

11.3.2 The Site

The site is primarily an area of reclaimed land east of Lough Atalia Road, in what was previously the marshy channel between Galway Bay and Lough Atalia (see Figure 11-4). The area was reclaimed/constructed as part of a late 20th century project to create the New Docks on the east side of Lough Atalia. This involved the canalisation of the channel, which created the angular eastern waterfront boundary of the site.

The site was initially used as a storage depot and contained several large cylindrical tanks and small buildings (see Figure 11-4). The tanks have now been removed leaving the site as a large, flat hard standing with five buildings (bus depot/office building and ancillary structure, ESB sub-station and ancillary structure, pumping station). It has most recently been used as a bus depot and storage yard.

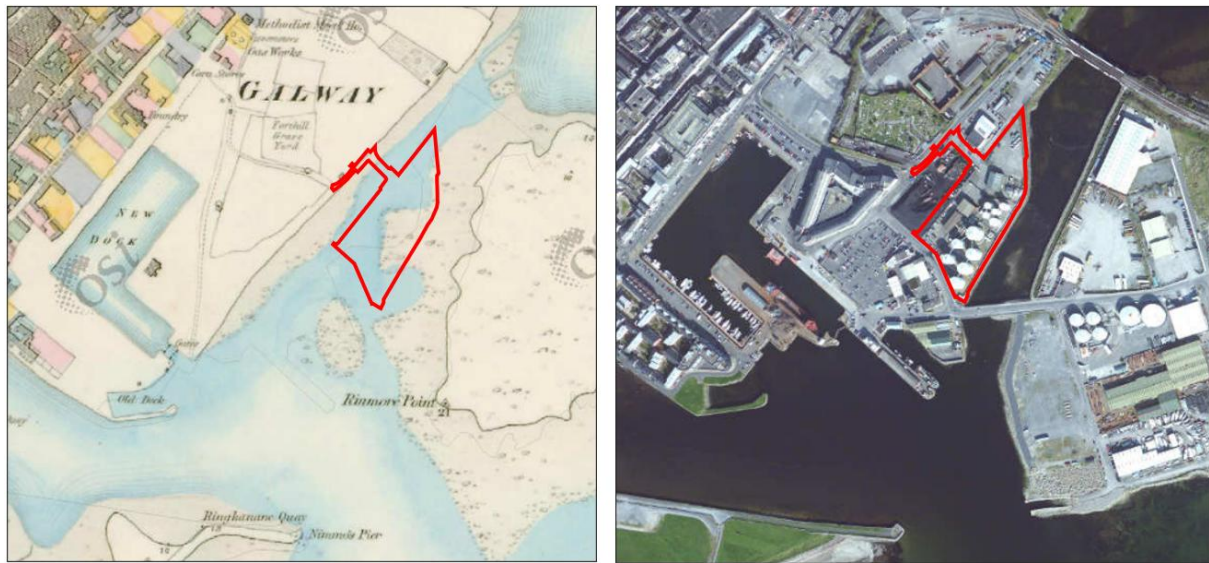


Figure 11-4 S 6 Inch Map from the 19th Century and Aerial Photograph from Early 2000s
Showing the Site's Location in an Area of Reclaimed Land for Industrial Use

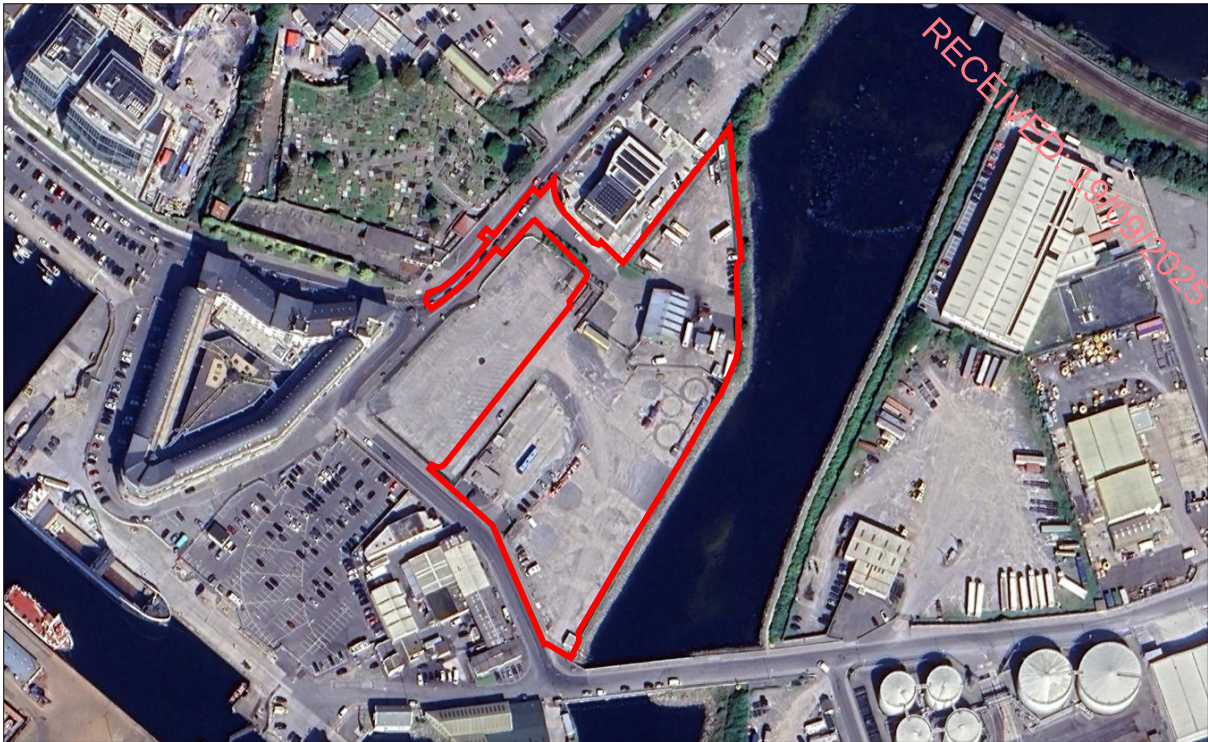


Figure 11-5 Recent Aerial Photograph Showing the Character and Condition of the site and Immediate Environs



Figure 11-6 A View Towards the site from Lough Atalia Road to the North. The Two Storey Pitch Roofed Building in the Middle Distance is on the Site



Figure 11-7 A View of the Site Boundary Along New Docks Road

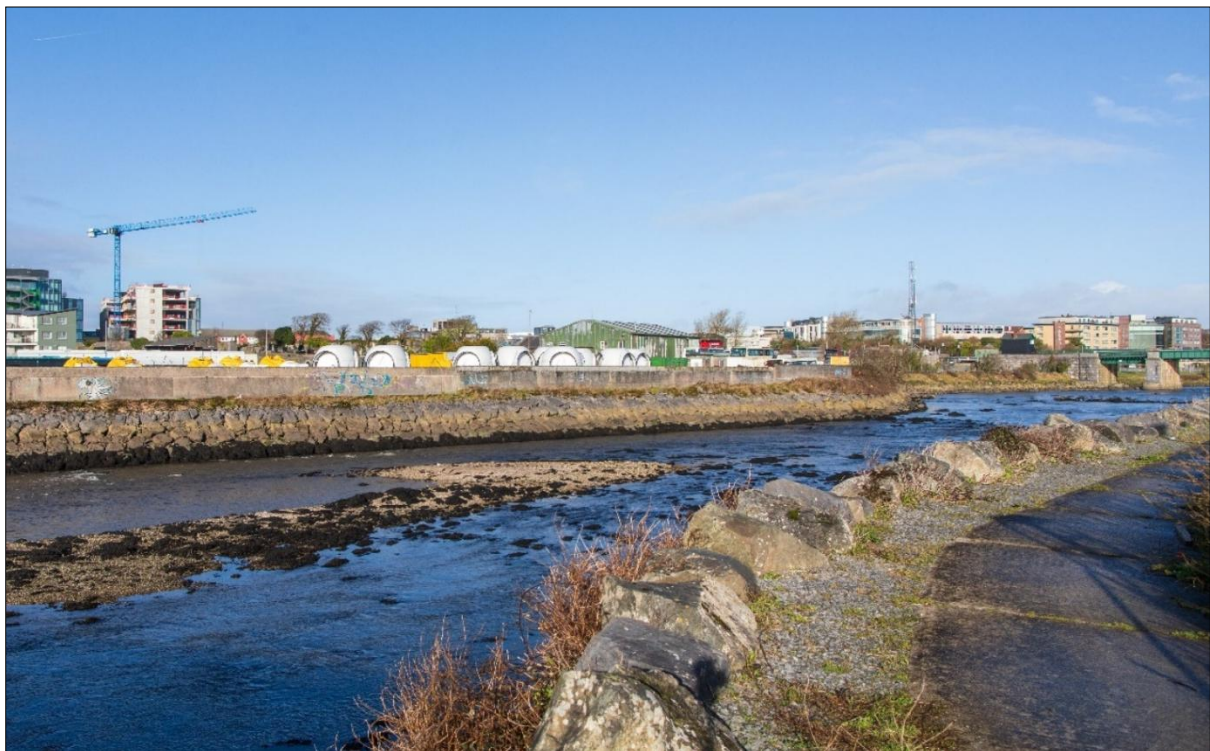


Figure 11-8 A View of the Site's Waterfront Boundary from across the Lough Atalia Channel. The Railway Bridge is visible to the right and the Evolving City Centre forms the backdrop. At the Time This Photo was Taken the Site was Being Used to Store Wind Turbine Components

11.3.3 Land Use Zoning

The site is zoned 'City Centre' (CC) in the Galway City Development Plan 2023-2029 (GCDP), with the objective *"To provide for city centre activities and particularly those which preserve the city centre as the dominant commercial area of the city"*.

Residential, retail, café and crèche (the four uses proposed as part of the Proposed Development) are permitted in principle on CC-zoned land.

Section 3.8 of the GCDP, regarding city centre residential areas, states: *"As a residential area, the city centre is a very attractive place to live. It has a high quality built and natural environment and easy access to services, employment opportunities and arts and culture activities. The compact urban form and the network of streets also enables easy access and good walkability. The Plan, reflecting national and regional policy, supports a strong objective to increase the residential population and employment activities in the city centre. This will add vitality to the city centre and represents a sustainable and efficient use of land that will reduce car dependency. Increased city centre living also supports the city centre as an employment hub for strategic investment and innovation activity."* [emphasis added]

Policy 3.7 of the GCDP (see extract from GCDP, Figure 11-9) gives further emphasis to residential land use in the city centre, specifically on designated regeneration sites (see 11.4.2.2 below):

Policy 3.7 City Centre Residential Areas	
1.	Prioritise the provision of new homes on designated Regeneration and Opportunity Sites in the city centre at appropriate scales to enable the development of new sustainable city centre communities.
2.	Protect and enhance established city centre residential communities by discouraging encroachment from commercial development and unacceptable infill developments.
3.	Enhance city centre residential areas through implementation of environmental improvement schemes and improvements to the public realm, including, where appropriate, homezones and recreational facilities in conjunction with local residents.
4.	Encourage the expansion of the city centre residential community by requiring a residential content in new development proposals.
5.	Consider the redevelopment of the City Council car park at Bowling Green to meet social and/or affordable housing needs.

Figure 11-9 Galway City Development Plan 2023-2029 Policy 3.7

11.3.4 Inner Harbour Regeneration Site

The GCDP designates a number of Strategic Regeneration Sites, of which the Inner Harbour area - including the Proposed Development site – is one. (Regeneration sites are typically brownfield urban sites designated for redevelopment as part of the planned transformation of an area.) The GCDP states: *"These sites represent transformative opportunities for developments of scale with new residential communities and mixed uses complementing the experience of the city centre. They have potential to be developed in a sustainable manner while retaining the historic character and distinctiveness of the city centre."*

"The Inner Harbour Regeneration Site comprises approximately 7 hectares. It has potential for significant redevelopment providing an opportunity to re-establish links between the city

centre and the sea, to create a high quality waterfront setting, a new city centre mixed use neighbourhood and include for water-related leisure uses. This area is already under transition with the current development of Bonham Quay contributing to the transformation of this part of the city centre and indicating a scale and density that could be achieved in the wider Inner Harbour.”

Galway Harbour Company (GHC), which controls the majority of the lands surrounding the Inner Harbour, previously published a ‘Vision Document’ for the Inner Harbour Regeneration Area, which included an indicative masterplan for the area’s redevelopment. The masterplan is currently in the process of review and amendment, and a draft has been issued to stakeholders. The draft masterplan includes the subject site.

The ongoing review of the masterplan has informed the design of the Proposed Development. The two design teams (for the Inner Harbour masterplan and the Proposed Development) have coordinated the designs to ensure cohesion.

11.3.5 Site Location, Condition and Development Potential - Summary

In summary, the Proposed Development site is:

- Located in the centre of the Galway urban/metropolitan area;
- On reclaimed land formerly in industrial/port use and occupied by large structures (now mostly removed);
- A waterfront site;
- Close to/walking distance from the city centre (approximately 500m from Shop Street);
- Close to/walking distance (approximately 500m) from the city’s public transport hub at Ceannt Station;
- Adjacent to – and prominently located in relation – three key routes of entry to the city centre, i.e. Lough Atalia Road, the railway line and New Docks Road;
- Zoned ‘City Centre’, with residential, retail, café and crèche use permitted in principle and residential use specifically required/encouraged;
- Surrounded by lands of similar use/character and similarly zoned ‘City Centre’ or ‘Enterprise, Industry and Related Uses’; and
- Part of the Inner Harbour Regeneration Site. These sites are described in the GCDP as *“transformative opportunities for developments of scale with new residential communities and mixed uses”*.

The site is thus of substantial value as a land use/development asset strategically located in the city. It provides an opportunity to contribute to the realisation of (a) a high-density mixed-use harbour quarter, and (b) the expansion of the city centre to the waterfront. This potential is heightened by the fact that there are no sensitivities on the site (no vegetation, buildings of value or cultural heritage sites), and few sensitivities in the immediate environs. The nearest sensitivity (in townscape/visual terms) is Forthill Cemetery approximately 60m to the north west (from the main body of the site) across Lough Atalia Road, separated by another development site. Lough Atalia, including the channel alongside the site, is a Natura 2000 site. This ecological sensitivity is addressed elsewhere in the EIAR (Chapter 5).

11.3.6 Potential Receptors of Townscape and Visual Impacts

The following are the key elements and areas of the surrounding townscape that may be affected by the proposal (see Figure 11-10):

- West of the site:
 - Inner Harbour Regeneration Site east of Lough Atalia Road;
 - Forthill Cemetery;
 - Ceannt Quarter Regeneration Site/Augustine Hill Development
- East of the site: The New Docks area and possible future Galway Harbour extension;
- North of the site: Lough Atalia and Lough Atalia Road; and
- South of the site: Nimmo's Pier, Claddagh Quay/Grattan Road, South Park;

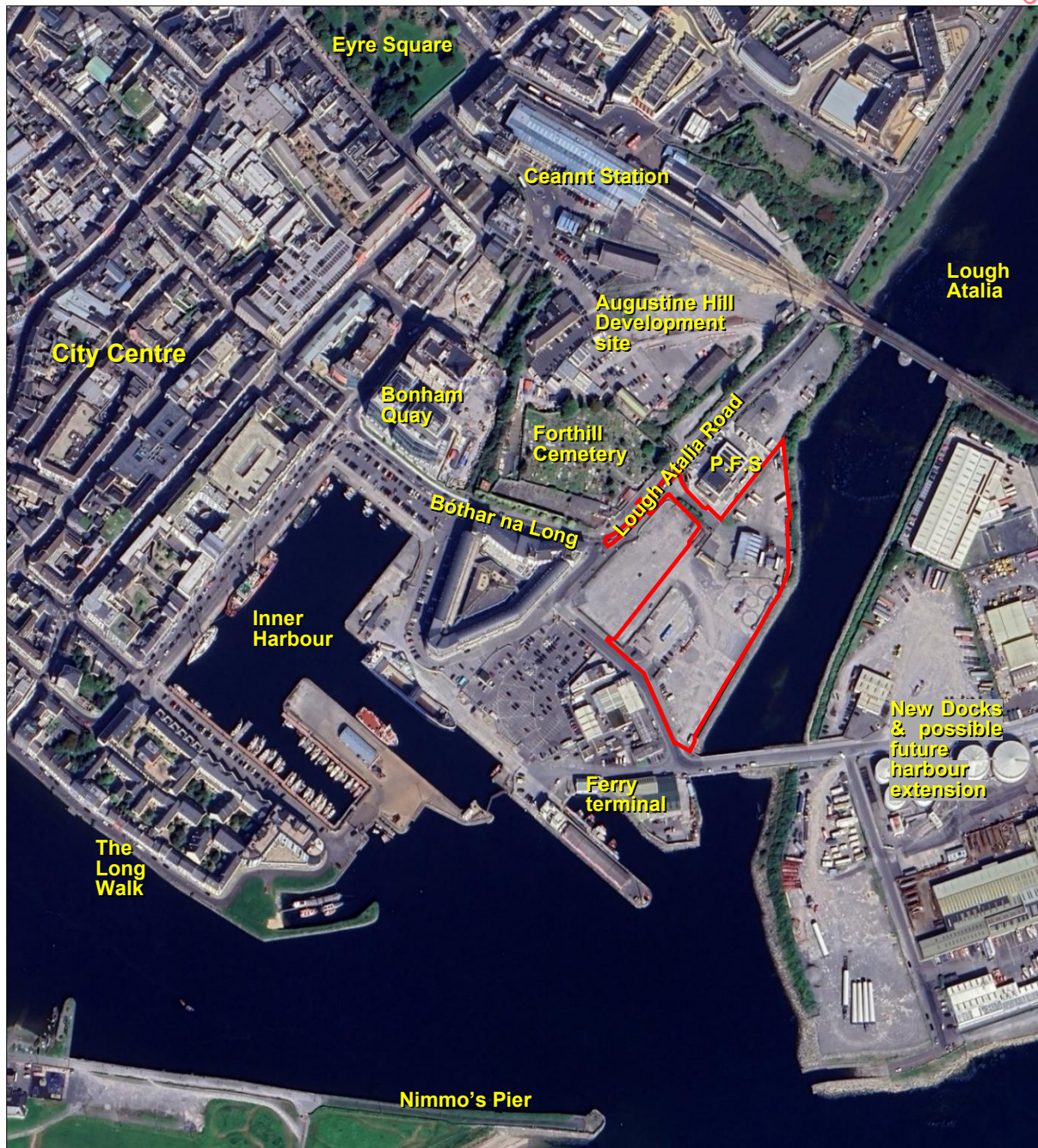


Figure 11-10 Key Elements and Character Areas in the Townscape Around the Site

11.3.6.1 West of the Site – Lough Atalia Road and the Future Harbour Quarter

Immediately to the west and northwest of the site (between the site and Lough Atalia Road), and southwest of the site (between the site and the Inner Harbour) is an area of similar

character to the site, i.e. reclaimed land mostly in industrial or harbour-related use, zoned City Centre and part of the Inner Harbour Regeneration Site. The uses in this area include a ferry terminal across New Docks Road from the site, and a petrol filling station to the west between the site and Lough Atalia Road (see Photo 11-11). This area is of low sensitivity to townscape change.



Figure 11-11 The View Towards the Site from Lough Atalia Road Showing the Limited Visual Amenity of the Townscape

11.3.6.2 West of Lough Atalia Road – Forthill Cemetery

To the west of Lough Atalia Road is Forthill Cemetery. The cemetery contains graves dating mostly from the 18th to 20th centuries, and a monument to the Spanish Armada commemorating the wreckage of the fleet on Ireland's west coast in 1588.

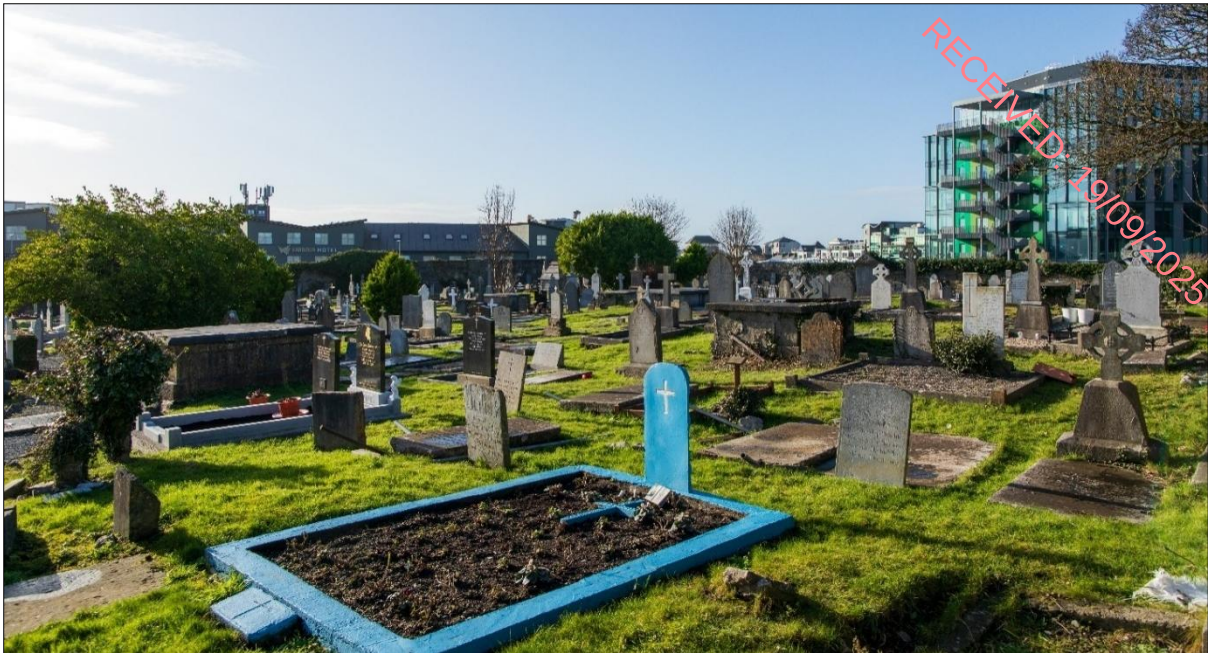


Figure 11-12 Forthill Cemetery, with the Bonham Quay Development Under Construction to the Right

As a green open space, the cemetery is of amenity value internally (see Figure 11-12). However, views from the cemetery are of limited amenity value due to the nature of the surrounding lands (harbour industry or railway-related). This includes views east towards the site (Figure 11-13).



Figure 11-13 A View East from Forthill Cemetery Over Lough Atalia Road Towards the site, with the New Docks area and a Part of the Bay Visible in the Distance and the New Docks area

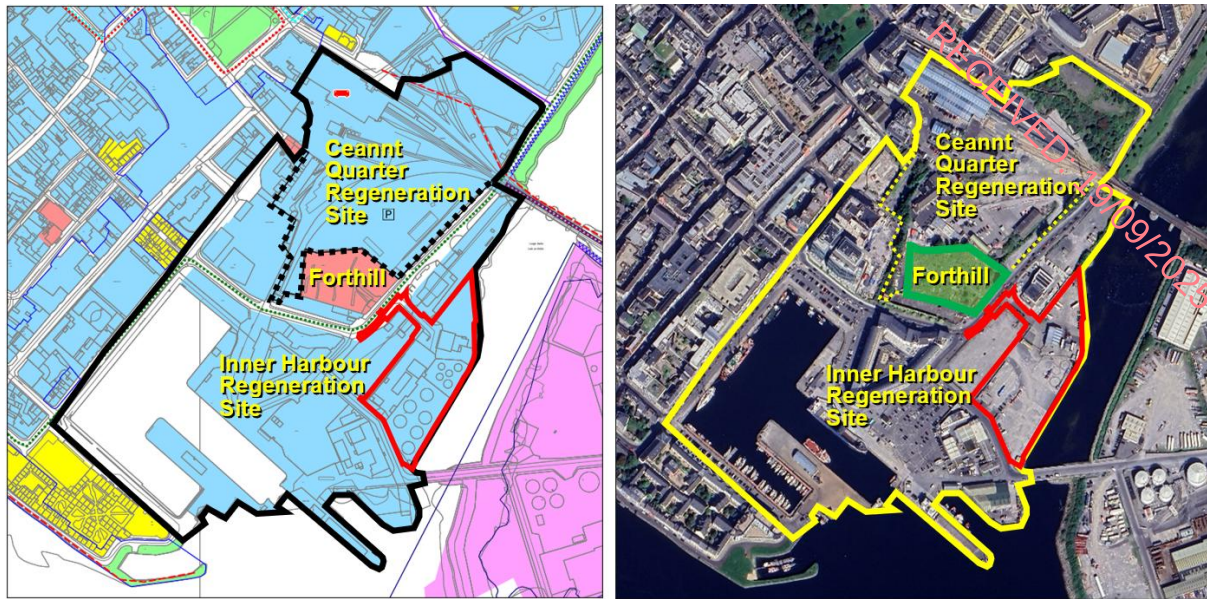


Figure 11-14 Forthill Cemetery Location in Relation to the Ceannt Quarter and Inner Harbour Regeneration Sites

Forthill Cemetery is a valued cultural heritage feature and visitor attraction, as well as an open space and green infrastructure asset. While this suggests it is sensitive to change, it must be recognised that (a) the cemetery has for decades been surrounded by an unsightly industrial landscape, and (b) it is now located at the centre of Galway's city centre strategic regeneration area (the combined Ceannt Quarter and Inner Harbour Regeneration Sites).

Figure 11-14 shows the central position of Forthill in the combined Strategic Regeneration area. The planned transformation of the area from industrial zone to mixed use city centre quarter has implications for the role of the cemetery in the townscape, and for views of and from the cemetery. Increased built/visual enclosure is unavoidable, and not necessarily undesirable. The increased mix and intensity of use around the cemetery will heighten its value as a cultural heritage and green infrastructure asset, as well as a visual amenity resource for the surrounding tall buildings. The assessment of development proposals in the surrounding townscape must take account of this.

11.3.6.3 West of Lough Atalia Road – Augustine Hill/Ceannt Quarter

Directly to the north and west of Forthill Cemetery is the site of the planning-permitted Augustine Hill development on lands attached to Ceannt Station (the Ceannt Quarter Regeneration Site identified on Figure 11-14). This is a high-density mixed-use scheme comprised of nine blocks of development, with buildings ranging from two to 21 no. storeys, and a network of new pedestrian streets and squares. This development will (a) transform the character of Galway as a city, and (b) extend and connect the city centre to Lough Atalia Road just to the west of the subject site.

