4.2 Trenches 1 to 26 area described as follows:

Trench No.	Description
Trench 1	58m long; oriented NS 0 – 0.28m Topsoil 0.28 – 0.4m Mid-orange-brown, loamy clay subsoil with moderate inclusions of stone. A stoney pocket was apparent at the southern end.
Trench 2	66m long; oriented NS 0 – 0.25m Topsoil 0.25 – 0.4m Mid-mid-orange-brown, loamy clay subsoil with moderate inclusions of stone. At the northern end a small deposit of slightly darker slightly silty clay was visible (0.3m diameter). This was not further investigated but may be a possible posthole and of possible archaeological significance.
Trench 3	56m long; oriented EW 0 – 0.29m Topsoil 0.29 – 0.5m Light orange-brown fine loamy clay subsoil with occasional stone. A small feature (0.6m EW x 0.5m NS) was identified at the east of centre in the trench. This was not further investigated but may be a possible posthole and of possible archaeological significance.
Trench 4	62m long; oriented NS 0 – 0.25m Topsoil 0.25 – 0.35m Light orange-brown, fine loamy clay subsoil with occasional limestone protruding along the length of the trench. At the southern end the subsoil was slightly more gritty.
Trench 5	51m long; oriented NS 0 – 0.3m Topsoil 0.3 – 0.4m Light orange brown, fine loamy clay slightly stoney subsoil.
Trench 6	55m long; oriented NS 0 – 0.27m Topsoil 0.27 – 0.4m Light orange brown, fine loamy clay slightly stoney subsoil. The southern end of the trench was close to an existing haybarn and the surrounding area (approximately 14m-15m) was very heavily disturbed with concrete and plastic mixed through the soil.
Trench 7	65m long; oriented EW 0 – 0.3m Topsoil 0.3 – 0.4m Light orange-brown, fine loamy clay slightly stoney subsoil. This trench was designed to cross the location of the standing stone (CO073-103). No evidence for the socket for the stone was found, however, a small feature (0.7m in diameter) was identified at the eastern end of the trench in the approximate location of the standing stone. This was filled with mid-red-brown, charcoal-flecked loamy clay. It was partially investigated by hand to a depth of 0.08m and had an evenly sloping base. It appears to be a feature of archaeological significance, possibly a posthole.
Trench 8	73m long; oriented EW 0 – 0.3m Topsoil 0.3 – 0.4m Light orange brown, fine loamy clay slightly stoney subsoil. The trench was dug in two sections around a pair of electrical poles.
Trench 9	60.5m long; oriented NW SE 0 – 0.15m Topsoil 0.15 – 0.55m Light grey-orange-brown, firm silty clay subsoil. The upslope (northern end) of the trench (28m long) contained a fill of clay mixed with concrete, plastic, wood etc. to a depth upwards of 1.5m. The remainder of the trench, which fell to the south, appeared to be largely undisturbed other than a machine-cut trench cut across the southern end.
Trench 10	67m long; oriented NW SE 0 – 0.17m Topsoil 0.17 – 0.5m Light brown-grey-orange, firm silty clay subsoil. As in Trench 9, the upslope (northern end) of the trench (42m) contained a fill of stoney clay to a depth upwards of 1.6m. The southern end of the trench was undisturbed. A NE-SW stone-filled drain 0.45m wide cut across the southern end of the trench.

Trench 11	72m long; oriented EW 0 – 0.15m Topsoil 0.15 – 1.6m+ Mid-brown, stoney clay with occasional plastic, concrete, wood and pipe. The full length of this trench contained a fill of stoney clay to a depth upwards of 1.6m.
Trench 12	79m long; oriented EW 0 – 0.15m Topsoil 0.15 – 1.8m+ Mid-brown, stoney clay with occasional plastic, concrete, wood and pipe. As in Trench 11, the entire length of this trench contained a fill of stoney clay to a depth upwards of 1.8m.
Trench 13	62m long; oriented NE-SW 0 – 0.15m Topsoil 0.15 – 0.48m Light orange-brown-grey, firm silty clay subsoil. Water began to pool in the trench.
Trench 14	29.3m long; and oriented NE-SW 0 – 0.15m Topsoil 0.15 – 0.55m Light orange-brown-grey, firm silty clay subsoil. A pocket of stoney manganese (approximately 2m diameter and 0.02m deep) was exposed.
Trench 15	113.5m long; oriented EW 0 – 0.15m Topsoil 0.15 – 0.5m Light orange-brown-grey, firm silty clay subsoil with very occasional charcoal. The trench was in two section cut by a substantial hedgerow which separated Fields 3 and 4.
Trench 16	90m long; oriented NE-SW 0 – 0.15m Topsoil 0.15 – 0.45m Light orange-brown-grey, firm silty clay subsoil with occasional manganese and iron panning and very occasional charcoal. The trench was in two sections cut by a substantial hedgerow which separated Fields 3 and 4.
Trench 17	44m long; oriented NE-SW 0 – 0.15m Topsoil 0.15 – 0.5m Light pink-orange-brown-grey, firm sandy clay subsoil. The trench was in two section cut by a substantial hedgerow that separated Fields 2 and 4. The northern section of the trench (approximately 10m length) was heavily disturbed from the construction of a water main through the area.
Trench 18	38m long; oriented NW-SE 0 – 0.2m Topsoil 0.2 – 0.33m Mid-orange-brown, fine loamy clay subsoil with pockets of limestone throughout 0.33 – 0.4m Light grey fine gritty gravel with pockets of limestone. A linear feature (0.4m wide) was exposed at the southern end of the trench running E-W across it. It was filled with mid-brown, silty clay with occasional charcoal. It was partially investigated by hand and was found to be 0.2m deep with steeply sloping side and a slightly irregular base. It may be of archaeological potential but may also be derived from disturbance related to extracting limestone in the past.
Trench 19	32m long; oriented EW 0 – 0.08m Topsoil 0.08 – 0.3m Mid-orange-brown, fine loamy clay subsoil with fractured limestone throughout the trench, in places just under the sod.
Trench 20	31.5m long; oriented EW 0 – 0.1m Topsoil 0.1 – 0.35m Mid-orange-brown, fine loamy clay subsoil with fractured limestone throughout the trench, in places just under the sod.
Trench 21	29m long; oriented NS 0 – 0.2m Topsoil 0.2 – 0.25m Mid-orange-brown, fine loamy clay subsoil with fractured limestone throughout the trench, in places just under the sod.
Trench 22	46m long; oriented EW

	0 – 0.2m Topsoil 0.2 – 0.3m Mid-orange-brown, fine loamy clay subsoil with fractured limestone throughout the trench, in places just under the sod.
Trench 23	44.7m long; oriented EW 0 – 0.3m Topsoil 0.3 – 0.4m Mid-orange-brown, fine loamy clay subsoil with fractured limestone at the eastern end of the trench and virtually stone-free at the west end.
Trench 24	46m long; oriented NS 0 – 0.3m Topsoil 0.3 – 0.4m Mid-orange-brown, fine loamy clay subsoil with just one pocket of fractured limestone at the east end of the trench.
Trench 25	50.2m long; oriented EW 0 – 0.3m Topsoil 0.3 – 0.4m Mid-orange-brown, fine loamy clay subsoil with patches of fractured limestone at the eastern and western ends and elsewhere occasional stone. Occasional patches of gravel were also evident.
Trench 26	55m long; oriented EW 0 – 0.3m Topsoil 0.3 – 0.35m Light brown, loamy clay with fractured limestone and lots of roots. The trench was dug in sections to avoid water pipes and sections of partially upstanding walls in the former back garden of a house.

Table 4: Details of test trenches excavated across the proposed development site





Plates 1 & 2: Trench 1, looking north Trench 2, looking north





Plates 3 & 4: Trench 3, looking east Possible feature in Trench 3





Plates 5 & 6: Trench 4, looking south Trench 5, looking north





Plates 7 & 8: Trench 6, looking south Trench 7, looking east





Plates 9 & 10: Feature in Trench 7 Trench 8, looking west





Plates 11 & 12: Trench 9, looking NW

Trench 10, looking NW





Plates 13 & 14: Trench 11, looking east showing section partially dug through fill

Trench 12, looking west





Plates 15 & 16: Trench 13, looking NE

Trench 14, looking SW





Plates 17 & 18: Trench 15, west side, looking west

Trench 15, east side looking west





Plates 19 & 20: Trench 16, looking NE

SW section of Trench 17, looking NE





Plates 21 & 22: NE section of Trench 17, looking NE

Trench 18, looking S





Plates 23 & 24: Trench 18, section across feature Trench 19, looking S





Plates 25 & 26: Trench 20, looking W Trench 21, Looking E





Plates 27 & 28: Trench 22, looking W Trench 23, looking W





Plates 29 & 30: Trench 24, looking S Trench 25, looking W





Plates 31 & 32: Eastern section of Trench 26, looking W Middle section of Trench 26, looking W

4.3 Trench 7 was designed to extend across the site of the standing stone (CO073-103). No evidence for the standing stone was found in the trench. A circular feature identified in testing may correspond with the location of the stone, however, the stone is described by the ASI as a narrow slab (0.6m x 0.17m) oriented EW. In contrast the feature identified in the trench was a circular feature suggesting it is more likely to be associated with a posthole. Two other features of possible archaeological significance were identified in Field 1, a possible posthole in each of Trenches 2 and 3. These two features and the one in Trench 7 are considered to be of archaeological significance.

In Field 2, where Trenches 18 to 26 were excavated, ground conditions were dominated by substantial amounts of fractured limestone bedrock, in places just below the sod and generally present in large amounts in all of the trenches. Pieces of limestone were uprooted by the machine during testing leaving uneven voids. Topsoil and surrounding subsoil fell into these stone pockets causing uneven and rough ground and making ground conditions difficult to assess visually. Consequently it was difficult to decide if a linear feature in Trench 18 was associated with uprooting of limestone in the past or if it was a feature of possible archaeological potential. Trench 17 extended from Field 3 into Field 2 where the northern end of it corresponded with an area of disturbance resulting from the construction of a water main.

The northern end of Field 3 was filled with stoney clay, presumably to raise its level above the boggy ground to the south in the floodplain of the Maglin River. Upwards of 1.8m of stoney clay was deposited in the area of Trenches 11 and 12 and the northern ends of Trenches 9 and 10. Trenches 13, 14, 15, 16 and the southwestern end of Trench 17 were excavated in the low-lying flood plain of the Maglin River. No features of archaeological potential were identified in the area.

5 Conclusion and Recommendations

5.1 The proposed development site is located in the townland of Carrigrohane to the south of Ballincollig, a commuter town to Cork city. It comprises two pasture fields and parts of two others in the southwestern end of the townland close to the Maglin River. The site of a standing stone (CO073-103) lies in the northwestern side of the proposed development site.

5.2 A geophysical survey was carried out on the site in 2022 (Nichols, 2022a) which identified a circular ditched enclosure (Anomaly A), *c.* 16m diameter, with an east-facing entrance. This enclosure lies in Field 1 and it is proposed to preserve it *in situ*.

5.3 Archaeological testing was carried out on this site in September and October 2024 to inform the layout of a proposed housing development. A total of 26 trenches were excavated across the proposed development site. No trenches were excavated across Anomaly A, as it will be retained *in situ*. Trench 7 was designed to investigate the location of the removed standing stone (CO073-103). Part of a proposed greenway will run along the northern perimeter of the site. Archaeological testing of this greenway was carried out in 2024 (Purcell in preparation) and the information from this report will be taken into account when designing the site layout

5.4 Trench 7 was designed to extend across the site of the standing stone (CO073-103). No evidence for the standing stone was found in Trench 7. A circular feature identified in testing may correspond with the location of the stone, however, the stone is described by the ASI as a narrow slab (0.6m x 0.17m) oriented EW. In contrast the feature identified in the trench was a circular feature suggesting it is more likely to be associated with a posthole. Two other features of possible archaeological significance were identified in Field 1, a possible posthole in each of Trenches 2 and 3. These two features and the one in Trench 7 are considered to be of archaeological significance. A linear feature was identified in Trench 18 and may be associated with uprooting of limestone in the past or may be a feature of possible archaeological potential. No features of archaeological potential were identified in either Fields 3 or 4.

5.5 The information gleaned from this report will be used to inform the developers as to the site layout of the proposed development.

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Appendix 9.2b

Archaeological Testing

Maglin, Ballincollig, Cork

Licence Number 23E1029
Interim Report

Avril Purcell MA MIAI & Musetta O'Leary MA
August 2025

Abstract

Archaeological testing was carried out on a section of a proposed greenway in the townland of Carrigrohane, Cork. The development of this section of the greenway will form part of an application for a Largescale Residential Development at Maglin and Carrigrohane, Ballincollig, Cork. The greenway will extend east-west across the northern boundary of the LRD in Maglin and will continue into Carrigrohane townland. While the Maglin section of the greenway was tested in February 2024 under license 23E1029 as part of the LRD investigation (Purcell and O'Leary, 2025), the Carrigrohane section was not available. This section has now become available and testing was carried out under an extension to the original license.

Five trenches were excavated on the greenway route in Carrigrohane in September 2024 under licence 23E1029. These trenches targeted geophysical anomalies identified in 2022 (Nichols, 2022). Archaeological deposits and potential archaeological deposits were identified which corresponded to two of the anomalies. One appeared to be part of the levelled remains of a probable ring ditch into which a grave was later cut. The grave contained a single inhumation burial possibly dating to the early medieval period or Iron Age. The second, a band a gravel-rich mid-brown clay deposit with charcoal inclusions was not further investigated and is considered of archaeological potential.

This results of the archaeological testing will inform the proposed development layout and ultimately the planning application and all recommendations with be subject to approval by the National Monuments Service and Cork City Council.

1 Introduction

1.1 It is proposed to carry out a Largescale Residential Development (LRD) in the townlands of Maglin and Carrigrohane, Ballincollig, Cork (ITM 559918 570002) (Figs. 1 and 2). The LRD in Maglin will incorporate a greenway which in Maglin townland, will extend E-W along the northern side of the residential development before then continuing into Carrigrohane running along the northern edge of a second and separate proposed LRD. Archaeological testing was carried out on the LRD in Maglin and that section of the greenway in Maglin, in February 2024 under licence 23E1029 (Purcell and O'Leary 2025). The greenway will extend east into Carrigrohane and this section was not available in February 2024. Archaeological testing of this section was carried out in September 2024 (under the same license) and the results of the testing are given in this report.

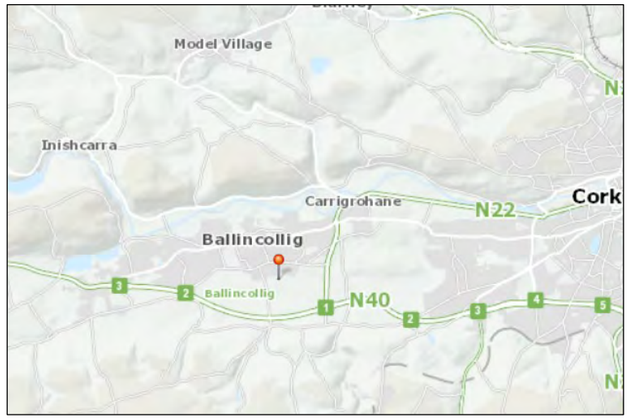


Figure 1: Ordnance Survey location map



Figure 2: Preliminary development layout showing proposed greenway route extending to the east (after Deady Gahan)

1.2 This report is additional to the main testing report of 2025 (Purcell and O'Leary, 2025) and will deal only with the Greenway in Carrigrohane. The main report deals with the residential development and the greenway both in Maglin. For clarity in this report the residential development will be referred to as such and the greenway will be referenced by the townland in which it occurs. It should also be noted that testing of the greenway was guided by the results of a geophysical survey (Nichols, 2022) carried out on the second proposed LRD site lying directly to the south of and adjoining the greenway in this townland, Carrigrohane.

1.3 There are no recorded archaeological sites on the proposed route of the greenway in Carrigrohane. There are three recorded archaeological sites on the proposed residential development site in Maglin, two fulachtaí fia (CO073-100 and CO073-101) and a lime kiln (CO073-064) (Fig. 3). (It is proposed to retain the three monuments *in situ*.) The fulacht fia in Maglin (CO073-101) is the closest recorded monument to the greenway lying 50m to the southwest while the site of a standing stone (CO073-103) lies approximately 80m to the south in Carrigrohane.

1.4 Pre-planning geophysical survey was carried out on the proposed greenway under licence 22R0331 in November 2022 (Nicholls 2022) as part of a larger investigation. The survey covered the proposed LRD in the townland of Carrigrohane and included the greenway. A number of small-scale poorly defined anomalies and weak magnetic trends of uncertain origin were noted in the area of the proposed greenway route - Anomalies D, E, F and G (*ibid*.).

1.5 Archaeological testing of the proposed greenway in Carrigrohane was carried out in September 2024 under licence 23E1029. Five trenches were excavated across the western end of the proposed route. The eastern end follows the line of the former Cork/Macroom Railway line and was therefore, already heavily disturbed. The testing targeted the anomalies (D, E, F and G) identified in the geophysical survey. Two (D and E) were found to relate to geological and soil variation and the other two were considered to be archaeological or of archaeological potential in nature. Anomaly F appeared to be the levelled remains of a probable ring ditch, possibly re-cut or cutting an earlier phase of activity and was itself cut when an inhumation burial was placed in the ditch probably in the early medieval period or Iron Age. A single blue glass bead was found with the burial giving it a *terminus ante quem* date of the early medieval period. A deposit of archaeological potential which corresponded with Anomaly G was not further investigated given the significance of Anomaly F. It is instead planned to preserve these archaeological deposits *in situ* by altering the development layout without the need for further investigation.

1.6 This report relates only to the portion of the proposed development which lies in Carrigrohane townland.



Figure 3: Proposed development site outlined on OS map showing archaeological monuments within the proposed residential development at the west and the outline of the proposed greenway at the east www.archaeology.ie

2 Archaeological and Historical Background

2.1 The proposed greenway is located in the townland of Carrigrohane, in the parish of Carrigrohane and barony of East Muskerry approximately 0.8km to the south of Ballincollig town. There are no recorded archaeological sites on the greenway. The nearest recorded sites are a fulacht fia (CO073-101) on the proposed Maglin residential development 50m to the southwest and the site of a standing stone (CO073-103) approximately 80m to the south on the site of the proposed Carrigrohane residential development. The fulacht fia was recorded as an oval spread of burnt material (14m x 12m) in the 1980s (Power *et al*. 1997) and is now levelled and the standing stone no longer exists but was extant when inspected in 1995 (Ronan *et al*, 2009).

2.2 There are twenty-five recorded archaeological sites within an approximate 1km radius of the proposed development site (Table 1 and Fig. 4). These are listed in the Record of Monuments and Places (RMP) for County Cork and the Sites and Monuments Record (SMR) database of the Archaeological Survey of Ireland (ASI). They provide evidence for human settlement and activity in the area dating from as early as the late Neolithic/ Beaker period (*circa* 2500BC) and indicate the archaeological potential of the proposed development site. The RMP lists all archaeological monuments and places known to be of archaeological interest in the county and affords them statutory protection under the National Monuments Act 1930 to 2004 (1994 amendment). The SMR database is a working database of all known archaeological monuments in the state and is continually updated. A large number of these known archaeological sites were identified and excavated during the construction of the Ballincollig bypass (N22) to the south of the proposed development site in the early 2000s (Hanley and Hurley 2013). Other archaeological sites have been discovered in more recent times with the continuing growth and expansion of the town of Ballincollig.

RMP/SMR	SITE TYPE	TOWNLAND	DISTANCE
CO073-082001-	Souterrain	Carrigrohane	570m to N
CO073-082	Ringfort	Carrigrohane	570m to N
CO073-150	Enclosure	Carrigrohane	260m to N
CO073-132	Miscellaneous excavation	Carrigrohane	485m to N
CO073-066	Standing stone	Carrigrohane	915m to NE
CO073-104	Fulacht fia	Carrigrohane	280m to E
CO073-135	Fulacht fia	Curraheen	405m to SE
CO073-136	Fulacht fia	Curraheen	470m to SE
CO073-141	Fulacht fia	Curraheen	660 to SE
CO073-142	Fulacht fia	Curraheen	690m to SE
CO073-143	Fulacht fia	Curraheen	665m to SE
CO073-138	Miscellaneous excavation	Curraheen	665m to SE
CO073-139	Fulacht fia	Curraheen	650m to SE
CO073-140	Burnt mound	Curraheen	675m to SE
CO073-137	Burnt mound	Curraheen	653m to SE
CO073-146	Habitation site	Curraheen	625m to SE
CO073-065	Fulacht fia	Maglin	580m to S
CO073-103	Standing stone	Carrigrohane	80m to S
CO073-100	Fulacht fia	Maglin	240m to S
CO073-064	Lime kiln	Maglin	505m to S
CO073-097	Country house	Maglin	695m to S
CO073-130	Fulacht fia	Maglin	835m to S
CO073-101	Fulacht fia	Maglin	50m to SW
CO073-074	Standing stone	Ballincollig	760m to W
CO073-161	Burnt Spread	Ballincollig	540m to W

Table 1: RMP/SMR sites within approximately 1km of the proposed development site

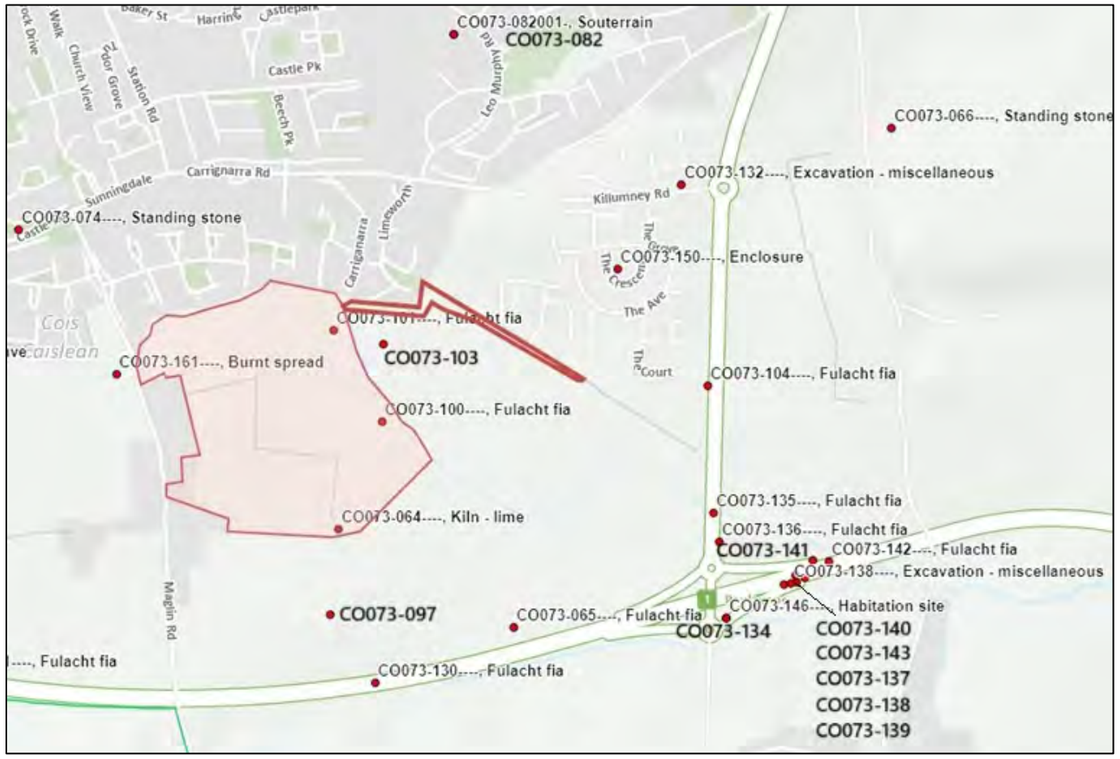


Figure 4: OSI map with SMR details (from www.archaeology.ie) - archaeological sites within *c.* 1km radius. Proposed greenway in red outline; proposed residential area in pink

2.3 The earliest known archaeological site within 1km of the proposed development site is a habitation site (CO073-146) which was excavated on the N22 road corridor in Curraheen to the southeast of the proposed development site. It revealed evidence of a multi-phased settlement dating to the Late Neolithic/Beaker Period and later activity from the early medieval period. Thirty five sherds of Beaker pottery, flint debitage, charcoal and charred seeds were recovered from a single pit on this site. Charcoal from the pit was dated to the 2580–2200 BC (Danaher 2002b). Two enclosing fosses were also excavated at the site, the larger of the two would appear to have been the settlement area while the smaller may have functioned as an animal compound. Radiocarbon dating of both fosses gave an early medieval date (AD 400-900). Over 100 features consisting of post-holes, stake-holes and pits were excavated within the larger enclosure and a post and wattle oval house (c. 8m E-W; 6m N-S) was identified at the NE quadrant of the site (*ibid*). Approximately 680m to the west in Ballincollig in 2019 an isolated a pit was excavated and dated to the Chalcolithic period 2450-2300BC (Purcell and O'Leary 2019b). This was identified during archaeological monitoring and was excavated in advance of the development (*ibid.*). The pit contained eight sherds of prehistoric Beaker type pottery (Helen Roche pers comm.) and charred environmental remains. Fragments of charred hazel nut shell recovered from the pit were subsequently radiocarbon dated. More recently, approximately 250m to the north in Carrigrohane, archaeological testing identified a number of pits of prehistoric date (Purcell 2023). Excavation confirmed the presence of over twenty large pits of prehistoric date as well as associated stakeholes and postholes (Purcell, in prep.). On other occasions isolated pits have been identified and excavated in advance of development and while it was not possible to date these they could possibly have dated to this period.

2.4 The majority of the known sites in the area of the proposed development site are fulachtaí fia (numbering 11) and burnt mounds and spreads (3) many of which are close to the banks of the Maglin River and its tributaries. Fulachtaí fia are generally interpreted as ancient cooking sites, but could have been used for any purpose that required large quantities of hot or boiling water. They comprised a trough or pit sometimes lined with stone, wattle or planks in which quantities of water could be boiled using fire-heated stones. A mound (often horseshoe-shaped) was formed when the heat-shattered stones were removed from the trough. They survive as a spread, or mound, of heat-shattered and burnt stone. The burnt stone generally fills and covers one or more troughs or pits cut into the ground. The trough, which was often lined with timber, wattle or stone, would have been excavated below the water table, near a spring or stream and allowed to fill with water. A fire was set adjacent to the trough, to heat stones, and the water was then heated or boiled by immersing the fire-heated stones in it. Experiments have shown that large quantities of water can be boiled in this way in about twenty minutes and joints of meat wrapped in straw can be cooked over several hours. After each use the burnt and heat-shattered stones would have to be cleaned out of the trough. Over time this material accumulated to form a crescent shaped mound of burnt material around the trough. Fulachtaí fia are usually dated to the Bronze Age (2400-500BC). Although they are generally interpreted as cooking sites they were also used for bathing, processing textiles, tanning, brewing, extraction of fats from meat, and soap making, or even a combination of these functions (Ó Drisceoil, 1988; Monk 2007; Quinn & Moore 2007). Burnt mounds and spreads are usually the levelled remains of ploughed out fulachtaí fia.

There are three recorded standing stones in the area, at least two of which are no longer extant (CO073-074 and CO073-103). It is possible that the socket for the stone in Carrigrohane (CO073-103) was identified in the course of recent archaeological testing (Purcell, 2025). These monuments also date to the Bronze Age, although standing stones were also erected in the Iron Age and some can date to more recent centuries. Those erected in the prehistoric period tend to have a NE-SW orientation and this orientation is recorded for the standing stone in Carrigrohane (CO073-066). Standing stones may have had a number of functions in the prehistoric landscape. They were often erected in prominent locations and may have marked routeways or tribal boundaries, but others may have marked burials or had a ceremonial or ritual purpose. More recent examples may have been erected as scratching posts for animals.

A number of isolated pits identified during the construction of the N22 may also date to the Bronze Age or later prehistoric period. In Carrigrohane to the east of the proposed development site three pits (CO073-132) were excavated, in advance of road construction. They contained inclusions of heat-shattered stones. A sherd of possible Bronze Age pottery, flint and chert debitage and a miniature stone (porcellanite) axe were recovered from this site (Danaher 2002a). An isolated semi-circular pit (CO073-138) was identified in Curraheen to the southeast which contained heat-shatter stones and charcoal (Russell 2002).

2.5 A smaller number of recorded archaeological sites in the vicinity of the proposed development site date to the early medieval period including a ringfort and souterrain in Carrigrohane. These monuments date to the historic, early medieval period, also known as the Early Christian period (5th to the 12th century AD), when Christianity was introduced to the country. Ringforts (also known by the names rath, lios, cathair or caiseal/cashel) are defended farmsteads and are the most characteristic monument of this period. Their main phase of construction and occupation dates from the beginning of the 7th century AD to the end of the 9th century. They are generally circular or oval in plan, defined by an earthen bank with an external ditch or fosse. Some ringforts have associated souterrains and others have associated corn-drying kilns and sometimes external structures. Generally, it has been speculated that the elite of society occupied ringforts and that the less wealthy lived in undefended settlements scattered across the landscape. In more recent archaeological investigations, particularly on road infrastructure projects in Co. Cork, the number and type of unenclosed medieval settlements identified has been growing, suggesting more diversity in contemporary settlement patterns (Monk, 2019) and challenging the perceived importance of ringforts within the early medieval landscape. The ringfort (CO073-082) and souterrain (CO073-082001-) in Carrigrohane were investigated in advance of proposed development. Both

the inner and outer ditches were identified as well as internal and external features and evidence for a possible souterrain was found (Moloney, 2003).

While souterrains in many cases are associated with ringforts, they can also be found in isolation. They are underground structures generally earth or rock-cut comprising chamber(s) connected by narrow creepways. The term souterrain derives from the French sous meaning under and terre meaning earth. When in contemporary use they would have been called óin or uam (uaimh in modern Irish) and on cartographic sources are usually noted as caves (Clinton, 2001, and Power *et al*., 1992). It is thought that they were probably used as hideaways or defensive features but they may have also been used for storage (*ibid.*).

The term enclosure is frequently applied to ringforts which have been levelled and no visible surface trace remains. The enclosure in Carrigrohane (CO073-150) to the northeast was identified as a 40m diameter circular enclosure by geophysical survey in 2008 (Nicholls, 2008) in advance of proposed development. The surrounding area was subsequently archaeologically tested (Cummins, 2008). The enclosure was preserved *in situ* within the Heathfield development and subsequent archaeological monitoring of the surrounding area during development revealed no associated features or finds in the vicinity (Purcell and O'Leary, 2019a and Purcell and O'Leary, 2024). Approximately 150m to the east, a number of small pits were identified during archaeological monitoring but no finds were recovered (*ibid.*). Approximately 930m to the west of the proposed greenway a circular enclosure was identified by geophysical survey (Hogan, Davis, and Gimson, 2017) and verified by archaeological investigation (Purcell, 2022) in advance of development. Further archaeological work will be undertaken here in advance of construction.

2.6 The lime kiln (CO073-064) and country house (CO073-097) in Maglin both date to the modern period and both are shown on the 1842 Ordnance Survey (OS) 6-inch map, the lime kiln is depicted in a quarry. Limekilns, which were very common in the Irish rural landscape from the 18th to 20th centuries, were used to produce lime by burning limestone at very high temperatures (900˚ C to 1000˚C). The use of lime in farming was widespread; as a fertilizer, an improver of soil and general farming conditions, as a clean-all disinfectant wash in farmyards, in making mortar, as a slug, snail and ant repellent and as a frost protection for stored potatoes. Many of these limekilns have been destroyed or have become very overgrown and dilapidated and are now barely recognisable in the landscape.

2.7 The three editions of the Ordnance Survey (OS) maps were examined to help understand the development of the area since the mid-19th century. The 1842 OS 6-inch map (Fig. 5) depicts the area of the proposed greenway extending across parts of four fields and a roadway which leads to an unnamed building complex.

When the 25-inch map (1903) was compiled (Fig. 6) the Cork and Macroom Direct Railway had been constructed. The eastern end of the proposed greenway is aligned along the line of the railway, while the western end extends through the area of a large field. There is a level crossing at the intersection of the railway and the roadway to the building complex which is now named Carriganarra. No changes are apparent on the 6-inch OS map of 1939 (not included).

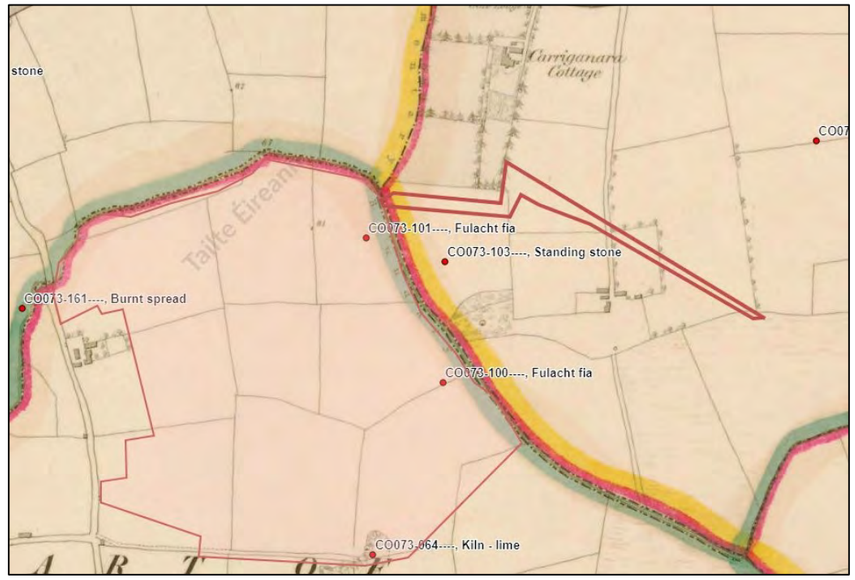


Figure 5: Extract from OS 6-inch map (1842) showing proposed greenway in red outline and proposed residential area in pink www.archaeology.ie

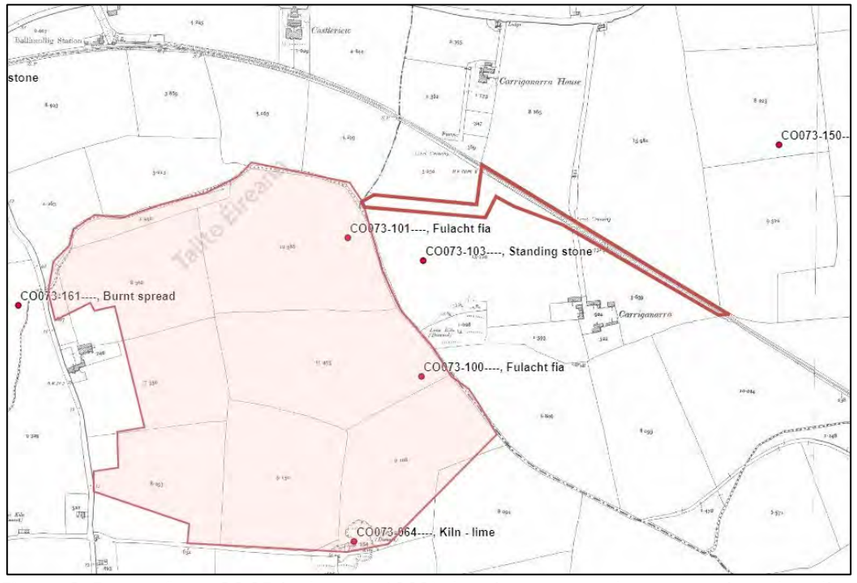


Figure 6: Extract from OS 25-inch map (1903) showing proposed greenway in red outline and proposed residential area in pink www.archaeology.ie

2.9 In addition to the excavations carried out during construction of the N22 Ballincollig bypass (Hanley and Hurley, 2013) a number of other investigations have been undertaken in the vicinity of the proposed greenway, particularly associated with the expansion of Ballincollig town. Archaeological monitoring was undertaken on all phases of the Heathfield development in Carrigrohane to the east from 2018 to 2024 (Purcell and O'Leary,

2019a; Purcell and O'Leary, 2024). A number of small pits were identified at its eastern side but no finds were recovered. Archaeological testing was undertaken on adjoining lands also in Carrigrohane to the northwest of Heathfield in 2023 and a number of features or archaeological significance were identified (Purcell 2023). Excavation confirmed the presence of over twenty large pits of prehistoric date as well as associated stakeholes and postholes (Purcell, in prep.).

