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## **Greater Dublin Drainage Project**

Irish Water

**Environmental Impact Assessment Report: Volume 3 Part A of 6**

**Chapter 16: Archaeological, Architectural and Cultural Heritage**

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## 16. Archaeological, Architectural and Cultural Heritage

The purpose of this assessment is to identify and assess the significance of and impacts to any known or proposed archaeological, architectural and cultural heritage associated with the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project).

There are a total of 50 sites or groups of archaeological heritage sites recorded within the study area of the Proposed Project. Of these:

- None are classed as National Monuments or further protected with a Preservation Order;
- Three very significant negative direct impacts are predicted upon recorded archaeological sites, along with five significant negative direct impacts; and
- Direct moderate negative impacts will occur in relation to two further sites.

The remaining impacts are indirect or neutral, and in four cases no impact is predicted.

A total of 28 structures were recorded within the study area of the Proposed Project which are listed within the Register of Protected Structures or within the National Inventory of Architectural Heritage. No significant negative impacts are predicted upon the recorded built heritage resource.

In addition to the above, multiple Areas of Archaeological Potential have been identified within the study area, along with a number of previously unrecorded buildings of architectural heritage merit, designed landscapes and townland boundary crossings. Potential impacts on these sites vary from direct to indirect or neutral. The significance of the impacts ranges from slight to very significant (negative).

An extensive programme of archaeological test trenching will be carried out at each archaeological site identified prior to construction. Testing will also be carried out within the lands required for the overall Proposed Project by an archaeologist under licence to the Department of Culture, Heritage and the Gaeltacht. This work will provide information on the nature and extent of the remains within the Proposed Project study area, enabling the compilation of a programme of works to ensure the sites are fully preserved by record.

A proposed outfall pipeline route will be constructed from the proposed Wastewater Treatment Plant to a marine discharge point. The marine environment possesses archaeological potential due to the presence of shipwrecks, which are protected under the National Monuments Act 1930 (as amended). The Shipwreck Inventory records 27 shipwrecks within the vicinity of Portmarnock Strand. No specific shipwrecks have been identified that will be directly impacted upon. However, the potential remains that archaeological deposits or features associated with shipwrecks remain buried at deeper levels beneath the current seabed. Dredging activity has the potential, directly and negatively, to impact these potential remains to a significant or profound degree. With regards to the marine archaeological resource, all dredging will be monitored by a specialist underwater archaeologist under licence to the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht. Should any archaeological remains be identified, further mitigation, such as preservation by record, may be required.

Further mitigation will include underwater/wade surveys along any watercourse to be impacted upon by the Proposed Project and written and photographic records of any sections of townland boundaries to be impacted upon.

## 16.1 Introduction

This Chapter considers and assesses the effects of the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) on the archaeological, architectural and cultural heritage.

This study determines, as far as reasonably possible from existing records, the nature of the cultural heritage in and within the vicinity of the Proposed Project using appropriate methods of study. Desk based assessment is defined as a programme of study of the historic environment within a specified area or site that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets (Chartered Institute for Archaeologists (CIfA) 2014a). This desk based assessment and analysis is essential in:

- Determining the presence of known archaeological and built heritage (BtH) sites that may be affected by the Proposed Project;
- Assessment of the likelihood of finding previously unrecorded archaeological remains during the construction programme;
- Determining the impact upon the setting of known cultural heritage sites in the surrounding area; and
- Suggesting mitigation measures based upon the results of the above research.

The study involved detailed interrogation of the archaeological, architectural and cultural heritage background of the Proposed Project area. This included information from the Record of Monuments and Places (RMP) of County Dublin, the relevant County Development Plans, National Inventory of Architectural Heritage (NIAH), the topographical files of the National Museum of Ireland and cartographic and documentary records. Aerial photographs of the study area held by the Ordnance Survey of Ireland, Google Earth and Bing Maps were also consulted. A field inspection was carried out during November 2013 in an attempt to identify any known cultural heritage sites and previously unrecorded features, structures and portable finds within the footprint of the Proposed Project. In addition, a number of programmes of geophysical survey, archaeological testing and marine investigations have been carried out as part of the assessment.

An impact assessment and a mitigation strategy have been prepared. The impact assessment is undertaken to outline potential adverse impacts that the Proposed Project may have on the cultural heritage, while the mitigation strategy is designed to avoid, reduce or offset any such adverse impacts.

The Proposed Project will form a significant component of a wider strategy to meet future wastewater treatment requirements within the Greater Dublin Area as identified in a number of national, regional and local planning policy documents. The plant, equipment, buildings and systems associated with the Proposed Project will be designed, equipped, operated and maintained in such a manner to ensure a high level of energy performance and energy efficiency.

The table below includes a summary of the Proposed Project elements. A full description of the Proposed Project is detailed within Volume 2 Part A, Chapter 4 Description of the Proposed Project and Volume 5 Figure 4.1 Proposed Project Overview of this Environmental Impact Assessment Report (EIAR).

Proposed Project Element	Outline Description of Proposed Project Element
Proposed Wastewater Treatment Plant (WwTP)	<ul style="list-style-type: none"> <li>• WwTP to be located on a 29.8 hectare (ha) site in the townland of Clonshagh (Clonshaugh) in Fingal.</li> <li>• 500,000 population equivalent wastewater treatment capacity.</li> <li>• Maximum building height of 18m.</li> <li>• Sludge Hub Centre (SHC) to be co-located on the same site as the WwTP with a sludge handling and treatment capacity of 18,500 tonnes of dry solids per annum.</li> <li>• SHC will provide sustainable treatment of municipal wastewater sludge and domestic septic tank sludges generated in Fingal to produce a biosolid end-product.</li> <li>• Biogas produced during the sludge treatment process will be utilised as an energy source.</li> <li>• Access road from the R139 Road, approximately 400m to the southern boundary of the site.</li> <li>• Egress road, approximately 230m from the western boundary of the site, to Clonshaugh Road.</li> <li>• A proposed temporary construction compound to be located within the site boundary.</li> </ul>
Proposed Abbotstown pumping station	<ul style="list-style-type: none"> <li>• Abbotstown pumping station to be located on a 0.4ha site in the grounds of the National Sports Campus at Abbotstown.</li> <li>• Abbotstown pumping station will consist of a single 2-storey building with a ground level floor area of 305m<sup>2</sup> and maximum height of 10m and a below ground basement 17m in depth with floor area of 524m<sup>2</sup> incorporating the wet/dry wells.</li> <li>• The plan area of the above ground structure will be 305m<sup>2</sup> and this will have a maximum height of 10m.</li> <li>• A proposed temporary construction compound to be located adjacent to the Abbotstown pumping station site.</li> </ul>
Proposed orbital sewer route	<ul style="list-style-type: none"> <li>• The orbital sewer route will intercept an existing sewer at Blanchardstown and will divert it from this point to the WwTP at Clonshagh.</li> <li>• Constructed within the boundary of a temporary construction corridor.</li> <li>• 13.7km in length; 5.2km of a 1.4m diameter rising main and 8.5km of a 1.8m diameter gravity sewer.</li> <li>• Manholes/service shafts/vents along the route.</li> <li>• Odour Control Unit at the rising main/gravity sewer interface.</li> <li>• Proposed temporary construction compounds at Abbotstown, Cappoge, east of Silloge, Dardistown and west of Collinstown Cross to be located within the proposed construction corridor.</li> </ul>
Proposed North Fringe Sewer (NFS) diversion sewer	<ul style="list-style-type: none"> <li>• The NFS will be intercepted in the vicinity of the junction of the access road to the WwTP with the R139 Road in lands within the administrative area of Dublin City Council.</li> <li>• NFS diversion sewer will divert flows in the NFS upstream of the point of interception to the WwTP.</li> <li>• 600m in length and 1.5m in diameter.</li> <li>• Operate as a gravity sewer between the point of interception and the WwTP site.</li> </ul>
Proposed outfall pipeline route (land based section)	<ul style="list-style-type: none"> <li>• Outfall pipeline route (land based section) will commence from the northern boundary of the WwTP and will run to the R106 Coast Road.</li> <li>• 5.4km in length and 1.8m in diameter.</li> <li>• Pressurised gravity sewer.</li> <li>• Manholes/service shafts/vents along the route.</li> <li>• Proposed temporary construction compounds (east of R107 Malahide Road and east of Saintdoolaghs) located within the proposed construction corridor.</li> </ul>
Proposed outfall pipeline route (marine section)	<ul style="list-style-type: none"> <li>• Outfall pipeline route (marine section) will commence at the R106 Coast Road and will terminate at a discharge location approximately 1km north-east of Ireland's Eye.</li> <li>• 5.9km in length and 2m in diameter.</li> <li>• Pressurised gravity tunnel/subsea (dredged) pipeline.</li> <li>• Multiport marine diffuser to be located on the final section.</li> <li>• Proposed temporary construction compounds (west and east of Baldoyle Bay) to be located within the proposed construction corridor.</li> </ul>
Proposed Regional Biosolids Storage Facility	<ul style="list-style-type: none"> <li>• Located on an 11ha site at Newtown, Dublin 11.</li> <li>• Maximum building height of 15m.</li> <li>• Further details and full impact assessment are provided in Volume 4 Part A of this EIAR.</li> </ul>

The total Construction Phase will be approximately 48 months, including a 12 month commissioning period to the final Operational Phase. The Proposed Project will serve the projected wastewater treatment requirements of existing and future drainage catchments in the north and north-west of the Dublin agglomeration, up to the Proposed Project's 2050 design horizon.

Please note that the cultural heritage impact assessment of the proposed RBSF aspect of the Proposed Project is addressed in Chapter 11 Cultural Heritage in Volume 4 Part A of this EIAR.

### 16.1.1 Consultation

A number of statutory and voluntary bodies were consulted to gain further insight into the cultural background of the study area, as follows:

- Department of Culture, Heritage and the Gaeltacht (DoCHG) – the Heritage Service, National Monuments and Historic Properties Section: RMP; Sites and Monuments Record (SMR); Monuments in State Care Database; Preservation Orders (POs); Shipwreck Inventory; Underwater Archaeological Unit; Architectural Advisory Unit;
- National Museum of Ireland (NMI), Irish Antiquities Division: topographical files of Ireland;
- NIAH: Fingal;
- Fingal County Council (FCC): Planning Section; and
- Trinity College Dublin, Map Library: Historical and Ordnance Survey (OS) Maps.

Consultations with the National Monuments Service (NMS) of the DoCHG resulted in the archaeological testing of the proposed WwTP as well as geophysical surveys at areas of archaeological potential (AAPs). Consultations also identified the need to carry out marine geophysical surveys, marine archaeological dive surveys and intertidal archaeological assessment.

The remaining consultations informed the compilation of the archaeological, architectural and cultural heritage baseline.

## 16.2 Methodology

The following legislation, standards and guidelines were consulted as part of this assessment:

- European Communities (Environmental Impact Assessment) (Amendment) Regulations 1999 (S.I. No. 93/1999);
- National Monuments Acts 1930 (as amended);
- The Planning and Development Act 2000 (as amended);
- Heritage Act 1995;
- *Revised Advice Notes for Preparing Environmental Impact Statements* (Environmental Protection Agency (EPA) 2015);
- *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017);
- *Frameworks and Principles for the Protection of the Archaeological Heritage*, by the former Department of Arts, Heritage, Gaeltacht and Islands (1999);
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 2000; and
- Local Government (Planning and Development) Act 2000.

### 16.2.1 Background

Research has been undertaken in several phases. The first phase was carried out as part of the site selection of the proposed WwTP site and associated pipeline routes. A paper survey was carried out of all available archaeological, architectural, historical and cartographic sources relating to the Proposed Project. This formed part of the overall environmental assessment, which was designed to select the most appropriate proposed WwTP site. A total of nine sites and various pipeline routes were assessed during this phase of work. Recorded and previously unrecorded sites and structures of archaeological and architectural potential were noted as constraints to be avoided within the assessment. As a result of the site selection and alternatives assessment, three sites emerged as potentially the best areas in which to develop the proposed WwTP. These were all located within Fingal at Annsbrook, Clonshagh and Newtowncorduff. Detailed geophysical survey was carried out in order to identify any further archaeological constraints that survived beneath the ground with no surface expression. The geophysical surveys were carried out under licence to the DoCHG by Target Archaeological Geophysics (Licence Refs: 13R23, 13R24 and 13R25).

Additional desk based assessment has been carried out for the Proposed Project to inform this Environmental Impact Assessment (EIA). A full field inspection has been carried out, along with a targeted programme of geophysical survey, archaeological testing and marine archaeological investigations.

The study area is defined as an area measuring 500m from the edge of the proposed pipeline routes (including the proposed Abbotstown pumping station site) and 1km from the edge of the proposed WwTP site. The archaeological, architectural and cultural heritage sites located within the study area form the primary data for the overall baseline that is under assessment.

### 16.2.2 Paper Survey

This is a document search. The following sources were examined and a list of areas of archaeological, architectural and cultural heritage potential was compiled:

- RMPs for County Dublin;
- SMRs for County Dublin;
- Monuments in State Care Database;
- POs;
- The Shipwreck Inventory of Ireland;
- Topographical files of the National Museum of Ireland;
- Cartographic and documentary sources relating to the study area;
- *Fingal Development Plan 2017-2023* (FCC 2017);
- NIAH;
- Aerial photographs; and
- Excavations Bulletin.

#### [Record of Monuments and Places](#)

Section 12 (1) of the National Monuments Act (1994 amendment) provides that the Minister for Arts, Heritage, Gaeltacht and the Islands (now the Minister for Culture, Heritage and the Gaeltacht) shall establish and maintain a record of RMPs where it is known that such monuments exist. The record comprises a list of monuments and

relevant places and mapping showing each monument and relevant place in respect of each County in the State. Sites recorded on the RMPs all receive statutory protection under the National Monuments Act. All recorded monuments are referred to as Archaeological Heritage (AH) sites within this assessment.

#### [Sites and Monuments Record](#)

The SMR holds documentary evidence and field inspections of all known archaeological sites and monuments. Some information is also held about archaeological sites and monuments whose precise location is not known, e.g. only a site type and townland are recorded. These are known to the National Monuments Section as '*un-located sites*' and cannot be afforded legal protection. As a result, these are omitted from the RMPs. SMR sites are also listed on a website maintained by the DoCHG (DoCHG 2018a). All recorded monuments are referred to as AH sites within this assessment.

#### [National Monuments in State Care Database](#)

This is a list of all the National Monuments in the State's guardianship or ownership. Each is assigned a National Monument number, whether in guardianship or ownership, and has a brief description of the remains of each Monument.

A National Monument receives statutory protection and is described as '*a monument or the remains of a monument the preservation of which is a matter of national importance by reason of the historical, architectural, traditional, artistic or archaeological interest attaching thereto*' (National Monuments Act 1930) (Section 2).

The Minister for the DoCHG may acquire National Monuments by agreement or by compulsory order. The State or Local Authority (LA) may assume guardianship of any National Monument (other than dwellings). The owners of National Monuments (other than dwellings) may also appoint the Minister or the LA as guardian of that monument if the State or LA agrees. Once the site is in ownership or guardianship of the State, it may not be interfered with without the written consent of the Minister.

#### [Preservation Orders List](#)

The PO List and/or Temporary POs can be assigned to a site or sites that are deemed to be in danger of injury or destruction. These are allocated under the National Monuments Act 1930. POs make any interference with the site illegal. Temporary POs can be attached under the National Monuments (Amendment) Act, 1954. These perform the same function as a PO but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or near sites under POs with written consent, and at the discretion of the Minister (DoCHG).