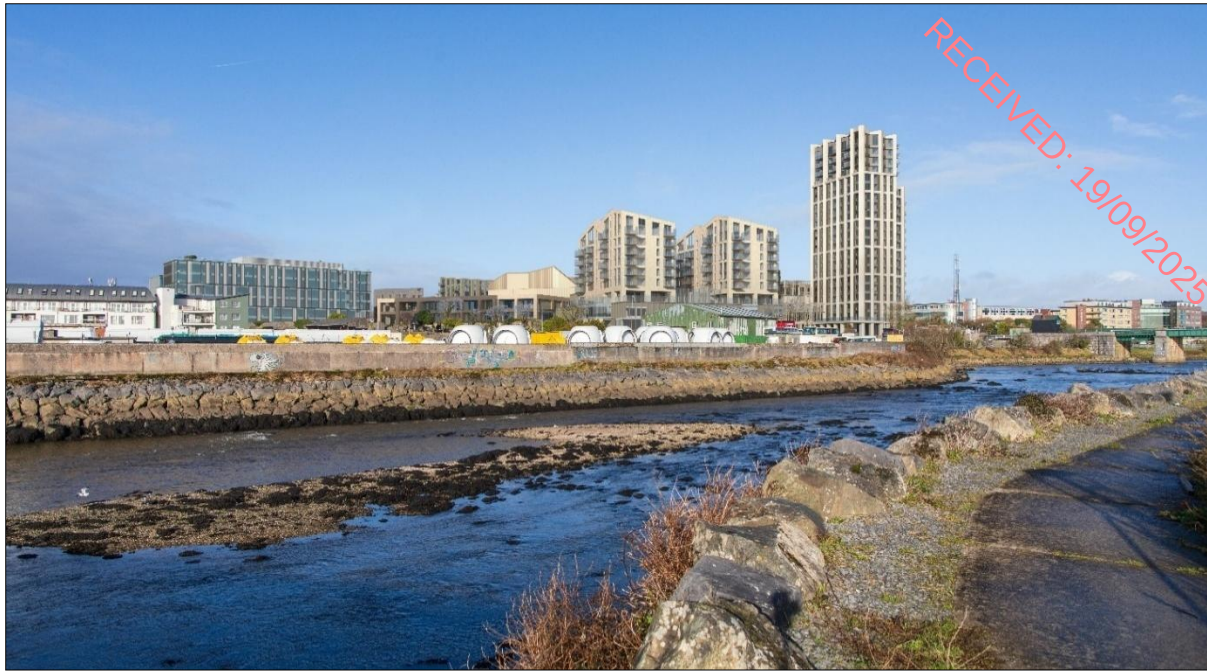


Figure 11-15 Photomontage Showing the Permitted Augustine Hill Development Beyond the Lough Atalia channel and the Subject Site

11.3.6.4 East of the Site – New Docks Area and Possible Future Harbour Extension

To the east of the site across the Lough Atalia channel is the New Docks area (see Figure 11-3). This is an area of reclaimed land lying between the railway line (and Lough Atalia) to the north and Galway Bay to the south. It is industrial in use, occupied by large warehouse-type buildings and tanks. As a receptor of townscape and visual impacts, the New Docks area is of low sensitivity to change.

In 2014, Galway Harbour Company applied to An Bord Pleanála for planning permission for a 27 ha extension of the harbour – from the New Docks area south into Galway Bay (see Figure 11-16). The plan for the harbour extension includes cruise liner berths and a new marina, with the objective of establishing a cruise and marine tourism sector in Galway.



Figure 11-16 Proposed Galway Harbour Extension

The harbour extension application is pending. If it is permitted, New Docks Road will provide the link between the new harbour and Galway city centre. The bridge over the Lough Atalia channel will become a gateway to the city, and the site - located beside the bridge and with frontage to the road - will be a 'gateway site' on the route into the city for thousands of visitors.

11.3.6.5 North of the Site – Lough Atalia, Old Dublin Road and the Railway Line

The site's position fronting the Lough Atalia channel exposes it to views from the north around Lough Atalia - including the Old Dublin Road at the northern end of the lake, and Lakeshore Drive on the east side. These are protected views (see Section 11.4.2.5). The site is also visible from the railway line as it approaches the city centre, crossing the Lough Atalia channel before arriving at Ceannt Station. Like the potentially affected stretch of the Old Dublin Road, this can be considered a gateway to the city, giving some importance to the view.



Figure 11-17 Areas to North and South of the Site from which the Proposed Development may be Visible

11.3.6.6 South of the Site – Nimmo's Pier, Claddagh Quay/Grattan Road and South Park

The site is similarly exposed to views from the coastline to the south beyond the Corrib River - including Nimmo's Pier, South Park, and Grattan Road. These are also protected views.

11.3.6.7 Site Location in Relation to Medieval City, Eyre Square and Long Walk ACAs

Galway's medieval core is designated an Architectural Conservation Area (ACA) and described in the GCDP as *"the most important area of built heritage in Galway"*. Its medieval street pattern and historic architecture generate a character that is unique to Galway and of significant cultural and economic value. Any change that harms the character of the medieval core must be avoided.

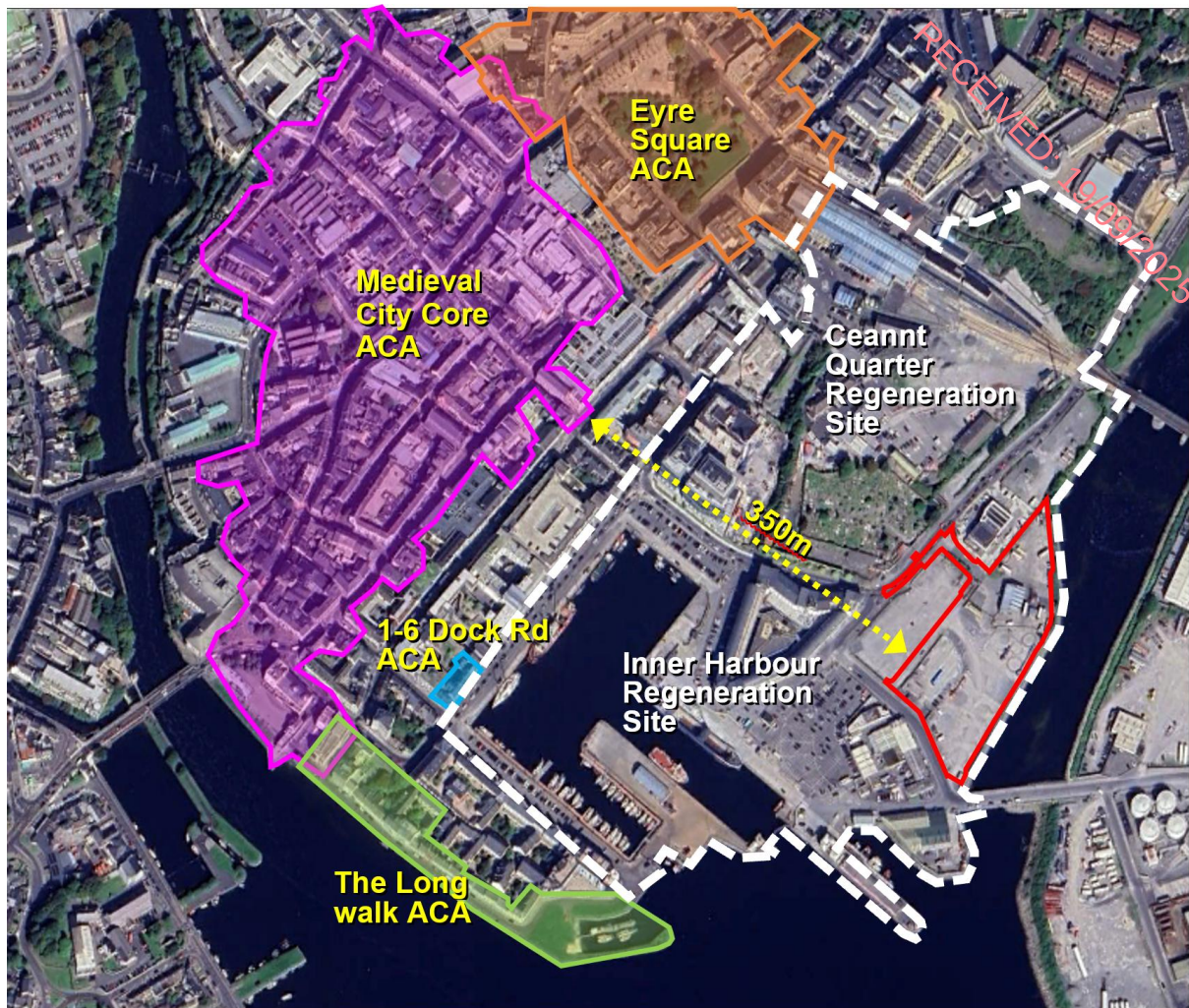


Figure 11-18 Site Location in Relation to the City Centre Architectural Conservation Areas. The Site is the Furthest Part of the Combined City Centre Regeneration Area from the ACAs

The Proposed Development site is approximately 350m from the City Core ACA at its nearest point (it is the furthest part of the city centre Regeneration Sites from the ACA). There are several city blocks of modern development between the site and the ACA, including Bonham Quay and the developments along Dock Road and Merchants Road. Additionally, due to its fine grain and narrow streets, there is a high degree of built enclosure in the medieval city, which restricts visibility of the surrounding townscape. These factors combine to limit the potential of any development on the site to affect the medieval city core.

The site is a similar distance (300+ m) from the other ACAs in the city centre, including the Eyre Square ACA, Long Walk ACA, and Nos. 1-6 Dock Road ACA. The Inner Harbour and Ceannt Quarter Regeneration Sites lie between the subject site and these city centre ACAs. This further limits the potential for any development on the site to have significant effects on these ACAs - as (in the future) there will be a buffer of similar development between the site and the ACAs.

11.4 Relevant Policy

11.4.1 National Policy

11.4.1.1 National Planning Framework (1st Revision, April 2025)

Compact Growth and Brownfield Development

The 1st 'Shared Goal' and intended 'National Strategic Outcome' of the NPF is compact growth. Compact growth means *"making better use of under-utilised land and buildings, including 'infill', 'brownfield' and publicly owned sites and vacant and under-occupied buildings, with higher housing and jobs densities, better serviced by existing facilities and public transport"* (NPF p.16).

Compact growth policy encourages higher density - and therefore taller - development in urban areas where supporting infrastructure and services are available. National Policy Objective 20 of the NPF states: *"In meeting urban development requirements, there will be a presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities, towns and villages, subject to development meeting appropriate planning standards and achieving targeted growth"*.

On securing compact and sustainable growth the NPF states: *"The preferred approach involves compact development that focuses on reusing previously developed, 'brownfield' land, building up infill sites, which may not have been built on before and either reusing or redeveloping existing sites and buildings."*

Regarding building height, National Policy Objective 22 states: *"In urban areas, planning and related standards, including in particular building height and car parking will be based on performance criteria that seek to achieve well-designed high quality outcomes in order to achieve targeted growth"*. The NPF continues: *"This more dynamic approach will also be applied to urban land use, where the existing character of land use in an urban area may be subject to change. This should generally be as part of an overall area or master plan and/or be suitable for application on an incremental basis"*.

The above applies directly to the site environs. The former industrial and harbour-related land use in the area is changing, and this in turn is changing the townscape character and the capacity of the area to accommodate new development typologies and increased building height.

Enhanced Amenities and Heritage

Another 'National Strategic Outcome' of the NPF is enhanced amenity and heritage. *"This will ensure that our cities, towns and villages are attractive and can offer a good quality of life. It will require investment in well-designed public realm, which includes public spaces, parks and streets, as well as recreational infrastructure... This is linked to and must integrate with our built, cultural and natural heritage, which has intrinsic value in defining the character of urban and rural areas and adding to their attractiveness and sense of place."* (NPF p.15).

This is relevant as the site – as a waterfront site – has the potential to provide access to, and derive benefit from, a key element of Galway's natural heritage, the Lough Atalia shoreline.

Galway City

Regarding the regional cities the NPF states: *“As the largest centres of population, employment and services outside the Capital, the four cities other than Dublin, provide a focus for their regions. However, it will require the combined potential of all four cities to be realised at an unprecedented rate, to create viable alternatives to Dublin...”*

“Supporting ambitious growth targets to enable the four cities of Cork, Limerick, Galway and Waterford to each grow by at least 50% to 2040 and to enhance their significant potential to become cities of scale”.

National Policy Objective 13 states: *“Develop cities and towns of sufficient scale and quality to compete internationally and to be drivers of national and regional growth, investment and prosperity”.*

Key future development and place-making policy priorities for the Northern and Western Region include: *“Implementing the metropolitan area strategic plan for Galway city, to enable its continued strategic development in a transformational and urban rejuvenation focused manner, with a special focus on capitalising on the potential of underutilised... and centrally located sites and activating their potential to boost the population and economic output levels of central areas”.*

In summary:

- The subject site affords the opportunity to contribute to the realisation of three of the main themes and National Strategic Outcomes of the NPF, i.e. compact growth, accelerated development of the regional cities, and enhanced amenity and heritage;
- The NPF identifies underutilised brownfield lands in the city centre (such as the site) as the vehicle for delivering compact growth most efficiently; and
- In addition to catering for population growth, the NPF seeks - through urban regeneration at an ‘unprecedented rate’ - for the regional cities to ‘transform’, becoming ‘cities of scale’ and ‘viable alternatives to Dublin’ as places of investment, employment, enterprise and innovation.

11.4.1.2 Urban Development & Building Height Guidelines

The Urban Development & Building Height Guidelines (‘Height Guidelines’) state: *“Implementation of the National Planning Framework requires increased density, scale and height of development in our town and city cores... to meet the needs of a growing population without growing our urban areas outwards requires more focus in planning policy and implementation terms on reusing previously developed ‘brownfield’ land, building up urban infill sites... and either reusing or redeveloping existing sites and buildings that may not be in the optimal usage or format taking into account contemporary and future requirements...”*

In Section 3.2 of the Height Guidelines, ‘development management criteria’, are set out to guide the evaluation of development proposals that exceed the height prescribed for an area in the relevant development plan...: *“In the event of making a planning application, the applicant shall demonstrate to the satisfaction of the Planning Authority/An Bord Pleanála (now An Coimisiún Pleanála), that the Proposed Development satisfies the following criteria:...”*

(It should be noted that the Proposed Development does not exceed the height parameters set by the Galway City Development Plan 2023-2029 (see Section 11.4.2.3 below)).

Nonetheless, the Height Guidelines criteria quoted below are a useful reference when assessing the townscape effects of tall buildings.)

At the scale of the relevant city/town:

- *“The site is well served by public transport with high capacity, frequent service and good links to other modes of public transport.*
- *Development proposals incorporating increased building height, including proposals within architecturally sensitive areas, should successfully integrate into/ enhance the character and public realm of the area, having regard to topography, its cultural context, setting of key landmarks, protection of key views. Such development proposals shall undertake a landscape and visual assessment, by a suitably qualified practitioner such as a chartered landscape architect.*
- *On larger urban redevelopment sites, proposed developments should make a positive contribution to place-making, incorporating new streets and public spaces, using massing and height to achieve the required densities but with sufficient variety in scale and form to respond to the scale of adjoining developments and create visual interest in the streetscape.”*

At the scale of district/neighbourhood/street:

- *The proposal responds to its overall natural and built environment and makes a positive contribution to the urban neighbourhood and streetscape.*
- *The proposal is not monolithic and avoids long, uninterrupted walls of building in the form of slab blocks with materials / building fabric well considered.*
- *The proposal enhances the urban design context for public spaces and key thoroughfares and inland waterway/marine frontage... thereby enabling additional height in development form to be favourably considered in terms of enhancing a sense of scale and enclosure...*
- *The proposal makes a positive contribution to the improvement of legibility through the site or wider urban area within which the development is situated and integrates in a cohesive manner.*
- *The proposal positively contributes to the mix of uses and/ or building/ dwelling typologies available in the neighbourhood.”*

The criterion regarding waterway/marine frontage, public spaces and key thoroughfares is particularly relevant to this assessment. The site has extensive waterway/marine frontage (the Lough Atalia channel) along which a Lough Atalia Walk and public open spaces/plazas are proposed. Additionally, the site has frontage to New Docks Road, potentially an important thoroughfare in the future city (if the Galway Harbour Extension is permitted and developed).

11.4.2 Galway City Development Plan 2023-2029

11.4.2.1 Strategic Context and Core Strategy and Approach to the Inner City

In Section 1.6 the GCDP states: *“The major regeneration sites located in the city centre at Ceannt Station Quarter, Inner Harbour... are of such a scale and nature that can satisfy the demand for additional commercial uses and office technology of both an international and indigenous nature. These locations can provide high quality, attractive, city centre locations adjacent to sustainable transport links while also delivering on their potential for high density, residential development. They offer a sequential solution to the expansion of the city centre,*

close to a major transportation hub, reinforcing the prime role of the city centre in both Galway City and the MASP area. Developments at construction and planning stages have already affirmed interest in these locations for employment and city living...

“Expanding the city in this direction not only responds to future enterprise floor space demand it also can, with good design enhance the image of the city, the tourism function and allow for an expansion to a scale commensurate with the designation of Galway as a NPF regional city”.

11.4.2.2 Compact Growth and Regeneration – Inner Harbour Regeneration Site

The GCDP notes that *“the Regional Space and Economic Strategy 2019-2031 (“RSES”) also identifies the City and Metropolitan Area as the primary driver in strengthening the development of the region and reflects the ambition to grow the city as a globally competitive, successful city and metropolitan area which can contribute to re-balancing growth nationally to achieve more regional parity and viable alternatives to Dublin”.*

“Expansion of the city centre into key regeneration sites at Ceannt Quarter, Inner Harbour... will add to the vitality and viability of the city centre. These sites represent transformative opportunities for developments of scale with new residential communities and mixed uses complementing the experience of the city centre. They have potential to be developed in a sustainable manner while retaining the historic character and distinctiveness of the city centre.”

“The Inner Harbour Regeneration Site... has potential for significant redevelopment providing an opportunity to re-establish links between the city centre and the sea, to create a high quality waterfront setting, a new city centre mixed use neighbourhood and include for water-related leisure uses.

The GCDP states that a Masterplan is to be prepared for the Inner Harbour Regeneration Site (which includes the Proposed Development site) to facilitate the transition of the former industrial lands to a mixed-use urban quarter. It specifies tasks/objectives that the Masterplan should undertake. Some of these are relevant to the site:

- *“Ensure a high quality urban design, and demonstrate how redevelopment can connect into and extend the historic street pattern of the city centre. Show good relationship with the existing urban grain/ structure and link public spaces...”*
- *Include for maximum public access and permeability throughout the site, give linkage and views to the waterfront and key coastal vistas and consider the challenge of transition areas bounding the site and anticipate opportunities for linkages and continuity in the design and layout of these sites. This will be particularly important with regard to the adjoining Ceannt Quarter site where regeneration is also planned and where maximum advantage of the waterfront location can be delivered...*
- *Demonstrate where taller buildings and/or landmark buildings are part of the composition, how existing important views, vistas and landmarks are respected and show how such buildings contribute to aspects of urban design such as accessibility, enclosure, character, permeability and adaptability. Consider opportunities for innovative architecture or architecture by design competitions...*
- *Develop the public realm in a manner that maximises the benefits of the waterfront location, achieves a strong sense of place, achieves permeability and reflects a defined functionality and strong landscape impact. This element too should demonstrate how*

linkage with existing spaces can be achieved and where continuity with likely scenarios on the adjoining Ceannt Quarter site can be made...

- *Include measures to ensure connections to the green network, including green and blue links, city cycle and pedestrian networks and ensure biodiversity gain within the site...*
- *Include in the design concept, measures which reflect and protect the industrial heritage of the site...*
- *Include for a maximum plot ratio for CC zones of 2:1. Consideration for a higher plot ratio will be given to development proposals in excess of the normally permissible plot ratio where such proposals would contribute to sustainability, architectural quality, urban design, public realm, delivery of housing and make a significant contribution to urban character."*

11.4.2.3 Urban Density and Building Height Study (2021)

In Section 8.8 the GCDP states: *"The Galway City Urban Density and Building Heights Study (2021) outlines a strategy to help guide and influence urban density and building height of new development. It is prepared in the context of a national policy agenda which revolves around nurturing a more sustainable, compact form of development that can make a positive contribution to the character of the city and create good quality mixed use communities..."*

"Notwithstanding the pursuance of compact growth, Galway's City Core is a historic environment with a sensitive and distinct character. This setting is complemented by both the river and coastline context which provides an impressive landscape and townscape features. As such, the impacts of new development on the city's character and setting will be a major consideration within the visibility envelope of the historic core and natural environment context. The study following analyses, includes for densities and building height ranges open for consideration as part of the overall assessment of proposed developments..."

"These suggested ranges of scale and intensity are a guide and are not absolute measures to be pursued or achieved and each site should be considered on its merits. Densities and heights lower or higher than those outlined in the study may be appropriate when assessed against other relevant policy and guidance..."

"Large sites may support opportunities for exceptional forms of development, this will be where their built form, their social, economic and environmental impact can deliver excellence..."

"Where sites of scale are capable of generating their own character, in particular at the Ceannt Quarter, Inner Harbour and Headford Road Regeneration Areas, scope for greater height is open for consideration where this additionality can demonstrate justification which may be based on outstanding architectural design and satisfy all other planning considerations. In general, the capacity for height will be assessed in conjunction with the development guidance set out in the Galway Urban Density and Building Height Study (2021) Section D Spatial strategy".

The Density and Building Height Study overlays a range of 'suitability criteria' (expressed as spatial layers) to map the relative suitability of the city for higher density/taller development. The map (Figure 11-19) shows the city centre, including the harbour area, to be the most suitable area according to these criteria, with 10+ overlapping layers.

However, the Study states: *“Suitability analysis takes no account of the constraints of an area which might make it more sensitive to potentially negative impacts of more dense forms of development. These factors, which include the proximity to heritage assets and the potential impact on identified key views, must be considered alongside an area’s relative suitability... However, suitability is still seen as the most fundamental part of the density and building heights strategy. Where there are few or no sensitivity factors to consider, an area could only be considered appropriate for more dense forms of development where suitable”.*

The above is relevant to the site. Since the entire city centre area is deemed ‘suitable’ for high density, but in reality, a large part of that area (the city centre ACAs) – is *not* (due to its proximity to heritage assets in the ACA’s), the real potential for using building height to achieve sustainable density/compact growth in Galway is concentrated in the Ceannt Quarter and Inner Harbour Regeneration Sites.

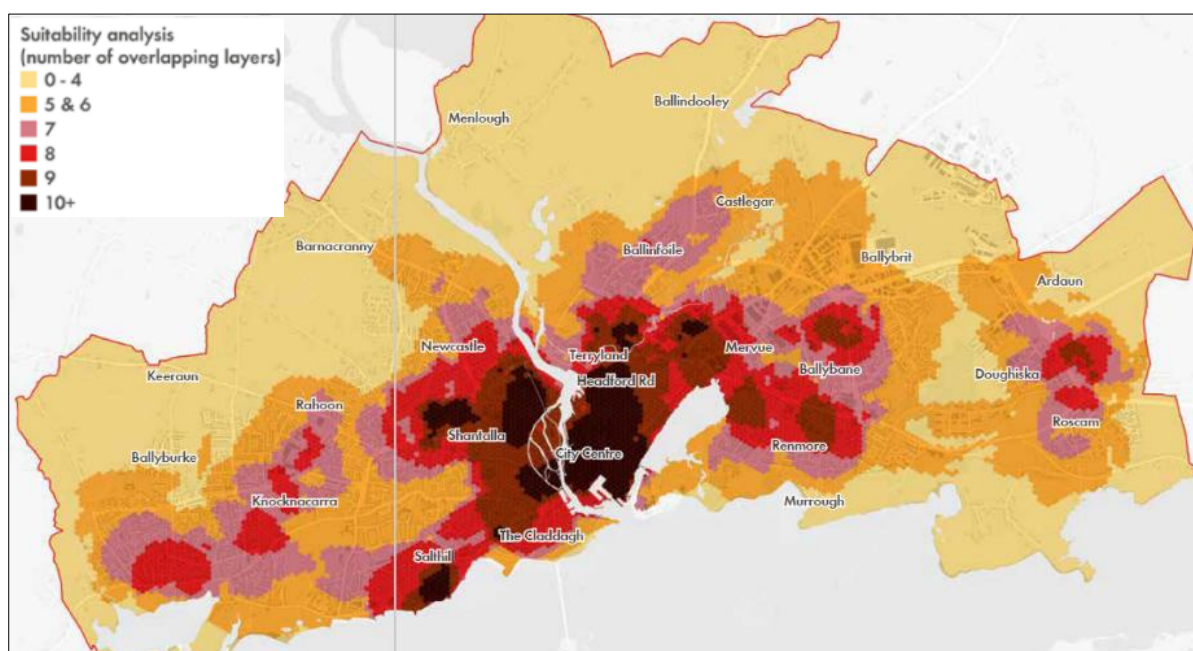


Figure 11-19 Urban Density and Building Height Study (2021) Mapping of Suitability Criteria for Higher Density Development

The Density and Building Heights Study provides specific guidance for different parts of the city. The site is located in the ‘Long Walk, Inner Harbour, Ceannt Station’ area (Section 16.3 of the Study). The development guidance for this area is as follows: *“Heights open to consideration: Heights should respect prevailing heights in the historic core. Within Ceannt Station and the Inner Harbour regeneration areas where large sites are capable of generating their own character, there is scope for greater height if designed carefully as demonstrated in emerging developments”.*

While the guidance is not particularly prescriptive, it should be noted that the ‘heights open to consideration’ in this area are the least restrictive in the whole city. This is where compact growth can and should be delivered.

11.4.2.4 Placemaking and Urban Design

In Section 8.8 the GCDP states: *“Good urban design can enhance the character of Galway and convey a sense of what is unique about the city. It is essential in the creation of attractive,*

well-functioning, successful places. A range of national policy documents set out a framework and guidance for achieving good urban design including Design Manual for Urban Roads and Streets (2013) and (2019) update, Sustainable Residential Development in Urban Areas (2009), Urban Design Manual - A Best Practice Guide (2009), Retail Design Manual: A Companion document to the Retail Planning Guidelines for Planning Authorities (2012). The forthcoming National Policy on Architecture will support a high quality, low carbon and more resilient built environment for future generations. The Plan seeks to actively promote the awareness and understanding of the contribution of good design to the general well being of the city. It places emphasis on urban design and sustainable placemaking supporting high quality modern architecture and incorporating architectural heritage in a holistic integrated manner”.

A key statement in the GCDP of relevance to this assessment is the following: *“In regeneration areas including key areas at Ceannt Station, Inner Harbour and at the Headford Road area there will be a need to develop a new local distinctiveness”.*

In Table 8.1 the GCDP identifies ‘key principles in the consideration of good urban design’. On page 221 ‘other mechanisms to achieve principles of good design’ are provided, and Policy 8.7 of the GCDP provides further guidance/requirements on ‘urban design and placemaking’:

A number of these principles and mechanisms are of relevance to the assessment of the Proposed Development, including:

- Reinforcing local distinctiveness, identity and sense of place to enhance character;
- Exceptional design quality - with attention paid to height, massing, proportion, materials, detailing, site layout and relationship with surrounding area – to ‘set the development apart’ and achieve distinctiveness, thereby contributing to character;
- Using landmarks and places of distinct identity to create places that are recognisable, thereby enhancing legibility;
- “Encourage innovation in architecture and promote energy efficiency and green design”;
- Incorporation of public realm, amenity, landscaping, rest and play spaces of a high standard;
- Creation of streets and public spaces that are of high quality, attractive, safe, and encouraging of social interaction – with attention paid to their layout, function, materials and street furniture;
- Promotion of continuity of street frontage and enclosure of spaces, i.e. improved spatial definition to strengthen the urban structure and enhance its legibility;
- Promoting a positive relationship with heritage assets and their setting;
- Clear townscape rationale where height is proposed, including the marking of key locations or nodes; and
- *“Proposals for buildings which are taller than the prevailing benchmark heights will only be considered where they do not have an adverse impact on the context of historic buildings, ACA’s, residential amenity or impinge upon strategic views, in accordance with the Urban Density and Building Height Study for the city”.*

11.4.2.5 Views of Special Amenity Value and Interest

Section 5.7.3 of the GCDP states: *“There are views within the city’s landscape, which require special protection due to their distinctive scenic amenity, aesthetic or cultural value or historic*

setting. Views of scenic amenity value and interest define the character of the city, engender a strong sense of place and significantly enhance local amenities. Important views in the city include panoramic views which allow expansive views over scenic landscape, over the cityscape and key landmark buildings and linear views which are views towards a particular landscape, observed from a particular point. The enjoyment of protected views by the community and visitors is a key part of the experience of the city...

