

CHAPTER EIGHT CULTURAL HERITAGE - ARCHAEOLOGY

8.1 INTRODUCTION

This chapter was prepared to identify and determine impacts on the Masterplan site (MS) on recorded archaeology and archaeological potential within the scope of the site, as well as that from outlying archaeology and archaeological potential, which could impact the site. This informed the methodology of impact assessment.

The proposed application site (Phase II) is part of a phased development proposal for a significant city centre, regeneration area or Masterplan Site (MS). This MS is divided into four different phases of delivery as detailed in Section 1.6.3 in Chapter 1.0 Introduction. The overall MS layout which illustrates the indicative layout of the subject site and adjoining lands in the ownership of the applicant as displayed in Chapter 1.0, Figure 1.4 and full details of the proposed development phases are provided in Chapter 2.0, Section 2.2.4. This assessment takes a holistic approach and examines the MS whilst focusing on any areas of significance within the proposed application site (Phase II) and the likely impacts arising from the development proposal.

8.2 ASSESSMENT METHODOLOGY

The proposed application site (Phase II) is part of a phased development proposal for a significant city centre, regeneration area or Masterplan Site (MS). This MS is divided into four different phases of delivery as detailed in Section 1.6.3 in Chapter 1.0 Introduction. The overall MS layout which illustrates the indicative layout of the subject site and adjoining lands in the ownership of the applicant is displayed in Chapter 1.0, Figure 1.4 and full details of the proposed development phases are provided in Chapter 2.0, Section 2.2.4. The assessment takes a holistic approach and examines the wider MS area whilst focusing on any areas of significance within the proposed application site and the likely impacts arising from the development proposal. In addition to an in-depth assessment of the Proposed Development, this assessment takes a holistic approach and examines the wider MS area, taking into account the proposed future phases of development based on the available information.

The methodology of the archaeological impact assessment was informed by regulations and guidelines laid out in Chapter 1, Section 1.2.1.

These included:

- *Advice Notes on Current Practice* (EPA 2003)
- Cleaves Riverside Quarter, Limerick, Ireland: Ground Penetrating Radar Survey Report. Wessex Archaeology. Howard 2022.
- *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA 2022).
- *Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment* (2018).
- *Guidelines for Planning Authorities and An Bord Pleanála on Carrying Out Environmental Impact Assessment, DoECLG* (2013).

- *Environmental Impact Assessment (EIA), Guidance for Consent Authorities Regarding Sub-Threshold Development, DoELGH (2003).*
- *Limerick Development Plan 2022-2028 (2022).*

The assessment was divided into two main components: the collation of baseline data (comprising desk and field-based surveys) and the analysis of this data to determine any likely impacts. Online databases were accessed on 26th and 28th February 2025. The source material consists of:

- Cartographic evidence: *The Down Survey of Ireland, First-edition six-inch and 25-inch OS maps* via the Ordnance Survey Ireland.
- Aerial and satellite imagery: *OSI 1995 aerial photographs; OSI 2001-2005 aerial photographs, OSI 2006-2012 satellite imagery, 2013-2018 satellite imagery*, via Geohive and Historic Environment Viewer.
- Previous archaeological investigations: *Database of Irish Excavations* via *Excavations Bulletins*.
- Archaeological objects: *National Museum of Ireland's (NMI) Topographical Files* via Heritage Maps.
- Archaeological databases: *Records of Monuments and Places - Statutory list of protected places and monuments, with accompanying constraints maps, published for County Limerick*.
- Built Heritage: *Limerick Record of Protected Structures, Limerick Architectural Conservation Areas, National Inventory of Architectural Heritage*.
- Other primary sources: Publications pertaining to the archaeological and built heritage of Limerick, listed in Section 8.11 References
- Secondary sources: Reports and publications relevant to the scope of the development and Limerick Twenty Thirty Strategic Development, that cite primary sources not accessible at the time of conducting the archaeological impact assessment, listed in Section 8.11 References.

The field survey involved accessing the MS and compiling a photographic record. The visual inspection entailed identifying and assessing any archaeological anomalies within the scope of the site that could impact upon the development as well as any apparent anomalies outside the site that could extend into the curtilage of the site. The inspection utilised DJI mini 2 and DJI mini 3 pro drones (under Licence No. IRL-RP-000009551GBA, issued by the Irish Aviation Authority) to gain immediate aerial perspective to assist this undertaking. Archaeologist, Dr. Niall Gregory, undertook the survey on 10th January 2025. It involved visually inspecting all surfaces within the MS, external to buildings on the Site, to determine the potential for visible archaeological site or surface anomaly indicators. As the survey comprised assessment phase of the MS, no intrusive work occurred, such as ground penetrating radar or archaeological test excavation, which would otherwise require application for archaeological licences.

Chapter 1.0 describes and classifies the impacts of development in environmental impact assessment reports. Archaeological impact assessments ascertain the nature and extent of impacts of proposed developments upon any extant or recorded archaeological and cultural heritage considerations. Archaeological impact assessments employ constraints that relate to:

- Surface remains associated with a recorded monument.
- Possible associated below ground remains that could indicate archaeology.
- Unknown extent of a recorded monument.
- Potential to reveal archaeological sites given the type of surrounding terrain and/or buildings.

- Possible sites may prove to be natural or non-archaeological when further investigated.

Impacts are categorised as either:

- Direct Impact – where an archaeological feature or site is physically located within the footprint of the proposed development and entails the removal of part, or all of the monument, feature or structure.
- Indirect Impact – where a feature or site of archaeological or built heritage merit or its setting is located in close proximity to the footprint of a proposed development.
- No predicted Impact – where the potential development does not adversely or positively affect an archaeological heritage site.

The level of impact can be:

- Profound
- Significant
- Moderate
- Slight
- Imperceptible
- None

and can be either

- positive or negative.

However, for consistency throughout the environmental impact assessment report the methodology defined in Chapter 1.0 is applied. As it is considered that archaeology is a non-renewable resource due to its nature and the irreplaceable information it holds about the past, once disturbed or destroyed, the archaeological record, including artefacts and the context in which it is found, cannot be recreated. As such this EIAR methodology focuses its application towards archaeological considerations and archaeological mitigation is thus included.

The results of both the desk-based assessment and the findings of the field survey were collated to inform the archaeological impact assessment, in which any identified impacting archaeology was assessed under the above criteria. This provided the *Likelihood of Significant Effects* (level of impacts) and was collated with *Cumulative Development & Impacts* to provide *Remedial & Mitigation Measures*.

In terms of future development, the Shipyard, which is not within the scope of the current development, it will receive some limited ancillary works. Its use as a construction compound, EV charging point, and boundary aspects of drainage works will entail some ground incursions as part of the proposed development. These will require archaeological investigation, such as construction phase archaeological monitoring. The Shipyard was accordingly assessed for archaeological potentials.

8.3 EXISTING RECEIVING ENVIRONMENT

8.3.1 General Receiving Environment

The site of development takes in the Cleaves former industrial site, the Salesians Convent and Secondary School, and St. Michael's Rowing Club. It is traversed by the public thoroughfares of North Circular Road and O'Callaghan Strand. It is bound by Condell Road to the south, R464 / Shelbourne

Road Lower to the west (with intervening Salesian Primary School and curtilage), River Shannon to the southeast, Stonetown Terrace to the northeast, and Clanmaurice Avenue to the north (with intervening residential row and curtilage).

Topographically, the receiving environment gently rises from the low-lying Shannon Banks and flood zone to the west of the site, to east and north as it approaches the bounds of Limerick City. Within the scope of the site, the gradient changes to rise from the river at O'Callaghan Strand to northwest and north towards Shelbourne Road Lower and Ennis Road, and beyond. Clanmaurice Terrace describes a level terraced aspect within this gradient, which then falls to meet the river along Strandville Gardens and Stonetown Terrace.



Figure 8.1: Site location (after Google Maps, 2025)

The site rises from its lowest elevation at 3m ordnance datum in its southeastern quadrant at St. Michael's Rowing Club and O'Callaghan Strand to 7m midway along its North Circular Road aspect north-eastwards to the northwest end of Stonetown Terrace (8m), and 11 to 12m ordnance datum at the Salesian Secondary School. The most pronounced natural incline is evident on the northern approach from North Circular Road to the Salesian school buildings. The quarry face internal to the site gives a very dramatic, artificial stepped element to this topography.

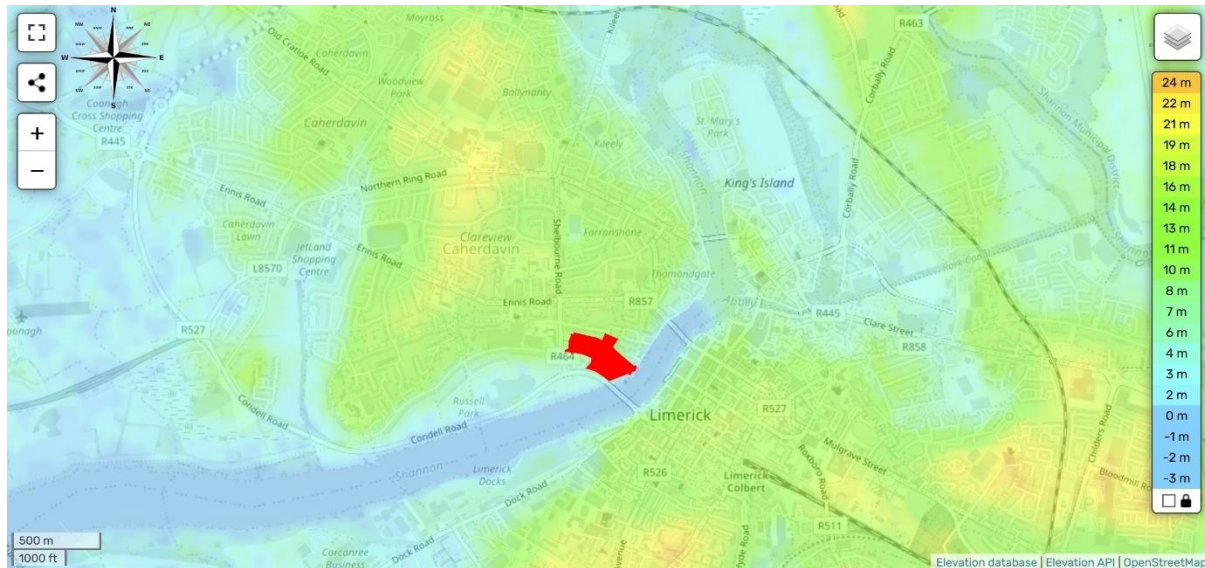


Figure 8.2: Site in relation to the topographical profile of the receiving environment (after County Limerick topographic map, elevation, terrain)

The receiving environment is most notably framed by the River Shannon, which flows past the site to its southeast. The meandering nature of the Shannon as it approaches Limerick City from the north and curves to the south-southeast, to south and southwest to pass the site and then to west-southwest as it leaves the city, frames and defines the broader low-lying peninsula aspect upon which the Cleeves site is situated.

8.3.1.1 Limitations of the Assessment

The built environment of the MS including its receiving environment with its mosaic of streetscapes, buildings and intervening hard surfaces, inhibited recognition and identification of potential archaeology. As a consequence, visual assessment was confined to above surface identification within the built environment. This was supplemented with historic documentary and cartographic sources (Section 8.3.2) and preceding gradiometer survey within the MS (Section 8.3.2.2.2).

The gradiometer survey assessed accessible areas and did not extend to the full site of development. The landfill at Stonehouse Terrace requires significant removal of its soil to assess its archaeological potential. The Victorian Terrace and Salesians School are in an elevated position relative to the overall development and may thus have received the least ground impacts from previous development. Consequently, these locations could retain greater archaeological potential.



Figure 8.3: Site detail in relation to the topographical profile of the receiving environment (after County Limerick topographic map, elevation, terrain)

8.3.2 Archaeological & Historical Background

Hodkinson (2009: 17-40) notes that 'Limerick city is a Viking foundation. Norsemen were raiding on the Shannon from the ninth century, but their permanent settlement on Kings Island is usually accepted to be of early tenth century date...A tradition exists that St. Munchin's church was founded in the fifth century and that it became the cathedral of the Vikings. The church, however, lies outside the core of the original settlement in what was to become the northern suburb, so clearly the city was not founded around it. It was Bishop Gille of Limerick who ensured that St. Mary's in the city was specified as the cathedral church ...in 1111 and he is unlikely to have done that if there was an older and more venerable site available.

The original core of the city is the parish of St. Mary's, roughly the area from near Baals' Bridge to Newgate Lane, the road leading down to the back entrance of City Hall. The young city looked to the Shannon as its focus, so initial development was along the riverbank with a thoroughfare developing to the rear of the waterfront properties. This street was not the present-day backbone of the Medieval city, Mary Street and Nicholas Street, but lay closer to the river. It survives today as Crosby Lane and Little Creagh Lane... "From its foundation the city was probably enclosed with a rampart while the open area to the north, where the castle now stands, was used as the Viking thingplass or meeting place. Over time this...became built up and was eventually enclosed as the northern suburb. Several sunken-featured buildings, excavated inside the castle, show that this urbanisation had commenced by the mid-twelfth century and excavation also showed that a ringwork castle was there at the time of the first Anglo-Norman intrusion into the city by the mid 1170s. The available written sources for this period suggest that there were two distinct areas of the town, a fort and a market place...the buildings uncovered in the castle could well be trading booths rather than dwellings, which in turn could explain why none of the buildings had hearths...

'The take-over of the city by the Dál gCais, ancestors of the O'Briens, in the late-tenth century...[meant] the city...[became] a royal centre...[with] the palace...deliberately sited on or very close to [the Viking thingplass]...in order to demonstrate the transfer of authority to the Irish. The Anglo-Normans in the

1170s sited their ringwork on the same site for the exact same reason, and the same process was repeated some 20 years later with the construction of the masonry castle.'

'The Anglo-Normans transformed Limerick. On their first incursion in the 1170s they constructed, in addition to the ringwork castle, the first Baal's Bridge, which they destroyed after their retreat. The major change...came when they took a permanent hold of the town from the late 1190s onwards. The construction of King John's Castle blocked the old routeway out of town to the north and so forced the Nicholas St-Mary Street axis into prominence as the main street of the high medieval city. It links the rebuilt Baal's Bridge to the new Thomond Bridge by swinging around the castle. St. Nicholas' and St. Munchin's churches, presumably within their parishes, are known...by 1201.'

'When the northern suburb was enclosed is not...clear. The only direct evidence...is ...the stone wall abuts the south-west angle tower of King John's Castle and thus post dates it. On the eastern side of the town, the wall does not continue on what would have appear to be the obvious line along Bishop Street and Dominick Street to Island Gate. Instead the chosen line curves away from the Island Gate to runs parallel to the east of the obvious line and wraps around the outside of the northern end of the original core of St. Mary's parish. This additional enclosed area contained the two monastic precincts of St. Peter's Cell and the Dominican Friary, the former founded by Donal Carbreach O'Brien in 1227. There was a murgage grant to the city in 1237 and another in the reign of Edward II in 1311... The 1311 grant was specifically to enclose the suburb in stone....The wall across the northern end of the original core area of St. Mary's was not thrown down when the suburb was enclosed but was maintained as an internal wall within the city, with a new gate, called Newgate, set into the wall on the high street. This internal wall existed until at least the mid-seventeenth century...'

'...the city of Limerick was not confined to the walled area, but included both the North and South Liberties, which extended on either side of the Shannon. The walling of the southern suburb did not begin in earnest until the fifteenth century though it may have replaced an earlier earthen rampart. Initially the only fortification on the south side of the river would have been a barbican around the end of Baal's Bridge.'

Irishtown 'lay out side the twelfth-century city and on the opposite bank of the Abbey River...there is good reason to suppose it was densely populated by the early part of the thirteenth century. Given that parish formation took place well before the walling of Irishtown, the parish of St. John's is surprisingly compact...In some ways the Irishtown appears to have functioned as a garden suburb. From the evidence of early maps onwards, it seems to be open space, with housing concentrated long the Y-shaped main thoroughfare. It only started to become built up in the nineteenth century...'

'Initially there were no harbour facilities in the city. Viking boats...could easily be run up a beach and unload. By the eleventh century larger ships with deeper draughts began to appear...the development of the cog and later the hulk, both necessitated the provision of docking facilities. There have been no excavations in the harbour area of Limerick so we have no direct evidence as to the form of these facilities...The enclosed harbour that is...[on] maps from the seventeenth century onwards dates from the medieval period. Ferrar tells us that the long Quay wall on the line of the present Potato Market was built in 1497. '

'Two other pieces of infrastructure were of importance to the city; the King's Mills and Laxweir...about half of the mill building still exists within the grounds of the City Hall, where two stubs of walls can be

seen projecting out into the river. From the opposite bank it is possible to see a recess between the two walls which housed the axle for the vertical wheel. It stood in the river and was connected to the city by a bridge leading to a narrow door in the city wall under the present Council chamber...By the end of the medieval period there were two other mills, one either side of the Abbey River, both shown on the Limerick map of c.1590...The Laxweir lies in Corbally where today there are the remains of the stone-built weir and also the small castle or watch-tower, Cashlaun na Corran, standing on a small island in the river....' (Hodkinson, 2009: 17-23)

The Records of Monuments and Places classify Limerick (LI005-017) as an Historic Town. It states 'The historic city of Limerick was described in the Urban Survey (Bradley et. al. 1989, 241-67) as following; 'The city of Limerick is situated on the river Shannon in the north-east corner of County Limerick. The placename is derived from Luimneach "bare or barren land", a name which originally appears to have been applied to part of the Shannon estuary rather than just the immediate site of the city itself. The handful of prehistoric finds from the city indicates only that the site of the future settlement was occasionally frequented by man in early times. The fact that there are not more is surprising because the presence of the Curragour Falls must have given Limerick a topographical significance even in prehistoric times. There are many artefacts in the collections of the National Museum and elsewhere which were found in the river Shannon "near Limerick" but only two stone axeheads and two bronze dirks can be pinned down to the actual vicinity of the old would seem to have been an into early historic times.

