.

Flour mills are generally much larger than corn mills as they require a larger area for storage. Flour mills were also more expensive to build as they required millstones, usually in sets of four or five and ancillary equipment for cleaning the wheat and grading the meal into flour. Kilns were also incorporated to reduce moisture allowing for longer-term storage.

Most mills relied on water to drive a wheel. Wind power was also used; however, water was more reliable. Steam engines have been used in Ireland since the late 1700s, but it was not until the mid-1800s that they became available and reliable for use in mills. They were however, used as a supplement rather than a replacement for water-powered mills. Rynne states that in 1870 water power accounted for one-fourth of Irish industrial horsepower at 9.879 hp., though the majority of this represented the use of water power in the textile industry. A poncelet type of water wheel was introduced in Ireland in the early 1830s and was adopted in mills using undershot water wheels. Fermoy has examples of such water wheels with cast iron frames and curved wooden vanes (Rynne ,2015).

Castles

Castles are the primary reminder of the medieval period in the Irish landscape, as pointed out by O'Connor in 1998. The term castle covers a number of types of field monuments that can date from the late 12th to the 16th century AD. These include Anglo-Norman masonry castles, hall-houses, mottes, motte and baileys, ringworks, ringwork and baileys, and tower houses. Prior to the stone-built castles, the majority of castles in Ireland in the 12th and 13th centuries were made of earth and timber and are classed as earthwork castles. Two types of these can be distinguished mottes and ringworks. Mottes consist of a mound of earth with a flat summit where

a wooden building and defences were located, sometimes with a bailey, a defended enclosure at the base, with defences of timber or clay and timber. It is suggested that circa 476 mottes were constructed in Ireland. Ringworks are circular or oval areas surrounded by earthen banks and ditches; the defences would also be built of timber and clay and timber; it is suggested that circa 63 probable and possible structures of this type were constructed in Ireland. Masonry and earthwork castles in Ireland date to the late 12th to early 14th century. These structures represent the first phase of stone castle-building in Ireland (c.1180 and 1310-20) and were mostly built by Anglo-Norman lords, and consisted of a wide diversity of defensive and domestic accommodation, like keeps, mural towers, fine twin-tower gatehouses, curtain-walls looped for archery etc. Under 100 of these types of structures have been confirmed; however, it's more likely the number is 150 as suggested by Sweetman (as cited in O'Connor, 1998). This would indicate that 630 to 700 castles were built between the 12th and 14th centuries.

Tower houses are another type of castle, these are tall rectangular or square masonry towers with three to five storeys in height. The early 15th-century date was suggested by McNeill in 1997 and these were built as late as the 1650s (Cairns, 1987). While earlier examples were built by people of Anglo-Norman descent, the Gaelic-built ones came shortly after. Some had a stone-walled enclosure, called a bawn; references suggest bawns were defended by wooden palisades, sod walls or even thick hedges and had angle towers, and gun-loops for defence. However, most were not seriously defensive in nature. It was suggested by Barry in 1996 that up to 7000 tower houses were built in Ireland between the 14th and 17th centuries. Westropp (1906-7) hints that the castle, now tower house (LI006-017001) in some form stood at this location since the end of 12th century, with the castle name deriving from H. Troy, the first provost of Limerick. The Village of Castellane Trylane of Callatruo is recorded as held by Bourke in 1583.

The final type of castle is called a fortified house; these were built in the late 16th century to 1650. These consist of large rectangular blocks with massive square towers at each corner. Domestic accommodation is the primary purpose; however, gun-loops, flanking defence and machicolations suggest that they were also built to repel an attack; often, a bawn is attached. It is suggested that up to 200 examples exist in the Irish countryside. The fortified castle (LI005-025) with associated bawn (LI005-025001) recorded in 1583 and 1619 respectively, are such monuments.

Enclosures

Ditched enclosures are seen in the form of ringforts and non-circular enclosures. The ringfort, as the name suggests, implies a circular enclosure with a minimum of one ditch and possible accompanying banks. They were generally circular, measuring 24 – 60 metres in diameter. Early Irish laws stated that circularity was a feature of the model ringfort (Stout, 1997). However, with the increase of development, more and more non-circular enclosures are coming to light. Therefore, for the purpose of this discussion, all of the enclosures will be discussed under the category 'ditched enclosures'. There are five enclosures located in the immediate environs of the site (CL063-015, CL063-018, CL063-020, CL063-024001, and CL063-024002) all located on the north and northeast of the site and on the north side of the Lower River Shannon.

The majority of early medieval ditched enclosures date to the sixth to ninth centuries AD, and there is a significant decline in their use in the tenth century (O'Sullivan and Nicholl, 2010). Though a site in Laytown, Co. Meath (McConway, 2002) could have a fourth-century date, other sites such as Ballynacarriga, Co. Cork (Noonan, 2004) and Raystown, Co. Meath (Seaver, 2005) were probably occupied from the 5th century well into the 11th century.