"It is acknowledged that views are not static and some changes in a view can be absorbed without visually depreciating the integrity of the view and in some cases make a positive contribution to the characteristics and composition of protected views, while other changes can have a negative impact reducing the experience of that view irreparably. It is the objective of the Council to assess proposed developments, which are located within the foreground, middle ground or background of a protected view, in the context of their scale, design and location."

The GCDP protected views are listed in Figure 11-20, and Figure 11-21 shows the parts of the city covered by the views. This map was produced for the Galway Urban Density and Building Height Study 2021.

Table 5.9: Protected views

Panoramic Protected Views	
V.1	Panoramic views of the city and the River Corrib from Circular Road.
V.2	Views from Dyke Road and Coolagh Road encompassing the River Corrib and Coolagh fen.
V.3	Seascape views of Lough Atalia from Lough Atalia Road, College Road, Dublin Road and Lakeshore Drive.
V.4	Seascape views of Galway Bay from Grattan Road, Seapoint, the Salthill Promenade and the coast road to the western boundary of the golf course.
V.5	Seascape views encompassing Lough Rusheen including section of Blakes Hill, sections of Knocknacarra Road, sections of Barna Road from Knocknacarra to city boundary and including the road to Silverstrand Beach.
V.6	Panoramic views of the city, and the Terryland Valley from parts of the Castlegar-Ballindooley Road.
V.7	Views encompassing Lough Corrib from parts of the Quarry Road and Monument Road.
V.8	Seascape views of Galway Bay from the old Dublin Road to the city boundary.
V.9	Views towards the sea at Roscam.

Linear Protected Views	
V.10	Views from Galway-Moycullen Road (N59) of the River Corrib.
V.11	Views from Waterside of the River Corrib.
V.12	Seascape views of Galway Bay from Kingston Road.
V.13	Seascape views of Galway Bay at Ballyloughane from south of the railway bridge.
V.14	Views northwards encompassing the River Corrib and adjoining lands from Quincentenary Bridge.
V.15	Views towards Galway Bay from Hawthorn Drive, Renmore.
V.16	Views from Quincentenary Bridge Road southwards over Terryland Forest Park and River Corrib.
V.17	Seascape views from Military Walk, Renmore.
V.18	Views towards River Corrib from junction of St. Bridget's Place with St. Bridget's Terrace.
V.19	Views encompassing Ballindoooley Lough from parts of the Headford Road.

Figure 11-20 Galway City Development Plan 2023-2029 Protected Views

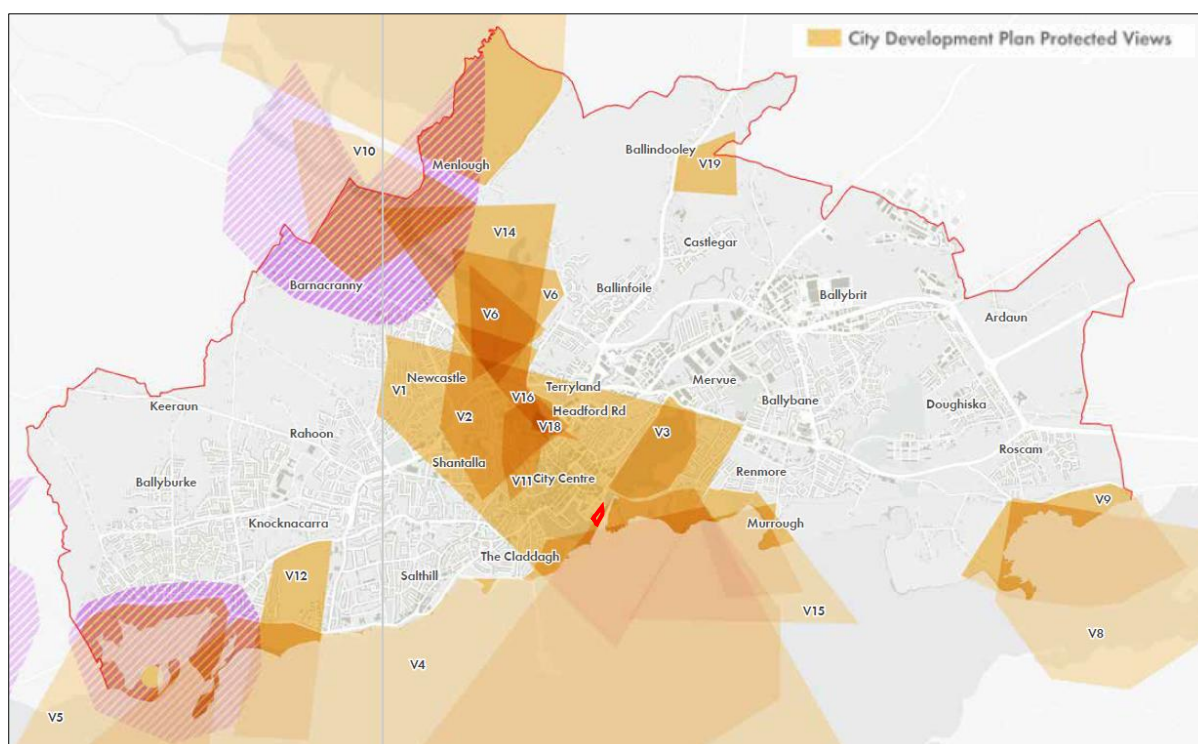


Figure 11-21 Galway Urban Density and Building Height Study (2021) Mapping of GCDP Protected Views

The protected views have been considered in the selection of viewpoints for visual impact assessment of the Proposed Development. The following views are assessed:

- V.3 Seascape views of Lough Atalia from Lough Atalia Road, College Road, Dublin Road and Lakeshore Drive. (Viewpoints 1, 2, 4.)

- *V.4 Seascape views of Galway Bay from Grattan Road, Seapoint, the Salthill Promenade and the coast road to the western boundary of the golf course. (Viewpoints 16, 17.)*

The above policy has informed the analysis of the townscape character and sensitivity of the receiving environment, the selection of viewpoints for visual impact assessment, the analysis of the proposed design, and the assessment of significance of the potential townscape and visual impacts in this report.

11.5 Characteristics of the Proposed Development

11.5.1 Construction Phase

The construction phase of the Proposed Development is described in the Construction Environmental Management Plan (CEMP) submitted with the planning application. While the construction process is temporarily disturbing of the landscape/ townscape and unsightly (this is recognised in the visual effects assessment summary in Table 11-7), this assessment is principally concerned with the proposal's long term/permanent effects (i.e. the operation phase).

11.5.2 Operational Phase

The Proposed Development is described in detail in the Architectural Design Statement, Landscape Design Proposal report and drawings accompanying the planning application. The following are the aspects of the proposal most relevant to the TVIA.

11.5.2.1 Layout

The Proposed Development comprises four buildings (Blocks A, B, C, D) arranged to form a perimeter block on the site, with the buildings locally offset/separated so that (a) strong built frontage/enclosure is provided to Dock Road/New Docks Road and a new street along the site's north west boundary, and (b) two waterfront open spaces are created on the waterfront. Block C is positioned to provide built frontage to the waterfront (with the open spaces to either side), but the building is set back to allow for a new riverfront walkway open space, Lough Atalia Walk.

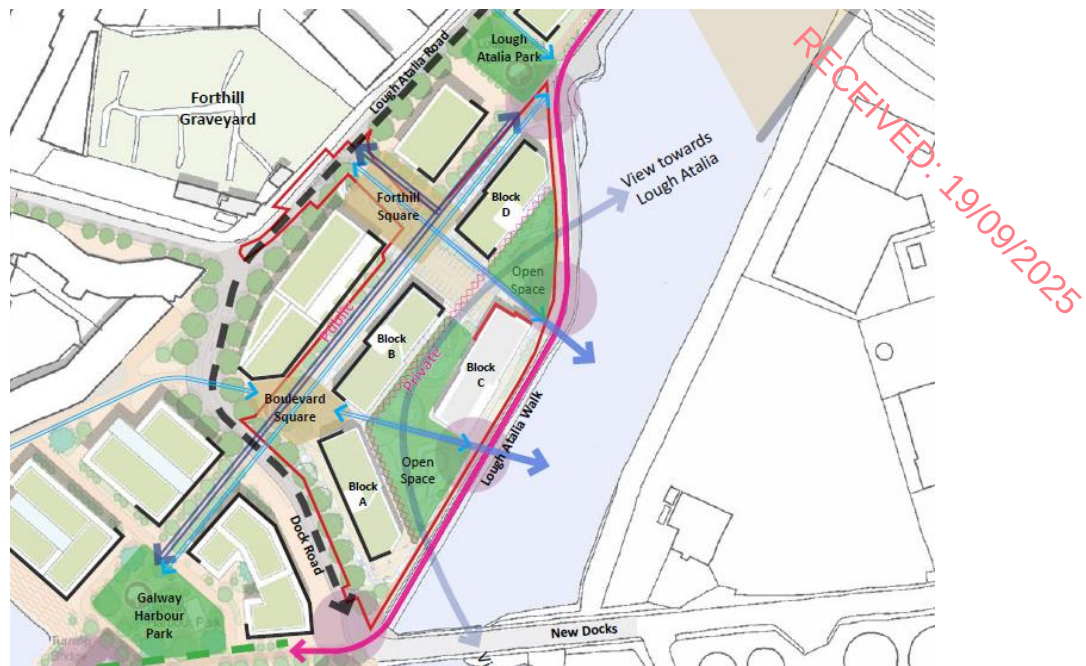


Figure 11-22 Conceptual Diagram Showing (a) the Built Frontage to Dock Road/New Docks Road to the south west and the New Street to the North West, and (b) the Formation of two Waterfront Open Spaces

The adapted perimeter block typology is an important aspect of the Proposed Development. This is a classic city block typology (recognisably 'urban'), where built form is used to provide frontage/enclosure to the surrounding streets and spaces and the internal space of a site. The layout would thus reinforce and ensure the legibility of the new urban grain/structure. It would also ensure adequate passive surveillance of the surrounding public realm, includes the Lough Atalia Walk.

Another consideration that informed the arrangement of the buildings was the views that they would afford for the residents. All four buildings, including Block B (the building furthest from the waterfront) are positioned to provide views of Lough Atalia, Galway Bay or the Inner Harbour, to maximise the benefit of the waterfront location.

The design of the Proposed Development has been coordinated with the review of GHC's masterplan for the Inner Harbour. The proposed layout is thus in keeping with the emerging masterplan. Specifically, the positioning of Blocks B and D is intended to form one side of a new street, which will be completed by the future redevelopment of the lands between the site and Lough Atalia Road. The diagram below also shows that the layout creates small plaza spaces at all of the pedestrian entrances to the site.



Figure 11-23 View Showing (a) the Formation of a New Street Fronted by Blocks B and D, Parallel to Lough Atalia Road, (b) the Similarly Strong Built Frontage to Dock Road, and (c) the Plaza Spaces at the Pedestrian Entrances to the Site

The positioning of the proposed non-residential uses is also intended to contribute to the creation of well defined, active streets. 1 no. retail unit, 2 no. restaurant/cafe units and a crèche are proposed fronting Dock Road and the new internal street. These units are intended to generate footfall and enliven the buildings' ground floor façades, the adjacent streetscapes and plazas.



Figure 11-24 Proposed Commercial Units and Crèche to Activate the Streets/Public Realm

11.5.2.2 Height and Massing

The Proposed Development ranges in height from 6 to 13 no. storeys. Block A is 6-9 no. storeys; Block B is 8-11 no. storeys; Block C is 6 no. storeys; Block D is 9-13 storeys. The development is lowest beside the Lough Atalia channel and highest towards Lough Atalia Road, Augustine Hill and the city centre.



Figure 11-25 Proposed Arrangement of Height

The proposed height of the buildings responds to a number of factors, including:

- The site being zoned City Centre and designated Strategic Regeneration Site;
- The site's central location in the Galway city-region (walking distance from the existing city centre and the public transport hub at Ceannt Station). The national policy of compact growth requires that the land use of such central, serviced, brownfield lands be maximised;
- The site falling into the area identified in the Urban Density and Building Height Study, 2021 as being most suitable for increased building height;
- The site is the furthest part of the combined Ceannt Quarter/Inner Harbour Strategic Regeneration Area from the historic city core. The site has the least potential of the entire city centre regeneration area to cause visible change or harm to the medieval city;
- The site's waterfront location. It is an objective of the GCDP to bring the city to the waterfront. A development of scale is required to visibly trace the waterfront in the urban structure, thereby making it legible. Additionally, it is recognised (for example in the Building Height Guidelines) that sites with waterway or marine frontage have particular capacity to accommodate height; and
- The permitted Augustine Hill development. This development includes a landmark tower of 21 storeys fronting Lough Atalia Road nearby the subject site. It is an objective that the Proposed Development and Augustine Hill development would provide favourable/ complementary context for each other.

As a result of its height, the proposal has a wide area of potential visual influence. It will be visible from around Lough Atalia (see Viewpoints 1-4 in the visual effects assessment, Section 11.6.2), and for some distance west along the coastline (Viewpoints 15-17). However, importantly, the development would not be visible from Eyre Square (Viewpoints 11, 12) or elsewhere in the medieval city core.

A number of design measures are proposed to reduce the perceived scale/massing of the development. These include steps in height (in Blocks A, B and D), steps and recesses in building line, and variations in façade treatment and materials to emphasise the division of the buildings into smaller visual units.

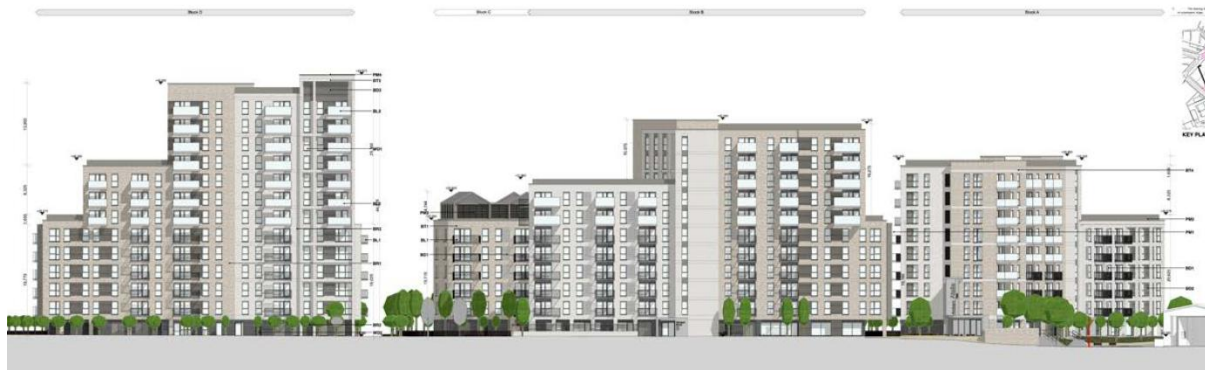


Figure 11-26 Elevation Drawing Showing the Steps in Height, Complemented by Variations in Façade Treatment, to Divide the Massing into Smaller Visual Units

11.5.2.3 Façade Treatment

The predominant façade material is brick, in a range of colours including light grey, buff, and dark grey. Brick was selected for its proven durability and quality as well as its texture, which softens the elevations. Patterned brick detailing is used for additional articulation and visual interest.

Pressed metal panels and detailing are used to give accent to certain volumes and contribute to the disaggregation of form. The balcony balustrades are variously of pressed metal, vertical bars or glazed. The different balcony designs respond to varying conditions (e.g. different level/height above ground affecting user comfort, aspect, exposure/privacy, etc.) also add visual interest to the façades.

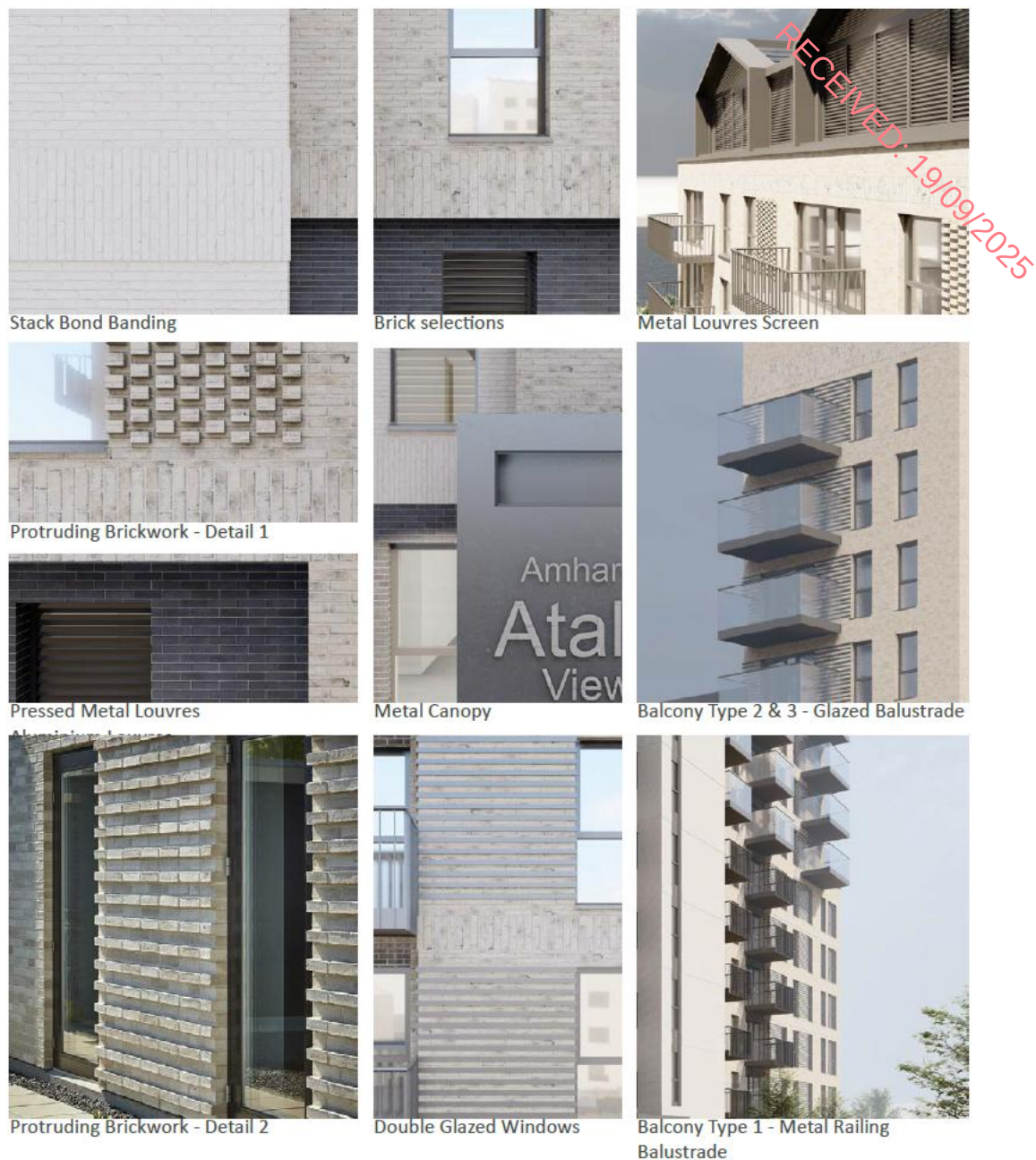


Figure 11-27 Illustration of Proposed Materials

It was decided, following consideration of GCC's LRD Opinion, not to employ stone cladding in the façades. The decision was taken principally on the grounds of affordability. The project is a cost-rental model. Stone cladding, particularly natural limestone (traditionally used in Galway), has a high installation cost, and has implications for structural loading, maintenance and weathering (all with associated additional cost).

The regeneration of the Inner Harbour area (which currently is a blank canvas in terms of architecture and materials) presents an opportunity to establish new townscape character – not only in terms of development typology and scale, but also architecture and materials. The Galway Inner Harbour Masterplan, currently in preparation, identifies three sub-areas of distinct character within the Inner Harbour area. The site is located in one of these, the Lough Atalia Walk area. The Applicant is proposing brick as the predominant material in this area as

it is a natural, robust, high-quality material, and gives texture to large buildings, softening their presence.

11.5.2.4 Landscape/Public Realm Proposals

The key elements of the landscape proposals are as follows:

- Lough Atalia Walk: A pedestrian promenade is proposed along the east boundary alongside the Lough Atalia channel, from New Docks Road to the northern point of the site. This creates potential for a local 'Lough Atalia Channel Route (as proposed by Galway Harbour Company), and for a waterfront shortcut between New Docks Road and Lough Atalia Road. Trees and ornamental planting are proposed along the promenade to soften the built frontage to the channel. The Lough Atalia Walk would be a significant addition to the city's public realm and pedestrian network;
- Waterfront open spaces: The arrangement of the buildings creates two triangular waterfront open spaces that open onto the Lough Atalia Walk to the south east. The spaces include patches of amenity lawn, play areas, ornamental planting, hedges and trees, seating and circulation routes. A café/restaurant on the ground floor of Block A is positioned to activate this space, which is accessible from New Dock Road; and
- Pedestrian entrance plazas: Pedestrian plazas are provided at each of the entrances to the site.

The site is currently almost entirely devoid of vegetation. The Proposed Development will, therefore, result in a significant gain in vegetation cover including trees, and soft/permeable surfaces for water attenuation. Three of the buildings, Blocks A, B and D, also feature green roofs, for additional water attenuation and habitat provision.



Figure 11-28 CGI View of the Frontage to the Lough Atalia Channel

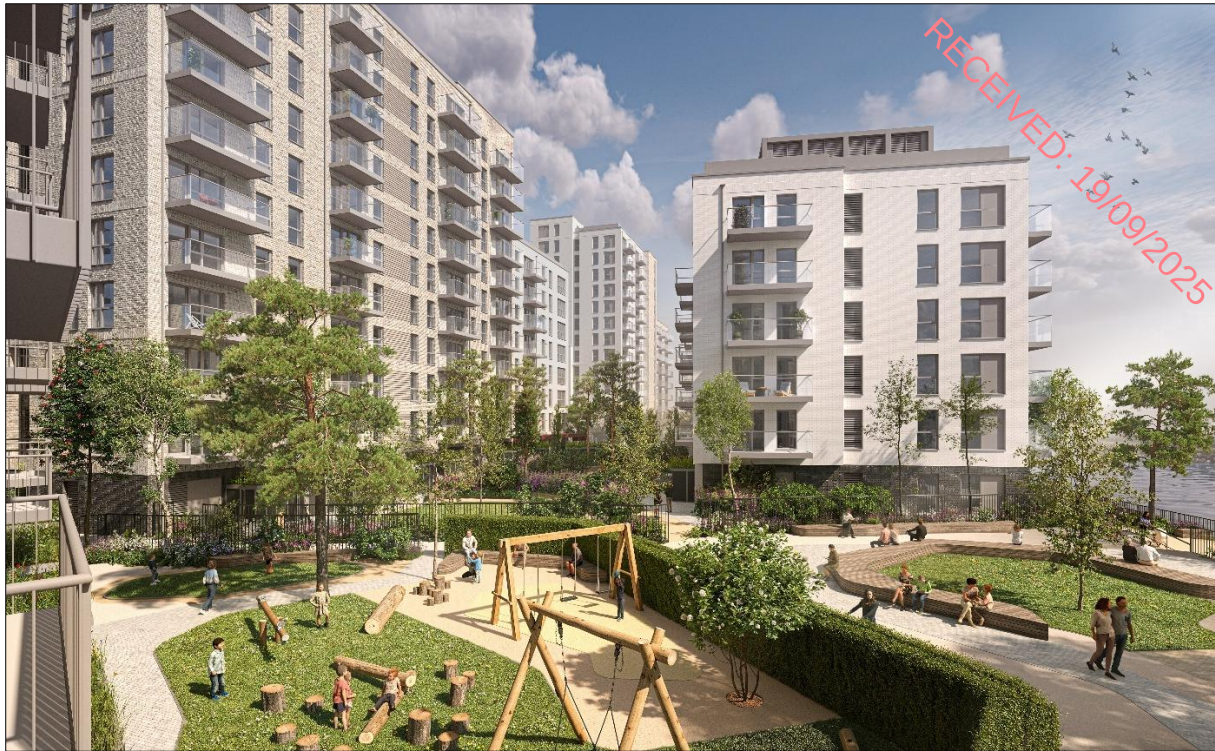


Figure 11-29 CGI View of the Main Open Space Opening onto Lough Atalia Walk



Figure 11-30 CGI View of the Second Waterfront Open Space and Lough Atalia Walk



Figure 11-31 CGI View of the Street Along the Site's North East Boundary (the blue buildings/massing shown to the left of the street are as currently proposed in the Galway Inner Harbour Masterplan 2025)

11.6 Potential Effect of the Proposed Development

11.6.1 Construction Phase

Over the course of the estimated 30 month construction period, the site and immediate environs would be disturbed by construction activities including the erection of site hoarding, site clearance (including demolition), haulage and storage of materials, construction activity (including the operation of cranes) and the incremental growth of buildings on site (refer to the CEMP for specific breakdown of the construction process and timeline). Construction is inherently disturbing of the landscape/townscape, and unsightly.

The potential visual effects during construction are addressed in the individual assessments of the representative viewpoints in Section 11.6.2.

The potential townscape effects during construction would be of 'slight' significance (on the EPA scale of 'imperceptible' to 'profound', see Table 11-3 and Figure 11-1) and negative. This is based on a townscape sensitivity classification of 'medium' (see Section 11.6.3.1 below) and a magnitude of change of 'medium'-'high' (see Section 11.6.3.2), but taking account of

the change being temporary. Using a binary classification of significance, the townscape effects during construction would be 'not significant' negative.

11.6.2 Operational Phase – Visual Effects

19 no. viewpoints were selected for assessment of the Proposed Development's visual effects, informed by verified photomontages. The viewpoints were selected to (a) represent the key receptors and sensitivities in the receiving environment - as discussed in Section 11.3.6 above, (b) address the relevant GCDP protected views – identified in Section 11.4.2.5, and (c) provide photomontage views of the proposal from a range of distances and directions.

The selection of viewpoints also took account of Galway City Council's LRD Stage 2 Opinion, which requested additional views to show the Proposed Development's frontage to the adjacent and internal streets on the site. Viewpoints 05a and 09a were added to the set of views in response to this request.

The effects on the 19 no. viewpoints are individually assessed in Table 11-6. For the methodology, terms and criteria used in the assessment refer to Section 11.2.3.

Note on classification of effect significance: While the EPA Guidelines allows for classification of significance on a scale of imperceptible to profound (see Table 11-3 and Figure 11-1 above), the EIA Directive (Directive 2011/92/EU as amended by Directive 2014/52/EU) requires the identification of effects as significant or not. Therefore, in the assessment in Table 11-6 below, there are two classifications of significance. One classifies significance on the EPA scale (Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant, Profound) and the other is a binary classification of either Significant or Not Significant.

The assessment should be read in conjunction with the verified photomontages provided in Appendix 11-1 of the EIAR. For each viewpoint the following images/visualisations are provided:

- Existing View (a photograph showing the existing scenario);
- Baseline/Permitted View (Existing View + the permitted Augustine Hill development, the Bonham Quay development and the Queen Street student accommodation development);
- Proposed View (Baseline/Permitted View + the Proposed Development); and
- Cumulative/Masterplan View (Proposed View + a massing model of the emerging masterplan for the Inner Harbour Regeneration Area).

The Cumulative/Masterplan View is not assessed in Table 11-6 as that scenario is not the subject of this EIAR; the view is provided to give an indication of a possible/likely future scenario given relevant national and city planning policy, specifically the policy for the Inner Harbour Regeneration Site (see Sections 11.3.4, 11.3.2.2 and 11.4.2.3).