Immediately west of the Maglin Road a number of phases of archaeological investigations were undertaken in advance of residential developments in Ballincollig townland. A burnt spread (CO073-161) was identified initially by geophysical survey (Hogan, Davis, and Gimson 2017) and verified by archaeological testing. The spread was preserved *in situ* (Purcell and O'Leary 2018). The aforementioned isolated, shallow pit containing eight sherds of prehistoric Beaker pottery and charred organic remains was identified during archaeological monitoring and resolved by archaeological excavation (Purcell and O'Leary 2019b). Further to the west geophysical survey (Hogan, Davis, and Gimson 2017) identified a circular enclosure defined by a double ditch *circa* 50m in diameter and a semi-circular enclosure of *circa* 32m diameter and ancillary features. Subsequent archaeological testing confirmed the presence of a circular enclosure defined by a pair of slot trenches and additional features. No finds were identified and the date of the deposits is unknown (Purcell 2022). Further archaeological work will be undertaken in advance of this development. The adjoining land immediately to the south of the proposed greenway was subject to archaeological testing in September and October 2024. Two possible postholes were identified as well as a third posthole or the socket of the now-removed standing stone (CO073-103) (Purcell 2025).

3 Geophysical Survey

3.1 A pre-planning geophysical survey was carried out on the proposed greenway route in Carrigrohane in November 2022 under licence number 22R0331 (Fig. 7) (Nicholls 2022). The main survey area lay to the south and comprised two fields, one to the east (area 2b.2), the other to the west (area 2b.1), separated by disused farm buildings. The proposed greenway lies at the northern end of both fields. At its eastern end where it is aligned along the former Cork/Macroom Railway line strong magnetic variation was identified associated with disturbance from the line. The western end of the proposed greenway route, which lies south of the former railway line, is in Area 2b.1. The survey comprised a high resolution recorded magnetometry survey (employing a fluxgate gradiometer) with the aim of identifying, mapping and describing any geophysical anomalies of possible archaeological origin.

3.2 The survey results from area 2b.1, including the proposed greenway route, displayed the effects of recent landuse in the form of abundant small and large-scale ferrous, past cultivation and at least three former field boundaries. No responses of clear archaeological potential or significance were noted on the proposed greenway route. A number of small-scale poorly defined anomalies and weakly magnetic trends of uncertain origin were noted, however, in the area of the proposed route including Anomalies D, E, F and G. These are described in Table 2 below. Approximately 40m southeast of the proposed greenway, to the northwest of survey centre, two anomalies were considered to be of archaeological significance/potential. These were interpreted as possibly a circular ditched enclosure (Anomaly A) with an associated potential pit (Anomaly B). Traces of possible early field systems (Anomaly C) were also noted.

2b.1	D	W-NW	*?? Archaeology* Sub-rectangular positive potentially representing part of an enclosure extending beyond the site boundary. However, D lies on a steep W facing slope in proximity to patterns of former cultivation and natural sol/geological variation. A natural soil/geological and/or recent landuse explanation should also be considered.
2b.1	E	W-E	*Trend* Parallel linear trends of potential note c5-6m apart from one another, potentially representing remnants of a former trackway or road. Interpretation is tentative.
2b.1	F-G	N	*Trend* Weakly magnetic curvilinear trends bordering the limits of phase 2b.1. These are barely visible above the 'magnetic background', and located at the edge of an existing boundary. Interpretation is highly tentative. A recent landuse and/or natural soil/geological explanation should also be considered.

Table 2: Results and interpretation of geophysical survey on proposed greenway route (Nicholls 2022)

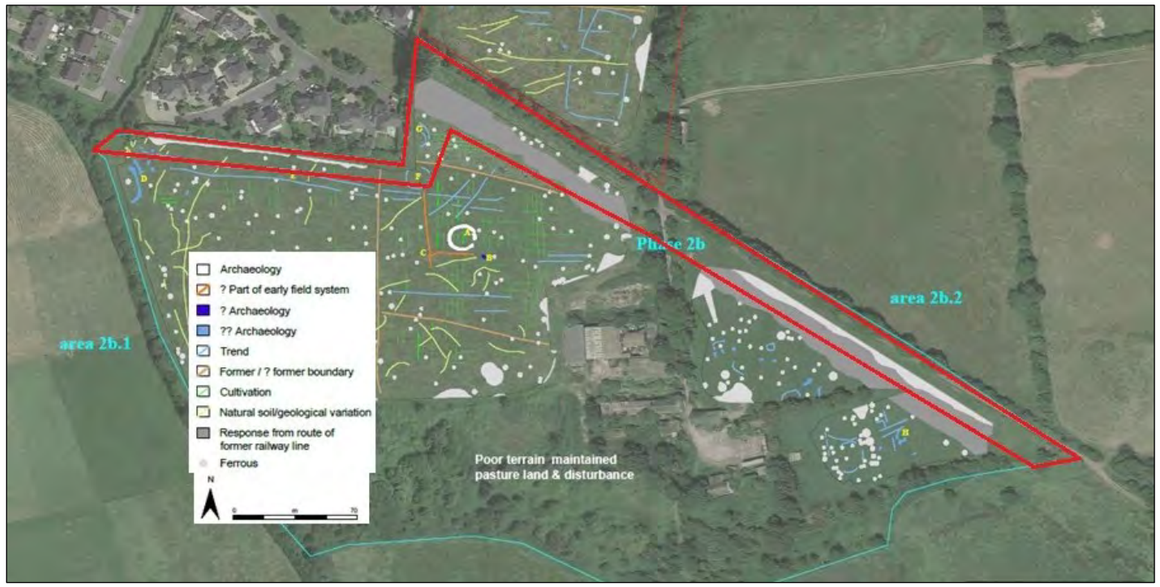


Figure 7: Geophysical survey interpretation showing approximate outline of proposed greenway (Nicholls 2022)

4 Test Trenches

4.1 Five test trenches were excavated under licence 23E1029 in September 2024 (Fig. 8). These trenches (Trenches 35 to 39) were additional to the 34 excavated in February 2024 under the same licence (Purcell 2025). The five were targeted on the geophysical anomalies (D, E, F, G) and were excavated to the south of a dense hedgerow which extended east from the Maglin River for a distance of approximately 150m before turning north for a short distance and then southeast following the line of the former Cork/Macroom Railway line. All trenches were mechanically excavated using a grading bucket and were 2.2m wide except where Trench 38 was extended to the northern field boundary. Weather conditions were mixed and at times quite wet. Details of the five test trenches are given in Table 3 below.

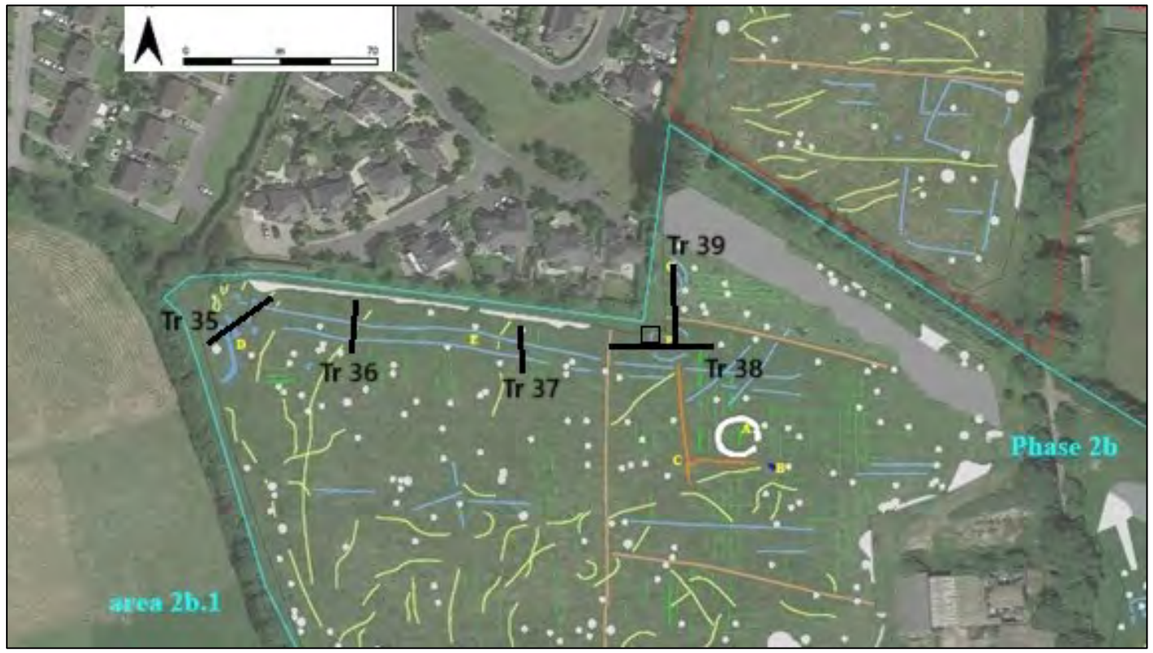


Figure 8: Trenches 35-39 overlaid on geophysical survey interpretation

4.2 Archaeological deposits were identified in Trench 38 corresponding with Anomaly F - identified in the geophysical survey as a weakly magnetic curvilinear anomaly, approximately 15m in diameter. The anomaly was found to be a shallow curving ditch (F4) which may represent a portion of a levelled ring ditch. A sondage (0.3m wide) was hand-excavation across the ditch and the trench was extended to the northern field boundary to further investigate its nature and extent. It was found to follow the curving alignment of Anomaly F for a further 5m, as seen in the geophysical image (Fig. 10). The sondage revealed further archaeological deposits indicating both earlier and later activity than F4, as follows:

- F4 Shallow ditch corresponding with Anomaly F
- F5 Grave cutting F4
- F6 Dark brown-black soft silty clay cut by F4

The earliest activity was identified as a deposit of dark brown-black soft silty clay (F6) at the eastern end of the sondage and underlying F4. This deposit had been cut by F4. The extent of the deposit was not determined but it probably represented an earlier slightly narrower, deeper (ring) ditch - Anomaly F - although it was not further investigated. F4 probably represents a recutting of the original ring ditch extending it approximately 0.7m further

west to form a wider shallower ditch which reached a depth of just 0.3m. The third and final phase of activity uncovered in the sondage was a grave cut (F5) which extended EW across F4 and contained a single inhumation burial - Skeleton 1 (Sk1). The relevant authorities (Gardaí, Cork City Coroner, NMS, National Museum of Ireland and Cork City Archaeologist) were informed and it was agreed the human remains would be excavated and the method statement was amended to reflect this. Osteoarchaeologist Máiréad Ní Challanaín attended on site and carried out the excavation of the remains. Weather conditions were poor at the time and a tent was erected above the grave to facilitate the excavation. The osteoarchaeological report is included as Appendix 1 (Ní Challanaín 2025). A single blue glass bead (23E1029:1) was found with the burial and was examined by specialist Joanne O'Sullivan. A report on the bead is included as Appendix 2 (O'Sullivan 2025).

4.3 Two possible features were identified in Trench 39, both of which corresponded with anomalies identified in the geophysical survey. The southern one aligned with a former boundary extending east from the angle of the field. The northern one appears to correspond with Anomaly G - a weakly magnetic curvilinear magnetic trend similar to Anomaly F and is considered to be of archaeological potential. Neither feature was further investigated as the presence of significant archaeological deposits in this area had already been established in Trench 38, and further archaeological investigations were deemed unnecessary.

Trench No.	Description
Trench 35	25.4m long, oriented NE-SW 0 – 0.23m Topsoil 0.23m – 0.4m Light orange slightly gritty loamy clay subsoil, with limestone outcropping in places, but otherwise very little stone. Two gritty stoney bands to the SW of the trench appeared to correspond to the location of Anomaly D. These were 2.3m apart, the SW one was 2.7m wide and the NE one 0.9m wide and both contained sterile stoney gritty loamy clay and appeared to be natural variations in subsoil.
Trench 36	18m long, oriented NS 0 – 0.22m Topsoil 0.22m – 0.4m Light orange brown slightly gritty loamy clay subsoil. There were three pockets of limestone bedrock at the north end of the trench, otherwise there was very little stone. Evidence for Anomaly E was not clearly apparent but very subtle variations in subsoil may relate to it.
Trench 37	14m long, oriented NS 0 – 0.25m Topsoil 0.25m – 0.4m Light orange brown slightly gritty loamy clay subsoil. Limestone bedrock was outcropping consistently in the trench. Evidence for Anomaly E was not visible in the trench.
Trench 38	32m long, EW oriented 0 – 0.24m Topsoil 0.24m – 0.4m Light orange brown slightly gritty loamy clay subsoil. A band of dark brown, loose, silty clay with inclusions of limestone and charcoal (2.25m wide) corresponded with the western side of Anomaly F (F4). A sondage 0.3m wide was hand excavated through the deposit revealing a shallow ditch (0.3m deep) with gently sloping sides which merged into the base. The sondage across F4 extended across a later cut (F5) which was inserted into the ditch. The fill was similar to F4, comprising loose mid-brown silty clay as in F4 but also containing frequent fragments of angular limestone. The feature was revealed as a grave cut and human remains (SK 1) were identified in it. The grave cut was EW oriented (0.55m NS x 1.9m EW x 0.63m deep) and contained the remains of a single young adult (17 to 25 years), probably female (Ní Challanaín 2025). It was fully excavated and the humans remains recorded and recovered. No further archaeological investigation was considered necessary. An earlier deposit, which was cut by F4, was visible in the side of the grave cut. This deposit was dark brown-black soft silty clay and was

	underlying F4 and upwards of 0.4m deep. It may represent an earlier cut of the ring ditch (Anomaly F) which was deeper and narrower. The extension to the trench indicated F4 continued curving northwards for approximately 5m corresponding with Anomaly F as per the geophysical survey. The ditch was not further investigated.
Trench 39	33m long, oriented NS, extending from the eastern end of Trench 38 0 – 0.25m Topsoil 0.25m – 0.4m Light orange brown loamy clay subsoil, with some pockets of limestone bedrock. Two features were identified extending across the trench. Close to the southern end a 1.8m wide band of dark brown clay with some limestone cobbles was identified. This aligned with a former boundary detected on the geophysical survey extending east from the angle of the field. Approximately 12m further to the north a gravel-rich mid-brown clay deposit with charcoal inclusions (2.6m wide) extended across the trench. This appeared to correspond with Anomaly G in the geophysical survey and is considered to be of archaeological potential. It was not further investigated.

Table 3: Details of test trenches excavated across the proposed development site



Plates 1 & 2: Trench 35, looking NE



Trench 36, looking north



Plates 3 & 4: Trench 37, looking north



Trench 38 looking west, arrow indicates F4



Plate 5: Sondage excavated across F4, looking west. Stoney grave fill partially exposed in left section



Plate 6: View of F4 in Trench 38 curving northwards with grave cut F5 in foreground, looking NW



Plate 7: Grave cut (F5) with Sk1 exposed



Plate 8: F6 exposed in side of grave cut, looking south



Plates 9 & 10: Trench 39 looking north



Anomaly G visible as dark band in Trench 39, looking north

5 Conclusions

5.1 The proposed development site is located in the townlands of Maglin and Carrigrohane, Ballincollig, Cork and will comprise an LRD in Maglin while a section of a greenway will extend generally east along the northern site boundary into the adjoining townland of Carrigrohane. Archaeological testing was carried out on the Maglin section of the proposed development site in February 2024, at which time the land in Carrigrohane was not available (Purcell and O'Leary 2025). Thirty four trenches were excavated in Maglin, and two small pits (F2 and F3) and a possible burnt spread were identified at the northern end of the proposed development site. Both pits contained sherds of prehistoric pottery (*ibid.*). Archaeological testing of the unavailable land in Carrigrohane was carried out in September 2024.

5.2 There are three recorded archaeological sites on the proposed LRD site in Maglin - two fulachtaí fia (CO073-100 and CO073-101) and a lime kiln (CO073-064) (Fig. 3). It is proposed to retain the three monuments *in situ*. There are no recorded archaeological sites on the proposed route of the greenway in Carrigrohane. The fulacht fia in Maglin (CO073-101) is the closest recorded monument and lies 50m to the southwest and the site of a standing stone (CO073-103) lies approximately 80m to the south in Carrigrohane. Outside of the proposed development site within a 1km radius, there are twenty-five recorded archaeological sites which provide evidence for human settlement and activity in the area dating from as early as the late Neolithic/ Beaker period.

5.3 Pre-planning geophysical survey was carried out separately on both parts of the proposed development site. The survey on the proposed greenway in Carrigrohane was part of a survey of the proposed LRD to the south and southeast (Nicholls 2022). In the area of the proposed greenway four small-scale, poorly-defined anomalies (D, E, F, G) and weak magnetic trends of uncertain origin were noted.

5.4 Testing of the proposed greenway was carried out in September 2024 when five trenches (Trenches 35 to 39) were excavated across the western end of the proposed route, the eastern end having been disturbed by the route of the Cork Macroom railway. The testing targeted the geophysical anomalies (D, E, F and G). Anomalies D and E in Trenches 35-37 appeared to relate to geological and soil variations and Anomaly E, in particular, was very poorly defined. Archaeological deposits and potential archaeological deposits were identified which corresponded with Anomalies F and G in Trenches 38 and 39, respectively. Anomaly F was found to be the levelled remains of a shallow ring ditch which had re-cut an earlier, more substantial ditch or deposit, probably an earlier phase of the ring ditch. This earlier phase of activity was not further investigated. Only a very small section of the ring ditch was investigated and, while the trench extended across the ditch, into the interior this area was left unexcavated. The curvature of the exposed section of ditch in the extension to the trench was consistent with the curvature of Anomaly F as identified in the geophysical survey. It was not further investigated. Its scale was similar to a circular ditched enclosure (*c.* 16m diameter with an east facing entrance) identified in the geophysical survey of the LRD for Carrigrohane (Nichols 2022). This enclosure (Anomaly A) lies approximately 40m south of the proposed greenway and outside this proposed development site. The presentation of Anomaly F is consistent with a ring ditch which typically dates from the Bronze Age or Iron Age, although some types of ring barrows (ditch barrows) can date to the Neolithic (Ronan et al 2009, 110).

The third phase to this enclosure comprised the disturbance of the ditch by a grave cut into it and the remains a single individual (Sk1) were buried there. The remains were probably those of a female, 17-25 years of age, who suffered from a chronic middle ear infection and had moderate dental health (Ní Challanáin 2025). They were buried in a supine, extended position in a simple east-west oriented grave, which became a more common burial rite during the 5th and 6th centuries (*ibid.*). A single, blue, glass bead was recovered with the burial. The bead was a monochrome blue glass bead, semi-translucent and of slightly squat barrel shape. It is closely comparable to assemblages from Iron Age funerary contexts (O'Sullivan, 2025) and was probably buried with the deceased as a talisman for protection (*ibid.*).

The archaeological deposits identified in Trench 38 suggest the presence of the levelled remains of a prehistoric ring ditch (Anomaly F) possibly represented by two phases of activity dating to the Bronze Age or Iron Age. The third phase of activity was re-use of the site for burial and may indicate the monument was still visible in the landscape and retained ritual significance. The simple east-west oriented burial suggests an early medieval date, however, the presence of a single blue glass bead with the remains is comparable to Iron Age funerary practises. The identified remains and artefacts give a *terminus ante quem* date of the early medieval period for activity on the site. Radiocarbon dating will be carried out on the human remains if permitted by the National Museum of Ireland.

5.5 In Trench 39 two possible features corresponded with anomalies identified in the geophysical survey. The southern one aligned with a former boundary extending east from the angle of the field while the northern one correspond with Anomaly G, a weakly magnetic curvilinear magnetic trend similar to Anomaly F. It was visible as a 2.6m wide band of gravel-rich, mid-brown charcoal flecked clay. Neither feature was further investigated as the presence of significant archaeological deposits in this area had already been established, in Trench 38, and further archaeological investigations were deemed unnecessary.

5.6 This results of the archaeological testing and geophysical survey will inform the proposed development layout and ultimately the planning application and all recommendations with be subject to approval by the National Monuments Service and Cork City Council.

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Appendix 1

Osteoarchaeological Report on and inhumation from Carrigrohane, Cork

23E1029

Máiréad Ní Challanáin BA MSc. MIAI MIAPO

1.0 INTRODUCTION

The report below details the results of the osteoarchaeological analysis of a single inhumation from Carrigrohane, near Ballincollig, Co. Cork. The remains were discovered during licensed archaeological testing (21E1029) of a field to the southwest of the Heathfield housing development. The remains were buried in a simple grave which had been dug into an earlier, probably prehistoric curvilinear feature. The grave was oriented roughly west-east and measured approximately 1.9m in length, 0.55m in width and was around 0.65m deep. The top of the skull was 0.82m below the present ground level. The upper fill of the grave was comprised mostly of rounded limestone cobbles and more angular limestone. Some of this stone was visible on the surface and it is possible that more would have been above ground also, as a potential grave marker.

Table 1 Summary of archaeological information of complete skeletons

Skeleton No.	Position	Orientation	Artefacts	Feature Type	Date
I	Supine, extended	West-east	Blue glass bead	Simple grave	Possibly early medieval

1.1 Methodology

The remains were washed in warm water with a brush and left to dry naturally, following standards outlined by Buckley et.al (1999). Once completely dry the remains were examined in detail, assessing the preservation of the remains and determining the minimum number of individuals, biological sex, age at death and estimated stature of the individual(s) and any pathological changes to the bone were duly recorded (Appendix I.I).

2.0 OSTEOLOGICAL ANALYSIS

Osteological analysis is concerned with the determination of the identity of a skeleton, by estimating its age, sex and stature. Robusticity and non-metric traits can provide further information on the appearance and familial affinities of the individual studied. This information is essential in order to determine the prevalence of disease types and age-related changes. It is crucial for identifying sex dimorphism in occupation, lifestyle and diet, as well as the role of different age groups in society. A summary of the osteological and palaeopathological data for the articulated skeletons is given in Table 2, with a detailed catalogue of the skeleton provided in Appendix I.I.

2.1 Preservation

The preservation of the skeleton depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. The burial environment, post-depositional disturbance and treatment following excavation can also have an impact (Henderson 1987, Garland and Janaway 1989, Janaway 1996, Spriggs 1989). The degree of preservation is assessed depending upon the severity of bone surface erosion and post-mortem breaks. Preservation is important, as it can have a large impact on the quantity and quality of information that it is possible to obtain from the skeletal remains.

Surface preservation (the condition of the bone cortex) was assessed using three categories: poor (severe erosion and exposure and may be highly porous with flaking and degraded outer cortex. This category impacts the amount of retrievable data), moderate (less exposed to erosion and exposure. The skeletal remains in this category allow for a good detail of analysis and the bone maintains most of the morphological detail) and good (maintains a good level of morphological detail with little to no erosion or porosity, which allows for a full detailed analysis). The degree of fragmentation was recorded as slight, moderate, or severe. The completeness of the skeletons was assessed and expressed as a percentage.

The remains from Carrigrohane were in a poor state of preservation, particularly the torso (ribs and vertebrae) and upper limbs. The bones of the hands did not survive, and the upper limbs were soft and difficult to lift because of this, and their fragmentary nature. The pelvis, legs and feet were in better condition and the majority of the bones of the feet were present. The differential preservation along the length of the body may be due to differences in the soil. The periosteum of the bone appeared to be stripped from the surface of the bone particularly on the mandible and the outer table of the skull. It was not clear if this was pathological, or due to the soil conditions. The vertebral bodies were all but destroyed and the superior centra survived on a couple of the lumbar vertebrae which were in a slightly better state of preservation. Parts of the neural arches were all that survived of the cervical vertebrae. The distal ends of the metatarsals had also eroded and no phalanges were recovered.

2.2 Minimum Number of Individuals

A count of the 'minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure in osteological reports on inhumations in order to establish how many individuals are represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements recovered. The largest number of these is then taken as the MNI. The MNI is likely to be lower than the actual number of skeletons which would have been interred on the site, but represents the minimum number of individuals which can be scientifically proven to be present.

The minimum number of individuals recovered from Carrigrohane was one.

2.3 Assessment of Age at death

Age at death of archaeological populations is typically established by examining age-related morphological changes in the auricular surface of the pelvis (Buckberry & Chamberlin 2002 and Lovejoy et al. 1985), the morphology of the pubic symphysis (Brooks & Suchey 1990), the degree of epiphyseal fusion and long bone measurement (Scheuer and Black 2000), and morphological changes on the sternal end of the ribs (İşcan *et al.* 1984). This can be supplemented by the degree of dental wear (Brothwell 1981).

Skeleton I are the remains of a young adult individual, 17-25 years of age. Although part of the pelvis survived, the diagnostic elements did not, and age was established based on the degree of wear on the dentition (Brothwell 1981).

2.4 Biological sex determination

Biological sex determination is carried out using standard osteological techniques. Assessment relies on the preservation of the skull and the pelvis and can only be carried out once sexual characteristics have developed during late puberty. Morphological variations of the skull, the sciatic notch of the pelvis and long bone measurements were used to determine the biological sex of Skeleton I. Based on the measurements of the long bones and landmarks on the skull it would suggest that Skeleton I was the remains of a female individual. The sciatic notch however would suggest an individual of indeterminate sex. Given the size of the individual and the characteristics of the skull and the long bone measurements Skeleton I is a probable female.

2.5 Stature

The stature of this individual was calculated based on formulae devised by Trotter (1970). Given the poor state of preservation of the remains, the measurement of the right femur taken *in situ* was used to establish stature which is a tentative estimate. This measurement provided an estimated stature of at least 150.43cm/4 feet 11 inches.

2.6 Non-metric Traits

Non-metric traits are additional sutures, facets or foramina which occur in a minority of skeletons and are believed to suggest hereditary links between skeletons (Saunders 1989). These traits can occur in the cranium and post-cranial skeleton.

Only one non-metric trait was recorded on the skull. This was the asterionic ossicle, which represents the closed mastoid fontanelle and it was present on the right side.

2.7 Conclusion

The analysis of the individual from Carrigrohane, Co. Cork established the presence of a young adult individual, 17-25 years of age, a probable female approximately 1.5m in height. Only one non-metric trait (asterionic ossicle) of the cranium was recorded.

Table 2 Summary of osteological and palaeopathological results

Skeleton No	Preservation*			Age	Sex	Stature (cm)	Dental Pathology	Pathology
	SP	F	C					
I	Poor	Moderate	60%	17-25 Young Adult	Probable female	150.43cm	Dental calculus, dental caries, possible abscess	Possible mastoiditis bilaterally

* Preservation: SP = surface preservation; F = fragmentation; C = completeness

(see Appendix I.I for more detail)

3.0 PATHOLOGICAL ANALYSIS

All bones were analysed macroscopically for any pathological changes. These changes can manifest on the bones especially when there are chronic conditions.

3.1 Infectious disease

Evidence of infectious disease can manifest on the skeleton and if the infection is chronic or longstanding it can be recorded on archaeological remains (Roberts and Manchester 2005). Woven bone is the term used to describe the initial response to infection and as the bone heals, this is remodelled and becomes lamellar bone. The presence of woven bone on skeletal remains would indicate that the infection was active at the time the person died. Lamellar bone in comparison would suggest that the infection had healed. It is not always possible to diagnose what caused the infection from the bone alone.

3.1.1 Middle ear infection, secondary osteomyelitis

Skeleton I had possibly been affected by a chronic middle ear infection. Middle ear infections today are more common in children. Analysis of individuals from early medieval cemeteries in Germany show that it was more common in older adults and potentially lower classes of society. It was proposed that poorer health in childhood and poor diet may have been contributory factors (Roberts and Manchester 2005). It may be caused by different bacteria and can also be complicated further by deafness, meningitis and septicaemia. This infection in Skeleton I occurred bi-laterally but was more severe on

the right side of the skull. Large cloacae were beginning to form with smooth rounded margins on the mastoid process which would have allowed for the infection to continually drain. Chronic osteomyelitis, which is often localised and sclerotic, can occur secondary to middle ear infections in the mastoid process, and the temporal and the petrous bones. Ear infections can also spread to the sinuses or meninges which can lead to cranial osteomyelitis (Roberts 2019). This seems to be the case here. Secondary osteomyelitis had occurred on the mastoid process and on the anterior rim of the external acoustic meatus which resulted in complete destruction of this part of the bone. This destruction occurred bilaterally but again was more destructive on the right side (Plate 1-3). On the superior surface of the petrous portion of the right temporal bone, woven bone was recorded. This bone was compact and well laid down transversely across the arcuate eminence (Plate 4). Localised discrete perforations were recorded on the ectocranial surface of the parietal. Bilaterally, and one small discrete area posterior to the right supraorbital margin on the frontal bone. This may be unrelated to the temporal osteomyelitis but it could be indicative of the infection spreading (Plate 5). The zygomatic processes on both sides were also affected and seemed to have been destroyed completely.

The anterior edge of the process where it would have articulated with the zygomatic bone was round and blunted. The condyles of the mandible may also have been affected as well as the anterior surface of the left mandible, superior to the mental eminence. The periosteum had been stripped of the bone and again it was unclear if this was purely pathological. The perforations to the underlying bone did seem unusual and may have been an indicator of secondary osteomyelitis. The condyles were very narrow and porotic and seemed to have been eroded which could be due to the spread of infection from the middle ear into the temporomandibular joint.



Plate 1 Right mastoid/temporal bone



Plate 2 Right mastoid process



Plate 3 Left mastoid process



Plate 4 New bone growth on petrous bone



Plate 5 Porotic bone on right parietal

3.1.2 Endocranial Bone Formation

New bone formation on the endocranial (internal) surface of the cranium is more commonly seen in infants and young children and is believed to result following inflammation or haemorrhage of the meningeal blood vessels. The possible causes identified include chronic meningitis, trauma, anaemia, neoplastic disease (cancer), metabolic diseases (scurvy and rickets), venous drainage disorders and tuberculosis (Lewis 2007).

The exact cause of the endocranial bone formation on the occipital bone of Skeleton I is unclear. It was localised and was around the superior rim of the foramen magnum and superior to the jugular process. The bone was well laid down, light grey in colour and plaque-like with a raised surface (Plate 6).



Plate 6 New bone formation on endocranial occipital bone

4.0 DENTAL HEALTH

31 of the 32 teeth were present and 23 tooth positions. The only tooth missing was a maxillary right second premolar. The maxilla did not really survive except for seven tooth positions, and it was not possible to discern if this tooth was lost ante or post-mortem. The teeth generally were in a good state of preservation with moderate wear.

4.1 Calculus

Dental calculus (mineralised plaque) is commonly found in archaeological populations where dental hygiene may not have been rigorous. If the plaque is not removed effectively, these deposits can mineralise and form concretions of calculus on the crowns and roots of the teeth, and along the gum line. This mineralisation can also occur if the diet is high in protein (Roberts and Manchester 2005, Hillson 1996).

45.16% (14/31) of the observable teeth had evidence of calculus. The buccal and lingual sides of the teeth were mostly affected. The dental calculus was not severe and was recorded as slight flecking. The molars were mostly affected particularly in the maxillary teeth, and the buccal side of the left maxillary molars had slight concretions of calculus.

4.2 Dental Caries

Dental caries form when bacteria in the plaque metabolise sugars in the diet which produces acid that can cause the loss of minerals from the teeth, which will eventually create a cavity (Hillson 1996). This acid is typically produced by simple sugars found in fruits and vegetables but can also be produced as a result of processing complex carbohydrates, such as grinding grain. 19.35% (6/31) of observable teeth had dental caries. Four maxillary teeth and two mandibular teeth were affected. The dental caries was recorded as pinpricks on the occlusal surfaces of the teeth (Plate 7).



Plate 7 Dental caries

4.3 Dental wear

All teeth had signs of dental wear. The wear was greatest on first and second molars on both sets of dentition and the central incisors (Plate 8). The third molars were the least affected and the canines and premolars had little wear. In modern populations, our diets tend to be softer and easier to chew which means that attrition of the teeth is not as significant. For past populations, how food was processed was a major factor which affected the rate of wear on the teeth. Grain was a staple food in the diet and was ground on stone mills which would incorporate small particles of stone into the grain which would affect the rate of wear on the tooth (Hillson 1986).



Plate 8 Dental Wear

4.4 Dental abscesses

Dental abscesses occur when bacteria enter the pulp cavity of a tooth causing inflammation and a build-up of pus at the apex of the root. Eventually, a hole forms in the surrounding bone allowing the pus to drain out and relieve the pressure. Abscesses can form as a result of dental caries, heavy wear of the teeth, damage to the teeth, or periodontal disease (Roberts and Manchester 1995).

A possible dental abscess was recorded at the position of the left mandibular premolars. Part of the bone had been damaged during excavation, but the inferior rim of the abscess was quite rounded (Plate 9). The surrounding bone did not seem to show any sign of infection.



Plate 9 Dental abscess

4.5 Miscellaneous

The mandibular teeth were slightly overcrowded. The left central incisor was behind the right central incisor and the left lateral incisor.

5.0 Discussion

Without a definitive date for Skeleton I, it is difficult to really discuss the mortuary practices in any meaningful way. Considering that the individual was buried in a west-east orientation, a tentative early medieval date could be suggested. Skeleton I was also buried in a supine, extended position which became a more common burial rite during the 5th and 6th centuries in Ireland. However, there is a known extended inhumation from within a burial ring ditch at Cherrywood in Co. Dublin that dates to the Late Bronze Age (McGarry, 2010). During the Iron Age, the majority of inhumation burials were buried in a crouched position and seem to be confined to the east coast, and it is generally thought that this rite was introduced into Ireland from Britain (O'Brien 2020). Extended inhumations from the Iron Age have been recorded in Bray Co. Wicklow, and date to the 2nd century AD (*ibid.*). Extended inhumation was a common form of burial in Roman Britain from the 2nd century onwards and the individuals from Bray were buried with coins of the emperors Trajan and Hadrian (O'Brien 2020). Two other extended burials from Cross, Co. Galway and Claristown, Co. Meath also date to the Iron Age, from the turn of the 5th century AD. Another extended burial from Carbury Hill in Kildare, discovered in 1936 was recently dated to the 3rd-4th century AD (O'Brien 2020).

Although the remains from Carrigrohane were found during archaeological testing, it appeared to be an isolated burial. Isolated burials dating to the early medieval period in Ireland account for 21% of known burial sites so far and are detailed in Elizabeth O'Brien's synthesis (O'Brien 2020). Isolated burials were more common during the earlier centuries of the early medieval period in Ireland until formalised cemeteries became the norm. Why these individuals were buried in isolation is not completely clear. It could be that the individual from Carrigrohane was part of a travelling group and had died while travelling and was buried *on route*. Their burial here may also have been seen as a return to ancestral ground. A standing stone (CO073-103) had stood in the field roughly southwest of where the burial was found. This may be an indicator that the burial of Skeleton I in the vicinity was strategic and may have been an area of significance. The Maglin river also runs to the south, and it, and the standing stone may have marked a boundary. As the curvilinear feature that Skeleton I was buried in was not excavated fully, its exact function is unknown. It is not possible to say definitively whether this was a burial monument and whether the burial of Skeleton I in its ditch was coincidental or if it was known in folk memory as a place of burial. There is a possibility that the curvilinear feature was the remnants of a *fert*. These 'ancestral graves' were often associated with boundaries, rivers/streams and ogham/standing stones. There are many references to these features in medieval law tracts and were important in the process of taking possession of land (Breathnach, 2010). There are many known examples of the reuse of earlier prehistoric burial monuments, and ring ditches in particular. An extended inhumation that dated to the late Iron Age/early medieval period was excavated from the centre of a Bronze Age ring ditch in Kilbrew, Co. Meath (Hawkes, 2021). Another burial which indicated reuse of a previous monument was at Ballydavis I, an adult male was interred in the ditch of a penannular ring ditch (O'Brien 2020).

The burial of Skeleton I with a grave good is also interesting. The bead found with Skeleton I was very small, 6.5mm in diameter and made of blue glass. It was squat-barrel in shape and akin to those found in Iron Age cremation burial contexts (O'Sullivan 2024). Blue glass beads have been found with several Iron Age cremation burials from Ask in Co. Wexford (Stevens 2007), at Ballyboy, Co. Galway (McNamara and Delaney 2012) and Loughey, Co. Down (Jope and Wilson 1957). Burials with identifiable grave goods become rarer during the early medieval period. Only 89 burials of the c.11000 known so far contained grave goods and 17 of these contained glass beads (O'Brien, 2020). A single bead, particularly with a child's burial is considered to be an amulet guarding against the evil eye and

it is suggested that those found in female burials could have been placed there for a similar reason (*ibid.*). The bead from Carrigrohane was recovered from soil at the midshaft of the left femur of the individual, but had been dislodged and was more likely to have been originally by/within the left hand. As O'Sullivan states, these types of beads are more common within the Iron Age burial record, albeit with cremation burials. They do however occur well into the early medieval period and this should not be discounted.

6.0 Summary

The remains recovered from Carrigrohane were of a probable female, 17-25 years of age. She was buried in a simple grave which had been dug into an earlier, probably prehistoric curvilinear feature. The upper fill of the grave was comprised of medium sized angular limestone and limestone cobbles which may have acted as a grave marker. Skeleton I suffered from a chronic middle ear infection with secondary osteomyelitis. Dental health was moderate with several dental caries and mild dental calculus recorded. Skeleton I was also buried with a single blue glass bead which was recovered from the left femur. This appeared to be an isolated burial which might have been associated with a boundary or a known area for burial. It is recommended that AMS C14 dating be undertaken in order to help place this individual in a wider funerary context.