Ditched enclosures are generally regarded as enclosed farmsteads, and the defences are thought to have been built in order to protect against cattle raids (Stout, 1997). Some have

provided little evidence for structures, suggesting the enclosure was used for storing cattle, known as a 'bodun', though the majority provide evidence to suggest they were inhabited settlements, with houses, farmyards, outbuildings and animals (O'Sullivan and Nicholl, 2010). Excavated items retrieved from ringforts are of a domestic, craft or agricultural nature (Monk, 1995). Some larger sites such as Raystown, Co Meath fulfilled many functions; there was evidence for animal husbandry, cereal and grain processing, milling, burial and metallurgy (Seaver, 2016).

Ditched enclosures are the commonest field monument in Ireland. The majority of ditched enclosures were univallate with one bank and fosse. In many cases, the banks do not survive. There are, however, bivallate enclosures, for example, Cloonaboy, Co. Mayo (Gillespie and Kerrigan, 2010) and multivallate enclosures, such as Garranes, Co. Cork (O'Riordan, 1942). While ringforts were generally 24 – 60 metres in diameter, the majority of non-circular enclosures were between 50m and 70 metres in diameter. Ditched enclosures tend to be situated on sloping or well-drained hilly ground with good views (Stout, 1997). Ditched enclosures usually are found in clusters within a townland (Edwards, 1990).

Ditched enclosures usually have an entrance at the southeast. This is to avoid the prevailing cold westerly and northerly winds that the enclosure would be exposed to (Stout, 1997). The entrance passage at Rath II at Ballypalady, Co. Antrim ranged from 0.76m at the outer end to 1.5m at the inner opening, suggesting it was not intended for keeping large livestock (O'Sullivan, Nicholl, 2010).

Evidence from excavations shows that enclosing ditches were, in some cases, allowed to silt up and had refuse deliberately dumped into them. Layers of slag were dumped into the ditch at Lisleagh, Co. Cork (Monk, 1995).

Many sites, like that at Lissachiggel, Co. Louth had either cobbles or paving stones providing a dry passage into the enclosure. These entrances were known in early Irish literature and legal sources as the 'airdrocht' and were to be kept clean (O'Sullivan, Nicholl, 2010). O'Sullivan wrote that it was not unusual to see pathways laid within the interior to steer movement towards a particular direction and "upon entering the site, a person was often persuaded by laid pathways to move directly and immediately to the house doorway" (ibid.). The pathway was meant to be kept clean and dry, and likely, ditches and gullies would function as drainage features to keep the area dry.

Early Medieval houses within ditched enclosures tended to be circular, made of stone or post-and-wattle walls. The roofs were thatched with reeds, turf or straw. According to the eighth-century law text *Críth Gablach*, a typical farmer's house was 6-8 metres in diameter. Archaeological evidence shows that the majority were 4 to 5 metres in diameter, and some were significantly larger, at 6 to 10 metres in diameter (ibid.). As pointed out by Mc Cormick, Kerr, Mc Clatchie and O'Sullivan, because of the basket-like construction any recuts or changes to the early medieval houses, are rarely seen in the archaeological record (McCormick, Kerr, McClatchie, O'Sullivan 2011). It was likely that the lifespan of a medieval house would have lasted for just a short period of time (20 to 30 years); with good maintenance a house could have stood for 50 to 60 years (O'Sullivan and Nicholl, 2010).

Associated with the enclosures and often found in its environs are fire pits, storage pits, refuse pits, a cooking pit and cereal-drying kilns. O'Sullivan and Nicholl wrote that pits are "one of the more enigmatic elements to be found within the enclosure, their function .. difficult to discern. They would have been used for a variety of purposes; probably reused and cleaned-out many times and countless, no doubt, had multiple functions over their lifetime" (ibid). According to Mc Cormick, Kerr, Mc Clatchie and O'Sullivan cereal drying kilns are generally not associated with ditched enclosures, however there are several examples of sites with associated kilns, such as

Johnstown 1, Co. Meath, Gortygrigane, Co. Tipperary and Camlin, Co. Tipperary (Cited in McCormick, Kerr, McClatchie and O'Sullivan, 2011).

10.3.2 Record of Monuments and Places (RMP) and Sites and Monuments Record (SMR)

The SMR lists all known archaeological sites and monuments in each county with accompanying maps locating these sites. All sites included in the RMP are protected under the National Monuments Acts (1930–2004). There are no monuments located within the site; the nearest is classed as Enclosure CL063-015 and lies circa 0.66km to the northeast of the site. There are 24 such monuments located within a 2km radius of the site that are listed in the RMP and SMR (see Table 10.1).

The following is a list of the recorded monuments located in the environs of the site. The list below is derived from the National Monuments Service Archaeological Survey Database (<http://maps.archaeology.ie/historicenvironment/>).