The Hiberno-Scandinavian Town. The first evidence for the presence of Scandinavians occurs in 845 (AFM: 843) when Viking fleets appeared on the Shannon estuary and launched raids into county Limerick. It is unlikely that they settled, however, but there are a few scattered references which may indicate that a base existed at or near Limerick for a short time in the later ninth century. An eleventh century saga states that the Vikings Hona and Tomrir Torra were at Limerick with an army in 860 (Radner 1978, 109); a Viking fleet is known to have raided along the Shannon from Limerick in 866; and the Chronicon Scottorum states that the "foreigners of Limerick" were slaughtered by the Connachtmen in 887. It is hard to know if these three references add up to a permanent settlement at late ninth century Limerick or not but they certainly show that there was Scandinavian activity in the area at this time.

The present city was founded in 922 by the Norse king Tamar mac Ailche (?Thormodr Helgason), "king of an immense fleet" who landed on Inis Sibtond (King's Island) and established a longphort there. The site afforded considerable natural advantages. Being an island it was easy to defend, there was immediate access to the open sea along the Shannon estuary and thereby to the lucrative Atlantic trade routes of Europe. The shallows at Curragour Falls formed a natural barrier restricting the flow of river traffic and the situation also afforded an entry into the rich heart of central Ireland along the Shannon basin. Tamar, indeed, lost no time in making his presence felt. His fleet proceeded to devastate the monasteries which could be reached from the Shannon: Terryglass, Lorrha, Clonfert and Clonmacnoise among others (Smyth 1979, 21). At Inis Cealtra, on Lough Derg, the raid was so fierce that two centuries later it was remembered that "they drowned its shrines, relics and its books" (Todd 1867, 38-9). They proceeded into Lough Ree and from there started to raid into Meath and Connacht, all the while presumably sending back the loot of plunder and slaves to the newly founded settlement at Limerick for auction and sale.

The history of Scandinavian Limerick can in fact be divided into four phases: (1) the period of foundation, 922-37; (2) the period of Dublin domination, 937-67; (3) period of Ua Briain domination 967-c.1065; and (4) the period as Ua Briain capital c.1065-c.1195. These periods can only be briefly glanced at here. The period of foundation, 922-37, witnessed Limerick emerge as an independent Scandinavian settlement struggling to maintain its independence from the kings of Dublin. The events of these years, which witnessed raids by the Limerick Vikings all over central, western and northern Ireland are particularly well recorded in the annals. In 923 they captured Flaithbertach mac Inmainen, the retired king of Munster, from his island retreat at Loch Cré and brought him back to Limerick for ransom. In 924 they again placed a fleet on Lough Ree, this time under the command of Colla mac Bairid (Kolli Baardarson), described in the annals as king of Limerick (AFM: 922; CS: 923). In 924 the Dublin Vikings, worried that the growing number of Limerick raids in central Ireland would diminish their power, sent an army to subdue their Limerick kinsmen but they were defeated and had to retreat back to Dublin (AU). This victory seems to have encouraged the ambitions of Limerick's leaders.

In 928 Tamar mac Ailche put his fleet on Lough Neagh and burnt the islands of that lake (AU: 927). In 929 Limerick vessels are recorded on Lough Corrib and they remained there until the following year (AU: 928; AFM: 927; CS: 930). In 930 a Limerick army encamped in central Ossory, establishing their base at Loch Beathrach, an unidentified lake which appears to have been either on the Nore or its tributary the King's River (Smyth 1979, 25) and was only driven out by the appearance of Gothfrith, king of Dublin, with a rival army in the following year (AFM sa 929; AU sa 929). The year 931 saw a Limerick fleet on Lough Ree (AU: 931; AFM: 929; CS: 930) and the activities of the Limerick Vikings in Connacht and central Ireland between 931 and 937 has led to the suggestion that they must have established a base in Lough Ree (Smyth 1979, 250-1). Indeed Smyth (ibid) has speculated that the famous Hare Island (Co. Westmeath) hoard, the largest known gold find from Viking-age Europe, formed part of the treasure of the Limerick armies.

In 933 a new leader, Olafr Cenncairech ("scabby-head") lead them into Roscommon (AFM:932) and returned there again the following year (CS: 933). In 936 he transported his ships overland from the Shannon to the Erne and raided down into the present-day county of Cavan (AFM: 934; CS: 935; A. Clon., 149). He returned back to Lough Ree on Christmas night of 936 and he remained there for seven months plundering and looting the plains of Connacht (AFM: 934). In August 937 the long-awaited confrontation between the Dublin and Limerick Vikings occurred. Olafr Gothfrithson, king of Dublin, led his army to Lough Ree where he defeated the Limerick vikings, broke up their ships and carried Olafr Cenncairech back to Dublin as his prisoner (AFM: 935; CS: 935; A. Clon. 931).

That the defeat of Olafr Cenncairech marks a stage in Limerick's history is clear from the absence of references to it the succeeding years. Indeed, from what little evidence there is, it appears that the king of Dublin now imposed a member of his own family, Haraldr Sigtryggson (d. 940), king of Limerick (Smyth 1979, 35). The settlers now seem to have become more closely integrated into the local political scene. In 953 Limerick vikings assisted the king of Munster, Cellacháin Caisil, in plundering Clonmacnoise (AFM 951; AU 952). This integration was to reach a head in 967 (AU 966) with the capture of the town by Mathgamain mac Cennetig, who had seized the kingship of Cashel in 963. The *Coqadh Gaedhel re Gallaibh*, written some two hundred years later states that "the fort and good town (deabali) was burned and reduced ashes" (Todd 1867, 80-1). The booty obtained at the time had all the appearance of oriental origin as Smyth (1977, 165-6) has remarked: "they carried off their jewels and their best property, and their saddles beautiful and foreign; their gold and silver, their beautiful

woven cloth of all colours and kinds; their satins and silken cloth, pleasing and variegated, both scarlet and green" (Todd 1867, 78-9). The captives "soft, youthful, bright, matchless girls ..blooming, silk-clad young women, large, active and well-formed boys" were rounded up on the hills of Saingel and "every one that was fit for war was killed and every one of them that was fit for a slave was enslaved" (ibid., 78-81).

The capture of Limerick in 967 marks the beginning of a period of Ua Briain domination that was to last until the coming of the Anglo-Normans. Within this period, however, there is a noticeable break which occurs during the reign of Toirrdelbach ua Briain, king of Munster (1063-86) when makes Limerick his capital (Ó Corráin 1972, 142). This development is all the more noticeable during the reign of his successor Muirchertach Ua Briain (1086-1116) who also spent part of his career as governor of another city, Dublin (Candon 1988). Muirchertach developed extensive overseas contacts and Limerick would appear to have been a busy centre during his reign. It was at this time also that the town obtained its first bishop and established itself as an episcopal see. Gilbert, Limerick's first bishop, was consecrated in 1107 and, as papal legate, he presided over the Synod of Rathbresaill in 1111 at which St Mary's was recognised as the diocesan cathedral of Limerick, much to the distress of Mungret nearby. Gilbert's successor, Patrick, was consecrated at Canterbury a fact which also emphasises Limerick's connections with Britain (Gwynn and Hadcock 1970, 90). The full extent of Limerick's connections with Britain and the Continent in the pre-Norman period can only be guessed at in the absence of archaeological excavation. It is mentioned (once) in the Icelandic sagas (in *Landnamabók*) *Hlymrek* and it is to be assumed that it traded with Scandinavia itself. It has been suggested that the Viking finds in west Kerry, such as the runestone and steatite bowl from Beginish Is. and the placename *Smerwick*, that there was a staging post in this area of Kerry on the route between Limerick and the continent. The exotic description in the *Coqadh Gaedhel* for the sack of 967 certainly indicates that rich commodities were being imported into the town. The *Caithréim Cellacháin Caisil*, another twelfth century pseudo-history, mentions that Morann, son of the king of Lewis, fought with the Limerick vikings (Bugge 1905, 65) suggesting contacts with the Hebrides and Western Isles. The *Caithréim Cellacháin Caisil* also sheds a little light on the appearance of the Hiberno-Scandinavian town and describes it as a fortified stronghold having gates (*doirrsi*), houses (*tighibh*) and towers (*toraih*) (Bugge, 1905, pp. 9, 66). The *Cogadh Gaedhel* speaks in similar terms when describing the sack of 967 but it adds the additional piece of information that there were streets and a fort, presumably the royal stronghold (Todd 1867, 79). Neither description sheds light on the appearance of the tenth century settlement, of course, but they do support a picture of Limerick in the twelfth century as a fortified town which had gates and towers on its walls, with streets inside the defences along which houses were probably regularly arranged in the manner which has been evidenced by excavations at Dublin, Wexford and Waterford; in addition there was St Mary's Cathedral and a royal fortress which was probably separated from the town and set within its own defences. From the account of Domhnall Mor Ua Briain's take-over of Limerick in 1176 it is also clear that there was a bridge, probably on the site of Baal's Bridge (Scott and Martin 1978, 167).

Reconciling this picture of the settlement, however, with the remains on the ground poses many problems. The documentary sources are simply not exact enough to provide the sort of detailed information about the size of the town, the course of its defences, the alignment of its streets, and the location of its houses that the archaeologist requires. Some help can be obtained from grants and inquisitions which were made in the years immediately following the Anglo-Norman occupation of the town (c.1195) and which survive, for the most part, in the *Black Book of Limerick* (MacCaffrey 1907).

These make it clear that apart from St Mary's, there were a number of other churches already within the town: St. Munchin's, St. Nicholas', and probably the Augustinian nunnery of St. Peter ("St. Peter's Cell") on King's Island, St. John's in what was later to become Irishtown, and St. Michael's in the estuarine mud just outside Irishtown, St. Laurence's on the west bank, and the unlocated churches of St. (?St Mark's) and St Brigid. From the distribution of these churches it is clear that settlement concentrated on King's Island but the description of St. John's Church as "within the city of Limerick" as early as 1204-6 suggests that settlement may have also spread to Irishtown in Hiberno-Scandinavian times. From this one may conclude that the axis formed by Nicholas Street and Mary Street was the principal thoroughfare of the pre-Norman town. The outline of the defences is more difficult to determine but the line formed by Dominic St - Bishop St Sheep St seems a likely boundary on the east. Giraldus Cambrensis tells us that the walls were bounded by the river (*ab Urbis muralibus que ripe imminebant*) but whether this coincided with the known line of the walls along the Shannon in the later middle ages or not is unclear (Scott and Martin 1978, 150). It is quite possible, on analogy with the evidence excavated at Waterford, that the defences of the Hiberno-Scandinavian town lay inside the line of the walls of the Anglo-Norman town. The pre-Norman walls, however, do not appear to have risen directly from the water all round the town. From Giraldus' account of its capture it would seem that there was dry ground outside the walls from which the inhabitants threw missiles at the Anglo-Normans endeavouring to cross the river (Scott and Martin 1978, 53). The other contemporary Anglo-Norman source, the Song of Dermot and the Earl adds that there was a fosse, which again implies the presence of some dry ground: This city was surrounded by a river, a wall, and a dyke, so that no man could pass over without a ship or a bridge, neither in winter nor in summer, except by a difficult ford (Orpen 1892, ii. 3418-23). The exact extent of the area around Limerick which was settled by people of Scandinavian descent is also difficult to gauge. The reference to the "cantred of the Ostmen" at Limerick (Sweetman 1875-86, i, no. 146) provides a starting point, however, and this has been identified as the eastern part of the rural deanery of Limerick, comprising land both on the north and south sides of the Shannon. There are also some indications that settlement may have extended over the remainder of the rural deanery and into the cantred of Tradree in Clare (Bradley 1988, 62-4).

The Anglo-Norman Town. Immediately after the submission of Domhnall Ua Briain in 1171 Henry II sent a constable to Limerick (Scott and Martin 1978, 95). The reception which greeted this constable is not recorded nor is the duration of his stay. It is evident from the capture of the town in 1175-6 by a host consisting of Anglo-Normans and an army under Ruaidhri Ua Conchobair and that it had not remained loyal to the crown. After this capture an Anglo-Norman garrison was placed in the town and its custody was given to Milo FitzDavid (Orpen 1911-20, i, 349). In 1176 the town was besieged by Domhnall Mór Ua Briain but it was relieved by Raymond le Gros only to be evacuated by him when news came through that Strongbow had died. Domhnall Ua Briain then burnt the town. Giraldus Cambrensis describes the scene: "Just as they [the Anglo-Normans] were leaving, and indeed had scarcely crossed over the far end of the bridge, they suddenly saw that it had been broken down at the other end and this city, so strongly fortified, well furnished with fine buildings, and full to overflowing with provisions gathered in from every quarter, had been set on fire in four different places. It was a sight that grieved them sorely" (Scott and Martin 1978, 167).

In 1177 Henry II granted the kingdom of Limerick, with the exception of the city and the cantred of the Ostmen to Philip de Braose (Orpen 1911-20, ii, 33) but it was not until the closing years of the twelfth century that the Anglo-Normans began to settle the county (Empey 1981). The city of Limerick appears to have been occupied peacefully, by agreement with the Ostmen and Ua Briain (Orpen 1911-20, ii,

156, 158; Scott and Martin 1978, 334: n. 313). In 1196 the Anglo-Norman garrison was expelled by Diarmait Mac Carthaig, king of Desmond, but they were back the following year and thereafter Limerick was to remain in Anglo-Norman hands (Orpen 1911-20, ii, 157). Limerick's earliest charter, in which Prince John granted the inhabitants the same rights as the citizens of Dublin held, was made in 1197 (MacNiocaill 1964 and in the same year burgages within the town were granted to some of the Anglo-Norman colonists (Orpen 1911-20, ii, 157) and about the same time a mint was established (Dolley 1972).

As early as 1200-1 there is evidence that the town was beginning to expand outside its Hiberno-Scandinavian confines. Abstracts of a number of grants by King John survive in which he gave burgages to Anglo-Norman settlers "below the walls" and in the island towards the city, near the bridge" (Lenihan 1866, 48, n. i). From this it would appear that the area which was to develop into Irishtown was being settled although, as we have already seen, the churches of St. Michael and St. John seem to have been in existence before the coming of the Normans. Work commenced on Limerick castle during the first decade of the thirteenth century and part of it seems to have been built on property belonging to the bishop of Limerick (MacCaffrey 1907). The thirteenth century was a period of considerable prosperity which saw not only the expansion of the town but also the construction of new friaries belonging to the Franciscans and Dominicans, as well as considerable work on the town walls.

During the fourteenth and fifteenth centuries the city became increasingly isolated as a result of the Gaelic revival and it was actually stormed and plundered by Mac Con Mara in 1370. The royal records of this time are filled with petitions seeking relaxation of rents and grants in aid of maintaining the city (Tresham 1828, 27: no. 41; 95: no. 176; 100: no. 20). Its loyalty to the crown was never in doubt, however, and it received a series of royal privileges in 1414, 1423, 1433, 1464 and 1489 (Lenihan 1866, 65-8). The town remained an important port although during this period its overseas trade was overshadowed by that of Galway and there were also problems of piracy on the Shannon estuary to contend with (Lenihan 1866, 70).

With the revival of the English government's interest in Ireland during the second half of the sixteenth century the town became one of the principal administrative and provision centres of the Munster plantation. During the Confederate wars of the mid-seventeenth century it initially remained loyal to parliament but after the capture of the castle in 1642 it became one of the Confederate strongholds. The town was besieged by the Cromwellians in 1651 and eventually surrendered to their commander, Ireton. The town's most famous role in military history occurred in 1690-i when it was besieged by the Williamites and held out for almost a year. The story of these events has often been told and they are well covered in the pages of many histories, particularly that of Lenihan (1866, 148-287).' (O'Brien, 2019)

8.3.2 Cartographic Analysis

8.3.2.1 c.1590 Map of Limerick

The c.1590 map of Limerick depicts the Medieval town with the original Island settlement on the north bank of the Abbey River and Irishtown to the south. Baal's Bridge, later called Thomond Bridge, connects the town to the northwest bank of the River Shannon. The site of development is shown as a rural landscape opposite the medieval town.



Figure 8.4: c.1590 Map of Limerick (after feilden clegg bradley studios + bucholz mcevoy)

8.3.2.2 c.1651 Map of Limerick



Figure 8.5: Extract of c.1651 Map of Limerick (after feilden clegg bradley studios + bucholz mcevoy)

Though less detailed, the 1651 map of Limerick depicts a bastion fort (LI005-016001 – Section 8.3.3.1) to the north-northeast of the site as well as a collection of buildings between it and the river. The fort, *circa* 770m from the site, protects the western approach to Baal's Bridge.

8.3.2.3 The Down Survey of Ireland

The Down Survey of Ireland, a post medieval map source, was undertaken in the years 1656-1658. It is the first ever detailed land survey on a national scale anywhere in the world. The survey sought to measure all the land to be forfeited by the Catholic Irish in order to facilitate its redistribution to Merchant

Adventurers and English soldiers. Copies of these maps have survived in dozens of libraries and archives throughout Ireland and Britain, as well as in the National Library of France.

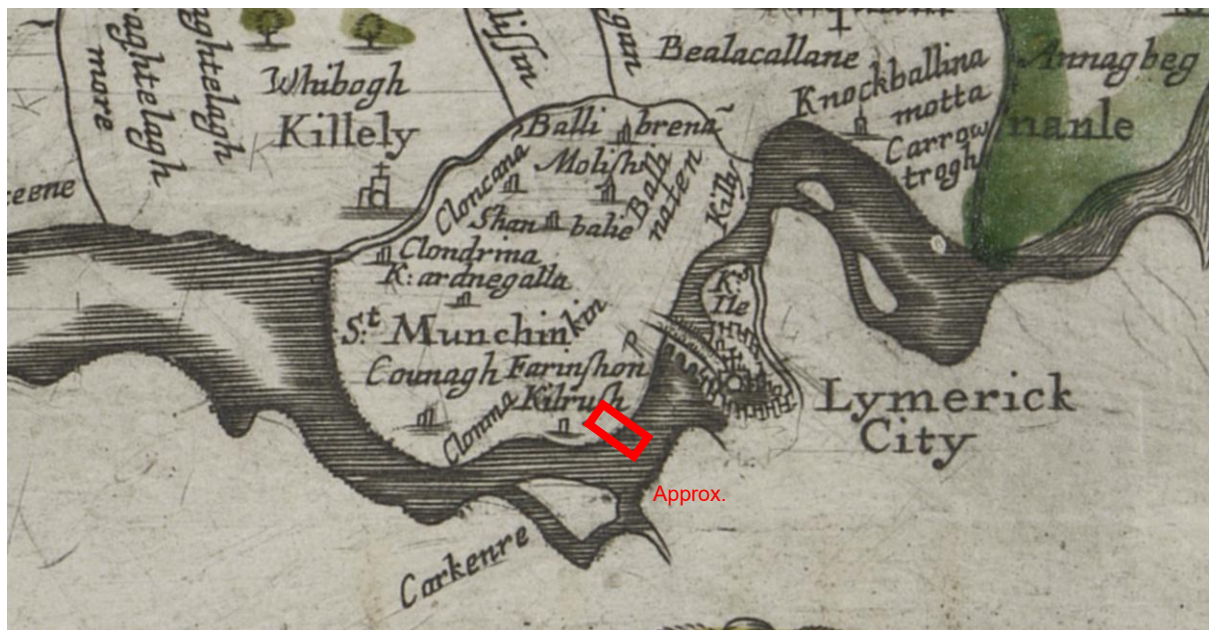


Figure 8.6: Extract of the Down Survey of Ireland with approximate site location (after Trinity College Dublin)

A search of the Down Survey for the parish of St. Nicholas, in which the site resides, presents a map of the North Liberties, where the site is located. The only building or structure of note within its vicinity is what appears to be a towerhouse depicted to its west-southwest in Kilrush. However, the only medieval building noted by the Records of Monuments and Places in this area is a church (LI005-009). This monument is *circa* 1.2km from the site.