Appendix I.I

Skeleton Number	**I**
Preservation	Poor
Completeness	60%
Age	17-25 Young Adult
Sex	Probable female
Stature	150.43 (4'11")
Non-Metric Traits	Asterionic ossicle
Pathology	Possible mastoiditis/osteomyelitis of the temporal bone secondary to middle ear infection. Woven bone on superior part of the petrous bone on the right side. Destruction of the tympanic ring and anterior external acoustic meatus. Woven bone superior to the jugular process of the occipital bone (endocranially) and on the endocranial surface of the superior rim of the foramen magnum. Destruction of the left zygomatic process.
Dental Health	Mild dental calculus, pinprick dental caries, dental abscess/granuloma on right side of mandible, slight overcrowding on the mandibular incisors and canine on the left side

	Right Dentition								Left Dentition							
Present	P	P	P	NP	P	P	P	P	P	P	P	P	P	P	P	P
Calculus	Fl	Fl	Fl		fm	-	-	-	-	-	-	-	-	Slb	Slb fd	Slb fm
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	ppo	-	-	-	-	-	-	ppo	Ppo	-	ppbo	-
Wear	1	4	5	-	3	3	5	5	5	5	3	4	4	5	4	1
Abscess	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maxilla	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**
Mandible	**48**	**47**	**46**	**45**	**44**	**43**	**42**	**41**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**
Present	P	P	P	P#	P#	P#	P	P	P	P	P	P	P	P	P	P
Calculus	-	-	Fb	-	-	Fb	Fb	Fb	-	-	-	Fl	Fl	Fl	-	-
DEH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caries	-	-	-	-	-	-	-	-	-	-	-	-	Ppo	-	Ppo	-
Wear	1	4	5	4	3	3	5	5	5	5	3	4	4	5	4	1
Abscess	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-

KEY:

Present - Tooth presence; am - ante-mortem tooth loss; pm - post-mortem tooth loss; p - tooth present; - - jaw not present; o – erupting #- socket broken

Calculus; F-flecks, Sl - slight calculus; M - moderate calculus; S- severe calculus; a - all surfaces; b - buccal surface; d - distal surface; m - mesial surface; l - lingual surface; o - occlusal surface

DEH - dental enamel hypoplasia; l - lines; g - grooves; p - pits

Caries- pp – pinpoint lesions; sm - small lesions; m – medium lesions; l - large lesions

Wear - dental wear; numbers from 1-8 - slight to severe wear

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Appendix 2

Report on glass bead from Carrigrohane, Cork (Licence; 23E1029)

Dr Joanne O'Sullivan

Conventions used in this report are influenced by previous published classifications by authors, including Guido (1978: 2000), Mainman and Rogers (2000; 2004) and Brugmann (2004). Much of this published work has concentrated on material from prehistoric and early medieval contexts. To this end, the shape, dimensions, translucency and decoration are recorded and discussed.

One glass bead (23E1029:1) was submitted for identification, recovered from an inhumation burial in the townland of Carrigrohane, Co. Cork. The remains were buried in a simple grave which had been dug into an earlier, probable prehistoric curvilinear feature.

The monochrome blue glass bead (23E1029:1) is semi-translucent, of slightly squat barrel shape (Fig. 1). Glass is a mixture of sand, soda ash or lime and other components fused together at a high temperature. The blue colour is achieved by using cobalt. It was manufactured as a result of the 'winding' technique when the glass was molten and therefore still pliable. This involved 'winding molten glass around a metal rod, whose position thus provided the place of the later perforation' (Brugmann 2004, 21). The main body of the bead could then be manipulated into shape using the grinding technique, i.e., at both perforated ends. In this instance, the bead from Carrigrohane (23E1029:1) is slightly larger at one side, indicating that the manufacturing process was not exact.

Although the Carrigrohane example is small in size, blue glass beads of this type are ubiquitous in the Irish archaeological record and have been recovered from late prehistoric contexts through to the early medieval period (Warner & Meighan 1994, 52). The most simple, and common form are plain glass beads in single cobalt blue colour. These blue glass beads generally fall into Guido's (1978) 'Group Giv' type, although Irish examples are generally smaller in diameter and height of that particular grouping.

The bead from Carrigrohane (23E1029:1) is closely comparable to assemblages found in a number of Iron Age funerary contexts. A number of recurring blue glass bead types occur from these burial sites, in particular from cremations associated with ring-ditches (O'Brien 2020, 20). For example, several blue glass beads were recovered from an Iron Age ring-ditch at Ballyboy, County Galway (McNamara and Delaney 2012), while large numbers were found at an Iron Age cremation at Ask, Co. Wexford (Martin 2006), and at Loughey, Co. Down dated from the 1st century BC to the 1st century AD (Jope and Wilson 1957). In Cork, a group of eight small blue glass beads were recovered from an Iron Age ring-ditch (196-40 BC; UBA-15504), at Curraheen 1 (Hurley 2015; see also Cleary 2015, 108-109; plate 6.9), while a strikingly similar example to Carrigrohane was found in a pit dating to AD 20–350 (Beta-165312) at Muckridge townland, close to the River Blackwater in Co. Cork (Hurley and Hanley 2013 170).

The bead from Carrigrohane (23E1029:1) was found in association with an inhumation burial of unknown date. It is significant that it was recovered from the immediate vicinity of the body, at the mid-shaft of the left femur. The osteoarchaeologist states that the bead was likely *in situ* in or around the individual's left hand (Ní Challanáin 2025). Beads found in association with inhumation burials are rare in the Irish archaeological record, however they were the most commonly occurring of the grave goods at Knowth, Co. Meath where eight of the 14 Iron Age crouched inhumations contained beads (Eogan 1974, 81-82; Pl. 26a and 26b; Raftery† 2012, 232). Almost all were tiny blue glass beads, which were worn in strings of several hundred. A small number of individual glass beads were also found that appear to have been worn around the arms or neck.

As stated by Ní Challanáin (2025), the orientation of the burial at Carrigrohane would tentatively indicate an early medieval date. Blue glass beads of this type are also known from early medieval contexts found predominantly in domestic settlements. For instance, Mannion (2015, 29), in her recent publication of early medieval Irish glass beads, includes examples similar to Carrigrohane (although slightly larger at 7–8mm) within her 'Class 15' bead typology. She refers to blue glass beads from high status ringfort sites such as Garranes, Co. Cork and Deerpark Farms, Co. Antrim dated using associated ceramics and radiocarbon dated of closed contexts to the late fifth/early sixth centuries AD. These Class 15 beads are also known from monastic sites such as Clonmacnoise, Co. Offaly dating to the eighth and ninth centuries AD. Therefore, such Class 15 beads appear to have been in use in Ireland throughout the early medieval period, but appear rare from burial contexts.

Without definitive evidence for glass working of an industrial scale in this period for much of Ireland, it can be assumed that these beads are either imported from the rising glass industries of continental Europe or Britain, or they derive from small-scale, local craftworking, for which the archaeological record is poor (O'Sullivan 2021, 694). The parallels with the majority of Irish beads would suggest that Britain was the source, rather than the Continent (Carroll 2007).

In general, the bead from Carrigrohane accords well with the glass bead evidence provided by other Irish Iron Age burial sites, even considering its association with an extended inhumation burial aligned E/W. However, plain blue beads of this type, without special characteristics are extremely difficult to date without supporting evidence. They are found in Ireland from the Iron Age and occur throughout the early medieval period. In this instance, radiocarbon dating of related contextual material would be required.

It is difficult to postulate on the meaning of this artefact and the choice of its inclusion within the burial. Given its small size, it is difficult to argue its inclusion was for a public 'performance' of wealth or status by those burying the deceased. Its singularity also suggests it was not an element of dress belonging to the individual. Most likely, it was a tokenistic inclusion with the deceased, possibly a 'talisman' or protection element as attested to by O'Brien (2020, 23).

Catalogue description

Fig. 1 **Bead**. 23E1029:1. Glass (monochrome). A 'barrel-shaped' monochrome bead (complete) of semi-translucent dark blue glass. No decoration or distinctive features, but slightly misshapen. Height: 4.40mm; diameter: 6.58mm; diameter of perforation: 2.52mm. Wt. 0.3g. Recovered from grave fill of inhumation burial, at the mid shaft of the left femur.



Figure 1. Monochrome blue glass bead from Carrigrohane, Co. Cork

Recommendations

The object does not require specialist treatment. The bead should be stored in a sealed plastic bag in an acid-free cardboard box.

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APPENDIX 9-3 Walkover Survey Photographs – Lane Purcell Archaeology

The proposed development site is situated in the fertile lowland valley of the Maglin River, in the townland of Carrigrohane, Ballincollig, Co. Cork. The site is bounded to the north by modern residential development, while lands to the south, east and west remain in agricultural use. The site comprises three pasture fields (Fields 1–3), the Carriganarra farm complex (Field 4), and a portion of one additional field (Field 5) at the south-western extent of the townland, adjacent to the Maglin River (Plate 1). The N22 Ballincollig Bypass, constructed in the early 2000s, lies approximately 330m to the east and 460 m to the south.

The site was inspected during walkover surveys in May 2024 and again in May and September 2025, in dry, bright weather conditions. The purpose of the walkover surveys was to assess the physical environment in which the proposed development will take place and to identify any features of cultural heritage significance or Areas of Archaeological Potential (AAP). Current land use, local topography and environmental conditions were examined to provide an overall understanding of the site.

The photographs presented here illustrate the general character of the site at the time of inspection and record key features, boundaries and landscape elements relevant to the archaeological and cultural heritage assessment.



Plate 1: Proposed development site outlined in red on Google Satellite imagery (2026). Fields (F1-F5) and Buildings (B1-B2) shown with closest RMP sites in red (to be prefixed with (CO073).



Plate 2: Field 1, looking SW



Plate 3: Field 1, looking south at modern farm sheds



Plate 4: Field 1, looking northwest



Plate 5: Field 1, looking west



Plate 6: Field 2, looking SE



Plate 7: Field 2, looking NW



Plate 8: Field 2, looking W



Plate 9: Field 3, looking NW



Plate 10: Field 3, looking SW



Plate 11: Entrance to Carriganarra farm complex, looking south



Plate 12: Site of Carriganarra House, looking south



Plate 13: South elevation of Building 1, at the northwestern side of Field 4



Plate 14: South elevation of Building 1



Plate 15: East elevation of Building 1



Plate 16: South elevation of Building 2



Plate 17: Overgrown east elevation of Building 2



Plate 18: Overgrown area of ground to the south of Building 2 in Field 4



Plate 19: Field 5, looking southeast

APPENDIX 9-4 Photographic and Drawn Survey of the limekiln - Lane Purcell Archaeology

Photographic and Drawn Survey of the limekiln

The limekiln is located along the northern boundary of Field 3 (Plate 1). It was recorded during a walkover survey in dry, sunny weather conditions and was photographed from all accessible sides (Plates 2-8). A measured drawn record of the structure was also undertaken by Keohane Geological & Environmental Consultancy (included below).

Photographic Record

The south, east and west elevations are exposed and comprise well-built, straight-faced limestone masonry, surviving to a substantial height and indicating a robust field limekiln. A draw hole is present at the base of the south elevation, confirming the function of the structure. The exposed elevations correspond closely with the drawn elevations (shown below), which illustrate the form and construction of the kiln where visible.

The north elevation is not visible, either photographically or in the drawn record, as it is obscured by a surviving ramp and dense vegetation. The kiln top is heavily overgrown with vegetation, limiting visibility of the upper extent of the structure.

Overall, the kiln survives in good structural condition, with no evidence for major collapse of the exposed elevations, although vegetation growth and localised ground build-up obscure some lower courses. Taken together, the photographic survey and drawn record provide a clear record of the kiln's form, construction and method of operation, while noting the physical constraints that limited access to certain elevations.



Plate 1: Location of the limekiln along the northern boundary of F3.



Plate 2: South and east elevations of the limekiln, looking north-west, showing the well-built outer limestone masonry walls; the kiln top is heavily overgrown with vegetation.



Plate 3: South elevation of the limekiln, looking north, showing the draw hole at the base of the structure.



Plate 4: South elevation of the limekiln, looking north-east, showing quoin stones at the corner and a small draw hole at the base; the lower courses are partly buried by later ground build-up.



Plate 5: West elevation of the limekiln, looking north-east



Plate 6: West elevation of the limekiln, looking south-east



Plate 7: West elevation of the limekiln



Plate 8: Looking southeast at the western elevation

SECTION 2 – DRAWN SURVEY OF LIMEKILN

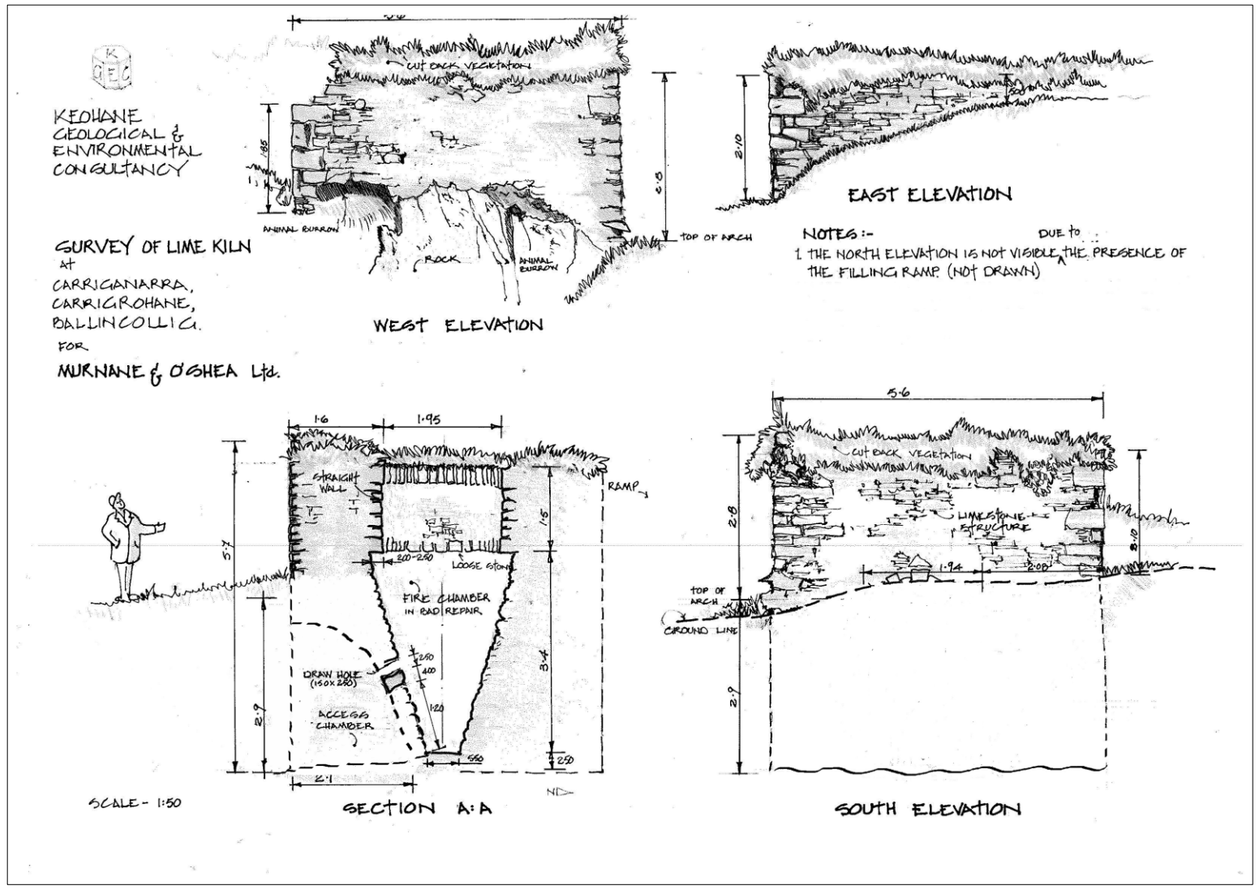


Figure 1: Measured drawings of the limekiln, including elevations and section, showing construction details and internal configuration; the north elevation is obscured by a filling ramp and is not illustrated (Keohane Geological & Environmental Consultancy).

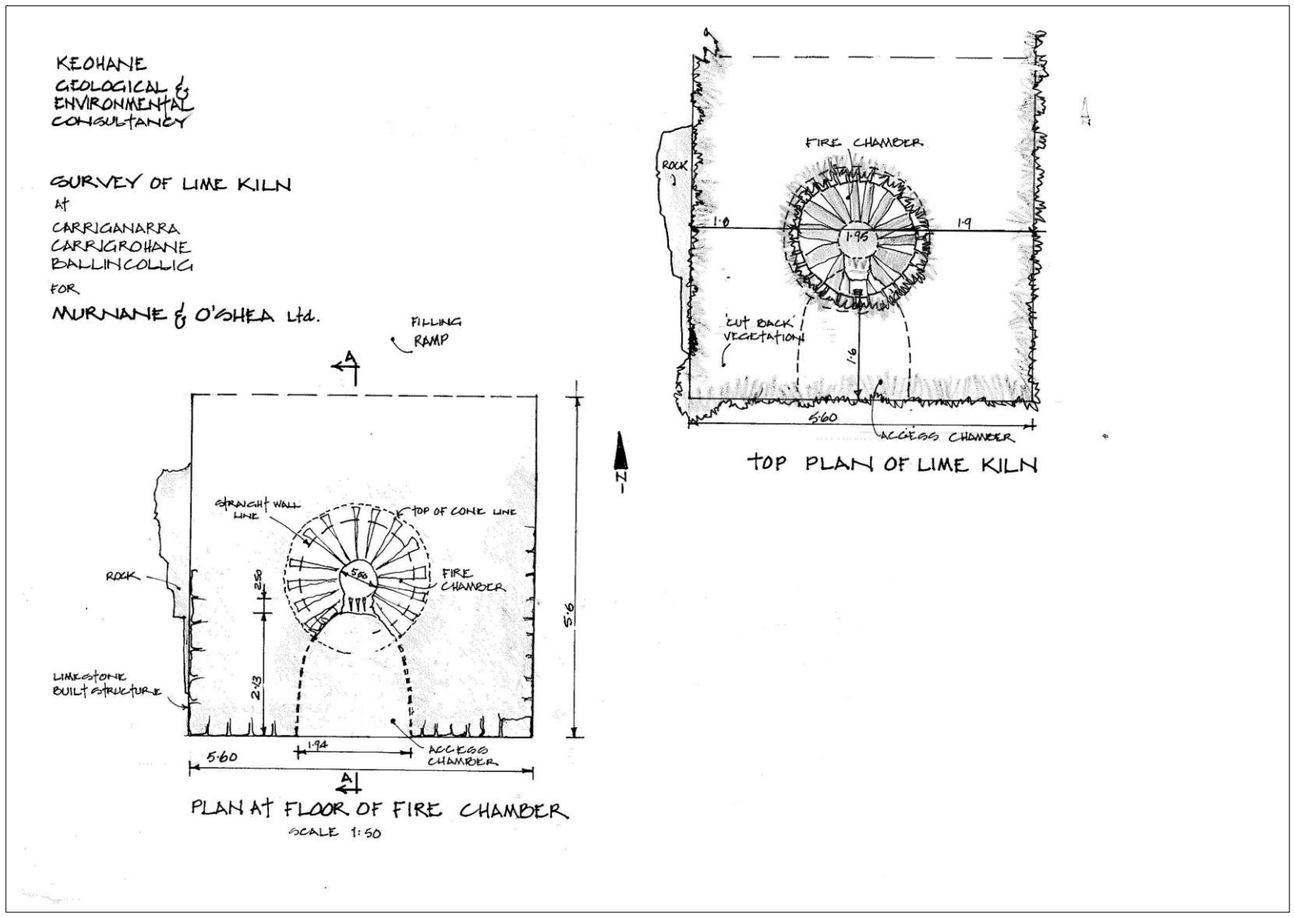


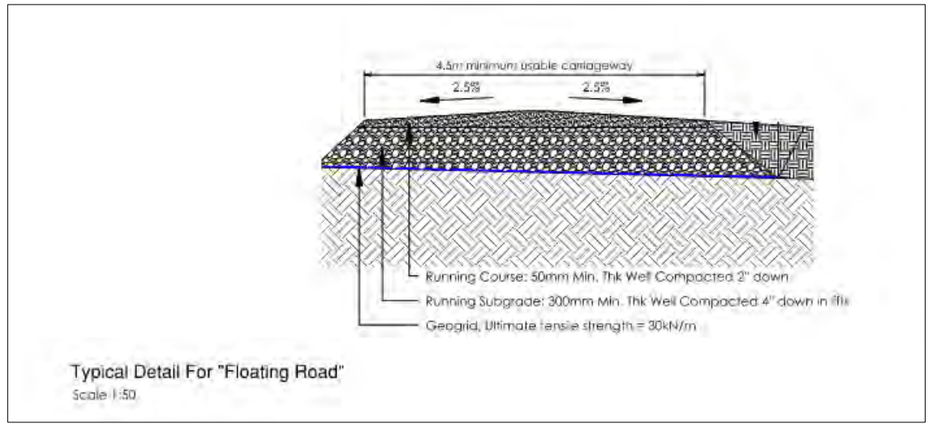
Figure 2: Measured plan drawings of the limekiln, showing the top plan and plan at fire-chamber level, illustrating the internal configuration of the kiln and associated access features (Keohane Geological & Environmental Consultancy)

APPENDIX 9-5 Typical detail for “Floating Road/Path” and Greenway Construction Methodology - Lane Purcell Archaeology

Typical detail for “Floating Road/Path” and Greenway Construction Methodology

The methodology for laying a "floating road" typically refers to building a road embankment over weak or soft ground, but in this case an area of archaeological interest that requires non disturbance. It involves using specialized techniques to minimize the weight of the structure and thus limit settlement.

The primary methodology involves site preparation, installation of a geogrid stabilization layer, and careful placement of lightweight or standard aggregate fill.



Construction Methodology

The process is closely monitored and often requires site-specific design, but generally follows these steps:

1. **Site Preparation**: The path alignment is marked. Crucially, the existing surface will be left in place to avoid damaging the ground's natural mat of vegetation, which helps support the structure.
2. **Geogrid Installation**: Rolls of high-strength stabilization geogrid will be unrolled directly over the prepared surface. This geogrid acts as a separator and provides tensile strength and stiffness to the path structure. Construction equipment must not travel directly on the geogrid during installation.
3. **Fill Placement**: Aggregate fill material will be "cascaded" or pushed onto the geogrid in thin layers to avoid shoving the geogrid or disturbing the underlying soils. The aggregate particles interlock with the geogrid to form a mechanically stabilized layer that distributes the load more effectively. Using lightweight aggregate can further reduce the overall weight and minimize settlement.
4. **Compaction**: The initial layer of fill is typically tracked over by a machine to achieve some compaction and improve interlock. Subsequent layers are compacted using non-vibratory rollers. Heavy vehicles will be kept within a designated safe running zone away from the edges of the new path.
5. **Layering**: Additional layers of geogrid and aggregate fill are built up to the specified thickness, depending on the design requirements and expected traffic loading. This process is repeated until the final path profile is achieved.
6. **Monitoring**: Throughout the construction process, lateral movement and settlement are monitored closely. The design and construction teams must be prepared to adjust the methodology in response to actual site conditions.

Key Design Principles

- **Minimise Weight**: The fundamental principle is to keep the road structure as light as possible to minimize the surcharge load on the ground, which reduces settlement and environmental impact.
- **Load Distribution**: Geogrids and lightweight fill materials create a stiff, mechanically stabilized layer that spreads the traffic load over a wider area of the soft ground.
- **Drainage**: natural drainage in the form of infiltration is essential to manage water runoff and protect the integrity of the path structure and the surrounding area's hydrology.

APPENDIX 9-6 Archaeological Testing Final Report March 2026 – Lane Purcell Archaeology

Archaeological Testing

Maglin & Carrigrohane, Ballincollig, Cork

Licence Number 23E1029
Final Report

Avril Purcell MA MIAI & Musetta O'Leary MA
March 2026

Abstract

This is a final report following two phases of archaeological testing of a proposed residential development and greenway in Maglin and Carrigrohane, Ballincollig, Cork.

Human skeletal remains (Skeleton 1) were found during archaeological testing of the greenway in Carrigrohane. Skeleton 1 was buried in a supine, extended position in a simple east-west oriented grave. A single blue glass bead was found with the burial giving a *terminus ante quem* of the early medieval period for the burial. A radiocarbon date for the remains returned a date of 1544 +/- 22 BP. The calibrated radiocarbon date for the skeleton gives a "median probability" of AD 541, placing the deposition of the remains in the mid 6th century AD, consistent with the findings from the skeletal remains and the associated blue glass bead.

1 Introduction

1.1 It is proposed to carry out a Largescale Residential Development (LRD) in the townlands of Maglin and Carrigrohane, Ballincollig, Cork (ITM 559918 570002) (Figs. 1 and 2). The LRD in Maglin will incorporate a residential development and a greenway which will extend E-W along the northern side of the residential development before then continuing into Carrigrohane townland running along the northern edge of a second and separate proposed LRD. Archaeological testing was carried out on the LRD in Maglin and that section of the greenway in Maglin, in February 2024 under licence 23E1029 (Purcell and O'Leary, 2024). Archaeological testing of the remaining greenway in Carrigrohane was carried out in September 2024 (Purcell and O'Leary, 2025).

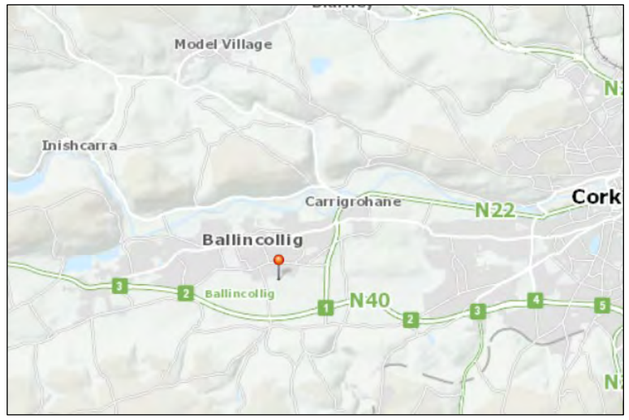


Figure 1: Ordnance Survey location map



Figure 2: Proposed development site outlined on OS map showing archaeological monuments within the proposed residential development at the west and the outline of the proposed greenway at the east www.archaeology.ie

1.2 There are three recorded archaeological sites on the proposed development site all in Maglin (two fulachtaí fia (CO073-100 and CO073-101) and a lime kiln (CO073-064)(Fig. 3). The three monuments will be retained *in situ* in the proposed development.

1.3 Two pre-planning geophysical surveys (Dowling, 2022 and Nichols, 2022) of the proposed development were carried out. The survey of the Maglin LRD and Greenway identified "*a range of anomalies of archaeological and potential archaeological interest, including a double concentric enclosure and a ring-ditch"* (Anomaly 1) *(ibid.).* It also fully mapped two previously recorded burnt spreads, CO073-100 and CO073-101, and detected the potential remains of a series of possible pits/spreads while evidence for past cultivation and land division was also identified (*ibid.*). The development was re-designed to eliminate the potential archaeological features (the double concentric enclosure and ring ditch) identified in the survey from the development area. Separately the survey on the proposed greenway in Carrigrohane and adjoining land identified a number of small-scale poorly defined anomalies and weak magnetic trends of uncertain origin - Anomalies D, E, F and G (*ibid.*). The full results of both surveys were submitted previously.

1.4 Archaeological testing of the geophysical anomalies and the development site in Maglin further found two small pits and a possible burnt spread (Purcell and O'Leary 2024). The testing in Carrigrohane identified one of the geophysical anomalies (Anomaly F) as a shallow curving ditch, probably a portion of a levelled (ring) ditch. An EW grave (F5) was found to cut this ditch extending across the ditch and containing a single inhumation burial - Skeleton 1 (Sk1). The skeleton was excavated by osteoarchaeologist Máiréad Ní Challanaín and the report (Ní Challanaín, 2025) was included in Appendix 1 of the testing report (Purcell and O'Leary, 2025). A single blue glass bead (23E1029:1) found with the burial gave it a *terminus ante quem* of the early medieval period. A report on the bead by specialist Joanne O'Sullivan (2025) was included as Appendix 2 in the testing report (Purcell and O'Leary, *ibid.*). A licence to export and alter (8454) a portion of the left humerus of Sk1 was granted by the National Museum of Ireland and the sample was submitted for radiocarbon dating to the Chrono Laboratory (UBA-58844). The bone was dated 1544 +/- 22 BP with a calibrated "median probability" of AD 541 (Appendix 1).

1.5 The results of both phases of testing (Purcell and O'Leary, 2024; Purcell and O'Leary, 2025), the osteoarchaeological analysis (Ní Challanaín, 2025) and bead report (O'Sullivan, 2025) have been submitted to the relevant authorities and will not be included here. This report is a final report providing details of the results of the radiocarbon date on the burial identified in Trench 38 on the route of the proposed greenway through Carrigrohane townland.

1.6 This report is the final report on two phases of archaeological testing and was compiled by Avril Purcell, Lane Purcell Archaeology, 64 Fr Mathew Road, Turner's Cross, Cork on behalf of MOS Homes Limited, Link Road Business Centre, Link Road, Ballincollig, Cork.

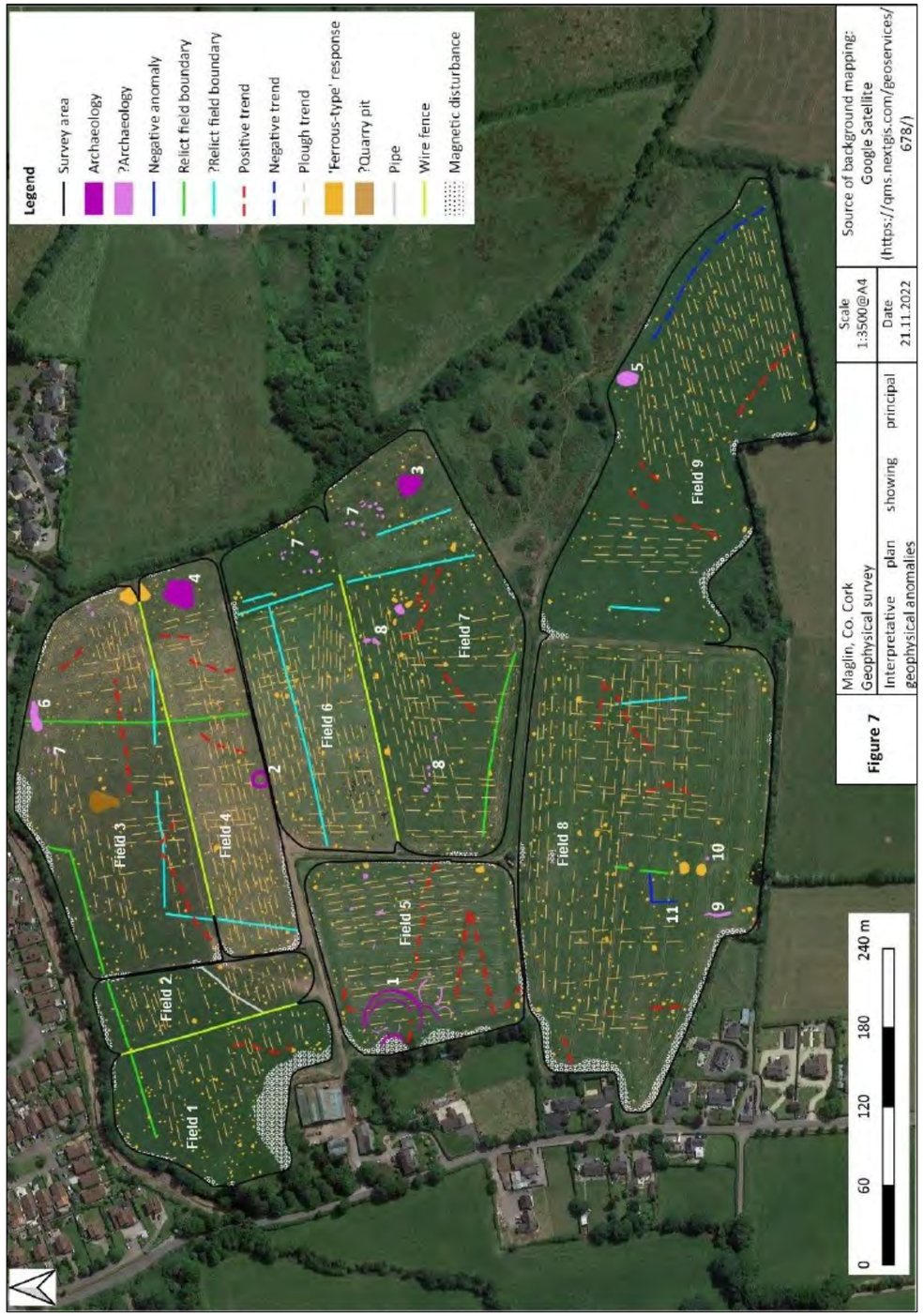


Figure 3: Geophysical survey interpretation of Maglin lands (Dowling 2022)

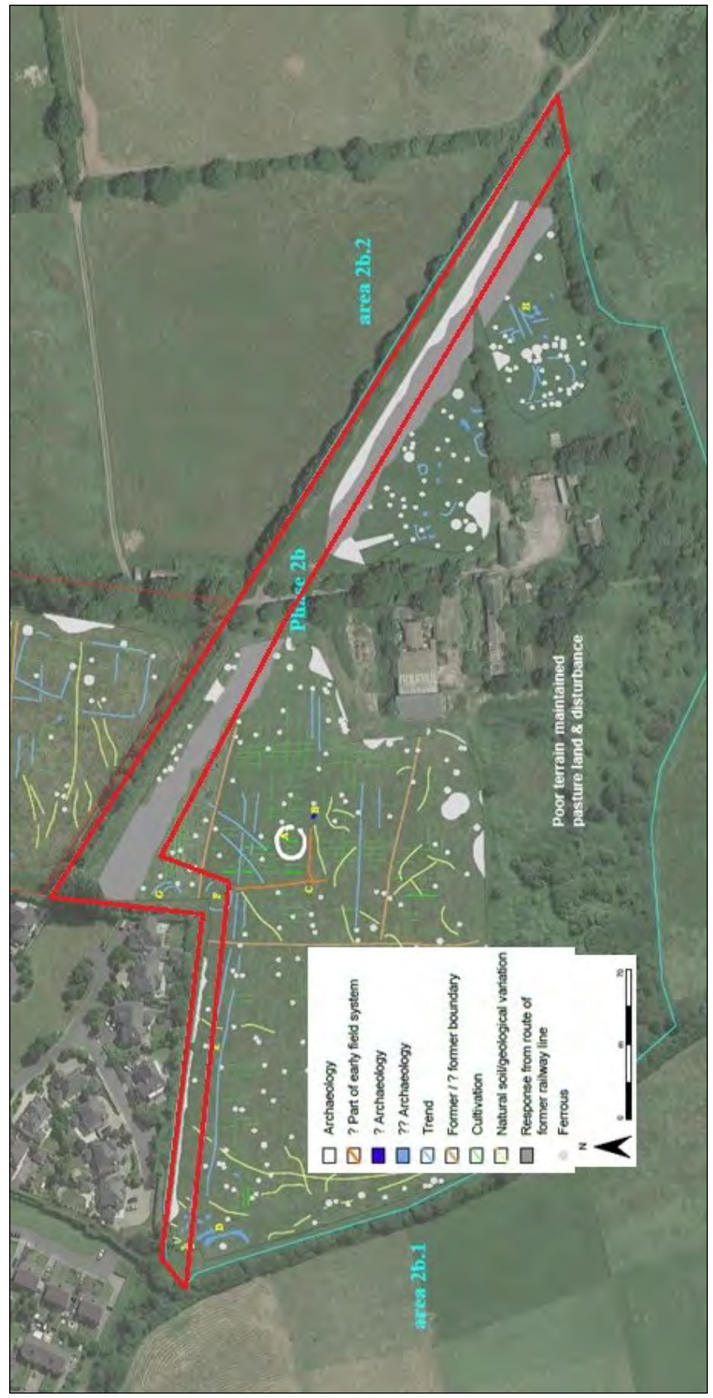


Figure 4: Geophysical survey interpretation of Carrigrohane lands showing approximate outline of proposed greenway (Nicholls 2022)