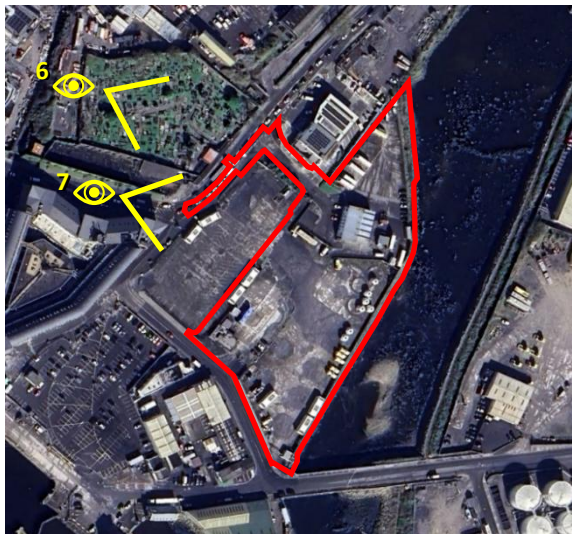
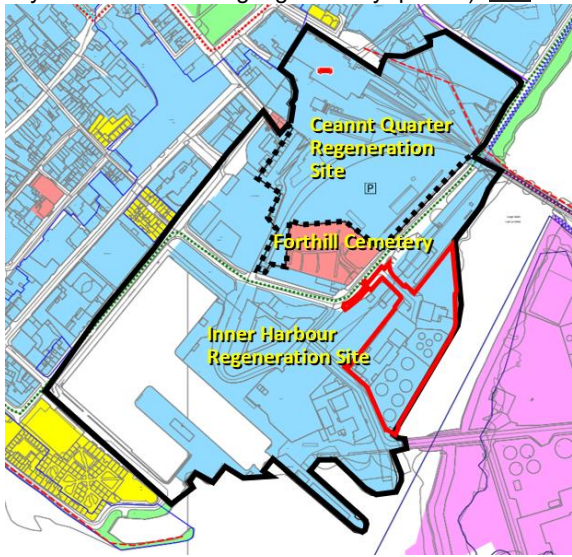
Figure 11-32 Viewpoints for Visual Effects Assessment

Table 11-6: Visual Effects Assessment

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
1: Old Dublin Road View Across Lough Atalia	- The viewpoint represents the GCDP's protected view V.3: "Seascape views of Lough Atalia from Lough Atalia Road, College Road, Dublin Road and Lakeshore Drive". This is a gateway into the city and a distinctive view, where the Old Dublin Road meets the shoreline of Lough Atalia. - At this point the road passes the Wellpark shopping centre and G Hotel. These underline the urban gateway location. - In the existing view, to the right across the lake the buildings range from houses to a stadium pavilion, small apartment buildings, and the Galmont Hotel at the mouth of the lake near the railway bridge. The elevation of the urban area is deep and highly textured. - In the baseline view, the landmark building of Augustine Hill introduces height/vertical form to the townscape, and brings the city to the waterfront. This reinforces the pattern of increasing density/ intensity around the lakeshore towards the south and marks the entrance to the city centre (specifically the new harbour quarter). - The large, low industrial buildings and tanks in the New Docks are visible on the far side of the lake, separated from the urban area. - The undulating uplands in the distance add to the complexity and visual interest of the composition. - The lake itself is sensitive (the view would be sensitive to foreground obstruction/screening) but there is capacity to accommodate change in the diverse, evolving townscape across the lake.	Medium	- The cluster of buildings are a prominent addition to the view, arranged along the waterfront of the Lough Atalia channel behind the railway bridge, stepping up in height towards the landmark Augustine Hill tower. - In typology and scale the buildings complement Augustine Hill, forming a pleasing, stepped composition of built form. - The development sits comfortably in the wider urban elevation to Lough Atalia, reinforcing the pattern of increasing density/intensity towards the south (towards the city centre). - The facades are highly textured, and variations in brick colour break the built form into smaller visual units, reducing the perceived scale and massing (the fine texture of the fenestration complements the existing urban elevation). Magnitude of Change: Medium. Significance of effect: Moderate positive. - The development would complement Augustine Hill in establishing a contemporary, high density quarter in the city centre, bringing the city to the waterfront. - The landmark status/function of the Augustine Hill tower would be retained, and legibility further improved by the development's marking of the shoreline. - No harm would be caused to any valued feature or characteristic of the view (Lough Atalia itself would be unchanged and unaffected, remaining co-dominant in the view with the urban complex), and visual interest and legibility would be enhanced.	Medium	Moderate positive	Significant positive
2: Lakeshore Drive	- The viewpoint represents the GCDP's protected view V.3: "Seascape views of Lough Atalia from Lough Atalia Road, College Road, Dublin Road and Lakeshore Drive". The expanse of water fringed by green space gives views from Lakeshore Drive a high amenity value. - In the existing view, there is a change in development character around the far shoreline, with an increase in scale and intensity to the south (left in the view) – towards the harbour and the city centre. Most prominent among the buildings are the Galmont Hotel and Bonham Quay (under construction). Despite its eight storey height, Bonham Quay is a horizontal form (as is the Galmont Hotel). - In the baseline view, the Augustine Hill buildings fronting Lough Atalia Road introduce vertical form to the townscape. The development brings the city towards the waterfront and the buildings visibly orientate towards the bay. The shift in character right to left along the far shoreline is pronounced – from small (3-4 storey) apartment buildings to the 21 storey landmark tower. This changes the character of the city. - Lough Atalia itself provides a high level of visual amenity, but there are no buildings of particular value or sensitivity in view and the evolving urban complex across the lake has capacity to accommodate change.	Medium	- The cluster of buildings are a prominent addition to the view, arranged along the waterfront of the Lough Atalia channel, stepping up in height towards the Augustine Hill tower. - In typology, scale and form (with a combination of horizontal and vertical forms), the development provides complementary context for Augustine Hill. There is a gradation in height to either side of the landmark tower. - The built form is articulated and the facades highly textured. Variations in brick colour contribute further to the division of the massing into smaller visual units, helping to integrate the development into the wider townscape. Magnitude of Change: Medium. Significance of effect: Moderate positive. - The development would complement Augustine Hill in establishing a contemporary, high density quarter in the city centre, bringing the city to the waterfront. - The landmark status/function of the Augustine Hill tower would be retained, and legibility further improved by the development's marking of the shoreline. - No harm would be caused to any valued feature or characteristic of the view (Lough Atalia itself would be unchanged and unaffected, remaining co-dominant in the view with the urban complex), and visual interest and legibility would be enhanced.	Medium	Moderate positive	Significant positive

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
3: Railway approaching Ceannt Station	- The railway is a key route of entry into the city for railway commuters and visitors, and also pedestrians approaching via Military Walk from Renmore. - A broad area of scrubland lies to the right between the railway and Lough Atalia. <u>In the existing view</u>, beyond the lake is the complex elevation of the central urban area, ranging from single houses to the broad, squat form of the Galmont Hotel (out of frame to the right), the rear façade of the Hardiman Hotel and a cluster of low, undistinguished buildings around Ceannt Station and the Inner Harbour. <u>For an arrival into a city (a city with ambitions of competing internationally), the built elements of the view are unexceptional.</u> Bonham Quay (under construction) has changed the view, establishing new standards in both scale and architectural quality. <u>In the baseline view</u>, the Augustine Hill development dramatically changes the approach to the city, introducing a 21st century, high density, mixed use quarter to the townscape, and bringing the city towards the waterfront. The arrangement of the buildings along Lough Atalia Road, facing Galway Bay, gives cues to the urban structure, improving legibility. - On the other side of the railway line (to the left), and prominent in views from trains arriving and departing from Ceannt Station, is the sprawling, unsightly New Docks area. - Lough Atalia (out of frame to the right) lends some visual amenity and distinction to the view, but there is considerable capacity for change in the evolving built environment.	Low-Medium	- The cluster of buildings are a prominent addition to the view. From this proximity the arrangement of the individual buildings is appreciable, with Block C fronting the Lough Atalia channel, Block D (the nearest, tallest block) positioned in alignment with the Augustine Hill buildings, and Blocks A and B to the side and rear. - The collective built form is highly articulated and the facades textured. Variations in brick colour combine with steps in height and roof level detailing to divide the massing into smaller visual units, helping to integrate the development into the wider townscape. - In typology, scale and form (with a combination of horizontal and vertical forms), the development provides complementary context for Augustine Hill. Magnitude of Change: Medium-High. Significance of effect: Moderate positive. - The development would complement Augustine Hill in establishing a contemporary, high density quarter in the city centre, bringing the city towards the waterfront. - The landmark status/function of the Augustine Hill tower would be retained, and legibility further improved by the development's marking of the shoreline. - No harm would be caused to any valued feature or characteristic of the view (refer to the Existing and Baseline views which show that no building or any other valued feature of the landscape would be screened by the new buildings).	Medium-High	Moderate positive	Significant positive
4: Lough Atalia Road approaching the city centre	- Lough Atalia Road is a key thoroughfare into Galway city centre. The viewpoint represents the GCDP's protected view V.3: "<i>Seascape views of Lough Atalia from <u>Lough Atalia Road</u>, <u>College Road</u>, <u>Dublin Road</u> and <u>Lakeshore Drive</u></i>". (The view is taken from the green space beside the road as the signage and trees, etc. obscure the view towards site from the road itself.) <u>In the existing view</u> as the road approaches the junction with Fairgreen Road, the Galmont Hotel is to the right. The hotel is approximately 6 storeys tall (including undercroft), with a broad frontage to the road and Lough Atalia. The lake is to the left, with the railway line crossing the channel (and Lough Atalia Road) over a bridge. <u>There is currently no development either side of the road beyond the Fairgreen Road junction and this makes for an underwhelming entry to the city centre.</u> <u>In the baseline view</u>, the Augustine Hill tower stands prominently beside the junction and the railway bridge, the distinctive tall building marking the entrance to the Ceannt Station/Harbour Quarter and the city centre, and changing the character of Galway. - Lough Atalia and the surrounding green space provide visual amenity to road users and the development/buildings facing the lake (such as the Galmont), but there is capacity for change in the built environment - to consolidate the change in character initiated by Augustine Hill and add substance to the new quarter.	Medium	- The cluster of buildings are a prominent addition to the view, positioned at the Lough Atalia shoreline and parallel to Lough Atalia Road. The built form steps down to the waterfront (to the left) and rises towards Augustine Hill and the city centre (to the right). - In typology, scale and form (with a combination of horizontal and vertical forms), the development provides complementary context for Augustine Hill. <u>The development's expansion of the urban area across Lough Atalia Road, bringing the new quarter - and the city - to the waterfront, is important.</u> - The built form is articulated and the facades highly textured. Variations in brick colour and façade treatment combine with steps in height to divide the massing into smaller units (in a similar manner to the Galmont in the foreground). Magnitude of Change: Medium. Significance of effect: Moderate positive. - The development would complement Augustine Hill in establishing a contemporary, high density quarter in Galway, and bringing the city centre to the waterfront. - The landmark status/function of the Augustine Hill tower would be retained, and legibility further improved by the development's marking of the shoreline. - No harm would be caused to any valued feature or characteristic of the protected view.	Medium	Moderate positive	Significant positive

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
5: Lough Atalia Road near the site	<u>In the existing view</u>, as Lough Atalia Road passes beneath the railway bridge, beside Ceannt Station, the industrial character the lands around Lough Atalia Road is revealed. The only building on the east side of the road is a petrol filling station. The Harbour Hotel can be seen in the distance to the right, marking the junction of Bóthar na Long (the turn into the existing city centre), but the hotel building is of modest scale and architectural character. <u>The road corridor is unsightly and legibility is poor (there is little indication of where the road is or where it leads – despite being effectively in Galway city centre less than 100m from Lough Atalia).</u> <u>In the baseline view</u>, the tall, mixed use buildings of Augustine Hill front the road to the right, initiating a significant change in character on Lough Atalia Road. (The tower is just out of frame to the right at this location.) - This is a former industrial zone awaiting regeneration. There is a high capacity for change in the view.	Low	- Blocks D and B are prominent additions to the view. <u>The buildings are aligned parallel to Lough Atalia Road and this initiates the formation of a recline urban grain typical of urban areas (and conducive to navigability). The buildings are also positioned and scaled to take advantage of views of Lough Atalia and Galway Bay, as well as view back towards the city centre.</u> - In typology, scale and form (with a combination of horizontal and vertical forms), the development provides complementary context for Augustine Hill. - The built form is articulated and the facades highly textured. Variations in brick colour and façade treatment combine with steps in height and building line to divide the massing into smaller visual units. <u>It should be noted that the area in the foreground to the left, and beyond the petrol station, will be developed in the future, likely screening the Proposed Development from view from this stretch of Lough Atalia Road (as shown in the Cumulative View).</u> Magnitude of Change: Medium. Significance of effect: Slight-Moderate positive. - The development would complement Augustine Hill in establishing a contemporary, high density quarter in Galway. The expansion of the urban area across Lough Atalia Road, bringing the new quarter - and the city – to the waterfront and making the waterfront legible, is important.	Medium	Slight-Moderate positive	Not significant positive
5a: Lough Atalia Road opposite site entrance	- This view was added to the set in response to GCC's LRD Stage 2 Opinion – to show the view along the proposed new road leading to the site from Lough Atalia Road. The viewpoint is on the west side of Lough Atalia Road just outside Forthill Cemetery and adjacent to the Augustine Hill development. <u>The existing view</u> shows the low level of visual amenity of the Inner Harbour lands, and the absence of urban structure and character. The petrol filling station is to the left and to the right is a disused fuel storage yard. Ahead in the middle distance is a building used for office space on the site. The only element of any visual amenity value in the view is the mountain on the far side of Galway Bay, to the right. - This is a former industrial zone awaiting regeneration. There is a high capacity for change in the view.	Low	- Blocks D (left) and B (right) are prominent additions to the view, the linear buildings positioned parallel to Lough Atalia Road one block to the south east. The two buildings form a legible gateway to the Lough Atalia shoreline, with the waterfront building, Block C, visible between them. - The built form and facades are highly articulated. Variations in façade treatment and brick colour combine with steps in height and building line to divide the massing into smaller visual units. - In the foreground, the road is lined by footpaths on both sides, encouraging pedestrian access to the site and through the site to the Lough Atalia waterfront. <u>The area in the foreground to left and right of the road will be developed in the future. That development (as shown in the Cumulative View) will (a) complete the enclosure/definition of the new street, (b) reinforce the gateway character of this street/view, and (c) partially screen the Proposed Development, reducing its dominance in the view.</u> Magnitude of Change: High. Significance of effect: Moderate positive. - The development would initiate the establishment of a contemporary, high density waterfront quarter on the Inner Harbour lands east of Lough Atalia Road. The layout initiates the formation of a legible, navigable urban grain and the design and material quality of the buildings and public realm establish a high quality built environment suitable for a new city centre quarter.	High	Moderate positive	Significant positive

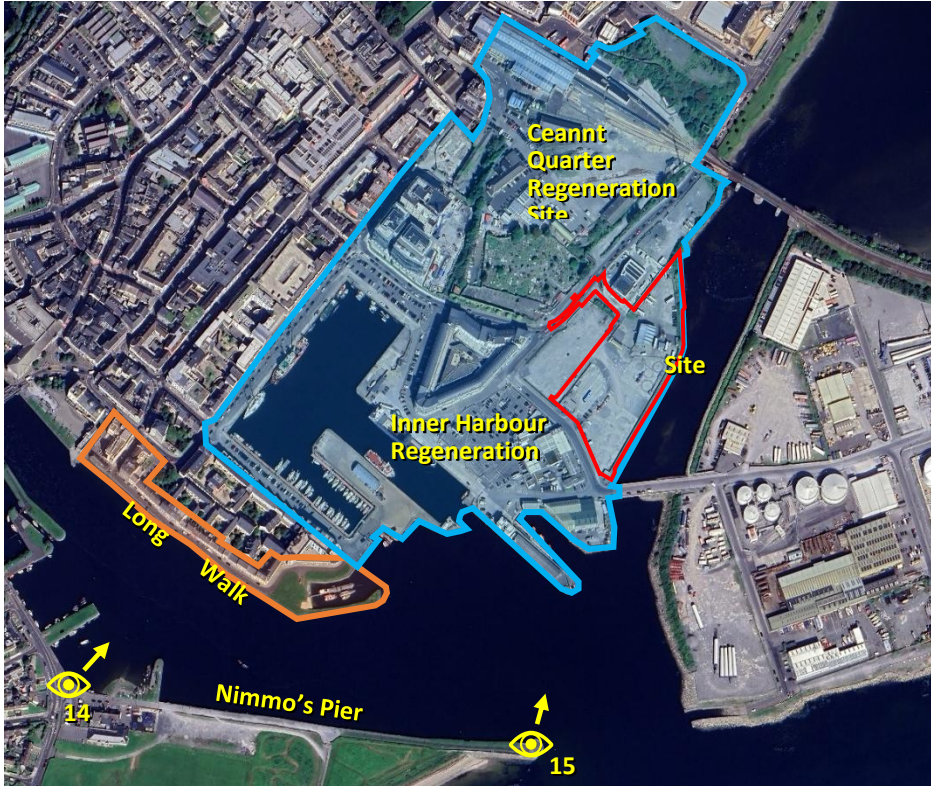
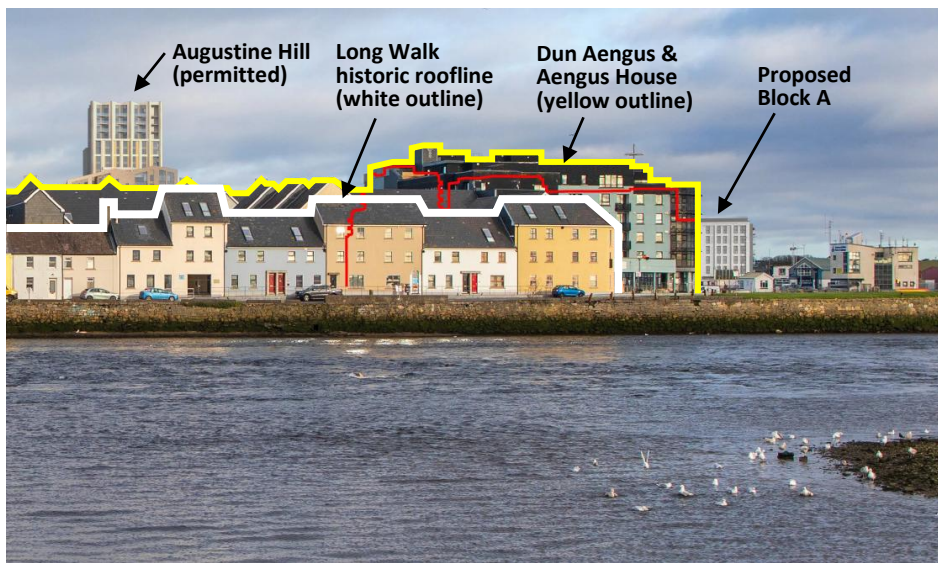
Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
6: Forthill Cemetery	- The existing view shows how the raised topography of the cemetery allows for views over the boundary walls and the surrounding industrial lands. This contributes to a sense of removal from the surrounding townscape. This feeling of separation is evident in View 6, which is a view east from the cemetery, over Lough Atalia Road towards the site, the Lough Atalia channel and the New Docks area. - The baseline view shows the Augustine Hill building permitted adjacent to and overlooking the cemetery, initiating a dramatic change not only to views from the cemetery but also its role in the townscape (as an open space and source of visual amenity for the surrounding high density quarter). The cemetery is located between the Ceannt Quarter and Inner Harbour Strategic Regeneration Sites; the impact of any development proposal in its vicinity must be considered in this planned/future context. - While the cemetery itself is sensitive to disturbance, the predominance of harbour/industrial uses in the environs (see aerial photo) reduces its sensitivity to change in the surroundings. The City Centre zoning and designation of the former industrial lands for high density regeneration, and the permission granted for Augustine Hill, are further indication of a tolerance for change in the surrounding townscape.  	Medium	- The development is a prominent addition to the view, with Blocks B and D spanning the field of view to the east of the cemetery. - The collective built form is well articulated, with pronounced steps in height – complemented by variations in material – used to break up the massing and create a pleasing composition of form. The highly textured facades (numerous windows and expressed balconies) contribute further to the reduction in massing. - While the buildings are tall, for the emerging context they do not appear over-scaled and the view retains a large proportion of sky space. - It should be noted that the strip of land between Lough Atalia Road and the site (i.e. in front of the Proposed Development in this view) will be developed in future as part of the area's transformation into a high density quarter. This will reduce the visibility of the Proposed Development, although Block D will remain prominent. Magnitude of Change: Medium-High. Significance of effect: Moderate neutral. - The development would complement Augustine Hill in establishing a contemporary, high density quarter in the city centre, expanding the city towards the waterfront. - While the development would increase the built/visual enclosure of the cemetery, (a) this is an unavoidable consequence of the area's Strategic Regeneration Site designation, and (b) the buildings are of high design and material quality. - It is also a factor that in future the development will likely be partially screened by other development in the intervening landscape (fronting Lough Atalia Road directly opposite the cemetery).	Medium-High	Moderate neutral	Significant neutral

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
7: Bothar na Long ap-proaching Lough Atalia Road junction	- Bóthar na Long is an important road in the future townscape. It provides the connection between the historic city centre and the new high density quarter (and the waterfront) to the east of Lough Atalia Road. <u>In the existing view</u>, the tall concrete wall around the Coal Yard site is to the left of the road, and the Harbour Hotel building is to the right. This is an unremarkable, four storey, rendered building. These elements frame a view of the junction with Lough Atalia Road ahead. Beyond this junction is the main body of the Inner Harbour strategic regeneration site, including the subject site. Large fuel storage tanks in the Inner Docks area are visible in the distance, beyond the site and the Lough Atalia channel. - There is no permitted development in view from this location, <u>therefore no baseline view is provided</u>. However, an application for a 15 storey hotel on the coal yard site (in the foreground to the left) is currently under appeal with An Bord Pleanála after it was refused permission by GCC. - While the trees and groundcover to the left of the road provide some visual amenity, this is largely due to the absence of any other attractive elements. The built environment, including the streetscape, is of limited quality – particularly for a city centre street in Galway. There is a high capacity for change.	Low	- Framed by the hotel and the coal yard wall in the foreground, parts of Blocks B and D are visible in the middle distance beyond Lough Atalia Road. The angle of the elevations (with respect to the viewer) and the steps in the buildings' roofline lead the eye to a gap between the buildings which leads to the Lough Atalia waterfront. - The buildings are of contemporary urban typology and scale, and visibly residential in use. The development thus establishes a new waterfront residential neighbourhood, prominently located on the axis of Bóthar na Long, leading from the city centre. - The steps in height, variations in material/colour and highly articulated facades divide the massing into smaller visual units. The architectural language is uncomplicated and the materials of high quality, capable of weathering the coastal conditions. Magnitude of Change: Medium. Significance of effect: Slight positive. - The development initiates the transformation of the townscape east of Lough Atalia Road from industrial to contemporary urban in character, and brings the new quarter – and the city – to the Lough Atalia waterfront (with the built form deliberately leading the eye to the waterfront, inviting access).	Medium	Slight positive	Not significant positive
8: New Docks Road ap-proaching bridge over Lough Atalia channel	- New Docks Road currently provides access between the New Docks industrial zone and the city. It is an unsightly streetscape and – currently - a road of limited importance in the townscape. <u>If the Galway Harbour extension were permitted however, New Docks Road would become the route of entry to the city for thousands of cruise liner passengers visiting Galway. The bridge over the Lough Atalia channel would become an important gateway to the city.</u> <u>In the existing view</u>, the Lough Atalia channel is hidden by a concrete wall to the right. Beyond the channel, to the right of the road, is the subject site behind another unsightly wall. Several large footprint, low buildings of utilitarian character occupy the middle ground. The long, low form of the Cé na Mara apartments is prominent, as are the two Bonham Quay buildings under construction. <u>In the baseline view</u>, Bonham Quay is completed and the nearest Augustine Hill building can be seen to the right. - There is a notable predominance of horizontal forms in the townscape. - Visual amenity is limited and the entire area in view is designated for urban regeneration. There is a high capacity for change in the view.	Low	- The development transforms the view, with Blocks A, B and C combining to provide urban-type built frontage/enclosure to New Docks Road and the Lough Atalia channel – in addition to forming an open space beside the water. - The buildings are of contemporary urban typology and scale, and visibly residential in use. The development thus establishes a new waterfront residential neighbourhood, prominently located at the gateway to the city centre and addressing Galway Bay and Lough Atalia. - The buildings are large (for the existing context), but the steps in height and building line, variations in material/colour and highly articulated facades divide the massing into smaller visual units. The architectural language is uncomplicated and the materials (brick, metal, glass) are of high quality, capable of weathering the coastal conditions. Magnitude of Change: High. Significance of effect: Moderate positive. - The development initiates the transformation of the townscape from industrial to contemporary urban in character (high density, mixed use), and brings the new quarter – and the city – to the Lough Atalia waterfront. - The built form is responsive to the context – with the buildings defining spaces and orientating the neighbourhood – and thereby wider townscape - towards Galway Bay. - While the view is dramatically changed, no harm is done to any valued feature or characteristic of the townscape.	High	Moderate positive	Significant positive
9: New Docks Road bridge over Lough Atalia channel	- The view is taken from the bridge over the Lough Atalia channel. <u>In the existing view</u>, beyond the constructed channel is the large area of former industrial land east of Lough Atalia Road, now largely cleared of buildings. Rising behind the Cé na Mara apartments and Harbour Hotel are two Bonhma Quay buildings under construction. In the distance to the right is the Galmont Hotel and other similar modern buildings, all of large footprint but horizontal in form. <u>The baseline view</u> shows the townscape transformed by Bonham Quay and Augustine Hill, the buildings all of contemporary urban typology, scale and	Low	- The full extent of the development is visible from the vantage point of the bridge: - Blocks A, B and C combine to define a waterfront square in the foreground. - The tall Block B is given prominence in the arrangement, with the building turned to face Galway Bay. - Blocks C and D provide built frontage to the Lough Atalia channel, with Block D stepping up towards the Augustine Hill tower to the rear. A step down in Block D at its far end reveals the Augustine Hill tower to the rear. - The generous tree planting along the Lough Atalia Walk and in the square	Very High	Moderate positive	Significant positive