8.3.2.4 c.1685 Map of Limerick

By *circa* 1685 the site remains as a rural hinterland. A road leading from the western approach to Limerick is clearly depicted leading to Baal's Bridge.



Figure 8.7: Extract of c.1685 Map of Limerick (after feilden clegg bradley studios + bucholz mcevoy)

8.3.2.5 c.1752 Map of Limerick

In *circa* 1752, the site is depicted as an inter-tidal zone set on the foreshore. Some settlement activity appears to have occurred to the north of the site.



Figure 8.8: Extract of c.1752 Map of Limerick (after feilden clegg bradley studios + bucholz mcevoy)

8.3.2.6 c.1769 and c.1786 Maps of Limerick

While the site remains a rural shoreline and intertidal zone on the *circa* 1769 map, the suburbs of city have extended across to Stonetown as a formally laid out streetscape that fans out from Thomond Bridge. It appears that the bastion fort (LI005-009) is now enclosed by a triangular arrangement of terraced dwellings to the northwest of the bridge.



Figure 8.9: Extract of the c.1769 Map of Limerick (after feilden clegg bradley studios + bucholz mcevoy)

Seven years later, the *circa* 1786 map shows the same layout. However, the bastion fort no longer appears extant. It appears that the expansion of garden plots to the rear of the terraced dwellings have effectively truncated the fort.



Figure 8.10: Extract of the c.1786 Map of Limerick (after feilden clegg bradley studios + bucholz mcevoy)

8.3.2.7 Ordnance Survey First-Edition Six-Inch Map

The 1840 six-inch map presents the site as a broadly rural landscape. While the southeast bank of the river is set with the grid street pattern of Georgian Limerick, the northwest bank of Stonetown townland is dominated by landscaped grounds of gardens and orchards surrounding Stonetown House, Bellefield and Rose Hill. Brunswick Street (later called Sarsfield Street) leads to Wellesley Bridge (later Sarsfield Bridge), across the Shannon to Stonetown as the only bridge across the river, aside from Thomond Bridge further upriver.

The site is framed by Circular Road to the south and Shelbourne Road to the north, which becomes Stonetown Terrace cul-de-sac. Circular road traverses the southern quadrant of the site, which is situated within a regular, rectilinear arrangements of fields.

The most notable feature within the site is its quarry, an aligned north to south arrangement that terminates close to Circular Road. It abuts Shelbourne Road to the north and continues to border the north side of the road. A track or metalled road is depicted running from the southeastern aspect of the quarry, across a field boundary to access the shore. The entrance is shown at this point setback as a rectangular recess to the otherwise, straight northeast to southwest boundary. Presumably this presents a walled formal entrance. It is unclear whether the northwestward return of quarry boundary to southwest and northeast is walled or that of a typically rural earthen bank arrangement. A terraced row of buildings is depicted to the north of the quarry entrance set along the southwestern side of Shelbourne Road and within the boundary of the site, which may be quarry workers' dwellings or other buildings relating to the operation of the quarry.

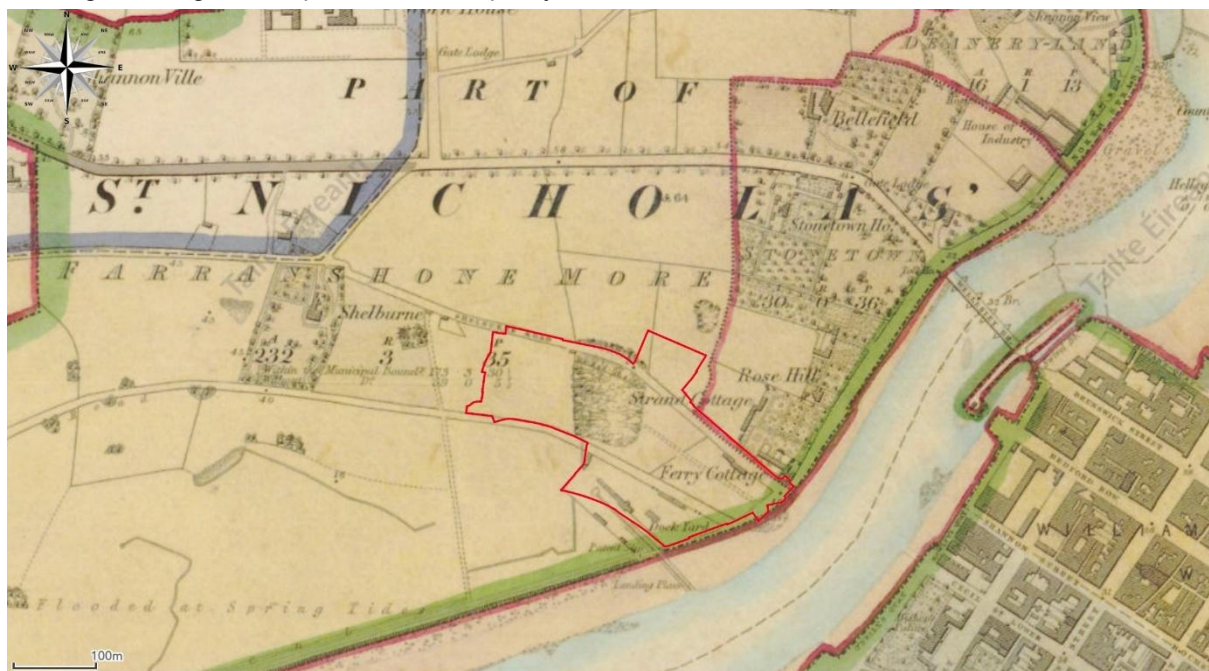


Figure 8.11: Extract of Ordnance Survey First Edition Six-Inch Map (after geohive.ie)

An adjacent row of buildings to the east is shown outside the boundary of the quarry lands, with the depiction of Ferry Cottage. There is a rock outcrop on the adjacent shoreline, which may have functioned as a natural ferry point across the river.

A shipyard is situated to the southwest of Circular Road and partially within the bounds of the site. It is shown as a series of northwest to southeast orientated buildings that borders and parallels a slipway, which cuts into the ground as it extends towards the river, and is denoted as Landing Place on the shoreline. A terraced row of buildings line the southwest side of Circular Road, which presumably are buildings ancillary to the functioning of the shipyard. Another building is set perpendicular to the road in the northern angle of the shipyard.

The boundary line crosses the road to meet the southern aspect of the quarry. This does not show any indication of a formal entrance and may thus reflect a previous field boundary line that continues to the western edge of the quarry.

8.3.2.8 Ordnance Survey First-Edition Twenty-Five-Inch Map

By 1908 the original quarry remains evident. However, a deeper southern section is denoted as a reservoir. The adjacent 1840s field to its west is now occupied by Fernbank House and landscaped grounds. Two terraced dwellings (Victorian Terrace) are situated south of the reservoir and front on to Circular Road. Shelbourne Road, which previously traversed the northern aspect of the quarry is no longer extant and has been replaced by the cul-de-sac of Stonetown Terrace at its southwestern end. A collection of industrial and warehouse units (Cleeves Factory) is situated between Circular Road, east of the Victorian terrace, to the south and with Stonetown Terrace to the northeast. It is bound to the southwest by the Strand. They are denoted as the Condensed Milk factory and Chimney.

The shipyard is still recorded on the opposite side of Circular Road and now shown with a collection of buildings abutting Circular Road and on the same orientation. The 1840s shipyard buildings remain at a central location. The slipway that once extended from the main central building to the river is now shown as extensively truncated to half its original length and outside the scope of the subject site.

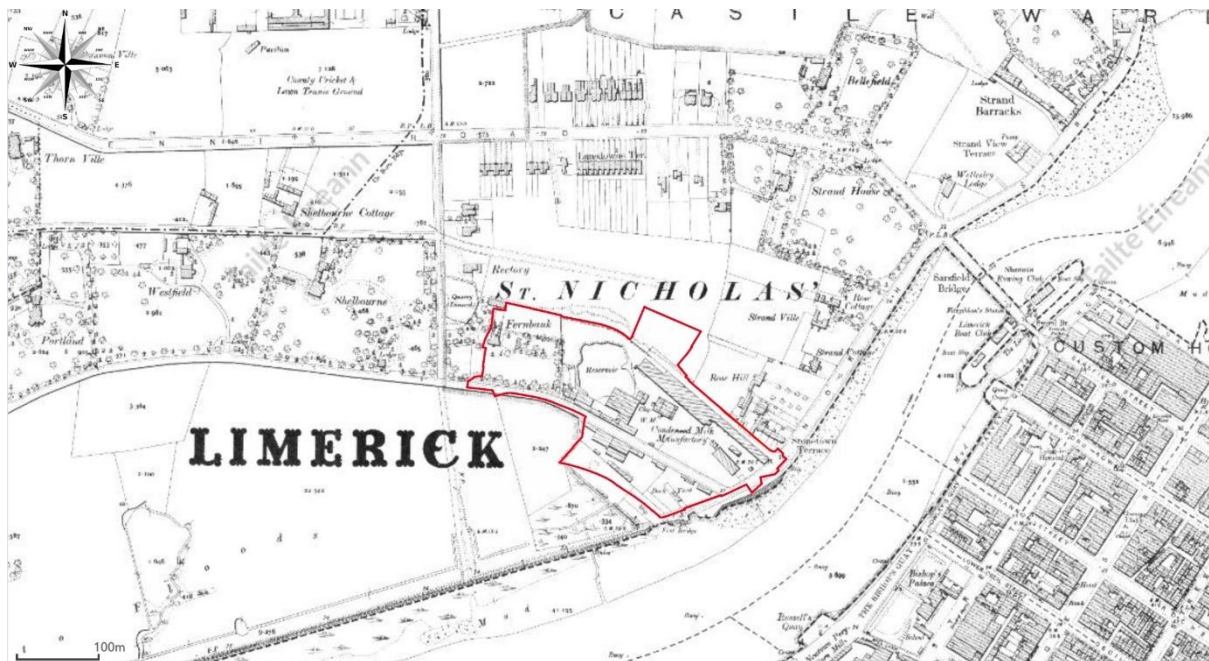


Figure 8.12: Extract of the 1908 First Edition Ordnance Survey twenty-five-Inch (after geohive.ie)

8.3.2.9 1870 Ordnance Survey Map

The Ordnance Survey map of 1870 displays the site in greater detail. It presents the Victorian terrace as Lansdowne Cottages to the southwest of the quarry/reservoir. The industrial complex is depicted as Lansdowne Spinning Mill. The shipyard is illustrated as Dock Yard, with Foundry, Engine Works, Carpenters Shop, and Patent Slip.

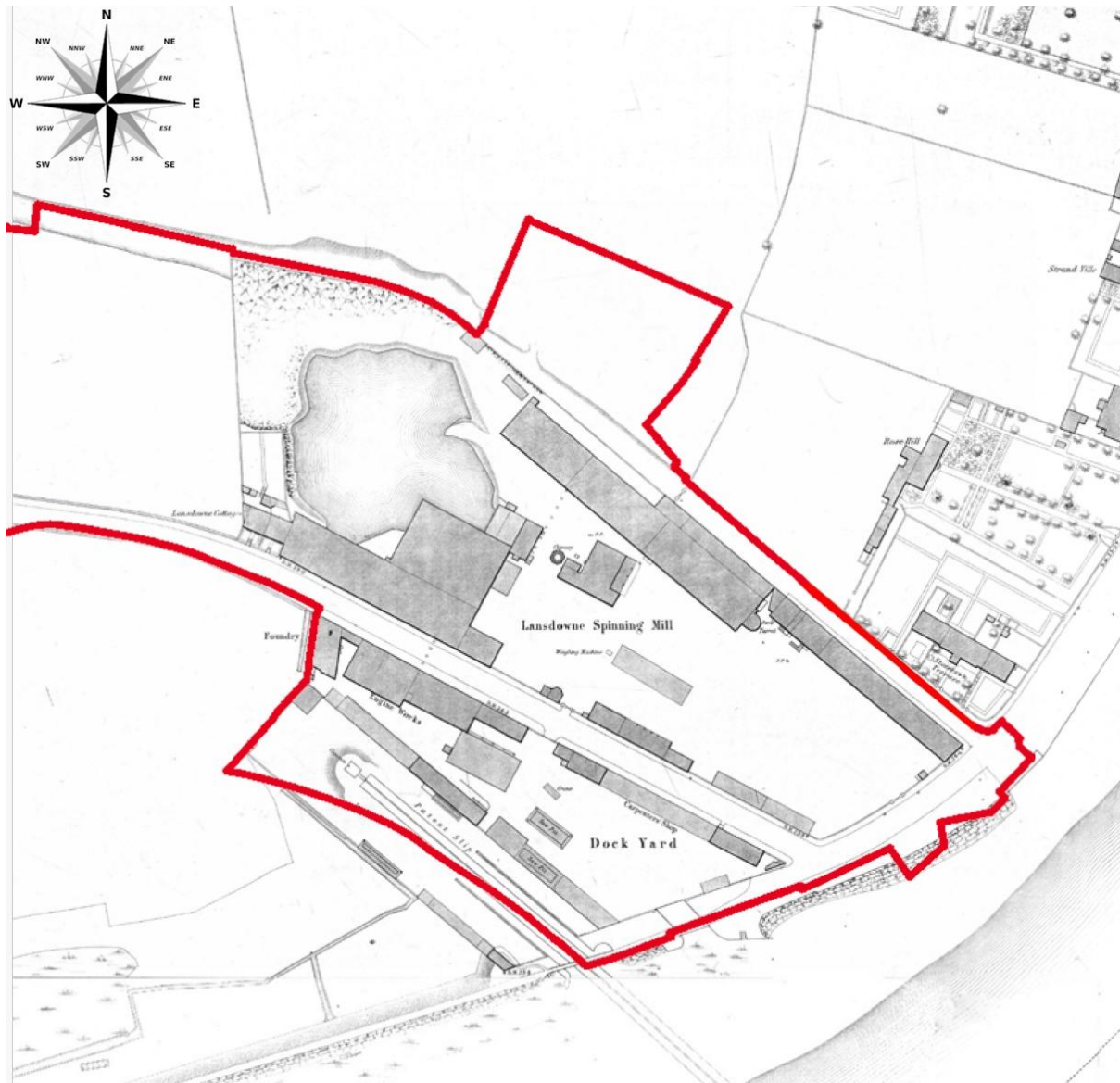


Figure 8.13: Extract of 1870 Ordnance Survey map (after feilden clegg bradley studios + bucholz mcevoy)

8.3.3 Recorded Archaeology

8.3.3.1 Records of Monuments and Places

The Records of Monuments and Places records known archaeological in the vicinity of the site of development. It lists five sites on the northwest side of the River Shannon and within 1km of the site of development.

RMP No	Classification	Date / Period	Location / ITM	Distance to ZoN
LI005-011	Battery	Late 17 th century	556185 656992	960m to WSW
LI005-016002	Earthwork	Medieval	557292 657729	560m to NE
LI005-017002	Bridge	19 th century	557575 657846	790m to NE
LI005-017119	Monumental structure	Post-medieval	557519 657793	770m to NE
LI005-017147	Bastioned fort	17 th century	557478 657856	780m to NE
LI005-019	Water mill	17 th century	557568 657615	680m to NE

Table 8.1: List of archaeological sites in proximity to the site (after archaeology.ie)

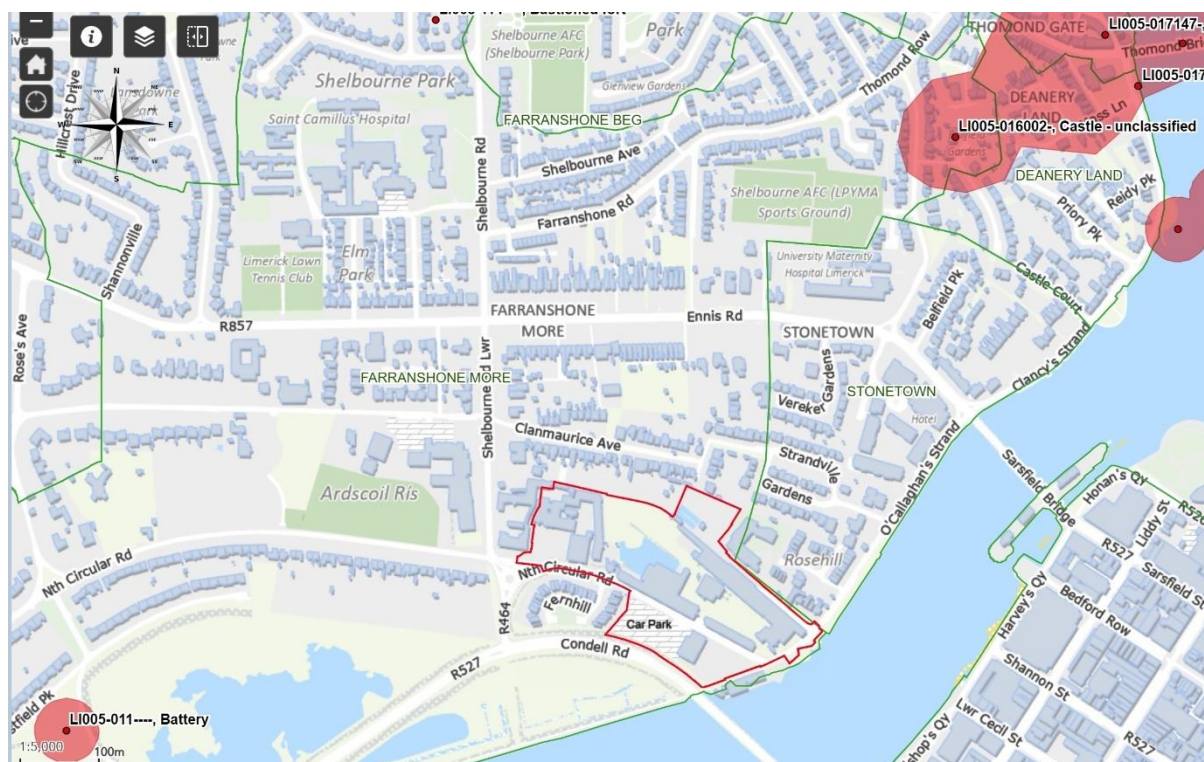


Figure 8.14: Extract of archaeological sites on Record of Monuments and Places map (after archaeology.ie)

LI005-011 (Battery) is described in the Historic Environment Viewer as ‘The remains would appear to be those of a battery. As it is not shown on the 1651 map of the siege works by William Webb (O’Flaherty 2010, map 15), it probably dates to either the sieges of 1690 or 1691. It may be identified with the battery shown at this location on the map of the siege of Limerick in 1691 (Story 1693, facing 224). It is shown and labelled with the letter ‘O’ on the map of Limerick by William Eyres drawn c. 1752 (O’Flaherty 2010, map 16) where it is described in the index as ‘The battery, the Irish [Jacobites] had to defend the passage of the river and annoy the troops that were encamped behind the works A [i.e., those erected by the Williamites on the opposite side of the river].’