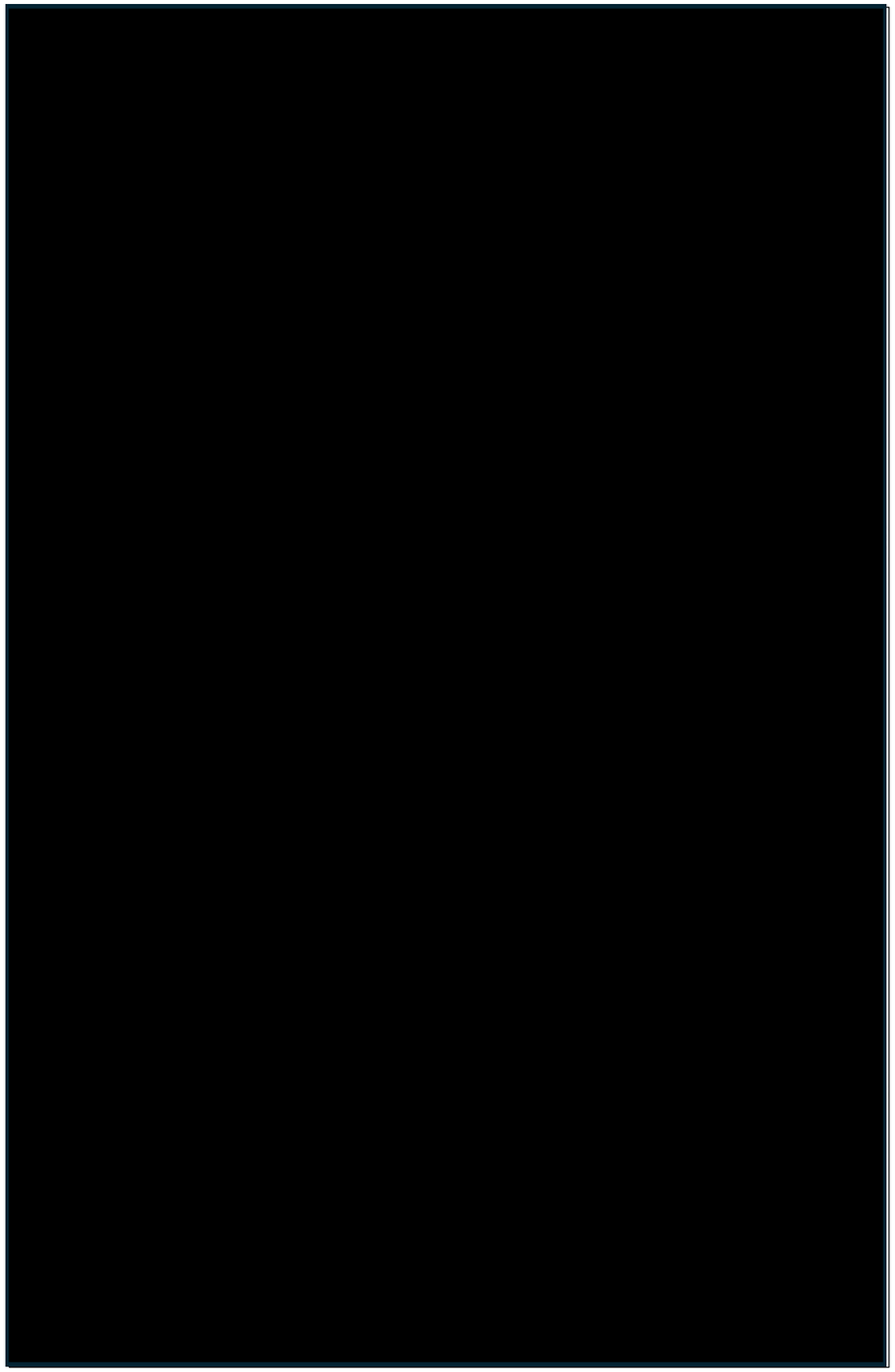


Figure 5: Test 1-34 in Maglin on preliminary layout showing geophysical anomalies(Dowling 2022)

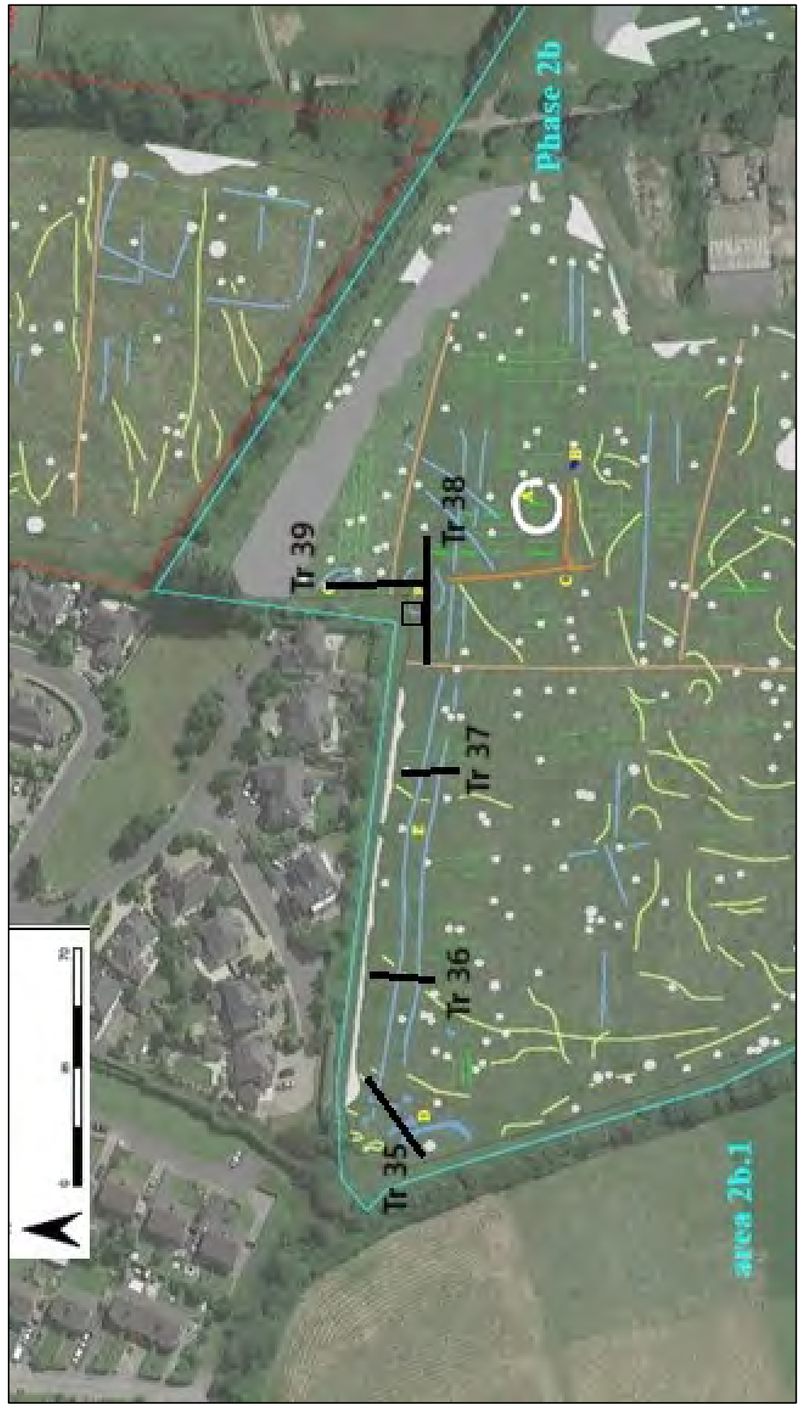


Figure 6: Trenches 35-39 in Carrigrohane overlaid on geophysical survey interpretation

2 Archaeological and Historical Background

2.1 The proposed development site is located in the townlands of Maglin and Carrigrohane, respectively in the parishes of Saint Nicolas and Carrigrohane and both lying in the barony of East Muskerry in Co Cork. There are three recorded archaeological sites within the proposed development site in Maglin - a lime kiln (CO073-064) and two fulachtaí fia (CO073-100 and CO073-101). The former is located close to the southern site boundary while the fulachtaí fia lie along the western bank of the Maglin River which forms the townland boundary as well as the eastern and northern site boundary to the residential development. There are no recorded archaeological sites on the proposed greenway in Carrigrohane, which extends from the eastern bank of the Maglin River.

2.2 There are thirty-eight recorded archaeological sites within an approximate 1km radius of the proposed development site (Table 1 and Fig. 7). These are listed in the Record of Monuments and Places (RMP) for County Cork and the Sites and Monuments Record (SMR) database of the Archaeological Survey of Ireland (ASI). They provide evidence for human settlement and activity in the area dating from as early as the late Neolithic/ Beaker period (*circa* 2500BC) and indicate the archaeological potential of the proposed development site. The RMP lists all archaeological monuments and places known to be of archaeological importance in the county and affords them statutory protection under the National Monuments Act 1930 to 2004 (1994 amendment). The SMR database is a working database of all known archaeological monuments in the state and is continually updated. A large number of these known archaeological sites were identified and excavated during the construction of the Ballincollig bypass (N22) to the south of the proposed development site in the early 2000s (Hanley and Hurley 2013). Other archaeological sites have been discovered in more recent times with the continuing growth and expansion of the town of Ballincollig. A full account of the historical and archaeological background to the proposed development site was included in both previous reports (Purcell and O'Leary 2024; Purcell and O'Leary 2025). This reports focuses on known archaeological monuments dating to the early medieval period and therefore probably broadly contemporary with the burial activity identified in Trench 38 on the proposed development site.

Table 1: RMP/SMR sites within approximately 1km of the proposed development site

RMP/SMR	SITE TYPE	TOWNLAND	DISTANCE
CO073-064	Lime kiln	Maglin	Within site
CO073-100	Fulacht fia	Maglin	Within site
CO073-101	Fulacht fia	Maglin	Within site
CO073-074	Standing stone	Ballincollig	385m to NW
CO073-161	Burnt Spread	Ballincollig	45m to W
CO073-062001-	Bawn	Ballincollig	620m to W
CO073-062	Castle	Ballincollig	620m to W
CO073-062002-	Cave	Ballincollig	620m to W
CO073-061	Fulacht fia	Greenfield	1.1km to W
CO073-145	Pit burial	Greenfield	1km to W
CO073-131	Fulacht fia	Maglin	660m to SW
CO073-063	Bridge	Ballynora Maglin	560m to S
CO085-127	Fulacht fia	Maglin	685m to S
CO085-028	Ringfort	Maglin	895m to S
CO085-029	Quarry	Ballynora	700m to S
CO085-030	Enclosure	Ballynora	1km to S
CO073-097	Country house	Maglin	160m to S
CO073-130	Fulacht fia	Maglin	325m to S
CO085-136	Church	Ballynora	750m to S
CO085-136001-	Graveyard	Ballynora	750m to S
CO073-065	Fulacht fia	Maglin	380m to S
CO073-146	Habitation site	Curraheen	625m to SE

CO073-137	Burnt mound	Curraheen	653m to E
CO073-138	Miscellaneous excavation	Curraheen	665m to E
CO073-139	Fulacht fia	Curraheen	650m to E
CO073-140	Burnt mound	Curraheen	675m to E
CO073-141	Fulacht fia	Curraheen	660m to E
CO073-142	Fulacht fia	Curraheen	690m to E
CO073-143	Fulacht fia	Curraheen	665m to E
CO073-136	Fulacht fia	Curraheen	470m to E
CO073-135	Fulacht fia	Curraheen	405m to E
CO073-104	Fulacht fia	Carrigrohane	280m to E
CO073-103	Standing stone	Carrigrohane	55m to E & S
CO073-150	Enclosure	Carrigrohane	260m to NE
CO073-132	Miscellaneous excavation	Carrigrohane	485m to NE
CO073-082001-	Souterrain	Carrigrohane	570m to NE
CO073-082	Ringfort	Carrigrohane	570m to NE
CO073-066	Standing stone	Carrigrohane	915m to NE

2.3 The early medieval period (5th to the 12th century AD) is characterised by the introduction of Christianity to the island of Ireland from the late 4th century onwards, becoming widely established during the second half of the sixth century. A small number of recorded archaeological sites in the vicinity of the proposed development site date to this period including two ringforts, one in Maglin (CO085-028) to the south and another in Carrigrohane (CO073-082) to the NE which has an associated souterrain (CO073-082001-). Another ringfort was identified and excavated in Curaheen (Curaheen 1/ CO073-146) to the SE during the construction of the N22 road. A levelled circular enclosure in Carrigrohane (CO073-150) to the east may also be a levelled ringfort. Other enclosures including Anomaly 1, identified in the geophysical survey of the proposed development site in Maglin, may also date to this period but in the absence of further investigation this cannot be verified.

2.4 Ringforts (also known by the names rath, lios, cathair or caiseal/cashel) are the most characteristic monument of the early medieval period in Ireland and are defended farmsteads of this period. Their main phase of construction and occupation dates from the beginning of the 7th century AD to the end of the 9th century. They are generally circular or oval in plan, defined by an earthen bank with an external ditch or fosse. The sub-surface remains of circular dwelling houses and associated outbuildings are frequently revealed within ringforts during excavation. Some ringforts have associated souterrains and others have associated corn-drying kilns and sometimes external structures. While souterrains in many cases are associated with ringforts, they can also be found in isolation. They are underground structures generally earth or rock-cut comprising chamber(s) connected by narrow creepways. The term souterrain derives from the French *sous* meaning under and *terre* meaning earth. When in contemporary use they would have been called *óin* or *uam* (*uaimh* in modern Irish) and on cartographic sources are usually noted as caves (Clinton, 2001 and Power *et al.* 1992). It is thought that they were probably used as hideaways or defensive features but they may have also been used for storage (*ibid.*).

The early medieval economy was dominated by cattle rearing with dairying being the primary activity, cereal production played a secondary role in the contemporary economy. Cattle were the indicator of one's status and were the currency for payment of fines, rent, tributes and gifts. Land was valued on the basis of the number of cattle it could support (Feehan, 2003, 55). Cattle raiding was widespread and the ringfort provided protection for the animals at night when they would have been kept within its defences (*ibid*. 62). Generally, it has been speculated that the elite of society occupied ringforts and that the less wealthy lived in undefended settlements scattered across the landscape. In more recent archaeological investigations, particularly on road infrastructure projects in Co. Cork, the number and type of unenclosed medieval settlements identified has been growing, suggesting more diversity in contemporary settlement patterns (Monk, 2019) and challenging the perceived importance of ringforts within the early medieval landscape.

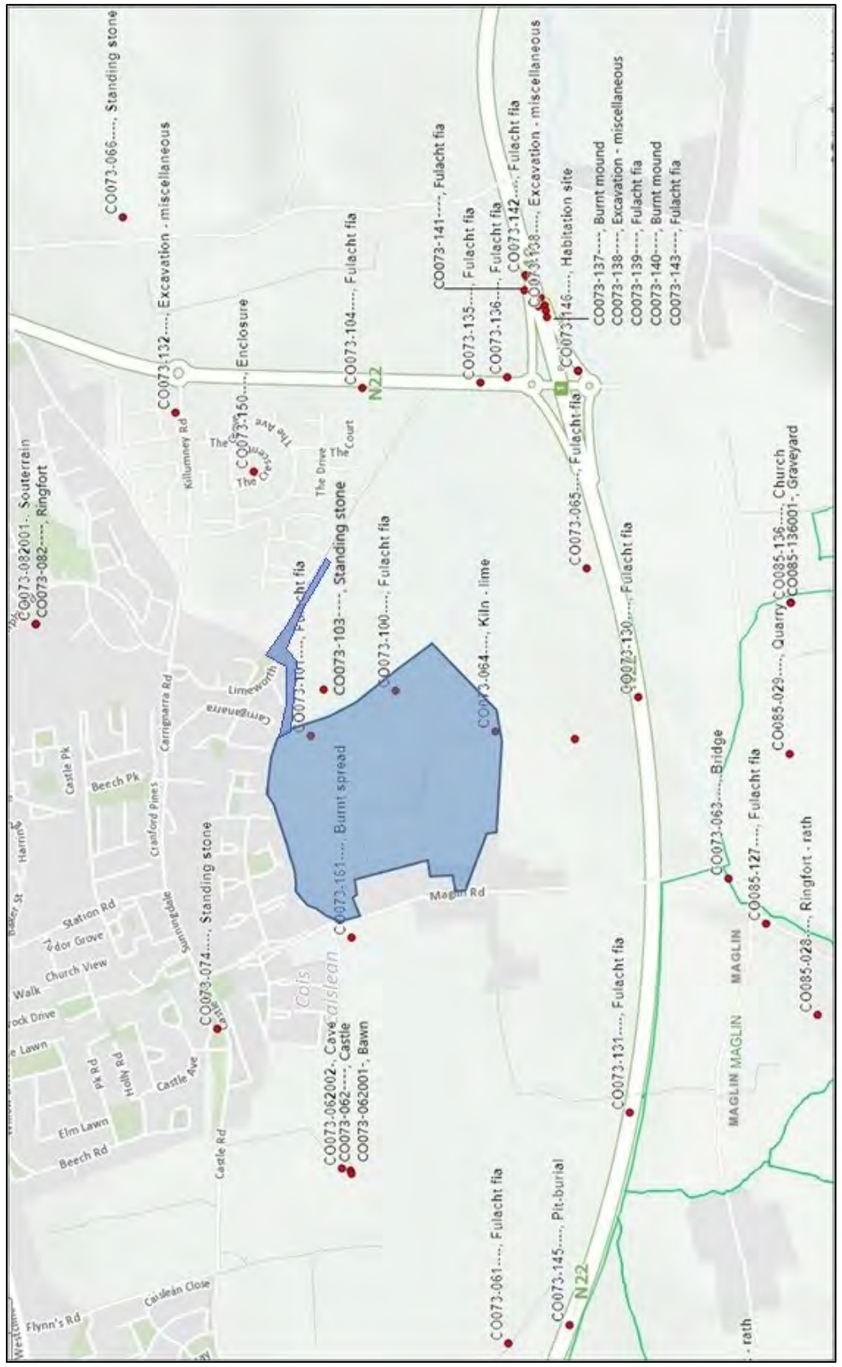


Figure 7: OSI map with SMR details (from www.archaeology.ie) showing proposed development site in blue and archaeological sites within approximate 1km radius

2.5 The ringfort (CO073-082) and souterrain (CO073-082001-) in Carrigrohane to the northeast were investigated in advance of proposed development. Both the inner and outer ditches were identified as well as internal and external features and evidence for a possible souterrain was found. A sherd of Souterrain ware was recovered (Moloney, 2003). The ringfort in Maglin (CO085-028) was depicted as a small circular enclosure on the 1842 Ordnance Survey (OS) 6-inch map but was not shown on subsequent editions indicating it was levelled in antiquity (Power *et al*. 1997). The enclosure in Carrigrohane (CO073-150) to the east was identified as a 40m diameter circular enclosure by geophysical survey in 2008 (Nicholls 2008) in advance of development. The surrounding area was subsequently archaeologically tested (Cummins 2008). The enclosure was preserved *in situ* within the Heathfield development and subsequent archaeological monitoring of the surrounding area during development revealed no associated features or finds of archaeological significance (Purcell and O'Leary, 2019a and Purcell, and O'Leary 2024).

The excavated remains at Curaheen 1 (CO073-146) on the N22 road corridor comprised parts of two conjoined enclosures of early medieval date with earlier material (of Early Neolithic, Chalcolithic, Bronze Age and Iron Age date) also present (Danaher, 2013 2015-222). The larger enclosure appears to have been a ringfort used for habitation with the smaller adjoining enclosure used as an animal enclosure. At the centre of the main enclosure lay the remains of an oval structure (approximately 8m x 6m) which probably formed a house. It was built of upright timber posts and contained a large internal hearth. A glass bead was found in the hearth fill. A smaller possible outbuilding lay SW of the dwelling which may have functioned as a store. A number of pits were also present within the enclosure as well as two rectilinear features. Four features were identified within the enclosure containing a mixture of burnt human and animal bone. The adjoining smaller enclosure lay to the SE and contained just three large postholes with a possible entrance at the SE. The excavator suggests the site represented a levelled ringfort with a conjoined livestock enclosure which was probably occupied during the mid 7th century AD (*Ibid.*).

3 Skeleton 1

3.1 Skeleton 1 (Sk1) was found in an EW oriented grave (measuring 0.55m NS x 1.9m EW x 0.63m deep) in Trench 38 along the route of the proposed greenway in Carrigrohane. It was found during the excavation of a sondage across an earlier, relatively shallow, ditch (2.25m wide x 0.3m deep) which corresponded with geophysical Anomaly F (Plate 1). The limited investigation of this anomaly suggested it was the remains of a ring ditch (Purcell and O'Leary, 2025).



Plate 1: View of curving ditch of Anomaly 4 in Trench 38 curving northwards with grave cut F5 in foreground, looking NW

3.2 Following excavation, Ní Challanáin (2025) concluded that the poorly preserved skeletal remains were probably those of a female, 17-25 years of age and approximately 1.5m in height. The individual had possibly been affected by a chronic middle ear infection. A total of 31 of the 32 teeth were present and they were in a good state of preservation showing moderate wear with 6 of the 31 showing evidence of dental caries. All the teeth showed signs of wear and a possible dental abscess was present.

3.3 A single, blue, glass bead was recovered with the burial. It was found dislodged in soil at the mid shaft of the left femur but may have been by/within the left hand. Joanne O'Sullivan (2025) concluded that it was an imported monochrome blue glass bead, semi-translucent and of slightly squat barrel shape. She (*ibid.*) saw it as being closely comparable to those found in assemblages from Iron Age funerary cremation burial contexts although she did note that it was rare to find such beads associated with inhumation burials in Ireland. Ní Challanáin (*ibid.*) noted, however, that they are also found into the early medieval period. O'Sullivan (*ibid.*) suggested that as the bead was an isolated example it was unlikely that it was an element of dress, rather it was probably buried with the deceased as a talisman for protection.

3.4 Skeleton 1 was buried in a supine, extended position in a simple east-west oriented grave. Although further investigation of adjoining ground was limited by the nature of the archaeological testing, the burial appeared to be isolated which, according to Ní Challanáin (*ibid.*), is more common in the earlier part of the early medieval period. The grave was filled with dark brown, loose silty clay with notable quantities of rough angular limestone and Ní Challanáin (*ibid.*) notes that similar material including the visually notable white limestone, may have formed an above ground marker giving the burial a visual presence in the landscape. She also suggests that the

circular enclosure in which the burial was placed may have been a *fert* (an ancestral burial site). These sites are frequently associated with boundaries, rivers/ streams and ogham/standing stones and the nearby standing stone (CO073-103) to the south and the Maglin River to the west are notable features in this context. It is noted that the *fert* is frequently referenced in medieval law tracts and these features "were important in the process of taking possession of land" (Breathnach, 2010 in Ní Challanáin, *ibid.*). It is further noted that the reuse of earlier prehistoric burial monuments and ring ditches in particular is not uncommon.

3.5 The calibrated radiocarbon date for the skeleton gives a "median probability" of AD 541. A mid 6th century date is consistent with the findings from the skeletal remains and the associated blue glass bead.



Plate 1: Grave cut (F5) with Sk1 exposed

4 Conclusion

4.1 In the course of pre-development archaeological testing in the townland of Carrigrohane an isolated burial was identified. Following consultation with the relevant authorities, the burial was excavated and was found to contain a single skeleton (Skeleton 1) buried in a supine, extended position in a simple east-west oriented grave. The individual was probably a female aged between 17-25 years and approximately 1.5m in height and possibly affected by a chronic middle ear infection. A single, blue, glass bead was recovered with the burial giving a *terminus ante quem* of the early medieval period for the burial. A radiocarbon date of 1544 +/- 22 BP with a calibrated "median probability" of AD 541 was determined for the left humerus of the individual placing it at the beginning of the early medieval period in Ireland. The E-W orientation of the burial indicates it is likely the woman was Christian and the grave may have been marked by pieces of rough broken limestone, which were incorporated into the backfill and may have formed a low mound, giving it visual prominence.

4.2 The landscape in which Skeleton 1 was found is rich in archaeological monuments with a number of known monuments dating to the early medieval period. The majority of these monuments relate to habitation activity in particular the nearby ringforts; to the SE in Curaheen (CO073-146), to the south in Maglin (CO085-028), to the NE in Carrigrohane (CO073-082) and probably the enclosure to the east in Carrigrohane (CO073-150), as well as the souterrain in Carrigrohane (CO073-082001-). Of these nearby ringforts, the Curaheen example was excavated in advance of road construction (Danaher, 2013) verifying its use as a habitation site and dating its occupation to the mid 7th century AD. This is consistent with the initial period of ringfort construction and places it's occupation approximately a century after the burial in Carrigrohane. Given that the date of the human remains falls at the very earliest phase of the early medieval period it is likely that the burial preceded the construction and occupation of the other nearby ringforts as well and so little can be said about where the woman buried at Carrigrohane may have lived.

4.3 The location of her burial does appear to show the importance of pre-existing, earlier monuments in the landscape. Although the archaeological investigation was limited in extent the burial appeared to be deliberately placed within an earlier circular earthwork. This earthwork may have been a *fert* or ancestral burial site and its proximity to a standing stone and river is consistent with the location of such monuments. Earlier ring ditches and prehistoric burial monuments are frequently reused in the early medieval period as *ferts* and may have been important in the process of taking possession of land (Ní Challanáin, *ibid.*). This may have established a legitimacy and connection from the past to contemporary communities, particularly in the context of the new Christian religion that was becoming established in the country at the time and which the woman buried at Carrigrohane appeared to practise.

4.4 This is the final report on the archaeological testing in Maglin and Carrigrohane. The results of the archaeological testing have informed the proposed developments and planning applications.

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Appendix 1

UBANo	Sample ID	Material Type	^{14}C Age	±	F14C	±	mg Graphite
UBA-58844	SK1	left human humerus	1544	22	0.8251	0.0022	0.990

Avril Purcell
Lane Purcell Archaeology
64 Fr Mathew Road,
Turner's Cross
Cork T12 A9PW
Ireland

^{14}CHRONO Centre
Queens University Belfast
42 Fitzwilliam Street
Belfast BT9 6AX
Northern Ireland

Radiocarbon Date Certificate

Laboratory Identification:	UBA-58844
Date of Measurement:	2026-02-24
Site:	Carrigrohane Cork
Sample ID:	SK1
Material Dated:	bone, antler or tooth root
Pretreatment:	Collagen
mg Graphite:	0.990
Submitted by:	Avril Purcell

Conventional ^{14}C Age:	1544±22 BP
Fraction corrected	using AMS $\delta^{13}C$

Marine samples will require re-calibration with the marine calibration curve

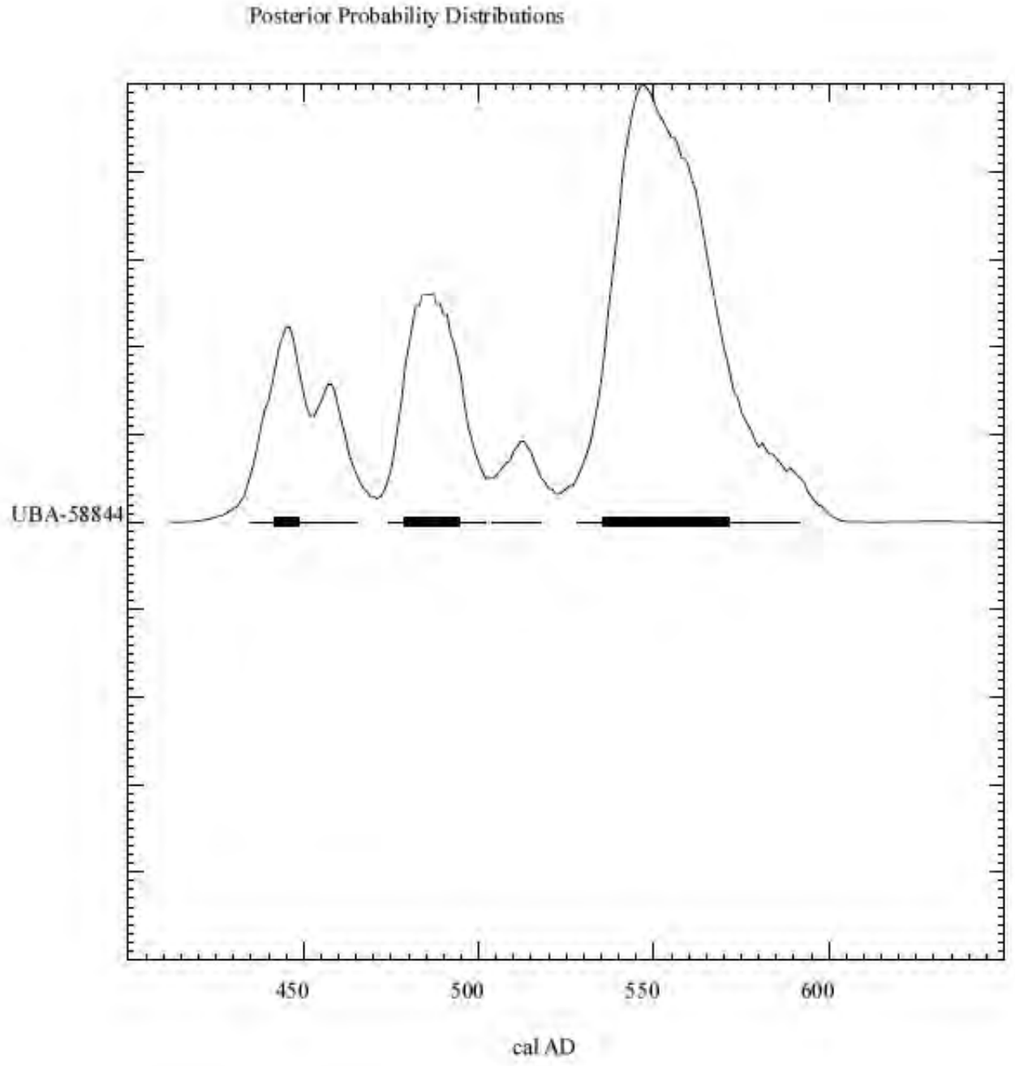
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 1
                RADIOCARBON CALIBRATION PROGRAM*
                           CALIB REV8.2
          Copyright 1986-2020 M Stuiver and PJ Reimer
        *To be used in conjunction with:
        Stuiver, M., and Reimer, P.J., 1993, Radiocarbon, 35, 215-230.

UBA-58844
58844
Radiocarbon Age BP   1544 +/-   22
Calibration data set: intcal20.14c                # Reimer et al. 2020
  % area enclosed       cal AD age ranges             relative area under
                                                    probability distribution
  68.3 (1 sigma)     cal AD 442- 449                        0.075
                            479- 495                        0.196
                            535- 572                        0.728
  95.4 (2 sigma)     cal AD 435- 466                        0.163
                            474- 502                        0.183
                            504- 518                        0.036
                            528- 592                        0.617
  Median Probability:   541

 References for calibration datasets:
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Edwards RL, Friedrich M, Grootes PM, Guilderson TP, Hajdas I, Heaton TJ, Hogg A
Kromer B, Manning SW, Muscheler R, Palmer JG, Pearson C, van der Plicht J, Reim
Richards DA, Scott EM, Southon JR, Turney CSM, Wacker L, Adolphi F, BÃ¼ntgen U,
Fahrni S, Fogtmann-Schulz A, Friedrich R, KÃ¶hler P, Kudsk S, Miyake F, Olsen J
Sakamoto M, Sookdeo A, Talamo S. 2020.
The IntCal20 Northern Hemisphere radiocarbon age calibration curve (0-55 cal kB
Radiocarbon 62. doi: 10.1017/RDC.2020.41.


Comments:
* This standard deviation (error) includes a lab error multiplier.
** 1 sigma = square root of (sample std. dev.^2 + curve std. dev.^2)
** 2 sigma = 2 x square root of (sample std. dev.^2 + curve std. dev.^2)
where ^2 = quantity squared.
[ ] = calibrated range impinges on end of calibration data set
0* represents a "negative" age BP
1955* or 1960* denote influence of nuclear testing C-14

NOTE:  Cal ages and ranges are rounded to the nearest year which
       may be too precise in many instances.  Users are advised to
       round results to the nearest 10 yr for samples with standard
       deviation in the radiocarbon age greater than 50 yr.
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CHAPTER TEN

NOISE & VIBRATION

APPENDIX 10-1 Acoustic Design Statement
APPENDIX 10-2 Glossary of acoustic terminology

APPENDIX 10-1 Acoustic Design Statement

Appendix 10.1 Acoustic Design Statement

10. INTRODUCTION – OPERATIONAL PHASE ACOUSTIC DESIGN STATEMENT

The acoustic design statement (ADS) has been presented separately as it refers to the inward impact assessment of the residential properties within the development, rather than the outward impact assessment carried out in Section 10.8 of EIAR Chapter 10 Noise and Vibration**Error! Reference source not found.**. As discussed in Section 10.4.3 of EIAR Chapter 10 Noise and Vibration, an ADS is required for new residential developments as per the current Cork Agglomeration Noise Action Plan (NAP) 2024 – 2028.

This assessment relates to the residential units in the Large Scale Residential Development (LRD) at Carriganarra, Ballincollig, Co. Cork.

10.1. STAGE 1 – NOISE RISK ASSESSMENT

10.1.1. Desk-based Study of Published Data

The key sources of available baseline data comprise published noise mapping studies undertaken by TII for road traffic noise which feed into the Cork Agglomeration NAP 2024 – 2028. The modelled noise maps are published on the EPA Geo Portal (EPA Maps) and include existing sources of major rail, road and aircraft noise within the Cork Agglomeration area. This information provides a useful strategic high-level overview of noise levels in the study area. The parameters presented in terms of the noise mapping are the L_{den} and L_{night} noise parameters which are both long-term noise indicators based on annual traffic and transport modes.

The Proposed Development site is within the noise mapping zone for road traffic noise, hence a review of published noise maps has been undertaken to establish the baseline road traffic noise across the development site.

Figure 10.1 and Figure 10.2 present the mapped existing noise levels across the development site for road traffic noise in terms of L_{den} and L_{night} respectively.

Making reference to the published noise maps, with the exception of the south eastern portion of the site, the vast majority of the Proposed Development lies outside of the 55 to 60 dB L_{den} and 40-45 dB L_{night} contours. The south east of the site lies and 55 to 60 dB L_{den} and 40 to 45 dB L_{night} noise contour zones.

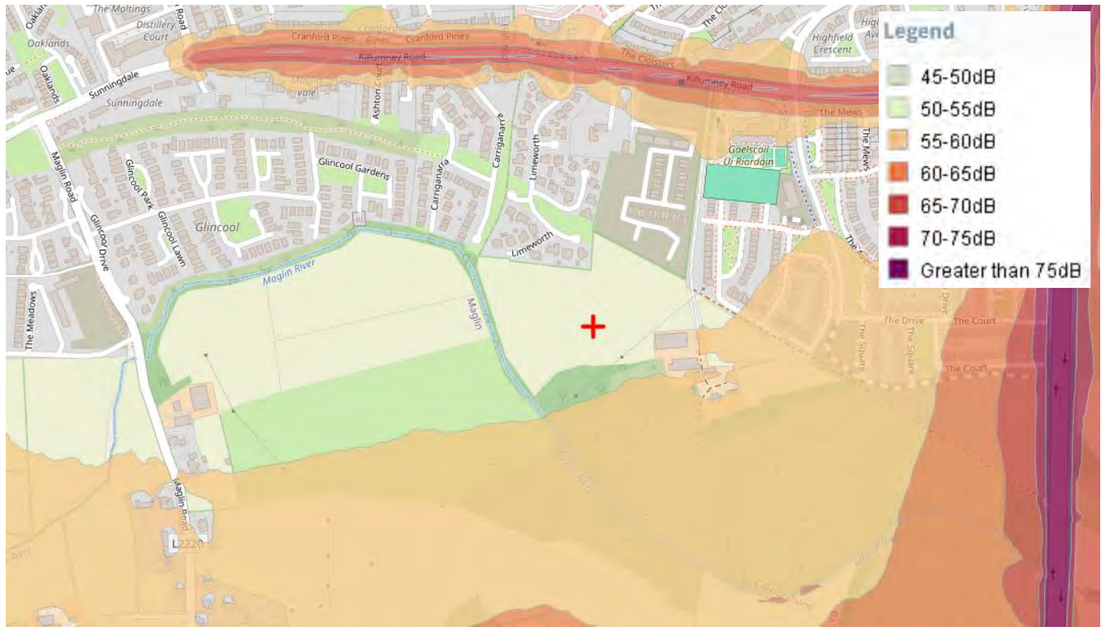


Figure 10.1 Road Traffic Noise L_{den} Noise Contours (Source: EPA)



Figure 10.2 Road Traffic Noise L_{night} Noise Contours (Source: EPA)

10.1.2. Baseline Noise Survey

Environmental noise surveys have previously been outlined in Section 10.6 of EIAR Chapter 10 Noise and Vibration. Daytime attended measurements across the site at 1.5m height range between 50 to 56 dB $L_{Aeq,\ 15\ mins}$. The unattended noise survey was located in proximity of the southern site boundary. On review of the measured data at 4m height, it is confirmed that the noise levels to the south of the site were as follows:

- Average daytime ambient noise level was 51 dB $L_{Aeq,16hr}$; and,
- Average night time ambient noise level was 46 dB $L_{Aeq,8hr}$.