Table 10.1: Record of Monuments and Places (RMP) and Sites and Monuments Record (SMR)

RMP/SMR No.	Class/ Site Type	ITM E	ITM N
CL063-015	Enclosure	561084	659188
CL063-017	Ritual site - holy well	561650	659916
CL063-018	Enclosure	561904	659817
CL063-019001	Church	561966	659683
CL063-019002	Graveyard	561972	659675
CL063-020	Enclosure	562779	659190
CL063-024001	Enclosure	561304	659856
CL063-024002	Enclosure	561328	659869
CL063-026	Bridge	558761	659075
CL063-030	Fortification	558820	659110
LI005-023	Weir - fish	558744	659078
LI005-024	Castle - unclassified	559706	657618
LI005-025	House - fortified house	561206	657366
LI005-025001	Bawn	561206	657366
LI005-026001	Church	562267	657662
LI005-026002	Graveyard	562291	657668
LI005-030	Ritual site - holy well	559209	656839

RMP/SMR No.	Class/ Site Type	ITM E	ITM N
LI005-035	Ringfort - rath	561549	656624
LI005-107	Pit	560174	656954
LI005-108	Fulacht fia	559095	658493
LI005-113	Bastioned fort	559144	657373
LI006-017001	Castle - tower house	562751	658652
LI006-017002	Bawn	562757	658634
LI006-017003	Gateway	562729	658616

10.3.3 Record of Protected Structures (RPS), Architectural Conservation Areas (ACA) and National Inventory of Architectural Heritage (NIAH)

The Limerick County Development Plan 2010-2016 contains a record of all Protected Structures and the list of Architectural Conservation Areas for the City. In addition, the Draft Limerick County Development Plan 2022-2028 and the Castletroy Local Area Plan 2019-2025 were also consulted. The latter contains an updated list of the above for the Castletroy area and the extent of the Castletroy Architectural Conservation Area. Protected Structures are structures that a planning authority considers to be of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. These are given statutory protection by the Local Government (Planning and Development) Act 1999 and the Planning and Development Act 2000 (Part IV Architectural Heritage). Architectural Conservation Area (ACA) is a place, area or group of structures that are of special architectural, historical, artistic, cultural, scientific, social or technical interest or that contributes to the appreciation of a protected structure and whose character, it is an objective of a development plan to preserve. The legislation relating to ACA's is contained in Section II of Part IV of the Planning and Development Act 2000.

The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Housing, Local Government and Heritage and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. It contains a record and evaluation of the post-1700 architectural heritage of Ireland, as an aid for the protection and conservation of the built heritage. It provides the basis for recommendations by the Minister for Culture, Heritage, and the Gaeltacht to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

The site contains no Protected Structures as listed within the Limerick County Development Plan 2010-2016 (updated in the Castletroy Local Area Plan 2019-2025). However, it lies adjacent to and west of Plassey Mills (RPS 1601, NIAH Reg. No. 21900504) in Sreelane townland (Figure 10-1; Figure 10-3; Figure 10-4). The protected structure includes extensive ruins of the former industrial site together with an associated complex of millstreams, locks, sluices etc. In addition, Plassey Bridge, also known as the Black Bridge (RPS 1599; 21900503) is located to the north of the site. The NIAH file describes it as a multiple arch, pedestrian, cast iron and concrete bridge over the Lower River Shannon built in c. 1840 by the Shannon Commissioners. The bridge was built on the site of the horse ferry dated to 1830.

The subject site is located within Castletroy/Dromore Conservation Area as shown on ACA Map C-19/25-04 (ACA 9; Map 9 in Draft Limerick Development Plan); see Figure 10-1.

The following (see **Table 10.2**) is a list of the nearby Protected Structures as listed in the Record of Protected Structures in the Limerick County Development Plan 2010-2016 (updated in the Castletroy Local Area Plan 2019-2025) and structures listed within the National Inventory of Architectural Heritage that are located within the environs of the site. Some entries derive from the National Inventory of Architectural Heritage. The detailed description is given only for sites and structures located directly adjacent to it.

Table 10.2: Protected Structures and National Inventory of Architectural Heritage (NIAH)