LI005-016002 (Earthwork) is described in the Historic Environment Viewer as 'Earthwork or small mound depicted with hachures on the 1938 ed. OS 6-inch map, annotated 'Castle Blake or Farranshone (Site of)' (LI005-006002-) which marked the site of Castle Blake. Modern housing located in area marked on OS 6-inch map.'

LI005-017002 (Bridge) is described in the Historic Environment Viewer as 'The present 19th century Thomond Bridge (NIAH Reg. No. 21508001) crossing the River Shannon overlooked by King John's Castle (LI005-017014-) was described by the National Inventory of Architectural Heritage as a, 'Seven-arch rock-faced limestone road bridge, built in 1836, spanning the River Shannon, with pointed curved breakwaters and short quadrant abutments. Inscription to commemorative plaque, on road side of parapet reads: 'This bridge was built A.D. 1840 at the Expense of the Corporation of the Borough of Limerick. This tablet was placed there by order of the town council A.D. 1843. The Right Worshipful Martin Honan Mayor John F. Raleigh Esq. Town Clerk Francis O'Neil Esq. Treasurer James and G.R. Pain Architects.' The building of a wider and more accessible Thomond Bridge, which was constructed between 1836-1838 to the design of James Pain and George Pain, gave better access to the agricultural districts of Clare. It replaced a series of previous bridges dating to the twelfth or thirteenth century, linking the west side of the River Shannon with King's Island. The previous medieval bridge was of fourteen arches. It is believed to incorporate pier foundations from the bridge which it replaced, as survey drawings dated to 1814, demonstrating the re-use of existing historic fabric by James Pain' (www.buildingsofireland.ie).

Thomond medieval bridge crossing the River Shannon was described in the Urban Survey of Limerick (Bradley et. al. 1989, 256) as following; 'The reference to the destruction of a bridge by Domhnall Mor Ua Briain in 1176 indicates that there has been a bridge at Limerick since Viking times. The location of this bridge, however, is not absolutely certain. From the context in which the reference occurs it is most unlikely that it is a bridge which straddles the Shannon but rather a bridge linking King's Island with Irish Town or the mainland probably on the site of the present Baal's Bridge [LI005-017001-] (Scott and Martin 1978, 167). The bridge across the Shannon appears to have been built in the reign of John [1199-1216]. In 1358 the citizens received a grant to assist them in extending this bridge and adding towers to it in order to repel the Irish (Tresham 1828, 74: no. 82). Both Baal's Bridge and Thomond Bridge are shown many times on sixteenth and seventeenth century maps and there can be little doubt that both are ancient crossing points'.

LI005-017119 (Monumental structure) is described in the Historic Environment Viewer as 'This is the Treaty Stone. The treaty stone was moved from its former position beside Thomond Bridge (LI005-017002-) to the north to its present location.'

LI005-017147 (Bastioned fort) is described in the Historic Environment Viewer as 'Speed's map of Munster c. 1610 shows a projecting fortification protecting the W side of Thomond Gate which gave access to the medieval walled town (LI005-017010-) of Limerick via Thomond Bridge (LI005-017002-). Test excavations carried out on site of extramural gate [Thomond Gate] at the western end of Thomond Bridge by Edmond O'Donovan, Margaret Gowen & Co. Ltd under licence no. 99E0407, the results of which were summarised as following; 'The medieval defences of the city included an extramural gate at the western end of Thomond Bridge, hence the etymology of the placename 'Thomond Gate'. The gate was on the bridge and has been illustrated on early maps of the town, including Hardiman's map, dated 1590. Speed's map, dated 1610, illustrates a star-shaped fort outside Thomond Gate. These

post-medieval earthen fortifications are further illustrated on Greenville's map, c. 1640, and are likely to have been developed and altered to withstand the various 17th-century sieges of the city. The modern streetscape (Mass Lane, Castleview Avenue and Halloran's Lane) around Thomond Gate may reflect the line of elements of these earthworks. However, little consistency exists in the cartographic sources on the layout and exact location of the earthen defences around the Thomond Gate area.

An archaeological test excavation was carried out at Thomond Gate. Five test-trenches, 4-6m long, were excavated on the location of manhole shafts within the zone of archaeological potential at the western end of Thomond Bridge. River gravels or natural boulder clay was encountered in all of the trenches; no archaeological indicators were found above these deposits.

The assessment was limited to the construction corridor of the Main Drainage Scheme and as a result could not shed any further light on the nature of the post-medieval earthwork defences in the Thomond Gate area. It is proposed to monitor all construction work in the zone of archaeological potential' (www.excavations.ie).'

LI005-019 (Water mill) is described in the Historic Environment Viewer as 'Annotated 'Mill' on the 1840 ed. OS 6-inch map where it is depicted standing on the W bank of the River Shannon at the S end of a V-shaped salmon weir (LI005-110----). This building was Curragour Mill, which was built in 1672, destroyed by fire and ruins removed in 1858 (O'Flaherty 2010, 30; Fitzgerald and McGregor 1826, 507). A second 'Mill' (LI005-017074-) is depicted on this map directly opposite on the E bank of the River Shannon. Curragour Mill was shown on a map called "A Plan of the city and suburbs of Limerick", by Christopher Colles 1769 (Ferrar 1787, xviii; BL, Add. MS 27391/E).

An archaeological test excavation was carried out by Edmond O'Donovan on behalf of Margaret Gowen under licence No. 98E0578 near the site of Curragour Mill which is depicted at the western edge of Curragour Falls on Phillips's map of 1685. A single test-trench was opened at the manhole shaft on Clancy's Strand. It was 10m long and revealed a 19th-century soil profile over natural. The deposits were interpreted as ground reclamation for the construction of the road adjacent to the River Shannon. No walls or other archaeological indicators suggesting the presence of a structure were found during the assessment (O'Donovan 2000, 171; www.excavations.ie).'

8.3.3.2 Previous Archaeological Work

8.3.2.2.1 Excavations Bulletins

Previous archaeological work, published in Excavations Bulletins, lists work undertaken under archaeological licence issued by the National Monuments Services. It summarises the nature of the archaeological work, its findings and whether previous unrecorded archaeology was identified. There are two listed works in the area. Both of these are shown on the southeast side of the river.

Licence No	Classification	Date / Period	Location / ITM	Distance from Development
02E1480	No Archaeology	N/A	557228 656944	210m to SE
04E0411	No Archaeology	N/A	557170 656967	150m to SE

Table 8.2: List of previous archaeological work (after excavations.ie)



Figure 8.15: Extract of Excavations Bulletins map (after archaeology.ie)

02E1480 is described as 'Planning permission was granted to demolish a two-storey structure and construct two overhead apartments and ancillary structures at a supermarket at Bishop's Street, Newcastle West, Co. Limerick. The development site is in the zone of archaeological potential of the town. Groundworks were monitored. The new building will be constructed on a series of eight pads and some connecting strip foundations that vary in size throughout the site. Initial clearance of rubble revealed a section of a drain culvert at the eastern limits of the site. Two sections of stone-lined drains were recorded. No archaeological stratigraphy or artefacts were revealed.' (Kiely, 2002)

04E0411 is described as 'Monitoring was carried out of the construction of a sewer built across the River Shannon north of Shannon Bridge and to the south of Sarsfield Lock within Limerick city. The monitoring followed on from a programme of geophysical survey of the river crossing carried out by MAU Archaeology in 1998, and an underwater assessment of the site was completed by ADCO (Archaeological Diving Company) on 19 September 2001. On foot of the assessment by ADCO, Niall Brady investigated the site (Excavations 2001, No. 781, 01E0930); these works included establishing the context and association of the archaeological material on the riverbed and widening the search corridor around the area to be affected by the construction of the pipeline. This established that the riverbed was largely bedrock and items on the surface (an anchor and timber) were removed prior to construction being completed. A back hoe dredger with the attendance of hopper barges was used to

excavate riverbed deposits; given that the riverbed was largely bedrock this involved blasting in advance of excavation. No archaeological finds were identified. Monitoring concentrated on the margins of the river, where accumulations of silts and gravel occurred, but no archaeological finds were noted.' (O'Donovan, 2004)

8.3.2.2.2 Gradiometer Survey of Cleeves Riverside Quarter

A geophysical survey was commissioned as part of the preliminary works of the subject site (Howard, 2022). The survey detected anomalies to a depth of 2m (ibid, 4) and within open accessible grounds that comprised the site. A number of features were detected.

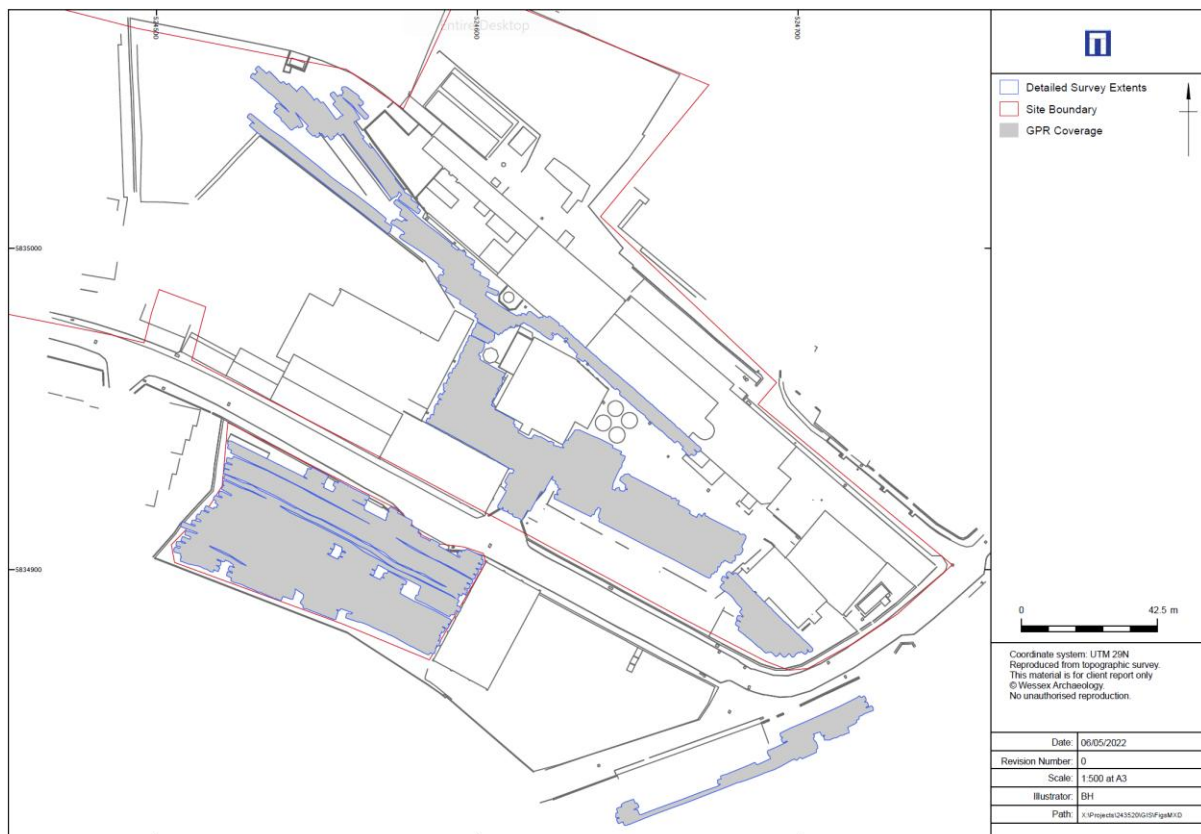


Figure 8.16: Area of survey coverage (after Howard)

Anomaly No	Classification	Date Period	Area / ITM	Dimensions / Depth
4000	Slipway	19 th century	Shipyard. Southwest quadrant of site	05-0.6m / 71 x 25m
4000	Slipway Buildings	19 th century	Shipyard. Southwest quadrant of site	1.4-1.6m / 71 x 25m
4001	Engine Works	19 th century	Shipyard. Southwest quadrant of the site parallel to Circular Road	23 x 13m /
4002	Engine Works	19 th century	Shipyard. Southwest quadrant of the site parallel to Circular Road	22 x 1m /
4003	Carpenters Shop	19 th century	Shipyard. Southwest quadrant of the site parallel to Circular Road	16 x 1m / 0.7-0.8m
4004, 4005, 4006	Engine Works & Carpenters Shop	19 th century	Shipyard. Southwest quadrant of the site parallel to Circular Road	13 x 8m / 0.7-0.8m
4007, 4008	Engine Works	19 th century	Shipyard. Southwest quadrant of the site parallel to Circular Road	8 x 7m (4007) 24 x 5m (4008) / 0.4-0.8m
4009	Possible earlier structure	19 th century?	Factory Area. Adjacent to Engine House	13 x 4m / 0.4-0.8m
4010 to 4024	Unknown anomalies. Possible foundations or ancillary elements.		Factory Area, Shipyard & Rowing Club. Open spaces between buildings. Predominantly E of Rowing Club, SE & NW area of Shipyard, Central & SE Factory Area.	33 x 9m (4010) / 0.5-0.6m 11 x 2m (4015) / 0.2-0.3m 27 x 10m (4021-4023) / 0.1-0.2m
4025 to 4030	Possible backfill areas	Modern?	Quarry area – Surface to NE. Factory Area SW of Flax Mill. NE of Workshop. Shipyard SE of Engine Works. SE Shipyard.	35 x 10m (4027) / 0.3-0.6m
4031 to 4039	Underground service lines.	Modern?	Across site.	/ 0.7-1.1m

Table 8.3: List of anomalies identified by geophysical survey (after Howard, 2022)



Figure 8.17: Survey results (after Howard)

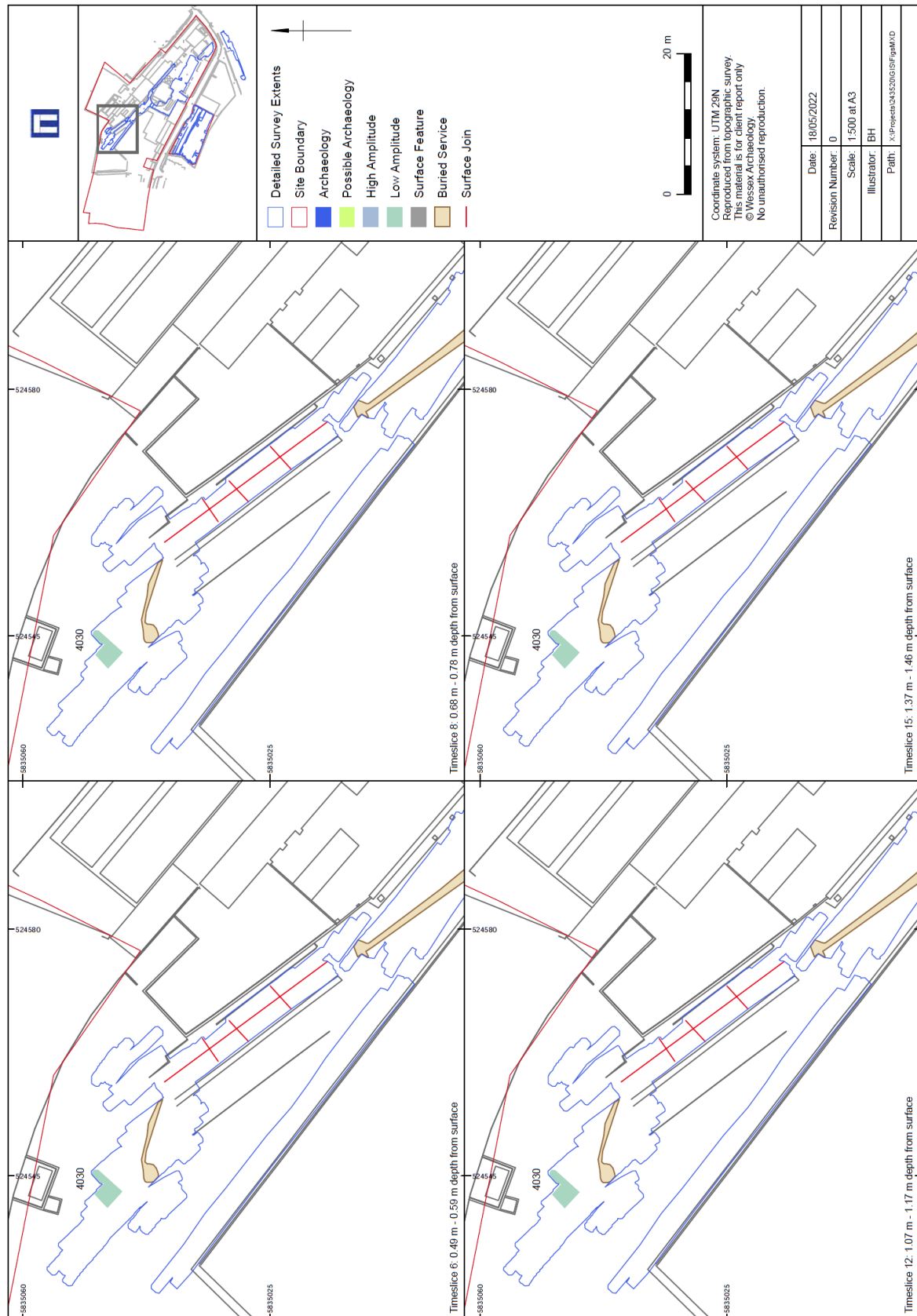


Figure 8.18: Detail of survey results – Quarry – Flax Mill NW area (after Howard)