#### [The Shipwreck Inventory of Ireland](#)

This inventory includes all known wrecks for the years up to and including 1945, and approximately 12,000 records have been compiled and integrated into the shipwreck database thus far. An inventory of wrecks covering the coastal waters off counties Louth, Meath, Dublin and Wicklow was published in 2008. Wrecks over 100 years old and archaeological objects found underwater are protected under the National Monuments (Amendment) Acts 1987 and 1994. Significant wrecks less than 100 years old can be designated by Underwater Heritage Order on account of their historical, archaeological or artistic importance.

#### [Topographical Files of the National Museum of Ireland](#)

The topographical file is the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts but also includes references to monuments and unique records of previous

excavations. The find spots of artefacts are important sources of information on the discovery of sites of archaeological significance.

#### [Cartographic Sources](#)

Cartographic sources are important in tracing land use development within the Proposed Project area as well as providing important topographical information on AAPs and the development of buildings. Cartographic analysis of all relevant maps, listed below, has been undertaken to identify any topographical anomalies or structures that no longer remain within the landscape:

- Sir William Petty, Down Survey Map, 1654–56, Baronies of Castleknock & Coolock;
- John Rocque's Map of the County of Dublin, 1760;
- John Taylor's Map of the Environs of Dublin, 1816; and
- OS Map Editions County Dublin (1843, 1873, 1910).

#### [Documentary Sources](#)

Documentary sources were consulted to gain background information on the archaeological, architectural and cultural heritage landscape of the Proposed Project area.

#### [Development Plans](#)

Development Plans contain a catalogue of all the Register of Protected Structures (RPSs) and archaeological RMP sites within the County. The *Fingal Development Plan 2017-2023* (FCC 2017) was consulted, along with Local Area Plans (LAPs) for locations within the study area of the Proposed Project (*Baldoyle-Stapolin LAP 2013* (FCC 2013a) and *Portmarnock South LAP* (FCC 2013b)) to obtain information on cultural heritage sites within the study area of the Proposed Project.

#### [National Inventory of Architectural Heritage](#)

The NIAH is a government based organisation tasked with making a nationwide record of significant local, regional, national and international structures, which in turn provides County Councils with a guide as to what structures to list within the RPS. The architectural survey for Fingal County was completed during 2000. The NIAH have also carried out a nationwide desk based survey of historic gardens, including demesnes that surround large houses.

#### [National Inventory of Architectural Heritage Garden Survey](#)

Whilst the NIAH Garden Survey was utilised as part of this assessment, this was carried out in conjunction with detailed analysis of the historic OS maps in order to identify all Designed Landscapes (DL) within the study area of the Proposed Project.

#### [Aerial Photographs](#)

Aerial Photographs are an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its likely potential for archaeology. A number of online sources were consulted including aerial photographs held by the Ordnance Survey of Ireland, Google Earth and Bing Maps.

### Excavations Bulletin

An Excavation Bulletin is a summary publication that has been produced every year since 1970. This summarises every archaeological excavation that has taken place in Ireland during that year up until 2010, and since 1987 it has been edited by Isabel Bennett. This information is vital when examining the archaeological content of any area, which may not have been recorded under the SMR and RMP files. This information is also available online (DoCHG 2018b). This includes digital records from 2011 to 2017.

#### **16.2.3 Field Inspection**

Field inspection is necessary to determine the extent and nature of archaeological and architectural remains, and can also lead to the identification of previously unrecorded or suspected sites, structures and portable finds through topographical observation and local information.

The archaeological and architectural field inspection entailed:

- Noting and recording the terrain type and land usage;
- Noting and recording the presence of features of archaeological, architectural or cultural heritage significance;
- Verifying the extent and condition of recorded sites; and
- Visually investigating any suspect landscape anomalies to determine the possibility of their being man-made in origin.

#### **16.2.4 Geophysical Survey**

Geophysical survey is used to create 'maps' of subsurface archaeological features. Features are the non-portable part of the archaeological record, whether standing structures or traces of human activities are left in the soil. Geophysical instruments can detect buried features when their electrical or magnetic properties contrast measurably with their surroundings. In some cases, individual artefacts, especially metal, may be detected as well. Readings taken in a systematic pattern become a dataset that can be rendered as image maps. Survey results can be used to guide excavation and to give archaeologists insight into the patterning of non-excavated parts of the site. Unlike other archaeological methods, geophysical survey is not invasive or destructive.

Several programmes of geophysical survey have been carried out during the development of the Proposed Project and as part of the EIA. In 2013, Target Archaeological Geophysics carried out a survey as part of the proposed WwTP site selection process at the proposed WwTP site (Licence Ref.: 13R25). The survey was carried out during a period of very wet weather, which meant that not all the areas of the proposed WwTP site were accessible.

During 2014, once the proposed WwTP site had been selected, and as part of this EIA, the areas that could not be accessed in 2013 were surveyed by Earthsound Archaeological Geophysics. As part of the EIA, they also carried out smaller surveys at eight other locations within the footprint of the proposed orbital sewer route and outfall pipeline route (land based section) that were deemed to be of archaeological potential (Licence Ref.: 14R0045).

#### **16.2.5 Archaeological Testing**

Archaeological Test Trenching is defined as '*a limited programme of intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater*' (ClfA 2014c). If such archaeological remains are present, field

evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate. Archaeological testing, as part of this EIA, has been carried out in several phases within the proposed WwTP as a result of consultations carried out with the NMS of the DoCHG. This was undertaken under licence 13E355 with works being carried out during 2014, 2015 and 2016.

### **16.2.6 Underwater Archaeological Assessment**

A number of underwater archaeological assessments have been carried out as part of this assessment. These include:

- An intertidal survey at the location of a site investigation borehole on Portmarnock Beach (Licence Ref.: 15D0019, 15R0025);
- An archaeological review of the marine geophysical survey that was carried out along the length of the proposed outfall pipeline route (marine section);
- A marine archaeological geophysical survey of inshore areas that could not be accessed during the initial survey (Licence Ref.: 15R0092); and
- Dive surveys of anomalies that were identified as having the potential to be archaeological in nature (Licence Ref.: 16D0051, 15R0076).

### **16.2.7 Definitions**

In order to assess, distil and present the findings of this study, the following definitions apply:

- ‘Cultural Heritage’, where used generically, is an over-arching term applied to describe any combination of archaeological, architectural and cultural heritage features;
- AH refers to any archaeological sites recorded within the RMP/SMR;
- BtH refers to any structure of architectural significance that is recorded within RPSs and/or the NIAH Survey of Fingal County;
- AAP refers to any newly identified site or potential archaeological site located within the study area;
- Undesignated Built Heritage (UBH) refers to any newly identified structures of architectural value located within the study area;
- DL refers to any demesne or DL that has been identified within the study area; and
- Townland Boundary (TB) refers to any townland boundary that will be crossed by the Proposed Project.

## **16.3 Baseline Environment**

### **16.3.1 Archaeological and Historic Background**

The Proposed Project will be located within the more rural parts of Fingal County to the north of the M50 Motorway. The proposed orbital sewer route and outfall pipeline route (land based section) will pass through two baronies, nine parishes and through or in close proximity to 47 townlands (see Table 16.1). The landscape is characterised by arable agricultural land, with some smaller areas of pasture. Residential development is scattered, with the main suburban spread contained to the south of the M50 Motorway and the R139 Road. Recent development within the study area of the Proposed Project is characterised by the erection of industrial estates. Sites referred to within this Chapter are shown on Figure 16.1 Proposed Project (Blanchardstown)

Showing Surrounding Sites of Cultural Heritage Significance to Figure 16.6 Proposed Project (Baldoyle Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance.

**Table 16.1: Baronies, Parishes and Townlands Within the Immediate Vicinity of the Proposed Project**

Barony	Parish	Townland
Castleknock	Castleknock	Deanestown, Blanchardstown, Abbotstown, Castleknock, Dunsink, Sheephill, Cappoge, Huntstown
	Finglas	Kildonan, Baleskin, Coldwinters
Coolock	Santry	Dubber, Meakstown, Poppintree, Silloge, Ballymun, Balcurris, Santry Demesne, Turnapin Great, Ballystruan, Collinstown, Commons, Dardistown, Clonshagh
	St. Margarets	Merryfalls
	Cloghran	Toberbunny, Cloghran, Stockhole, Clonshagh, Middletown, Belcamp, Springhill, Baskin
	Balgriffin	Belcamp, Saintdoolaghs, Burgage, Ballymacartle, Bohammer, Snugborough, Balgriffin Park
	Kinsaley	Kinsaley, Drumnigh
	Portmarnock	Portmarnock, Burrow
	Baldoyle	Maynetown

### Prehistoric Period

#### *Mesolithic Period (c. 7000–4000BC)*

The Mesolithic Period is the earliest time for which there is clear evidence of prehistoric activity in Ireland. During this period, people hunted, foraged and gathered food and appear to have had a mobile lifestyle. The most common evidence indicative of Mesolithic activity at a site comprises scatters of worked flint material; a by-product from the production of flint implements, or rubbish middens consisting largely of shells (Stout and Stout 1997). The latter are commonly discovered in coastal regions or at the edge of lakes. A number of shell middens and flint scatters are located along the coast from Sutton and Malahide to Balbriggan and most notably on Lambay Island (Baker 2010).

Other evidence for Mesolithic activity along the coast derives from fishing, such as fish traps. Wooden fish traps were recently discovered on the Mesolithic shoreline 5m below current ground level in the Spencer Dock area of Dublin City (McQuade 2008). The fish traps were constructed almost exclusively of hazel, with evidence of tool marks, and dated between 6100–5720BC. Prior to this discovery, it was assumed that line, spear and net fishing were the main methods of catching fish at this time (Moore et al. 2008). It is suggested that these fish traps were commonplace throughout the bays and estuaries of Ireland (ibid.). There are no recorded Mesolithic sites within the study area of the Proposed Project.

#### *Neolithic Period (c. 4000–2500BC)*

During the Neolithic period, communities became less mobile and their economy became based on the rearing of stock and cereal cultivation. This transition was accompanied by major social change. Agriculture demanded an

altering of the physical landscape, forests were rapidly cleared and field boundaries constructed. There was a greater concern for territory, which saw the construction of large communal ritual monuments called megalithic tombs, which are characteristic of the period. Whilst there are two types of megalithic tombs recorded in Fingal, none of these are located within the study area of the Proposed Project.

Evidence for settlement dating to this period is hard to identify as the land has been so intensively farmed that the majority of sites have no above surface expression. However, records held by the National Museum of Ireland indicate the presence of a Neolithic population in Fingal due to the discovery of stray artefacts dating to this period. Flint scatters are commonly found along the north Dublin coastline, the largest of which is located at Paddy's Hill, Robswalls, south-east of Malahide and approximately 2km north of the proposed outfall pipeline route (marine section). Nearly 3,000 stone tools, including axeheads, flint scrapers, blades, knives and arrowheads, were recovered from this area. A stone axe factory has also been identified on Lambay Island, and stray finds of stone axeheads are common with examples recorded throughout Fingal.

An excavation undertaken in the 1940s at Feltrim Hill, c. 800m north-north-west of the proposed orbital sewer route, produced c. 1,400 finds dating to the Neolithic and medieval periods. Approximately 1,000 flint artefacts, including blades, flakes, arrowheads, knives and debitage, were recorded from this excavation (NMI 1947:159-393, 750-752, 756.1-756.30, 757-789, 790.1-790.85, 791.1-791.168, 792.1-792.100, 793.1-793.150, 794.1-794.56, 795.1-795.26, 796.1-796.88, 812-827, 829 and 830). In addition, c. 40 larger stone tools, including hone stones, hammer stones, axeheads and spindle whorls, were also retrieved (NMI 1947:684-722, 829-830). A total of 84 sherds of Neolithic pottery were also recorded from these excavations (NMI 1947:755.1-755.80; 1947:809-812).

#### *Bronze Age Period (c. 2500–800BC)*

The Bronze Age was characterised by the introduction of metalworking technology to Ireland and coincides with many changes in the archaeological record, in terms of both the material culture as well as the nature of the sites and monuments themselves. Although this activity has markedly different characteristics to that of the preceding Neolithic period, including new structural forms and new artefacts (such as Beaker pottery), it also reflects a degree of continuity. Megalithic tombs were no longer constructed, and the burial of the individual became more typical. Cremated or inhumed bodies were often placed in a cist, a small stone box set into the ground, or a stone lined grave. Burials were often made within cemeteries and marked within the landscape with the construction of an earthen barrow or cairn of stones. Often, all that remains of these burial sites are ring ditches, which are sometimes identifiable as circular crop marks in the landscape.

Ring ditches and barrows became common burial monuments in the middle to late Bronze Age. These could contain central cremation pits or cremated bone/funeral pyre debris in or beneath a mound or in the ring ditch fill. Ring ditches are generally located on higher ground and are often found in proximity to streams or rivers. Sites may cluster, along with other barrow types, to form barrow cemeteries. They appear to have continued to be built, or earlier monuments re-used, during the Iron Age and early medieval period. In the later middle to late Bronze Age, there is a gradual decline in the quantity of human remains included in formal burial (Grogan et al. 2007). Instead of the deposition of complete individuals, it became customary to include only part of the individual; it appears that token cremation became prevalent. There are five recorded ring ditches located within the study area of the Proposed Project (AH 5, 9, 26, 44, 47). A further two possible ring ditches have been identified within the study area through the analysis of aerial photographs (AAP 11, 21). AH 44 and the ring ditch within AH 47 are only c. 254m apart and located at the top of a south-facing slope. As a result, there may be additional features of a similar type within this area.

The most common Bronze Age site within the archaeological record is the burnt mound or fulacht fiadh. Over 4,500 fulachta fiadh have been recorded in the country, making them the most common prehistoric monument in Ireland (Waddell 1998). Although burnt mounds of shattered stone occur as a result of various activities that have been practiced from the Mesolithic to the present day, those noted in close proximity to a trough are generally interpreted as Bronze Age cooking/industrial sites. Fulachta fiadh generally consist of a low mound of burnt stone, commonly in horseshoe shape, and are found in low lying marshy areas or close to streams or rivers. Often, these sites have been ploughed out and survive as a spread of heat-shattered stones in charcoal-rich soil with no surface expression in close proximity to a trough. Much debate exists as to the function of these monuments and suggestions include cooking sites, bathing sites, textile dyeing sites and beer making sites.

Numerous fulachta fiadh are recorded within Fingal, although there are only several sites recorded within the study area of the Proposed Project. The remains of two burnt mounds were identified within the townland of Grange during testing in 1993 (AH 29), c. 440m south-west of the proposed outfall pipeline route (land based section). In 2013, a fulacht fiadh was excavated in the townland of Deanestown, c. 280m to the west-south-west of the proposed access route to the proposed WwTP, which is required as part of the Proposed Project. This returned an early Bronze Age Carbon 14 date (AH 52).

Despite the relative scarcity of these sites within the study area, the potential to discover unrecorded and levelled examples of this site type within the landscape is considered to be high, as they are one of the most common archaeological sites to be identified.