RPS ID.	NIAH Reg. No.	NIAH/RPS/DCIHR Description
1600	21900504	<p>From CLAP 2019-2025: Extensive ruins of former industrial site: Associated complex of millstreams, locks, sluices.</p> <p>From NIAH File: Detached L-plan multiple-bay six-storey former corn mill, built in 1824, with extension to west. Now in ruins. Dressed limestone walls having cast-iron patris Figures, limestone quoins and red brick flue. Square-headed window openings with cut limestone label mouldings and sills. Pointed arch window openings to south elevation with limestone hood moulding to ground floor opening. Cross loop openings to east and west elevations, having limestone surrounds. Remains of internal round-headed door opening to north elevation with brick voussoirs, now partially blocked up. Cut limestone internal spiral staircase. South elevation partially rebuilt c. 1970.</p> <p>These striking remains of Plassey Mills, situated on the banks of the Lower River Shannon, built by Robert Hedges Maunsell and later taken over in the 1860s by the Russell family, who were the most prominent millers in Munster at the time. This large former corn mill was built of high quality materials, as illustrated by the limestone dressings such as the label and hood mouldings, quoins and sills. Prominently sited, the mill presents a striking silhouette within the Limerick landscape and forms a group with the nearby Plassy Bridge.</p>
1599	21900503	<p>From CLAP 2019-2025: Plassey Bridge. Also known as the Black Bridge.</p> <p>From NIAH File: Multiple-arch pedestrian bridge over the Lower River Shannon, built c. 1840. Cast-iron handrail, balustrades and stringcourse with scrolled iron consoles. Tapering limestone parapet walls at both ends. Carriageway resurfaced with tarmacadam and preformed concrete pylon supports replacing earlier supports.</p> <p>Plassy Bridge is an interesting example of an early nineteenth-century cast-iron and concrete bridge erected by the Shannon Commissioners. It was constructed on the site of the horse ferry which dated to 1830. The current bridge forms a group with the nearby Plassy Mills.</p>

10.3.4 Shipwrecks Inventory

The Shipwreck Archive consists of over 18,000 paper files that hold information relating to each individual wreck recorded in the Wreck Inventory of Ireland Database (WIID) with known location. This data set does not define the level of legal protection that might be afforded any individual wreck under the provisions of the National Monuments (Amendment) Acts (1987 and 1994); however, all wrecks that are over 100 years old and wrecks subject to an underwater heritage order are protected by Section 3 of the National Monuments (Amendment) Act 1987.

The Commons Sessional Papers (CSP) report on the majority of wrecks and though brief in nature include the name of the captain and occasionally the circumstances of the wreck and related information (e.g. whether cargo, crew or passengers were lost).

There are no wrecks with known location within or adjacent to the site as listed within the Wreck Inventory of Ireland Database (WIID). There are no wrecks listed specifically for Castletroy or Dromroe townland, a number of wrecks are generally listed for the Lower River Shannon. In total, 42 wrecks are recorded. These are mostly recorded as simply boat, smack, steamship. The greatest number of ships were lost in the Shannon in the 19th century. Two of the earliest were lost in 1691 and 1772; a dredger was the only 20th-century loss. Wrecks lost in the Shannon are listed in Table 10.3 below.

Table 10.3: List of Wrecks

Vessel ID	Wreck No.	Name	Date of Loss	Place of Loss	Class
13560	W13560	William Donaldson	11/01/1836	Clare River (Shannon)	Unknown
12690	W12690	Rose	21/08/1891	Limerick, River Shannon.	Boat
12691	W12691	Thistle	21/08/1891	Limerick, River Shannon.	Boat
12689	W12689	No Name	21/08/1891	Limerick, River Shannon.	Boat
12688	W12688	No Name	21/08/1891	Limerick, River Shannon.	Boat
12692	W12692	Viole	21/08/1891	Limerick, River Shannon.	Boat
-	W06275	Trinity	Pre 09/4/1847	River Shannon	Brig
-	W06307	Unknown	28/01/1806	River Shannon	Cargo Ship
-	W13129	Friendship	17/04/1807	River Shannon	Unknown
6343	W06343	Unknown	04/11/1691	River Shannon	Longboat
6344	W06344	Venus	1890	River Shannon	Smack
6342	W06342	Thrasher	16/08/1892	River Shannon	Smack
6334	W06334	Elizabeth and Mary	13/01/1843	River Shannon (on shore)	Unknown
6339	W06339	Myrtle	1828	River Shannon, in	Unknown
6337	W06337	Lark	18/01/1803	River Shannon, in	Unknown