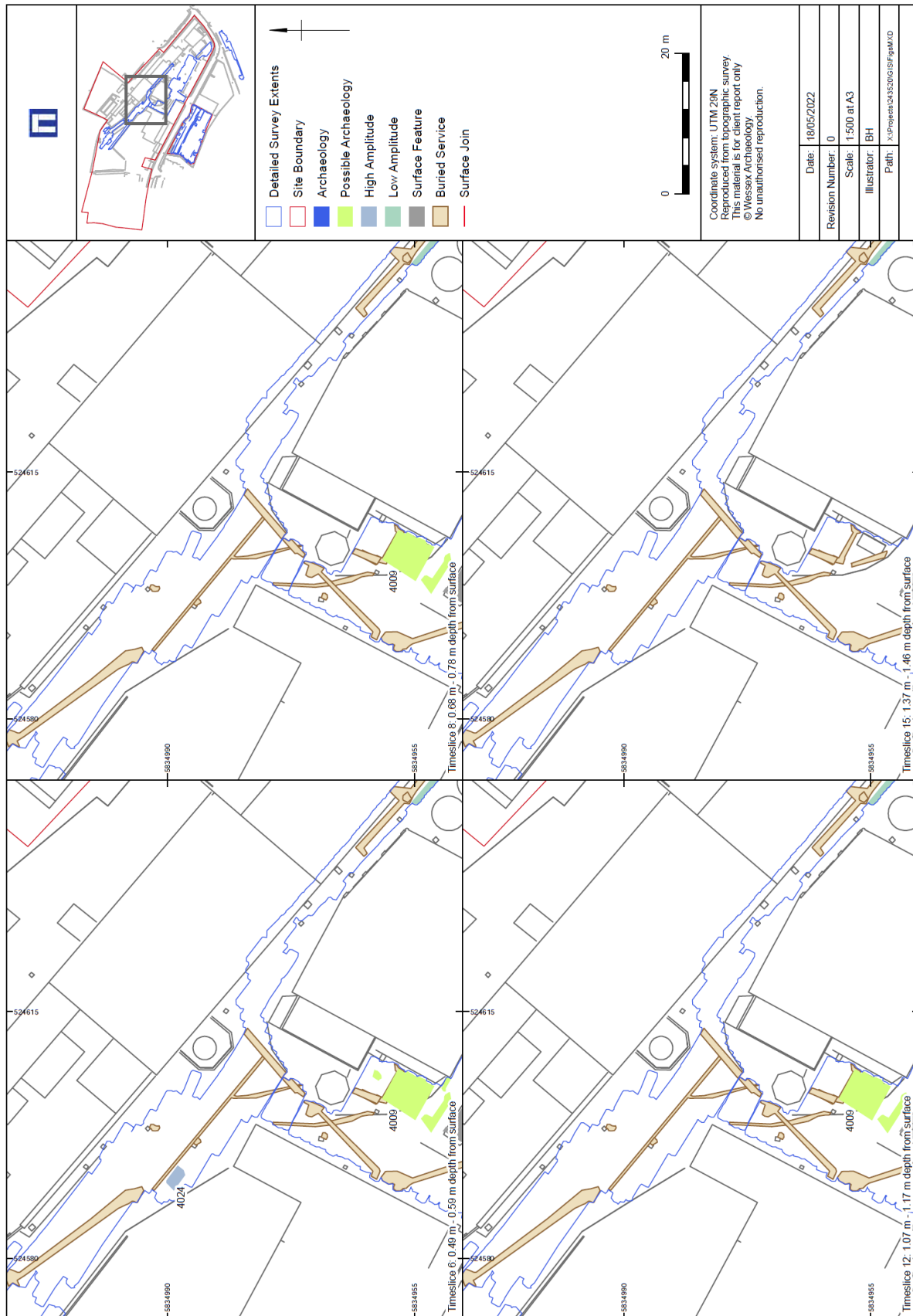


Figure 8.19: Detail of survey results – Flax Mill NW area (after Howard)

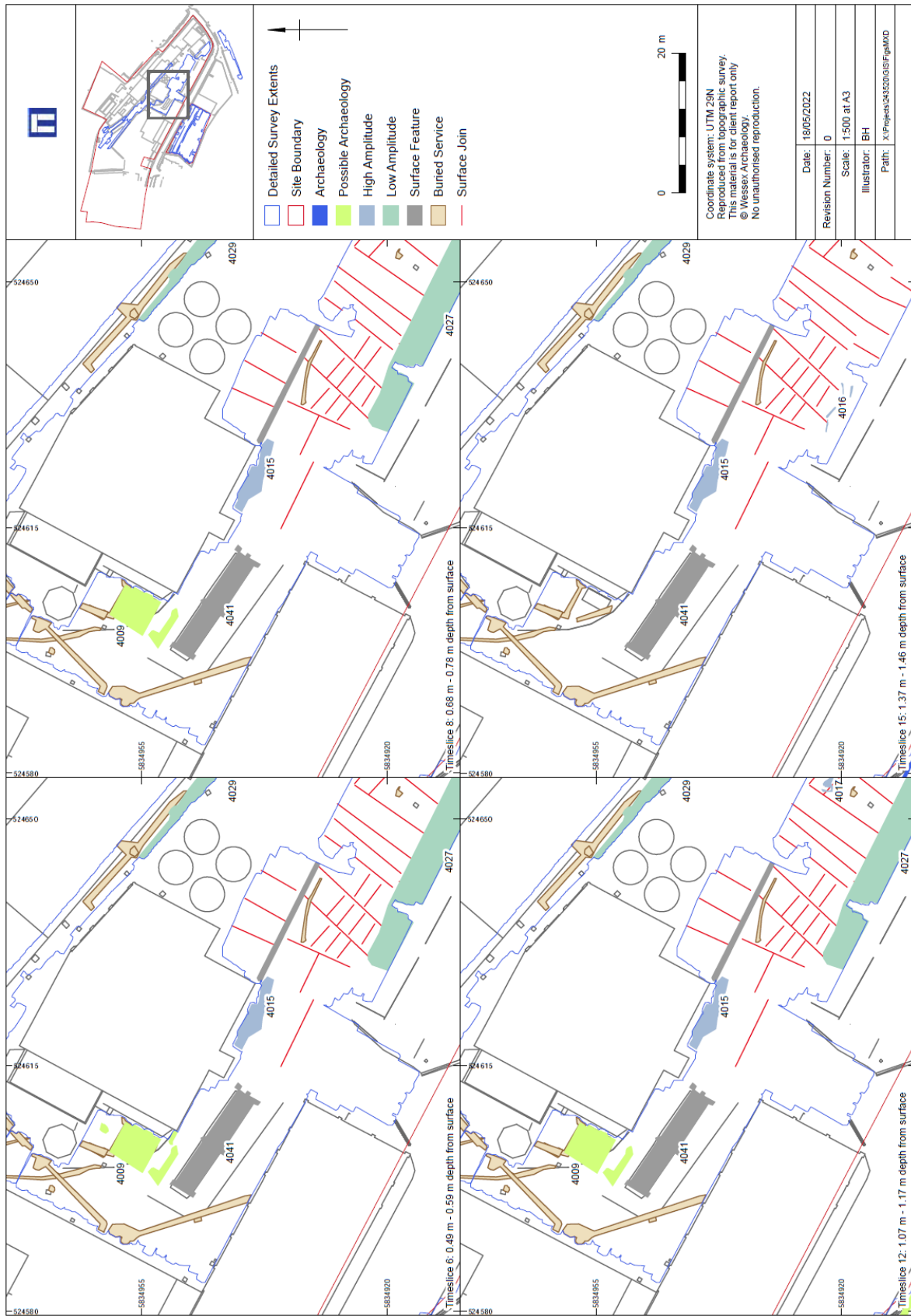


Figure 8.20: Detail of survey results – Flax Mill C area (after Howard)



Figure 8.21: Detail of survey results – Flax Mill SE area (after Howard)

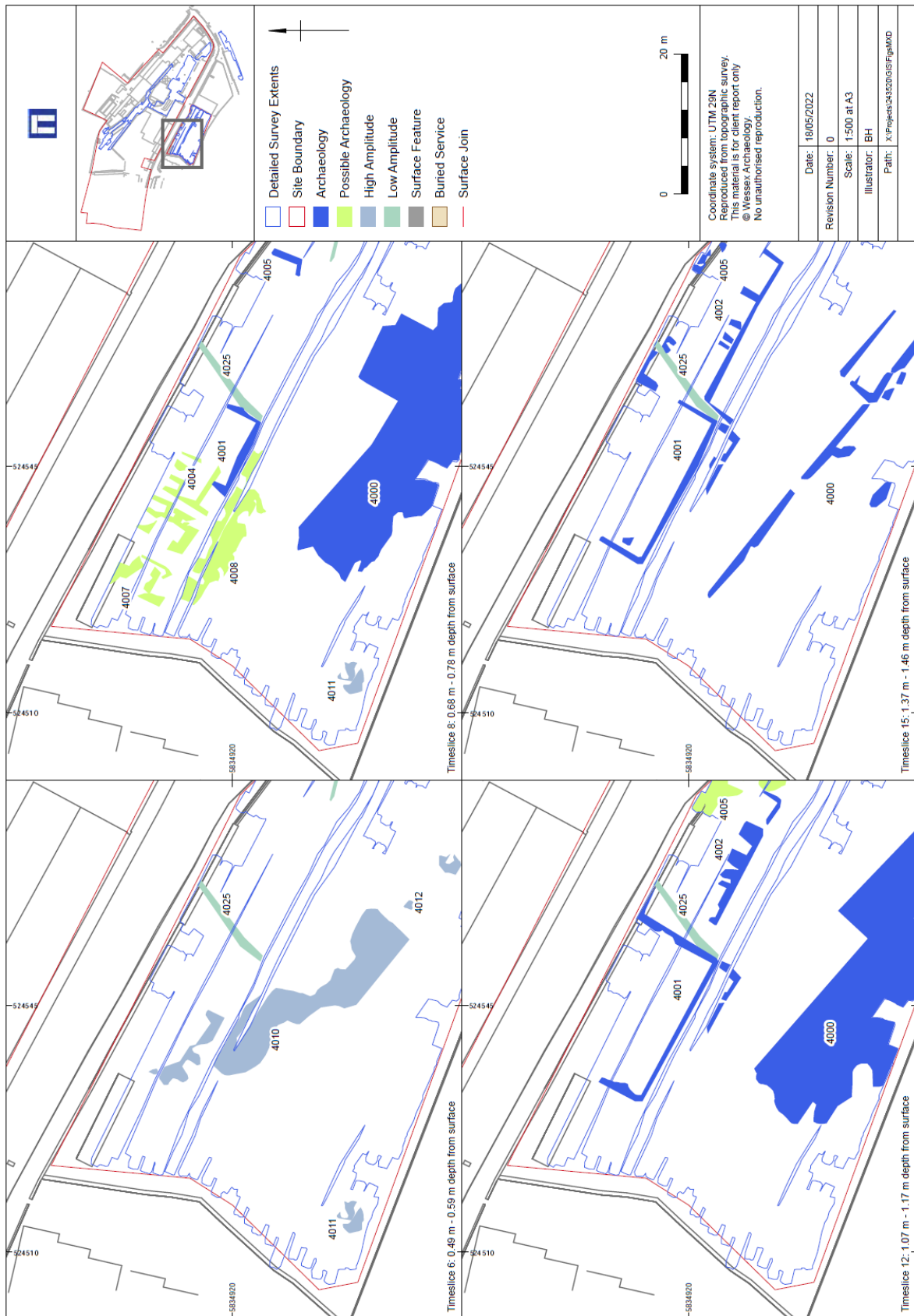


Figure 8.22: Detail of survey results – Shipyard NW area (after Howard)

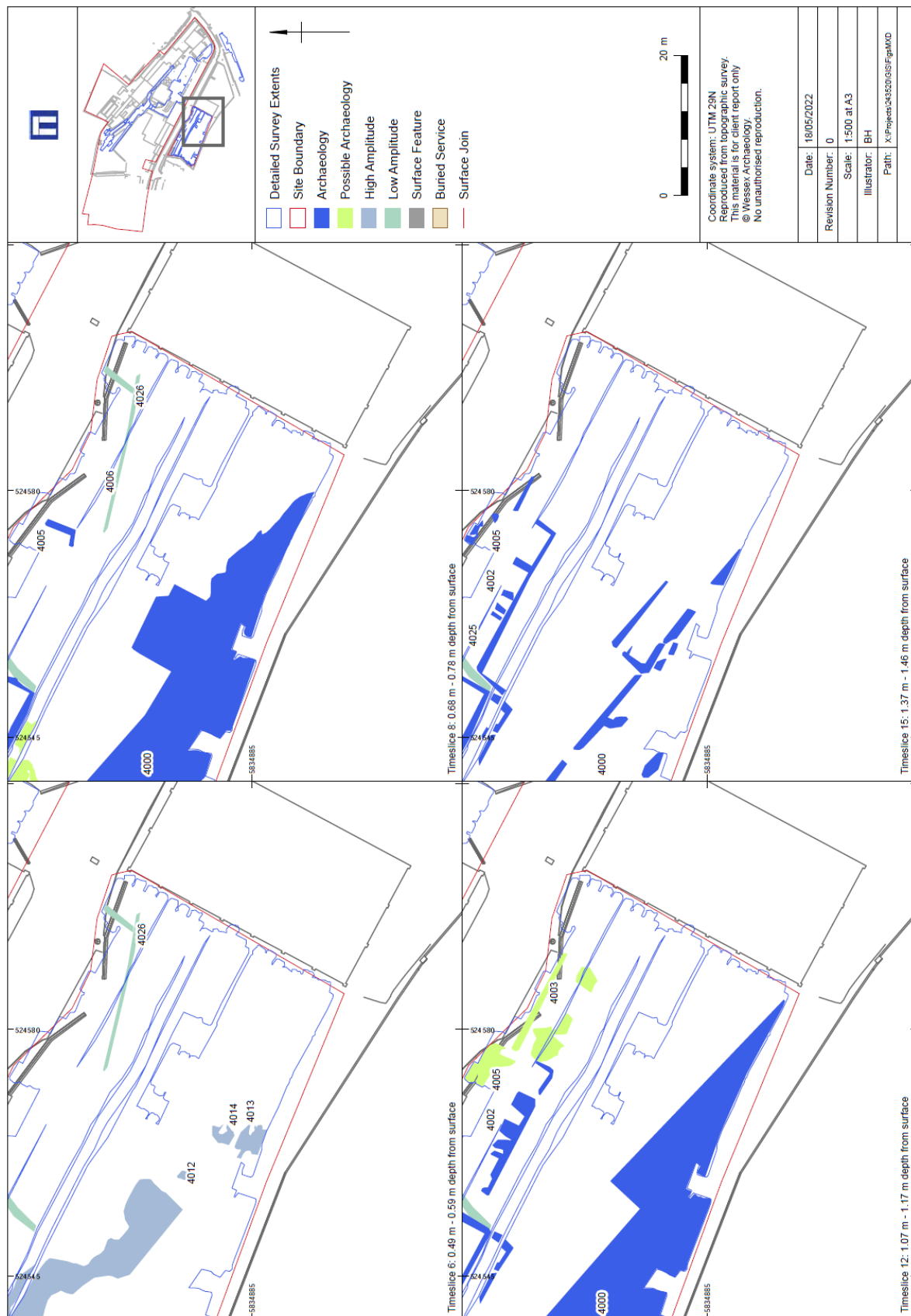


Figure 8.23: Detail of survey results – Shipyard SE area (after Howard)

Anomalies 4000 to 4009 relate to subsurface remains of a structural nature associated with the former shipyard and factory area. While extant 19th century buildings survive on the site, ancillary structures remain at a foundation level. No buildings survive above ground within the shipyard. However, they remain at a deeper level and form part of the built heritage record.

Anomalies 4010 to 4024 demonstrate built heritage structures and associated works that are not recorded either as upstanding remains or via map, paper or other records. The interpretation of the anomaly adjacent to the Rowing Club is unclear. Given its location it may be subsurface remains of the shoreline operating of the shipyard.

Anomalies 4025 to 4030 appear to be amorphous or residual remains of the day to day operating of the shipyard and factory area.

Anomalies 4031 to 4039 are linear in nature and given their depths are consistent with more modern trenches that retained service lines.

8.3.3.3 Artefactual Heritage

The Heritage Council publishes the National of Museum of Ireland's 2010 Finds Database of artefacts via its map viewer.