#### *Iron Age Period (c. 800BC–AD500)*

Compared to the rest of Irish prehistory, there is very little evidence in Ireland, as a whole, representing the Iron Age. As in Europe, there are two phases of the Iron Age in Ireland: the Hallstatt and the La Tène. The Hallstatt period generally dates from 700BC onwards and spread rapidly from Austria, across Europe, and then into Ireland. The later Iron Age or La Tène culture also originated in Europe during the middle of the 5th century BC. For several centuries, the La Tène Celts were the dominant people in Europe, until they were finally overcome by the Roman Empire.

With the expanding population, there was an increased need for defence at this time. Coastal promontory forts were constructed around Ireland as defensive settlements, of which four are located in Fingal. The largest of these four is located at Drumanagh (DU008-006001) over 13km north of the Proposed Project study area. A further two promontory forts are located on Lambay Island, c. 10km north-east, with another recorded on Howth, c. 7.5km to the south-east. There are no recorded Iron Age sites within the study area of the Proposed Project.

#### *Early Medieval Period (c. AD500–1100)*

During this period, Ireland was not a united country but rather a patchwork of minor monarchies all scrambling for dominance, with their borders ever changing as alliances were formed and battles fought. Kingdoms were a conglomerate of clannish principalities with the basic territorial unit known as a túath. Byrne (2001) estimates that there were probably at least 150 kings in Ireland at any given time during this period, each ruling over his own túath. Between the 7th and 10th centuries AD, the area of the Proposed Project was located within part of the Bréga territory of the Síl nÁedo Sláine branch of the southern Uí Néill, which included most of Meath, south Louth and north Dublin (Byrne 1968). Whilst this tribe had ultimate control, the area was occupied and controlled on a local level by indigenous tribal groups who most likely paid tribute to the Uí Néill during this period (Carroll 2008). The tribal groups associated with the Fingal area around the 7th century may have included the Árd Ciannachta and the Gailenga (ibid. 13).

The most common indicator of settlement during the early medieval period is the ringfort. Ringforts (also known as rath, lios, caiseal, cathair and dún) are a type of defended homestead comprising a central site enclosed by a number of circular banks and ditches. The number of ditches can vary from one (univallate) to two or three (bivallate or multi-vallate) and is thought to reflect the status and affluence of the inhabitants. Another morphological variation consists of the platform or raised rath – the former resulting from the construction of the rath on a naturally raised area. Ringforts are most commonly located at sites with commanding views of the surrounding environs, which provided an element of security. While raths, for the most part, avoid the extreme low and uplands, they also show a preference for the most productive soils (Stout 1997).

The most recent study of the ringfort (ibid.) has suggested that there is a total of 45,119 potential ringforts or enclosure sites throughout Ireland. While rath and lios seem to refer to earthen ringforts, caiseal (cashel) and cathair (caher) refer to their stone-walled equivalents. There are three recorded ringforts located within the study area of the Proposed Project (AH 8, 19, 23). However, a large majority of the 21 recorded enclosures located within the study area are likely to represent the remains of ploughed out ringforts or habitation sites. Archaeological investigation of AH 28, located c. 120m north of the proposed outfall pipeline route (land based section), revealed the remains of a ploughed out enclosure, which returned an early medieval C14 date (Bennett 2008:477). A further six enclosure sites have been identified during the course of this assessment that have the potential to represent early medieval ringforts or habitation sites (AAP 10, 12, 13, 14, 15, 19). Many of the sites are large, which may indicate a high population within the area and/or a particularly affluent society.

This period was also characterised by the foundation of a large number of ecclesiastical sites throughout Ireland during the centuries following the introduction of Christianity in the 5th century AD. These early churches tended to be constructed of wood or post-and-wattle. Between the late 8th and 10th centuries, mortared stone churches gradually replaced the earlier structures. Many of the sites, some of which were monastic foundations, were probably originally defined by an enclosing wall or bank similar to that found at the coeval secular sites. This enclosing feature was probably built more to define the sacred character of the area of the church than as a defence against aggression. An inner and outer enclosure can be seen at some of the more important sites: the inner enclosure surrounding the sacred area of church and burial ground and the outer enclosure providing a boundary around living quarters and craft areas.

The closest early ecclesiastical enclosure and church are recorded at Saintdoolaghs (DU015-009001-2), outside of the study area of the Proposed Project c. 1.17km to the east of the proposed WwTP. The earliest reference to St. Doolagh is found in the 9th century Martyrology of Oengus, where he is referred to as Duilech of Clochar. Archaeological investigations were undertaken at Saintdoolaghs in 1989, and a number of coins and tokens were recovered in association with an outer and inner ditch and burial area. A further investigation was carried out in 2015, where a section was excavated across a portion of the northern part of the outer enclosure. This produced a late 9th/early 10th century date (Duffy pers com).

A recorded church and graveyard site of possible early medieval foundation is located within Abbotstown (AH 2), partially within the path of the proposed orbital sewer route (where it will be tunnelled to avoid impacting on same). The southern boundary to the sub-circular graveyard consists of a deep ditch with evidence of stone facing and an external bank. There is standing water in the base of the ditch. The ditch and bank may represent the remains of an ecclesiastical enclosure. The ground within the graveyard is raised compared to that outside. There is also a tradition that a holy well was located at this site, which was visited for cures but closed up by the landlord in the mid-20th century. Holy wells are a common feature of early medieval ecclesiastical sites, with one also recorded at St. Doulagh's Church. Interestingly, a recorded early medieval burial site (AH 1) is located c. 600m south-south-east of the church (c. 491m south-south-east of the proposed orbital sewer route). Here,

between 300 and 400 burials were excavated by the National Museum in 1938, which dated from AD850 to AD1050. It is possible that the burial site represented a satellite site to the church at Abbotstown.

#### *Medieval Period (c. AD1100–1600)*

The beginning of the medieval period was characterised by political unrest that originated from the death of Brian Borumha in 1014. Diarmait MacMurchadha, deposed King of Leinster, sought the support of mercenaries from England, Wales and Flanders to assist him in his challenge for kingship. Norman involvement in Ireland began in 1169, when Richard de Clare and his followers landed in Wexford to support MacMurchadha. Two years later, de Clare (Strongbow) inherited the Kingdom of Leinster, and by the end of the 12th century, the Normans had succeeded in conquering much of the country (Stout and Stout 1997). Characteristic of Anglo-Norman initial settlement is the motte structure, an artificial raised earth platform that commonly held a timber tower or bretagh. Some motte structures had attached enclosures called baileys. These castles were built hastily to establish territorial claims and were later replaced by stone castles. There are no known sites of this type within the study area of the Proposed Project.

The decline in the power of the Anglo-Norman lords by the mid-1450s led to the restriction of English power to the Pale, the royal writ extending to an area '*scarcely thirty miles in length and twenty miles in breadth*' (Bardon 2005). The government put up fortifications including trenches, assigned watchmen and bridge guards and issued grants towards the construction of tower houses (designed to offer some protection against raiders). Examples of tower houses within the study area include Cappoge Castle (AH 6) and Dubber Castle (AH 14).

Cappoge Castle (AH 6), located c. 163m north-north-west of the proposed orbital sewer route, was associated with the Woodcock family during the latter medieval period. In 1778 when Austin Cooper visited the castle, it stood as a three-storey tower house with corner turret on the south-eastern side (RMP file). However, by the time of the first edition OS map of 1843, the site appears to have been quarried away. Several programmes of archaeological investigations have been carried out within the area surrounding the castle site (Bennett 2000:214; 2006:574; 2007:437; 2008:377). The remains of the castle have not been identified, although a large medieval settlement dating from the 12th to 14th centuries has been recorded. This may explain why a tower house was erected at this location. The settlement was excavated as part of the realignment of the Ballycoolin Road, c. 140m north of the proposed orbital sewer route (AH 50).

Dubber Castle (AH 14) was erected between 1582 and 1611 by Sir Christopher Daniel Bellingham of Dunsoghly Castle and inhabited in 1664 by the first Lord Mayor of Dublin. Earthworks at the site give an indication to the position of the castle and associated features. It is recorded that Dubber House (AH 13, BtH 26) was constructed from the ruins of the castle.

Additional potential medieval settlement sites are also recorded in the study area of the Proposed Project. AH 15 represents a recorded field system. However, the earthworks present within this site suggest that this may be the location of a small medieval village, with small rectangular plots evident, along with a possible track way running in an east-west direction through the site and ridge and furrow cultivation. The site is located to the immediate north of the proposed orbital sewer route, although one linear earthwork does extend into the wayleave on a north-south alignment. This is likely to represent a former boundary.

At the western end of the Proposed Project, a site containing evidence for some medieval settlement was excavated at the beginning of 2013, within the former demesne of Abbotstown House, c. 750m north-east of the proposed orbital sewer route. The remains consisted of a probable medieval farmstead, characterised by ditches and pits. A significant amount of medieval pottery was recovered from the site (1,057 sherds), which dated to the mid-late 13th century (Bennett 2013:198, Licence Ref.: 13E0020).

At the eastern end of the Proposed Project, a previously unrecorded medieval settlement was excavated at Portmarnock, just outside of the study area, c. 650m north of the proposed outfall pipeline route (land based section). Six well-defined medieval plots were excavated, which produced over 2,000 sherds of medieval pottery (Bennett 2008:485). Wells were also discovered within the plots that contained water logged deposits, including well-preserved leather shoes and fragments of wooden bowls.

#### *Post-Medieval Period (c. AD1600 onwards)*

The cultural heritage of this period is more visible within the study area as it is characterised by structures and DLs that have survived due to being more recent in date. However, there are several recorded post-medieval sites listed within the RMP. These include Dubber House (AH 13), two late medieval or early post-medieval houses (AH 17 and AH 20) and the site of an inn, known as the Old Red Lion (AH 12). In addition, the sites of post-medieval structures have been identified as AAPs during the course of this assessment. These include the site of Wellfield Cottage (AAP 17), located within the townland of Saintdoolaghs, as well as the site of Cappoge House (AAP 4), which is located outside of the proposed orbital sewer route within the townland of Cappoge. In addition, an SMR record exists (with no known location) for the site of a post-medieval house within the townland of Sheephill. The house is possibly represented on Rocque's map of 1760, in the area that has been designated as AAP 2 as part of this assessment.

The 17th century saw a dramatic rise in the establishment of large residential houses around the country. A large country house was only a small part of the overall estate of a large landowner and provided a base to manage often large areas of land that could be located nationwide. Lands associated with the large houses were generally turned over to formal gardens, which were much the style of continental Europe. Gradually this style of formal avenues and geometric garden design was replaced during the mid-18th century by the adoption of parkland landscapes – to be able to view a large house within a natural setting. Although the creation of a parkland landscape involved working with nature, rather than against it, considerable constructional effort went into their creation. Earth was moved, field boundaries disappeared, streams were diverted to form lakes and quite often roads were completely diverted to avoid travelling anywhere near the main house or across the estate. There are a large number of recorded and unrecorded country houses within the study area of the Proposed Project, along with 26 DLs.

There are 12 recorded country houses located within the study area of the Proposed Project (BtH 3, 4, 7, 8, 9, 14, 16-19, 25, 26). The largest of these are Abbotstown House (BtH 4), Belcamp House (BtH 9) and St. Doolagh's Park (BtH 25). The current Abbotstown House, set within a large demesne (DL 1), replaced an earlier structure (shown on Rocque's map of 1760 and Taylor's map of 1816), when the estates of Abbotstown and Sheephill were amalgamated in 1832, and the current Abbotstown House was constructed on the site of Sheephill House. The first edition OS map of 1843 shows a number of small buildings at the site of the original Abbotstown House, c. 285m north-west of the proposed orbital sewer route. During the 19th century, the house was the principal seat of the Barons HolmPatrick of Abbotstown and remained so until 1947 when James Hans Hamilton, 3rd Baron HolmPatrick (1928–1991), lost part of his lands under a Compulsory Purchase Order to allow for the building of Connolly Hospital. The government eventually acquired the house in 2005 in order to develop the former demesne as an NSC.

Belcamp House (BtH 9) is located at the eastern end of the Proposed Project and today lies derelict after a fire in 2011. The house, designed by James Hoban (who also designed the White House in Washington DC) was converted into a college in 1893. A chapel and dormitory were added to the original structure (BtH 10, 11) and the demesne landscape (DL 8) maintained in order to provide an exclusive setting for the college. Today, the original late-18th century house remains badly damaged by fire, and the dormitory buildings have lost their roof (BtH 10).

All the associated outbuildings have been demolished, although the walled garden, as marked on the first edition OS map, survives.

In addition to the recorded country houses within the study area, a further 10 houses of medium size have been identified during the course of this assessment (UBH 1, 5, 6, 7, 8, 10, 11, 14, 15, 18). The landscape surrounding Dublin City was valued by the land-owning classes as a prime location to establish a country house, and whilst many to the south of the M50 Motorway and R139 Road have been lost to the residential suburbs of the city, those to the north of these roads have a better survival rate.

Vernacular architecture is defined in James Stevens Curl's (1997) *Encyclopaedia of Architectural Terms* as 'a term used to describe the local regional traditional building forms and types using indigenous materials, and without grand architectural pretensions', i.e. the homes and workplaces of the ordinary people built by local people using local materials. This is in contrast to formal architecture, such as the grand estate houses of the gentry, churches and public buildings, which were often designed by architects or engineers. The majority of vernacular buildings are domestic dwellings. Examples of other structures that may fall into this category include shops, outbuildings, mills, limekilns, farmsteads, forges, gates and gate piers. There are only a small number of examples of vernacular architecture recorded within the study area of the Proposed Project, as many buildings have been lost to the widening of roads or have been replaced with modern dwellings. However, two thatched cottages do survive within the townlands of Collinstown (BtH 5) and Dardistown (BtH 6). In addition, a water pump is recorded in the townland of Saintdoolaghs (BtH 15). Three additional vernacular houses have been identified within the study area during the course of this assessment (UBH 9, 12, 13). UBH 13 represents the derelict remains of vernacular cottages, whereas UBH 9 and 12 consist of vernacular farmhouses.

The remains of industrial built heritage are also an important part of the architectural heritage record within the study area. Whilst there is only one recorded site of this type within the study area (BtH 23, Kinsaley Bridge), a number of unrecorded features have been identified during this assessment. Three of these relate to the Dublin-Belfast railway. The railway was officially opened in 1844, running between a temporary station in Dublin by the Royal Canal and Drogheda. This railway linked the towns of Clontarf; Raheny; Baldoyle; Portmarnock; Malahide; Donabate; Rush and Lusk; Skerries; Balbriggan; Gormanston; Laytown; Bettystown; and Drogheda. The railway itself, which is still in use, has been listed as UBH 16. The proposed outfall pipeline route (land based section) will pass underneath the railway, and the Proposed Project will be located near to a number of railway bridges (UBH 17, 19).

### **16.3.2 Recorded Archaeological Heritage Sites**

There are a total of 50 sites or groups of AH sites recorded within the study area of the Proposed Project. Of these, none are classed as National Monuments or further protected with a PO. The sites are listed in Table 16.2 and described in detail in Appendix A16.1 in Volume 3 Part B of this EIAR. Please note that some of the AH sites are also recorded as protected structures within the *Fingal Development Plan 2017-2023* (FCC 2017). Where this is the case, they are subject to protection under the Planning and Development Act 2000 as well as the National Monuments Act 1930.

Of the 50 sites, 10 are located in or partially within the footprint of the proposed orbital sewer route or the outfall pipeline route (land based section) (AH 2, AH 11, AH 31, AH 33, AH 38, AH 39, AH 41, AH 42, AH 45, AH 51). It should also be noted that some of the sites (as indicated below) have already been archaeologically excavated. Sites are marked in Figure 16.1 Proposed Project (Blanchardstown) Showing Surrounding Sites of Cultural Heritage Significance to Figure 16.6 Proposed Project (Baldoyle Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance.