Additionally, a review of L_{Amax} events has been undertaken for the night period. The measured data indicates that a noise level of 80 dB L_{Amax} is not exceeded in the southern boundary of the site, 60 dB dB L_{Amax} is not exceeded more than 10 times in a night period, and 56 dB L_{Amax} is the most commonly occurring value.

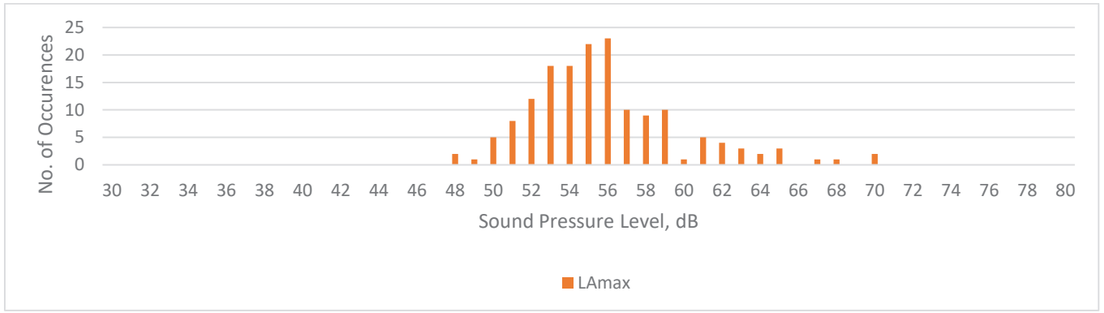


Figure 10.3 Number of dB L_{Amax} Events at Each Noise Level During the Night Period

10.1.3. Methodology

The initial noise risk assessment is intended to provide an early indication of any acoustic issues that may be encountered. It calls for the categorisation of the site as a negligible, low, medium or high risk based on the pre-existing noise environment.

Paragraph 2.9 of ProPG states that:

> *"The noise risk assessment may be based on measurements or prediction (or a combination of both) as appropriate and should aim to describe noise levels over a "typical worst case" 24 hour day either now or in the foreseeable future."*

Figure 10.4 presents the basis of the initial noise risk assessment, it provides appropriate risk categories for a range of continuous noise levels either measured and/or predicted on site.

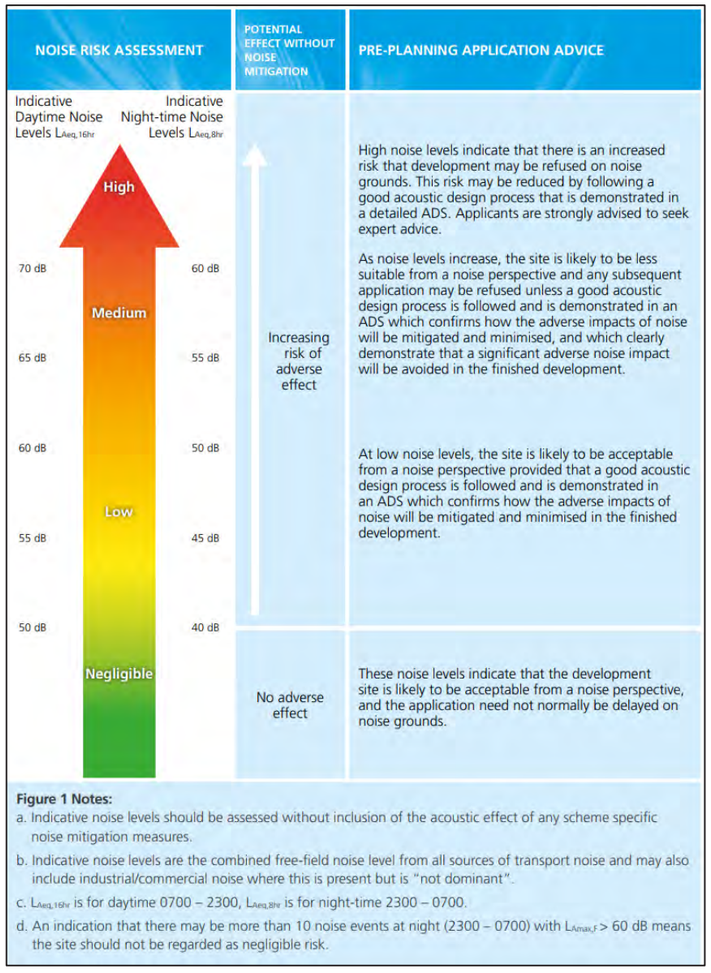


Figure 10.4 ProPG Initial Noise Risk Assessment

It should be noted that a site should not be considered a negligible risk if more than 10 L_{AFmax} events exceed 60 dB during the night period and the site should be considered a high risk if the L_{AFmax} events exceed 80 dB more than 20 times a night.

10.1.3.2. Noise Risk Assessment Conclusion - Proposed Development

Giving consideration to the measured and predicted noise levels presented in the previous sections, the site noise risk assessment has concluded that the level of risk across the site varies from negligible to low noise risk depending on the proximity to the N22 and N40 roads to the south and east of the proposed development.

ProPG states the following with respect to negligible to low risks:

Negligible Risk These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

Low Risk At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.

Given the above it can be concluded that the development site may be categorised as negligible to low Risk, principally due to the noise levels within 360m of the N22, and as such an Acoustic Design Strategy will be required to demonstrate that suitable care and attention has been applied in mitigating and minimising noise impact to such an extent that an adverse noise impact will be avoided in the final development.

It should be noted that ProPG states the following with regard to how the site noise risk assessment is to be used,

> *"2.12 It is important that the assessment of noise risk at a proposed residential development site is not the basis for the eventual recommendation to the decision maker. The recommended approach is intended to give the developer, the noise practitioner, and the decision maker an early indication of the likely initial suitability of the site for new residential development from a noise perspective and the extent of the acoustic issues that would be faced. Thus, a site considered to be high risk will be recognised as presenting more acoustic challenges than a site considered as low risk. A site considered as negligible risk is likely to be acceptable from a noise perspective and need not normally be delayed on noise grounds. A potentially problematical site will be flagged at the earliest possible stage, with an increasing risk indicating the increasing importance of good acoustic design."*

Therefore, following the guidance contained in ProPG does not preclude residential development on sites that are identified as having medium to high noise levels. It merely identifies the fact that a more considered approach will be required to ensure the developments on the higher risk sites are suitably designed to mitigate the noise levels. The primary goal of the approach outlined in ProPG is to ensure that the best possible acoustic outcome is achieved for a particular site.

10.2. STAGE 2 – FULL ACOUSTIC ASSESSMENT

10.2.1. Element 1 – Good Acoustic Design Process

Based on the ProPG guidance, in practice, good acoustic design (GAD) should deliver the optimum acoustic design for a particular site without adversely affecting residential amenity or the quality of life of occupants or compromising other sustainable design objectives. It is important to note that ProPG specifically states that good acoustic design is not equivalent to overdesign or 'gold plating' of a new development but that it seeks to deliver the optimum acoustic environment for a given site.

Section 2.23 of the ProPG outlines the following checklist for Good Acoustic Design:

- Check the feasibility of relocating, or reducing noise levels from relevant sources;
- Consider options for planning the site or building layout;
- Consider the orientation of proposed building(s);
- Select construction types and methods for meeting building performance requirements;
- Assess the viability of alternative solutions; and
- Assess external amenity area noise.

In the context of the Proposed Development each of the considerations listed above have been addressed in the following subsections.

10.2.1.1. Application of GAD Process to Proposed Application

<u>Relocation or Reduction of Noise from Source</u>

The main noise sources are located outside the site boundary and, therefore, it is beyond the scope of this proposed development to introduce any noise mitigation at source.

<u>Planning, Layout and Orientation</u>

Consideration has been given to the location of both the buildings and external amenity areas. In the first instance, a primary consideration was to ensure that residential buildings are located as far as possible from the busy roads. Where this cannot be accommodated along the southern section (e.g. the semi-detached buildings' southern facades facing the N22 Ballincollig Bypass) a review for the need of boundary treatment e.g. noise barriers, and additional façade noise attenuation measures will be incorporated into the design.

The orientation of the site is such that the residential buildings themselves screen the rear private gardens and also many of the common external amenity areas associated with the development.

The higher buildings consisting of apartments and duplex units are set back further from the southern boundary and road traffic noise than the semi-detached buildings. There is a benefit of locating the higher buildings away from the road traffic noise source as some physical mitigation measures such as noise barriers would not be as effective along the southern boundary at receivers located higher than the first floor due to the physical constraints of a barrier height.

<u>Select Construction Types for Meeting Building Regulations</u>

A mixture of masonry, brick and timber insulated constructions will be used in the external walls of the proposed development. These construction types offers high levels of sound insulation performance. However, as is typically the case, the glazed elements and any required ventilation paths to achieve compliance with Part F of the Building Regulations will be the weakest elements in the façade in terms of sound insulation performance.

Consideration will therefore be given to the provision of upgraded glazing and acoustic ventilators, where required. For units where it will not be possible to achieve the desirable internal acoustic environments with windows open, the proposal here will be to provide dwelling units with glazed elements and ventilators that have good acoustic insulation properties so that when the windows are closed the noise levels internally are good. Inhabitants will be able to open the windows if they wish. However, doing so will increase the internal noise level. This approach to mitigation is supported in ProPG where it states the following (emphasis has been added in bold):

> *"2.22: Using fixed unopenable glazing for sound insulation purposes is generally unsatisfactory and should be avoided;* ***occupants generally prefer the ability to have control over the internal environment using openable windows, even if the acoustic conditions would be considered unsatisfactory when open****. Solely relying on sound insulation of the building envelope to achieve acceptable acoustic conditions in new residential development, when other methods could reduce the need for this approach, is not regarded as good acoustic design. Any reliance upon building envelope insulation with closed windows should be justified in supporting documents."*
>
> *"Note 5: Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded."*

> *"2.34: Where the LPA accepts that there is a justification that the internal target noise levels can only be practically achieved with windows closed, which may be the case in urban areas and at sites adjacent to transportation noise sources, special care must be taken to design the accommodation so that it provides good standards of acoustics, ventilation and thermal comfort without unduly compromising other aspects of the living environment. In such circumstances, internal noise levels can be assessed with windows closed but with any façade openings used to provide "whole dwelling ventilation" in accordance with Building Regulations Approved Document F (e.g. trickle ventilators) in the open position (see Supplementary Document 2). Furthermore, in this scenario the internal L_{Aeq} target noise levels should not generally be exceeded."*

It is very important to note that it is impractical to achieve the good internal noise levels with windows open across the vast majority of development sites in close proximity to major infrastructure such as roads. Such sites would need to be classified as having a negligible risk in accordance with the ProPG noise risk assessment approach. For this reason, there are no guidance documents either at a local level or an international level that AWN is aware of which would support the approach of achieving the ideal internal noise levels in the open window scenario. It is, therefore, considered entirely justifiable to provide building façades with a moderate degree of sound insulation, such that with windows closed but vents opened, a good internal acoustic environment is achieved.

Impact of Noise Control Measures on Fire, Health and Safety

The good acoustic design measures that have been proposed on site do not have any significant impact on other issues.

Assess Viability of Alternative Solutions

Due to the measured noise levels and the proximity of proposed buildings to the N22, it is considered that specific boundary treatment along the southern boundary of the site to attenuate traffic noise would not be necessary.

Assess External Amenity Area Noise

ProPG provides the following advice with regards to external noise levels for amenity areas in the development:

> *"The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$."*

Noise levels across external amenity areas associated with the development are presented in Section 10.1 of this Appendix demonstrate that the acoustic environment of external amenity areas will not be above the desired range of 50 -55 dB $L_{Aeq,16hr}$.

Summary

Considering the constraints of the site, in so far as possible and without limiting the extent of the development area, the principles of GAD have been applied to the Proposed Development.

With regards to the external amenity areas across the development,

In terms of viable alternative solutions, further mitigation will not be required.

10.2.2. Element 2 – Internal Noise Guidelines

10.2.2.1. Internal Noise Criteria

Element 2 of the ProPG document sets out recommended internal noise targets derived from BS8233:2014. The recommended indoor ambient noise levels are set out previously in Table 10.7 of Chapter 10 of this EIAR and reproduced below for reference.

Activity	Location	Internal Noise Design Range dB $L_{Aeq,T}$	Derived External Levels dB $L_{Aeq,T}$
Residential Day	Living room	35	50
	Dining room/area	40	55
	Bedroom	35	50
Residential Night	Living room	35	50
	Dining room/area	40	55
	Bedroom	30	45

Table 10.1 Internal Noise Design Range for Residential Buildings (BS 8233:2014)

In addition to these absolute internal noise levels, ProPG provides guidance on flexibility of these internal noise level targets. For instance, in cases where the development is considered necessary or desirable, and noise levels exceed the external noise guidelines, then a relaxation of the internal L_{Aeq} values by up to 5 dB can still provide reasonable internal conditions.

Considering the internal design criteria outlined in Table 10.1 (BS 8233) and a sound reduction across an open window of 15dB – 18 dB, the free-field noise levels that would be required to ensure that internal noise levels do not exceed good internal noise levels with windows open for the vast majority of the site, where minor exceedances occur, noise levels will still provide reasonable internal conditions with windows open. With windows closed, good internal conditions will be achieved in all residences in the proposed development.

10.2.2.2. Noise Levels Across Proposed Development Based on Modelled Noise Results

As demonstrated in Section 10.1.4 of this Appendix, the current potential impact in relation to noise across the site is categorised as low to high noise risk depending on the proximity of distance from the N22 to the south of the proposed site boundary.

<u>Internal Noise Levels</u>

Taking into account the external façade levels and the specified building envelope, the internal noise levels have been calculated. In all instances the good internal noise criteria are achieved for daytime and night-time periods with standard double glazing across the site.

10.2.3. Element 3– External Amenity Area Noise Assessment

10.2.3.1. External Noise Levels

Figure 10.1 presents the calculated day time noise levels across the site, provided by Round 4 EPA Noise Maps .

External noise levels within the majority of the communal open spaces across the development site are within the recommended range of noise levels from ProPG of between 50 – 55 dB $L_{Aeq,16hr}$. It is considered that the objectives of achieving suitable external noise levels is achieved within the overall site, therefore no further mitigation is required to control external noise levels across amenity areas.

10.2.4. Element 4– Assessment of Other Relevant Issues

Element 4 gives consideration to other factors that may prove pertinent to the assessment, these are defined in the document as:

- 4(i) compliance with relevant national and local policy;
- 4(ii) magnitude and extent of compliance with ProPG;
- 4(iii) likely occupants of the development;
- 4(iv) acoustic design v unintended adverse consequences; and
- 4(v) acoustic design v wider planning objectives.

Each is discussed in turn below.

10.2.4.1. Compliance with Relevant National and Local Policy

There are no National policy documents relating to the acoustic design of residential dwellings. Locally the Cork Agglomeration Noise Action Plan 2024 – 2028 specifies that the guidance contained within ProPG should be used in assessing the noise impact on new residential developments.

This Acoustic Design Statement has been prepared in compliance with the requirements of ProPG and therefore complies with the requirements of local policy.

10.2.4.2. Magnitude and Extent of Compliance with ProPG

As discussed within this appendix, the following conclusion has been drawn with regards to the extent of compliance with ProPG:

- All dwellings as part of the development have been designed to achieve the good level of internal noise levels specified within ProPG. The two storey houses (B1.5 and B2.5) units to the immediate southern boundary of the site and duplexes (K.5 Block) to the southeast of the site, overlooking the N22 and that have southern façade facing bedrooms will require closed windows to achieve this level i.e. at the closest facades facing onto the dominant N22 road external to the site.
- External amenity areas have been assessed and calculated and they comply with the recommended criterion set out in ProPG.

Based on the preceding, it is concluded that the proposed development is in compliance with the requirements of ProPG.

10.2.4.3. Likely Occupants of the Development

The criteria adopted as part of this assessment are based on those recommended for permanent dwellings and are, therefore, considered robust and appropriate for the likely occupants.

Acoustic Design v Unintended Adverse Consequences

Unintended adverse consequences did not occur in relation to this proposed development.

Acoustic Design v Wider Planning Objectives

There are no wider planning objectives that affect the acoustic design that are apparent at the time of writing.

10.2.5. Acoustic Design Statement Conclusion

An initial site noise risk assessment has been carried out in respect of the proposed development. The assessment has classified the site as having 'negligible to low' noise risk. This was determined through on-site noise monitoring.

Further discussion is presented in terms of the likely noise impact of both the external and internal areas of the proposed development. It is not necessary to provide enhanced acoustic glazing beyond standard double glazing to ensure that, when windows are closed, the internal noise environment is good. All residences will achieve good to reasonable internal noise levels, with windows open.

APPENDIX 10-2　Glossary of acoustic terminology

Appendix 10.2 Glossary of Acoustic Terminology

Ambient noise — The totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, near and far.

Background noise — The steady existing noise level present without contribution from any intermittent sources. The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 per cent of a given time interval, T ($L_{AF90,T}$).

dB — Decibel - The scale in which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the RMS pressure of the sound field and the reference pressure of 20 micro-pascals (20 μPa).

dB(A) — An 'A-weighted decibel' - a measure of the overall noise level of sound across the audible frequency range (20 Hz – 20 kHz) with A-frequency weighting (i.e. 'A'–weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

$D_{n,e,w}$ — Weighted element-normalized level difference. This is the value of sound insulation performance of a ventilator measured under laboratory conditions. It is a weighted single figure index that is derived from values of sound insulation across a defined frequency spectrum. Technical literature for acoustic ventilators typically presents sound insulation data in terms of the $D_{n,e,w}$ parameter.

Hertz (Hz) — The unit of sound frequency in cycles per second.

$L_{Aeq,T}$ — This is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period (T).The closer the L_{Aeq} value is to either the L_{AF10} or L_{AF90} value indicates the relative impact of the intermittent sources and their contribution. The relative spread between the values determines the impact of intermittent sources such as traffic on the background.

L_{AFN} — The A-weighted noise level exceeded for N% of the sampling interval. Measured using the "Fast" time weighting.

L_{AF90} — Refers to those A-weighted noise levels in the lower 90 percentile of the sampling interval; it is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to estimate a background level. Measured using the "Fast" time weighting.

L_{AF10} — Refers to those A-weighted noise levels in the upper 10 percentile of the sampling interval; it is the level which is exceeded for 10% of the measurement period. It is typically representative of traffic noise levels. Measured using the "Fast" time weighting.

L_{AFmax} — is the instantaneous fast time weighted maximum sound level measured during the sample period.

Octave band — A frequency interval, the upper limit of which is twice that of the lower limit. For example, the 1,000Hz octave band contains acoustical energy between 707Hz and 1,414Hz. The centre frequencies used for the designation of octave bands are defined in ISO and ANSI standards.

Noise Sensitive Location (NSL) — An dwelling house, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or other area of high amenity which for its proper enjoyment requires the absence of noise at nuisance levels.

R_w — Weighted Sound Reduction Index – This is the value of the sound insulation performance of a partition or element measured under laboratory conditions. It is a weighted single figure index that is derived from values of sound insulation across a defined frequency spectrum. Technical literature typically presents sound insulation data in terms of the R_w parameter.

CHAPTER TWELVE

CLIMATE

APPENDIX 12-1 Scheme Sustainability & Climate Resilience Statement - DOSA Consulting Engineers

APPENDIX 12-1 Scheme Sustainability & Climate Resilience Statement - DOSA Consulting Engineers

DOSA

DENIS O'SULLIVAN & ASSOCIATES

CONSULTING ENGINEERS

RESIDENTIAL DEVELOPMENT, CARRIGANARRA, CORK.

SCHEME SUSTAINABILITY & CLIMATE RESILIENCE STATEMENT

DATE 10/04/2026

REVISION 8

JOB NO. 4208

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DOCUMENT CONTROL

PROJECT NAME: Residential Development, Carriganarra, Cork.

PROJECT NUMBER: 4208

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1 *Introduction*

This report provides information on the various buildings energy status and carbon dioxide emissions, the statutory compliance requirements and energy/CO2 reduction achievements based on the proposed construction specifications.

1.1 Site Location

The subject site (currently greenfield) is located approximately 8.0km southeast of Cork City Centre in Carriganarra on the southern side of Ballincollig to the south of the Link Road. The site is a greenfield site characterised by its undulating topography and its even slope rising at the southern end. The existing Limeworth and Heathfield estate which is currently being constructed runs along the site's northern edge and the site is surrounded on the other 3 sides by farmland and sheds which are in ruins. A snapshot of the application boundary is outlined in Figure 1.1 below.

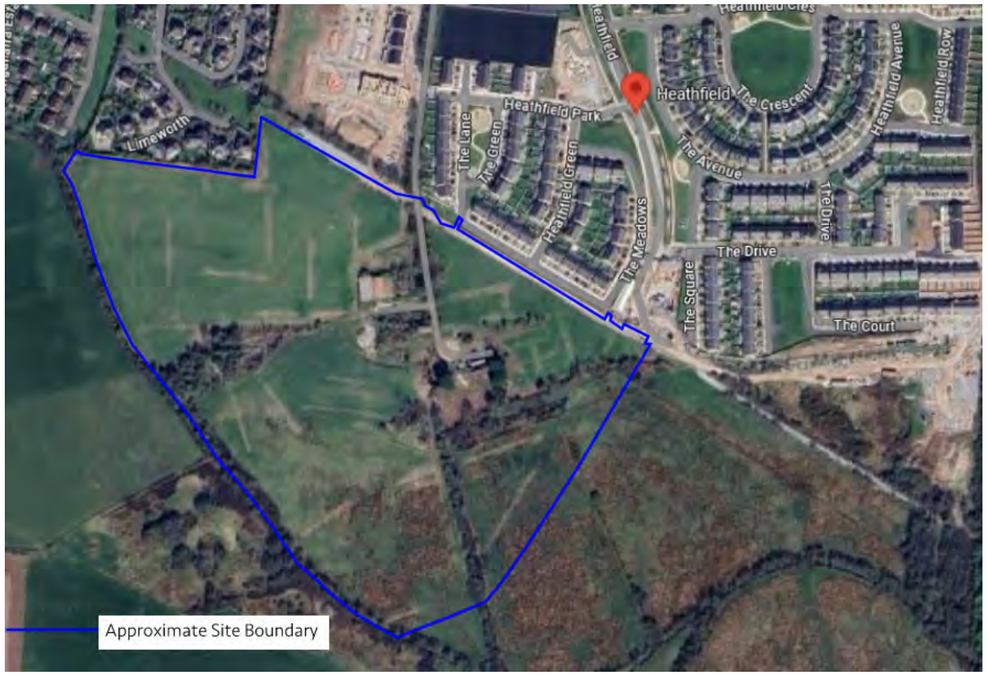


Figure 1.1 – Context Map (Source: Google Maps)

1.2 Proposed Development Description

The development will consist of the demolition of existing agricultural buildings and the construction of a residential development of 300 no. residential units consisting of 128 no. dwellings houses, 172 no. apartment/duplex units, a two storey creche facility and all ancillary site development works. The proposed 128 no. dwelling houses will include 42 no. bedroom detached/semi-detached dwelling houses and 84 no. 3 bedroom semi-detached/townhouse dwelling houses. The proposed development also provides for the restoration of an existing vernacular farm building on site which will accommodate 2 no. 2 bedroom semi-detached units.

The proposed 172 no. apartment/duplex units will include 18 no. 3 bedroom units, 109 no. 2 bedroom units and 45 no. 1 bedroom units, to be provided in 20 no. apartment/duplex buildings ranging in height from 3-4 storeys over basement level.
Vehicular access to the proposed development will be provided via the existing junction from the Killumney road serving the Heathfield residential development and existing sections of the Maglin Sustainable Access Corridor to the north. The proposed development provides for the extension of Maglin Sustainable Access Corridor and the provision of 4 no. pedestrian/cycle connections to the Heathfield residential development to the north which is under construction. Ancillary site works include the raising of existing ground levels on site, the provision of bicycle parking and bin storage facilities serving the proposed apartment/duplex and creche buildings, the delivery of active travel infrastructure, landscaping and servicing proposals including a temporary pumping station, and the undergrounding/diversion of an existing 38KV overhead ESB line which traverses the site.

The proposed development is highlighted in Figure 1.2 below.



Figure 1.2 – Proposed Development

2 *Policy*

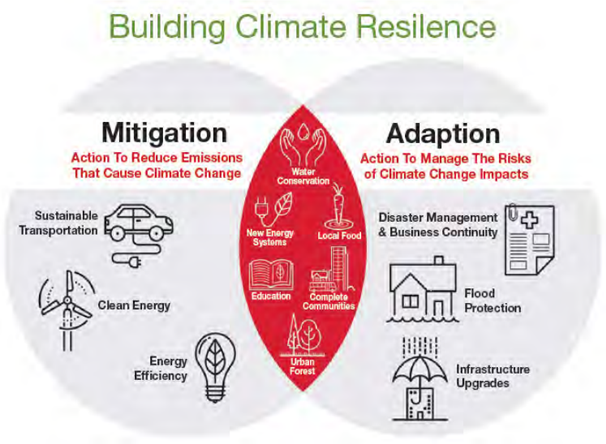
Compliance will be to new Part L 2022. Compliance to the above would deem the development and developments residential units to be "Nearly Zero Energy Buildings" (NZEB) in accordance with the EU Energy performance of Buildings Directive Recast 2013/31/EU. The Cork City Development Plan 2022-2028 refers to the below objectives to implemented as part of their policy:

2.1 Cork City Development Plan 2022-2028 (CDP), 'Climate and Environment'

2.1.1 Climate Resilience

Strategic Objective 4 (SO4) of the Cork City Development Plan 2022-2028 (CDP), 'Climate and Environment' confirms it is a strategic objective of Cork City Council to:

> *"To support transition to a low-carbon, climate-resilient and environmentally sustainable future. To support the circular economy. Cork City Council is committed to the implementation of measures to support the achievement of national policies and targets for climate mitigation, including the Government's policy under Ireland's Transition to a Low Carbon Energy Future 2015-30 and Climate Action Plan 2019, National Mitigation Plan, National Adaptation Framework: Planning for a Climate Resilient Ireland. At the time of preparation of this Plan, the Government agreed to advance the Climate Action and Low Carbon Development (Amendment) Bill 2021 to support Ireland's transition to Net Zero and achieve a climate neutral economy by 2050.*
>
> *Proposals for new development in Cork City will strive to reduce carbon footprints by carbon emission reductions, sustainable energy consumption, sustainable transport, use of renewable energy sources, green construction methods including passive solar design, and flood risk mitigation and adaptation and use of nature-based solutions, through design, layout, implementation and operation.*
>
> *A statement commensurate with the nature and scale of the development proposal will be required to accompany planning applications demonstrating how climate resilience has been considered and implemented at all stages in the development process.*



2.1.2 Energy Conservation and Efficiency

CDP Objectives 5.1-5.24 of the CDP outlines the Planning Authority's objectives to achieve SO4[1]. These include.

- Objective 5.10 Energy Conservation and Efficiency

  'To support and help create high levels of energy conservation and energy efficiency in both new and existing buildings.'

- Objective 5.11 Energy Efficiency Considerations

  'New development proposals are expected to maximize energy efficiency through location, siting, orientation, layout, design, stormwater drainage and landscaping. This includes seeking to optimize energy efficiency through thermal insulation, passive ventilation and cooling and passive solar design.'

- Objective 5.24 Green and Blue Infrastructure

  a) *To support the strategic role that Green and Blue Infrastructure plays in facilitating a more climate resilient city.*

  b) *All development proposals will be expected to fully explore and incorporate Green and Blue Infrastructure as an integral component of the scheme.*

  c) *To support communities in the development of local scale Green and Blue Infrastructure projects.*

- Section 12.20 of the CDP states that.

  'Development proposals in every zone must consider climate resilience from the design to implementation stages. This includes site selection, with a presumption in favor of Brownfield locations, sustainable mobility, reducing energy usage and emissions, use of renewable energy and technologies, climate change adaptation and mitigation measures including flood risk, landscaping including green infrastructure and biodiversity and use of green construction methods. Chapter 11 Placemaking and Managing Development provides further detail and development guidance.'

- SO 5 'Green and Blue Infrastructure, Open Space and Biodiversity' and SO 8 'Environmental Infrastructure' of the CDP also relate to delivery of a sustainable and climate resilient future Cork City aiming to.

  SO 5 - 'Manage and enhance green and blue infrastructure, to protect and promote biodiversity, ecology and habitat connectivity, protect natural areas, enhance landscape character and maritime heritage, and manage access to green and blue spaces that provide recreation, amenity and natural areas.'

  SO 8 - 'Ensure efficient and sustainable use of water services, enhance water quality and resource management. Manage waste generation and treatment and support the principles of the circular economy. Improve air quality and promote proactive management of noise. Enable

the sustainable delivery of digital infrastructure, renewable energy and environmental improvements.

2.1.3 Scheme Sustainability

Many of the CDP objectives which relate to climate resilience and the efficient usage of energy, resources and high-quality design overlap with the principles of the provision of sustainable developments.

- CDP Objective 2.11 'Low Carbon City' aims to.

  Put in place mechanisms to support the delivery of a lower carbon, sustainable city where development avoids, mitigates and adapts to the effects of climate change while protecting and enhancing Cork City's environmental assets.

- Paragraphs 11.271–11.273 of the CDP outlines the requirements of 'Scheme Sustainability Statements' stating that.

  11.271. The built environment will play a key role in addressing climate change mitigation and adaptation and all development proposals will be encouraged to explore and incorporate climate action measures. Large scale development proposals will be expected to demonstrate how this has been taken forward through the evolution of the scheme by submitting a Scheme Sustainability Statement in support of the planning application(s).

  11.272. All planning applications involving developments of 25 or more homes or over 500sqm of commercial floor space to be accompanied by a Scheme Sustainability Statement demonstrating how the proposal positively responds to the impact of climate change through mitigation and adaption measures. The Scheme Sustainability Statement is required, as a minimum to demonstrate how the following climate change mitigation and adaptation considerations inform the proposal:

  1) How the location, siting, layout, design and drainage proposals maximize climate adaptation opportunities;
  2) How the SUDS strategy integrates the four pillars of SUDS Design – water quantity, water quality, amenity and biodiversity;
  3) The use of green roofs other green infrastructure as a means of contributing towards sustainable urban drainage, improving biodiversity and influencing heat loss/gain from the building;
  4) Energy efficiency through thermal insulation, passive ventilation and cooling, passive solar design and any technologies used to help occupants better manage energy usage;
  5) The use of district, renewable and/or low-carbon energy supply opportunities;
  6) How the proposals at all stages embrace the Circular Economy approach in relation to waste management from construction through to the operation of the building(s);

7) How noise and air pollution will be managed across all stages of development from construction through to operation of the building(s).

11.273. As part of the Scheme Sustainability Statement, applicants will be required to demonstrate how these considerations were explored and taken forward through the evolution of the development proposal and where they have not been taken forward, reasons are given as to why the measures were not technically feasible or viable. The level of information and commitments within the Statement should be proportionate to the scale and complexity of the development proposal.

2.2 Cork City Climate Action Plan 2024-2029

Ireland's Climate Action Plan 2023 (CAP 2023) aims to achieve the legally binding target of reducing national greenhouse gas emissions by 51% by the year 2030 and reaching net-zero by 2050. While these national targets are ambitious in themselves, the Cork City Climate Action Plan 2024–2029 (CAP) goes even further by seeking to reach net-zero by the year 2030. The CAP recognizes that significant interventions are needed across all aspects of life and the economy to achieve the necessary decarbonization of the city and realize the stated 2030 net-zero target. The 'Transport & Mobility' sector in particular is recognized as one of the areas which will need radical climate adaptation interventions in future years, with 'Road Transport' identified as the second largest emitter of greenhouse gases by sector in Cork City.

Emissions Breakdown by Sector for Cork City

Sector	CO_2-eq (ktonnes)
Household	332
Commercial Services & Industrial	216
Road Transport	290
Public Services	65
Agriculture, Land Use & Fishing	62
Waste	22
Total	**987**

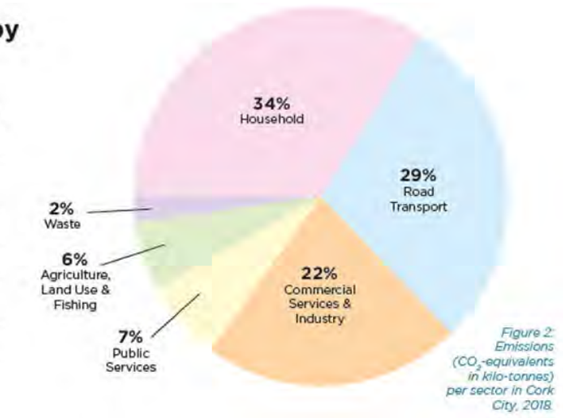
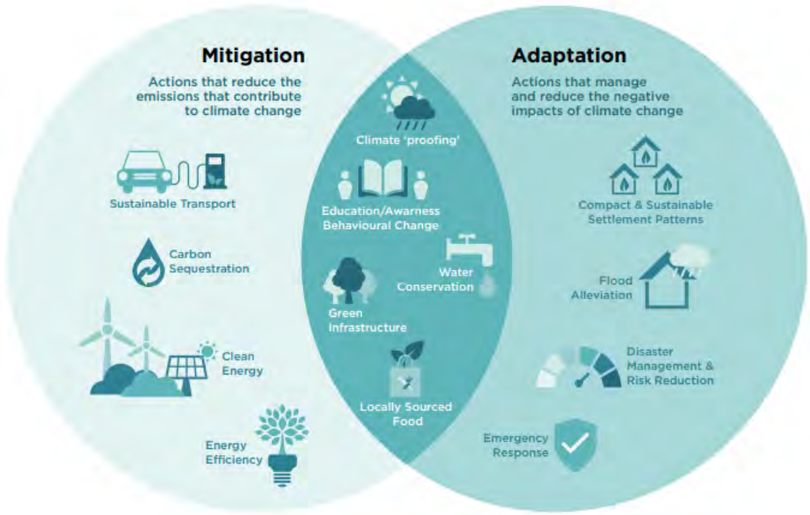


Figure 2: Emissions (CO_2-equivalents in kilo-tonnes) per sector in Cork City, 2018.

Emissions breakdown by Sector for Cork City

The CAP confirms that future growth of the city will need to be led by climate migration, climate proofing and climate adaption principles including sustainable transport, behavioral change and the provision of compact and sustainable settlement patterns. A central component in achieving these goals and reducing emissions will be the continued rollout of active-travel and public transport infrastructure in tandem with the delivery of new housing and communities.



Climate Risk

The subject lands included within the South Ballincollig/Maglin Urban Expansion Regeneration Area (MUEA) as identified in the Core Strategy of the CDP. Section 2.47 of the CDP Core Strategy identifies the CUEA as one of 7 no. strategic consolidation and expansion areas in Cork City which will need to accommodate significant levels of housing and population growth during the lifetime of the CDP.



CDP Core Strategy

The CAP confirms in 'Planning for the Future', that the delivery of a '15-minute city and walkable neighbourhood' is envisaged for the MUEA. The CAP confirms that new communities at the CUEA will benefit from improved active-travel and public infrastructure opportunities, stating on Page 16 that.

> *'The core strategy endorses the concept of compact and liveable growth, incorporating the approaches of a 15-minute city and walkable neighbourhoods. These approaches will be applied in regeneration areas that include Ballincollig. These communities will be better connected by improved sustainable transport routes incorporating both public and active-travel options.'*

The CAP states of its 'Objectives for the Built Environment & Energy' expands further on the future vision for the CUEA confirming on Page 53 that.

> *'The City Development Plan 2022-2028 identifies expansion zones in..... South Ballincollig ..... Design and delivery of our land-use priorities will include compact growth for a 15-minute city, including in the city centre, where the service needs for residents are within easy reach on foot or by sustainable travel. These projects will be exemplars of how to integrate the full range of climate-relevant policy into the built environment.'*

The CAP outlines 129 actions that Cork City Council will follow to best achieve the ambitious climate action targets. These include Actions 3.1, 4.8, 4.11, 4.15 and 5.10 of CAP which aim respectively to.