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
	architecture, dramatically changing the view and the character of this part of the city. The townscape in view is designated for urban regeneration and is in the process of transformation. There is a high capacity for change.		softens the built frontage and steps down in scale from the buildings to the public realm. - The development screens the emerging Ceannt Station and harbour quarter from view (apart from the tower), but the arrangement of form is not dissimilar to that of the buildings in the distance to the right (the Galmont Hotel, etc.) providing frontage to Lough Atalia. - The buildings are large, but steps in height and building line, variations in material/colour and highly articulated facades divide the massing into smaller visual units. - The architectural language is uncomplicated but refined. The materials (brick, metal, glass) are of high quality, capable of weathering the coastal conditions. Magnitude of Change: Very High. Significance of effect: Moderate positive. - The development transforms the former industrial strip beside the Lough Atalia channel into a high density residential neighbourhood, with generous provision of public open space (the Lough Atalia Walk and open space) and buildings of design and material quality. - The Lough Atalia channel is changed from a constructed channel of industrial character into a green/blue infrastructure asset and amenity for the residents and the public, elevating its role in the townscape.			
9b: New Docks Road alongside site	- The view is taken from a position just west of the bridge over the Lough Atalia channel. <u>The existing view</u> shows the site boundary along New Docks Road. A high concrete wall marks the boundary screens most of the site, but the view through the gate shows the condition of the site internally. This illustrates the condition and limited visual amenity of the townscape currently. - A number of trees and headstones in Forthill Cemetery can just be discerned beyond the site but they do little to enhance the view. <u>The baseline view</u> shows the Augustine Hill development fronting Lough Atalia Road beyond the site, and enclosing Forthill Cemetery to the left. This initiates the transformation of the Ceannt Quarter and Inner Harbour Regeneration Sites, and the establishment of a high density, mixed use city quarter in Galway. - The townscape in view is designated for regeneration and this process has begun. There is a high capacity for change in the view.	Low	- Block A dominates the view, the linear, 6-9 no. storey building providing built frontage and enclosure to New Docks Road, transforming the street. - In the foreground, the narrow elevation of Block A, with distinctive box frame around the balconies, addresses the bridge over the Lough Atalia channel (and faces Galway Bay). The elevation design combines with a small, raised plaza fronted by a ground floor café to create a 'place' in the townscape, located at the bridge, marking the gateway into the city from the New Docks. The building's setback allows a view a short way along the Lough Atalia Walk. - Along New Docks Road, the building is raised above street level, with the level change taken up by a landscaped embankment featuring street trees. These soften the built frontage and add greenery to the townscape (which currently is devoid of vegetation). - The building steps up from six to nine storeys along the street (towards the city). The stepped height is complemented by steps in building line and facades articulated by a fine grid of windows, expressed balconies, deep window reveals and panels of patterned brick, reducing the perceived massing. - The materials (brick, metal, glass) are of high quality, capable of weathering the coastal conditions. - The building screens the Augustine Hill development from view, but is of comparable typology and architectural quality, so that when seen sequentially on the route to the city centre, they would be complementary. Magnitude of Change: Very High. Significance of effect: Moderate positive. - The development transforms the site and the streetscape of New Docks Road at an important point of entry to the city. The design and material quality of the building and public realm are appreciably high, resulting in a particularly successful composition.	Very High	Moderate positive	Significant positive

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
10: Dock Road/ Inner Dock	- This view is taken from Dock Road towards its southern end near Nos. 1-6 Dock Road, a row of quayside properties designated ACA. <u>In the existing view</u> the main elements are (a) the quays and the blue space of the Inner Dock, (b) various modern buildings to the left (some of modest quality) fronting Dock Road, (c) the long, low form of the Cé na Mara apartments across the water, and (d) Bonham Quay at the northern end of the dock. <u>Bonham Quay has had a transformational effect on the townscape in view, establishing new standards in scale and architectural and material quality.</u> The working dock adds an additional layer of character to the scene. <u>The baseline view</u> shows Bonham Quay completed, a small part of the Queen Street student accommodation development to the left, and the cluster of Augustine Hill buildings to the side of Bonham Quay beyond Forthill Cemetery. <u>The baseline view illustrates the value of variations in height and architecture in creating place identity and visual interest – and in giving substance to the new quarter. The taller buildings beyond the dockside buildings draw the eye and invite the viewer into the new quarter.</u> The view gives a strong sense of the potential of the combined Ceannt Station and Inner Harbour regeneration area. - While the open/blue space of the dock is of value, there is a high capacity for change in the surrounding townscape.	Low-Medium	- Parts of Blocks A, B and D protrude above and to the side of the Cé na Mara apartments on the far side of the dock. - Although the magnitude of change to the complex composition is limited, the degree of protrusion and the difference in architecture and materials are sufficient that the buildings can be identified as separate to (i.e. lying beyond) Cé na Mara, indicating that the quarter extends eastwards beyond the foreground. Magnitude of Change: Low. Significance of effect: Slight positive. - The development makes a slight contribution to the realisation of the emerging Ceannt Station and Inner Harbour quarter, adding a necessary layer of development to the east of the Inner Dock, extending the city towards the waterfront. - No harm is done to any valued feature or characteristic of the view.	Low	Slight positive	Not significant positive
11, 12: Eyre Square	- Two viewpoints were selected for assessment of the potential impact on Eyre Square: - View 11 is taken from the upper level of the square, in the plaza space above the steps down into the park; - View 12 is taken from a central position in the park, on the footpath beside the Pádraic Ó Conaire statue. - In combination, these viewpoints allow for a thorough assessment of the proposal's effect on Eyre Square. <u>In both existing views</u>, the open space and trees of the park are the dominant elements of the view, generating a high level of visual amenity. With the trees mostly bare in winter the surrounding buildings are visible through the tree canopies. The buildings range from three to five storeys and are mostly older, contributing to the square's distinct character (for which it is designated an ACA). However, there are some modern interventions, such as the Eyre Square shopping centre visible in View 12. <u>In both baseline views</u>, the dense cluster of taller, contemporary buildings in the Ceannt Quarter (Augustine Hill) are visible to the rear of the buildings on the south side of Eyre Square. In View 11, the landmark tower protrudes above the roofline of the Hardiman Hotel. While this has no direct effect on Eyre Square, it does change the character of the city, adding a new place of contrasting character to the historic core. - Eyre Square is a highly valued city centre open space and a place of cultural-his-toric importance. It is thus sensitive to inappropriate change. However, the permis-sion granted for the Augustine Hill development indicates that there is some toler-ance for change in the wider context.	Medium-High	- In both views, the Proposed Development would be screened by either the existing buildings fronting Eyre Square (View 11), or by a combination of the Eyre Square buildings and Augustine Hill (View 12). - Even if Augustine Hill were not built, the change would be negligible at most in View 12, with no change at all in View 11. Magnitude of Change: None. Significance of effect: No effect.	None	No effect	No effect

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
13: Wolfe Tone Bridge (Fr Griffin Road)	- Wolfe Tone Bridge is an important gateway to the city centre from the western coastline and neighbourhoods. - The <u>existing view</u> from the bridge includes a number of important townscape features, including the Corrib River, Spanish Arch (part of the historic town wall) and the Long Walk ACA. However, these valued features form part of a complex urban composition in which a wide variety of building typologies, scale and architecture is represented. - The <u>baseline view</u> shows that the Augustine Hill development will not be visible. Only a small part of Bonham Quay can be discerned on the complex urban skyline. - The diversity of built form creates some capacity for change.	Medium-High	Magnitude of Change: None. Significance of effect: No effect.	None	No Effect	No effect

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
14: Junction of Nimmo's Pier and Grattan Road	- The viewpoint represents the houses fronting Grattan Road, road users, and walkers on Nimmo's Pier. This is one of Galway's signature views. <u>In the existing view</u>, on the far side of the wide mouth of the Corrib River is the Long Walk (ACA). The quay is fronted by a terrace of 18th and 19th century houses ranging from two to four storeys. <u>The view of the Long Walk is not un-changed. The Dun Aengus apartments and Angus House (6 storey mixed use building) protrude above the Long Walk roofline and to the right of the terrace. This affects the legibility of the historic houses in the view.</u> - In the distance to the right is a sprawling complex of large, low industrial buildings in the New Docks area. <u>The baseline view</u> shows that the upper floors of the Augustine Hill tower will protrude above the Long Walk and Dun Aengus roofline. The building is clearly well removed from the ACA (in the distance), of different typology and architecture. It will thus have no effect on the legibility of the historic quayside houses; it will add a new element of interest to the already complex urban composition. - It should be noted that the Inner Harbour and Ceannt Quarter Strategic Regeneration Sites lie to the north east of the Long Walk, behind the historic terrace in this view. This is the city centre zone designated for high density urban regeneration. <u>Further protrusion of new development above and to the side of the Long Walk (in views from Grattan Road and Nimmo's Pier) is thus unavoidable.</u>  - This is a signature view of an ACA-designated area. It is thus of high sensitivity. However, some tolerance for change is indicated by (a) the designation of the Ceannt Quarter and Inner Harbour Regeneration Sites, and (b) the decision to permit the Augustine Hill development. Nonetheless, care must be taken to minimise negative impact on the Long Walk, specifically the legibility of the historic houses against the evolving backdrop.	Medium-High	RECEIVED: 19/09/2025 <u>A part of Block A protrudes to the side of Aengus House, well to the side of the Long Walk terrace.</u> Aengus House acts as a buffer between the proposed building and the Long Walk, preventing any direct effect on the Long Walk. (The remainder of the development is hidden behind Aengus House.) Magnitude of Change: Low. Significance of effect: Not significant neutral. - Due to (a) the buffering effect of Aengus House and (b) the capacity for change generated by Aengus House, the permitted Augustine Hill development and the harbour buildings in view to the right, the development would have no significant effect on the view.  	Low	Not significant neutral	Not significant neutral

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
15: Nimmos' Pier	- Nimmo's Pier is a well-used walk that provides panoramic views of Galway's varied waterfront, including the Corrib River banks, the Long Walk, the harbour, the New Docks, Galway Bay to the south, and west along the South Park shoreline towards Salthill. The Corrib River and the Long Walk are out of frame to the left of this view. <u>In the existing view</u>, beyond the Corrib River mouth is the outer wall of the harbour, with boats, material stockpiles and various structures arranged around the wall. Cé na Mara and a number of other buildings surrounding the Inner Dock can be seen in the distance, with Bonham Quay prominent on the skyline. To the right is the channel to Lough Atalia and beyond that the sprawling industrial complex of the New Docks area. <u>The view is complex and some of the elements are individually unsightly, but the character of the working harbour makes a positive contribution to the cityscape, which benefits from such variety.</u> <u>The baseline view</u> shows the cluster of contemporary tall buildings in Augustine Hill, set back from Lough Atalia (to the right). <u>The three buildings including the tower fronting Lough Atalia Road are the most prominent and they form an abrupt edge to the new quarter.</u> The development changes the character of the view and the city as a whole. - Much of the area in view is designated for urban regeneration. There is thus a high capacity for change in the view.	Low-Medium	- The cluster of buildings are a prominent addition to the view. From this vantage point the arrangement of the individual buildings is appreciable, with Block C fronting the Lough Atalia channel, Block A fronting New Dock Road, and Blocks B and D stepping up towards the taller Augustine Hill buildings in the background. - The collective built form is highly articulated and the facades textured. Variations in brick colour combine with steps in height to divide the massing into smaller visual units, helping to integrate the development into the wider townscape. - In typology, scale and form (with a combination of horizontal and vertical forms), the development provides complementary context for Augustine Hill. Magnitude of Change: Medium. Significance of effect: Moderate positive. - The development (a) complements Augustine Hill in establishing a contemporary, high density quarter in the city centre, (b) brings the city to the waterfront, and (c) strengthens the legibility of the evolving urban structure (the proposal appreciably responds to the Lough Atalia shoreline, New Dock Road and Augustine Hill). - The Augustine Hill tower remains the landmark in the new quarter, and the development forms a pleasing built topography surrounding this pinnacle.	Medium	Moderate positive	Significant positive
16: South Park coastal green-way	- The greenway along the shoreline of the bay is a well-used amenity that provides panoramic views of the city's varied waterfront. <u>In the existing view</u>, the park playing fields occupy the foreground, with the intertidal area and the sea to the right. In the distance is the city's waterfront townscape, including the Long Walk, Aengus House, Cé na Mara and the Galmont Hotel. Bonham Quay rises behind Aengus House. To the right is the sprawling industrial complex of the New Docks area. <u>The baseline view</u> shows the cluster of contemporary tall buildings in Augustine Hill, set well back from the shoreline, with an abrupt edge against the harbour and industrial zone (New Docks). The development shifts the character of the city towards a contemporary/21st century condition. - This is a view of high amenity value, but the amenity derives mainly from the open space and the seascape as opposed to the built elements, some of which are unsightly (the New Docks area). There is a high capacity for change in that part of the view.	Medium	- The cluster of buildings are a prominent addition to the view, arranged along the waterfront of the Lough Atalia channel, stepping up in height towards the Augustine Hill tower. - In typology, scale and form the development provides complementary context for Augustine Hill, creating a gradation in height to the central tower. - The built form is articulated and the facades highly textured. Variations in brick colour contribute further to the division of the massing into smaller visual units, helping to integrate the development into the similarly textured wider townscape. Magnitude of Change: Low-Medium. Significance of effect: Moderate positive. - The development (a) complements Augustine Hill in establishing a contemporary, high density quarter in the city centre, and (b) brings the city towards the waterfront. - The Augustine Hill tower remains the landmark in the new quarter, with the development stepping down from the core towards the waterfront.	Low-Medium	Moderate positive	Not significant positive
17: Grattan Road	- This viewpoint represents the GCDP's protected view V.4: "Seascape views of Galway Bay from Grattan Road, Seapoint, the Salthill Promenade and the coast road to the western boundary of the golf course". - It should be noted that it is the 'seascape view', i.e. the view south over the South Park playing fields towards Galway Bay that the protected view designation seeks to protect. <u>In the existing view</u> east towards the city there is a distinct difference in character between (a) the suburban houses and coastal open space in the foreground and (b) the urban complex in the background - which features diverse buildings including Claddagh Hall (a long, low modern community building), part of the Long Walk, Aengus House, Bonham Quay on the skyline, and the sprawling industrial complex of the New Docks to the right. <u>The baseline view</u> shows the dramatic change caused by Augustine Hill, which builds in height from Bonham Quay towards the waterfront, but stops abruptly at	Medium	- The cluster of buildings are a prominent addition to the view, arranged along the waterfront of the Lough Atalia channel, stepping up in height towards the Augustine Hill tower. - In typology, scale and form the development provides complementary context for Augustine Hill, creating a gradation in height to the central tower. - The built form is articulated and the facades highly textured. Variations in brick colour contribute further to the division of the massing into smaller visual units, helping to integrate the development into the similarly textured wider townscape. Magnitude of Change: Medium. Significance of effect: Moderate positive. - The development (a) complements Augustine Hill in establishing a contemporary, high density quarter in the city centre, (b) brings the city to the waterfront, and (c) strengthens the legibility of the evolving urban structure.	Medium	Moderate positive	Significant positive

Viewpoint	Existing/Baseline View	Sensitivity	Proposed/Cumulative View	Magnitude of Change	Significance of Effects (EPA Scale)	Significance of Effects (Binary)
	Lough Atalia Road. By introducing buildings of contemporary urban typology, scale and architecture, the development changes not only the view but the character of the city. This is a typical coastline view in an evolving harbour city. The diversity of buildings creates capacity for further change.		- The Augustine Hill tower remains the landmark in the new quarter, and the development forms a pleasing built topography surrounding this pinnacle. The gap between the development and Augustine Hill will be filled by future developments in the Harbour Quarter. - No harm would be caused to any valued feature or characteristic of the protected view.			

11.6.3 Operational Phase – Townscape Effects

11.6.3.1 Townscape Sensitivity

The sensitivity¹ of the receiving environment can be classified ‘medium’ (definition of medium (see Table 11-1): *Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in landscape policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change.*

The medium sensitivity classification reflects the following:

- The site is a brownfield land parcel previously in industrial use, zoned ‘City Centre’ and part of the designated Inner Harbour ‘major regeneration site’;
- In its current state of underutilisation – and its previous use as a fuel storage facility - the site detracts from the townscape character, quality and visual amenity of its immediate environs;
- The site is the furthest part of the combined Ceannt Quarter and Inner Harbour regeneration area from Galway’s medieval city core and other sensitive townscape areas such as Eyre Square and the Long Walk;
- The site is surrounded to the north, west and south by similarly zoned (City Centre) and designated (regeneration site) lands. These surrounding lands form a buffer between the site and the existing city centre – and the one sensitivity in the area, Forthill Cemetery;
- To the east is the Lough Atalia channel (making the site a ‘waterfront site’, providing an opportunity to expand the city centre to the waterfront), beyond which lies the New Docks industrial area;
- The site is within walking distance of the existing city centre, the Ceannt Station public transport hub, and various coastal amenities; and
- The ongoing development of Bonham Quay and the grant of planning permission for the Augustine Hill development on the Ceannt Quarter regeneration site have initiated the area’s transformation from a former port and industrial zone into a 21st century high-density mixed-use city quarter. These projects provide favourable context for a development of the type proposed on the site.

These factors are all indicators of the receiving environment’s low sensitivity to change. There can be few sites in Galway city more suitable than the subject site for high density urban regeneration and particularly high density residential-led mixed use.

¹ The GLVIA states that townscape sensitivity should be classified with consideration of ‘the particular project or development that is being proposed’ and ‘the location in question’. Sensitivity is determined by two factors:

1. Susceptibility to change: “This means the ability of the townscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area...) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape policies or strategies”;
2. Value of the landscape/townscape receptor: This can be indicated by designations or, where there are no designations, by the judgement of the assessor.

This is supported by the *Galway City Urban Density and Building Heights Study, 2021*, in which the city centre, including the harbour area, is identified as the area of the city most suitable for higher density development (see Section 11.4.2.2, 11.4.2.3 and Figure 11-19). Importantly however, large parts of the city centre are covered by ACA designation (see Figure 11-18 above), which in effect limits the area of Galway city centre that can accommodate meaningful compact growth. This places particular demand on the Ceannt Quarter and Inner Harbour regeneration sites to deliver the transformative change to Galway sought by city and national policy.

The following GCDP policy is relevant to this assessment:

- Section 1.6: *“The major regeneration sites located in the city centre at Ceannt Station Quarter, Inner Harbour... are of such a scale and nature that can satisfy the demand for additional commercial uses and office technology of both an international and indigenous nature. These locations can provide high quality, attractive, city centre locations adjacent to sustainable transport links while also delivering on their potential for high density, residential development. They offer a sequential solution to the expansion of the city centre, close to a major transportation hub, reinforcing the prime role of the city centre in both Galway City and the MASP area.”*
- *“Expanding the city in this direction not only responds to future enterprise floor space demand it also can, with good design enhance the image of the city, the tourism function and allow for an expansion to a scale commensurate with the designation of Galway as a NPF regional city”.*
- *“the RSES also identifies the City and Metropolitan Area as the primary driver in strengthening the development of the region and reflects the ambition to grow the city as a globally competitive, successful city and metropolitan area which can contribute to re-balancing growth nationally to achieve more regional parity and viable alternatives to Dublin”.*
- *“Expansion of the city centre into key regeneration sites at Ceannt Quarter, Inner Harbour... will add to the vitality and viability of the city centre. These sites represent transformative opportunities for developments of scale with new residential communities and mixed uses complementing the experience of the city centre. They have potential to be developed in a sustainable manner while retaining the historic character and distinctiveness of the city centre.”*
- *“The Inner Harbour Regeneration Site... has potential for significant redevelopment providing an opportunity to re-establish links between the city centre and the sea, to create a high quality waterfront setting, a new city centre mixed use neighbourhood.... This area is already under transition with the current development of Bonham Quay contributing to the transformation of this part of the city centre and indicating a scale and density that could be achieved in the wider Inner Harbour.”*
- *“Where sites of scale are capable of generating their own character, in particular at the Ceannt Quarter, Inner Harbour..., scope for greater height is open for consideration where this additionality can demonstrate justification which may be based on outstanding architectural design and satisfy all other planning considerations”.*

While the townscape characteristics and policy noted above point to a low sensitivity to change, there are factors that require a considered response in the site's redevelopment. These include:

- The site's proximity (c. 60m) to Forthill Cemetery. The cemetery is a valued cultural heritage feature (indicated by its protected structure status), visitor attraction and open space/green infrastructure asset. It must be recognised however that (a) the cemetery has for decades been surrounded by an unsightly industrial townscape, (b) it has been hidden from the surrounding townscape by its high boundary walls, and (c) it is now located at the centre of Galway's city centre strategic regeneration area (the combined Ceannt Quarter and Inner Harbour sites - see Figure 11-14). The planned transformation of the surrounding area from industrial zone to high-density, mixed-use city centre quarter has implications for the role of the cemetery in the future townscape. It is inevitable that the cemetery will experience a higher degree of built/visual enclosure as a result of the new buildings making up the surrounding high-density quarter. The cemetery will be no less valuable for this change; in fact, its value as an open space, green infrastructure and visual amenity asset will be increased in the future context;
- The site (or tall development on the site) is potentially visible from several key approaches to Galway city centre, including:
 - Lough Atalia Road and a short stretch of the Old Dublin Road as it enters the city to the north;
 - The railway line approaching Ceannt Station across Lough Atalia from the east;
 - New Docks Road entering the city centre from the possible future Galway Harbour Extension (which includes cruise liner berths and a large marina, which would make the site a 'gateway site' on the route into the city for many visitors);
 - Grattan Road approaching the city centre along the coastline to the west.
- The site (or tall development on the site) is potentially visible in several protected views, such as views from around Lough Atalia and from the coastline to the west (Grattan Road, South Park, etc.); and
- The site is a 'waterfront site', albeit in a currently industrial area. The site's redevelopment therefore has the potential to redefine the city's relationship to part of the coastline.

These factors are expressed in the following statement from the GCDP: *"Notwithstanding the pursuance of compact growth, Galway's City Core is a historic environment with a sensitive and distinct character. This setting is complemented by both the river and coastline context which provides an impressive landscape and townscape features. As such, the impacts of new development on the city's character and setting will be a major consideration within the visibility envelope of the historic core and natural environment context"*.

In conclusion, while the site and the immediate environs are unquestionably highly suitable for the type of development proposed, the potential visibility of that development in certain key views – and the related potential effect on the re-imaging of the harbour area and Galway city as a whole - demands a considered design response.

This does not mean that development on the site must be of 'landmark character' (i.e. a unique architectural expression); the Augustine Hill development will fulfil that role in the new quarter and there are other sites in the Inner Harbour regeneration area more suited to landmark

buildings (refer to the Galway Harbour Vision Document and Masterplan). However, the site's redevelopment should be of a quality commensurate with its importance as a waterfront site visible from several key approaches to the city centre.

11.6.3.2 Magnitude of Townscape Change

The magnitude of townscape change which would result from the Proposed Development can be classified 'medium-high'.

Definition of 'medium' (see Section 11.2.2.2 and Table 11-2): *Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape.*

Definition of 'high': *Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the landscape and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape.*

The medium-high magnitude of change classification reflects the following:

- At 1.621 ha the site is relatively large (for an urban site);
- Comprised of four buildings ranging from 6 to 13 no. storeys, the Proposed Development is of substantial spatial extent and height. While tall for the current context, the development is not considered 'substantially uncharacteristic' given (a) its location in the Inner Harbour strategic regeneration site, (b) its proximity to the permitted Augustine Hill development, and (c) its falling into the area deemed most suitable for increased density/height in the city by the *Galway City Urban Density and Building Heights Study*;
- The site is located alongside the Lough Atalia channel, making it a coastal or waterfront site, meaning that the Proposed Development would be visible from/along the coastline, e.g. Viewpoints 1-4 and 14-17;
- The Proposed Development would redefine the character of a section of the city's waterfront (a section that is currently industrial in character); and
- The development would be visible from certain key routes into the city centre, including the Old Dublin Road (Viewpoint 1), the railway line approaching Ceannt Station (Viewpoint 3), Lough Atalia Road (Viewpoints 4, 5), New Docks Road entering the city from the possible future Galway Harbour Extension – Viewpoints 8, 9), and Grattan Road (Viewpoint 17).

While the above factors point to a high magnitude of townscape change, there are factors that warrant an adjustment of the classification down to medium-high. These include:

- The Proposed Development is well removed from Galway's medieval city core and other ACAs such as Eyre Square, the Long Walk and Nos. 1-6 Dock Road. The visual impact assessment (Viewpoints 10-14) reveals that the Proposed Development would have no significant impact on these sensitive areas. This is an important finding. It highlights the opportunity presented by the site – to deliver a new residential community of substantial scale in the city centre without causing any negative impact on the city's valued historic townscape areas; and

- The process of transformation of the Ceannt Quarter and Inner Harbour regeneration area is already underway (at Bonham Quay and with the grant of permission for Augustine Hill). Substantial further development of similar type (high density/tall) is planned in the area and facilitated by the GCDP and national policy, as supported by the GHC Masterplan for the Inner Harbour. The Proposed Development would therefore (a) contribute to an ongoing trend of townscape change rather than initiating the change, and (b) in time be absorbed into an extensive new urban quarter.

11.6.3.3 Significance and Quality of Townscape Effects

Measuring the magnitude of change (medium-high) against the sensitivity of the receiving environment (medium), **the townscape effect is classified 'moderate'** (in the EPA scale of significance – see Table 11-4 above) (EPA definition of moderate significance: *"An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends"*).

Using a binary system of significance classification, the townscape effect is classified as 'significant'.

Based on (a) the analysis of the townscape character of the receiving environment, (b) consideration of relevant national and GCDP policy, (c) the analysis of the Proposed Development including its response to the context and its design objectives, and (d) the assessment of the visual impact on the 19 no. representative viewpoints, **the townscape effect can be classified positive.**

While the above conclusion is informed largely by the visual effects assessment (and the verified photomontages), it is also supported by the proposal's demonstrable alignment or compliance with key national and GCDP policy and particularly its potential to contribute to the realisation of the vision for the city's evolution. For example:

11.6.3.3.1 National Planning Framework

- The development would contribute to the realisation of the NPF's 1st 'Shared Goal' and National Strategic Outcome of compact growth, by making better use of under-utilised brownfield land, delivering higher density and thereby encouraging more people and generating more activity within the existing footprint of the city;
- It would also contribute to the 'National Strategic Outcome' of enhanced amenities and heritage, by providing new, well-designed public realm linked to and integrated with the natural heritage of the receiving environment (specifically the Lough Atalia channel shoreline). The Proposed Development uses its waterfront position to its own advantage (providing views of Lough Atalia and Galway Bay), and to the advantage of the public by providing a public walkway and open space along the shoreline; and
- The Proposed Development would contribute to the NPF's goal of realising the potential of Galway to create a viable alternative to Dublin, and to become a 'city of sufficient scale and quality to compete internationally', through 'transformational urban rejuvenation'.