**Table 16.2: Recorded Archaeological Heritage Sites Within the Study Area of the Proposed Project**

AH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
AH 1	Castleknock	Burial ground	c. 493m south-east (proposed orbital sewer route)	RMP DU014-043
AH 2 (Also BtH 2)	Abbotstown	Church & graveyard	0m (tunnel) (proposed orbital sewer route)	RMP DU013-020001-3
AH 3 (Also BtH 27)	Dunsink	Earthwork	c. 210m south-east (proposed orbital sewer route)	RMP DU014-032
AH 4	Blanchardstown	Mill	c. 77m south-west (proposed orbital sewer route)	RMP DU013-035
AH 5	Dunsink	Ring ditch <sup>1</sup>	c. 250m south to south-east (proposed orbital sewer route)	RMP DU014-026
AH 6	Cappoge	Tower house (site of)	c. 81m north-west (proposed orbital sewer route)	RMP DU014-027
AH 7	Cappoge	Habitation site <sup>2</sup>	c. 51m south-east (proposed orbital sewer route)	RMP DU014-027
AH 8	Cappoge	Ringfort	c. 325m south-east (proposed orbital sewer route)	RMP DU014-029
AH 9	Coldwinters	Ring ditch	c. 312m north-west (proposed orbital sewer route)	RMP DU014-015
AH 10	Coldwinters	Enclosure	c. 300m north-west (proposed orbital sewer route)	RMP DU014-016
AH 11	Dubber	Enclosure	0m (proposed orbital sewer route)	RMP DU014-017
AH 12	Dubber	Inn	c. 190m south (proposed orbital sewer route)	RMP DU014-047
AH 13 (Also BtH 26)	Dubber	House	c. 95m north (proposed orbital sewer route)	RMP DU014-019
AH 14	Dubber	Castle	c. 120m north (proposed orbital sewer route)	RMP DU014-018
AH 15	Silloge	Field system	c. 30m north (proposed orbital sewer route)	RMP DU014-021
AH 16	Toberbunny	Holy well	c. 350 east-north-east (proposed orbital sewer route)	RMP DU014-023
AH 17	Clonshagh	House – 16th/17th century	c. 400m south (proposed orbital sewer route)	RMP DU014-056

<sup>1</sup> Excavated prior to the construction of the M50 Motorway

<sup>2</sup> Excavated prior to the construction of the M50 Motorway

AH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
(Also BtH 7)			c. 610m south-west (proposed WwTP)	
AH 18	Burgage	Enclosure	c. 406m east (proposed WwTP)	RMP DU015-095
AH 19	Springhill	Ringfort	c. 290m east (proposed WwTP)	RMP DU015-056
AH 20	Belcamp	House – 16th/17th century	c. 670m south (proposed WwTP)	RMP DU015-061
AH 21	Middletown	Enclosure	c. 485m north-west (proposed WwTP)	RMP DU015-008
AH 22	Springhill	Enclosure	c. 200m east (proposed outfall pipeline route (land based section)) c. 500m north-east (proposed WwTP)	RMP DU015-057
AH 23	Belcamp	Ringfort	c. 912m south-east (proposed WwTP)	RMP DU015-033
AH 24 (Also BtH 20)	Kinsaley	Church & graveyard	c. 255m north (proposed outfall pipeline route (land based section))	RMP DU015-002001-2
AH 25	Kinsaley	Enclosure	c. 375m west (proposed outfall pipeline route (land based section))	RMP DU015-010
AH 26	Saintdoolaghs	Ring ditch	c. 340m west (proposed outfall pipeline route (land based section))	RMP DU015-011
AH 28	Maynetown	Enclosure	c. 185m north-west (proposed outfall pipeline route (land based section))	RMP DU015-055
AH 30	Kinsaley	Enclosure	c. 45m north-east (proposed outfall pipeline route (land based section))	RMP DU015-111
AH 31	Merryfalls	Enclosure	0m (within proposed orbital sewer route)	RMP DU014-105
AH 32	Merryfalls	Enclosure	c. 90m south (proposed orbital sewer route)	RMP DU014-106
AH 33	Merryfalls	Field system	0m (partially within proposed orbital sewer route)	RMP DU014-107
AH 34	Silloge	Enclosure	c. 20m south (proposed orbital sewer route)	RMP DU014-110
AH 35	Springhill	Track way	c. 93m south (proposed outfall pipeline route (land based section))	RMP DU015-125
AH 36	Springhill	Field system	c. 40m east (proposed outfall pipeline route (land based section))	RMP DU015-127
AH 37	Springhill	Enclosure	c. 20m east (proposed outfall pipeline route (land based section))	RMP DU015-126
AH 38	Kinsaley	Enclosure	0m (partially within proposed outfall pipeline route (land based section))	RMP DU015-110

AH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
AH 39	Kinsaley	Enclosure	0m (partially within proposed outfall pipeline route (land based section))	RMP DU015-109
AH 40	Portmarnock	Enclosure	c. 320m east-south-east (proposed outfall pipeline route (land based section))	RMP DU015-121
AH 41	Saintdoolaghs	Enclosure	0m (partially within proposed outfall pipeline route (land based section))	RMP DU015-123
AH 42	Saintdoolaghs	Field system	0m (partially within proposed outfall pipeline route (land based section))	RMP DU015-124
AH 43	Drumnigh	Enclosure	c. 200m north-north-east (proposed outfall pipeline route (land based section))	RMP DU015-117
AH 44	Drumnigh	Ring ditch	c. 10m west (proposed access road)	RMP DU015-119
AH 45	Drumnigh	Enclosure	0m (partially within proposed outfall pipeline route (land based section))	RMP DU015-118
AH 46	Maynetown	Enclosure	To immediate north (proposed outfall pipeline route (land based section))	RMP DU015-130
AH 47	Drumnigh	Enclosure	c. 70m north (proposed outfall pipeline route (land based section))	RMP DU015-118
AH 48	Ballystruan	Enclosure	c. 200m west (proposed orbital sewer route)	RMP DU014-121
AH 49	Ballystruan	Cremation pit	c. 150m west (proposed orbital sewer route)	RMP DU014-120
AH 50	Kildonan	Enclosure & corn drying kiln	c. 70m north-west (proposed orbital sewer route)	RMP DU014-122001-3
AH 51	Cappoge	Burial ground <sup>3</sup>	0m (partially within proposed orbital sewer route)	RMP DU014-117
AH 52	Cappoge	Medieval structures	c. 110m north-west (proposed orbital sewer route)	RMP DU014-116002-3

<sup>3</sup> Excavated in 2006

### 16.3.3 Recorded Shipwrecks

As part of the Proposed Project, a proposed outfall pipeline route will be constructed from the proposed WwTP at Clonshagh to a marine discharge point approximately 1km north-east of Ireland's Eye. The marine environment possesses archaeological potential due to the presence of shipwrecks, which are protected under the National Monuments Act. The Shipwreck Inventory records 27 shipwrecks within the vicinity of Portmarnock Strand. These are listed below in Table 16.3 and detailed in Appendix A16.2 in Volume 3 Part B of this EIAR. Ships with a known location are shown within the marine archaeological reports included in Appendices A16.12 to A16.14 in Volume 3 Part B of this EIAR.

<sup>3</sup> Excavated in 2006.

**Table 16.3: Recorded Shipwreck Sites Within the Study Area of the Proposed Project**

Shipwreck Ref.	Name	Approximate Location	Date	Coordinates (If Known)
W00770	Jamaica Packet	Velvet Strand, Portmarnock	1887/1888	n/a
W00778	Malfilatre	Portmarnock Point/A bank inside Irelands Eye	28/12/1899	n/a
W00792	Perseverance	Portmarnock, Velvet Strand/spit of Baldoyle	9/2/1861	n/a
W00811	Weiser	Velvet Strand, Portmarnock	1859	n/a
W00812	Weser	Howth, north side of Baldoyle	4/4/1858	n/a
W00817	Unknown	North of Howth	13th/14th century	n/a
W00818	Unknown	Portmarnock	Dec. 1464	n/a
W00830	Unknown	Portmarnock Strand	Pre 1853	53 24 20.479N 06 06 15.124W
W00839	Unknown	Velvet Strand, Portmarnock	13/2/1861	n/a
W00841	Unknown	Portmarnock Strand	Pre 1869	53 24 31.919N, 06 06 34.481W
W00842	Unknown	Portmarnock Strand	Pre 1869	53 24 12.549N, 06 06 08.479W
W00847	Unknown	Portmarnock Strand, behind the country club	1920	n/a
W00850	Unknown	Velvet Strand, Portmarnock	Unknown	n/a
W00856	Unknown	Portmarnock Beach, midway	Unknown	53 25 29.9N, 06 07 19.2W
W00857	Unknown	Portmarnock Stand, near the point	Unknown	53 24 18.24N, 06 06 27.72W
W00858	Unknown	Portmarnock Stand, near the point	Unknown	53 24 10.26N, 06 06 12.12W
W00859	Unknown	Portmarnock Stand, near the point	Unknown	53 24 32.1N, 06 06 42.12W
W00860	Unknown	Portmarnock Strand	Unknown	53 24 53.4N, 06 06 51.66W
W00861	Unknown	Portmarnock Strand	Unknown	53 25 40.02N, 06 07 13.92W
W00736	Active	Baldoyle, near	27/10/1804	n/a
W00742	Bahia Packet	Baldoyle, near	26/2/1858	n/a
W00744	British Queen	Baldoyle	16/11/1842	n/a
W00752	Elizabeth	Baldoyle Bank	2/4/1882	n/a

Shipwreck Ref.	Name	Approximate Location	Date	Coordinates (If Known)
W00740	Annie/Amy	North of Baldoyle	25/1/1853	n/a
W00755	Fanny	Baldoyle	2/3/1881	n/a
W00756	Gainsborough	Carrick Hill/Baldoyle strand	27/11/1838	n/a
W00758	Globe	Baldoyle	17/11/1842	n/a

#### 16.3.4 Stray Archaeological Finds

A review of the topographical files held by the National Museum of Ireland has shown that there are relatively few records of stray archaeological objects noted within the study area of the Proposed Project. Those that are recorded come from the eastern part of the landscape, near the coastal margins. They include several buttons, a possible bronze ring brooch, a bronze buckle and two pieces of lead from Saintdoolaghs (NMI Ref.: IA/241/1988, IA/189/86) and a possible Viking decorated grave slab fragment from Balgriffin (1958:50). The finds are described in Appendix A16.3 in Volume 3 Part B of this EIAR.

#### 16.3.5 Recorded Built Heritage

There are a total of 28 structures recorded within the study area of the Proposed Project, which are listed within the RPS or the NIAH. The buildings are listed in Table 16.4 and described in detail in Appendix A16.4 in Volume 3 Part B of this EIAR. Please note that some of the recorded AH sites are also RPSs within the *Fingal Development Plan 2017-2023* (FCC 2017). Where this is the case, they are subject to protection under the Planning Act 2000 (as amended) as well as the National Monuments Act 1930 (as amended).

None of the structures are located within the footprint of the Proposed Project with the exception of BtH 2 (graveyard), where the proposed orbital sewer route will be tunnelled beneath. Sites are marked in Figure 16.1 Proposed Project (Blanchardstown) Showing Surrounding Sites of Cultural Heritage Significance to Figure 16.6 Proposed Project (Baldoyle Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance.

**Table 16.4: Built Heritage Structures Recorded Within the Study Area of the Proposed Project**

BtH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
BtH 1	Castleknock	Canal Bridge	c. 415m south (proposed orbital sewer route)	RPS 694 NIAH 11354004
BtH 2 (Also AH 2)	Abbotstown	Graveyard	0m (tunnel) (proposed orbital sewer route)	RPS 684 NIAH 11354005
BtH 3	Dunsink	Elm Green House	c. 440m south-east (proposed orbital sewer route)	RPS 686 NIAH 11354007
BtH 4	Sheephill	Abbotstown House	c. 310m north-west (proposed orbital sewer route) & immediately adjacent to proposed access road.	RPS 683 NIAH 11354006

BtH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
BtH 5	Collinstown	Thatched cottage	c. 60m south (proposed orbital sewer route)	RPS 604 NIAH 11349003
BtH 6	Dardistown	Thatched cottage	c. 60m south (proposed orbital sewer route)	NIAH 11349004
BtH 7 (Also AH 17)	Clonshagh	Woodlands House & green house	c. 400m south (proposed orbital sewer route) c. 610m south-west (proposed WwTP)	RPS 1907/08
BtH 8	Belcamp	Belcamp (house)	c. 400m south (proposed WwTP)	NIAH 11349005 (demolished)
BtH 9	Belcamp	Belcamp House	c. 880m south-east (proposed WwTP)	RPS 463 NIAH 11350024
BtH 10	Belcamp	Belcamp Chapel	c. 875m south-east (proposed WwTP)	RPS 463 NIAH 11350035
BtH 11	Belcamp	Belcamp dormitories	c. 895m south-east (proposed WwTP)	RPS 463 NIAH 11350036-37
BtH 12	Belcamp	Bridge	c. 955m south-east (proposed WwTP))	RPS 463 NIAH 11350040
BtH 13	Belcamp	Memorial tower	c. 1km south-east (proposed WwTP))	RPS 463 NIAH 11350025
BtH 14	Springhill	Springhill House	c. 400m east (proposed WwTP)	RPS 792 NIAH 11350013
BtH 15	Saintdoolaghs	Water pump	c. 770m east (proposed WwTP))	NIAH 11350014
BtH 16	Belcamp	Belcamp Hutchinson	c. 1km south-east (proposed WwTP)	RPS 789
BtH 17	Saintdoolaghs	Limehill House	c. 875m east (proposed WwTP)	NIAH 11350015
BtH 18	Saintdoolaghs	Emsworth	c. 30m south (proposed outfall pipeline route (land based section))	RPS 458 NIAH 11350010
BtH 19	Kinsaley	Kinsaley House	c. 155m north-north-east (proposed outfall pipeline route (land based section))	RPS 464 NIAH 11350009
BtH 20 (Also AH 24)	Kinsaley	Church & graveyard	c. 255m north (proposed outfall pipeline route (land based section))	RPS 455 NIAH 11350033
BtH 21	Kinsaley	Catholic Church	c. 355m north (proposed outfall pipeline route (land based section))	RPS 454 NIAH 11350003
BtH 22	Kinsaley	Post box	c. 360m north (proposed outfall pipeline	NIAH 11350005

BtH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
			route (land based section))	
BtH 23	Kinsaley	Bridge	c. 400m north-north-west (proposed outfall pipeline route (land based section))	NIAH 11350006
BtH 24	Kinsaley	Gate lodge to Kinsaley Hall	c. 355m north-north-west (proposed outfall pipeline route (land based section))	RPS 456 NIAH 11350008
BtH 25	Saintdoolaghs	St. Doolagh's Park	c. 515m west (proposed outfall pipeline route (land based section))	RPS 460 NIAH 11350019
BtH 26 (Also AH 13)	Dubber	Dubber House	c. 95m north (proposed orbital sewer route)	RPS 617
BtH 27 (Also AH 3)	Dunsink	Earthwork	c. 210m south-east (proposed orbital sewer route)	RPS 685
BtH 28	Kinsaley	Former research building	c. 20m north (proposed outfall pipeline route (land based section))	RPS 914

### 16.3.6 Areas of Archaeological Potential

An examination of the historical mapping of the study area, aerial photographic coverage, Excavations Bulletin (1970-2016) and supporting documents, along with field inspections, has resulted in the identification of 21 AAPs, which are listed below in Table 16.5. These are described in detail in Appendix A16.5 in Volume 3 Part B of this EIAR. Sites are marked in Figure 16.1 Proposed Project (Blanchardstown) Showing Surrounding Sites of Cultural Heritage Significance to Figure 16.6 Proposed Project (Baldoyle Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance.