> *3.1 – 'Deliver the framework plans for the expansion zones ..... South Ballincollig.... identified in the City Development Plan 2022-2028 as exemplary climate positive projects, through integration of approaches recommended in the Cork City GBI Strategy, Trees Strategy, and other good practices for sustainable development.*
>
> *4.8 – 'Support the delivery of enhanced public transport services in Cork City as envisaged under the Bus Connects Cork program of works. Promote climate action co-benefit opportunities and adherence to relevant planning and environmental protection requirements using local authority functions, as appropriate.*
>
> *4.11 – 'Accelerate the implementation of safe routes to school/cycle buses and greenways.'*
>
> *4.15 'Ensure all new developments prioritise walking and cycling integration with the surrounding land uses to minimise travel distances by foot/bike.'*
>
> *5.10 Incorporate sustainable urban development systems (SuDS), such as water-sensitive urban design (WSUD), in every new development in the city, as per Objective 9.4 of the Cork City Development Plan (2022-2028). Support delivery of this action through establishment of a cross-departmental SuDS working group to advise on implementation. Promote the adoption of nature based solutions/protection of biodiversity and avoidance of habitat fragmentation during SuDS projects.*

The implementation of these Actions into the Council's decision making and strategic approach to the future growth of the city will provide Cork City with its best chance of achieving the 2030 'net-zero' target identified in the CAP.

3 *Sustainability Strategy Approach*

The sustainability vision for the Carriganarra development is underpinned by an integrated *Sustainable and Energy Strategy* that embeds environmental responsibility and energy efficiency from the earliest stages of design. By aligning sustainable objectives with project deliverables, the strategy encourages early and ongoing collaboration between the Client and Design Team, ensuring the delivery of a best-in-class development that responds to both regulatory standards and long-term climate goals.

This strategic approach ensures compliance with and surpasses the requirements of *Building Regulations Part L 2022*, supports the objectives of the *Cork City Council Development Plan 2022–2028*, and aligns with the principles set out in the Government's *National Climate Change Policy*. A key objective is the reduction of carbon dioxide (CO_2) emissions, clearly demonstrating the Client's commitment to climate action.

To achieve these outcomes, the strategy incorporates a range of interconnected environmental and economic measures:

- Design Longevity and Passive Performance: The development will feature a flexible, future-proof design aimed at maximising its lifecycle. Passive design strategies, such as optimal façade orientation and enhanced building fabric (with U-values exceeding regulatory standards), will be employed to reduce energy demands. The design will also prioritise airtightness to achieve excellent air permeability performance.
- Daylighting and Visual Comfort: Natural daylight will be maximised in accordance with European, CIBSE, and BRE guidance. High-performance glazing will be used to improve visual comfort and support occupant well-being.
- Façade Optimisation: Advanced computer modelling will be used in collaboration with the project Architect to optimise façade design, enhancing daylight penetration, natural ventilation, and solar benefits specific to the site context.
- Whole-Site Sustainability: Sustainable practices will extend beyond the building envelope to encompass site-wide construction, commissioning, and handover processes, reinforcing environmental performance throughout the development lifecycle.
- Resource Efficiency – Reduce, Reuse, Recycle: Circular economy principles will be integrated across all project phases—design, construction, and operation—to minimise waste and environmental impact.
- Thermal Modelling and Climate Resilience: Dynamic Thermal and Energy Simulations will be conducted to ensure a low-carbon, low-energy design. Residential units will prioritise natural ventilation and undergo compliance assessments for overheating under Part L and long-term climate impacts using CIBSE 2020/2050 weather files.
- Energy Efficient Building Services: Mechanical and electrical systems will be designed to minimise energy use while maintaining high air quality. Measures include:
    - Efficient use of natural light to reduce artificial lighting;

    - Use of high-efficiency LED fittings with dimming, daylight sensing, and occupancy detection;
    - A Lighting Management Plan in common areas to reduce unnecessary energy use;
    - Elimination of fossil-fuel-based systems in favour of heat pumps and other low-carbon heating technologies;
    - Selection of Triple E-registered products to ensure high-performance, energy-efficient installations.
- Renewable Energy Integration: Where technically and economically feasible, renewable energy solutions will be incorporated, such as roof-mounted photovoltaic (PV) arrays and heat pump systems, to offset primary energy use and further reduce emissions.
- Building Energy Rating (BER) Target: All residential units will be designed to achieve an 'A-rated' BER, ensuring high energy efficiency and offering future residents predictable, low operating costs and environmental assurance. *(Refer to Sample BER Certificate below)*



Example BER Cert

- Water Conservation and Management: The development will include a water-efficient design, utilising low-flow sanitary appliances (e.g. dual-flush toilets, spray taps), leak detection linked to the Building Management System (BMS), and measures to reduce potable water consumption.

- Sustainable Transport Infrastructure: The strategy encourages a modal shift away from private car usage by integrating access to public transport and active travel modes. EV charging infrastructure will be installed in accordance with Policy CAP27 and Part L 2022 to support the transition to electric vehicles.
- Material and System Lifecycle Optimisation: A whole life-cycle approach will inform the selection of building materials and plant. Embodied carbon will be reduced through the avoidance of heavy or high-carbon components, minimisation of mechanical systems where possible, and careful selection of materials with strong environmental credentials. Low-GWP refrigerants with minimal leakage rates will be used to mitigate environmental impacts.



Material Selection lifecycle

The additional investment required to deliver a sustainable design in line with the Cork City Development Plan 2022 – 2028 will add long term value for the building users. These benefits will require less energy due to the achievement of the Part L 2022 standards, less services and therefore less resources to operate than is required for existing developments. This will make the new apartments and houses more energy and environmentally efficient and will ensure that it is a more sustainable development into the future.

4 Renewable Energy

4.1 Introduction

This report outlines a preliminary design stage assessment for the proposed Carriganarra residential development. The development consists of the delivery of new apartments and houses assessed under Part L 2022. A sustainable energy approach to buildings offers an opportunity to create environmentally sound and energy-efficient apartments and houses using an integrated design, planning and construction approach. Sustainable development promotes resource conservation of our limited natural resources, which includes energy efficiency, renewable energy, water conservation, waste minimisation and considers the environmental impact of the operation of an apartment/house building for its entire "life cycle".

The process to maximise the environmental performance of the proposed Carriganarra development project is driven by a holistic and fully coordinated approach to achieve sustainable and flexible facilities. The apartments and houses are designed to exceed the provisions of the Building Regulations Part L 2022 (See Figure below) and will offer a sustainable and adaptable design to meet future provisions to these standards.



Building Design Standards Part L 2022

The strategy approach to the design of the facilities is firstly, where feasible, to maximise the passive measures of the apartments and houses (improved insulation, air tightness, solar gains, daylight, etc) and then apply the most efficient active measures (Heat Pumps, LED lighting controls and power density, etc). Only following this, can renewable technologies that are deemed environmentally and economically viable be applied.

The following key elements will be included in the design parameters:

- Maximise the passive elements of the design (where feasible) in the first instance by:
    - Specifying building fabric insulation u-values better than the Part L 2022 standards applicable to new dwelling buildings.
    - Targeting the air permeability to be < $3m^3/(hr.m^2)$ @ 50Pa.
    - Using dynamic thermal modelling to optimise the façade design using differing glazing u- values, light transmittance and solar gain ('g' values).
    - Ensuring particular detailing of linear thermal bridging.
    - Ensuring the maximum number of spaces are naturally ventilated.
- Maximising the Active elements of the design by:
    - Specifying lighting designs that deliver > 90 lumen/ circuit watt
    - Specifying lighting systems with occupancy and daylight controls for the landlord areas.
    - High-efficiency Heating system using latest low carbon technology e.g. Exhaust Air Heat Pumps
    - Minimise the specific fan power where applicable.
- Utilise renewable technology to target the highest primary energy factor with technologies such as Solar PV, Heat Pumps, etc.

4.2 Renewable Options Considered

Therefore, the following renewable energy sources will be considered for the proposed development during the detailed design stages to assist in reducing the carbon footprint if deemed technically, environmentally, and economically feasible in line with Cork City Council 's (CCC) Development Plan 2022-2028 and climate action plan 2024-2029 CAP24

Technology	Feasibility			Comments
	Low	Medium	High	
Ground Source Heat Pumps (GSHP) Closed Loop		✓		GSHP technology uses seasonal differences between ground and air temperatures to provide heating in winter and cooling in summer. GSHP provides low- temperature heating and high-temperature cooling suitable for underfloor heating or chilled beams. Site restrictions may be a consideration with vertical borehole being the most practical but also more capital-intensive. Impact on the Primary Energy Factor can be significant with Heat Pumps, but the additional capital and area requirement can be a constraint.
Air Source Heat Pump (ASHP)			✓	ASHP technology uses seasonal differences between external air temperatures and refrigerant temperatures to provide heating in winter and cooling in summer. As most of the energy is taken from the air, they produce less greenhouse gas than a conventional heating system over the heating season. Most efficient when used as a pre-heat mechanism as the COP remains high and therefore has a major impact on the energy efficiency criteria. ASHP can be utlised in conjunction with conventional heating systems such as boilers or standalone, as a centralised system to provide heating and hot water.
Combined Heat & Power (CHP)	✓			Combined heat and power (CHP) refer to the local simultaneous generation of electricity and heat. CHP works best in areas that have a constant "round the clock" heating demand. CHP systems typically run on oil or gas, with biomass also used. Key to a CHP installation is to ensure that the demand load for heating and electricity usage are utilized, i.e. to size the unit correctly on a base load. The objective of this development is to be low carbon user therefore it is not intended to use a CHP plant to run on natural gas.

Solar Photovoltaic			✓	Solar PV collectors absorb the sun's energy to convert it into electricity. PV Panels can be discrete roof- mounted units or embedded in conventional facades, etc. The ideal location for locating PV systems is facing a southerly direction. Good impact from a Primary Energy perspective.
Solar Thermal		✓		Solar Thermal collectors absorb the sun's energy and provide energy for space heating and hot water generation. The ideal location for locating solar systems is facing a southerly direction. Solar thermal systems are usually designed to meet only a portion of the heating load. The available roof area is better utilised with Solar PV which provides are a greater impact to Primary Energy.
Biomass Heating	✓			Biomass boilers combust wood chips or pellets and are considered to have a very low carbon impact. The technology requires significant plant space and ongoing maintenance. The impact on the Primary Energy factor is not significant.
Small Scale Wind Power	✓			Micro wind turbines can be fitted to roofs but do not supply much energy. Full-scale turbines need open space and are capital-intensive but deliver large energy savings. There is considerable health and safety issues associated with wind turbines, especially in an urban environment. Good impact from a Primary Energy perspective.
District Heating	✓			A centralised district heating system is one where a common energy centre is used to provide heating/cooling to multiple buildings. Such a scheme works best when an input source of heat in the locality can be utilized, such as waste heat from a data centre or waste incinerator facility. Sharing the cost of the capital equipment and increasing diversity of use are the main advantages of this option. However, energy losses below and above ground, inflexibility surrounding billing options for tenants, inflexibility surrounding separate ownership of the building within the one scheme and plant space requirements must be considered. As the scheme is utilizing heat pump technology on an individual apartment basis the building will not be 'District Heating Enabled'.

5 *Embodied Energy Impacts*

Embodied energy is the concept that the materials and processes involved in construction of a building consume vast amounts of energy and therefore emit carbon, which is also known as "Embodied Carbon". To date, embodied energy/carbon is not currently regulated in Ireland and focus has always been towards "Operational Energy" through the use of compliance with Part L of the Building Regulations.

However, the following points related to Embodied Carbon will be considered for the development:

- Reduce the weight of equipment. Specify products that can be demounted and reused. Specify products with long lifespans.
- Mitigate refrigerant impact through low refrigerant Global Warming Potential (GWP) and leakage rates.
- Plant that should be easily accessible for inspection, maintenance and replacement.
- Design with adaptation in mind.
- Less is more, design out MEP where feasible.
- Source local materials where possible.
- Source materials with an Environmental Product Declaration (EPD) where possible.

6 *Part L Energy Building Procedure*

The performance of buildings to achieve Part L compliance will be checked during the design stage using the most current DEAP methodology. To assess whether a building achieves the Part L performance, it is necessary to first calculate the performance of the building being designed using the DEAP software with the parameters from TGD Part L 2022 for domestic buildings. The Dwelling Energy Assessment Procedure (DEAP) is a software tool and manual which calculates energy consumption and carbon dioxide emissions. It considers space heating, ventilation, water heating, and lighting in a dwelling. The apartments and houses are being designed to incorporate the necessary specification details to achieve compliance with the NZEB Standard.

6.1 NZEB Definition

The definition for Nearly Zero Energy Buildings in the Energy performance in Buildings Directive (EPBD) is "a very high energy performance, as determined in accordance with Annex 1, The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby".

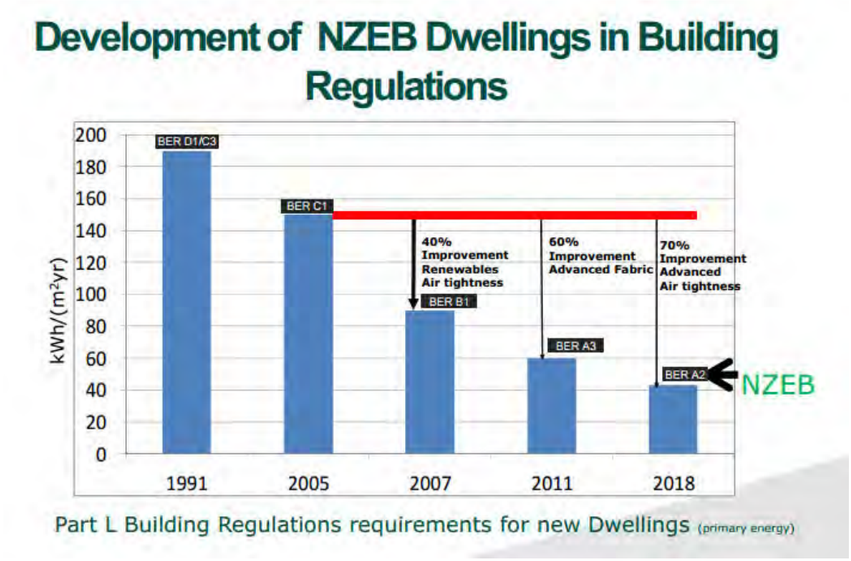
6.2 Requirements for Domestic Buildings

A full review of the public consultation, refer to Department of Housing, Planning and Local Government website has been completed for the building regulations and DEAP methodology.

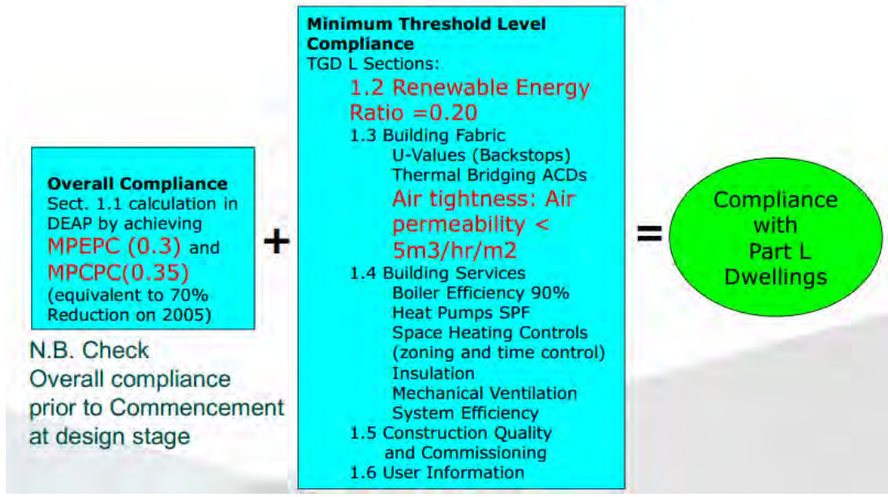
For this report the calculation data is based on residential Part L 2022 and covers the main compliance criteria;

- Primary Energy,
- Carbon dioxide,
- Renewable energy.

To comply to Part L the residential units require to achieve a primary energy reduction of 70% (0.30 MEPC factor), a carbon emission reduction of 65% (0.35 MCPC factor) and a 20% renewable energy contribution on a reference residential unit. This reference residential unit is identical to the actual proposed residential unit but applies pre-fixed Part L stipulated calculation parameters, U-values, insulation levels, boiler efficiency, controls etc.



6.3 Achieving Compliance with TDG L Dwellings 2019



Part L requires a new dwelling to make primary energy and carbon dioxide emission reductions on a reference dwelling by applying improved calculation parameters and technologies. Part L also requires the actual dwelling to provide at least 20% of its primary energy usage by means of renewable energy. The reference dwelling is exactly the same as the actual dwelling but uses fixed pre-set (by the SEAI) basic standard Part L calculation parameters, U-values / insulation levels, energy conversion efficiency, controls etc. to enable the actual dwelling to make substantial reductions. The reference dwelling has no renewable energy element.

6.3.1 DEAP Analysis

The Building Energy Rating has been calculated by Denis O'Sullivan & Associates (DOSA). The current BER is as per that indicated on the energy rating Sheet in the Appendices. All unit types will meet NZEB Compliance.

The analysis has been carried out on the latest SEAI software.

6.3.2 Report Structure

The Building Energy Rating has been calculated by DOSA Consulting Engineers. The current BERs for the various House Types are as per that indicated on the energy rating Sheet. The report is preliminary in nature and provides guidance based on design assumptions (pre design development). In detailed design the specifications will be updated and revised analysis carried out. For the purpose of this report only the house types have been analysed. The Duplex/Apartment Units will have a similar design approach and achieve minimum A3 ratings.

6.3.3 House Specification

- The typical house specification is included in Appendix A to achieve a minimum A3 rating

- Part L compliance is included in Appendix B

6.3.4 Building Regulations

The Irish Building Regulations will apply in full to the proposed development as listed in the table below:

Building Regulations 1997-2014 (SI 497 of 1997 as amended – refer to www.environ.ie for latest)

Building Regulations 1997-2014 (SI 497 of 1997 as amended – refer to www.environ.ie for latest)
Part A –Structure - 2012
Part B – Fire Safety - Volume 2 – Dwelling Houses - 2017
Part C – Site preparation and resistance to moisture - 2004
Part D – Materials and workmanship - 2013
Part E – Sound - 2014
Part F –Ventilation - 2011
Part G – Hygiene - 2008
Part H – Drainage and wastewater disposal - 2016
Part J – Heat producing appliances - 2014
Part K – Stairways, ladders, ramps and guards -2014
Part L – Conservation of Fuel and Energy – Dwellings - 2017
Part M – Access and Use - 2010

For products or systems that do not fall within the scope of existing standards, or deviate from established norms, third party certification should be used to demonstrate compliance with the Irish Building Regulations.

The Contractor will comply with all relevant & applicable EN Standards & Codes of Practice. Irish Standards and British Standards (or equivalent) are applicable where no equivalent EN standard exists.

All Local Authority Codes of Practice are applicable, along with all statutory regulations appropriate to the provision of Housing will apply.

All Codes of practice, standards, and requirements of the statutory service providers (ESBN, GBN, Irish Water, Cork City Council, Eir, etc.) are applicable in full to the development.

6.3.5 NZEB Summary

The analysis of NZEB Compliance is based under the following 3 headings

- Energy Performance Coefficient - EPC
  (Maximum Permitted Energy Performance Coefficient MPEPC = 0.30)

- Carbon Performance Coefficient - CPC
  (Maximum Permitted Carbon Performance Coefficient MPCPC = 0.35)
- Renewable Energy Ratio - RER (Minimum Requirement 0.20)

Below is a summary of a typical dwellings/ house types (except duplex units) and the percentages whereby it surpasses the minimum requirements of NZEB

Dwelling Ref	Energy Performance Coefficent - EPC (maximum Permitted Energy Performance Coefficent MPEPC = 0.3)	% better than Maximum permitted	Carbon Peformance Coefficent - CPC (Maximum Permitted Carbon Performance Coefficent MPCPC = 0.35)	% better than Maximum permitted	Renewable Energy Ratio - RER (Minimum Requirement = 0.20)	% better than Maximum permitted
A1	0.27	10%	0.172	50.86%	0.53	165%
A2	0.272	9%	0.173	50.57%	0.53	165%
A3	0.27	10%	0.173	50.57%	0.53	165%
B1	0.268	11%	0.173	50.57%	0.53	165%
B2	0.268	11%	0.173	50.57%	0.53	165%
C1/C2	0.267	11%	0.173	50.57%	0.53	165%
D1/D2	0.257	14%	0.166	52.57%	0.55	175%
D3	0.255	15%	0.165	52.86%	0.55	175%
E1/E2	0.218	27%	0.138	60.57%	0.61	205%

7 Conclusions

Compliance to Part L 2022 is achieved by means of a 70% primary energy reduction on the reference dwelling or an EPC (primary energy) of 0.30 or less and 65% carbon dioxide reduction or a CPC (carbon dioxide) of 0.35 or less and an equivalent primary renewable energy contribution of 20% or more. The energy reduction proposals resulted in a much lower primary energy and carbon dioxide performance than required under Part L 2022 and achieved a renewable energy contribution in excess of 50% or half of the primary energy coming from a renewable source. These results were achieved by applying the proposed exposed element parameters in combination with air source heat pumps for space & hot water heating and other reduction measures proposed.

Appendix A – Preliminary Unit Specification

All items to have accredited certification

Floor

- 150mm reinforced concrete slab on 150mm Xtratherm XT/HYF, Thermal conductivity 0.022W/mK on radon barrier on blinded hardcore.

Walls

- 310mm cavity wall with 20mm external plaster, 110mm cavity pumped with Korefill cavity, wall insulation system, Thermal conductivity 0.033W/mK, with Xtratherm Insulated plasterboard XT/TL, Thermal conductivity 0.022W/mK on dab skimmed with light weight plaster.
- 310mm Cavity wall, 110mm cavity with brick outer leaf, 60 mmXtratherm XT/CW cavity wall insulation thermal conductivity 0.022W/mK with 72.5mm (60+12.5) Xtratherm insulated plasterboard XT/TL thermal conductivity 0.022W/mK on dabs skimmed with light weight plaster.

Attic

- 400mm (200/200) Thermal conductivity 0.044W/mK, mineral wool insulation.
- Sloping Ceiling 150mm Xtratherm with a Thermal conductivity of 0.022W/mK laid between joists plus 72.5mm (60/12.5) Xtratherm insulated plasterboard with a Thermal conductivity of 0.022W/mK

Windows

- Double glazed windows by Bantry Bespoke Joinery, U-value of 1.2 W/m²K

Doors

- Palladio composite doors supplied by Profile Developments, Glin, Co. Limerick

Primary Heating

- Heat Pump, air to water by Mitsubishi, Model SUZ-SWM 60VA, radiators on both ground and first floors, with time and temperature control. All primary pipe work is insulated.

Secondary Heating

- Hota STi5 stove

Lights

- 100% LED/CFL lights throughout

Ventilation

- Mechanical Extract Ventilation System by Passive House System model PHS MEV/HV

Domestic Hot Water

- 200L cylinder by Mitsubishi model EHST 20D-VM2D

Thermal BridgingAs per "Limiting thermal bridging construction details" TGD L 2011 All key junctions are provided.

Appendix B – Part L Compliance

4208 - Scheme Sustainability & Climate Resilience Statement

Part L Compliance – House Type A1

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	A1	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	83.50	2.45	204.58
First Floor	83.50	2.90	242.15
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	167.00		446.73

Living Area [m^2]	38.00	**Living area percentage [%]**	22.75
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.15	83.5
Non-Heat Loss Floor		N/A	0	83.5

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	74.5

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	5.460
	1	0.94	3.450

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	5.200
Double-glazed, argon filled	Yes	1.200	6.800
Double-glazed, argon filled	Yes	1.200	7.700
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.920
Double-glazed, argon filled	Yes	1.200	0.640

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	395.93	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	349.08	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**34.58**
CO_2 emissions [kg/m^2/yr]	4.43		
EPC	0.270	**EPC Pass/Fail**	**Pass**
CPC	0.172	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.15	Pass
Floors with no underfloor heat	0.15	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	18.07				
Average U value of openings	1.15	Pass			
Permeability test carried out and meets guidelines in TGD L			0.199 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**6443.61**	**6443.61**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**5774.58**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**6443.61**	**12218.20**	**0.53 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**6443.61**	**12218.20**	**0.53**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type A2

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	A2	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	74.50	2.45	182.53
First Floor	74.50	2.90	216.05
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	149.00		398.58

Living Area [m^2]	37.40	**Living area percentage [%]**	25.10
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.16	74.5
Non-Heat Loss Floor		N/A	0	74.5

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	74.5

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	5.460
	1	0.94	3.450

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	5.200
Double-glazed, argon filled	Yes	1.200	6.800
Double-glazed, argon filled	Yes	1.200	7.700
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.920
Double-glazed, argon filled	Yes	1.200	0.640

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	393.6	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	348.58	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**36.93**
CO_2 emissions [kg/m^2/yr]	4.73		
EPC	0.272	**EPC Pass/Fail**	**Pass**
CPC	0.173	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.16	Pass
Floors with no underfloor heat	0.16	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	20.25				
Average U value of openings	1.15	Pass			
Permeability test carried out and meets guidelines in TGD L			0.199 | Pass		

Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**6159.05**	**6159.05**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**5503.01**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**6159.05**	**11662.06**	**0.53 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**6159.05**	**11662.06**	**0.53**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type A3

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	A3	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	76.50	2.45	187.43
First Floor	76.50	2.90	221.85
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	153.00		409.28

Living Area [m^2]	37.50	**Living area percentage [%]**	24.51
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Part L Report
Date report created: 15/10/2025

Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.15	76.5
Non-Heat Loss Floor		N/A	0	76.5

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	74.5

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	5.460
	1	0.94	3.450

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	5.200
Double-glazed, argon filled	Yes	1.200	6.800
Double-glazed, argon filled	Yes	1.200	7.700
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.920
Double-glazed, argon filled	Yes	1.200	0.640

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	394.15	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	348.79	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**36.26**
CO_2 emissions [kg/m^2/yr]	4.64		
EPC	0.270	**EPC Pass/Fail**	**Pass**
CPC	0.173	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.15	Pass
Floors with no underfloor heat	0.15	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	19.72				
Average U value of openings	1.15	Pass			
Permeability test carried out and meets guidelines in TGD L			0.199 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**6200.58**	**6200.58**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**5547.13**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**6200.58**	**11747.70**	**0.53 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**6200.58**	**11747.70**	**0.53**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type B1

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	B1	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	60.90	2.45	149.21
First Floor	60.90	2.90	176.61
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	121.80		325.82

Living Area [m^2]	22.30	**Living area percentage [%]**	18.31
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.16	60.9
Non-Heat Loss Floor		N/A	0	60.9

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	60.9

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	2.100
	1	0.94	2.100

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	3.760
Double-glazed, argon filled	Yes	1.200	4.540
Double-glazed, argon filled	Yes	1.200	5.550
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.760
Double-glazed, argon filled	Yes	1.200	0.530

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	387.97	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	357.51	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**38.47**
CO_2 emissions [kg/m^2/yr]	4.92		
EPC	0.268	**EPC Pass/Fail**	**Pass**
CPC	0.173	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.16	Pass
Floors with no underfloor heat	0.16	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	15.88				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L			0.199 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**5227.06**	**5227.06**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**4685.23**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**5227.06**	**9912.29**	**0.53 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**5227.06**	**9912.29**	**0.53**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type B2

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	B2	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Other	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	57.75	2.45	141.49
First Floor	57.75	2.90	167.48
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	115.50		308.96

Living Area [m^2]	22.20	**Living area percentage [%]**	19.22
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.16	57.75
Non-Heat Loss Floor		N/A	0	57.75

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	57.75

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	2.100
	1	0.94	2.100

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	3.760
Double-glazed, argon filled	Yes	1.200	4.540
Double-glazed, argon filled	Yes	1.200	5.550
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.760
Double-glazed, argon filled	Yes	1.200	0.530

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	385.64	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [ºC]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	357.69	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m²/yr**	**39.43**
CO_2 emissions [kg/m²/yr]	5.05		
EPC	0.268	**EPC Pass/Fail**	**Pass**
CPC	0.173	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m²K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m²K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.16	Pass
Floors with no underfloor heat	0.16	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	16.74				
Average U value of openings	1.20	Pass			
Permeability test carried out and meets guidelines in TGD L			0.199 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**5083.37**	**5083.37**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**4554.54**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**5083.37**	**9637.92**	**0.53 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**5083.37**	**9637.92**	**0.53**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type C1/C2

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	C1	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Other	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m²]	Height [m]	Volume [m³]
Ground Floor	54.50	2.45	133.53
First Floor	54.50	2.90	158.05
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	109.00		291.58

Living Area [m²]	20.00	**Living area percentage [%]**	18.35
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.290	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m²K]	Area [m²]
Ground Floor - Solid		No	0.16	54.5
Non-Heat Loss Floor		N/A	0	54.5

Building Elements - Roof Details

Type	Description	U-Value [W/m²K]	Area [m²]
Pitched Roof - Insulated on Ceiling		0.15	57.75

Building Elements - Wall Details

Type	Description	U-Value [W/m²K]	Area [m²]
Other	Partial fill with internal insulated slab	0.18	97.51

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m²K]	Area [m²]
	1	0.79	2.100
	1	0.94	2.100

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	3.760
Double-glazed, argon filled	Yes	1.200	4.540
Double-glazed, argon filled	Yes	1.200	5.550
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.760
Double-glazed, argon filled	Yes	1.200	0.530

Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	382.45	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	170
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.65
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	358.99	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	325.83	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**40.53**
CO_2 emissions [kg/m^2/yr]	5.19		
EPC	0.267	**EPC Pass/Fail**	**Pass**
CPC	0.173	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.18	Pass
Flat Roof	0	Pass	**Floors**	0.16	Pass
Floors with no underfloor heat	0.16	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.18	Pass			
Percentage of opening areas [%]	17.74				
Average U value of openings	1.20	Pass			

Permeability test carried out and meets guidelines in TGD L 0.199 | Pass

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**4946.50**	**4946.50**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**4418.09**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**4946.50**	**9364.60**	**0.53 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**4946.50**	**9364.60**	**0.53**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type D1/D2

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	End of terrace house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	D1	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	54.55	2.45	133.65
First Floor	54.55	2.90	158.20
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	109.10		291.84

Living Area [m^2]	19.60	**Living area percentage [%]**	17.97
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.800	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.11	54.55
Non-Heat Loss Floor		N/A	0	54.55

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	54.55

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
300mm Filled Cavity		0.15	97.85

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	2.100
	1	0.94	1.960

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	6.300
Double-glazed, argon filled	Yes	1.200	5.770
Double-glazed, argon filled	Yes	1.200	4.660
Double-glazed, argon filled	Yes	1.200	0.600
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.920

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	382.51	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	200
Hot water storage manufacturer and model name	Mitsubishi EHST 20D-VM2D	**Declared loss factor [kWh/d]**	1.91
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	526.45	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	281.12	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**39.06**
CO_2 emissions [kg/m^2/yr]	5		
EPC	0.257	**EPC Pass/Fail**	**Pass**
CPC	0.166	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.15	Pass
Flat Roof	0	Pass	**Floors**	0.11	Pass
Floors with no underfloor heat	0.11	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.15	Pass			
Percentage of opening areas [%]	20.45				
Average U value of openings	1.23	Pass			
Permeability test carried out and meets guidelines in TGD L			0.21 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**5245.92**	**5245.92**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**4261.33**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**5245.92**	**9507.25**	**0.55 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**5245.92**	**9507.25**	**0.55**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type D3

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Mid-terrace house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	D3	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m²]	Height [m]	Volume [m³]
Ground Floor	54.55	2.45	133.65
First Floor	54.55	2.90	158.20
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	109.10		291.84

Living Area [m²]	20.30	**Living area percentage [%]**	18.61
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.800	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m²K]	Area [m²]
Ground Floor - Solid		No	0.1	54.55
Non-Heat Loss Floor		N/A	0	54.55

Building Elements - Roof Details

Type	Description	U-Value [W/m²K]	Area [m²]
Pitched Roof - Insulated on Ceiling		0.15	54.55

Building Elements - Wall Details

Type	Description	U-Value [W/m²K]	Area [m²]
300mm Filled Cavity		0.15	97.85

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m²K]	Area [m²]
	1	0.79	2.100

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	3.670
Double-glazed, argon filled	Yes	1.200	5.770
Double-glazed, argon filled	Yes	1.200	4.660
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.460

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	382.51	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	200
Hot water storage manufacturer and model name	Mitsubishi EHST 20D-VM2D	**Declared loss factor [kWh/d]**	1.91
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	530.67	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	281.12	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m^2/yr**	**38.39**
CO_2 emissions [kg/m^2/yr]	4.91		
EPC	0.255	**EPC Pass/Fail**	**Pass**
CPC	0.165	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m^{2}K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m^{2}K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.15	Pass
Flat Roof	0	Pass	**Floors**	0.1	Pass
Floors with no underfloor heat	0.10	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.15	Pass			
Percentage of opening areas [%]	15.27				
Average U value of openings	1.21	Pass			
Permeability test carried out and meets guidelines in TGD L			0.21 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**5043.72**	**5043.72**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**4188.51**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**5043.72**	**9232.23**	**0.55 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**5043.72**	**9232.23**	**0.55**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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Part L Compliance – House Type E1/E2

Part L Specification

BER IS NOT PUBLISHED

Property Details

Dwelling Type	Semi-detached house	**Type of BER rating**	New Dwelling - Provisional
Address line 1	E1	**Year of Construction**	2025
Address line 2	Carriganarra	**Date of Assessment**	15/10/2025
Address line 3		**Date of Plans**	
County	Co. Cork	**Planning Reference**	
Eircode		**Building Regulations**	2019 TGD L
BER Number		**MPRN No.**	0
Purpose of Rating	Sale	**Is MPRN shared with another dwelling?**	N/A
Assessor Name	Stephen O'Donoghue	**Assessor Number**	108540
Comment		**BER number assigned to shared dwelling**	N/A

Dimension Details

	Area [m^2]	Height [m]	Volume [m^3]
Ground Floor	46.10	2.44	112.48
First Floor	46.10	2.90	133.69
Second Floor	0.00	0.00	0.00
Third and other floors	0.00	0.00	0.00
Room in roof	0.00	0.00	0.00
Total Floor Area	92.20		246.17

Living Area [m^2]	30.00	**Living area percentage [%]**	32.54
No of Storeys	2		

Ventilation Details

	Number		
Chimneys	0	**Has permeability test been carried out?**	Yes
Open Flues	0	**Structure type**	N/A
Fans & Vents	1	**Is there a suspended wooden ground floor?**	No
Number of flueless combustion room heaters	0	**Percentage windows/doors draught stripped [%]**	N/A
Is there a draught lobby on main entrance?	No	**Number of sides sheltered**	2
Ventilation method	Whole-house extract ventilation	**Mechanical Ventilation Manufacturer**	N/A
Specific fan power [W/(L/s)]	0.250	**Mechanical Ventilation Model Name**	N/A
Heat exchanger efficiency [%]	N/A	**How many wetrooms (incl. kitchen)?**	N/A

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Building Elements - Floor Details

Type	Description	Underfloor heating	U-Value [W/m^2K]	Area [m^2]
Ground Floor - Solid		No	0.12	46.1
Non-Heat Loss Floor		N/A	0	46.1

Building Elements - Roof Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
Pitched Roof - Insulated on Ceiling		0.15	46.1

Building Elements - Wall Details

Type	Description	U-Value [W/m^2K]	Area [m^2]
300mm Filled Cavity		0.15	261.42

Building Elements - Door Details

Description	Number of Doors	U-Value [W/m^2K]	Area [m^2]
	1	0.79	2.100

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Building Elements - Window Details

Glazing type	User defined u-value	U-Value [W/m²K]	Area [m²]
Double-glazed, argon filled	Yes	1.400	3.920
Double-glazed, argon filled	Yes	1.200	4.720
Double-glazed, argon filled	Yes	1.200	4.300
Double-glazed, argon filled (low-E, en = 0.15, hard coat)	Yes	2.000	0.740

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Other Details

Thermal bridging factor [W/m²k]	0.1500	**Thermal mass category of dwelling**	Medium

Heating System - Solar Water Heating

Solar Water Heating Present?	No	**Aperture area of solar collector [m²]**	N/A
Type, manufacturer, model	N/A		
Zero loss collector efficiency, n0	N/A	**Collector heat loss coefficient, a1 [W/m²>K]**	N/A
Annual Solar Radiation [kWh/m²] (Refer to Appendix H in DEAP)	N/A	**Overshading factor**	N/A
Dedicated storage volume [Litres]	N/A	**Combined Cylinder**	N/A
Solar fraction [%]	0.000		

Heating System - Hot Water System

Distribution Losses	368.6	**Combi boiler present?**	No
Supplementary electric water heating	N/A	**Water Storage Volume [L]**	200
Hot water storage manufacturer and model name	Mitsubishi EHST 17D-VM2D	**Declared loss factor [kWh/d]**	1.91
Temperature factor unadjusted	0.89	**Temperature Factor Multiplier**	0.89
Primary Circuit loss type	Boiler / heat pump and thermal store within a single casing (cylinder thermostat present)		
Is hot water storage indoors or in group heating system?	Yes	**Insulation type**	N/A
Insulation thickness [mm]	N/A		

Heating System - Dist. system losses and gains

Temperature adjustment [°C]	0	**Control Category**	3	**Responsiveness category**	1
Central heating pumps	1	**Oil Boiler Pump**	0	**Oil boiler pump inside dwelling**	No
Gas boiler flue fan	0	**Warm air heating or fan coil radiators present**	No		

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Heating System - Energy Requirements (Individual)

Main space heating system efficiency [%]	480.31	**Space heating efficiency adjustment factor**	1.0000	**Main space heating fuel**	Electricity
Main water heating system efficiency [%]	331.88	**Water heating efficiency adjustment factor**	1.0000	**Main water heating fuel**	Electricity
Secondary heating system efficiency [%]	N/A	**Fraction of heating from secondary heating system**	N/A	**Secondary space heating system fuel**	None
Fraction of main space and water heat from CHP	N/A	**Electrical efficiency of CHP**	N/A	**Heat efficiency of CHP**	N/A
CHP Fuel type	N/A				

Summary for Part L Conformance (Applies to TGD L 2008/2011/2019 for new dwellings only)

BER Number		**Building Regulations**	**2019 TGD L**
BER Result	A2	**Energy Value kWh/m²/yr**	**47.04**
CO_2 emissions [kg/m²/yr]	6.02		
EPC	0.218	**EPC Pass/Fail**	**Pass**
CPC	0.138	**CPC Pass/Fail**	**Pass**

Part L Conformance - Fabric

Conformity with Maximum avg U-value requirements	**U-value [W/m²K]**	**Pass/Fail**	**Conformity with Maximum U-value requirements**	**U-Value [W/m²K]**	**Pass/Fail**
Pitched roof insulated on ceiling	0.15	Pass	**Roofs**	0.15	Pass
Pitched roof insulated on slope	0	Pass	**Walls**	0.15	Pass
Flat Roof	0	Pass	**Floors**	0.12	Pass
Floors with no underfloor heat	0.12	Pass	**External doors / windows / rooflights**	2.00	Pass
Floors with underfloor heat	0.00	Pass			
Walls	0.15	Pass			
Percentage of opening areas [%]	17.11				
Average U value of openings	1.23	Pass			
Permeability test carried out and meets guidelines in TGD L			0.2 | Pass		

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Part L Conformance - Renewables (applies to TGD L 2019)

	Source	Renewables Primary Energy	Total Primary Energy	RER
+ Delivered energy	**PV/Wind**	**0.00**	**0.00**	
+ Delivered energy	**Other**	**0.00**	**0.00**	
+ Delivered energy	**Solar**	**0.00**	**0.00**	
+ Delivered energy	**Biomass**	**0.00**	**0.00**	
+ Delivered energy	**Biodiesel**	**0.00**	**0.00**	
+ Delivered energy	**Bioethanol**	**0.00**	**0.00**	
+ Environmental energy	**HP**	**6785.80**	**6785.80**	
+ Saved energy	**CHP**	**0.00**	**0.00**	
+ District heating	**District Heating**	**0.00**	**0.00**	
+ Delivered energy	**Grid**	**0.00**	**4337.52**	
+ Delivered energy	**Thermal**	**0.00**	**0.00**	
SUBTOTAL		**6785.80**	**11123.32**	**0.61 - Pass**
Energy not used in Regulated Loads	**PV/Wind/CHP**	**0.00**	**0.00**	
TOTAL		**6785.80**	**11123.32**	**0.61**

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Energy Requirements: Individual Heating Systems

	Fuel Type	Electricity Fuel Factors Date	Primary energy conversion factor	CO_2 emission factor
Main space heating system	Electricity	Current	1.75	0.224
Secondary space heating system	None	Current	0.00	0.000
Main water heating system	Electricity	Current	1.75	0.224
Cooling System	None	Current	0.00	0.000
Pumps, fans	Electricity	Current	1.75	0.224
Energy for lighting	Electricity	Current	1.75	0.224

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CHAPTER THIRTEEN

POPULATION & HUMAN HEALTH

APPENDIX 13-1 School Demand Assessment – HW Planning
APPENDIX 13-2 Childcare Needs Assessment – HW Planning

APPENDIX 13-1 School Demand Assessment – HW Planning

hw planning

School Demand Assessment

Proposed Large Scale Residential Development (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork

Client: MOS Homes Ltd

February 2026

Connecting people.