Find No	Classification	Date / Period	Location / ITM	Distance from Development
1941:1061	Linear: Bronze Spur	Not noted	556878 657632	205m to N
IA/97/1986(B)	Gold Collet	Not noted	556865 657503	350m to NNE

Table 8.4: List of Artefactual Heritage (after heritagemaps.ie)

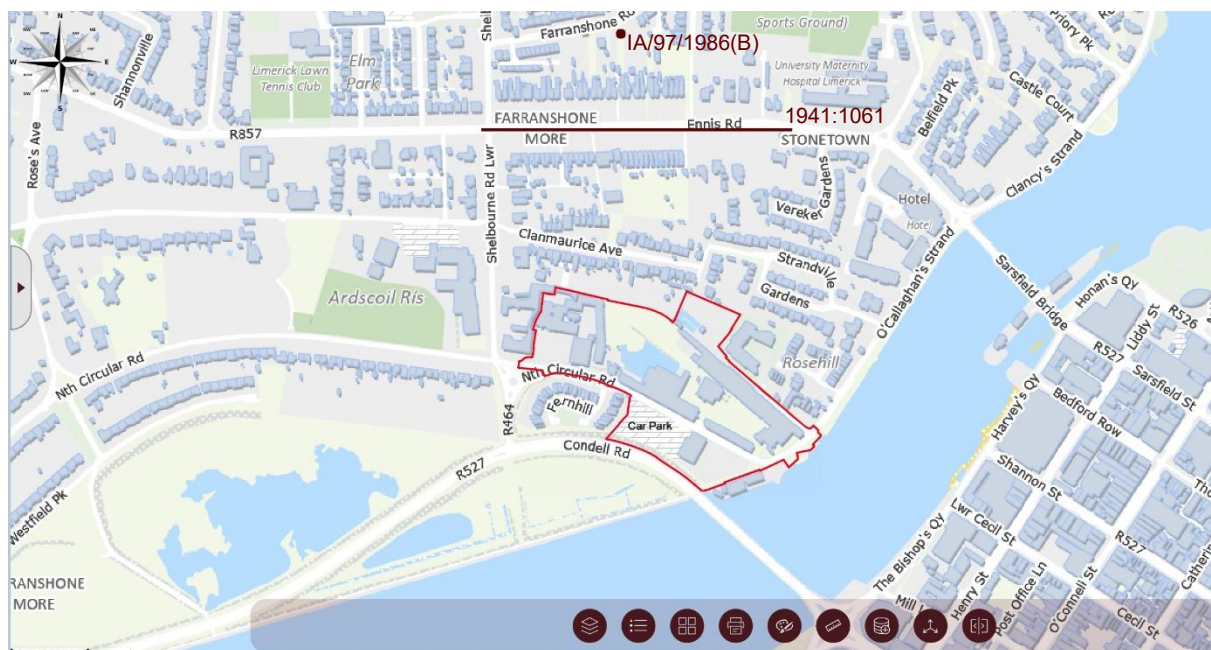


Figure 8.24: Extract of Heritage Maps with artefactual heritage (after heritagemaps.ie)

8.3.4 Built Heritage

8.3.4.1 National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage lists two structures within the site of development.

NIAH No	Classification	Rating / Interest	Location / ITM	Distance
21512053	Factory	Regional / Architectural, Artistic, Historical	557009 657174	0m
21512059	Chimney	Regional / Architectural, Technical	556964 657181	0m

Table 8.5: List of previous NIAH structures work (after niah.ie)



Figure 8.25: Extract of map with NIAH sites (after archaeology.ie)

NIAH 21512053 (Factory) – Cleeve's Condensed Milk Factory originally Lansdowne Spinning Mill – is described as 'Detached fifteen-bay four-storey stone factory building, built in 1853, facing west with a full-height bow end to south side elevation, and prolonged to south by a ten-bay two-storey block, and to north by a twenty-three bay single- and two-storey block, to which various twentieth-century alterations and interventions have been made. Roof hidden behind parapet wall with emphatic limestone ashlar parapet entablature. Pitched corrugated tin roof to ten-bay block. Squared, snecked and coursed tooled limestone walls with rock-faced rusticated quoins to sides. Rendered section to north. Camber-arched window openings with cut limestone sills, rusticated voussoirs and sides, having multiple-paned metal-framed windows. Blind window openings to east elevation, may be a later alteration. Round-arched window openings to bow end with rusticated surround, limestone ashlar sills and metal-framed windows. Round-arched door opening with vigorously rusticated surround, with timber doorframe set in deep recess, forming central glazed panelled timber door with sidelights and large spoke wheel fanlight over profiled timber lintel.'

Its appraisal notes 'A vast early industrial building complex, dominated by a massive limestone factory building, the monolithic scale of which casts a strong presence on the west bank of the River Shannon.'

It was originally built to make agricultural equipment and is now used as a dairy processing building. The 1872 edition of the Limerick City Ordnance Survey identifies this site as the Landowne Spinning Mill, which was built by the Russell family. It was later taken over by the Cleeve family who embarked on the construction of the condensory building. The factory's continued industrial use and dominating presence marks it as a landmark building within Limerick City, particularly as seen from Sarsfield Bridge.'

NIAH 21512059 (Chimney) – Cleeve's Condensed Milk Factory originally Lansdowne Spinning Mill – is described as 'Freestanding octagonal-plan red brick chimneystack, built c. 1860, as part of the vast industrial complex. It was originally 150 feet high and was reduced by 30 feet in the 1960s. The factory is now in use as a dairy processing building.'

Its appraisal notes 'The red brick chimneystack, once the tallest in Limerick, reaching 150 feet though lowered by 30 feet, is a local landmark and of industrial architectural significance. The 1872 edition of the Limerick City Ordnance Survey identifies this site as the Landowne Spinning Mill and the chimneystack may have had a mill usage at that point. The Landowne Spinning Mill was built by the Russell family. It was later taken over by the Cleeve family who embarked on the construction of the condensory building. The continued industrial use of the site and the dominating presence of the chimneystack mark it as a landmark building and overall site within Limerick City.'

8.3.4.2 Record of Protected Structures

The National Inventory of Architectural Heritage lists two structures within the site of development.

RPS No	NIAH No.	Classification / Description	Location ITM	Distance
3264	21512059	Former Golden Vale Chimneystack – Former Cleeves / Freestanding octagonal-plan red brick chimneystack, built c. 1860, as part of the vast industrial complex	556964 657181	0m
3265	21512053	Former Golden Vale Factory – Former Cleeves / Detached fifteen-bay four-storey stone factory building, built c. 1853	557009 657174	0m

Table 8.6: List of previous NIAH structures work (after niah.ie)

8.3.4.3 Architectural Conservation Area

The scope of the development site is not situated within an Architectural Conservation Area.

8.3.5 Site Assessment

The site was inspected on 10th January 2025. This entailed a walkover survey throughout the site. All public external and internal spaces were accessed. Internal buildings were not examined as built heritage – styles and periods – were externally accessible and internal floor spaces would not provide any additional heritage information relevant to the scope of this report.



Plate 8.1: Drone view of site 10/1/25 (from SW)



Plate 8.2: Drone view of site 10/1/25 (from SE)



Plate 8.3: Drone view of site 10/1/25 (from E)



Plate 8.4: Drone view of site 10/1/25 (from NE)



Plate 8.5: Drone view of site 10/1/25 (from N)

8.3.5.1 Archaeological Heritage

The site consisted of a blend of public roadways, boundary walls, built structures, internal hard spaces and built-up foreshore.

A grassed over, brown field area of *circa* 3000m² was situated in the northern aspect of the site. It was found that this location had a partially mounded aspect, which infers that the grass most likely obscured some degree of infill, landscaping or alteration. The long grass and brambles precluded any visual assessment.

The site assessment did not reveal any previously unrecorded archaeological heritage throughout the site. This was primarily due to almost all of the ground surface covered with hard surfaces of concrete or tarmac.



Plate 8.6: Drone view of grass / brownfield area 10/1/25 (from NE)

8.3.5.2 Built Heritage

Collins and Coyne (2021) and Feilden Clegg Bradley Studios + Bucholz McEvoy (2024) have undertaken extensive built heritage assessment of the subject site. Rynne's publication on industrial Ireland provides additional built heritage of the site. These sources form the basis of the descriptions. The photographic record is from the site assessment conducted on 10th January 2025. The numbering sequence follows Feilden Clegg Bradley Studios + Bucholz McEvoy and utilises their arrangement.

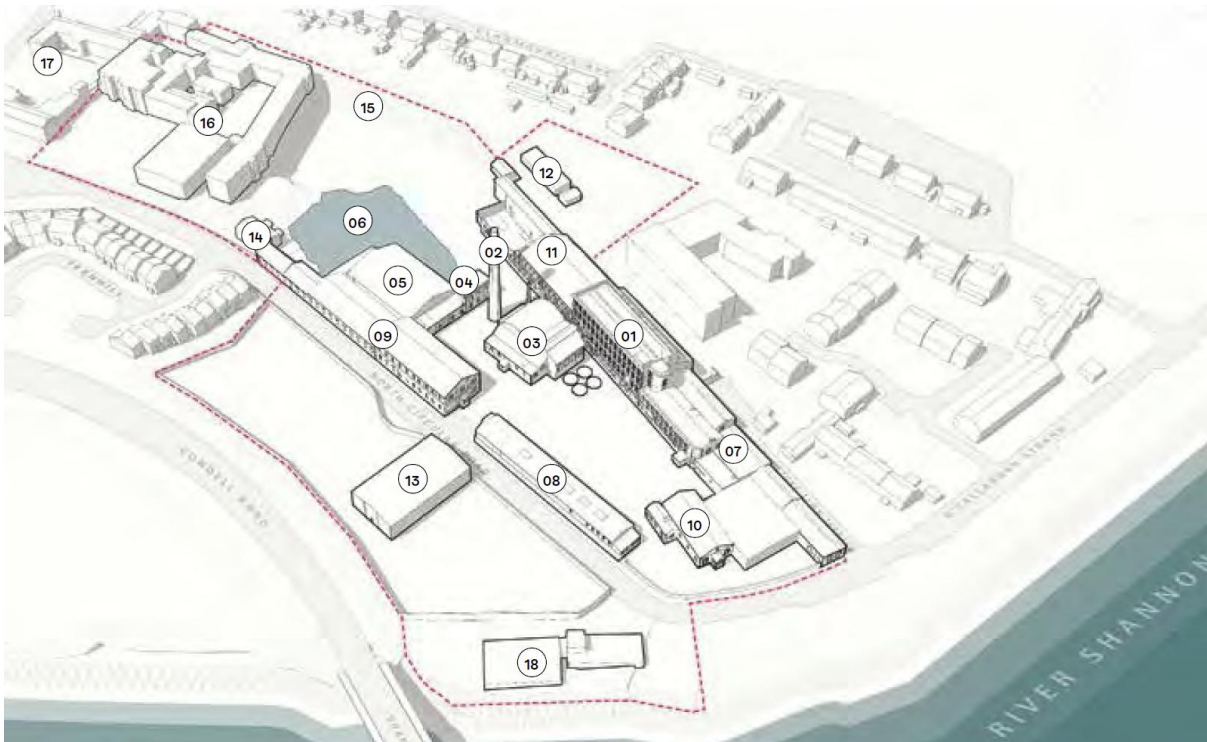


Figure 8.26: Diagram of existing structures (after feilden clegg bradley studios + bucholz mcevoy)

No	Structure	No	Structure	No	Structure
1	Flax Mill	7	Dairy Buildings	13	South Warehouse
2	Chimney Stack	8	Workshop	14	Victorian Terrace
3	Engine House	9	Cheese Plant / Packaging / Store	15	Quarry Face
4	Water Tank Building	10	Offices to O'Callaghan Strand	16	Salesian Secondary School
5	Infiltration Gallery	11	Cold Store	17	Salesian Primary School
6	Lower Reservoir	12	Upper Reservoir	18	Rowing Club

Table 8.7: List of structures (after feilden clegg bradley studios + bucholz mcevoy)



Plate 8.7: Annotated drone view 10/1/25 (from SSW)

8.3.5.2.1 Structure 1: Flax Mill

'This is a four-storey, 15-bay, 'integrated' flax spinning, with fire-proofed flooring and a fire-proof spiral stair tower at its southern extremity. The main body of the building is constructed with Belfast brick, clad externally with local limestone, cut stone being used to dress the elaborate window and door openings on all of the principal elevations, upon which James Campbell commented in 1859. Most of the original north-facing elevation is obscured by a twentieth-century extension, whose ridge line extends upwards to the lower edge of the third storey window sills. On the east-facing elevation, the lower sections of the stairwell tower are hidden by a two-storey extension, erected in the twentieth century. The original main

entrance doorway is a pseudo-Gibbsian affair, with a half-rounded archway, dressed with rusticated cut limestone blocks. The ground and first floor levels are currently used for the milk processing operation [at the time of Rynne's writing in 2005]. The cast iron supporting columns, however, (although some are obscured by panelling) survive throughout the mill. Those on the ground floor have foundry name plates and are date-stamped, with the formula: J. Rowan York St Foundry Belfast 1851. [Rynne noted that surviving examples of structural ironwork of this foundry and general period are extremely rare in the Republic of Ireland.] On the fire-proofing Rynne noted that the type employed in the Lansdowne mill was a standard feature of Irish linen mills constructed in the second half of the nineteenth century, where each of the internal floors of the mill was laid upon a matrix of brick, segmental arches which were supported upon tiers of cast iron girders. Jack-arched floors were the principal means by which textile mills of this period were rendered fireproof, and in some instances individual floors were also finished with fire clay tiles. The girders, in nearly all multi-storied textile mills of this period are connected by wrought-iron tie rods, and are supported along the central long axis of each floor on cast iron columns. The columns were nearly always cast with brackets to carry line shafting, which transmitted power from the mill's prime mover to individual machines, although 'union castings' (i.e., ledges and frames cast on these columns to provide support for such shafting), are not in evidence in the Lansdowne mill. However, such floors while fireproof could not withstand heavy loading, although the spinning frames were relatively light, and when in operation created little vibration.

The floors comprise a series of brick jack-arches, which rest into both the main walls and along the centre of the building in saddle back cast iron beams. A bed of lime mortar was laid immediately over the brick arches, into which 2-inch-thick flagstones were set to form the mill floors. On present evidence, however, the Lansdowne mill's internal framing is the oldest example of this technique to survive in the Republic of Ireland.

The second-floor (former spinning room floor) support columns are dated stamped 1852, which suggested to Rynne that the ironwork was supplied by the foundry in stages. Another feature of interest of mill floors where wet spinning machinery was installed, noted by Rynne, were metal drains running along the inner edge of the main walls, while the floors sloped downwards from the centre to allow moisture and condensate falling from the wet spinning frames to be collected. The contents of the drains were then discharged into pipes positioned on the outer walls, but within the present structure these features have been almost completely obscured by the levelling off of each floor, in the twentieth century, with concrete.

The roof was an M-shaped profile, with sections hipped. Rynne noted it had been refurbished with asbestos slates. Cast iron gullies, with foundry stamps of Lee's of Limerick, are laid between each roof sections and on the allure formed by the parapet and lower, outer edges of each roof section. The plates and the roof structure itself would appear to date to the refurbishment of the site by the Cleeve brothers in the mid-1880s. The roof trusses are, indeed, of a later nineteenth-century kingpost form, which have scissor straps on their outer extremities, while the flitch plates fixing the kingposts to the collar beams are also likely to date to this period.' (Collins and Coyne, 2021: 17-18)



Plate 8.8: Drone view of Flax Mill (from WSW)



Plate 8.9: Drone view of Flax Mill (from NE)



Plate 8.10: Flax Mill (from SW)

8.3.5.2.2 Structure 2: Brick Chimney Stack

'The stack itself, is six-sided [sic, should read eight] and built with brick throughout. The most dominant feature of many nineteenth-century industrial sites, the mill chimney was designed to both disperse the exhaust fumes from the boiler furnaces whilst helping to create a draught for the furnace. Early chimneys tended to be square-sectioned, built with either cut or rubble stone, with quoins being employed at the corners to emphasis their verticality, but these could later be of polygonal or circular in plan for decorative effect. Brick became the most common building material used in their construction in the second half of the nineteenth century, when engine sizes became bigger and the height of chimneys was increased to accommodate them. In early engines chimneys tended to be small, although at least one Irish example, at Stein and Browne's Distillery at Limerick, was 115 ft (c.35 m) high in 1822. The Cork Waterworks stack is the most elaborate nineteenth-century stack to survive in Ireland. According to Rynne this chimney at Limerick is the best-preserved example of its type and date in the Republic of Ireland.' (Collins and Coyne, 2021: 19)



Plate 8.11: Drone view of Chimney stack (from NE)



Plate 8.12: Chimney Stack (from W)

8.3.5.2.3 Structure 3: Engine House

'Rynne recorded that this structure was one of three (along with stack and infiltration gallery) that were of industrial archaeology interest related to the condensed milk factory. The engine house powered machines of the flax mill and buildings to the west of it. The structure housing the engines has a rounded roof profile, probably with a Belfast truss roof form originally. Vertical triple expansion engines would have been employed here, which, according to an account of 1892 were fed by Galloway boilers.

Rynne interestingly noted that the engine house was built to mimic the early flax mill buildings, with matching windows at ground and first floor level.' (Collins and Coyne, 2021: 20)



Plate 8.13: Drone view of Engine House (from WNW)



Plate 8.14: Drone view of Engine House (from SW)



Plate 8.15: Engine House (from NNE)

8.3.5.2.4 Structure 4: Water Tank Building

'The finely carved limestone facades are amongst the finest in the complex and of artistic and architectural interest. The steel abutting structures and interiors.' (Collins and Coyne, 2021: 21)



Plate 8.16: Drone view of Water Tank Building (from SW)



Plate 8.17: Water Tank Building (from SE)

8.3.5.2.5 Structure 5: Infiltration Gallery

'It is positioned immediately beneath what appears to have been the original vathouse, consists of a series of brick arches. through which an infiltration gallery (operating on the slow sand filter principle) was run. The north facing elevation of this feature also has a series of brick. arches which open directly on to the adjacent reservoir. The latter was the main source of process water for the milk factory. A cut stone storage tank building associated with this operation survives at the north east corner of the vathouse.' (Collins and Coyne, 2021: 22)



Plate 8.18: Drone view of Engine House (from NE)



Plate 8.19: Engine House (from NE)

8.3.5.2.6 Structure 6: Lower Reservoir

‘Currently water filled. This appears to be a quarry, marked on the Ordnance Survey 1st Edition map (c. 1840), and depicted as ‘reservoir’ on the 25 inch (c. 1900)...’ (Collins and Coyne, 2021: 23). Its water drains into the River Shannon.