**Table 16.5: Areas of Archaeological Potential Identified Within the Study Area of the Proposed Project**

AAP No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
AAP 1	Abbotstown	Mound	To immediate north-west (proposed orbital sewer route)	N/a
AAP 2	Sheephill	Possible post-medieval house site	Partially within proposed orbital sewer route (tunnel)	N/a
AAP 3	Sheephill	Possible enclosure	Partially within proposed orbital sewer route	N/a
AAP 4	Cappoge	Site of Cappoge House	To immediate north of proposed orbital sewer route	N/a
AAP 5	Sheephill	Two tree ring sites	Partially within proposed orbital sewer route	N/a
AAP 6	Huntstown	Drumlin	Partially within proposed orbital sewer route	N/a
AAP 7	Merryfalls	Watercourse	Partially within proposed orbital sewer route	N/a
AAP 8	Silloge	Proximity to AH 15 & AH	Proposed orbital sewer route passes through	N/a

AAP No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
		34 and watercourse (field system & enclosure)	this area	
AAP 9	Silloge	Watercourse	Partially within proposed orbital sewer route	N/a
AAP 10	Abbotstown/ Blanchardstown	Riverine environment	Within proposed orbital sewer route	N/a
AAP 11	Clonshagh	Ring ditch	c. 255m north-north-east (proposed orbital sewer route)	N/a
AAP 12	Clonshagh	Enclosure	Within proposed WwTP	N/a
AAP 13	Middletown	Enclosure	c. 100m north-north-west (proposed WwTP)	N/a
AAP 14	Middletown	Enclosure	c. 55m north-west (proposed WwTP)	N/a
AAP 15	Springhill	Enclosure	c. 150m east (proposed WwTP)	N/a
AAP 16	Kinsaley	Area of water logged ground	Proposed outfall pipeline route (land based section) passes through this area	N/a
AAP 17	Saintdoolaghs	Site of Wellfield Cottage	Partially within proposed outfall pipeline route (land based section)	N/a
AAP 18	Snugborough	Enclosures	c. 53m south (proposed outfall pipeline route (land based section))	N/a
AAP 19	Snugborough, Drumnigh, Maynetown, Burrow	Coastal area & proliferation of archaeological sites	Proposed outfall pipeline route (land based section) passes through this area	N/a
AAP 20	Springhill	Ring ditch	c. 385m east (proposed outfall pipeline route (land based section))	N/a
AAP 21	Clonshagh	Watercourse	Partially within proposed outfall pipeline route (land based section)	N/a

### 16.3.7 Designed Landscapes

An examination of the NIAH garden survey, along with the historical mapping of the study area, aerial photographic coverage, supporting documents and field inspections, has resulted in the identification of 26 DLs located within the study area of the Proposed Project. These are listed below in Table 16.6 and are described in detail in Appendix A16.6 in Volume 3 Part B of this EIAR. Sites are marked in Figure 16.1 Proposed Project (Blanchardstown) Showing Surrounding Sites of Cultural Heritage Significance to Figure 16.6 Proposed Project (Baldoye Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance.

**Table 16.6: Designed Landscapes Identified Within the Study Area of the Proposed Project**

DL No.	Townland	Associated with	Distance from Proposed Project	Statutory Protection
DL 1	Abbotstown, Sheephill, Deanestown	Abbotstown House (BtH 4)	0m (proposed orbital sewer route and Abbotstown pumping station)	BtH 4 listed in the RPS
DL 2	Dunsink	Hillbrook House (UBH 1)	0m (proposed orbital sewer route)	None
DL 3	Dunsink	Elmgreen House (BtH 3)	c. 240m south-east (proposed orbital sewer route)	BtH 3 listed in the RPS
DL 4	Springhill/Burgage	Springhill House (BtH 14)	To immediate east of proposed WwTP	BtH 14 listed in the RPS
DL 5	Baskin	Baskin Hill House (UBH 11)	c. 595m north-north-west (proposed WwTP)	None
DL 6	Belcamp	Belcamp (house) (BtH 8)	c. 300m south (proposed WwTP)	BtH 8 listed in NIAH, but now demolished
DL 7	Clonshagh	Woodlands (BtH 7, AH 17)	c. 480m south-west (proposed WwTP)	BtH 7 listed in RPS & RMP
DL 8	Clonshagh/Belcamp	Belcamp House (BtH 9-13)	c. 455m south-east of proposed WwTP	Structures listed in RPS
DL 9	Bohammer	Emsworth (BtH 18)	0m (proposed outfall pipeline route (land based section))	BtH 18 listed in RPS
DL 10	Abbeyville/Kinsaley	Abbeyville House	c. 150m north (proposed orbital sewer route) (c. 315m north, demesne included within an Architectural Conservation Area (ACA))	Principal house listed in RPS. Part of demesne is an ACA.
DL 12	Cappoge	Cappoge House (AAP 4)	To immediate north (proposed orbital sewer route)	None
DL 13	Kildonan	Kildonan House (UBH 5)	c. 260m west-south-west (proposed orbital sewer route)	None
DL 14	Dubber	Dubber House (BtH 26, AH 13)	To immediate north of the proposed orbital sewer route	BtH 14 listed in RPS & RMP
DL 15	Ballymun	Ballymun House (no longer present)	c. 70m north (proposed orbital sewer route)	None
DL 16	Clonshagh	Edendale House (no longer present)	c. 300m north (proposed orbital sewer route) & c. 355m west-north-west (proposed WwTP)	None

DL No.	Townland	Associated with	Distance from Proposed Project	Statutory Protection
DL 17	Middletown	Upper Middletown House (no longer present)	To immediate north-west of proposed WwTP	None
DL 18	Middletown	Lower Middletown House (UBH 10)	c. 44m north-west (proposed WwTP)	None
DL 19	Kinsaley	Kinsaley House (BtH 19)	To immediate north-east (proposed outfall pipeline route (land based section))	BtH 19 listed in RPS
DL 20	Saintdoolaghs	St. Doolagh's Park (BtH 25)	0m (proposed outfall pipeline route (land based section))	BtH 25 listed in RPS
DL 21	Saintdoolaghs	Wellfield Cottage (AAP 17)	0m (proposed outfall pipeline route (land based section))	None
DL 22	Snugborough	Snugborough Cottage (no longer present)	c. 70m south-south-west (proposed outfall pipeline route (land based section))	None
DL 23	Drumnigh	Merton (UBH 15)	c. 155m north-north-east (proposed outfall pipeline route (land based section))	House and demesne is in an ACA.
DL 24	Drumnigh	Drumnigh Lodge (UBH 14)	c. 10m north-north-east (proposed outfall pipeline route (land based section))	House and demesne is in an ACA.
DL 25	Maynetown	Mayne Lodge (UBH 18)	c. 45m south-south-west (proposed outfall pipeline route (land based section))	None
DL 26	Cappoge	Heathfield House	c. 145m south-east (proposed orbital sewer route)	None
DL 27	Silloge	Silloge House (UBH 8)	c. 15m north (proposed orbital sewer route)	None

### 16.3.8 Unrecorded Recorded Built Heritage

An examination of the historical mapping of the study area, aerial photographic coverage, supporting documents, along with field inspections, has resulted in the identification of 19 structures of built heritage significance, which are not listed within the RPS or NIAH. These are listed below in Table 16.7 and are described in detail in Appendix A16.7 in Volume 3 Part B of this EIAR. Sites are marked in Figure 16.1 Proposed Project (Blanchardstown) Showing Surrounding Sites of Cultural Heritage Significance to Figure 16.6 Proposed Project (Baldoyle Estuary Nature Reserve) Showing Surrounding Sites of Cultural Heritage Significance.

**Table 16.7: Unrecorded Built Heritage Structures Recorded Within the Study Area of the Proposed Project**

UBH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
UBH 1	Dunsink	Hillbrook House	c. 175m south-east (proposed orbital sewer route)	N/a
UBH 2	Dunsink/	Demesne wall	Within pipeline proposed orbital sewer route	Originally associated

UBH No.	Townland	Classification	Distance from Proposed Project	Statutory Protection
	Sheephill		(tunnel)	with BtH 4 (RPS)
UBH 3	Dunsink	Cottage	c. 225m south-east (proposed orbital sewer route)	N/a
UBH 4	Cappoge	Vernacular house	c. 25m north (proposed orbital sewer route)	N/a
UBH 5	Kildonan	Kildonan House	c. 310m west-south-west (proposed orbital sewer route)	N/a
UBH 6	Dubber	Williamsville	c. 270m south-south-east (proposed orbital sewer route)	N/a
UBH 7	Balseskin	Rockmount house	c. 180m south (proposed orbital sewer route)	N/a
UBH 8	Silloge	Silloge house, in ruins	c. 42m north (proposed orbital sewer route)	N/a
UBH 9	Clonshagh	Vernacular house	c. 70m north (proposed orbital sewer route) c. 350m west (proposed WwTP)	N/a
UBH 10	Cloghran	Middletown Lower House	c. 250m north-west (proposed WwTP)	N/a
UBH 11	Baskin	Baskin Hill House	c. 720m north-north-west (proposed WwTP)	N/a
UBH 12	Bohammer	Vernacular house	c. 85m north-north-west (proposed orbital sewer route)	N/a
UBH 13	Saintdoolaghs	Vernacular cottages	c. 600m east (proposed WwTP)	N/a
UBH 14	Drumnigh	Drumnigh Lodge	c. 105m north-north-east (proposed outfall pipeline route (land based section))	N/a
UBH 15	Drumnigh	Merton	c. 205m north-north-east (proposed outfall pipeline route (land based section))	N/a
UBH 16	Drumnigh	Railway	Within proposed outfall pipeline route (land based section) (tunnel)	N/a
UBH 17	Drumnigh	Railway bridge	0m – required for proposed access across railway	N/a
UBH 18	Maynetown	Mayne Lodge	c. 105m south (proposed outfall pipeline route (land based section))	N/a
UBH 19	Maynetown	Railway bridge	c. 185m south-south-west (proposed outfall pipeline route (land based section))	N/a

### 16.3.9 Townlands

The townland is an Irish land unit of considerable longevity, as many of the units are likely to represent much earlier land divisions. However, the term townland was not used to denote a unit of land until the Civil Survey of 1654. It bears no relation to the modern word ‘town’ but, like the Irish word baile, refers to a place. It is possible that the word is derived from the Old English tun land and meant ‘*the land forming an estate or manor*’ (Culleton 1999). The Proposed Project passes through and in immediate proximity to a total of 46 townlands (see Table 16.1).

Gaelic land ownership required a clear definition of the territories held by each sept and a need for strong, permanent fences around their territories. It is possible that boundaries following ridge tops, streams or bog are more likely to be older in date than those composed of straight lines (ibid. 179).

The vast majority of townlands are referred to in the 17th century, when land documentation records begin. Many of the townlands are mapped within the Down Survey of the 1650s, so called, as all measurements were carefully 'laid downe' on paper at a scale of 40 perches to one inch. Therefore, most are in the context of pre-17th century landscape organisation (McErlean 1983).

In the 19th century, some demesnes, deer parks or large farms were given townland status during the OS, and some imprecise TBs in areas such as bogs or lakes were given more precise definition (ibid.). Larger tracks of land were divided into a number of townlands, and named Upper, Middle or Lower, as well as Beg and More (small and large) and north, east, south and west (Culleton 1999). By the time the first edition OS map had been completed, a total of 62,000 townlands were recorded in Ireland.

The large majority of townland names in the Dublin area reflect the predominance of the Anglo-Irish presence in the County and its resultant effect on the place names of the area. Townlands such as Abbotstown, Collinstown, Middletown, Springhill and Maynetown most likely derive from names of previous occupiers of the land. Table 16.8 lists the 24 TBs within the study area that will be crossed by the Proposed Project.

**Table 16.8: Townland Crossings Recorded Within the Study Area of the Proposed Project**

TB No.	Townlands	Primary Features
TB 1	Abbotstown/Dunsink	Road way
TB 2	Dunsink/Sheephill	Road way
TB 3	Sheephill/Cappoge	Field boundary – now removed
TB 4	Deanestown/Abbotstown	Road way
TB 5	Cappoge/Kildonan	Stream
TB 6	Kildonan/Huntstown	Ditch & hedge
TB 7	Huntstown/Coldwinters	No longer extant
TB 8	Coldwinters/Baleskin	No longer extant
TB 9	Baleskin/Dubber	Road way
TB 10	Dubber/Merryfalls	Ditch & hedge
TB 11	Merryfalls/Silloge	Bank & stream
TB 12	Silloge/Ballymun	Ditch & hedge
TB 13	Ballymun, Ballystruan, Turnapin Great	No longer extant
TB 14	Turnapin Great/Collinstown	Ditch
TB 15	Collinstown/Commons	Road way
TB 16	Commons/Dardistown/Toberbunny	Roadway & ditch & hedge
TB 17	Toberbunny/Clonshagh	Ditch

TB No.	Townlands	Primary Features
TB 18	Clonshagh/Clonshagh/Burgage/Middletown	Ditch, hedge & stream
TB 19	Middletown/Bohammer	Ditch, bank & hedge
TB 20	Bohammer/Kinsaley	Road way
TB 21	Kinsaley/ Saintdoolaghs	Ditch, bank & hedge
TB 22	Saintdoolaghs/Snugborough	No longer extant
TB 23	Snugborough/Drumnigh	Ditch
TB 24	Drumnigh/Maynetown	Ditch & hedge

### 16.3.10 Previous Archaeological Fieldwork Carried Out Within the Study Area

A review of the Excavations Bulletin (1970-2017) and archaeological reports held by FCC have revealed that a large amount of archaeological investigations (including testing, monitoring and excavation) have been carried out within the study area of the Proposed Project. Sections of the proposed orbital sewer route have already been subject to archaeological investigation. They include parcels of land within the townlands of Ballymun, Cappoge and Ballystruan. Any sites of archaeological potential that have been identified to date and remain unexcavated near the Proposed Project have now been included within the RMP and, where relevant, are cross referenced with the AH numbers below, as assigned by this assessment.

**Table 16.9: Previous Archaeological Excavations Recorded Within the Study Area of the Proposed Project**

Ex. Bulletin Ref.	Licence No.	Townland	Description
N/a	08E0148	Blanchardstown	Archaeological testing was carried out within the footprint of the proposed orbital sewer route in 2008, but nothing of significance was discovered.
2008:482	08E0146	Blanchardstown, Parlickstown, Coolmine, Corduff, Deanestown, Castleknock, Ashtown	Archaeological monitoring of site investigations was carried out as part of a drainage scheme. Nothing of archaeological significance was discovered.
2014:038	14E0122	Sheephill and Abbotstown	Archaeological monitoring was carried out as part of the NSC development to the west of a proposed access road for the Proposed Project. Nothing of archaeological significance was discovered.
2014:017 & 2015:022	14E0406	Deanestown	A programme of archaeological testing and archaeological monitoring was carried out as part of the NSC development to the east of a proposed access road for the Proposed Project. Nothing of archaeological significance was discovered.
2013:220 & 2014:013	14E0406	Deanestown	A programme of archaeological testing and monitoring led to the identification of possible prehistoric features c. 255m west-south-west of a proposed access road to the Proposed Project. Upon excavation, the site was recorded as an early Bronze Age fulacht fiadh.