Vessel ID	Wreck No.	Name	Date of Loss	Place of Loss	Class
6340	W06340	Nellie and Jane	15/11/1825	River Shannon, in	Sailing Boat
6354	W06354	Prudence	31/03/1818	River Shannon, in	Schooner
6333	W06333	Defiance	1835	River Shannon, in	Unknown
6331	W06331	Catherine	04/11/1849	River Shannon, in	Unknown
6338	W06338	Mary	24/12/1811	River Shannon, in	Unknown
14393	W14393	Unknown	01/02/1931	River Shannon, O'Brien's Bridge	Dredger
6335	W06335	Georgina	09/05/1884	River Shannon, on	Schooner
13551	W13551	Cheviot	28/11/1833	Shannon	Unknown
14806	W14806	Mary Anning (SS)	18/02/1892	Shannon	Steamship
15001	W15001	Kincora (SS)	21/08/1899	Shannon	Steamship
15949	W15949	Unknown	19/11/1850	Shannon	Smack
15948	W15948	Unknown	19/11/1850	Shannon	Smack
13946	W13946	Limerick Lass	18/03/1837	Shannon	Unknown
14869	W14869	Sally	27/03/1894	Shannon	Smack
13795	W13795	John Beavill	07/01/1839	Shannon	Unknown
13386	W13386	Emily	13/01/1819	Shannon	Unknown
13571	W13571	Henrietta	06/02/1836	Shannon	Unknown
16840	W16840	Sarah Bell	29/12/1875	Shannon	Unknown
14936	W14936	Dora (SS)	13/07/1896	Shannon	Steamship
13366	W13366	Elisabeth and Sally	07/12/1817	Shannon	Unknown
13355	W13355	Fame	07/12/1817	Shannon	Unknown
13294	W13294	Union	07/12/1817	Shannon	Unknown
13287	W13287	Mary	28/10/1815	Shannon	Unknown
13585	W13585	Water Lily	25/10/1836	Shannon	Unknown
13188	W13188	Lovely Dorcas	21/11/1808	Shannon River	Unknown
16341	W16341	Unknown	10/11/1772	Shannon, near Limerick	Boat
13629	W13629	Breeze	19/03/1837	Shannon, rock in	Unknown

There is a very slight potential that early, unrecorded vessels could lie buried in the floodplains of the Lower River Shannon within the site and may be exposed during excavation. Any such ship remains and associated objects if present, will be legally protected, as all wrecks that are over 100 years old and wrecks subject to an underwater heritage order, are protected by Section 3 of the National Monuments (Amendment) Act 1987.

10.3.5 National Museum of Ireland

The National Museum of Ireland Topographical Files is the national archive of all known antiquities recorded by the National Museum. The files contain objects reported from 1928, and the computerised database is of finds from the 1980s onwards.

The National Museum of Ireland Topographical Files were reviewed. No finds are registered for Dromroe townland or Castletroy. However, two Roman coins were found in the north part of Sreelane townland, near the river's south shore, c. 300 m east of the site.

10.3.6 Previous Archaeological Investigations

Excavation.ie is a database of Irish Excavation Reports and contains summary accounts of all the archaeological excavations carried out in Ireland since 1970.

There are no excavations listed within the site on excavation.ie. The nearest assessment to the site took place in advance of the new bridge scheme at Plassey, to the north of the site (Figure 10-1). Archaeological Diving Company carried out an underwater assessment and survey under licence 00D056. During the assessment, a ship's timber measuring 1.9m long was recovered. This timber was an isolated find that was washed downstream. It was relocated downstream. While a number of investigations were carried out on the north side of the Lower River Shannon in relation to the development of the University of Limerick campus (09E0550, 10E0132, 16E135, 15E870) and a proposed pedestrian bridge crossing (06D042, 06R0076); these did not expose any archaeological features or structures. Preliminary excavation in 1991 prior to EuroTechnopole Park development exposed a post-medieval linear bank with 18th and 19th-century pottery.

Listed below (Table 10.4) are the investigations located in the environs of the site. The details are derived from the Summary Accounts of Archaeological Excavations in Ireland (www.excavations.ie).

Table 10.4: Previous archaeological investigations within and in the environs of the study area

Excavation.ie reference	Licence No.	RMP/SMR No.	Site Type	Investigation Type
2000:0605 - RIVER SHANNON, PLASSEY, Limerick	00D056	N/A	Ship's timber	Underwater assessment and survey
2010:097 - Garraun, Clare	09E0550	N/A	No archaeological significance	Archaeological monitoring
2010:098 - Garraun, Clare	10E0132	N/A	No archaeological significance	Archaeological testing
2003:0115 - Garraun, Clare	16E135	N/A	No archaeological significance	Archaeological test trenching and monitoring

Excavation.ie reference	Licence No.	RMP/SMR No.	Site Type	Investigation Type
2003:0115 - Garraun, Clare	15E870	N/A	No archaeological significance	Archaeological test trenching and monitoring
1991:087 - Castletroy, Limerick	-	N/A	Post-medieval linear bank	Preliminary excavation
2006:1310 - Sreelane, Co. Limerick/Garraun, Co. Clare, Limerick	06D042, 06R0076	N/A	No archaeological significance	Underwater assessment

10.3.7 Cartographic Review

An examination of pre-Ordnance Survey maps included the 1656 Down Survey Map of Barony and Parish. The townland of Drumrue is depicted on the parish map with a mill and tower house in Sryelane; while the Barony map labels the townland as Brumruo and Sreelane (Figure 10-2). The Lower River Shannon is depicted, and to the south of the site the fortified house and Killmurry Church are shown.

The cartographic review of the Ordnance Survey maps of 1839 (Figure 10-3) and 1900 (Figure 10-4) shows the site largely unchanged, adjacent and to the south of the Lower River Shannon and within agricultural land. Overall, it appears that the urbanisation of Castletroy to the south of the site did not commence until the mid-19th century. The 1st Edition OS map of 1839-44 shows the site as adjacent and north of demesne lands associated with Plassy Estate in Sreelane townland.