Connecting places.

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01 //

Introduction

This School Demand Assessment has been prepared by HW Planning on behalf of MOS Homes Ltd to accompany a planning application for a proposed Large Scale Residential Development (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork. This report has been prepared in response to Item 28a of the LRD Opinion 25-06 dated the 24th of October 2025 which requested that.

> *'A Schools Demand Assessment following liaison with the Department of Education clarifying demand levels and numbers of pupils on waiting lists for enrolment years in schools within Ballincollig and the wider catchment.'*

Objective 3.24 of the Cork City Development Plan 2022-2028 (CDP) states that the Council will:

> *'.....Work closely with the Department of Education and Skills and landowners to ensure that new schools are provided to meet the needs of new residential neighbourhoods at: City Docks; Tivoli Docks; Ballincollig Maglin; Ballyvolane; South Glanmire; Blarney (Stoneview); Kilbarry /Blackpool Neighbourhood; and Douglas (Castletreasure).*

The proposed LRD consists of the demolition of existing agricultural buildings and the construction of a residential development of 300 no. residential units consisting of 128 no. dwellings houses, 172 no. apartment/duplex units, a two storey creche facility and all ancillary site development works.

Unit Type	Total Units	4-Bed	3-Bed	2-Bed	1-Bed
Residential Units	300 (100%)	42 (14%)	102 (34%)	111 (37%)	45 (15%)

Table 01 - Proposed Housing Mix

The School Demand Assessment has been prepared to assess whether there will be sufficient capacity locally to cater for future primary and secondary school needs arising from the proposed development. This assessment should be read in conjunction with the accompanying Environmental Impact Assessment Report (EIAR), Planning Statement & Response to LRD Opinion Statement, Statement of Housing Mix and Statement of Consistency prepared by HW Planning which provide a rationale for the proposed density of the proposed development.

As noted in Appendix A of this report, the Department of Education were contacted by HW Planning at scoping stage of the EIAR, and were invited to make any comments/observations that the applicants should have regard to when preparing the EIAR for the project. At the time of writing of this School Demand Assessment, no response was received from the Department of Education.

02 //

Policy Context

2.1 The Provision of Schools and the Planning System A Code of Practice - 2008

The 2008 Guidelines were jointly published by the Department of Education and Science, and the Department of the Environment, Heritage and Local Government, and sets out national policy in ensuring that sufficient educational facilities of all levels are delivered efficiently and in tandem with population growth. The Guidelines have three key core objectives as follows.

01 Schools provision should be an integral part of the evolution of compact sustainable urban development and the development of sustainable communities;

02 The provision of any new schools (both primary and post-primary) should be driven by and emerge from an integrated approach between the planning functions of planning authorities and the Department of Education and Science; and

03 Local authorities, as planning authorities, will support and assist the Department in ensuring the timely provision of school sites.

The Guidelines identify 6 no. key agreed actions in order to achieve the principles of the Guidelines.

01 Forecasting Future Education Demand.

02 Planning for New Schools through Local Authority Development Plans

03 Location of Schools – Planning Considerations

04 Site Development Standards

05 School Development Proposals and the Development Management Process

06 School Site Identification and Acquisition.

2.2 Cork City Development Plan 2022-2028 (CDP)

CDP Objective 3.24 'School Facilities' confirms that the Planning Authority will.

> *'.....Work closely with the Department of Education and Skills and landowners to ensure that new schools are provided to meet the needs of new residential neighbourhoods at: City Docks; Tivoli Docks; Ballincollig Maglin; Ballyvolane; South Glanmire; Blarney (Stoneview); Kilbarry /Blackpool Neighbourhood; and Douglas (Castletreasure).*

Section 3.70 of the CDP specifically addresses the future provision of schools in Cork City and includes a preliminary assessment prepared by the Department of Education and Skills projections outlining potential areas where additional schools would be required over the period to 2031 (ref Table 02).

DoE Preliminary Assessment of Additional Education Capacity			
School Planning Area	Growth Areas Included	Number of new or expanded Primary Schools (baseline figure)	Number of new or expanded Secondary Schools (baseline figure)
Ballintemple	General	1	0
	Mahon	1	0
	City Docks	4 - 6	1-2
Montenotte	Tivoli Docks	2 - 3	1
Glasheen	General	1-2	0
	Pouladuff / Lehenagmore	1	0
Gurranabraher	Ballyvolane	1- 2	1
	Old Whitechurch Road	1	0
	Kilbarry	1	0
	Farranferris	1	0
Ballincollig	**Maglin**	**2**	**1**
Blarney	Stoneview	1- 2	1
Glanmire	General	0	1
	South Glanmire	1	0
South Suburbs	Douglas	1	1
Total		20 - 26	7 - 8

Table 02 – DoE Preliminary Assessment of Additional Education Capacity – based on CDP Table 3.8

The subject site forms part of the wider South Ballincollig (Maglin) Urban Expansion Area (MUEA). The MUEA is a strategic land bank of approximately 220 no. hectares to the south of the town of Ballincollig and north of the N22. The delivery of the MUEA has been a long-held ambition as a strategic expansion area for the town to accommodate population and housing growth in the settlement, in addition to the delivery of new schools, town centre uses, public open spaces and infrastructural upgrades.

Sections 10.222 of the CDP refers to the fact that:

> *"Ballincollig has 4 primary schools and 2 secondary schools. There is also a special needs school, Our Lady of Good Counsel, in Innishmore. Ballincollig as a growing town requires additional educational facilities. The Maglin Urban Expansion Area in the south of the town is considered the optimum location for these schools."*

This is reflected in Objective 10.62 - Ballincollig Education

> *"Cork City Council will work with the Department of Education and landowners to identify new school sites for the town and its wider catchment."*

Future schools to be delivered in Ballincollig are identified by the ZO 12 'Education' zoning objectives for Ballincollig, which includes lands at Coolroe, and two separate educational facilities to be delivered within the MUEA.

03 //

School Demand Assessment

This School Demand Assessment has been undertaken to identify the existing school provision in the catchment of the proposed development, to determine the potential school demand arising from the proposal and to consider whether there is capacity within this provision to support the proposed development.

3.1 Demographic Profile of Ballincollig Urban Town

The wider MUEA is one of the designated strategic growth areas which are earmarked to sustainably accommodate the planned expansion of Cork City. Following the 2019 Cork City boundary extension the hitherto county town of Ballincollig became an urban town within Cork City. As such the Central Statistics Office (CSO) no longer reports census data for Ballincollig as a separate settlement with its data being amalgamated into that of Cork City census settlement reporting.

However, the CSO uses a number of smaller administrative units for capturing population statistics at a local level. These include Electoral Division (ED) units and Small Areas (SA), which are a sub-division of the ED units and generally cover 65-90 households. Using a combination of these smaller units the census data for the urban town of Ballincollig can be recreated. From this it can be seen that between the 2016 Census and the 2022 Census the population increased from 18,159 people to 20,578 people, an increase of 2,419 residents or 13.3% growth. While this growth is relatively high in comparison to the overall Cork City population growth of 6.2% in the same period, it is significantly below the ambitious growth forecast for Ballincollig in the CDP of 54.1% growth between 2016 and 2028. In effect the growth of 2,419 residents in this intercensal period was only 49% of that needed by 2022 to be on target to achieve the 2028 target population of 27,987.

Area	2016 Population	2022 Population	2016 -2028 % growth	2028 Population Target	% of Pro-rata Growth Achieved by 2022
Ballincollig Urban Town	18,159	20,578	13.3%	27,987	49%
Cork City	210,853	224,004	6.2%	261,561	52%

Table 03 - Ballincollig Intercensal Growth 2016 – 2022 – based on CDP 2 Year Progress Report Figure 23

While the CDP has identified a potential yield of 3,947 no. housing units in Ballincollig, in the two years to July 2024 only 180 no. units had been delivered. The 2022 Census, also indicated that while the average household size in Ballincollig dropped from 2.88 in 2016 to 2.85, it remains above the national average of 2.74 persons per household and the Cork City average of 2.62.

3.2 Ballincollig School Planning Area

The Department of Education and Youth in planning for school provision undertake demographic data analysis based on 314 school planning areas nationally. Therefore, this assessment is based not on the Ballincollig Urban Town boundary discussed above but on the wider Ballincollig School Planning Area as indicated in Figure 01.

The Ballincollig school planning area (SPA) straddles the Cork City and County boundary and includes the settlements of Ballincollig and part of Kerry Pike in the City and Killumney/Ovens, Waterfall and Ballynora in the County. Areas of the eastern suburbs of Cork City and hinterland are also included.

The planning area is made up of 112 CSO Census SAs. In total the population in 2022 was 33,498, up from 30,015 people in 2016, a 12% increase, which is in line with the 13.3% increase in the Urban Town of Ballincollig over the same period.

Age	2016	2022	% of Population in 2022	% Change 2016 - 2022
0-4	2,243	2,194	7%	-2%
5 to 12	3,584	3,926	12%	10%
13-18	2,243	2,706	8%	21%
19 - 29	3,916	4,040	12%	3%
30 - 39	5,107	4,825	14%	-6%
40 - 49	4,170	5,357	16%	28%
50 - 59	3,691	3,874	12%	5%
60 - 69	2,809	3,255	10%	16%
70 - 79	1,432	2,255	7%	57%
80+	820	1,066	3%	30%
	30,015	33,498		12%

Table 04 - Ballincollig School Planning Area (SPA) Intercensal Growth 2016 – 2022

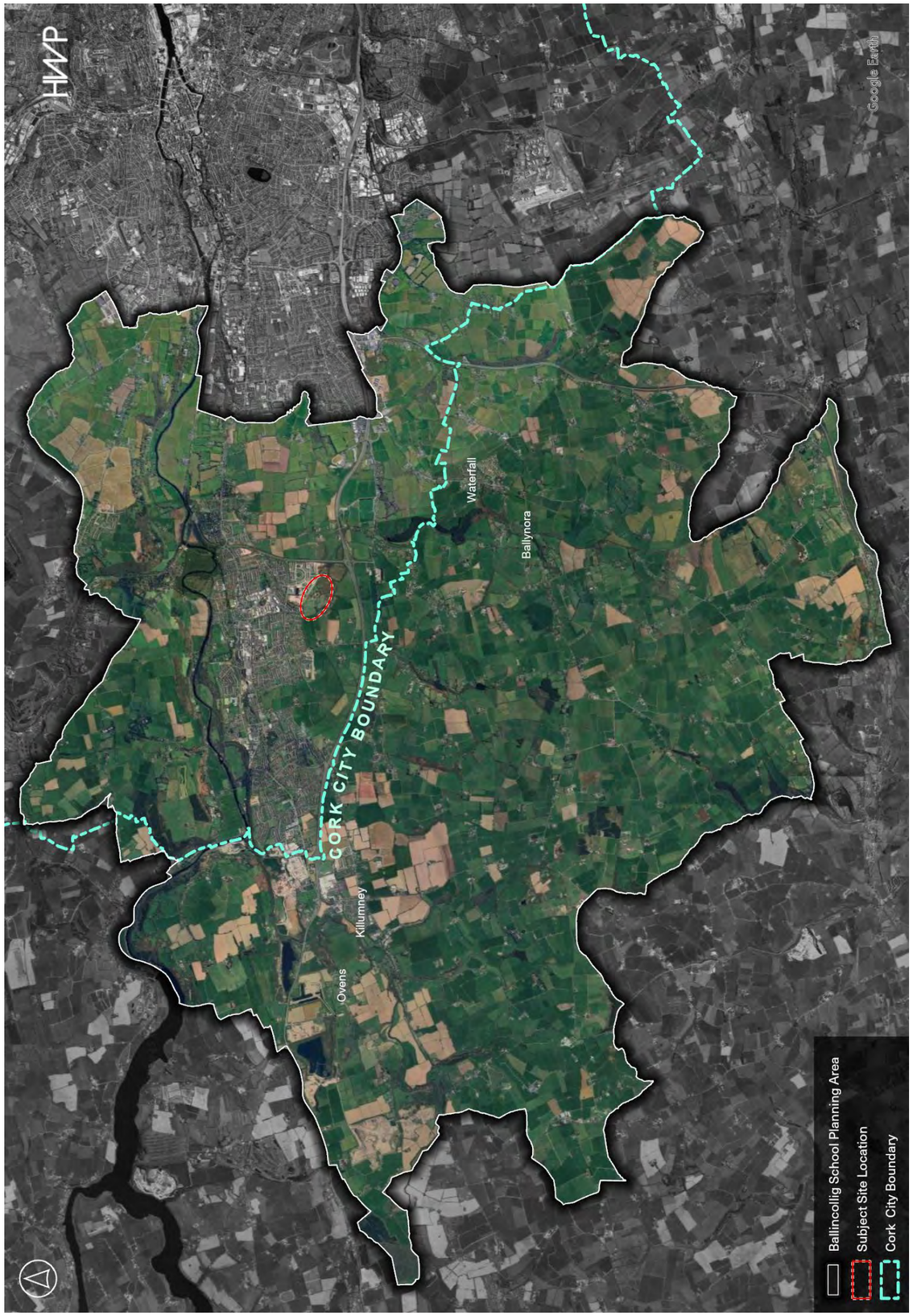


Figure 01 - Ballincollig School Planning Area Context

Notwithstanding this overall population growth, Table 04 indicates that changes have occurred in the age profile of the population in the Ballincollig School Planning Area (SPA) in the last intercensal period, with the number of pre-school age (0-4 years) residents dropping by 2% from the 2016 figure. This trend in the pre-school population will impact directly on future demand for school places.

In both the 2016 and the 2022 Census the primary school age cohort[1] represented 12% of the total population, however, in 2016 this equated to 3,584 pupils whereas in 2022 this had increased to 3,926 pupils, an increase of 10%. The secondary school age cohort[2] made up 7% of the total 2016 population at a figure of 2,243 children, compared to 8% in 2022 when the figure was 2,706. These figures indicate an increase in the number of older children and a decrease in the number of younger children, resulting in a trend where the average age of children in the area has increased slightly in the intercensal period, in line with the national trend.

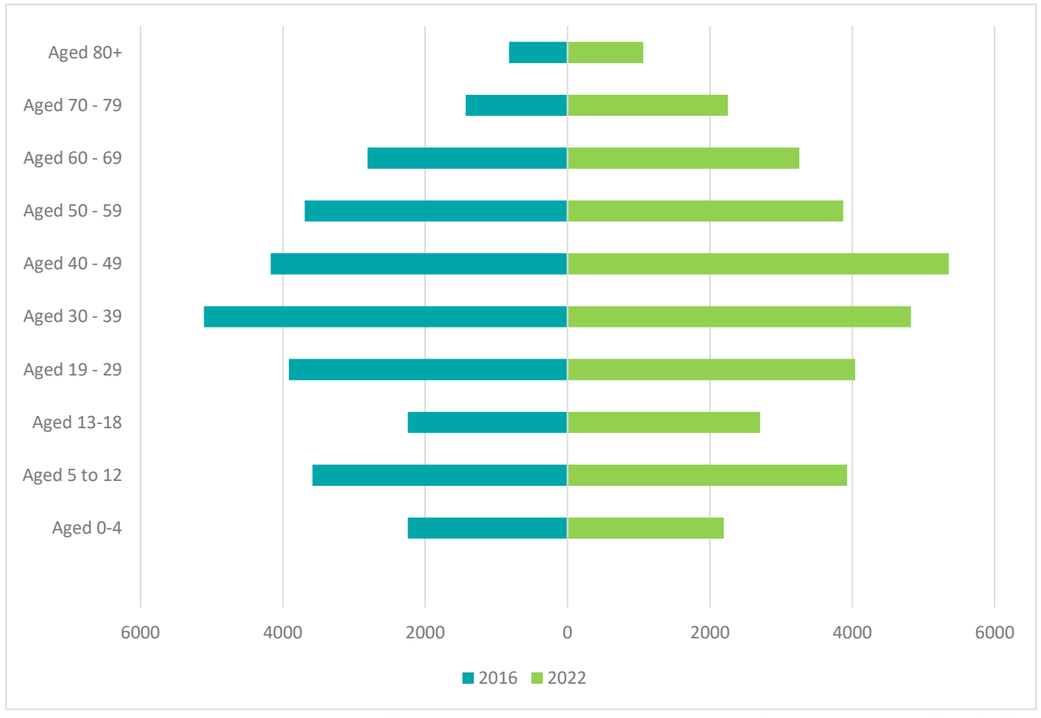


Figure 02: Ballincollig School Planning Area Population Pyramid – Age Profile 2016 - 2022

As Table 05 indicates, while the percentage share of the preschool cohort in the Ballincollig SPA is generally in line with Cork County and State figures, Cork City figures are significantly lower across all-school age categories. This may reflect the fact that the Ballincollig SPA straddles the administrative areas of both Cork City and Cork County Councils, and that the City Council portion was largely within the County Council area prior to 2019.

[1] the census age categories of 5-12 years were used to represent the primary school cohort.
[2] The census age categories of 13 – 18 year olds was used to represent the secondary school cohort

School Cohort	Ballincollig SPA (%)	Cork City (%)	County Cork (%)	State (%)
Pre-school (0-4 year olds)	2,194 (7%)	5%	6%	6%
1y School (5-12 year olds)	3,926 (12%)	9%	12%	11%
2y School (13-18 year olds)	2,709 (8%)	7%	9%	8%

Table 05 - 2022 Census Data for Pre-school, Primary and Secondary School Age Cohorts

3.3 Existing Schools & Educational Outlets in Ballincollig SPA

3.3.1 Primary Schools

Table 06 summarises the capacities of the ten existing primary schools within the Ballincollig SPA, according to Primary school enrolment figures as published by the Department of Education and Youth[3]. In the 2025/2026 academic year the total enrolment for these schools was 3,906, slightly increased from the 2024/2025 figure of 3,882.

[3] https://www.gov.ie/en/department-of-education/collections/primary-schools-enrolment-figures

School	Address	2023/2024 Enrolment	2024/2025 Enrolment	2025/2026 Enrolment
Cloghroe Mixed N S	Cloghroe	515	519	537
Gogginshill N S	Goggins Hill	237	223	227
Clogheen Mxd N S	Kerry Pike	183	169	181
Ovens N S	Knockanemore	436	442	466
S N Naomh Eoin B	Station Road	411	391	352
Scoil Naomh Mhuire C	Ballincollig	454	447	437
S N Baile Nora	Ballynora	300	307	328
Scoil Barra	Innishmore	438	448	449
Gael Scoil Ui Riordain	Carraig an Earra	725	731	724
Gaelscoil An Chaisleáin	Cumann Rugbaí Bhaile an Chollaigh	175	205	205* (500)[4]
Total		3,874	3,882	3,906 *(4,201)

Table 06. Primary Schools in Ballincollig SPA – 2023/2024/2025/2026

[4] The development of a School Campus to accommodate Gaelscoil An Chaisleáin is progressing that will make provision for 500 primary students at this new school site. It is expected that planning permission will be lodged for same in 2026.



Figure 03 – Exisitng & Future Schools Context in Ballincollig

The 2025 projections from the Department of Education and Youth estimate that enrolment levels in schools will decrease in the coming years, initially in primary schools and subsequently in post-primary schools. The Department of Education and Youth published the 'National Projections of fulltime enrolment Primary & Post-Primary Level 2025/26 – 2044/45' (2025) which outlines various scenarios of future intake for both primary and post-primary schools. The report estimates that primary school enrolment peaked in 2018/2019 and, subsequent to a minor reversal in 2022 due to inward migration, a continuous decline in new enrolments is expected until 2040/41:

> *Enrolments in primary schools in Ireland stood at 552,0596 in September 2024, a decrease of 4,047 pupils compared to the previous school year 2023/24. Since the peak in 2018/19 (567,772 pupils), enrolments had been decreasing in line with school age demographic trends until 2022/23, when numbers rose due to increased inward migration.*
>
> *Under all scenarios, enrolments are projected to fall until 2040/41, before beginning to rise again. Enrolments under the M1F2 scenario will reach a low of 481,536, a decrease of over 70,500 from September 2024.*

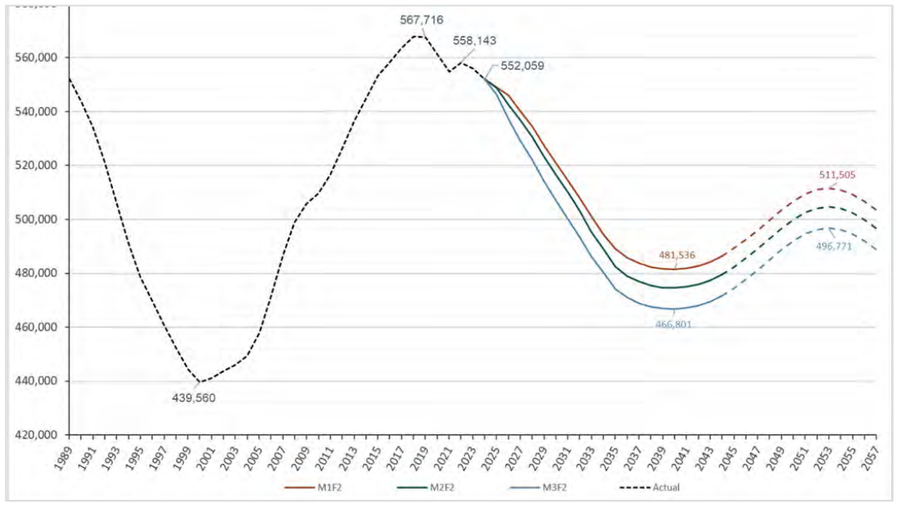


Figure 04 Dept. of Education and Youth Actual and Projected Enrolment at Primary Level 1989 - 2057 (Source: Department of Education and Youth 2025)

Ballincollig, however, is an area targeted for strategic growth and therefore does not fully conform to this pattern. However, while the CDP projected in 2022 that it would experience 54.1% growth between 2016 and 2028, in reality between 2016 and 2022 it experienced just 13.3% growth and is unlikely to reach its targets in the remaining years to 2028.

Notwithstanding this slower than anticipated growth rate Ballincollig remains a focus for growth in the west of the city. It should be noted in relation to Gaelscoil An Chaisleáin that while the 205 students are currently accommodated in a temporary building within the grounds of Ballincollig Rugby Club a new schools campus has been identified on a site in Lisheens, Ballincollig. The proposed 15 acre campus will also accommodate the Le Chéile secondary school, which currently has 254 pupils. The provision of these new schools will allow for 500 pupils in Gaelscoil an

Chaisleáin and 1,000 pupils in Le Chéile to cater for the envisaged population growth of Ballincollig over the coming years.

3.3.2 Post Primary Schools

Table 07 summarises the capacities of existing secondary schools in Ballincollig SPA according to Post-primary schools enrolment figures. Similar to the trend evident in the primary schools there was an increase in enrolments between 2023/2024 and the 2025/2026 as published by the Department of Education and Youth[5]. This is in line with the trend evident in the Census 2022 figures of an older average age of children in the settlement.

School	Address	2023/2024 Enrolment	2024/2025 Enrolment	2025/2026 Enrolment
Ballincollig Community School	Ballincollig	961	980	987
Coláiste Choilm	Ballincollig	1359	1,364	1,357
Le Chéile	Ballincollig	117	195	254 (1,000)* [6]
Total		2,437	2,539	2,598 (3,344)*

Table 07. Post- Primary Schools in Ballincollig – 2023/2024/2025 – Preliminary Results

Based on the Department of Education's 2025 – 2044/45 projections, the secondary school enrolment figures are envisaged to peak in 2025/2026. Similar to trends for primary schools, a continuous decline in post primary enrolment is then expected over the next 20 years.

[5] https://www.gov.ie/ga/an-roinn-oideachais/bailiuchain/post-primary-schools-enrolment-figures/
[6] The development of a School Campus to accommodate Le Cheile is progressing that will make provision for 1,000 secondary students at this new school site

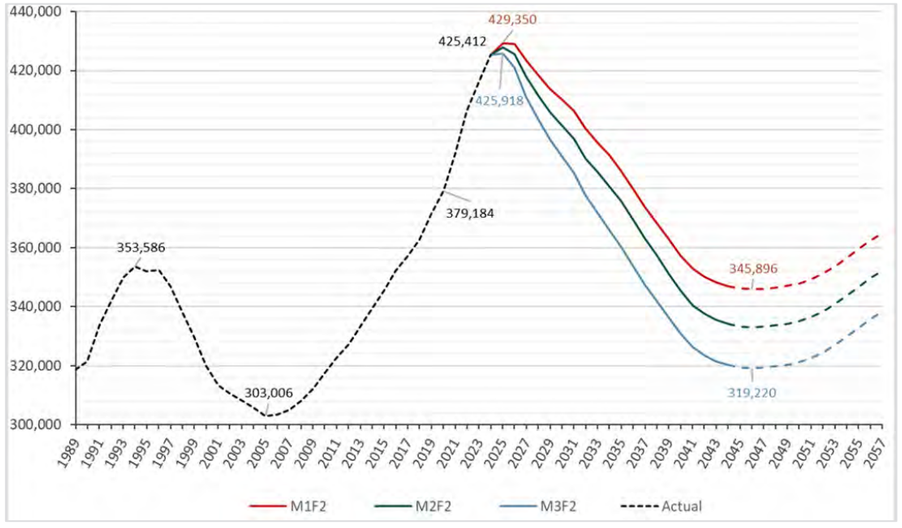


Figure 05 Actual and Projected Enrolment at Second Level 1989 - 2057 (Source: Department of Education and Youth 2025)

3.3.3 Schools Demand Generated by the Proposed Development

Notwithstanding this manifest intercensal changes in the school age population in the settlement, the school demand calculation has been undertaken based on a standardised approach using a proportion of the total indicative population that the proposed residential development is likely to give rise to.

Unit Type	Total Units	4-Bed	3-Bed	2-Bed	1-Bed
Residential Units	300 (100%)	42 (14%)	102 (34%)	111 (37%)	45 (15%)

Table 08. Proposed Housing Mix

It is anticipated that of the total 300 proposed units, the 45 no. one-bedroom units could realistically be excluded from generating a school demand. However, if a conservative approach is adopted and all 300 proposed units are considered this could result in an uplift of 855 persons based on the 2022 average household size of 2.85 persons in the 2022 Census for Ballincollig. Extrapolating from the percentage of the 2022 population that was of pre-school or school age within the Ballincollig SPA it is estimated that between 51 - 60 children (7%) of the future residents of the scheme will be of pre-school age, between 87 - 103 no. children (12%) will be of primary-school going age and between 61 - 68 no. children (8%) will be secondary school going age. These estimates are conservative and do not factor in the future lag-effect of the significant local and countywide decline in the pre-school population between 2016 and 2022.

	Realistic No.based on Housing Mix	Conservative No. based on all units
No of Units Generating School Place Demand	255	300
Population uplift (based on 2.85 average household size)	727	855
Potential Pre-school Uplift Generated	51	60
Potential Primary School Uplift Generated	87	103
Potential Secondary School Uplift Generated	58	68

Table 09. Estimates of Pre-School and School Age Residents in the Proposed Scheme

A review of cumulative projects has also been undertaken to inform this assessment. The table below identifies the expected resultant uplift in demand from residential developments within Ballincollig.

Application Ref.	Applicant	Description	Status	Primary School Demand (Realistic – Conservative)	Secondary School Demand (Realistic – Conservative)
23/42446	Coleman New Homes (Blarney) Limited	LRD of 162 no. residential units at Maglin Road, Ballincollig, Cork (Cois Caislean Phase 2)	Permitted – Under Construction	42 – 55	28 – 37
22/41644	MOS Homes Limited	Construction of 98 no. dwellings at Heathfield, Ballincollig, Cork	Permitted – Under Construction	30 – 33	20 – 22
26/44475	MOS Homes Ltd	Construction of 11 no. dwellings at Heathfield, Ballincollig	Being Assessed	4	2
25/44048 (ACP 324030-26)	Murnane & O Shea Limited	LRD of 544 no. residential units, creche facility, commercial/retail unit at Greenfield, Ballincollig	Permitted – Under Appeal	159 – 186	106 – 124

25/44222	O Flynn Construction Co. Unlimited Company	LRD for the construction of 1,150 no. residential units, 1 no. creche, 3 no. retail units at Maglin, Ballincollig	Being Assessed	313 – 393	209 – 262
		Cumulative Total		548 – 671	365 – 447

3.1 Planned Education Developments

The Cork City Development Plan 2022-2028 identifies a further two sites for educational use within the Maglin Urban Expansion Area, in addition to the 15-acre site at Lisheens where the planned school campus is to be located. Based on the planned capacity of comparable new school facilities in the area (500 no. pupils for primary and 1,000 no. pupils for secondary), the delivery of schools on these zoned sites would provide an estimated additional 1,000 no. primary school places and 1,000 no. secondary school places.

3.2 Future Capacity

As demonstrated in Table 10, when the proposed development is considered in isolation, existing and planned capacity is sufficient to accommodate the projected demand at both primary and secondary level. When cumulative developments are factored in, including those which are permitted and under construction as well as those currently under assessment by Cork City Council and An Coimisiún Pleanála, a deficit of between 360 and 499 no. primary school places is identified, while secondary school capacity remains in surplus (between 120 and 209 no. places). It is important to note that a significant proportion of this cumulative demand arises from developments which have not yet been permitted, including a 1,150 no. unit scheme (Ref. 25/44222) which is currently being assessed by Cork City Council. When projects under assessment are excluded, the cumulative primary school deficit reduces considerably.

In view of the existing and planned capacity, including the additional zoned education sites, and the projected future decline in student numbers, the potential school place demand generated by the proposed development, both in isolation and on a cumulative basis, would be unlikely to cause any undue pressure on school capacity in the Ballincollig School Planning Area.

	Primary School	Secondary School
School-Age Population in Ballincollig SPA (2022 Census)	3,926	2,709
Potential Demand Generated by Proposed Development	87 – 103	61 – 68
Cumulative Demand from Permitted/Under Construction Projects	231 – 274	154 – 183
Cumulative Demand from Projects Under Assessment	317 – 397	211 – 264
Total Aggregate Future Demand	**4,561 – 4,700**	**3,135 – 3,224**
Existing and Planned Capacity (2025/2026 Enrolments)	4,201	3,344
Surplus / (Deficit) – Existing and Planned Capacity	**(360) – (499)**	**120 – 209**
Additional Capacity from Zoned Education Sites	1,000	1,000
Existing and Planned Capacity incl. additional zoned lands within Maglin UEA	5,201	4,344
Surplus – Including Magline UEA Zoned Sites	**501 – 640**	**1,120 – 1,209**

Table 10. Capacity Assessment

04 //

Conclusions

From the above assessment it has been demonstrated that the Ballincollig SPA is well serviced by the existing and proposed primary and secondary school provision. A number of both such facilities are within accessible walking distance of the site.

The 2022 Census figures indicate a decline in the pre-school age cohort since the 2016 Census. The population pyramid included as Figure 02 shows an aging population in the settlement in line with the trend in the Country as a whole. This view is evident by the reduction in the pre-school age (0-4 years) from 2,243 children in 2016 to 2,194 children in 2022. Although, as Table 06 indicates, there was a slight increase in primary school enrolments between 2023/24 and 2025/26 academic years, this reduced pre-school age population will likely result in a decline in future primary school enrolments. The Department of Education and Youth's projection that primary school enrolment peaked in 2018 and, subsequent to a minor reversal in 2022 due to Ukrainian pupil enrolments, a continuous decline in new enrolments is expected until 2036. Given the decline in the pre-school population evident in the 2022 census in Ballincollig, it is reasonable to expect the primary-school figures will fall as projected.

While there was a slight increase evident in the secondary school enrolment figures between the last 2 academic years, the Department of Education predicts that nationally enrolment in secondary level establishments is set to decrease after a peak in 2024/2025, indicating a lag before the pattern currently exhibited nationally in the primary school enrolments is evident in post-primary schools. It should be noted that Ballincollig as a targeted strategic growth area does not reflect the national trends as closely as other locations. However, given the relatively modest growth exhibited to-date in Ballincollig, the divergence is not significant and has been addressed by the planned school campus in Lisheen which will have an overall capacity to accommodate 1,500 students.

In view of the existing and planned capacity and projected future falls in student numbers, the potential school place demand generated by the proposed development of between 87 and 103 no. primary school places and 58 - 68 no. secondary school places, would be unlikely to cause any undue pressure on the existing and planned school capacity.

While consideration has been given to the 1 bedroom units, to some extent the 111 no. 2 no. bedroom units could also be viewed as generating a reduced demand for school places. As a conservative approach has been taken in this assessment, no reductions have been made on this basis. In general, the wide mix of units sized proposed suggests that a significant demographic of this scheme could be comprised of retirees and single person household units. Based on the above, it is concluded that the proposed development would not result in any negative impact on the capacity of primary and secondary school facilities throughout the Ballincollig SPA.

Appendix A

EIAR Scoping Letter sent to the Department of Education – 29th April 2025.