Ex. Bulletin Ref.	Licence No.	Townland	Description
1994:090	94E0061	Dunsink	Archaeological monitoring was carried out within the footprint of the Proposed Project prior to the construction of the M50 Motorway. Nothing of archaeological significance was identified.
2008:452	08E0378	Dunsink	Archaeological testing was carried out c. 230m south-east of the Proposed Project. However, nothing of archaeological significance was identified.
2003:454	03E1096	Sheephill & Cappoge	Archaeological monitoring was carried out during the topsoil strip of a diverted gas pipe, which is crossed by the Proposed Project. Nothing of archaeological significance was identified.
2006:702	05E0064	Sheephill & Dunsink	Archaeological testing was carried out in advance of the M50 Motorway upgrade to the immediate south-east of the Proposed Project. Nothing of archaeological significance was identified.
2000:0214	99E0724	Cappoge	Archaeological testing was carried out c. 200m north-west of the Proposed Project, to the north of the site of a recorded castle (AH 6). Nothing of archaeological significance was identified.
2006:574 & 2007:437	06E0228	Cappoge	In 2006, archaeological testing and monitoring led to the identification of a multi-period archaeological site, within the footprint of the Proposed Project. This site was subject to archaeological excavation. Evidence for mid-Bronze Age settlement was identified, followed by the discovery of 16 early medieval burials (AH 51). The remains of a later medieval settlement, followed by post medieval activity, were also present. These remains have all been preserved by record.
2008:376	06E0228	Cappoge	As part of the southern Ballycoolin Road realignment, archaeological monitoring resulted in the discovery of a medieval settlement, part of which was also excavated to the south (2007:437). This site was preserved by record.
2008:377	08E0032	Cappoge	As part of the northern Ballycoolin Road realignment, archaeological monitoring resulted in the discovery of a medieval settlement, part of which was also excavated to the south of the road (2008:376). This site, which included medieval structures (AH 52), was preserved by record.
2004:0476	04E0384	Cappoge, Kildonan, Northpark, Finglas, Meakstown, Poppintree, Ballymun	Archaeological monitoring of the Dublin North Fringe Water Supply Scheme was carried out during 2004. Nothing of archaeological significance was identified.
2010:280	10E0462	Kildonan	Archaeological testing was carried out in an area to the immediate west-north-west of the proposed orbital sewer route as part of the Metro development. An enclosure was identified, along with corn drying kilns. These were thought to date to the early medieval period (AH 50).

Ex. Bulletin Ref.	Licence No.	Townland	Description
N/a	06E0736	Balseskin	Archaeological testing was carried out along the path of a sewerage pipeline – across the proposed orbital sewer route in Balseskin. Nothing of archaeological significance was identified.
2009:284	09E0480	Ballymun	Archaeological testing was carried out within part of the Proposed Project footprint as part of the Metro North project. Nothing of archaeological significance was identified.
2009:286	09E0478	Ballystruan	Archaeological testing was carried out to the immediate west of the Proposed Project as part of the Metro North project. Nothing of archaeological significance was identified. An enclosure (AH 48) and cremation pit (AH 49) were identified to the west of the Proposed Project.
2008:373	08E0529	Burgage & Springhill	Archaeological testing was carried out along sections of the proposed East-West Distributor Road. This included testing of a ringfort (AH 19) and a number of other sites of archaeological potential that were identified at the time, to the east of the Proposed Project.
2004:0633	04E1415	Maynetown	An extensive programme of archaeological testing was carried out within a development area to the immediate north of the Proposed Project, following on from geophysical survey. This investigated a large early medieval enclosure (AH 28) and resulted in the discovery of a previously unknown medieval settlement c. 720m to the north of the Proposed Project.
2003:485 & 2004:0446	03E1496 & 03E1535	Grange	Archaeological testing was carried out on a 133 acre site located to the immediate west of the Dublin-Belfast Railway line and south-west of the proposed outfall pipeline route (land based section). Numerous small-scale sites were discovered during the second phase of testing and during monitoring of topsoil stripping. The sites, which consisted of isolated pits, a cremation pit, burnt mound and ring-ditch, were all excavated during 2004.
2014:935	14E0007	Drumnigh	Archaeological testing was carried out to the immediate north of the proposed outfall pipeline route (land based section) and included the sites of AH 47 and AH 43 (enclosures) and AH 44 (ring ditch). Testing confirmed the presence of the two enclosures and a ring ditch.
No excavation ref.	03E0458	Maynetown	Archaeological monitoring was carried out as part of the Mayne Bridge Flood Alleviation Scheme, to the immediate south of the proposed temporary construction compound which will contain the launch shaft for the tunnel bore machine for the proposed outfall pipeline route (marine section). Nothing of archaeological significance was identified.

Ex. Bulletin Ref.	Licence No.	Townland	Description
2000:0327	00E0130	Maynetown	Archaeological monitoring was carried out c. 50m south-east of the proposed launch compound for the proposed outfall pipeline route (marine section). Nothing of archaeological significance was identified.
2016:396	16E0613	Portmarnock	Archaeological testing, followed by excavation, was carried out at an enclosure site c. 250m north of the proposed outfall pipeline route (land based section). The enclosure was dated to the early medieval period (AD641–763), and one skeleton was excavated from the site which possessed an earlier date (AD410–607), which may suggest a foundation burial.

### 16.3.11 Summary of Geophysical Survey at Proposed Wastewater Treatment Plant

As described in Section 16.2.5, a detailed geophysical survey was carried out within the proposed WwTP site in order to identify archaeological constraints that survived beneath the ground with no surface expression.

Target Archaeological Geophysics carried out the survey under licence 13R25. The survey was carried out during a period of very wet weather in 2013, which meant that not all the areas of the proposed WwTP were accessible. The results of Target's survey are summarised below. The full report, including figures and analysis is included as Appendix A16.8 in Volume 3 Part B of this EIAR.

#### CG 1

CG 1 was an anomaly located in the western most field within the proposed WwTP site. The geophysical results are characterised by the presence of a broad linear response, likely to represent a former paleo-channel. A small linear trend at the centre of the survey area may represent a natural feature or a boundary.

#### CG 2

CG 2 forms the southern portion of the proposed WwTP site. Although the area subject to survey was relatively narrow, a number of strong magnetic linear anomalies were noted throughout the area. These are likely to represent former field boundaries, some of which are marked on the first edition OS map (1843). Discrete curving linear anomalies were noted in the north-west part of CG 2, which possibly represent an early medieval field system. These features extend outside of the proposed WwTP site. Similar features were noted in the narrow eastern part of the survey area. These may represent an enclosure, although interpretation is difficult due to the narrow nature of the survey area.

#### CG 3

The most interesting response within CG 3 consists of the remains of a possible sub-circular enclosure, located in the north-east corner of the field. The entire feature was not identified during the survey due to disturbance around the corner of the field. However, it is located to the immediate north-east of the boundary of the proposed WwTP site. It occupies an area to the immediate south-east of a paleo-channel, which was also identified as an anomaly in the survey and is clear on some of the aerial photograph sets. The topography in the area shows that it partially occupies a gradual north-facing slope that runs towards the stream, which currently borders the field. Other anomalies within CG 3 include magnetic disturbance from overhead cables and a number of linear features

that are likely to represent former boundaries. The eastern linear trends have the potential to represent a plough-damaged rectangular enclosure, although that interpretation is tentative.

#### CG 4

Access within CG 4 was limited due to a vegetable crop. Three areas within the overall field were surveyed, revealing linear anomalies and trends, orientated east to west. These are likely to represent recent drainage.

#### CG 5

Linear anomalies were also identified throughout CG 5. These are likely to represent drainage features, cultivation and a probable former boundary. The linear responses here are numerous and the potential that plough-damaged archaeological remains may be indicated in this location cannot be dismissed.

An additional geophysical survey was carried out in 2014 within the previously inaccessible areas as part of this EIAR, by Earthsound Archaeological Geophysics. Earthsound also carried out smaller surveys at eight other locations which are of archaeological potential along the proposed orbital sewer route (Licence Ref.: 14R0045). The full report including analysis and figures is included as Appendix A16.9 in Volume 3 Part B of this EIAR.

The survey results noted that weak magnetic trends and linear responses were similar to those identified in the initial survey by Target Geophysics (drainage and cultivation). With the exception of a single small area of positive magnetic enhancement, no other definitively archaeological anomalies were identified.

#### **16.3.12 Summary of Geophysical Survey Within the Proposed Orbital Sewer Route, Outfall Pipeline Route (Land Based Section) and Abbotstown Pumping Station**

The Geophysical Survey sections along the proposed orbital sewer route and at the proposed Abbotstown pumping station were targeted based on the identification of AAPs within the aerial photographic resource and the addition of some of these sites to the RMP. The works were carried out under licence 14R0045. The results of Earthsound's survey are summarised below. The full report including analysis and figures is included as Appendix A16.9.

Whilst some modern interference was detected within the survey results at the proposed Abbotstown pumping station site, two possible ditches were detected that may be archaeological in origin. In addition, a sub-circular anomaly with a radius of c. 14m was detected within the centre of the area, which may also possess archaeological potential.

Merryfalls (AH 31) – An enclosure is visible within the aerial photographic coverage of this landscape. Whilst a number of linear and curvilinear anomalies were identified during the survey of the site, none could be directly correlated with the site as shown within the aerial photographs.

Kinsaley (AH 38) – An enclosure is visible within the aerial photographic coverage of this landscape. Whilst a number of linear and curvilinear anomalies were identified during the survey of the site, none could be directly correlated with the site as shown within the aerial photographs.

Kinsaley (AH 39) – It was formerly proposed to run the proposed outfall pipeline route (land based section) further to the west of this specific site, which is identifiable as an enclosure within the aerial photographic coverage. The proposed outfall pipeline route (land based section) will now pass through the site. A former field boundary was identified crossing the survey area. Whilst a number of linear and curvilinear anomalies were identified during the survey of the site, none could be directly correlated with the site as shown within the aerial photographs.

Saintdoolaghs (AH 41) – The survey was carried out along the proposed outfall pipeline route (land based section) to the immediate north of an enclosure identified within the aerial photographic coverage. Three areas of positive magnetic enhancement may correspond to pits, whilst some curvilinear anomalies may be archaeological or geological.

Drumnigh (AH 47) – The survey was carried out along the proposed outfall pipeline route (land based section) to the immediate south of a large early medieval enclosure site, recently identified within the aerial photographic resource. A right-angled ditch was identified truncating the survey area that may represent a former field boundary. A possible pit was identified along with two possible ditches of archaeological potential.

Drumnigh (AH 45) – The southern side of a circular enclosure was identified during the survey, which is visible within the aerial photographic resource. A potential entrance way is visible within the survey results on the eastern side of the enclosure. A further possible pit was identified along with some weak curvilinear responses and ditches that have the potential to be archaeological.

Maynetown (AH 46) – Survey was carried out along the proposed outfall pipeline route (land based section) to the immediate south of an enclosure that is visible within the aerial photographic coverage of the landscape. Six areas containing potential pits, burning or archaeological activity were identified.

### **16.3.13 Summary of Archaeological Testing at the Proposed Wastewater Treatment Plant**

Fintan Walsh of Irish Archaeological Consultancy Ltd undertook a programme of test trenching under licence 13E355 at the proposed WwTP site during August and October of 2014 and February 2015. A phased approach was required in order to facilitate landowners and the harvesting of crops. During March and May 2016, a further programme of testing was carried out due to the expansion of the proposed WwTP site (to include landscaping) and the incorporation of access/egress roads into the design. The archaeological testing reports are included in Appendix A16.10 in Volume 3 Part B of this EIAR.

Despite a proliferation of recorded archaeological sites surrounding the proposed WwTP site, archaeological testing in 2014 and 2015 did not identify any features or deposits of archaeological potential within the site itself. During March 2016, two shallow pits were identified beneath a deposit of river silts in the north-western part of the proposed WwTP site. These were located c. 0.9m below the present ground level and may relate to Bronze Age burnt mound activity in the area, which may be associated with the watercourse that borders the proposed WwTP site to the north. Testing also assessed the potential enclosure located in the northern part of the proposed WwTP site, which was identified during geophysical survey. Two ditches were identified in the approximate location of the geophysical anomaly. However, both had been impacted upon by the insertion of post-medieval drainage pipes. Rapid water ingress prevented the excavation of sections across the ditches, but some animal bone was noted within the soft silty fill. No features of archaeological potential were identified between the two ditches. In May 2016, a possible kiln was identified within the north-west corner of the proposed WwTP site.

### **16.3.14 Summary of Intertidal Survey**

In April 2015, an intertidal assessment was carried out at Portmarnock Strand prior to the drilling of a borehole required as part of the proposed marine outfall site investigations. The survey was carried out by The Archaeological Dive Company, on behalf of Irish Archaeological Consultancy Ltd, under licences 15D0019 and 15R0025 and included a potential access route for the borehole rig along the strand. The results of the assessment are summarised below and the report is included in Appendix A16.11 in Volume 3 Part B of this EIAR.

A number of features were recorded and noted. No indication of any recorded shipwreck sites was noted, but the survey did identify a new timber shipwreck. The new site lies c. 80m directly east of borehole 1. It consists of the exposed tips of five framing timbers, which form a bow-shaped feature that is aligned north to south. The remains indicate the presence of a vessel beneath the covering sands, the base of which is likely to be intact. The location of the new wreck lies directly between borehole 1 and borehole 2, within the boundary of the proposed outfall pipeline route (marine section) where it will be tunnelled.

### 16.3.15 Summary of Marine Archaeological Geophysical Survey

In September 2015, an archaeological geophysical survey was carried out within the western section (4.1km) of the proposed outfall pipeline route (marine section) under licence 15R0092. The survey covered an 80m wide corridor. The survey deployed bathymetry, side-scan sonar, magnetometer and sub-bottom profile devices and was comprehensive and thorough. The location of the new shipwreck (identified by intertidal survey described above) is highlighted in the magnetometer survey, suggesting that the wreck site is perhaps more extensive than the visible remains indicate and that the wreck includes ferrous metal components. However, the absence of indicators in the sub-bottom profile survey data may qualify this by indicating a relatively small-scale craft.

The Bathymetry survey identified a single linear anomaly that produced a magnetic signature (B1), deemed to possess archaeological potential. The side-scan sonar survey identified multiple anomalies, but many of these were interpreted as representing natural seabed features or disturbance relating to the use of a ‘spud-barge’ during marine site investigations. A series of six locations were identified that were considered to warrant further investigation: ss4; the cluster of ss11, ss12, ss24; the cluster of ss15, ss22; ss16; the cluster of ss17, ss23, ss25; and ss18. The anomaly ss4 was located in close proximity to B1 (identified during the Bathymetric survey).

The Magnetometer survey identified two anomalies in close proximity to the newly identified shipwreck discovered during the intertidal survey. One further anomaly was identified where a dive survey was recommended (MG 7). The full report is included as Appendix A16.12 in Volume 3 Part B of this EIAR.