The site is separated from it with a wide band of trees. The east and north boundaries are also townland boundaries, with Sreelane to the west and the bank of the Lower River Shannon to the north. On the 1839-44 map, the site consists of a part of a large field with a long rectangular field along the east boundary of the site. Within the southeast corner, a T-shape building is shown with paths surrounding it. To the north of the site the pier is shown running half the width of the Lower River Shannon, connecting with the north side of the river via ferry. More detail is given on the 1900-02 map. The site is shown as bounded from south by a wet ditch, and the field boundary within the site is shown as a wet ditch also. Along the east extent of the site F.P (footpath) is labelled, and the mills labelled as Plassy Mills (Corn) are visibly extended, with additional features such as Foot Bridge and Foot Stick illustrated. It appears that the pier is now a bridge, labelled as Plassy Bridge and continues across the river. The south shore of the river is depicted as steep.

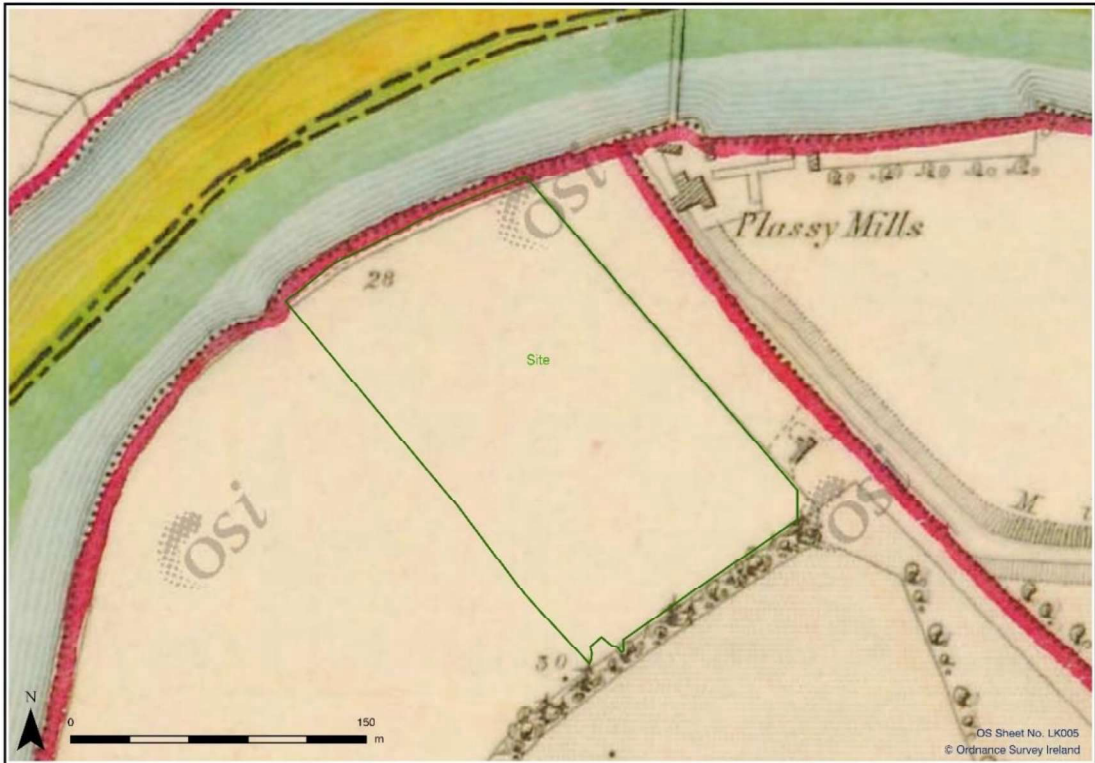


Figure 10-3: Extract from 1st Edition Ordnance Survey (OS) map (surveyed in 1839 - published 1844), showing location of site.