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The Secretary
Department of Education
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Email: info@education.gov.ie

29 April 2025

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Accreditations
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

Re: EIAR Scoping – Proposed Large-Scale Residential Development (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork.

Dear Sir/Madam,

We act on behalf of Murnane & O'Shea Limited who are preparing an application for a Large-Scale Residential Development (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork. The application will be accompanied by an Environmental Impact Assessment Report (EIAR). Site location maps and a proposed site layout prepared by Deady Gahan Architects accompany this letter. The purpose of this letter is to seek any additional comments the Department of Education may have and that we should have regard to when preparing the EIAR for the project.

01 The Site

The subject lands of circa 11.36 hectares in area are situated in the townland of Carriganarra/Carrigrohane to the southeast of Ballincollig town centre. The lands are currently in agricultural use with a disused farmyard centrally located in the site. The lands are bound to the north by the Limeworth and Heathfield residential developments and undeveloped agricultural lands to the south, east and west.

The lands form part of the South Ballincollig (Maglin) Urban Expansion Area (MUEA) which is a strategic land bank of approximately 220 no. hectares to the south of the town, and north of the N22 identified in the Cork City Development Plan 2022-2028 (CDP). The delivery of the MUEA has been a long-held ambition as a strategic expansion area for the town to accommodate population and housing growth in the settlement, in addition to the delivery of new schools, town centre uses, public open spaces and infrastructural upgrades. The strategic importance of the delivery of the MUEA is reflected in CDP Objective 10.57 'South Ballincollig (Maglin) Expansion Area', which states that it is an objective of the Planning Authority.

> *'To support the compact growth and development of South Ballincollig Expansion Area as a strategic City consolidation and expansion area, as identified in the Core Strategy. All development shall be designed, planned and delivered in a coordinated and phased manner, using a layout and mix of uses that form part of an emerging neighbourhood integrated with the wider area.'*

Heathfield accommodates the initial eastern section of the 'Maglin Urban Expansion Area Sustainable Access Corridor' which includes a signalised junction from the Killumney Road to the north, and which facilitates access to the proposed development lands. The proposed development provides for the next section of the 'Sustainable Access Corridor'.

Most of the subject lands are included within an area zoned as 'ZO 2 New Residential Neighbourhoods' in the CDP, with a portion of the site to the east included within the 'ZO 15 Public Open Space' zoning objective which state respectively.

> ZO 2 - *'To provide for new residential development in tandem with the provision of the necessary social and physical infrastructure.'*
>
> ZO 15 – *'To protect, retain and provide for passive and active recreational uses, open space, green networks, natural areas and amenity facilities.'*

A 'Walkways & Cycleways' development objective is also identified in the CDP along the site's northern boundary, which forms part of historical railway line. The 'Walkways & Cycleways' objective represents a section of greenway outlined in the Cork Cycle Network Plan 2017 and Cork CycleConnects linking Kilumney to the proposed Curraheen Science Park.



Figure 01. CDP Zoning Map

02 Proposed Development

The proposed development consists of the construction of 297 no. residential units containing 140 no. dwelling houses and 153 no. duplex/apartment units and all ancillary site development works. The proposed development includes the provision of an 80-no. child capacity creche the delivery of the next section of the Maglin Urban Expansion Area Sustainable Access Corridor. The proposed development provides the next eastern section of the MUEA Sustainable Access Corridor which will provide primary access to the propsoed development. Ancillary site development works including ground works and retaining structures, foul drainage, stormwater drainage, water supply, electrical substation kiosks, boundary treatments, bicycle and car parking and landscaping. The areas of the site identified within the *'ZO 15 Public Open Space'* zoning objective will be included within public open space/landscaped amenity areas, assisting in site drainage and green infrastructure proposals.

03 Summary

As stated previously, the purpose of this letter is to seek any comments the Department of Education may have that we should have regard to when preparing the EIAR for the project.

I would be grateful if you would forward any comments you may have on the proposed development to me at our office address listed below, or by email – info@hwplanning.ie. For convenience, this letter has been sent via email and hard copy to the addresses identified above.

Please do not hesitate to contact us if you have any queries.

Yours Sincerely



John O'Brien
HW Planning

- Enclosure 1 – Site Location Mapping
- Enclosure 2 – Site Layout Plan prepared by Deady Gahan Architects.

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APPENDIX 13-2 Childcare Needs Assessment – HW Planning

hw planning

Childcare Needs Assessment

Proposed ‘Large Scale Residential Development’ (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork.

Client: MOS Homes Ltd

February 2026

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Connecting places.

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01 //

Introduction

1.1 Purpose of Document

This Childcare Needs Assessment has been prepared by HW Planning on behalf of MOS Homes Ltd to accompany an LRD Application for the development of a Large-Scale Residential Development (LRD) of 300 no. residential units at Carriganarra, Carrigrohane, Ballincollig, Cork.

1.2 Proposed Childcare Facility

As detailed in the accompanying site plan and creche building plans prepared by Deady Gahan Architects, the proposed development provides for a two storey, 100 no. child capacity creche facility with a gross floor area of 687.2 sqm located in the central/eastern area of the subject site.



Figure 01. Site Plan Extract showing location of proposed creche.

In preparation of this Childcare Needs Assessment, HW Planning contacted Cork City Childcare regarding the proposed creche facility required to serve the proposed development. A response was issued by Cork City Childcare on the 22nd of August 2025, which included an assessment of existing

Childcare Services located in the surrounding area. The childcare needs assessment was conducted with information gathered from the Tusla register on the week of 18/08/2025. This information has been used to inform the preparation of this childcare needs assessment, and a copy of same is appended to this report.

02 //

Planning Policy Context

2.1 Childcare Guidelines for Planning Authorities 2001

The 2001 Guidelines provide a framework to guide both local authorities in preparing development plans and assessing applications for planning permission, and developers and childcare providers in formulating development proposals. Appendix 2 of the Guidelines states that.

> *'In new communities/ new housing areas, planning authorities should require the provision of at least one childcare facility for new housing areas and other areas of residential development unless there are significant reasons to the contrary.*
>
> *An indicative standard of one childcare facility per 75 dwellings is recommended. One facility providing a minimum of 20 childcare facilities is considered to be a reasonable starting point.*
>
> *The threshold for provision should be established having had regard to the existing geographical distribution of childcare facilities and the emerging demographic profile of areas.'*

2.2 Circular PL 3/2016

In March 2016, the Government issued a circular in relation to childcare facilities under the early Childhood Care and Education (ECCE) Scheme. In accordance with the stated aspiration to increase access to childcare nationally, the circular requests that local planning authorities:

> *"Expedite all pre-planning application consultation requests from childcare facility providers in relation to proposals to extend opening hours, to increase capacity or to provide new facilities.*
>
> *Expedite, insofar as is possible, consideration of all planning applications or Section 5 declaration submissions in respect of childcare facilities in order to facilitate the expansion of required capacity as appropriate".*

2.3 Universal Design Guidelines 2019

On 10th June 2019, the Minister for Children and Youth Affairs, launched the Universal Design Guidelines for Early Learning and Care Settings. These guidelines are an important step in making all Early Learning and Care services accessible to all children. This publication offers guidance on the refurbishment, renovation and building of centres for Early Learning and Care in Ireland. The guidelines apply to both new-build and retrofit projects and provide a flexible Universal Design framework to ensure that settings are accessible, understandable and easy to use for all children, staff, families and visitors.

- The Universal Design ELC setting comprises four quality features.
- Site Location, Approach, Entry and Site Layout
- Entering and Moving about the ELC setting
- Key Internal and External Spaces
- Elements and Systems

2.4 Design Standards for Apartments, Guidelines for Planning Authorities (2025)

We note section 4.7 of the 2020 Apartment Guidelines which states that:

> *'Notwithstanding the Planning Guidelines for Childcare Facilities (2001), which are subject to review, and which recommend the provision of one child care facility (equivalent to a minimum of 20 child places) for every 75 dwelling units, the threshold for provision of any such facilities in apartment schemes should be established having regard to the scale and unit mix of the proposed development, the existing geographical distribution of childcare facilities and the emerging demographic profile of the area.*
>
> *One-bedroom or studio type units should not generally be considered to contribute to a requirement for any on-site childcare provision and subject to the factors above, this may also apply in part or whole, to units with two or more bedrooms.'*

2.5 Cork City Development Plan 2022-2028

Objective 3.21 of the Cork City Development Plan 2022-2028 (CDP) sets out to support the provision and expansion of high-quality childcare facilities throughout the city. The Council will:

> *'Require purpose-built childcare facilities as part of proposals for new residential developments of more than 75 dwelling units. However, where it can be clearly established that existing facilities are sufficient, alternative arrangements will be considered.*
>
> *Consult with the Cork City Childcare Company and the HSE on planning applications where childcare facilities are proposed.*
>
> *Require employers with more than 500 members of staff to provide childcare facilities as part of planning applications for significant new and extended development.'*

We also note Section 11.163 of the CDP which states.

> *'Purpose-built childcare facilities will generally be required as part of proposals for new residential developments of more than 75 dwelling units. However, where it can be clearly established that existing facilities are sufficient, alternative arrangements will be considered.'*

03 //

Childcare Needs Assessment

3.1 Proposed Development

The proposed scheme will consist of the construction of 300 no. residential units comprising the following house types/accommodation mix.

Table 1. Proposed Accommodation/Unit Mix

No. Bedrooms	Unit Type	No. Units	Sub-total	Percentage
1	Duplex / Apartment	45	45	15%
2	Duplex / Apartment	109	111	37%
2	Semi-Detached	2		
3	Duplex / Apartment	18	102	34%
3	Semi-Detached / Townhouse	84		
4	Detached/semi-detached	42	42	14%
Total		300	300	100%

As illustrated in Table 1 above, 154 no. units are 1 or 2 bed apartment/duplex type apartments. As detailed in the accompanying Statement of Consistency prepared by HW Planning, the proposed housing mix is consistent with all national and local planning policies relating to housing mix in residential developments. It is envisaged that the primary market for the proposed units will be first time buyers, couples, or downsizers seeking to settle in the Cork area.

In accordance with standards outlined in the CDP, National Childcare Guidelines 2001 and the 2025 Apartment Guidelines which states.

> *'One-bedroom or studio type units should not generally be considered to contribute to a requirement for any on-site childcare provision and subject to the factors above, this may also apply in part or whole, to units with two or more bedrooms.'*

Based on this it has been calculated that the proposed development generates a potential need for approximately 53 no. childcare places[1].

For the childcare requirement a figure of 200 no. units was considered appropriate which includes all proposed 2, 3 and 4 bedroom dwelling houses and excludes 50% of the proposed 2 bedroom apartments (55 units) and all 1 bedroom units (45 no. units). As stated previously, the proposed childcare facility of 100 no. children is comfortably in excess of this requirement.

Although not required in accordance with guidance in the National Childcare Guidelines 2001 and the 2025 Apartment Guidelines, should the Planning Authority consider that 100% of the 2-bed apartment/duplex units be factored into the childcare needs assessment of the proposed development (255 no. units in total), this would equate to a potential need for approximately 68 no. childcare places[2]. The proposed 100 no. child creche facility is still well in excess of this requirement.

3.2 Demographic Profile

The demography of the study area, for the purposes of this Childcare Needs Assessment comprises the following Census 2022 EDs - Ballincollig ED (Ref. 4701619) and Ovens ED (Ref. 47127019). The population of the study area in the 2022 Census was 20,854. An overview of the study area is shown in Figure 02.

[1] 200 units / 75 dwellings x 20 childcare places = 53 no. childcare places.
[2] 255 / 75 x 20 childcare places – 68 no. childcare places.

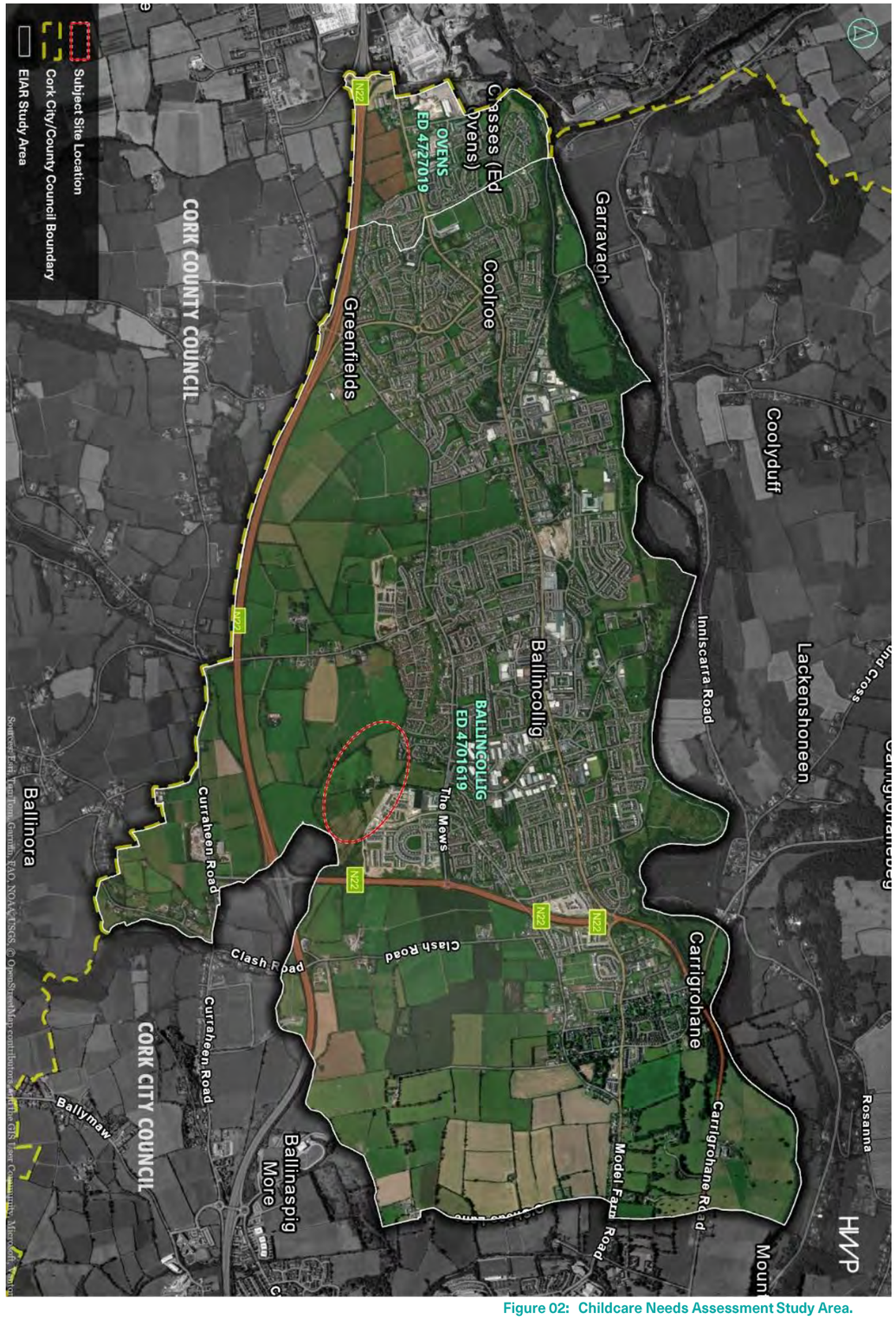


Figure 02: Childcare Needs Assessment Study Area.

As outlined below the study area demographic is generally in line with that of the Cork City and Cork County Council areas reflecting a national trend of an ageing population, where declining birth rates, long life expectancy and low death rates.

Table 2. Census 2022: Population age group within study area, Cork City and Cork County and State

	Study Area	Cork City Council Area	Cork County Council Area	State
0 to 9 years	14%	11%	13%	12%
10 to 19 years	14%	12%	15%	14%
20 to 29 years	10%	16%	9%	12%
30 to 39 years	15%	16%	12%	14%
40 to 49 years	17%	14%	16%	15%
50 to 59 years	12%	12%	13%	13%
60 to 69 years	10%	10%	10%	10%
70 to 79 years	6%	7%	7%	7%
80 + years	2%	4%	4%	4%

However, the population pyramid in Figure 03 demonstrates that, notwithstanding these broad similarities, there are notable differences between the study area population and that of the wider Cork City Council area. The study area has a younger demographic profile, with approximately 5% more of the population aged under 20 years and a further 3% higher representation within the 40–49 year age cohort.

Conversely, the wider Cork City Council area exhibits a higher proportion of younger adults, with a notably greater concentration of residents aged between 20 and 39 years, as well as a higher proportion of older adults aged 70 years and over

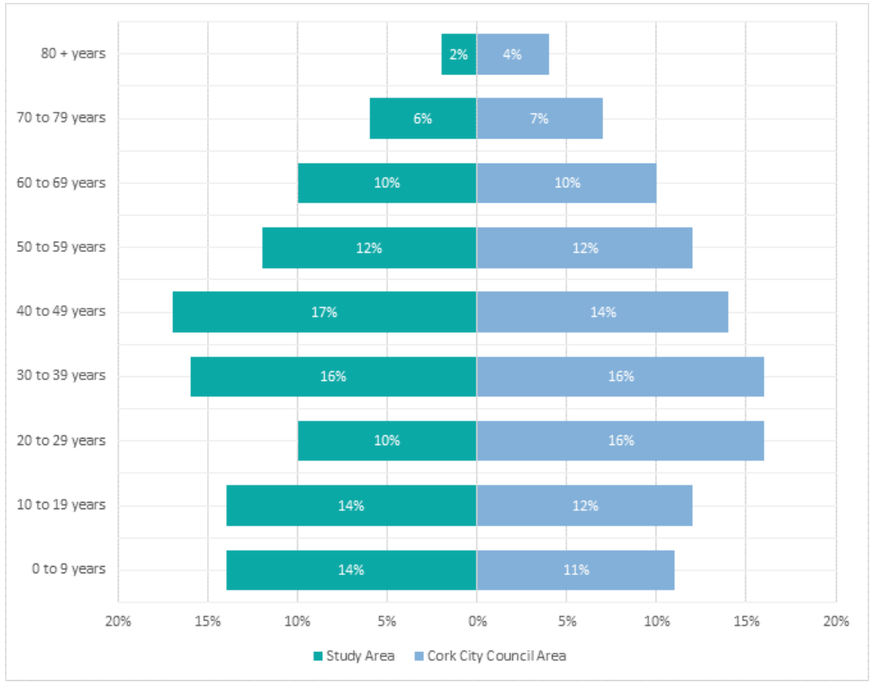


Figure 03 Ballincollig Study Area Versus Cork City Population Pyramid (Census 2022).

3.3 Existing & Future Childcare Services in the Area

In addition to the proposed childcare facility in this application, there are also several other existing and permitted childcare facilities in the study area. The Planning Authority will note that MOS also recently submitted a separate LRD for a project of 544 no. units at Greenfield, Ballicollig. Cork City Council planning reference 25/44048 refers (Greenfield LRD). During consultations with Cork City Childcare in advance of submission of the Greenfield LRD, Cork City Childcare included a list of early year providers in the area. In addition, a review of the Tusla Childcare Register of Early Years Services by County (June 2025) and Tusla Inspection Reports was carried out to ensure the assessment was up-to-date. Based on this information and including a review of recent permissions in the study area it appears there are approximately 1,041 no. available childcare places across 16 no. childcare facilities in the study area.

Typically, attendances at childcare facilities can fluctuate significantly given the time of year with lower attendances likely during summer holidays and school mid-term breaks etc. The Cork City Childcare submission indicates that across their study area only 2 no. of the 1,048 available places at the time were available.

It should be noted that one additional creche has been granted planning permission since 2020 in the study area which is not yet operational:

- Ref. 24/43308 – for a 120 space creche off Maglin Road, Ballincollig. This creche may replace a 40- 50 space creche permitted under application ref 23/42446 (Cork City Council).

The delivery of this permission would increase the childcare spaces within the study area by 120 spaces. A Childcare Needs Assessment prepared by HW Planning accompanies this application (included here as Appendix 13-2). Given the proposed provision of a 100 capacity creche as part of the subject application it concludes that the proposed development will not cause any undue pressure on the existing and planned childcare facilities. This is particularly so in the context of the decline in the pre-school age population cohort within the study area in the last intercensal period.

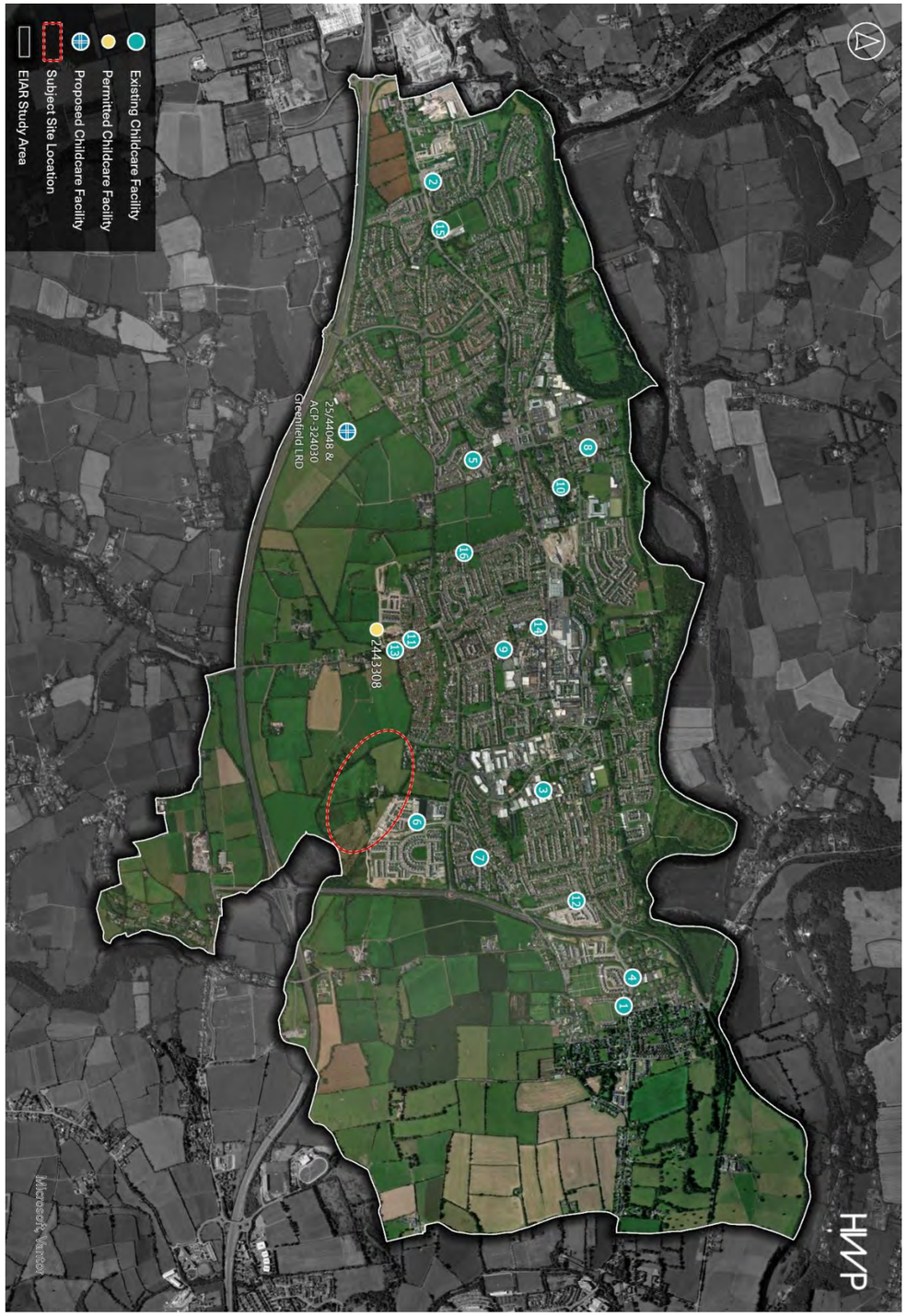


Figure 04 Existing and Permitted Childcare Facilities in the Study Area

Table 3. Existing Childcare Services in the Study Area (based of Cork Childcare Committee Submission Information and Tusla data)

Map Ref	Ref No.	Facility Name	Address	Town	Age	Capacity	Places Available
*1	TU2015CC423	The Willows Montessori	The Willows	Cork	2 - 6 years	22	2
*2	TU2015CC204	Kindercare Childcare	Unit 5	Ovens	0- 6 years	190	0
*2	TU2015CC204	Kindercare Childcare	Unit 5	Ovens	4 - 12 years	22	0
3	TU2015CC295	Naionra na n'Óga - Lighthouse Centre	Unit 3a The Link Road Business Park	Ballincollig	3 - 6 years	12	-
*4	TU2015CC093	Child Vision Pre-School	c/o Guide Dogs	Ballincollig	2 - 6 years	11	0
*5	TU2015CC182	Positive Ideas T/A Highcare Childcare	Caisleaín Drive	Ballincollig	0- 6 years	160	0
*5	TU2015CC182	Positive Ideas T/A Highcare Childcare	Caisleaín Drive	Ballincollig	4-12 years	60	0
6	TU2025CC009	Cocoon Childcare	Heathfield	Ballincollig	0- 6 years	118	0
*7	TU2015CC089	Cheeky Cherubs Early Years Schools - Ballincollig	Highfield Park	Ballincollig	0 - 6 years	108	0
*7	TU2015CC089	Cheeky Cherubs	Highfield Park	Ballincollig	4- 10 years	24	0
*8	TU2015CC188	Innishmore Family Resource Centre	Innishmore	Ballincollig	2 - 6 years	68	0
*9	TU2015CC281	Na Seoda Oga	Ballincollig Community Hall	Ballincollig	2 - 6 years	38	0
*9	TU2015CC281	Na Seoda Oga	Ballincollig Community Hall	Ballincollig	4 - 12 years	25	0
*10	TU2015CC374	Spraoi Pre-school	9 The Paddocks	Ballincollig	2 - 6 years	19	0
11	TU2015CC076	Brothers of Charity Early Intervention Services	2 Glincool Drive	Ballincollig			-
*12	TU2016CC015	Rainbow Rascals Montessori School	22 Hawthorn Ave	Ballincollig	2 - 6 years	11	0
*13	TU2015CC142	Eileen's Playschool	8 Glincool Drive	Ballincollig	2 - 6 years	22	0
*14	TU2015CC033	Ballincollig Early Years Pre-School	The Village Centre	Cork	2 - 6 years	54	0
*15		Sherpa Kids	Gaelscoil an Chaisleáin	Ballincollig	4 - 12 years	48	0
16	TU2015CC271	Ballincollig Montessori School	85 Beech Rd., Muskerry Estate	Ballincollig	2 - 6 years	29	-
Total Spaces						1,041	2

04 //

Conclusion

Having regard to Section 4.7 of the 2025 Apartment Guidelines and Appendix 2 of the Childcare Guidelines for Planning Authorities 2001, it has been established that the proposed development generates a potential need for approximately 53 no. childcare places. The proposed development provides for a 100 no. child creche in excess of this minimum requirement. The proposed creche facility designed by Deady Gahan Architects is in accordance with all relevant policies and objectives of the Cork County Development Plan, Childcare Guidelines for Planning Authorities 2001 and Universal Design Guidelines 2019.

4.1 Suggested Planning Condition

The Council will note that in a recent decision on a proposed LRD at Dunkettle, Glanmire, Cork, the Planning Authority imposed a condition requiring that the crèche be constructed and operational prior to the occupation of any residential dwelling[3]. The applicants appealed this condition to An Coimisiún Pleanála on the grounds that it was unreasonable and would require the applicant to enter into an agreement with a third party whose interests may not align with those of the development. The Planning Inspector agreed in this regard, and ultimately the Commission accepted the Inspector's recommendation to replace the original condition with a revised condition, requiring that the permitted childcare unit be completed to an operational standard prior to the completion of the development.

On this basis, we consider that the following planning condition would represent an appropriate and reasonable approach to ensuring the delivery of the proposed crèche facility, should permission be granted for the proposed development:

No.	Condition	Reason
-	The permitted childcare unit shall be completed to an operational standard prior to the completion of the development.	In the interests of clarity and in order to ensure the satisfactory implementation of the development and in order to ensure the provision of essential community and childcare services.

[3] Cork City Council Reference: 24/43414; An Coimisiún Pleanála Case Reference: LH28.322434. Permission granted by the Commission on the 7th of August 2025 with revised conditions.

05 //

Appendix A – Cork City Childcare Submission

Suite 1, John Dunlop House, Marina Commercial Park, Centre Park Road, Cork, T12 P9PV
Tel: 021 4310500, Email: info@corkcitychildcare.ie

Date: 22/08/2025

RE: EIAR Scoping – Proposed Large Scale Residential Development (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork

To whom it may concern,

Cork City Childcare plays a key role in supporting the development of quality Early Leaning and Care and School Age Childcare services within Cork City. We aim to ensure that Cork City has sufficient capacity to support the growing demand for childcare and support parents to access the free pre-school Early Childhood Care and Education (ECCE) scheme alongside other DCDE (Department of Children, Disability and Equality) related funding initiatives.

This letter is in relation to the proposed development of – Proposed Large Scale Residential Development (LRD) at Carriganarra, Carrigrohane, Ballincollig, Cork.

Cork City Childcare carried out a childcare needs assessment in the surrounding area of the proposed development at Carriganarra, Carrigrohane, Ballincollig, Cork. The accompanying table is a list of Childcare Services located in the surrounding area of this development. The childcare needs assessment was conducted with information gathered from the Tusla register on the week of 18/08/2025. The Childcare Assessment reflects childcare services that are in operation within Carriganarra, Carrigrohane, Ballincollig area. Please note this is a mix of *full day care, sessional preschools, and/or part-time childcare services, combined Early Learning and care/school aged childcare/Standalone School Age Settings.*

Directors: Eibhlín Mhic Pharthalain, Eileen Wedel, Marian Quinn, Johanna Forde
CRO Number: 354923 Charity Number: 20204749

Suite 1, John Dunlop House, Marina Commercial Park, Centre Park Road, Cork, T12 P9PV
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According to the ***Childcare Facilities Guidelines for Planning Authorities, 2001,*** a standard of one childcare facility providing for a minimum 20 childcare places per approximately 75 dwellings is a guideline provided. In terms of this development, with 244 dwellings proposed (omitting 63 one bedroom dwellings) , that would average **approximately 65 childcare spaces at a minimum.**

Given the limited availability of childcare options in the surrounding area, there is a clear need to consider the development of a large, full-day childcare facility. This facility should offer a diverse range of service types, including sessional, part-time, full-day, drop-in, and after-school care, to effectively meet the varying needs of families in the community. It is important to highlight that Ballincollig has experienced significant growth and development in recent years, particularly in relation to new housing. However, the provision of childcare services has not kept pace with this expansion. The site under consideration is located adjacent to another proposed residential development, with several additional projects in the immediate vicinity. There is a particular shortage of childcare places for children aged 0–3 years, which presents a significant barrier for many parents attempting to return to work after parental leave. Securing a childcare place for this age group is increasingly difficult, and the lack of availability places considerable stress on families. It is therefore imperative that a large full-day care facility, catering to all age groups—including infants and toddlers—is incorporated into this proposed development. We strongly support and welcome the proposal to construct a two-story, 100-space childcare facility within this LRD. This area is in genuine need of such a service, and the proposed development would provide a much-needed resource for local families.

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We are also in a position to assist by directing childcare service providers who are actively seeking to expand their operations toward the planners of this development. This could facilitate the timely inclusion of a suitable childcare facility within the project, ensuring that the needs of the growing community are proactively addressed.

It is clear from the capacity assessment below undertaken by Cork City Childcare that there are minimal places available in the area. There are 10 childcare services offering preschool only sessions, operating on only a 15-hour week basis. In most cases additional childcare provision, alongside this three hour per day, is required to meet the needs of working families and parents engaged in training and education.

Within the area of the proposed development there are only five full day care settings. Only four of these settings is currently providing care for children under the age of two years. There is three Part-time childcare facilities, along with five School Age Childcare facility/facilities. Many of the childcare services listed below operate an internal waitlist, to meet the needs of families already within the service, that often **comprises of a two year wait.** Please note this is not inclusive of the external waitlist available to additional children and families in the area. The demand for baby places is at an all-time high.

The Annual Early Years Sector Profile Survey 2023/2024 states that There are only 17 available services for up to 1-year olds across Cork City, yet 371 babies are on waitlists. You can find more information here: https://www.pobal.ie/childcare/capacity/

Everchanging dynamics in how young families are now living has also added to the already existing childcare demand associated with the area.

According to *Census of Population 2022 Profile 3 - Households, Families and Childcare* National

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- Almost one-third (331,783) of children under the age of 15 in the State were in some form of childcare.
- A crèche or a similar facility was the most common form of childcare (42%), followed by an unpaid relative or family member (28%).
- A crèche was the most common type of childcare used among 0- to 4-year-olds. Over half (56%) used this childcare option and a further 19% used an unpaid relative or family member.
- Primary school children were most likely to be in some type of childcare (52%).

Cork City

- There were 146,235 families in Cork in April 2022, up from 138,895 (+5%) in 2016. The average number of children per family in the county was 1.32, compared with 1.34 nationally.
- There were 113,667 children aged 15 and under in Cork in April 2022. Of these, 38,604 (34%) were in childcare, compared with 33% nationally.

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Thank you for the opportunity to submit this proposal and contribute to the development of much-needed childcare services in Cork City. I am enthusiastic about the potential positive impact this facility could have on the community and its families. Please feel free to reach out if you require any further details, clarification, or additional support as you move forward with the planning and implementation of this Childcare Facility. I would be more than happy to assist in any way I can to ensure the successful development and operation of this important project.

Kind regards,

Leanne Twomey

Development Officer

Cork City Childcare Committee

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ELC Childcare Services					
Name	**Address**	**Service Type**	**Age Range**	**Capacity**	**Vacancies**
Rainbow Rascals Montessori School	22 Hawthorn Ave, Inniscarra View, Ballincollig, Co. Cork	Sessional	2-6 yrs	11	0
Cheeky Cherubs Early Years Schools – Bishopstown	19 Uam Var Avenue, Bishopstown, Cork City, Co. Cork	Full Day/ Part Time/ Sessional	2-6 yrs	40	0
Cheeky Cherubs Early Years - Ballincollig	Highfield Park Carriganarra, Ballincollig, Co. Cork	Full Day/ Part Time/ Sessional	0-6 yrs	108	0
Child Vision Pre-school	c/o Guide Dogs HQ, Model Farm Road, Ballincollig, Co. Cork	Sessional	2-6 yrs	11	0
The Willows Montessori	The Willows, Model Farm Road, Co. Cork	Sessional	2-6 yrs	22	2

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Kindercare Childcare	Unit 4,5,8,9,10, Classes Lake Retail Centre, Classes Lake, Ovens, Cork	Full Day/ Part Time/ Sessional	0-6 yrs	190	0
Positive Ideas T/A Highcare Childcare	Caisleán Drive, Ballincollig, Co. Cork	Full Day	0-6 yrs	160	0
Eileens Playschool	8 Glincool Drive, Maglin, Ballincollig, Co. Cork	Sessional	2-6 yrs	22	0
Spraoi Pre-school	9 The Paddocks, West Village, Ballincollig, Co. Cork	Sessional	2-6 yrs	19	0
Innishmore Family Resource Centre	Innishmore, Ballincollig, Co. Cork	Sessional	2-6 yrs	68	0
Na Seoda Oga	Community Centre, Station Road, Ballincollig, Co. Cork	Sessional	2-6 yrs	38	0
Ballincollig Early Years Pre school	The Village Centre, Station Road, Ballincollig, Cork, Co. Cork	Sessional	2-6 yrs	54	0
Montessori An Spiorad Naomh	Scoil an Spiorad Naomh Currraheen Road, Cork	Sessional	2-6 years	22	0

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First Steps	Bridgefield, Curraheen Road Bishopstown, Co. Cork	Full Day	0-6 years	71	0
Horizons Montessori	Curraheen Road Brigown, Curraheen Road, Bishopstown, Cork	Sessional	2-6 years	33	0

School Aged Childcare Services					
Name	**Address**	**Service Type**	**Age Range**	**Capacity**	**Vacancies**
Sherpa Kids Gaelscoil an Chaisleáin	Tanner Park , Coolroe, Ballincollig, Co. Cork	Stand Alone	4-12 yrs	48	0
Cheeky Cherubs	Highfield Park, Carriganarra, Ballincollig, Co. Cork	Combined	4-10 yrs	24	0
Kindercare Childcare	Unit 8, 9 & 10, Classes Lake Retail Park, Ballincollig, Co. Cork	Combined	4-12 yrs	22	0

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Na Seoda Oga	Ballincollig Community Hall, Station Road, Ballincollig, Co. Cork	Combined	4-12 yrs	25	0
Positive Ideas T/A Highcare Childcare	Caisleán Drive, Ballincollig, Co. Cork	Combined	4-12 yrs	60	0

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Accreditations
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018