Dive surveys were recommended for the following anomalies:

**Table 16.10: Dive Survey Locations**

Dive Location	Anomaly Ref.	Nature of Anomaly
1	ss4, B1/MG7	Assess the nature of linear anomaly in sand and potential for outlying metallic debris by extending to include ss4.
2	ss11, ss12, ss24	Assess the nature of sonar anomaly complex.
3	ss15, ss22	Assess the nature of sonar anomaly complex.
4	ss16	Assess the nature of sonar anomaly, which appears to be expanse of cobbles. Work should focus on looking for debris trapped amongst cobbling.
5	ss17, ss23, ss25	Assess the nature of sonar anomaly complex.
6	ss18	Assess the nature of sonar anomaly complex.

### 16.3.16 Construction Phase

Archaeological dive surveys were conducted at six locations (as above) as a result of the geophysical survey, during June 2016 (Licence Ref.: 16D0051, 15R0076). None of the anomalies (as described in the above section) were found to be archaeological in nature. It was recommended that all disturbances to the seabed be monitored during the construction of the proposed outfall pipeline route (marine section). The full technical report is included in Appendix A16.13 in Volume 3 Part B of this EIAR.

## 16.4 Appraisal Method Used for Assessment of Impacts

The quality and type of an impact can be classed as one of the following (as per the *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017)):

- **Negative Impact:** A change which reduces the quality of the environment, for example a change that will detract from or permanently remove an archaeological/architectural monument/structure from the landscape;
- **Neutral Impact:** A change which does not affect the quality of the environment; or
- **Positive Impact:** A change which improves the quality of the environment, for example a change that improves or enhances the setting of an archaeological/architectural monument/structure.

The below terms are used in relation to the archaeological, architectural and cultural heritage and relate to whether a site will be physically impacted upon or not:

- **Direct Impact:** Where an archaeological/architectural feature or site is physically located within the footprint of the Proposed Project and entails the removal of part, or all, of the monument or feature; and
- **Indirect Impact:** Where a feature or site of archaeological/architectural heritage merit or its setting is located in close proximity to the footprint of a potential route alignment.

It should be noted that whilst impact levels and definitions are applied consistently to the cultural heritage, direct impacts on sites that are subject to statutory protection are considered to be more significant than sites/structures not subject to statutory protection.

**Table 16.10: Definition of Impact Significance (as per *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017))**

Impact Significance	Description
Imperceptible	An effect capable of measurement but without noticeable consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
Very significant	An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.

Impact Significance	Description
Profound	An effect which obliterates sensitive characteristics.

## 16.5 Impact of the Proposed Project

### 16.5.1 Construction Phase

#### Recorded Archaeological Heritage Sites

Of the 50 recorded archaeological sites, AH 11, AH 31 and AH 39 (enclosure sites) will be subject to a Very significant negative direct impact. The Proposed Project will have five Significant negative direct impacts on AH 38, AH 41 and AH 45 (enclosures), AH 33 (field system) and AH 44 (ring ditch). Moderate negative direct impacts will occur at AH 34 (enclosure) and AH 42 (field system). The remaining impacts are indirect or neutral, and in two cases, no impact is predicted.

The above impacts relate to the construction of the proposed orbital sewer route and outfall pipeline route (land based section). No impacts are predicted as a result of the construction of the proposed WwTP.

Potential Operational Phase impacts are dealt with in Section 16.5.2.

**Table 16.11: Predicted Impacts on Recorded Monuments**

AH No.	Classification	Distance from Proposed Project Element	Impact Type	Impact Significance
AH 1	Burial ground	c. 493m south-east	Neutral	N/a
AH 2 (Also BtH 2)	Church & graveyard	0m (proposed orbital sewer route tunnel)	Neutral	N/a
AH 3	Earthwork	c. 210m south-east	Neutral	N/a
AH 4	Mill	c. 77m south-west	Neutral	N/a
AH 5	Ring ditch	c. 250m south-south-east	N/a	N/a
AH 6 (Also BtH 27)	Tower house (site of)	c. 81m north-west	Neutral	N/a
AH 7	Habitation site	c. 51m south-east	N/a	N/a
AH 8	Ringfort	c. 325m south-east	Neutral	N/a
AH 9 (Also BtH 28)	Ring ditch	c. 312m north-west	Neutral	N/a
AH 10	Enclosure	c. 300m north-west	Neutral	N/a
AH 11 (Also BtH 29)	Enclosure	0m (proposed orbital sewer route)	Direct	Very significant negative
AH 12	Inn	c. 190m south	Neutral	N/a

AH No.	Classification	Distance from Proposed Project Element	Impact Type	Impact Significance
AH 13 (Also BtH 26)	House	c. 95m north	Neutral	N/a
AH 14 (Also BtH 26)	Castle	c. 120m north	Neutral	N/a
AH 15 (Also BtH 30)	Field system	c. 30m north	Neutral	N/a
AH 16 (Also BtH 31)	Holy well	c. 350 east-north-east	Neutral	N/a
AH 24 (Also BtH 20)	Church & graveyard	c. 255m north	Neutral	N/a
AH 25 (Also BtH 32)	Enclosure	c. 375m west	Neutral	N/a
AH 26 (Also BtH 33)	Ring ditch	c. 340m west	Neutral	N/a
AH 28	Enclosure	c. 185m north-west	Neutral	N/a
AH 30	Enclosure	c. 45m north-east	Neutral	N/a
AH 31	Enclosure	0m (proposed orbital sewer route)	Direct	Very significant negative
AH 32	Enclosure	c. 90m south	Neutral	N/a
AH 33	Field system	0m (proposed orbital sewer route)	Direct	Significant negative
AH 34	Enclosure	To immediate south of proposed orbital sewer route	Direct	Moderate negative
AH 35	Track way	c. 93m south	Neutral	N/a
AH 36	Field system	c. 40m east	Neutral	N/a
AH 37	Enclosure	c. 20m east	Neutral	N/a
AH 38	Enclosure	0m (proposed outfall pipeline route (land based section))	Direct	Significant negative
AH 39	Enclosure	0m (proposed outfall pipeline route (land based section))	Direct	Very significant negative
AH 40	Enclosure	c. 320m east-south-east	Neutral	N/a
AH 41	Enclosure	0m (proposed outfall pipeline route (land based section))	Direct	Significant negative
AH 42	Field system	0m (proposed outfall pipeline route (land based section))	Direct	Moderate negative

AH No.	Classification	Distance from Proposed Project Element	Impact Type	Impact Significance
AH 43	Enclosure	c. 200m north-north-east	Neutral	N/a
AH 44	Ring ditch	c. 10m west (proposed access road (part of proposed outfall pipeline route (land based section)))	Direct	Significant negative
AH 45	Enclosure	0m (proposed outfall pipeline route (land based section))	Direct	Significant negative
AH 46	Enclosure	c. 20m north	Neutral	N/a
AH 47	Enclosure	c. 70m north	Neutral	N/a
AH 48	Enclosure	c. 200m west	Neutral	N/a
AH 49	Cremation pit	c. 150m west	Neutral	N/a
AH 50	Enclosure & corn drying kiln	c. 70m north-west	Neutral	N/a
AH 51	Burial ground	0m (proposed orbital sewer route)	N/a	N/a
AH 52	Medieval structures	c. 110m north-west	N/a	N/a

#### Recorded Shipwrecks

Only one shipwreck has been identified during the course of marine archaeological investigations. This consists of a previously unrecorded timber wreck (thought to possess metal fittings) that is submerged on the beach at Portmarnock. The proposed outfall pipeline route (marine section) will be tunnelled at this location, and as such, the wreck will not be subject to any negative impact as a result of the Proposed Project going ahead.

However, it remains possible that archaeological deposits or features associated with shipwrecks remain buried at deeper levels beneath the current seabed. Dredging associated with the laying of the proposed outfall pipeline route (marine section) has the potential, directly and negatively, to impact these potential remains to a Significant or Profound degree.

#### Recorded Built Heritage

Of the 28 protected structures, none will be impacted upon by the construction of the proposed orbital sewer route/outfall pipeline route (land based section).

Potential Operational Phase impacts are dealt with in Section 16.5.2.

**Table 16.12: Predicted Impacts on Recorded Built Heritage Sites – Proposed Orbital Sewer Route/Outfall Pipeline Route (Land Based Section)**

BtH No.	Classification	Distance from Proposed Project Element	Impact Type	Impact Significance
BtH 1	Canal Bridge	c. 415m south	Neutral	N/a
BtH 2 (Also AH 2)	Graveyard	0m (tunnel)	Neutral	N/a
BtH 3	Elm Green House	c. 440m south-east	Neutral	N/a
BtH 4	Abbotstown House	c. 310m north-west (proposed orbital sewer route) immediately adjacent to proposed access road.	Neutral	N/a
BtH 5	Thatched cottage	c. 60m south	Neutral	N/a
BtH 6	Thatched cottage	c. 60m south	Neutral	N/a
BtH 18	Emsworth	c. 30m south	Neutral	N/a
BtH 19	Kinsaley House	c. 155m north-north-east	Neutral	N/a
BtH 20 (Also AH 24)	Church & graveyard	c. 255m north	Neutral	N/a
BtH 21	Catholic Church	c. 355m north	Neutral	N/a
BtH 22	Post box	c. 360m north	Neutral	N/a
BtH 23	Bridge	c. 400m north-north-west	Neutral	N/a
BtH 24	Gate lodge to Kinsaley Hall	c. 355m north-north-west	Neutral	N/a
BtH 25	St. Doolagh's Park	c. 515m west	Neutral	N/a
BtH 26 (Also AH 13)	Dubber House	c. 95m north	Neutral	N/a
BtH 27	Earthwork	c. 210m south-east	Neutral	N/a
BtH 28	Former research building	c. 20m south	Neutral	N/a

Areas of Archaeological Potential

A total of 21 AAPs have been identified. Five neutral impacts are predicted. The remaining impacts are direct and have the potential to be negative in nature.

Potential Operational Phase impacts are dealt with in Section 16.5.2.

**Table 16.13: Predicted Impacts on Areas of Archaeological Potential – Proposed Wastewater Treatment Plant Site**

AAP No.	Classification	Distance from Proposed WwTP	Impact Type	Impact Significance
AAP 12	Enclosure	Within proposed WwTP	Direct	Very significant negative
AAP 21	Water course	Partially within proposed WwTP	Direct	Significant negative

**Table 16.14: Predicted Impacts on Areas of Archaeological Potential – Proposed Orbital Sewer Route/Outfall Pipeline Route (Land Based Section)**

AAP No.	Classification	Distance from Proposed Orbital Sewer Route	Impact Type	Impact Significance
AAP 1	Mound	To immediate north-west	Neutral	N/a
AAP 2	Possible post-medieval house site	Partially proposed orbital sewer route (tunnel)	Direct	Very significant negative
AAP 3	Possible enclosure	Partially within proposed orbital sewer route	Direct	Significant negative
AAP 4	Site of Cappoge House	To immediate north of proposed orbital sewer route	Neutral	N/a
AAP 5	Two tree ring sites	Partially proposed orbital sewer route	Direct	Significant negative
AAP 6	Drumlin	Partially within proposed orbital sewer route	Direct	Significant negative
AAP 7	Watercourse	Partially within proposed orbital sewer route	Direct	Moderate negative
AAP 8	Proximity to AH 15 & AH 34 and water course (field system & enclosure)	Proposed orbital sewer route passes through this area	Direct	Significant negative
AAP 9	Watercourse	Partially within proposed orbital sewer route	Direct	Moderate negative
AAP 10	Riverine environment	Within proposed orbital sewer route	Direct	Moderate negative
AAP 11	Ring ditch	c. 255m north-north-east	Neutral	N/a
AAP 16	Area of water logged ground	Proposed outfall pipeline route (land based section) passes through this area	Direct	Significant negative

AAP No.	Classification	Distance from Proposed Orbital Sewer Route	Impact Type	Impact Significance
AAP 17	Site of Wellfield Cottage	Partially within proposed outfall pipeline route (land based section)	Direct	Significant negative
AAP 18	Enclosures	c. 53m south (PW)	Neutral	N/a
AAP 19	Coastal area & proliferation of archaeological sites	Proposed orbital sewer route passes through this area	Direct	Significant negative
AAP 20	Ring ditch	c. 385m east	Neutral	N/a

### Designed Landscapes

Of the 26 demesne landscapes located within the study area, no significant impacts have been identified as a result of the construction of the proposed orbital sewer route/outfall pipeline route (land based section). The proposed WwTP will not have a direct impact on any DLs during construction.

Potential Operational Phase impacts are dealt with in Section 16.5.2.

**Table 16.15: Predicted Impacts on Designed Landscapes – Proposed Orbital Sewer Route/Outfall Pipeline Route (Land Based Section)**

DL No.	Associated with	Distance from Proposed Project Element	Impact Type	Impact Significance
DL 1	Abbotstown House (BtH 4)	0m	Direct	Not significant negative
DL 2	Hillbrook House (UBH 1)	0m	Direct	Not significant negative
DL 3	Elmgreen House (BtH 3)	c. 240m south-east	Neutral	N/a
DL 9	Emsworth (BtH 18)	0m (proposed outfall pipeline route (land based section))	Direct	Slight negative
DL 10	Abbeyville House	c. 150m north  (c. 315m north demesne included within ACA)	Neutral	N/a
DL 12	Cappoge House (AAP 4)	To immediate north of proposed orbital sewer route	Neutral	N/a

DL No.	Associated with	Distance from Proposed Project Element	Impact Type	Impact Significance
DL 13	Kildonan House (UBH 5)	c. 260m west-south-west	Neutral	N/a
DL 14	Dubber House (BtH 26, AH 13)	To immediate north of proposed orbital sewer route	Neutral	N/a
DL 15	Ballymun House (no longer present)	c. 70m north	Neutral	N/a
DL 19	Kinsaley House (BtH 19)	To immediate north-east of proposed outfall pipeline route (land based section)	Neutral	N/a
DL 20	St. Doolagh's Park (BtH 25)	0m	Direct	Not significant negative
DL 21	Wellfield Cottage (AAP 17)	0m (proposed outfall pipeline route (land based section))	Direct	Not significant negative
DL 22	Snugborough Cottage (no longer present)	c. 70m south-south-west	Neutral	N/a
DL 23	Merton (UBH 15)  (demesne and house included in ACA)	c. 155m north-north-east	Neutral	N/a
DL 24	Drumnigh Lodge (UBH 14)  (demesne and house included in ACA)	c. 10m north-north-east	Neutral	N/a
DL 25	Mayne Lodge (UBH 18)	c. 45m south-south-west	Neutral	N/a
DL 26	Heathfield House	c. 145m south-east	Neutral	N/a
DL 27	Silloge House (UBH 8)	c. 15m north	Neutral	N/a

### Unrecorded Built Heritage Sites

Of the 19 previously unrecorded sites of built heritage significance, none are expected to experience either direct or significant impacts due to the construction of the proposed orbital sewer route/outfall pipeline route (land based section). No previously unrecorded sites of built heritage significance will be affected by the construction of the proposed WwTP.

Potential Operational Phase impacts are dealt with in Section 16.5.2.