Plate 8.20: Drone view of Lower Reservoir (from NE)

8.3.5.2.7 Structure 7: Former Linen Store

'The building...was not originally constructed as an extension to the Flax building but has been linked over time through an extension to the north and then an extension to the west. The cut stone elevations and multi-pane windows are high quality of architectural and artistic interest...Modern internal and external finishes of no significance. The snecked limestone boundary wall is significant for architectural reasons and an older building of some significance may be buried within...The exterior of the building is significant for architectural, technical, artistic and historical reasons. Truss roof structure and floor finishes may be of interest, requires further survey investigations.' (Collins and Coyne, 2021: 24)



Plate 8.21: Drone view of Former Linen Store (from SE)



Plate 8.22: Former Linen Store (from E)

8.3.5.2.8 Structure 8: Workshop

‘Constructed on site post-1924...The roof structure and steel windows are of some Interest.’ (Collins and Coyne, 2021: 25)



Plate 8.23: Drone view of Workshop (from NW)



Plate 8.24: Workshop (from SE)

8.3.5.2.9 Structure 9: Cheese Plant / Packing Store

'The modern building...is of no significance, parts of a historic building appear to be retained within the modern fabric which require further investigation...Modern internal linings may conceal historic fabric of some interest. The façade to the west is of architectural interest...It's not clear how much of the original buildings survive but the fine cutstone west elevations are of architectural and artistic interest.'

(Collins and Coyne, 2021: 26)



Plate 8.25: Drone view of Cheese Plant / Packing Store (from NNW)



Plate 8.26: Cheese Plant / Packing Store (from SW)

8.3.5.2.10 Structure 10: Offices and Warehouses

'No significance, a building is first shown in the position of Building 8 on Goad's 1897 map, it is also on the 1907 OS and integrated into buildings to the south...The south east elevation and porch are of some architectural interest.' (Collins and Coyne, 2021: 27)



Plate 8.27: Drone view of Offices and Warehouses (from SSW)



Plate 8.28: Offices and Warehouses (from N)

8.3.5.2.11 Structure 11: Weaving Mill / Cold Stores

'At Rynne's time of writing he noted that there were no surviving traces of weaving sheds on the site. He suggested that they may have been built to the east [west?] of the flax mill...He also noted that Campbell described the steam engine at the site, in 1859, as taking up two bays and two storeys at one end of the building. This was evidently at the western end, close to the reservoir (for boiler feed water) and it is one would expect to find weaving sheds, taking power, via line shafting, from the mill's engine. Structure No. 11 has been interpreted as the location for the weaving...The standing walls should be treated part of the protected structure (a high-quality early extension of the Flax Mill). The infill building appears of no significance although the walls at low level.' (Collins and Coyne, 2021: 28)



Plate 8.29: Drone view of Weaving Mill / Cold Stores (from NW)



Plate 8.30: Weaving Mill / Cold Stores (from NW)

8.3.5.2.12 Structure 12: Upper Reservoir

'Cast iron cylinder (boiler) on site, worthy of further examination. Reservoir appears to be concrete built...Probably modern and of no architectural significance but further surveys are required to confirm this.' (Collins and Coyne, 2021: 29)



Plate 8.31: Vertical drone view of Upper Reservoir (W to top)



Plate 8.32: Upper Reservoir (from SW)

8.3.5.2.13 Structure 13: South Warehouse

'Modern building of no significance.' (Collins and Coyne, 2021: 30)



Plate 8.33: Drone view of South Warehouse (from NNW)



Plate 8.34: South Warehouse (from NW)

8.3.5.2.14 Structure 14: Victorian Terrace

'Two houses in terrace. Not marked on the first edition six-inch map; location was then the edge of a stone quarry. Called 'Lansdowne Cottages' on map dated to 1870. Marked on OS 25-inch map c.1900 but unnamed.' (Collins and Coyne, 2021: 33)



Plate 8.35: Drone view of Victorian Terrace (from W)



Plate 8.36: Drone view of Victorian Terrace (from ENE)

8.3.5.2.15 Structure 15: Quarry Face

'Remnants of 19th century quarry. Quarry face overgrown, base of quarry now concrete slab. Vegetation should be removed, and the quarry face examined for evidence of tooling/extraction processes...[I]t is historically related to the reservoir...as part of the original quarry works on site,...' (Collins and Coyne, 2021: 31)



Plate 8.37: Drone view of Quarry Face (from SW)



Plate 8.38: Quarry Face (from SW)

8.3.5.2.16 Structure 16: Salesian Secondary School (Fernbank)

'Fernbank House. Not marked on first edition 6-inch map; not marked on map dated to 1870; marked on 25-inch OS map as 'Fernbank'. Not in A Guide to Irish Country Houses (Bence Jones 1988). Not on NIAH. Previously described as a 'French-style villa' and once belonged to the Cleeve Family. Modern secondary school buildings (begun ?1955) have completely enveloped the late nineteenth-century structure. A timber entrance porch is the only original feature that can be identified externally. (Collins and Coyne, 2021: 34)



Plate 8.39: Drone view of Salesian Secondary School (from WNW)



Plate 8.40: Salesian Secondary School (from WNW)

8.3.5.2.17 Structure 17: Salesian Primary School

'St Michael's Rowing Club—originally a branch of St Michael's Sporting Club—was first established at a small timber boathouse near the entrance to Limerick docks. Due to the expansion of the docks, the rowing club found a new home on O'Callaghan Strand in 1940. It was located to the south of the location of Russell's dock yard and immediately to the east of the location of the patent slip. The structures on site date to the post-1940s and have been maintained and altered over time.' (Collins and Coyne, 2021: 35)



Plate 8.41: Drone view of Rowing Club (from SSW)



Plate 8.42: Rowing Club (from NE)

8.3.5.2.18 Structure 18: Rowing Club

Not within the scope of the development.



Fig.5 Diagram identifying the age of the existing buildings on the site

1833	1950
1851 - 1853	1955
1855 - 1860	1955 - 1986
1870	1986 - 2020
1884	
1890	
1900	
1930	
1940	

Figure 8. 27: Period of extant structures (after feilden clegg bradley studios + bucholz mcevoy)

8.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The development site with an area of 5.10 hectares, comprises most of the Masterplan site. It excludes St. Michael's Rowing Club, which extends to the river's edge, but has been included in the overall Masterplan for the site. Phase IV of the Masterplan comprising the Shipyard site will be the final phase of development. While the site is included in the proposed development, its inclusion is solely to facilitate demolition of the existing structure and to provide for meanwhile uses including a Mobility Hub.

The proposed development seeks A. Demolition of a number of structures to facilitate development and B. Construction and phased delivery of (i) buildings within the site ranging in height from 3 – 7 stories (with screened plant at roof level) including (a) 232 no. residential units; (b) 270 no. student bedspaces (PBSA) with ancillary resident services at ground floor level; (c) 256sqm of commercial floorspace; and (d) a creche; (ii) extensive public realm works, riverside canopy and heritage interpretative panels (iv) 3 no. dedicated bat houses; (v) Mobility Hub with canopy; (vi) pedestrian / cycle connectivity from North Circular Road to Condell Road; and (vii) all ancillary site development works including (a) water services, foul and surface water drainage and associated connections across the site and serving each development zone; (b) attenuation measures; (c) raising the level of North Circular Road; (d) car and bicycle parking; (e) public lighting; (f) telecommunications mast; and (g) all landscaping works. Consent is also sought for use of the PBSA accommodation, outside of student term time, for short-term letting purposes. (Figure 2.7, Chapter 2.0)

In terms of archaeological relevance, the site of development retains the potential for subsurface archaeology. Despite its developed nature with much of it consisting of built structures and intervening hard surfaces, it remains chronologically underdeveloped in comparison to typical urban environments. This may lend itself to survival of subsurface archaeological deposits and structures. While a gradiometer survey was undertaken (Section 8.3.2.2.2) in which it is demonstrated that underlying industrial and maritime heritage survives beneath the current ground surface – considered of archaeological value warranting recording – this may also obscure other archaeological deposits.

The gradiometer survey assessed accessible areas and did not extend to the full site of development. The landfill at Stonehouse Terrace requires significant removal of its soil to assess its archaeological potential. The Victorian Terrace and Salesians School are in an elevated position relative to the overall development and may thus have received the least ground impacts from previous development. Consequently, these locations could retain greater archaeological potential.

The removal of stone piers associated with the adjacent Infiltration Gallery in the Lower Reservoir have been mapped. They most likely exemplify how the Infiltration Gallery was intended to continue further into the Lower Reservoir but was discontinued for whatever reason. As the same piers extend into the Infiltration Gallery and thus survive as a more complete representation, their removal from the reservoir is considered neutral, but may require more detailed record of their heritage value.

While the Shipyard is not within the scope of the current development, it will receive some limited ancillary works as part of the propose development. Its use as a construction compound, EV charging points, and boundary aspects of drainage works will entail some ground incursions. These will require archaeological investigation, such as construction phase archaeological monitoring.

8.5 LIKELIHOOD OF SIGNIFICANT EFFECTS

From an archaeological perspective, significant effects not just the application site, but that of its immediate environs was also assessed. Archaeological sites are not confined solely to their visible or defined surface curtilage but include their surrounding scope. The potential for significant effects extends to potential ancillary outlying subsurface associated archaeological deposits, which is recognised by their Zones of Notification as an arbitrary surrounding area that retains a likelihood for this archaeology. The Zones of Notification vary depending on archaeological site classification, archaeological period for the site and whether there is any contemporary clustering of archaeological sites. For this reason, the assessment of likely significant effects incorporates not just that of the application site, but that of the masterplan site and its environs. This involved a topographical approach, in which key indicators, such as riverside and intertidal zones have the potential for archaeological site types – prehistoric resource activity to medieval boat berthing and post-medieval brick clamps, with ancillary archaeology that could extend into the MS. Other indicators include localised summits with settlement or defence activities. Similarly, built heritage structures are assessed to include subsurface foundation and other elements adjacent to the extant buildings that were identified as part of the gradiometer survey, as these are considered as a subsurface industrial archaeological resource.

The expansion and redevelopment of urban centres throughout Ireland has significantly eroded surviving industrial heritage similar to the factory complex, to the extent that the Cleaves Riverside Quarter may be considered rare, if not unique. Shipyards throughout Ireland have typically been sited close to adjacent urban centres, in which subsequent 20th century urban expansion has effectively wiped out their physical record, so that just the paper historic records may remain. The siting of the shipyard away from Limerick's urban expansion, until the mid-20th century, has enabled the potential for extensive elements to survive beneath the ground surface, which may be considered unique in this regard. Should no action be taken, redevelopment of the site in the absence of appropriate heritage inputs will invariably and irrevocably destroy what physically remains of this unique site

The methods of assessing the likelihood of effects or impacts are set out in Chapter 1.0 They are identified below in terms of archaeology and built heritage and consider research of primary and secondary sources of the site of recorded archaeology and built heritage and supplemented with the findings of the site assessment. The significance of effects is detailed in Table 8.8 under the subheadings of Recorded Archaeology; Unrecorded Archaeology (Archaeological Potential); Extant Built Heritage; Recorded Subsurface Built Heritage.

Recorded Archaeology – Effects							
Section	Structure	Distance	Quality	Significance	Probability	Duration	Description / Mitigation
8.3.3.1	Battery	960m	Neutral	None	None	None	Section 8.7.1.1
8.3.3.1	Earthwork	560m	Neutral	None	None	None	Section 8.7.1.2
8.3.3.1	Bridge	790m	Neutral	Imperceptible	Unlikely	Momentary	Section 8.7.1.3
8.3.3.1	Monumental structure	770m	Neutral	Imperceptible	Unlikely	Momentary	Section 8.7.1.4
8.3.3.1	Bastioned fort	780m	Neutral	None	None	None	Section 8.7.1.5
8.3.3.1	Water Mill	680m	Neutral	None	None	None	Section 8.7.1.6
8.3.2.2.1	Archaeological Monitoring	210m	Neutral	None	None	None	Section 8.7.1.7
8.3.2.2.1	Archaeological Monitoring	150m	Neutral	None	None	None	Section 8.7.1.8
8.3.3.3	Bronze Spur	205m	Neutral	None	None	None	Section 8.7.1.9
8.3.3.3	Gold Collet	350m	Neutral	None	None	None	Section 8.7.1.10
Unrecorded Archaeology (Archaeological Potential) – Effects							
Section	Structure	Distance	Quantity	Significance	Probability	Duration	Description / Mitigation
8.3.5	Site Assessment	0m	Negative	Slight - Moderate	Likely	Temporary	Section 8.7.1.11
Extant Built Heritage – Effects							
Section	Structure	Distance	Quality	Significance	Probability	Duration	Description / Mitigation
8.3.4.1; 8.3.4.2; 8.3.5.2.1	Flax Mill	0m	Neutral	Slight	Likely	Temporary	Section 8.7.1.12
8.3.4.1; 8.3.4.2; 8.3.5.2.2	Chimney Stack	0m	Neutral	Slight	Likely	Temporary	Section 8.7.1.13

8.3.5.2.3	Engine House	0m	Neutral	Slight	Likely	Tempora ry	Section 8.7.1.14
8.3.5.2.4	Water Tank Building	0m	Neutral	Insignific ant	Likely	Tempora ry	Section 8.7.1.15
8.3.5.2.5	Infiltration Gallery	0m	Neutral	Impercep tible	Likely	Momenta ry	Section 8.7.1.16

Extant Built Heritage continued – Effects							
Section	Structure	Distance	Quality	Significance	Probability	Duration	Description / Mitigation
8.3.5.2.6	Lower Reservoir	0m	Positive	Imperceptible	Likely	Temporary	Section 8.7.1.17
8.3.5.2.7	Former Linen Store	0m	Positive	Imperceptible	Likely	Temporary	Section 8.7.1.18
8.3.5.2.8	Workshop	0m	Neutral	Imperceptible	Likely	Momentary	Section 8.7.1.19
8.3.5.2.9	Cheese Plant / Packaging / Store	0m	Neutral	Imperceptible	Likely	Momentary	Section 8.7.1.20
8.3.5.2.10	Offices to O'Callaghan strand	0m	Positive	Imperceptible	Likely	Temporary	Section 8.7.1.21
8.3.5.2.11	Cold Store	0m	Neutral	Not significant	Likely	Temporary	Section 8.7.1.22
8.3.5.2.12	Upper Reservoir	0m	Positive	Imperceptible	Likely	Temporary	Section 8.7.1.23
8.3.5.2.13	South Warehouse	0m	Positive	Moderate	Likely	Permanent	Section 8.7.1.24
Extant Built Heritage continued – Effects							
Section	Structure	Distance	Quality	Significance	Probability	Duration	Description / Mitigation
8.3.5.2.14	Victorian Terrace	0m	Neutral	Not significant	Likely	Permanent	Section 8.7.1.25
8.3.5.2.15	Quarry Face	0m	Positive	Slight	Likely	Long-term	Section 8.7.1.26
8.3.5.2.16	Salesian Secondary School	0m	Positive	Slight	Likely	Permanent	Section 8.7.1.27
8.3.5.2.17	Salesian Primary School	15m	Neutral	None	None	None	Section 8.7.1.28
8.3.5.2	Rowing Club	10m	Neutral	None	None	None	Section 8.7.1.29
8.3.5.2.18	Boundary Walls	0m	Neutral	Imperceptible	Likely	Permanent	Section 8.7.1.30

Subsurface Built Heritage – Effects							
Section	Structure	Distance	Quality	Significance	Probability	Duration	Description / Mitigation
8.3.2.2.2	Slipway	0m	Positive	Significant	Likely	Temporary	Section 8.7.1.31
8.3.2.2.2	Slipway Buildings	0m	Positive	Significant	Likely	Temporary	Section 8.7.1.32
8.3.2.2.2	Engine Works	0m	Positive	Moderate	Likely	Temporary	Section 8.7.1.33
8.3.2.2.2	Carpenters Shop	0m	Positive	Significant	Likely	Temporary	Section 8.7.1.34
Subsurface Built Heritage continued – Effects							
Reference	Structure	Distance	Quality	Significance	Probability	Duration	Description / Mitigation
8.3.2.2.2	Engine Works & Carpenters Shop	0m	Positive	Significant	Likely	Temporary	Section 8.7.1.35
8.3.2.2.2	Possible earlier structure	0m	Positive	Moderate	Likely	Temporary	Section 8.7.1.36
8.3.2.2.2	Unknown anomalies. Possible foundations or ancillary elements.	0m	Neutral	Slight	Likely	Temporary	Section 8.7.1.37
8.3.2.2.2	Possible backfill areas	0m	Neutral	Slight	Likely	Temporary	Section 8.7.1.38
8.3.2.2.2	Underground service lines.	0m	Neutral	Imperceptible	Likely	Temporary	Section 8.7.1.39

Table 8.8: Impacts on archaeology and built heritage

8.5.1 Construction Effects

No recorded archaeological sites have been identified within or near the development site. Previous unrelated archaeological investigations in the vicinity have yielded no archaeological discoveries. Unlike typical urban centres, the site has received limited development over time, with development having commenced from the early to mid-19th century, in which the quarry activities most likely occurred from the later part of the 18th century. Nonetheless, given the size of the site, the possibility remains of archaeology surviving at a subsurface level, either in whole or in part.

The siting of the development site, on the opposite bank of the River Shannon to the urban core of Limerick city has undoubtedly minimised redevelopment of the site to date. This has allowed extensive survivability of the industrial fabric of the Cleeves Riverside Quarter, which is rare for the industrial heritage of Ireland. The 19th century shipyard has been redeveloped, in particular during the mid-20th century, which has caused it to effectively no longer survive in the form of extant built heritage. However, trace elements of some of the former buildings are evident in the fabric of boundary walls, with infilled architectural details.

The results of the geophysical survey (Howard, 2022) have demonstrated extensive subsurface industrial archaeology throughout the subject site. While no earlier archaeological sites were detected, the impacts of more recent industrial heritage may have obscured any such anomalies. The geophysical survey has mapped the location and extent subsurface buildings and works that are ancillary to the extant architectural heritage structures. Perhaps, more critically, it has demonstrated that the unique maritime heritage of Limerick in the site of the shipyard survives to a greater or lesser extent beneath current site surfaces.

Redevelopment within the scope of the proposed development at construction phase will have a direct, significant and negative impact upon subsurface remains of the industrial and maritime heritage of the site.