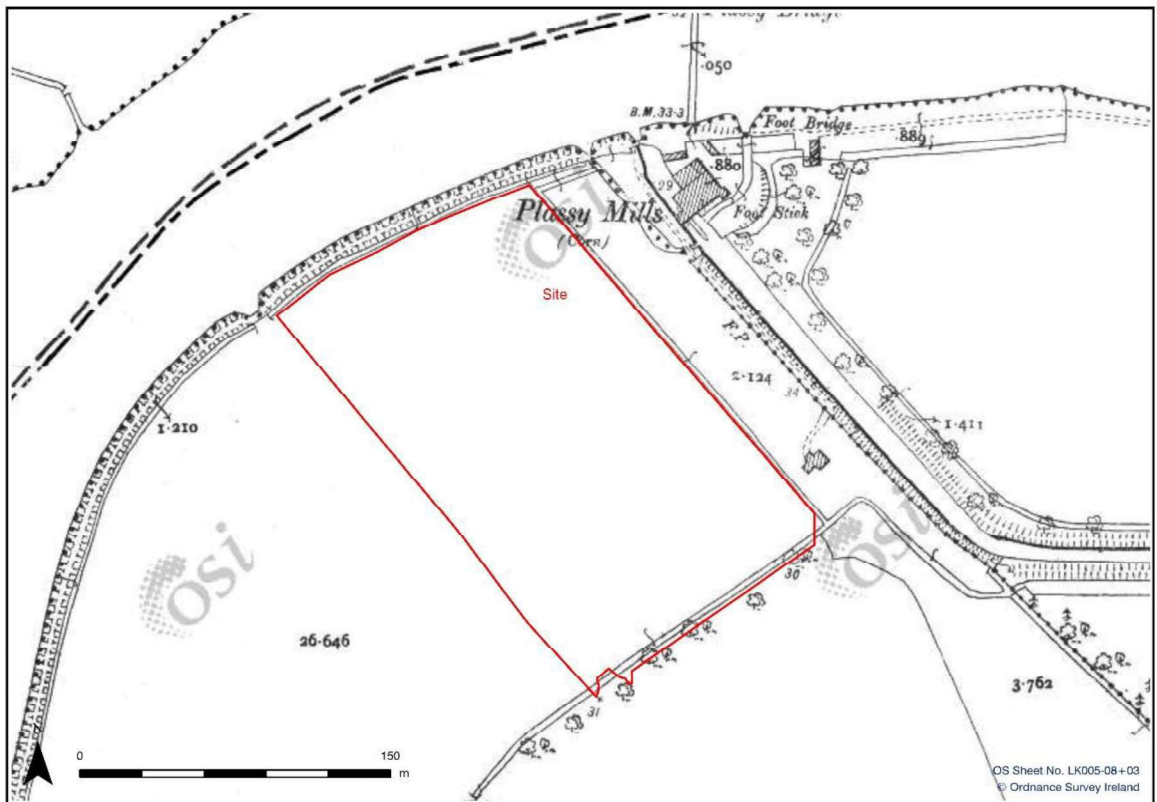


Figure 10-4: Extract from 3rd Edition Ordnance Survey (OS) map (surveyed in 1900 - published 1902), showing location of site.

10.3.8 Aerial Photography Review

In addition to examining the various editions of the OS maps, aerial photographs from the Geological Survey of Ireland, dating from between 1995 and 2013, and google aerial imagery dating between 1995 and 2022 were consulted.

On the 1995 aerial, the site is in use as a wastewater treatment plant, with additional clarifiers added sometime before 2010. The site remains largely unchanged since, however, some groundworks and/or clearing took place in the northwest part of the site in 2018.

No features of archaeological interest were apparent from an examination of these.



Figure 10-5: Aerial view, showing location of site.

10.3.9 Field Survey

The purpose of this survey was to assess whether or not the site contained any evidence for the presence of any previously unrecorded areas or features of historical, built heritage, or archaeological significance.

The field survey of the site was conducted by Magda Lyne of ACSU on the 27th of September 2021.



Figure 10-6: Location of the proposed stormwater storage tank, facing north.

The site is surrounded by fencing and is well screened by hedges and mature trees from all sides (Figure 10-5). Access to the site is via a security gate from the southwest corner. The access road leads to the northwest part of the site, curving around an administration/common room building, with ample parking space, and leads northwest passing aeration cells and clarifiers No. 1 and 2 to the west. The road splits leading to the Sludge dewatering Plant House; and along the ticker tanks to the existing final effluent and storm water outfall chamber located within the very northwest portion of the site.

Groundworks are proposed in the area adjacent to the Sludge Dewatering Plant House (Figure 10-8) and to the east of it with the majority of work concentrated within the central grassed levelled area, where a stormwater tank with associated infrastructure as well as overflow pipeworks and new access are proposed (Figure 10-7). The Protected Structure Plassy Mills (RPS 1600; NIAH Reg. 21900504) and Plassy Bridge (RPS ID 1599; NIAH Reg. No. 21900503) were not visible from the site due to dense tree cover.



Figure 10-7: Location of the proposed storm tank facing north



Figure 10-8: North extent of the site, view towards Plassy Mills, facing east.

As set out in the Castletroy Local Area Plan 2019-2025, under the Objective EH 01: Protected Structures; the *Council shall resist c) Development that would adversely affect the setting of the protected structure*. In this case the wastewater plant has been in existence since the 1990s, and the Proposed Development is limited within the existing site boundary and will not have any visual impact on any of the Protected Structures.