**Table 16.16: Predicted Impacts on Unrecorded Built Heritage Sites – Proposed Orbital Sewer Route/Outfall Pipeline Route (Land Based Section)**

UBH No.	Classification	Distance from Proposed Project Element	Impact Type	Impact Significance
UBH 1	Hillbrook House	c. 175m south-east	Neutral	N/a
UBH 2	Demesne wall	Within proposed orbital sewer route (tunnel)	Neutral	N/a
UBH 3	Cottage	c. 225m south-east	Neutral	N/a
UBH 4	Vernacular house	c. 25m north	Neutral	N/a
UBH 5	Kildonan House	c. 310m west-south-west	Neutral	N/a
UBH 6	Williamsville	c. 270m south-south-east	Neutral	N/a
UBH 7	Rockmount house	c. 180m south	Neutral	N/a
UBH 8	Silloge house, in ruins	c. 42m north	Neutral	N/a
UBH 12	Vernacular house	c. 85m north-north-west	Neutral	N/a
UBH 14	Drumnigh Lodge	c. 105m north-north-east	Neutral	N/a
UBH 15	Merton	c. 205m north-north-east	Neutral	N/a
UBH 16	Railway	Within proposed orbital sewer route (tunnel)	Neutral	N/a
UBH 17	Railway bridge	0m – required for access	Indirect	Slight negative
UBH 18	Mayne Lodge	c. 105m south	Neutral	N/a
UBH 19	Railway bridge	c. 185m south-south-west	Neutral	N/a

### Townland Boundaries

Of the 24 TBs potentially impacted upon by the construction of the Proposed Project, six of the impacts are predicted to be neutral, with the remaining impacts varying from Not significant to Moderate. One Significant negative impact has been identified.

**Table 16.17: Predicted Impacts on Townlands and Boundaries**

TB No.	Townlands	Primary Features	Impact Type	Impact Significance
TB 1	Abbotstown/Dunsink	Road way	Neutral	N/a
TB 2	Dunsink/Sheephill	Road way	Neutral	N/a
TB 3	Sheephill/Cappoge	Field boundary – now removed	Direct	Slight negative
TB 4	Deanestown/ Abbotstown	Road way	Direct	Not significant negative
TB 5	Cappoge/Kildonan	Stream	Direct	Moderate negative
TB 6	Kildonan/Huntstown	Ditch & hedge	Direct	Moderate negative
TB 7	Huntstown/ Coldwinters	No longer extant	Neutral	N/a
TB 8	Coldwinters/ Balseskin	No longer extant	Neutral	N/a
TB 9	Balseskin/Dubber	Road way	Direct	Moderate negative
TB 10	Dubber/Merryfalls	Ditch & hedge	Direct	Moderate negative
TB 11	Merryfalls/Silloge	Bank & stream	Direct	Moderate negative
TB 12	Silloge/Ballymun	Ditch & hedge	Direct	Moderate negative
TB 13	Ballymun, Ballystruan, Turnapin Great	No longer extant	Direct	Slight negative
TB 14	Turnapin Great/ Collinstown	Ditch	Direct	Slight negative
TB 15	Collinstown/ Commons	Road way	Neutral	N/a
TB 16	Commons/ Dardistown/ Toberbunny	Roadway & ditch & hedge	Direct	Slight negative
TB 17	Toberbunny/ Clonshagh	Ditch	Neutral	N/a
TB 18	Clonshagh/ Clonshagh/ Burgage/ Middletown	Ditch, hedge & stream	Direct	Significant negative

TB No.	Townlands	Primary Features	Impact Type	Impact Significance
TB 19	Middletown/ Bohammer	Ditch, bank & hedge	Direct	Moderate negative
TB 20	Bohammer/ Kinsaley	Road way	Direct	Not significant negative
TB 21	Kinsaley/ Saintdoolaghs	Ditch, bank & hedge	Direct	Moderate negative
TB 22	Saintdoolaghs/ Snugborough	No longer extant	Direct	Slight negative
TB 23	Snugborough/ Drumnigh	Ditch	Direct	Moderate negative
TB 24	Drumnigh/ Maynetown	Ditch & hedge	Direct	Moderate negative

#### Additional Potential Impacts

A large number of investigations have been carried out in order to define the archaeological and cultural heritage within the Proposed Project construction corridor. However, it remains possible that sites or features of archaeological potential remains outside of the areas already subject to detailed geophysical survey and archaeological testing. As such, it is possible that ground disturbances associated with the construction of the Proposed Project have the potential to directly and negatively impact on archaeological features and/or deposits that have the potential to exist beneath the existing ground level with no surface expression.

#### **16.5.2 Operational Phase**

##### Recorded Archaeological Heritage Sites

No impacts are predicted upon any recorded monuments during the operation of the proposed orbital sewer route/outfall pipeline route (land based section and marine section). However, some indirect impacts are predicted as a result of the operation of the proposed WwTP.

**Table 16.18: Predicted Impacts on Recorded Monuments – Proposed Wastewater Treatment Plant Site**

AH No.	Classification	Distance from Proposed Wastewater Treatment Plant	Impact Type	Impact Significance
AH 17 (Also BtH 7)	House – 16th/17th century	c. 610m south-west	Neutral	N/a
AH 18	Enclosure	c. 406m east	Indirect	Imperceptible negative
AH 19	Ringfort	c. 290m east	Indirect	Imperceptible negative

AH No.	Classification	Distance from Proposed Wastewater Treatment Plant	Impact Type	Impact Significance
AH 20	House – 16th/17th century	c. 670m south	Neutral	N/a
AH 21	Enclosure	c. 485m north-west	Neutral	N/a
AH 22	Enclosure	c. 500m north-east	Neutral	N/a
AH 23	Ringfort	c. 912m south-east	Neutral	N/a

[Recorded Shipwrecks](#)

No impacts are predicted upon any recorded shipwreck sites as a result of the operation of the Proposed Project.

[Recorded Built Heritage](#)

No impacts are predicted upon any recorded BtH sites during the operation of the proposed orbital sewer route/outfall pipeline route (land based section). However, some indirect impacts are predicted as a result of the operation of the proposed WwTP.

**Table 16.19: Predicted Impacts on Recorded Built Heritage Sites – Proposed Wastewater Treatment Plant Site**

BtH No.	Classification	Distance from Proposed WwTP	Impact Type	Impact Significance
BtH 7 (Also AH 17)	Woodlands House & green house	c. 610m south-west	Neutral	N/a
BtH 8	Belcamp (house)	c. 400m south	No impact	N/a
BtH 9	Belcamp House	c. 880m south-east	Neutral	N/a
BtH 10	Belcamp Chapel	c. 875m south-east	Neutral	N/a
BtH 11	Belcamp dormitories	c. 895m south-east	Neutral	N/a
BtH 12	Bridge	c. 955m south-east	Neutral	N/a
BtH 13	Memorial tower	c. 1km south-east	Neutral	N/a
BtH 14	Springhill House	c. 400m east	Indirect	Imperceptible negative
BtH 15	Water pump	c. 770m east	Neutral	N/a
BtH 16	Belcamp Hutchinson	c. 1km south-east	Neutral	N/a
BtH 17	Limehill House	c. 875m east	Neutral	N/a

Areas of Archaeological Potential

No impacts are predicted upon AAPs as a result of the operation of the proposed orbital sewer route/outfall pipeline route (land based section and marine section). However, several indirect impacts are predicted as a result of the operation of the proposed WwTP.

**Table 16.20: Predicted Impacts on Areas of Archaeological Potential – Proposed Wastewater Treatment Plant Site**

AAP No.	Classification	Distance from Proposed Wastewater Treatment Plant	Impact Type	Impact Significance
AAP 13	Enclosure	c. 100m north-north-west	Indirect	Slight negative
AAP 14	Enclosure	c. 55m north-west	Indirect	Slight negative
AAP 15	Enclosure	c. 150m east	Indirect	Slight negative

Designed Landscapes

No impacts are predicted upon DLs as a result of the operation of the proposed orbital sewer route/outfall pipeline route (land based section and marine section). However, several indirect impacts are predicted as a result of the operation of the proposed WwTP.

**Table 16.21: Predicted Impacts on Designed Landscapes – Proposed Wastewater Treatment Plant Site**

DL No.	Associated with	Distance from Proposed Wastewater Treatment Plant	Impact Type	Impact Significance
DL 4	Springhill House (BtH 14)	To immediate east of proposed WwTP	Indirect	Moderate negative
DL 5	Baskin Hill House (UBH 11)	c. 595m north-north-west	Neutral	N/a
DL 6	Belcamp (house) (BtH 8)	c. 300m south	Neutral	N/a
DL 7	Woodlands (BtH 7, AH 17)	c. 480m south-west	Neutral	N/a
DL 8	Belcamp House (BtH 9-13)	c. 455m south-east	Neutral	N/a
DL 16	Edendale House (no longer present)	c. 355m west-north-west	Neutral	N/a

DL No.	Associated with	Distance from Proposed Wastewater Treatment Plant	Impact Type	Impact Significance
DL 17	Upper Middletown House (no longer present)	To immediate north-west of the proposed WwTP	Neutral	N/a
DL 18	Lower Middletown House  (UBH 10)	c. 44m north-west	Indirect	Not significant negative

### Unrecorded Built Heritage Sites

No impacts are predicted upon any UBH sites as a result of the operation of the proposed orbital sewer route/outfall pipeline route (land based section and marine section). However, several indirect impacts are predicted as a result of the operation of the proposed WwTP.

**Table 16.22: Predicted Impacts on Unrecorded Built Heritage Sites – Proposed Wastewater Treatment Plant Site**

UBH No.	Classification	Distance from Proposed Wastewater Treatment Plant	Impact Type	Impact Significance
UBH 9	Vernacular house	c. 350m west	Indirect	Not significant negative
UBH 10	Middletown Lower House	c. 250m north-west	Indirect	Moderate negative
UBH 11	Baskin Hill House	c. 720m north-north-west	Neutral	N/a
UBH 13	Vernacular cottages	c. 600m east	Neutral	N/a

### Townland Boundaries

No impacts are predicted upon TBs as a result of the operation of the Proposed Project.

## **16.6 Mitigation Measures**

### **16.6.1 Construction Phase**

#### Recorded Archaeological Heritage Sites

The following mitigation shall be implemented in relation to the predicted impacts outlined above.

The Proposed Project will potentially directly impact AH 11, AH 31, AH 33, AH 34, AH 38, AH 39, AH 41, AH 42, AH 44 and AH 45. Whilst it is recognised that preservation *in situ* is best practice, the Proposed Project cannot avoid these sites. As such, a programme of archaeological test trenching will be carried out at each site prior to construction. This will be carried out by an archaeologist under licence to the DoCHG.

Testing will provide information on the nature and extent of the remains within the Proposed Project construction corridor, enabling the compilation of a programme of works to ensure the sites are fully preserved by record. This work will be carried out in full consultation with the NMS of the DoCHG.

No further mitigation is deemed to be necessary in association with the remaining AH sites.

#### [Recorded Shipwrecks](#)

Whilst no specific shipwrecks have been identified within the footprint of the proposed outfall pipeline route (marine section), where it is to be dredged, the potential remains that the Proposed Project may impact buried remains. All dredging will be monitored by a specialist underwater archaeologist under licence to the NMS of the DoCHG. Should any archaeological remains be identified, further mitigation, such as preservation by record, will be required.

#### [Recorded Built Heritage](#)

No direct impacts on recorded BtH sites are predicted during the construction of the Proposed Project. No mitigation is required.

#### [Areas of Archaeological Potential](#)

The Proposed Project will potentially directly impact AAP 2, AAP 3, AAP 5, AAP 6, AAP 8, AAP 10, AAP 12, AAP 16, AAP 17 and AAP 19. A programme of archaeological test trenching will be carried out within each area prior to construction. This includes a more detailed assessment of AAP 12. This will be carried out by an archaeologist under licence to the DoCHG.

Testing will provide information on the nature and extent of any archaeological remains within the Proposed Project construction corridor, enabling the compilation of a programme of works to ensure the sites are fully preserved by record, in a manner deemed appropriate in agreement with the NMS of the DoCHG.

The Proposed Project will potentially directly impact watercourses designated as AAP 7, AAP 8, AAP 9 and AAP 21. An underwater/wade survey will be carried out in these areas prior to construction. This will be carried out by an archaeologist under licence to the DoCHG.

The surveys will provide information on the nature and extent of any archaeological remains within the Proposed Project, enabling the compilation of a programme of works to ensure the sites are fully preserved by record, in a manner deemed appropriate in agreement with the NMS of the DoCHG.

#### [Designed Landscapes](#)

No mitigation is deemed to be necessary in association with DLs during the construction of the Proposed Project.

#### [Unrecorded Built Heritage Sites](#)

No mitigation is deemed to be necessary in association with UBH sites during the construction of the Proposed Project.

#### [Townland Boundaries](#)

A written and photographic TB survey will be carried out at the following locations: TB 4, TB 5, TB 9, TB 11, TB 16 and TB 20. This work will be carried out by a suitably qualified archaeologist.

A written and photographic TB survey, to include archaeological testing, will be carried out at the following locations: TB 3, TB 6, TB 10, TB 12, TB 13, TB 14, TB 18, TB 19, TB 21, TB 22, TB 23 and TB 24. This will be carried out by an archaeologist under licence to the DoCHG.

### Additional Mitigation

In order to identify any additional features of archaeological significance, which may survive outside of the areas subject to detailed investigation, a programme of archaeological test trenching will be carried out along the proposed orbital sewer route. This will be undertaken by an archaeologist under licence to the DoCHG.

Testing will provide information on the nature and extent of the remains within the Proposed Project, enabling the compilation of a programme of works to ensure the sites are fully preserved by record. This work will be carried out in full consultation with the NMS of the DoCHG.

In order to identify any additional features within the proposed WwTP site, archaeological testing (12% of the lands made available) will be carried out on the site prior to construction. This will be undertaken by an archaeologist under licence to the NMS of the DoCHG.

Please note that all recommendations are subject to approval by the NMS of the DoCHG.

## **16.6.2 Operational Phase**

### Recorded Archaeological Heritage Sites

No mitigation is deemed to be necessary in association with recorded monuments during the operation of the Proposed Project.

### Recorded Shipwrecks

No mitigation is deemed to be necessary in association with recorded shipwrecks during the operation of the Proposed Project.

### Recorded Built Heritage

No mitigation is deemed to be necessary in association with recorded BtH sites during the operation of the Proposed Project.

### Areas of Archaeological Potential

No mitigation is deemed to be necessary in association with AAPs during the operation of the Proposed Project.

### Designed Landscapes

A full photographic landscape record will be made of the areas of Springhill Demesne (DL 4) that will be indirectly impacted upon by the proposed WwTP. This will be carried out by a suitably qualified archaeologist or historical buildings specialist.

### Unrecorded Built Heritage Sites

A full photographic landscape record will be made of Middletown Lower House (UBH 10), which will be indirectly impacted upon by the proposed WwTP. This will be carried out by a suitably qualified archaeologist or historical buildings specialist.

### Townland Boundaries

No mitigation is deemed to be necessary in association with TBs during the operation of the Proposed Project.

## 16.7 Residual Impacts

Once all recommended mitigation measures have been carried out, there will be no residual impacts upon the archaeological, architectural and cultural heritage as a result of the Proposed Project going ahead.

## 16.8 Cumulative Impact and Impact Interrelations

Interactions for this assessment exist between the architectural heritage aspect and the landscape and visual assessment. As such, photomontages presented as part of the EIAR and the landscape and visual assessment have been reviewed and taken into account.

No potential cumulative impacts upon the archaeological, architectural or cultural heritage have been identified during the course of this assessment.

## 16.9 Difficulties Encountered in Compiling Required Information

Testing of the proposed WwTP site was limited due to the presence of arable and vegetable crops.

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