11.6.3.3.2 Galway City Development Plan 2023-2029

- The Proposed Development would constitute a sequential expansion of the city centre, bringing the centre to the Lough Atalia shoreline where it would provide an opportunity

for sustainable waterfront city living (with easy access to the city centre, the Ceannt Station public transport hub, and Galway's coastal amenities);

- By providing an attractive but affordable residential neighbourhood of scale in this location, the Proposed Development would make a significant contribution to the GCDP's stated ambitions of (a) enhancing the image of the city, and (b) growing Galway as a competitive, successful metropolitan area, re-balancing growth nationally to achieve more regional parity and a viable alternative to Dublin;
- The Proposed Development would maximise the value derived from the waterfront site in three ways, thereby enhancing the new quarter's – and the city's – relationship with the sea, by:
 - Positioning the buildings in response to the Lough Atalia channel shoreline;
 - Providing many of the 356 no. apartments with views of Lough Atalia, Galway Bay or the evolving Inner Harbour area, and
 - Providing a public promenade and public spaces alongside the Lough Atalia channel shoreline. This provision of access to the waterfront, and improved pedestrian permeability, are important planning and townscape gains.
- By adopting/adapting a recognisably urban typology, the perimeter block, the Proposed Development would contribute to the establishment of a distinctly urban character in an area currently devoid of basic urban characteristics such as a clearly defined urban grain and built frontage/enclosure to streets and spaces - and the associated quality of legibility. The Proposed Development would initiate the emergence of a legible urban structure in the Inner Harbour regeneration area;
- The palette of high quality, durable materials (brick, metal and glass) would contribute further to the establishment of urban character;
- The Proposed Development would contribute to key objectives stated in the GCDP for the Inner Harbour Regeneration site, including:
 - *"Ensure a high quality urban design, and demonstrate how redevelopment can connect into and extend the historic street pattern of the city centre. Show good relationship with the existing urban grain/structure and link public spaces..."* The development would do this by adopting a perimeter block typology, thereby providing built frontage to - and improving the definition and legibility of - the Lough Atalia channel, New Docks Road and the new road along the site's northern boundary.
 - *"Include for maximum public access and permeability throughout the site, give linkage and views to the waterfront and key coastal vistas and consider the challenge of transition areas bounding the site and anticipate opportunities for linkages and continuity in the design and layout of these sites..."*
 - *Develop the public realm in a manner that maximises the benefits of the waterfront location, achieves a strong sense of place, achieves permeability and reflects a defined functionality and strong landscape impact..."*
 - *Include measures to ensure connections to the green network, including green and blue links, city cycle and pedestrian networks and ensure biodiversity gain within the site..."*

The development would do this by (a) the provision of a public promenade across the site along the waterfront (creating the potential for a wider Lough Atalia shoreline walk), (b) provision of waterfront open spaces activated by a retail unit

- and café, and (c) the positioning of the apartment buildings for views of Lough Atalia, Galway Bay and the Inner Harbour area.
- *Demonstrate where taller buildings and/or landmark buildings are part of the composition, how existing important views, vistas and landmarks are respected and show how such buildings contribute to aspects of urban design such as accessibility, enclosure, character, permeability and adaptability...*. The site's location in the furthest part of the Inner Harbour regeneration site from the existing city centre, the Long Walk, etc. means that the development would not negatively affect existing important views, vistas or landmarks. The main effects of the Proposed Development's built form and height would be to (a) mark the Lough Atalia channel waterfront in the townscape (currently this stretch of the waterfront is lost to the city), and (b) to complement the taller Augustine Hill development nearby, combining with that development to form a pleasing composition of form (as illustrated by the photomontages for Viewpoints 1-4 and 15-17); and
 - The Proposed Development is aligned with the GCDP's 'key principles in the consideration of good urban design', 'mechanisms to achieve principles of good design' and Policy 8.7 on Urban Design and Placemaking:
 - *"The promotion of character by reinforcing local distinctiveness, identity and sense of place to enhance character. The typology of streets, layout of parks, open spaces, the natural heritage and the urban morphology..."*. The development reinforces the existing urban grain and maximises the relationship with the waterfront by (a) adapting the perimeter block typology to provide built frontage/enclosure to the Lough Atalia channel (and New Docks Road) while also opening the main public open space at the centre of the block to the waterfront, and (b) providing the maximum number of apartments with views of Lough Atalia, Galway Bay or the Inner Harbour – thereby strengthening the sense of place.
 - *"The creation of places that are easily recognisable [with] their own identity through recognisable landmarks and/or streets. New development should enhance the legibility of the surrounding place."* The Proposed Development would mark the position of the Lough Atalia channel waterfront in the townscape in views along the coastline (e.g. Views 1-4, 15-17), and provide public spaces for access to and enjoyment of this element of the cityscape which hitherto has been hidden in an industrial zone.
 - *"Exceptional design quality, including height, massing, proportion, materials, detailing, site layout and its relationship with the surrounding area, which set it apart in terms of quality and distinctiveness, and which positively contributes towards the context and character of the area..."*. The proposed layout and arrangement of built form and height are a considered response to the site's location with regard to the Lough Atalia waterfront, the Inner Harbour strategic regeneration site, the historic city centre and the Augustine Hill development. The built form incorporates both horizontal and vertical elements (representing the past and future of the cityscape), and steps in height, steps in the building line and variations in façade design are used to disaggregate and articulate the built form. The proposal does not seek to compete with Augustine Hill or other future 'landmark developments' in the Inner Harbour area – and as an affordable housing scheme it can't - but, by its responsive design (of the buildings and public realm) and the use of high quality materials it would contribute positively to the character and quality of the emerging high density city centre quarter.

11.6.4 Potential Cumulative Effects

11.6.4.1 Augustine Hill, Ceannt Quarter

The assessment has considered the potential in cumulative effects of the Proposed Development and the planning permitted Augustine Hill development (Galway City Council reg. ref. 20/47; An Bord Pleanála ref. no. ABP-310568-21) on the Ceannt Quarter Strategic Regeneration site. Augustine Hill is depicted in the verified photomontages (Appendix 11-1 of the EIAR and Figure 11-23 below), allowing for the two developments' visual effects to be seen in combination.

Augustine Hill will initiate the transformation of the combined Ceannt Quarter and Inner Harbour regeneration area into a high density mixed-use city quarter. The assessment found that the two developments would be complementary, each providing favourable context for the other, both incorporating buildings of contemporary urban typology, scale and architecture, and specifically tall buildings (for the context).

The Proposed Development responds to the Augustine Hill development in (a) its layout, specifically the alignment of Blocks B and D along the new road parallel to Lough Atalia Road, thereby creating a legible, orthogonal urban grain on the lands east of Lough Atalia Road, and (b) in the arrangement of height. The tallest proposed building, Block D, is positioned closest to the Augustine Hill tower, with the height stepping down towards the Lough Atalia channel waterfront.

11.6.4.2 Inner Harbour Masterplan

GHC commissioned Scott Tallon Walker Architects to produce a masterplan for the Inner Harbour Regeneration site, which includes the subject site. This responds to a requirement of the GCDP for a masterplan to be produced to guide the redevelopment of the area. The masterplan is being prepared in consultation with stakeholders (including the applicant for the subject proposal), GCC and others. It is not yet finalised, but the masterplan's proposed urban grain and arrangement of height are well advanced. The masterplan will have no statutory status. All developments in the area will be subject to detailed design and will require planning permission.

The emerging masterplan (building massing/height only) has been depicted in the cumulative photomontages included in Appendix 11-1 of the EIAR (see example overleaf). The inclusion of the masterplan massing in the views is solely to illustrate a reasonable, possible future scenario, and is not intended to allow for explicit cumulative impact assessment. Nonetheless, the Cumulative photomontages show that the Proposed Development and the remainder of the masterplan would be complementary, combining (with the adjacent Augustine Hill development) to generate a distinct new character area in the city. This is in keeping with the GCDP policy for the area (GCDP Section 10.2, p.249):

"Expansion of the city centre into key regeneration sites at Ceannt Quarter, Inner Harbour... will add to the vitality and viability of the city centre. These sites represent transformative opportunities for developments of scale with new residential communities and mixed uses complementing the experience of the city centre. They have potential to be developed in a sustainable manner while retaining the historic character and distinctiveness of the city centre."

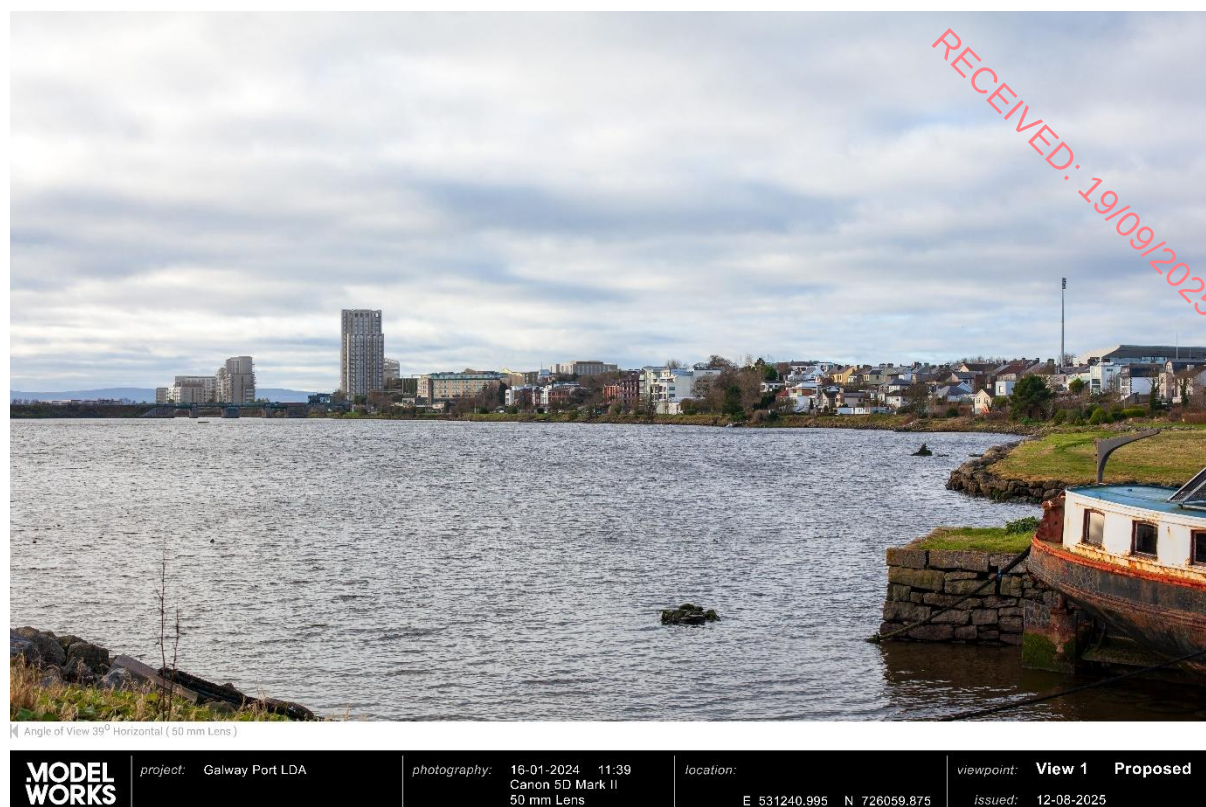


Figure 11-33 Photomontage (for Viewpoint 1) Showing the Cumulative Visual Effects of the Proposed Development and the Planning Permitted Augustine Hill Development

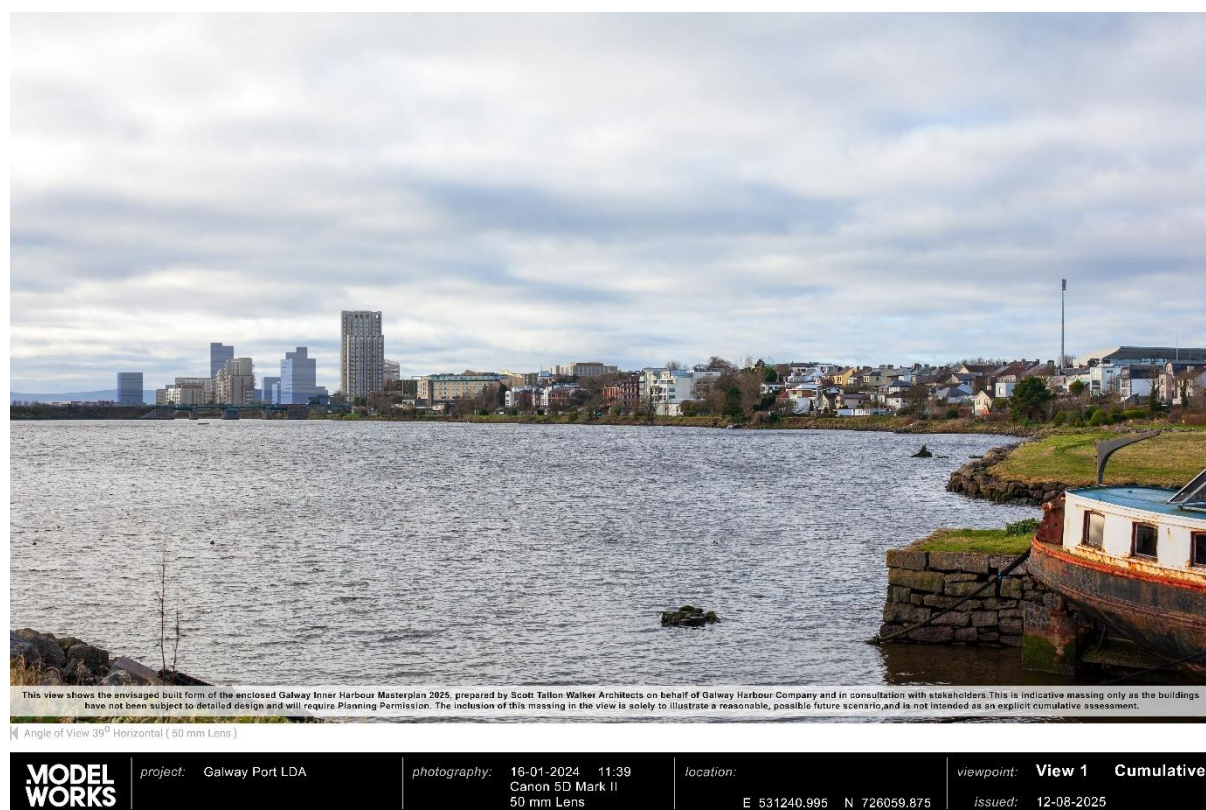


Figure 11-34 Photomontage Showing the Cumulative Visual Effects of the Proposed Development and Augustine Hill, with the Emerging Inner Harbour Masterplan Massing

11.6.4.3 Proposed Coal Yard Hotel

In 2024 a planning application (GCC Ref. 24/60108) was made for a hotel development of 14 no. storeys on the 'Coal Yard' site on Bóthar na Long and Lough Atalia Road, adjacent to Forthill Cemetery, c. 70m to the northwest of the site. The Coal Yard site falls into the Inner Harbour Regeneration site and is located across Forthill Cemetery from the Augustine Hill development.

GCC refused permission for the development, and the Applicant lodged a 1st Party appeal with An Bord Pleanála (now An Coimisiún Pleanála) (ABP-320100-24). The appeal is pending.

The potential cumulative effects of the Proposed Development and the proposed Coal Yard Hotel development have not been specifically assessed in this chapter. However, in concept the two developments are complementary (tall buildings in Galway's designated high density, mixed use regeneration area, seeking to maximise use of the centrally located former industrial sites), albeit contrasting in architectural character. Like the Proposed Development, the proposed Coal Yard Hotel seeks to employ building height to achieve a high yield in floorspace, and also to reinforce the emerging urban structure, improve legibility and contribute to place-making – in the Coal Yard's case by marking the junction of Bóthar na Long and Lough Atalia Road at the centre of the new Inner Harbour quarter.

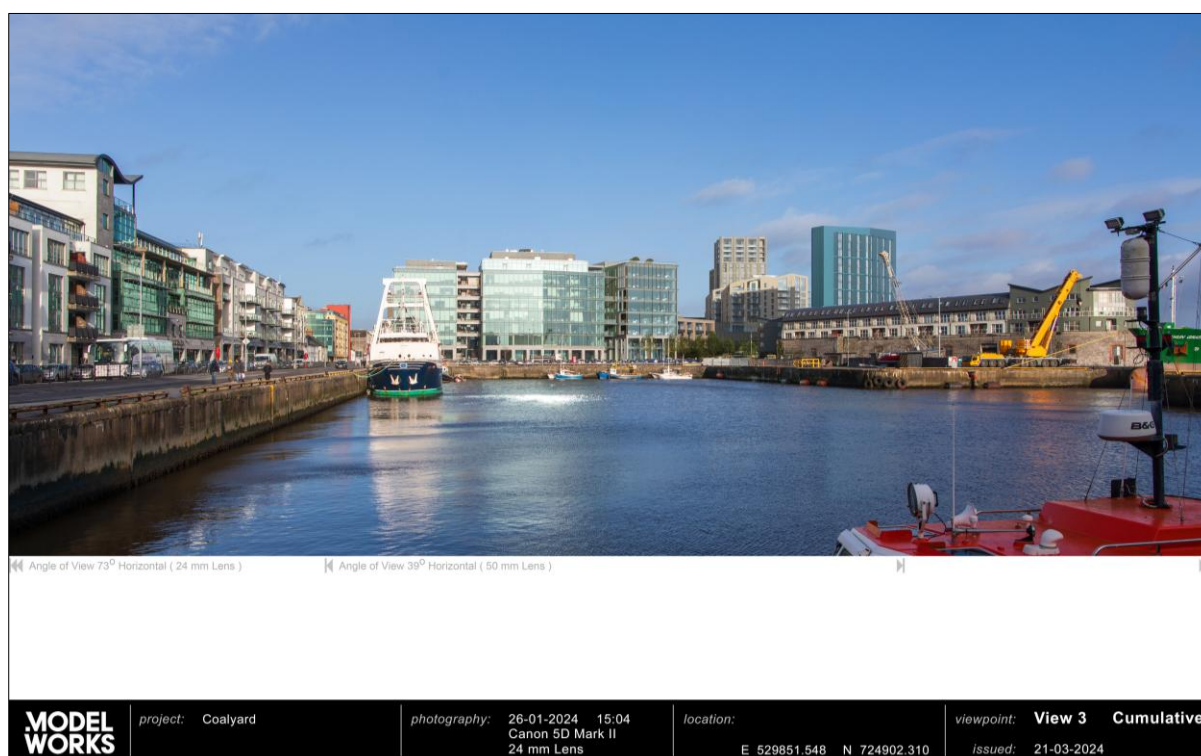


Figure 11-35 Photomontage Showing the Proposed Coal Yard Hotel (with the Permitted Augustine Hill in the Background), Refused Planning Permission by GCC and Currently the Subject of a 1st Party Appeal to An Coimisiún Pleanála

In the same manner that the Augustine Hill development and the Proposed Development would provide mutually favourable context for each other (combining to establish a contemporary, high density city quarter), the proposed Coal Yard and the Proposed Development would be complementary.

11.6.4.4 Galway Harbour Extension

In 2014, Galway Harbour Company (GHC) applied to An Bord Pleanála for planning permission for a 27 ha extension of the harbour – from the New Docks area south into Galway Bay (see Figure 11-16). The plan for the harbour extension includes cruise liner berths and a new marina, with the objective of establishing a cruise and marine tourism sector in Galway. An Bord Pleanála (now An Coimisiún Pleanála) has yet to make a decision on the application.

If the development is permitted, New Docks Road will provide the link between the new harbour and Galway city centre. The bridge over the Lough Atalia channel will become a gateway to the city, and the site - located beside the bridge and with frontage to the road - will be a 'gateway site' on the route into the city. This will elevate the site's status in the townscape. This assessment has taken account of that potential increase in status of the site, and three of the viewpoints for visual effects assessment (Viewpoints 8, 9, 9a) were selected to address this prospect.

The newly constructed elements of the harbour extension would however be well removed from the Proposed Development (on the far side of the existing New Docks area), and there is limited potential for cumulative townscape and visual effects other than the new harbour's effect on the status of New Docks Road (and the site by extension).

11.6.4.5 BusConnects Galway Cross City Link (University Road to Dublin Road)

Planning permission has been granted for the BusConnects Galway Cross City Link scheme (University Road to Dublin Road) (ABP-314597-22). It is not considered that the Proposed Development and the permitted BusConnects development would have any significant cumulative townscape or visual effects.

11.6.5 “Do Nothing” Effect

If the site remained in its current use and condition, it would continue to detract from the townscape character, quality and visual amenity of its environs.

It would also fail to contribute to the realisation of several key national and GCDP policies (related to townscape), such as (a) the sequential expansion of the city centre - as part of the objective to grow the city as a globally competitive city and metropolitan area; (b) the regeneration of the Inner Harbour area; (c) re-establishment of links between the city centre and the sea, and the creation of high quality waterfront settings, etc. The site's redevelopment is important to the achievement of all of these goals.

11.7 Avoidance, Remedial and Mitigation Measures

11.7.1 Construction Phase

Construction is inherently disturbing of the landscape/townscape, and unsightly. The most effective mitigation for the potential townscape and visual effects of construction is site hoarding. However, this is only effective for ground level activity. When buildings under construction rise above ground level they are exposed and unsightly. Negative impacts are unavoidable in the construction phase of multi-storey development.

Good practice in site management can reduce unnecessary visual impacts. These may include (a) considered layout of the construction site with regard to the most sensitive visual receptors, (b) dust control (e.g. water sprays to avoid dust plumes; spraying of vehicles before site departure to avoid dirtying roads), (c) waste control (e.g. netting/covering of storage bins/areas; regular site inspection for litter), and (d) considered positioning of security lighting.

A CEMP has been prepared and submitted with the LRD application. The CEMP includes measures – or a framework for the future agreement of measures - such as those identified above. No further mitigation measures for construction stage townscape and visual impacts are recommended.

11.7.2 Operational Phase

The Proposed Development proposal has evolved through an iterative design process that included (a) pre-planning consultation with Galway City Council through the LRD planning application process, (b) public consultation, (c) consultation with GHC, (d) cooperation with the architect (Scott Tallon Walker) responsible for preparation of the Galway Inner Harbour Masterplan 2025, and (e) ongoing, iterative assessment of the proposal's potential environmental effects – including its townscape and visual effects.

The Proposed Development proposal has been informed by this, and this is reflected in the findings of this assessment.

- The operational stage visual effects of the Proposed Development would be positive or neutral for all 19 no. representative viewpoints assessed. The effects would be long term to permanent (as summarised in Table 11-7); and
- The operational phase townscape effects have been classified as 'moderate' positive (using the EPA scale, see Table 11-4) or significant positive (using a binary classification of significant or not significant). The effects would be long term to permanent.

Therefore, no operational stage mitigation measures for townscape and visual impacts are recommended.

11.7.3 “Worst Case” Scenario

No worst-case scenario has been identified.

11.8 Residual Effects

Since no construction phase or operation phase mitigation measures have been recommended, the residual impacts/effects are the same as those described in Table 11-6 (visual effects) and Section 11.6.3.3 (townscape effects). These effects are summarised as follows:

11.8.1 Residual Visual Effects

The significance of the residual visual effects, including the effects during construction, are summarised in Table 11-7.

Table 11-7: Visual Effects Assessment Summary

Viewpoint	Viewpoint Sensitivity	Magnitude of Change		Significance of Effects		EIA Binary Significance
		Construction (temporary)	Operation (long term)	Construction (temporary)	Operation (long term)	
1: Old Dublin Rd	Medium	Medium	Medium	Slight negative*	Moderate positive	Significant positive
2: Lakeshore Drive	Medium	Medium	Medium	Slight negative	Moderate positive	Significant positive
3: Railway approaching Ceannt Stn	Low-Medium	Medium-High	Medium-High	Slight negative	Moderate positive	Significant positive
4: Lough Atalia Rd approaching city	Medium	Medium	Medium	Slight negative	Moderate positive	Significant positive
5: Lough Atalia Rd near site	Low	Medium	Medium	Slight negative	Slight-Moderate positive	Not significant positive
5a: Lough Atalia Rd at site entrance	Low	High	High	Slight negative	Moderate positive	Significant positive
6: Forthill Cemetery	Medium	Medium-High	Medium-High	Slight negative	Moderate neutral	Significant neutral
7: Bothar na Long	Low	Medium	Medium	Slight negative	Slight positive	Not significant positive
8: New Docks Rd approaching bridge	Low	High	High	Slight negative	Moderate positive	Significant positive
9: New Docks Rd bridge	Low	Very High	Very High	Slight negative	Moderate positive	Significant positive
9b: New Docks Rd alongside site	Low	Very High	Very High	Slight negative	Moderate positive	Significant positive
10: Dock Rd/ Inner Dock	Low-Medium	Low	Low	Not significant negative	Slight positive	Not significant positive
11, 12: Eyre Square	Medium-High	None	None	No effect	No effect	No effect
13: Wolfe Tone Br (Fr Griffin Road)	Medium-High	None	None	Not significant negative**	No Effect	No effect
14: Nimmos' Pier and Grattan Road	Medium-High	Low	Low	Slight negative	Not significant neutral	Not significant neutral
15: Nimmos' Pier	Low-Medium	Medium	Medium	Slight negative	Moderate positive	Significant positive
16: South Park coastal greenway	Medium	Low-Medium	Low-Medium	Slight negative	Moderate positive	Not significant positive
17: Grattan Road	Medium	Medium	Medium	Slight negative	Moderate positive	Significant positive

* Construction phase visual effects are of lower significance than the operational phase due to their relatively short duration (in this case 30 months estimated). The magnitude of change during construction is usually approximately the same as the magnitude during operation. The significance of the effects during operation is greater as the effects are long term.

** Cranes would be temporarily visible on the skyline.

11.8.2 Residual Townscape Effects

The operational phase townscape effects are predicted to be of 'moderate' significance (using the EPA scale of 'imperceptible' to 'profound', see Table 11-3 and Figure 11-1) and positive, or 'significant' positive (using a binary classification of significant vs. not significant). The effects would be long term to permanent.

11.9 Monitoring

11.9.1 Construction Phase

No monitoring of townscape or visual effects during construction is required.

11.9.2 Operational Phase

No monitoring of townscape or visual effects during operation is required.

11.10 Interactions

11.10.1 Townscape/Visual and Biodiversity

The change in use from industrial to residential, and the associated transformation of the site landscape, would have a positive effect on biodiversity. The site is currently almost devoid of vegetation and hard surfaced. The development would result in a significant increase sort/permeable surface, with associated water attenuation benefits, and a net gain in vegetation cover including trees. The proposed trees, shrubs and groundcovers have been selected by the project landscape architect, in consultation with the project ecologist, for their biodiversity value and suitability for the coastal location. Additionally, proposed Blocks A, B and D feature extensive green roof systems.

11.10.2 Townscape/Visual and Population and Human Health (Noise and Dust Emissions)

During the construction stage, there is potential for negative townscape and visual effects of construction to combine with noise and dust emissions from the construction site to negatively impact the amenities of human receptors near the site. The nearest potential sensitive receptors are the apartments at Ce na Mara c. 75m to the northwest of the site. Beyond that, the nearest residential receptors are on Dock Street around the Inner Harbour, c. 300m to the west of the.

Following the construction phase, the site would be transformed into a high-density residential neighbourhood with a large new resident population. This population would benefit directly from the change in the townscape - from the provision of homes and new public realm including waterfront public open spaces and pedestrian and cycle routes, etc. The population would benefit from the proximity to the existing city centre, the public transport hub at Ceannt Station, and a variety of open space amenities around Lough Atalia and Galway Bay.

11.10.3 Land and Soils

The redevelopment of the site for residential use will affect the land and soils beneath the site, by introducing buildings, roads and other hard surfaces, and also areas of permeable surface

(soil) and vegetation cover. The effects of this change are assessed in the Land and Soils chapter (Chapter 6) of this EIAR.

11.10.4 Townscape/Visual and Climate Change

The change in townscape character by the introduction of a high-density residential neighbourhood in the city centre, well served by public transport, has implications for climate change. Higher density development, appropriately located, is more sustainable than low density development. The new resident population would have access - by foot or bicycle - to shops, services, schools, employment opportunities, public transport services and public open space, reducing the need for use of private cars.

11.11 Difficulties Encountered When Compiling

No difficulties were encountered in the preparation of this assessment.

11.12 Conclusion

The assessment was informed by desktop study and survey of the receiving environment, review of relevant policy from city to national level, iterative review and assessment of the proposal through the design process (with feedback provided to the design team), consultation with the planning authority (including review of the GCC's LRD Opinion and advice on this to the design team), and the preparation of 19 no. verified photomontages for representative viewpoints – to understand the potential effects on the receiving environment's visual amenity and townscape character.

In the construction phase (estimated to last 30 months) the Proposed Development would have negative visual effects ranging from 'not significant' to 'slight' significance (on the EPA scale, see Table 11-3 and Figure 11-1). Using a binary classification, the visual effects during construction would all be 'not significant'. Similarly, the townscape effect during construction would be of 'slight' significance (on the EPA scale) and negative, or 'not significant' negative (using binary classification). Construction is inherently disturbing of the townscape and unsightly, but it is a necessary and normal activity in the urban environment. People tend to accept it, knowing that the effects are temporary. In the case of this project, it would also take place on a former industrial site, in a harbour-industrial area now designated for urban regeneration. These factors contribute to the 'not significant' classification of the construction phase effects.