10.4 Characteristics of the Proposed Development

The Proposed Development by its very nature will involve ground disturbance in a number of areas. The site is located within the floodplains of the Lower River Shannon, within geology consisting of undifferentiated limestones and a part of Visean Limestones formation. The ground overlying these is marked as made ground mostly, with only the very northeast portion labelled as marine/estuarine sediments (Geological Survey Ireland). The site has some limited potential to contain subsurface archaeological remains.

The groundworks will occur within the north and central portions of the site. At the north, the new odour control unit and new picket fence thickener tank with new scum sump and pumps are proposed. The works within the south portion will include the construction of a new access road along the west part of the site, new emergency overflow pipework, three new filters and relocation of one filter, construction of a sludge thickening tank, sludge tanker lay-by area and new pump station.

The anticipated excavation level/depth required for the installation of the proposed stormwater storage tank and forward feed pump station are in the range of between 2m OD/ c. 5m below the existing ground surface. This depth is classified as deep excavation. Consequently, temporary or permanent lateral support to maintain stability during the construction will be required. The excavation below the water table will necessitate groundwater control with active dewatering measures and/or use of a physical cut-off barrier. The adoption of a secant pile wall or combination of steel sheet piles with temporary propping/anchors, depending on the ground conditions, will be employed to facilitate excavation and construction.

10.5 Likely Significant Effects

There is no potential for direct impacts on known archaeology and cultural heritage. However, there is some limited potential for the development impacting upon unknown, buried archaeological remains if such are present within the site.

10.5.1 Do-Nothing Impacts

In the event that the project does not progress, there will be no impact on Archaeology or Cultural Heritage features as a result.

10.5.2 Construction Phase

There are no direct impacts on sites of known archaeological and cultural heritage significance as there are no archaeological monuments or Protected Structures recorded within the site.

There is some limited potential that construction works could directly impact previously unknown features or deposits of an archaeological nature should they be discovered during the course of the works. Due to the necessity for deep excavations (in places between 2m OD/ c. 5m below existing ground surface); groundworks will result in excavations of estuarine deposits. Excavation of such have some limited potential to expose fish traps, trackways, canoes, boats or objects related to fishing and hunting, due to good preservation in waterlogged deposits. This could also include unrecorded archaeological remains that were sealed by made up ground, that could have been introduced to the site prior to the construction of the facility in the 1990s. Deeper excavations could expose estuarine deposits that might contain 'in situ' archaeological material or features.

10.5.3 Operational Phase

There will be no operational phase impacts on archaeology or cultural heritage features from the Proposed Development.

10.6 Mitigation Measures and Monitoring

10.6.1 Mitigation Measures

Pre – Construction Phase

No mitigation measures in relation to the Proposed Development are proposed. Geophysical survey and Test trenching are not recommended due to the built up nature of the site and the potential for deep excavation required in order to expose natural subsoil.

Construction Phase

The following mitigation measures are recommended during the construction phase:

- As pre-development test excavation of areas to be impacted is not feasible, due to the nature of works and location, monitoring of all groundworks will be necessary. Therefore, archaeological monitoring of all groundworks associated with the development should be carried out by a suitably qualified archaeologist in line with a method statement, and under licence from the Department of Housing, Local Government and Heritage in consultation with the National Museum of Ireland. Should significant archaeological material be identified during works, preservation in situ, where possible, or preservation by record is recommended and shall be undertaken following consultation with the National Monument Services.

- The mature trees and hedging bounding and screening the site should be retained.

If these recommendations are implemented, the potential impact on archaeological and built heritage material will be sufficiently mitigated.

Operational Phase

No mitigation measures relating to the archaeological, architectural and cultural heritage resource are deemed to be necessary during the operational phase of the Proposed Development.

10.6.2 Monitoring

A CEMP has been prepared and is included in Appendix 5A of the EIAR which will be updated and finalised by the Contractor prior to construction commencing. The CEMP contains the archaeological mitigation measures outlined above.

Archaeological monitoring of all ground disturbance associated with the Proposed Development with the provision for recording and excavation (if required) will mitigate any potential impact and preserve any archaeological, architectural and cultural heritage features identified by record.

The full implementation of the archaeological monitoring and excavation measures will ensure that there will be no residual impacts on any further features of archaeological potential not previously identified on site.

10.7 Residual Effects

10.7.1 Construction Phase

If the mitigation measures above are fully implemented, there will be no residual impacts on the archaeological, architectural or cultural heritage resource as any features of significance will be preserved either in situ or by record.

10.7.2 Operational Phase

There will be no residual impacts during the Operational phase as there are no impacts or mitigation proposed for this phase.

10.7.3 Interactions

There will be no direct interactions between Archaeology and Cultural Heritage and other environmental factors being considered as part of this project.

10.7.4 Cumulative impacts

Cumulative impacts are those that through the addition of many minor or significant effects, including the effects from other projects, add up to larger more significant impacts. In terms of the identified archaeological, architectural and cultural heritage features on the site, there are no additional cumulative impacts.

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