8.5.2 Phased Construction Effects

Similar to Construction Effects, any phased construction works will invariably impact upon extant subsurface industrial and maritime heritage that has been identified from geophysical survey of the site. Redevelopment of the proposed development at construction phase will have a direct, significant and negative impact upon subsurface remains of the industrial and maritime heritage of the site at pre-mitigation phase. To ameliorate this, a programme of pre-development archaeological test excavation of the identified subsurface structures will be implemented. The archaeological test excavation will target these anomalies to further ascertain their scope, nature and condition. This will inform further actions to be incorporated into construction works. The archaeological test excavation will extend to include other locations on the site to assess the potential for archaeological sites, deposits or anomalies that may not have identified and ensure a cross-coverage of the subject site. This will also inform the programme of construction to take into account predicted archaeological findings. The exposure of subsurface industrial and maritime heritage will have a positive outcome with appropriate, recording, treatment and management of this resource.

The Stonetown Terrace zone has received significant landfill adjacent to the Upper Reservoir, which has resulted in the mound occupying this area. The current proposal is to remove the landfill in advance

of development. This will require archaeological monitoring of lower strata as it approaches the original surface and in advance of archaeological test excavation, subject to discussion and confirmation by the National Monuments Service.

8.5.3 Operational Effects

There are no anticipated impacts on archaeological, maritime or industrial heritage surviving beneath current site surfaces during the operational phase. However, depending on the nature of the redevelopment, it may impact upon extant built heritage. Ancillary works could impact upon structures such as the former linen store, the workshop, the cheese plant / packaging store. However, these will be imperceptible and temporary in nature.

8.5.4 Phased Operational Effects

There are no anticipated impacts on archaeological, maritime or industrial heritage surviving beneath current site surfaces.

8.5.5 Do Nothing Scenario

If no actions are undertaken, any extant subsurface archaeology will remain in a sealed and stable environment and will therefore not be impacted. However, in the absence of development, built heritage structures will remain exposed to the elements and the longer this occurs the more they will deteriorate over time.

8.6 CUMULATIVE DEVELOPMENT & IMPACTS

The application site described in Chapter 1.0 is part of the overall masterplan site. There are no recorded archaeological sites within the application site, nor are there any within 500m of it. The nearest listed recorded archaeological sites with extant visible and physical representation are a post-medieval monumental structure and a 19th century bridge. With a minimum intervening distance of 770m the proposed development has no apparent intervisibility. King John's Castle (monument number LI005-017014) is situated adjacent to the bridge, 900m from the proposed development. While this is one of Limerick's most visible and iconic medieval structures, both the location, distance, and intervening scale of Limerick Strand Hotel and adjacent apartment blocks at O'Callaghan Strand and Ennis Road inhibit any visual impacts.

Archaeological work in association with developments have occurred on the north and west side of the river to the north of Sarsfield Bridge and in the Thomondgate area (excavations.ie). With the exception of some 18th century deposits at Thomondgate, no archaeology was encountered during these developments. The subsurface 18th century material was archaeologically mitigated as part of the development and therefore do not present any cumulative impacts.

Architectural heritage structures reside within the masterplan site listed in Sections 8.3.4.1 (Factory NIAH 21512053, RPS 3265 and Chimney NIAH 21512059, RPS 3264). Subsurface ancillary elements – foundations and unresolved associated deposits – have been identified through gradiometer survey (Section 8.3.2.2.2). The absence of recorded archaeological sites within the proposed development, the masterplan site and its vicinity and following the application of the mitigation measures presented in Section 8.5, Table 8.8, it is considered that the proposed development will not act in combination with

other phases of development within the overall masterplan site to result in any significant direct or indirect cumulative effects on the archaeological resource during the construction and operational phases. Similarly, the application of the mitigation measures presented in Section 8.5, Table 8.8, in relation to architectural heritage will not act in combination with other phases of development within the overall masterplan site to result in any significant direct or indirect cumulative effects on the architectural heritage resource during the construction and operational phases.

A review of the permitted developments listed in Appendix 1.1 was conducted as part of the assessment of potential cumulative effects on the cultural heritage resource. Those developments with archaeological requirements are Ref. 2360169 – Cobblestone Joes, Little Ellen Street; Ref. 23557 – Ardhu House, Ennis Road; Ref. 2460633 – High Street, Limerick; Ref. 20457 – Dock Road & Saint Alphonsus Street; Ref. 20972 – No. 2 & No. 3 Mallow Street; Ref. 228016 – Speakers Corner, Lower Careys Road. They either resulted in no archaeological findings or any encountered archaeology occurred within the relevant development's subsurface, in which the discovery and mitigation contributed positively to understanding the archaeological heritage of Limerick, which would otherwise have remained unknown and unrecorded. There are no cultural heritage constraints of these developments impacting upon the proposed development. Therefore, the proposed development will not act in combination with these developments to result in any significant direct or indirect cumulative effects on the cultural heritage resource during the construction and operation phases.

8.7 REMEDIAL & MITIGATION MEASURES

8.7.1 Construction Phase Mitigation

A pre-construction programme of targeted archaeological test trenching under licence by the National Monuments Service, will be carried out by a suitably qualified archaeologist within the proposed Masterplan site inclusive of the proposed development site. Test excavation at predevelopment phase will identify the nature, scope and survivability of subsurface archaeological, industrial and maritime heritage. This will assist in quantifying the extent of the subsurface heritage and ensure that a well-planned and structured or phased approach to monitoring and, where applicable, archaeological excavation occurs to minimise or eliminate any adverse impacts upon construction schedules. Archaeological monitoring entails archaeological supervision of any groundworks in the event that archaeology is encountered. Should the development negatively intrude into or adversely affect any discovered archaeology, a resolution strategy is required subject to approval from the National Monuments Service, to archaeologically excavate and record the archaeological material under controlled conditions led by a licence eligible archaeologist. Excavating and recording the archaeology has the benefit of presenting previously unrecorded archaeology to enhance the overall understanding of Limerick's archaeological heritage. The method of archaeological excavation is dependent on the nature and extent of the revealed archaeology and how it is affected by the development. These considerations are incorporated into a method statement as part of the archaeological licence application submitted to the National Monuments Service so that the excavation can occur.

8.7.1.1 Battery (Ref. Table 8.8)

There are no impacts. The site is sufficiently distant that it has no impact upon the MS. The site is no longer extant.

8.7.1.2 Earthwork (Ref. Table 8.8)

There are no impacts. The site is sufficiently distant that it has no impact upon the MS. The site is no longer extant.

8.7.1.3 Bridge (Ref. Table 8.8)

There are no impacts. The site is sufficiently distant that it has no impact upon the MS.

8.7.1.4 Monumental Structure (Ref. Table 8.8)

There are no impacts. The site is sufficiently distant that it has no impact upon the MS.

8.7.1.5 Bastioned Fort (Ref. Table 8.8)

There are no impacts. The site is sufficiently distant that it has no impact upon the MS. The site is no longer extant.

8.7.1.6 Water Mill (Ref. Table 8.8)

There are no impacts. The site is sufficiently distant that it has no impact upon the MSD. The site is no longer extant.

8.7.1.7 Archaeological Monitoring (Ref. Table 8.8)

There are no impacts. No archaeology was encountered. The site received ground works and subsequent development.

8.7.1.8 Archaeological Monitoring (Ref. Table 8.8)

There are no impacts. No archaeology was encountered. The site received ground works and subsequent development.

8.7.1.9 Bronze Spur (Ref. Table 8.8)

There are no impacts. Single artifact recovered sufficiently distant from the MS. The artefact was recovered and is no longer extant.

8.7.1.10 Gold Collet (Ref. Table 8.8)

There are no impacts. Single artifact recovered sufficiently distant from the MS. The artefact was recovered and is no longer extant.

8.7.1.11 Site Assessment (Ref. Table 8.8)

There are potential negative impacts that are slight to moderate in nature and of a temporary duration. The MS is almost entirely covered in concrete or tarmac hard surfaces. This undoubtedly entailed topsoil removal to underlying subsoil surface at a minimum. Any archaeology may have been truncated within the topsoil horizon but could survive in the upper subsoil profile beneath current surfaces. Deeper 19th century ground intrusions for the construction and operation of the Flax Mill and surrounding developments and the shipyard could have further truncated any potential archaeology in whole or part. Mitigation will be implemented by carrying out pre-development archaeological test excavation to further ascertain the likelihood of presence of subsurface archaeology and identify its nature and extent. Stonetown Terrace has received extensive landfill adjacent to the Upper Reservoir. The extent of ground intrusions prior to landfill remains unclear and may thus have the potential to retain undisturbed or partially disturbed archaeology.

8.7.1.12 Flax Mill (Ref. Table 8.8)

There are neutral impacts that are slight in nature and of a temporary duration. Adjacent groundworks could identify outlying ancillary structures. Mitigation of adjacent pre-development archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.13 Chimney Stack (Ref. Table 8.8)

There are neutral impacts that are slight in nature and of a temporary duration. Adjacent groundworks could identify outlying ancillary structures. Mitigation of adjacent predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.14 Engine House (Ref. Table 8.8)

There are neutral impacts that are slight in nature and of a temporary duration. Adjacent groundworks could identify outlying ancillary structures. Mitigation of adjacent predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.15 Water Tank Building (Ref. Table 8.8)

There are neutral impacts that are insignificant in nature and of a temporary duration. Adjacent groundworks could identify outlying ancillary structures. Mitigation of full architectural heritage record, adjacent predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.16 Infiltration Gallery (Ref. Table 8.8)

There are neutral impacts that are imperceptible in nature and of a temporary duration. Not subject to the current development proposal but may be affected by adjacent works.

8.7.1.17 Lower Reservoir (Ref. Table 8.8)

There are neutral impacts that are imperceptible in nature and of a temporary duration. Not subject to the current development proposal but may be affected by adjacent works.

8.7.1.18 Former Linen Store (Ref. Table 8.8)

There are positive impacts that are imperceptible in nature and of a temporary duration. Redevelopment may alter the nature of the structure, its context or setting. Adjacent groundworks could identify outlying ancillary structures. Mitigation of full architectural heritage record and archaeological monitoring of the groundworks at construction phase.

8.7.1.19 Workshop (Ref. Table 8.8)

There are positive impacts that are imperceptible in nature and of a temporary duration. Redevelopment may alter the nature of the structure, its context or setting. Adjacent groundworks could identify outlying ancillary structures. Mitigation of full architectural heritage record and archaeological monitoring of the groundworks at construction phase.

8.7.1.20 Cheese Plant / Packaging / Store (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a temporary duration. Not subject to the current development proposal but may be affected by adjacent works.

8.7.1.21 Offices to O'Callaghan Strand (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Redevelopment may positively effect its context or setting. Ground penetrating radar survey did not yield significant results. Pre-development test excavation of broader setting and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.22 Cold Store (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Adjacent groundworks could identify outlying ancillary structures. Mitigation of full architectural heritage record, adjacent predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.23 Upper Reservoir (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Redevelopment may positively impact its context or setting. Ground penetrating radar survey did not yield significant results. Pre-development test excavation of broader setting and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.24 South Warehouse (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a permanent duration. Temporary construction compound will be sited here. Removal will positively affect its context or setting. Pre-development test excavation of broader setting and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.25 Victorian Terrace (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a permanent duration. Groundworks could identify archaeological deposits. Mitigation of predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.26 Quarry Face (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a long-term duration. Redevelopment will positively alter context or setting. Associated works could identify ancillary elements. Mitigation of heritage assessment recording for evidence of tooling.

8.7.1.27 Salesian Secondary School (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a permanent duration. Aside from the former extant Fernbank House, the other buildings within its curtilage are modern and their removal is considered positive. Redevelopment with associated groundworks could retain the potential to identify subsurface archaeology that may survive in whole or part. Mitigation of predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.28 Salesian Primary School (Ref. Table 8.8)

There are positive impacts that are neutral in nature and no relevant duration. Outside the Masterplan, not subject to the current development proposal and thus no impacts from the proposed development.

8.7.1.29 Rowing Club (Ref. Table 8.8)

There are positive impacts that are neutral in nature and no relevant duration. Not subject to the current development proposal and thus no impacts from the proposed development.

8.7.1.30 Boundary Walls (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a permanent duration. The boundary walls present a mosaic of different periods from the early mid-19th century. Some of these retain built heritage value, in particular the south, northwest and northeast walls (some of which present façades of former buildings), southwest boundary wall of the factory complex, northeast external wall of the milking parlour and southeast boundary wall to O'Callaghan Strand. Mitigation of built heritage record.

8.7.1.31 Slipway (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Not subject to the current development proposal. Temporary construction compound will be sited here. Its use as a construction compound will have an impact. Associated groundworks or site clearance will expose and affect underlying foundations. The slipway is an integral part of Limerick's maritime heritage that survives at a subsurface level. Mitigation of preconstruction archaeological test excavation and archaeological monitoring subject to the findings of the test excavation.

8.7.1.32 Slipway Buildings (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Not subject to the current development proposal. However, use as a construction compound, EV charging point and drainage works will have an impact. Associated groundworks or site clearance will expose and affect underlying foundations. The slipway buildings is an integral part of Limerick's maritime heritage that survives at a subsurface level. Mitigation of preconstruction archaeological test excavation and archaeological monitoring subject to the findings of the test excavation.

8.7.1.33 Engine Works (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Not subject to the current development proposal. However, use as a construction compound, EV charging point and drainage works will have an impact. Associated groundworks or site clearance will expose and affect underlying foundations. The engine works is an integral part of Limerick's maritime heritage that survives at a subsurface level. Mitigation of preconstruction archaeological test excavation and archaeological monitoring subject to the findings of the test excavation.

8.7.1.34 Carpenters Shop (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Not subject to the current development proposal. However, use as a construction compound, EV charging point and drainage works will have an impact. Associated groundworks or site clearance will expose and affect underlying foundations. The carpenters shop is an integral part of Limerick's maritime heritage that survives at a subsurface level. Mitigation of preconstruction archaeological test excavation and archaeological monitoring subject to the findings of the test excavation.

8.7.1.35 Engine Works & Carpenters Shop (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. Not subject to the current development proposal. However, use as a construction compound, EV charging point and

drainage works will impact. The engine works and carpenters shop is an integral part of Limerick's maritime heritage that survives at a subsurface level. Mitigation preconstruction archaeological test excavation and archaeological monitoring subject to the findings of the test excavation.

8.7.1.36 Possible earlier structure (Ref. Table 8.8)

There are positive impacts that are positive in nature and of a temporary duration. The structure may have a direct association with or even predate the 19th century buildings. Mitigation of predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.37 Unknown anomalies. Possible foundations or ancillary elements (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a temporary duration. These anomalies relate to the factory complex and shipyard and engine works (and shipyard) are possibly part of Limerick's maritime and industrial heritage. Mitigation of predevelopment archaeological test excavation and archaeological monitoring of construction subject to the findings of the test excavation.

8.7.1.38 Possible backfill areas (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a temporary duration. These anomalies are not definitive in nature. Mitigation of construction archaeological monitoring.

8.7.1.39 Underground service lines. (Ref. Table 8.8)

There are positive impacts that are neutral in nature and of a temporary duration. Modern services. No mitigation required.

8.7.2 Operation Phase Mitigation

Depending upon the results of the archaeological test excavation and archaeological monitoring, as well as archaeological excavation (where applicable), their findings can be incorporated into the operating of the Cleaves Riverside Quarter.

Should there be extensive subsurface survival of the industrial and maritime heritage in the form of physical or structural remains, it may be deemed beneficial to expose these structures to public viewing to allow for full visual access and interpretation of the relevant heritage. Should this be considered, options such as full or partial pedestrian access; enclosed but visually accessible methods; restored ground surface with distinguishing or tactile surfaces to highlight the nature and extent of subsurface structures, would enhance the redevelopment and protection of extant buildings of heritage value. Such measures require a multi-disciplinary design approach that involves archaeological and landscape architectural inputs, though not excluding any other relevant disciplines. The proposal is presented to the National Monuments Service and the planning authority for consideration and approval.

Any resulting artefactual heritage will be conserved where applicable and presented in an on-site location dedicated to its overall industrial and maritime heritage, together with full interpretation of the site. Presentation of both the conservation and archaeological works can form a significant part of any on-site feature, which could provide an appropriate beneficial context of Limerick Twenty Thirty. The Flaxmill Plaza has adequate space to accommodate such requirements should the need arise.

Furthermore, there are many existing heritage buildings which could be adapted as part of Phase II to accommodate such works.

8.8 RESIDUAL IMPACTS

8.8.1 Construction Phase

Should archaeology be encountered during construction, this will require archaeological recording and depending upon the nature and extent of the archaeology, may require archaeological excavation. Should this occur, the discovery and interpretation of the archaeology will enhance the archaeological heritage of Limerick, its setting and context. Archaeological records generated will become available for further research, such as postgraduate studies and academic publications. These records will form a corpus of archaeological data that will help inform the National Monuments Service and planning authority in terms of any future planning applications for other developments within the vicinity of the development site.

8.8.2 Operational Phase

Any discovered archaeology will embellish the mosaic of the development site's rich heritage, from conceivable relatively archaeology – depending on what is discovered – to its industrial heritage. This tapestry of its past will be celebrated through the archival records generated and add to the understanding of the development site's broader historical and archaeological setting of Limerick. Should it be considered, this can be enhanced with tactile or other distinguishing surfaces or features that shows where and what archaeology was discovered, including interpretative panels and a dedicated interpretative space with artefactual displays of the archaeology.

8.9 MONITORING

8.9.1 Construction Phase

Archaeological monitoring of all groundworks shall be undertaken throughout the construction phase by an appropriately qualified archaeologist, subject to the findings of the predevelopment archaeological test excavation.

8.9.1 Operation Phase

All required onsite archaeological excavation mitigation measures will be enacted prior to and during the construction phase and, therefore, no cultural heritage mitigation measures requiring monitoring are predicted during the operational phase of the proposed development. Until the development commences any anticipated archaeology remains an unquantifiable absolute resource. The gradiometer survey has assisted in indicating subsurface features and structures of historical value, such as ancillary foundations, being the slipway, slipway buildings, engine works, carpenters shop. These are quantifiable subsurface features. However, they are not conclusive and the gradiometer survey has identified ancillary elements that it could not interpret. This industrial and in particular the maritime heritage has been lost elsewhere in Ireland, through redevelopment of similar sites without recourse to appropriate archaeological investigation and recording. The proposed development is significant as it presents a unique opportunity to fully access, record and where appropriate,

archaeologically excavate, interpret and make accessible these findings. The creation of these records will ensure access to this heritage through retention and presentation of the resulting data.

Further archaeological discoveries could occur, given the scale of the overall development, in particular in areas where groundworks will occur that were not accessible to the gradiometer survey.

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