The effects during operation (long term effects) are predicted to be as follows:

- The visual effects would be positive or neutral for all 19 no. viewpoints. The effects range from no effect to 'not significant' to 'moderate' significance (on the EPA scale, see Table 11-3 and Figure 11-1). Applying a binary classification, 10 no. of the 19 no. viewpoints are predicted to experience a 'significant' visual effect (either positive or neutral in quality), and 9 no. a 'not significant' effect (refer to Table 11-7). No negative visual effects were identified.
- The townscape effects have been classified as 'moderate' positive (using the EPA scale, see Table 11-3 and Figure 11-1) or 'significant' positive (using a binary classification of significant vs. not significant). The Proposed Development would make a positive contribution to the transformation of Galway's formerly harbour-industrial

Inner Harbour area into a high density, mixed use urban quarter. It would bring the city centre to the waterfront of Lough Atalia and provide public open space and a promenade ('Lough Atalia Walk') on the waterfront. It would establish a new urban grain with streets and blocks on the site, from which further regeneration of the Inner Harbour lands could expand. It would introduce buildings of high design and material quality to the townscape, with their height marking the new quarter in the wider townscape and complementing the taller Augustine Hill development nearby.

11.13 References

Galway City Development Plan 2023-2029, Galway City Council.

Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA), published by the Landscape Institute.

Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022, published by the EPA.

Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, 2018, published by the Department of Housing, Planning and Local Government.

Project Ireland 2040: National Planning Framework, 2018, Government of Ireland.

Townscape Character Assessment, Technical Information Note 05/2017, Landscape Institute.

Urban Design Manual – A Best Practice Guide, Department of Environment, Heritage and Local Government, 2009.

Urban Development and Building Height Guidelines for Planning Authorities, December 2018, Department of Housing, Planning and Local Government.

12 MATERIAL ASSETS: TRAFFIC

12.1 Introduction

This chapter addresses the traffic and transportation effects arising from the Proposed Development, at Lough Atalia Road and Dock Road, Galway Port, Galway City.

This chapter addresses the impact of the Proposed Development and the implications for the adjacent road network for the weekday AM and PM Peak Hours, taking account of existing traffic conditions factored to projected opening and design year.

A formal Traffic and Transport Assessment (TTA) has been prepared and submitted by NRB Consulting Engineers Ltd as Appendix 12-1 and underpins this chapter of the EIAR. The TTA also includes a Travel Plan (Mobility Management Plan (MMP)), which is provided in Appendix L of the TTA.

For further information regarding the traffic and transportation elements of the Proposed Development, please refer to the TTA submitted in Appendix 12-1.

12.1.1 Quality Assurance and Competency of Experts

This chapter has been prepared by NRB Consulting Engineers Ltd (hereinafter referred to as 'NRB'). The report authors and reviewers are Chartered Engineers with over 20 years' experience in traffic impact assessments and the application of modelling software such as Assessment of Roundabout Capacity and Delay (ARCADY), Priority Intersection Capacity and Delay (PICADY), Linked Signal (LinSig) and Trip Rate Information Computer System (TRICS).

This chapter has been prepared by Brian McMahon, a Chartered Engineer and Director of NRB. Brian has 20 years' experience in planning, design and management of traffic and transportation projects. Brian is an expert in the application of software packages such as ARCADY, PICADY, LinSig and the TRICS trip generation database. Brian is an experienced Road Safety Audit Team Lead, Transport Infrastructure Ireland (TII) approved, with over 200 Road Safety Audits (RSAs) undertaken within Ireland and the UK.

This chapter was reviewed by Eoin Reynolds, a Chartered Engineer and founding Director of NRB. Eoin also specialises in the field of Traffic and Transportation & Roads Design and has over 36 years' experience in assessing the infrastructure needs of development. He is expert in the provision of advice to both private sector and public sector clients on all aspects of roads, traffic and transportation, and mobility management. Eoin is also expert in the use of Traffic Engineering Modelling Software (TRICS, ARCADY, PICADY, LINSIG, Traffic and Network Study Tool (TRANSYT) and Micro-Simulation Techniques). He has given expert evidence at planning appeals, oral hearings and public enquiries.

12.2 Study Methodology

This chapter has been undertaken in accordance with the requirements, and methodologies set out in TII's *Traffic and Transport Assessment Guidelines 2014* (PE-PDV-02045). These are the professional Guidelines used to assess the impact of developments on public roads.

The methodology includes baseline traffic surveys (October 2024), trip generation using the Trip Rate Information Computer System (TRICS) database, trip assignment and distribution based on observed traffic patterns, and capacity analysis of junctions using TII approved

modelling software. Sensitivity testing has also been carried out, taking account of the proposed BusConnects scheme and other cumulative developments.

In describing both the receiving environment and the proposed future environment, this chapter addresses the following aspects of the Proposed Development:

- The relatively small scale of the Proposed Development in the context of the local area and the busy road network, as reflected in the low traffic generation of the Proposed Development);
- Location of the Proposed Development, including its proximity to several bus routes;
- Traffic and transportation impact;
- The proposed access junction;
- The capacity of the proposed vehicular access arrangement to accommodate worst-case development traffic flows associated with 356 residential units;
- Pedestrian and cyclist permeability and promotion; and
- The capacity of the existing road network.

The recommendations contained within this chapter are based on the following sources of information and industry-standard practices:

- Galway City Development Plan 2023-2029;
- Galway Transport Strategy 2016;
- Galway Harbour Vision Document;
- TII *Traffic and Transport Assessment Guidelines*;
- *Design Manual for Urban Roads and Streets* (DMURS) 2019;
- Traffic survey data commissioned 2024;
- TII PE-PAG-02017 Project Appraisal Guidelines for National Roads.
- Relevant design guidance; and
- NRB's professional experience in assessing the impacts of developments of this nature.

An independent Quality / Stage 1 Road Safety Audit of the Proposed Development and adjacent junction upgrades, together with the Designer Feedback form, has been undertaken and provided in Appendix M, of the TTA Report. All issues in the audit have been addressed. A Statement of Consistency with DMURS has been undertaken by Tobin and provided in Appendix N, of the TTA Report, confirming that the internal layout is compliant with DMURS requirements. A Public Transport Capacity Assessment Report has been undertaken and provided in Appendix O, of the TTA Report.

12.2.1 Policy and Guidance Context

This section outlines the relevant planning policies, design standards, and national guidance documents that inform the assessment of traffic, transport, and mobility for the proposed development. These include the Galway City Development Plan 2023–2029, the Sustainable Urban Housing: Design Standards for New Apartments Guidelines (2025), and the Sustainable Residential Development and Compact Settlements Guidelines (2024). These documents provide the framework for evaluating car and cycle parking provision, access arrangements, and alignment with sustainable transport objectives. Reference to these policies ensures that the Proposed Development is assessed in accordance with current statutory and best practice guidance.

12.2.1.1 Galway City Development Plan - Maximum Car Parking Standards

The Proposed Development is located in the City Centre Residential zone, as shown in Figure 11.32 (Figure 12-1 of this chapter) of the Galway City Development Plan (GCDP) 2023-2029.

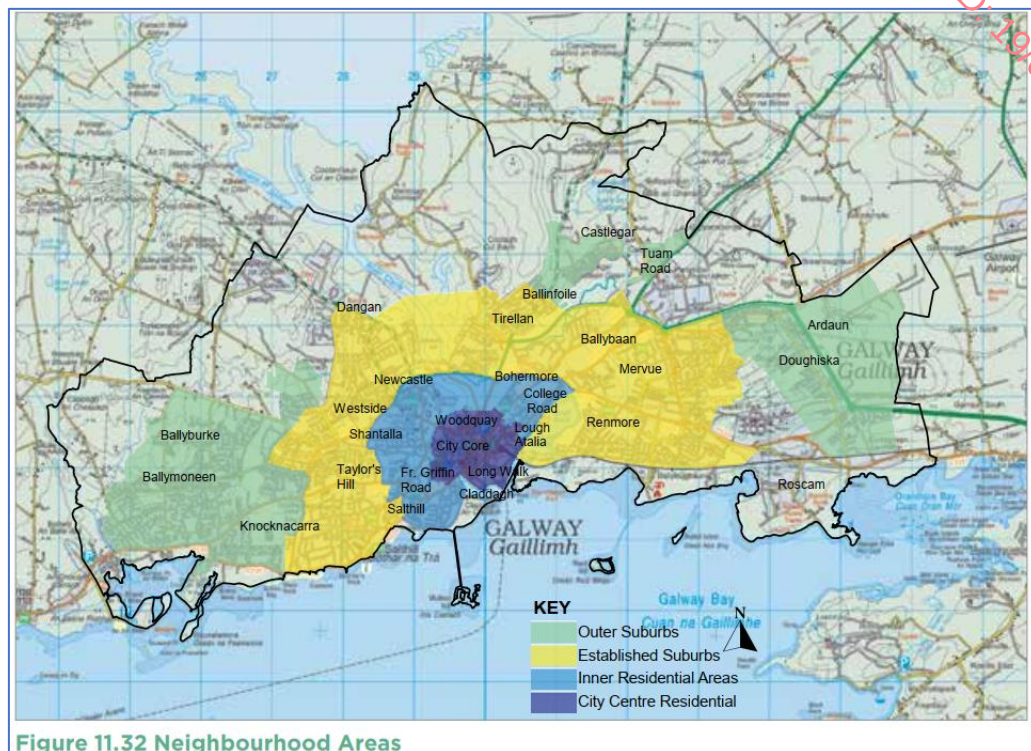


Figure 12-1 Galway City Council Neighbourhood Areas (Figure 11.32 of the GCDP)

The car parking standards to be applied in new residential developments in Galway City are set out in Section 11.3.4 (d) of the GCDP, see Figure 12-2 below.

11.3.4 (d) Car Parking Standard

- In larger scale and higher density developments, comprising wholly of apartments in more central locations that are well served by public transport, the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances.
- On smaller developments, car parking should also be discouraged but regardless, shall not exceed a maximum 1 car parking space per dwelling

Figure 12-2 Extract of Section 11.3.4 (d) of the GCDP

These standards are effectively the same as set out in the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, (2023), in effect at the time of preparing the GCDP, which notes that “the default policy is for car parking provision to be minimised, substantially reduced or wholly eliminated in certain circumstances”.

12.2.1.2 Apartment Guidelines

The ‘Planning Design Standards for Apartments’, published by the Department of Housing, Local Government and Heritage in July 2025, updates guidance in the context of greater evidence and knowledge of current and likely future housing demand in Ireland.

These guidelines address Apartment Design Parameters, including car and cycle parking. The guidelines acknowledge that the quantum of car parking or the requirement for any such provision for apartment developments will vary, having regard to the types of location in cities and towns that may be suitable for apartment development, broadly based on proximity and accessibility criteria.

The guidance provided within the Guidelines note that car parking should be reduced, substantially minimised, or even eliminated in locations with good access to public transport and urban services, as its availability strongly influences travel choices and adds significant development costs, especially for basement or podium structures. Maximum parking rates should align with location-specific guidance, prioritising accessible, service, drop-off, and visitor spaces, particularly for mobility-impaired users on a needs basis rather than through ownership. Alternative mobility options, such as car-sharing facilities, should be supported, and car-free developments are permissible.

The Guidelines note that the maximum car parking rates are set out in Section 5.25 (SPPR 3) of the Sustainable Residential Development and Compact Settlements Guidelines. These rates are graduated based on proximity to centres and accessibility to public transport services.

12.2.1.3 Sustainable Residential Development and Compact Settlements Guidelines

The Sustainable Residential Development and Compact Settlements Guidelines (SRDCSGs) published by the Department of Housing, Local Government and Heritage in January 2024, include a SPPR, that defines the parking provision based on the location. Figure 12-3 presents the relevant extract SPPR3 from the SRDCSGs:

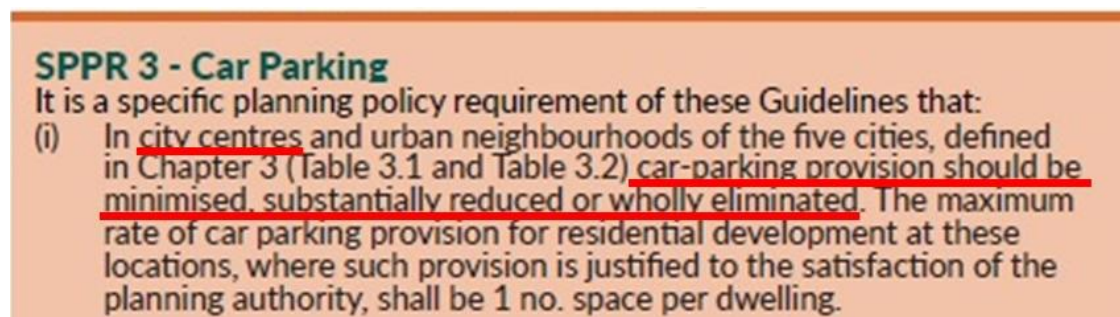


Figure 12-3 Extract CSG Car Parking

Again, similar to both the GCDP and the Apartment Guidelines, it notes that in city centres and urban neighbourhoods of the five cities, including Galway, defined in Chapter 3 (Table 3.1 and Table 3.2) car-parking provision should be minimised, substantially reduced or wholly eliminated.

During preplanning discussions, GCC Roads & Traffic officials noted that the “concept 0.1 ratio is consistent with CDP standards which are maximums”.

12.3 The Existing and Receiving Environment (Baseline Situation)

The site is a brownfield site which is located south of Lough Atalia Road. Galway City Centre is a 5-10mins walk to the site and offers a range of amenities and services including schools, supermarkets, restaurants, and other services.

The site is considered to represent a highly sustainable location for the Proposed Development given its proximity to Galway City Centre and local services. Sustainability will be further promoted through the low-car design of the scheme, provision of ample cycle parking and the implementation of a working MMP.

12.3.1 Existing Road Network

The road along the northern boundary of the site is Lough Atalia Road, a strategically important road in the Galway Road Network, providing vehicular access to Galway Port, to the south of the city centre, and the Wolfe Tone Bridge. The Lough Atalia Road is identified as part of the 'City Centre Access Network' in the *Galway Transport Strategy* (GTS), as is shown in Figure 12-4. This network is proposed in the Strategy to enable traffic to access and move around the core city centre area.

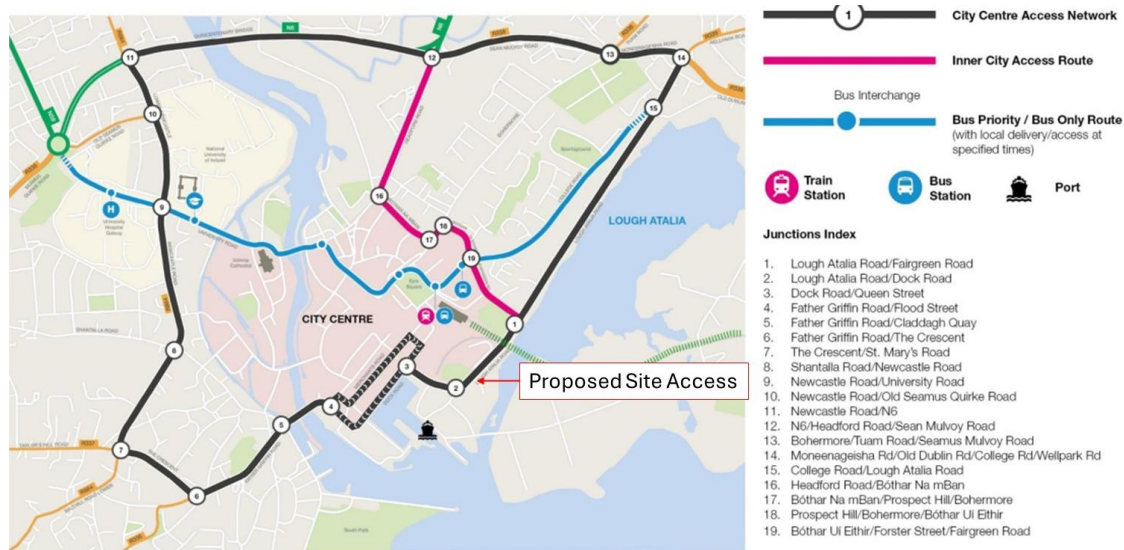


Figure 12-4 Site Access in Relation to the City Centre Access Route (Source: GTS (2016) Figure 4.1)

Road congestion is noted on the Lough Atalia Road during the commuter peaks, but in particular during the Weekday PM peak. From an assessment of Google Maps (typical traffic function for a Tuesday at 5.30), traffic is noted to start blocking back from the Wolfe Tone Bridge junction, with queues extending to the proposed site access location. The GTS notes that "heavy congestion and delay on the approaches to Quincentenary Bridge often leads to traffic re-routing towards Salmon Weir Bridge, O'Brien Bridge and Wolfe Tone Bridge, which in turn creates congestion across the city".

The PM peak congestion from Wolfe Tone Bridge is highlighted below from a Google Traffic image, which shows delays from Wolfe Tone Bridge towards the site access, on a typical Tuesday at 5:30pm. Figure 12-5 presents the local PM congestion and delays.

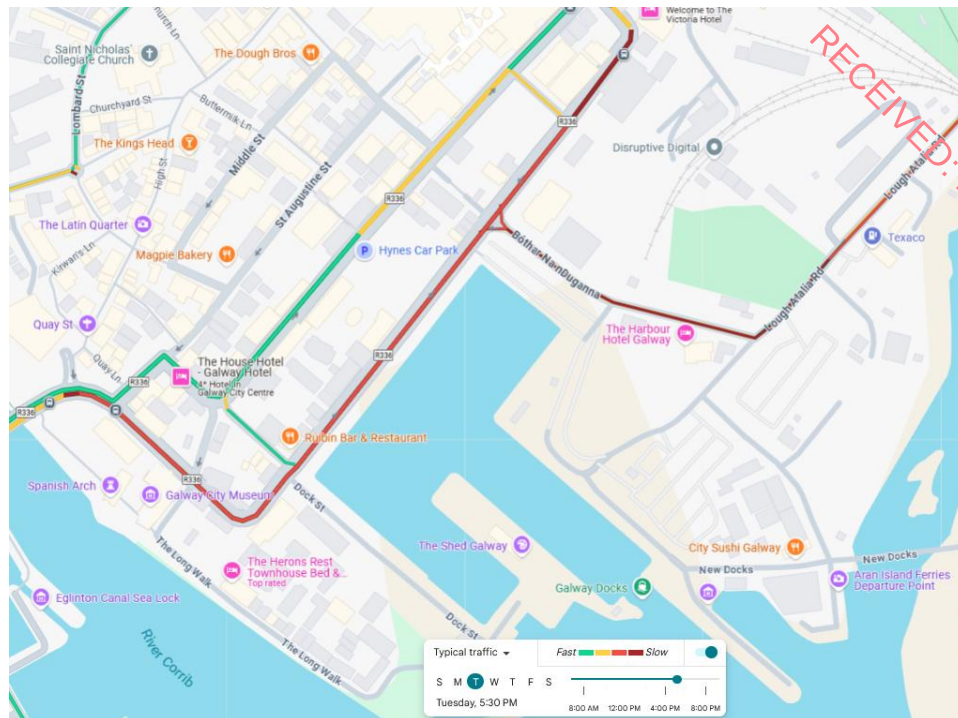


Figure 12-5 Local PM Congestion and Delays (Google Image)

Adjacent to the site it is single carriageway, with a traffic lane in each direction. The road width is approximately 9.0m. A footpath is provided on the northern and southern sides of the road. The site access is proposed on this road and is located in the 50km/hr zone.

The Lough Atalia Road carries a weekday AM Peak Hour 2-way flow of approximately 1,132 Passenger Car Units (PCUs), and a weekday PM Peak Hour 2-Way flow of approximately 713 PCUs, and in these terms, it can be considered as moderately trafficked.

It is acknowledged that the capacity of any road or link is generally governed by the capacity of the terminal junctions, and not by link capacity. In this regard, the majority of local junctions in the area have been observed to operate at or near capacity during peak periods. As a result, there is localised congestion associated with terminal junctions, particularly at Wolfe Tone Bridge to the west. These PM peak delays are also reflected in the PM peak counts, which show a notably lower number of vehicles movements compared to the AM peak.

12.3.2 Car and Cycle Access

The existing site access junction (proposed to be upgraded as part of the current application) off the Lough Atalia Road currently provides access to City Direct Buses Depot and an exit route for a small number of vehicles from the adjacent Texaco petrol station.

12.3.3 Pedestrian Infrastructure

At present, pedestrian activity to the existing site is served by an extensive network of footpaths that connect the site to the local area and provide direct links to high-quality public transport services both locally and within the wider area.

12.3.4 Cycle Infrastructure

At present, there are intermittent dedicated cycle lanes/facilities on the adjacent road network, and of course, cyclists can use the existing road infrastructure. Cycling infrastructure is continually improving, and the nature of the area, along with current practices by Galway City Council (GCC) suggests that the proposed cycle network will be implemented within a short timeframe (GCC note that there are preliminary discussions regarding a future route on Lough Atalia Road). The site is well positioned in terms of the National Transport Authority of Ireland's (NTA) CycleConnects Plan for this area of Galway. An extract from the plan is included and illustrated in Figure 12-6. These links ensure that the site is highly accessible by bicycle to Galway City and environs.



Figure 12-6 Proposed Local Cycle Network – Extract from Galway CycleConnects Plan (NTA), annotated by NRB

An extract from the GTS showing the site in context is included as Figure 12-7.

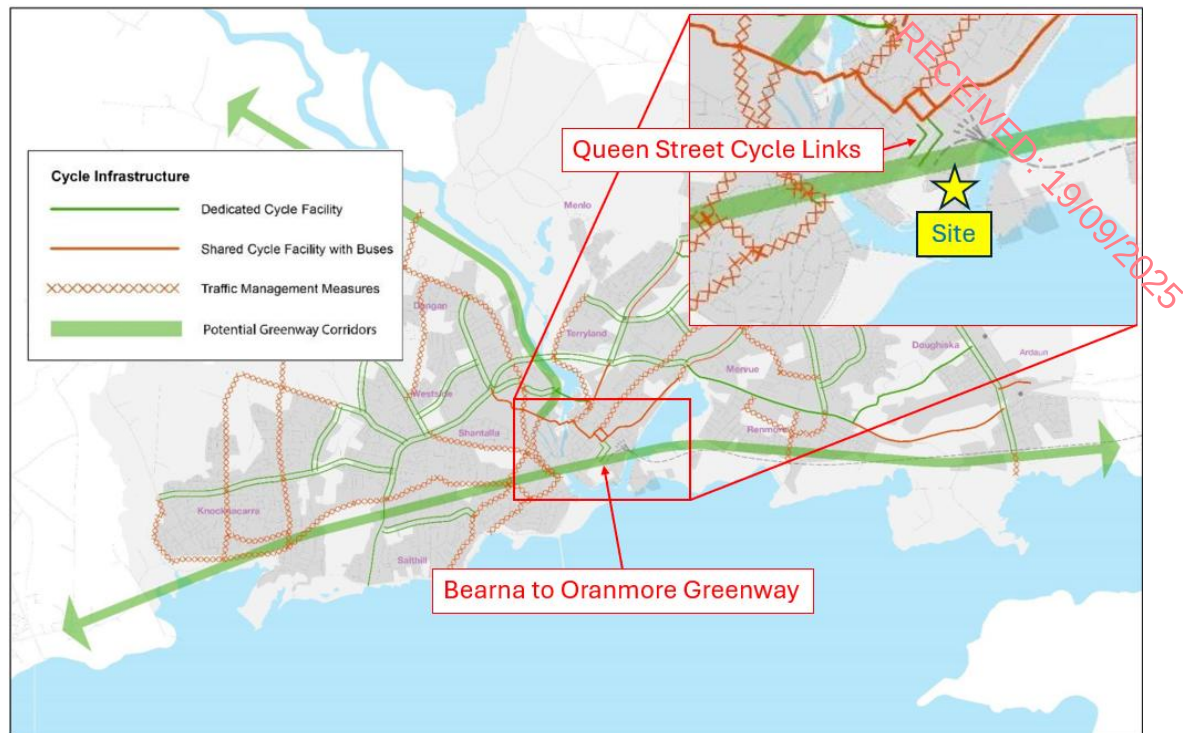


Figure 12-7 Proposed Cycling Infrastructure (Source: GTS (2016) Figure 7.2)

The plan shows that the site will be located at the intersection of a number of future routes, including new cycle facilities connecting into Eyre Square via Queen Street, which will facilitate access to the city centre. Also, the proposed Berna to Oranmore Greenway, passing through Galway City, is indicated passing via the proposed site. Therefore, the proposed development site is in an ideal location to benefit from the NTA's/GCC's proposed upgrades of the city's future cycle network.

12.3.5 Public Transport

The Proposed Development is well placed to take advantage of the existing bus services, with several stops serviced by high frequency bus services in close proximity to the site. Bus service numbers proximate to the site are illustrated in Figure 12-8.

According to Transport for Ireland's latest network summary, the following bus routes serve Eyre Square:

Bus Éireann (City services):

- 401: Eyre Square – Salthill
- 402: Shangort Road (Seacrest) – Eyre Square – Merlin Park
- 404: Newcastle – Eyre Square – Oranmore
- 405: Ragoon – Eyre Square – Ballybane
- 407: Eyre Square – Bóthar an Chóiste
- 409: Eyre Square – Parkmore Industrial Estate

City Direct Services:

- 410: Eyre Square – Knocknacarra
- 411: Eyre Square – Cappagh Road
- 412: Eyre Square – Western Distributor Road

Additionally, route 424 to Barna also serves Eyre Square.

Table 12-1 below summarises the high service frequencies of all existing routes within a generally-acceptable walking distance, based on current timetables. The information focuses specifically on the weekday morning commuter peak (07:00–09:00).

Table 12-1 Buses within Easy Walk Distance, 7-9am Approx Capacity.

Service #	Route (& Return)	No. Buses 7-9am (Mon - Fri)	Total Person Capacity (7-9am)
401 (Bus Eireann)	Parkmore Rd to Dr. Mannix Rd via Eyre Sq.	12	1092
402 (Bus Eireann)	Shangort Rd to Merlin Pk via Eyre Sq	10	910
404 (Bus Eireann)	Oranmore to Westside SC via Eyre Square	8	728
405 (Bus Eireann)	Gort na Bro to Ballybane via Eyre Sq	12	1092
407 (Bus Eireann)	Eyre Sq to Bóthar an Chóiste	8	728
409 (Bus Eireann)	Eyre Sq to An Pháirc Mhór	24	2184
410 (City Direct)	Mount Prospect - Salthill - Eyre Square	2	182
411 (City Direct)	Mount Prospect - Gateway Retail Park - Eyre Square	6	546
412 (City Direct)	Mount Prospect - Gateway Retail Park - Eyre Square	8	728
424 (Bus Eireann)	Galway to Lettermullen via Carraroe	4	136
Total (7-9am) All Routes, within Easy Walk		94	8326

The above demonstrates that the site is clearly accessible to an adequate capacity existing bus provision, with a capacity of c.8,326 bus seats (Each Way) during the 7-9am commuter peak period, all within an 5-7 minute walk-distance of the site.

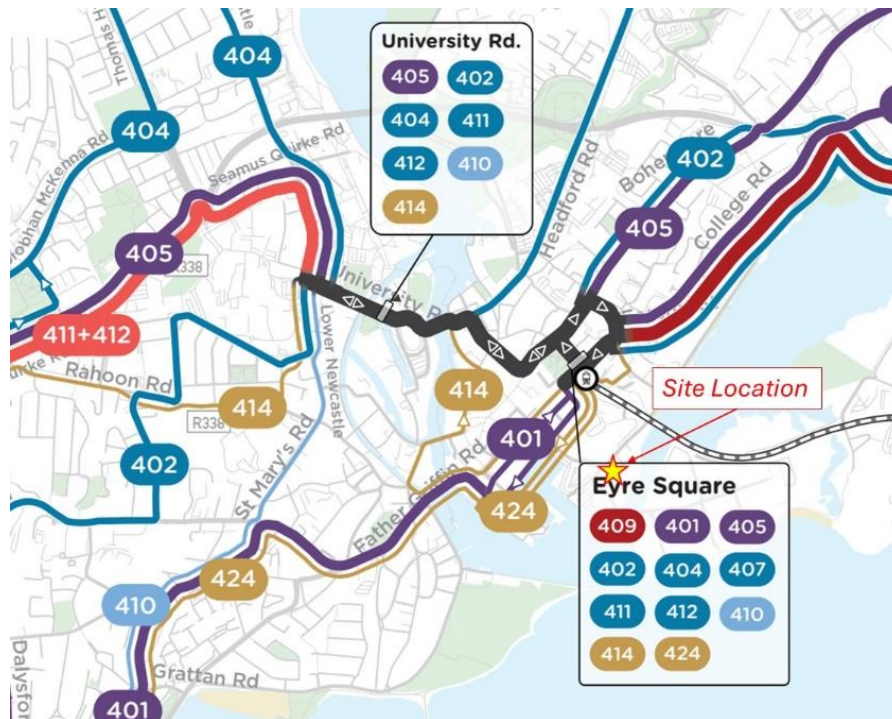


Figure 12-8 Existing Bus Routes in Proximity to the Site

In addition, in terms of Future Planned Services, the NTA have recently published details of the proposed overall bus network for the Galway. An extract from the NTA Plans showing the site location is included as Figure 12-9.

This future network shows that the site's accessibility to bus services will be further enhanced, with a high frequency and permeable service to be provided.

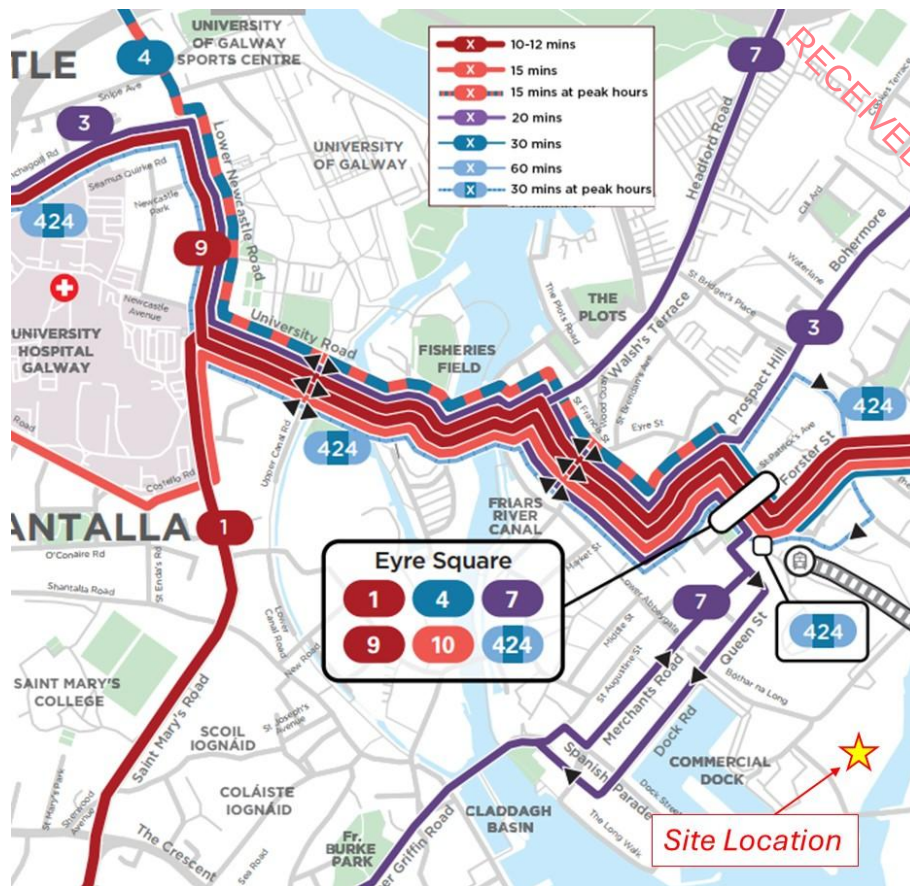


Figure 12-9 NTA BusConnects Galway City Network Plans

The site benefits from access to existing and planned high-frequency bus services, with peak hour frequencies exceeding five-minute intervals. This level of service places the site within a highly accessible public transport corridor

The site is, therefore, ideally placed in terms of current and future high frequency bus availability.

Further details of measures to encourage the use of alternative modes of transport are set out in the MMP at Appendix L of the TTA Report, submitted in Appendix 12-1. The MMP should be read in conjunction with the content of the TTA Report, as an integral part.

12.4 Characteristics of the Proposed Development

A comprehensive description of the Proposed Development is presented in Chapter 2 (Description of the Proposed Development) of this EIAR.

12.4.1 Aspects Relevant to this Assessment

12.4.1.1 Construction Phase

Construction will take place in two phases over approximately 30 months (demolition and construction phases). A Construction Traffic Management Plan (CTMP) and Construction Environmental Management Plan (CEMP) will be implemented to mitigate traffic impacts. A Construction Traffic Management Plan has been undertaken and provided in Appendix Q, of the TTA Report.

This Construction Traffic Management Plan includes a description of the proposed construction works and how traffic will be managed for the duration of the demolition and construction works on site. The methodology set out in this report, follows the methodology as will be set out in the Site Specific Construction Stage Management Plan which will be prepared and submitted when a Contractor is appointed for the works.

The major construction items include excavation and fill, substructure and superstructure construction, and the fit out. It is expected that the construction traffic to and from the site shall reach a peak during the preliminary earthworks of the construction.

It is estimated that throughout the construction phase, approximately 5,000 cubic metres of excavated material will be transported to and from the site. Therefore, the total number of HGV trips throughout the earthworks stage is approximately 417 trips based on an average heavy goods vehicle (HGV) load of 12 cubic metres. If the preliminary earthworks take place over 8 weeks, that equates to a total of 10 no. HGVs per day. 10HGVs per day equates to 20PCUs = say 2-3PCU max per hour. Even with construction staff traffic, which will typically arrive and depart outside the commuter network peak periods, the number of trips during the construction phase, will be far less than the number of trips during the operational phase. Therefore, the traffic assessment undertaken for the operational phase is the worst-case traffic impact scenario and represents the most onerous case.

The superstructure is currently proposed as a reinforced concrete (RC)/precast frame. The delivery of concrete/precast elements would result in HGV traffic, but these deliveries will be arranged outside of the network peak periods.

The final programming and scheduling of this material transfer shall be determined by the Main Contractor appointed to the Proposed Development.

Construction traffic impact will be mitigated and managed through the implementation of a Construction Environmental Management Plan and Construction Traffic Management Plan (CTMP) both of which will be agreed with GCC prior to construction.

In advance of construction works commencing onsite, the appointed Main Contractor will prepare a CTMP as part of overall health and safety documentation. The CTMP will be included in the live CEMP.

12.4.1.2 Operational Stage

12.4.1.2.1 Car and Access Proposals

A site layout plan showing the Proposed Development arrangement in relation to the proposed access and existing Lough Atalia Road is included in Appendix A of the TTA Report, along with further details. The Proposed Development site access junction is illustrated Figure 12-10.

TRACK (Vehicle Swept Path) drawings of a large refuse and fire tender are also included. While the vehicles track into the opposing lane at the radii, such movements will be infrequent and are permissible under DMURS. Section 4.3.3 of DMURS notes: *“Designers may have concerns regarding larger vehicles crossing the centre line of the intersecting street or road. Such manoeuvres are acceptable when turning into/or between Local or lightly trafficked Link streets as keeping vehicle speeds low is of higher priority”*.

The tight corner radii also serve to reduce pedestrian crossing distances and promote lower operating speeds, in line with DMURS principles.

The proposed vehicular access arrangement includes tactile paving and dropped kerbs. The vehicle lanes and geometry internally have been designed in line with the Design Manual for Urban Road and Streets (DMURS) to provide shorter crossing distances and a safer environment for cyclists and pedestrians.

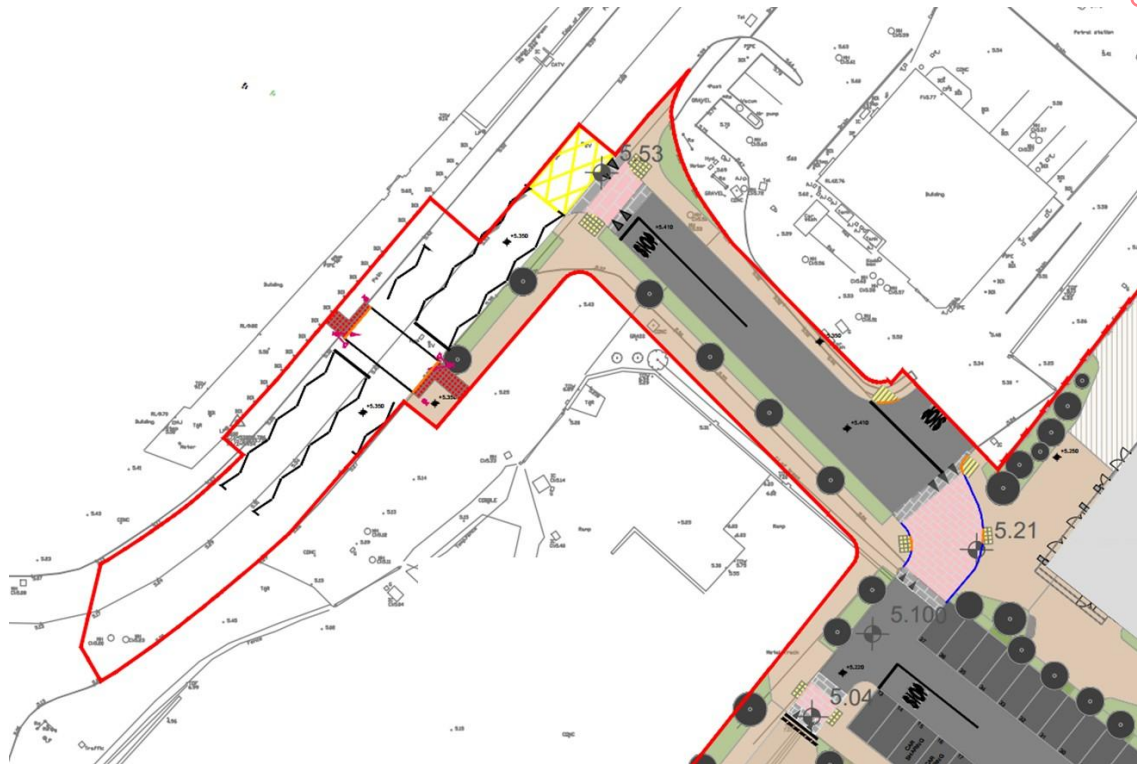


Figure 12-10 Proposed Lough Atalia Road Site Access Junction

The Proposed Development also includes a new internal street and pedestrian network, including a one-way vehicular route at the north-western side of the site and new junctions with Dock Road to the south-west and with the access road from Lough Atalia to the north-west. Upgrades are also proposed to Lough Atalia Road and the access road from Lough Atalia Road at the north-west of the site, including the provision of a new toucan pedestrian/cycle crossing. Upgrades to the footpath and road interface with Dock Road to the south-west are also included, as shown in Figure 12-11.



Figure 12-11 Proposed New Link Road

12.4.1.2.2 Cycle Parking

A key component of cycle accessibility is the provision of convenient, safe links supported by secure and well-located cycle parking. The Proposed Development includes a mix of external, at-grade, and internal, ground-floor, cycle parking, with a generous allocation of dedicated, secure bicycle parking areas.

The 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities' and the Galway City Development Plan have the same standards for the minimum number of bicycle standards, which requires a provision of 1 residential bicycle parking space per bedroom PLUS 1 visitor bicycle parking space per 2 residential units. This effectively aligns with the recently published Sustainable Residential Development and Compact Settlements - Guidelines for Planning Authorities, which include cycle parking as SPPR 4, thereby trumping the Apartment Guidelines and Development Plan.

The Proposed Development includes a comprehensive cycle parking strategy designed to support and encourage active travel. This provision is in line with national Design Standards for Apartments, and Compact Settlement Guidelines, which require 1 no. residential bicycle parking space per bedroom and 1 no. visitor space per 2 no. residential units. The Proposed Development exceeds these requirements; with a total of 741 no. cycle parking spaces provided, compared to the 733 no. spaces required.

The breakdown includes:

- 540 residential no. spaces (266 no. within blocks and 274 no. secured externally);
- 186 no. visitor spaces; and

- 15 cargo/accessible cycle spaces.

The majority of these spaces are enclosed within dedicated cycle stores, offering secure and weather-protected facilities. It is anticipated that, with safe cycling links and high-quality infrastructure in place, a substantial proportion of residents will choose cycling as a primary mode of transport for both commuting and recreational purposes.

A proportion of the cycle parking (15 no. spaces) is specifically designed to accommodate larger, non-standard cycles, such as:

- Adapted bicycles for disabled users;
- Tandems;
- Child trailers;
- Cargo bikes; and
- Tricycles.

These spaces are proposed in the most accessible areas of the site to ensure ease of use for all residents. The overall level and quality of cycle parking is considered sufficient to facilitate a meaningful shift toward sustainable, active travel modes in line with national and local policy objectives.

12.4.1.2.3 Car Parking

The Proposed Development includes provision of 37 no. dedicated car parking spaces, with the breakdown as shown in Table 12-2.

Table 12-2 Car Parking Allocation Throughout Site

Proposed Car Parking Spaces	Number
Standard Spaces	13
Accessible Spaces	3
EV Spaces	8
Car Share Spaces	5
Retail/restaurant/café	4
Creche	4
Total	37

A total of 29 no. residential private car parking spaces are proposed. With 356 no. apartments, this represents a car parking ratio of 0.08 parking spaces per unit. This level of parking is considered appropriate given the highly sustainable location characteristics of the Proposed Development, and in consideration of national guidance and modern active travel policies.

In addition to the 37 no. car parking spaces, 1 no. set-down space is proposed.

12.4.1.2.4 Pedestrian Infrastructure

It is proposed to upgrade the pedestrian network by providing a new controlled Toucan crossing on Lough Atalia Road, proximate to the site. This new crossing will allow pedestrians to cross Lough Atalia Road and provide a safe access to Galway City Centre via the existing crossings already provided on Queen Street to the north.

12.4.1.2.5 Cycle Infrastructure

It is proposed to provide a 4.0m pedestrian / cycle path on the Lough Atalia side of the Proposed Development. This proposal could form part of the future Bearna to Oranmore Greenway, as envisaged in the GTS, as shown in Figure 12-12.



Figure 12-12 Potential Greenway Link

The provision of these pedestrian and cycle facilities will encourage people living in the Proposed Development to travel by active modes rather than by private car and will provide a safe area for people travelling by bike to the surrounding area.

12.5 Potential Effect of the Proposed Development

12.5.1 Assessment of Potential Impacts (Absent Mitigation)

The appraisal draws on the baseline surveys (Oct-2024), TRICS trip generation, assignment and junction modelling completed in accordance with TII PE-PDV-02045. Significance is judged qualitatively by combining the magnitude of change with the sensitivity of receptors on/around Lough Atalia Road and Dock Road, noting observed peak-period congestion approaching Wolfe Tone Bridge.

12.5.2 Construction phase (no CTMP/CEMP measures applied)

Earthworks export is c. 5,000 m³, equating to ~417 HGV loads over c. 8 weeks (~ 10 HGV/day). If deliveries concentrate in a single peak hour (worst case), the added ~20 PCU/h could increase two-way PM peak flow on Lough Atalia Road (baseline ~713 PCU/h) by ~3%, in a corridor already experiencing queuing from Wolfe Tone Bridge. Potential effect: short-term added delay/queuing. Likely significance: Slight–Moderate adverse (temporary).

With unmanaged timing/routeing, short-lived surges in HGV arrivals could lengthen queues at terminal junctions that operate near capacity at peaks. Likely significance: Slight–Moderate adverse (temporary).

Without formal traffic management, temporary conflicts at the site frontage (turning HGVs, intermittent lane encroachment, footpath pinch-points, debris on carriageway) could reduce pedestrian/cyclist level of service. Likely significance: Slight–Moderate adverse (temporary, localised).

If contractor parking/loadings spill to Lough Atalia/Dock Road at peaks, short interruptions to flow and sight-line obstruction could occur. Likely significance: Slight adverse (temporary).

No persistent capacity exceedances are anticipated, but short-duration peak-period effects (delay/queuing, localised safety disbenefits) could arise and be Slight–Moderate in significance on specific days if heavy activity coincides with commuter peaks, as is normal at any construction site in an urban area.

12.5.3 Operational phase (no MMP/operational controls; project design as described)

The scheme's design includes very low car parking (37 spaces; 0.08 per unit for 356 apartments), with extensive cycle parking (741 spaces) and new walking/cycling links (incl. a toucan crossing on Lough Atalia Road) - all integral to the Proposed Development. TRICS-based "worst-case" peak-hour generation is ~91 PCU two-way or less for a typical apartment scheme; with this project's low parking, actual generation is considerably lower. Junction modelling shows ample spare capacity (e.g., max RFC at the Lough Atalia Rd/Access Rd priority junction ~0.18–0.20; signalised Queen St junction DoS well below stress). Likely significance: Imperceptible–Slight adverse (permanent).

With committed development flows (BusConnects Cross-City Link, Augustine Hill, Coal Yard hotel, Harbour Extension), incremental increases at assessed junctions remain <5%, below TII threshold triggers; effects remain non-significant when combined with the Proposed Development. Likely significance: Slight adverse (permanent), not significant.

Absent management measures, ad-hoc loading (retail/café/creche) could intermittently affect kerbside operation. Likely significance: Slight adverse (intermittent, localised).

Summary (operation, unmitigated): Given the embedded low-car design and tested capacities, significant operational traffic effects are not predicted; any impacts are expected to be Slight and localised.

12.5.4 Identification of likely significant impacts absent mitigation

- Construction phase:
 - Peak-period HGV surges without traffic management leading to short-term additional queuing/delay on Lough Atalia Road/Dock Road (already congested)

- in the PM peak). Potentially Moderate (temporary) on specific days if activities coincide with commuter peaks and lane control is absent.
- Localised pedestrian / cyclist safety disbenefits at the site frontage due to unmanaged interfaces with construction traffic. Slight-moderate (temporary)
- Operational Phase:
 - None likely to be significant on capacity of network performance, given the underlying low-car parking design and modelled spare capacity at assessed junctions, even with cumulative development flows. Imperceptible – slight only

12.5.5 Overview

The traffic analysis in this chapter has been prepared in accordance with the requirements, and methodologies set out in TII's PE-PDV-02045 Traffic and Transport Assessment Guidelines. These are the professional guidelines used to assess the impact of developments on public roads, with the methodology in line with best practice.

The methodology included Trip Generation using the TRICS database, Trip Assignment/Distribution, Traffic Analysis (as set out in this section) and proposed mitigation measures, if required.

Both the Institution of Highways and Transportation (IHT) Guidelines for Traffic Impact Assessment and the TII Traffic and Transport Assessment Guidelines set out a mechanism for assessment of developments of this nature and determining whether further assessment is required.

12.5.6 Trip Generation and Development Composition

In line with industry standard practice in Ireland, the TRICS database was used to ascertain vehicular trip generation associated with the Proposed Development. In this case the worst-case traffic impact assessment is based on Residential Apartment Developments, from within TRICS.

A comprehensive assessment was undertaken to evaluate the effect along the Lough Atalia Road, with particular focus on stress-testing the proposed access junction and assessing the Proposed Development's capacity impact on the surrounding road network. The trip rates applied for the Proposed Development are presented in Table 12-3.

In addition to the residential component, the assessment also considered the ancillary uses within the Proposed Development, including the crèche (255.9 sq m); 2 no. café/restaurant units (totalling 428.4 sq m) and 1 no. retail unit (156.0 sq m). While the majority of trips associated with these uses are expected to be linked to the residential component, a proportion has been conservatively assigned as primary trips to ensure a robust and precautionary assessment.

Table 12-3 TRICS Data Summary, 356 No. Residential Apartments, retail / community units

356 Apartment	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Vehicular Traffic Generated	356 Apartments
Network Hour	Per Unit	Site	Per Unit	Site		
Weekday AM Peak Hr 8-9	0.068	24	0.164	58	83	
Weekday PM Peak Hr 5-6	0.144	51	0.080	28	80	
24 Hours	1.045	372	1.095	390	762	
156 Retail*	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Vehicular Traffic Generated	156 sqm Retail
Network Hour	Per Unit	Site	Per Unit	Site		
Weekday AM Peak Hr 8-9	6.250	10	6.027	9	20	
Weekday PM Peak Hr 5-6	7.310	11	7.478	12	23	
24 Hours	10.1504	158	100.991	158	316	
428 Café*	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Vehicular Traffic Generated	428 sqm Café
Network Hour	Per Unit	Site	Per Unit	Site		
Weekday AM Peak Hr 8-9	1.103	5	0.000	0	5	
Weekday PM Peak Hr 5-6	0.000	0	5.000	21	21	
24 Hours	29.110	125	32.903	141	265	
256 Creche*	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Vehicular Traffic Generated	256 sqm Creche
Network Hour	Per Unit	Site	Per Unit	Site		
Weekday AM Peak Hr 8-9	2.908	7	2.452	6	14	
Weekday PM Peak Hr 5-6	2.224	6	2.874	7	13	
24 Hours	13.731	35	15.339	39	74	
*The vast majority of trips to the Retail, Café & Creche will be internal walking trips. 20% taken as external trips						
Total	Arrivals (PCUs)		Departures (PCUs)		Total 2-Way Vehicular Traffic Generated	Full Development
Network Hour	Per Unit	Site	Per Unit	Site		
Weekday AM Peak Hr 8-9	29		62		90	
Weekday PM Peak Hr 5-6	55		37		91	
24 Hours	467		491		959	

The TRICS output indicates that, if the Proposed Development were to include a typical level of residential car parking, the worst-case trip rates would be very low, as illustrated in Table 12-3. The theoretical traffic generation during the traditional commuter peak hour traffic is 91 PCUs (or less) two-way trips. In practice, the actual trip generation will be considerably lower for the Proposed Development due to the substantially reduced provision of car parking proposed (37 no. total).

The TRICS data output for the residential apartments and associated retail/community units, upon which this assessment is based, is included in Appendix C of the TTA, submitted under separate cover.

12.5.7 Threshold Assessment

In line with TII guidance, a Threshold Assessment of the impact on the local roads was undertaken to determine whether further detailed modelling and assessment of critical junctions was necessary. This is important in this case as the Proposed Development is located in proximity to an important access route for the city, the Lough Atalia Road.

The TII guidelines set out specific increases in traffic volume associated with new development, which, if breached, requires further detailed analysis to be undertaken. The recommendation is that, if the expected increase is 5% for networks that are considered

heavily trafficked or congested, then further analysis is warranted. In this case, given the proximity to the Lough Atalia Road, the 5% threshold has been applied.

Furthermore, as set out in the TII Traffic and Transport Assessment Guidelines, the threshold approach should be used to establish the area of influence of the development. In general, the study area should include all road links and associated junctions where traffic to and from the development may be expected to exceed 10% of the existing traffic movements, or 5% in congested or other sensitive locations, including junctions with national roads. As presented in Table 12-4, all the junctions have been assessed.

The assessment results, presented in the Network Flow Diagrams, included within Appendix D, of the TTA Report, submitted under separate cover (Refer Page 6 of Appendix D), confirm the absolute worst-case increase in traffic at the adjacent road network. This is summarised below in Table 12-4.

Table 12-4 Threshold Assessment, Worst-Case Impact of Development - Existing Network

Assessed Junction	Traffic Increase %		Comment
	AM PK Hr	PM PK Hour	
Proposed Site Access Junction	-	-	Site Access, Assessment Required
Proposed Access Road / Dock Road Junction	3.7%	7.5%	Site Access, Assessment Required
Proposed Lough Atalia Road / Proposed Access Road Junction	6.9%	10.3%	>5%, Assessment Required
Existing Docks Road / Dock Road Junction	3.0%	6.0%	>5%, Assessment Required
Existing Lough Atalia Road / Docks Road Junction	4.3%	7.2%	>5%, Assessment Required
Existing Bothar na Long / Docks Car Park Junction	4.8%	8.3%	>5%, Assessment Required
Existing Bothar na Long / Dock Road / Queen Street Junction	3.7%	5.2%	>5%, Assessment Required

Junction Analysis

The TII-approved software package 'Junctions 10' PiCADY' software package (as part of the Transport Research Laboratory (TRL) Package 'Junction 10') has been utilised to assess the capacity of the priority junctions.

PiCADY produces results based on a ratio of flow to capacity (RFC) and queue length. An RFC greater than 1.00 indicates that a junction is operating at or above capacity, with 0.85 considered to be the optimum RFC value.

The TII-approved software package LiNSIG has been utilised to assess the capacity of the established junction to accommodate the entire completed development. LiNSIG produces results based on Degrees of Saturation (DoS) and Total Vehicle Delay (PCU-Hr). A DoS greater than 100% indicates that a junction is operating at or above maximum capacity, with 90% considered to be the optimum DoS value for signal junction operation.

A detailed assessment of the capacity of the junctions has been undertaken, assuming full build-out and occupancy of the Proposed Development. The detailed model outputs are provided in Appendices E to K of the TTA Report (submitted under separate cover), with a summary presented in Tables 12-5 – 12-111.

Table 12-5 Proposed Site Access Junction - Summary PICADY Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	0.02	0.0
Opening Year 2028 PM Peak Hr	0.03	0.0
Design Year 2043 AM Peak Hr	0.03	0.0
Design Year 2043 PM Peak Hr	0.03	0.0

Table 12-6 Proposed Access Road / Dock Road Junction - Summary PICADY Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	0.03	0.0
Opening Year 2028 PM Peak Hr	0.02	0.0
Design Year 2043 AM Peak Hr	0.03	0.0
Design Year 2043 PM Peak Hr	0.02	0.0

Table 12-7 Proposed Lough Atalia Road / Proposed Access Road Junction - Summary PICADY Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	0.18	0.2
Opening Year 2028 PM Peak Hr	0.10	0.1
Design Year 2043 AM Peak Hr	0.20	0.2
Design Year 2043 PM Peak Hr	0.11	0.1

Table 12-8 Existing Docks Road / Dock Road Junction - Summary PICADY Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	0.16	0.2
Opening Year 2028 PM Peak Hr	0.22	0.3
Design Year 2043 AM Peak Hr	0.18	0.2
Design Year 2043 PM Peak Hr	0.25	0.3

Table 12-9 Existing Lough Atalia Road / Docks Road Junction - Summary PICADY Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	0.29	0.4
Opening Year 2028 PM Peak Hr	0.35	0.5
Design Year 2043 AM Peak Hr	0.35	0.5
Design Year 2043 PM Peak Hr	0.41	0.7

Table 12-10 Existing Bothar na Long / Docks Car Park Junction - Summary PICADY Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	0.04	0.0
Opening Year 2028 PM Peak Hr	0.09	0.1
Design Year 2043 AM Peak Hr	0.05	0.1
Design Year 2043 PM Peak Hr	0.11	0.1

Table 12-1 Existing Bothar na Long / Dock Road / Queen Street Junction - Summary LinSig Results

Modelled Scenario	Period Max RFC	Period Mean Max Q (PCUs)
Opening Year 2028 AM Peak Hr	43.3%	6.1
Opening Year 2028 PM Peak Hr	33.6%	4.3
Design Year 2043 AM Peak Hr	48.5%	7.5
Design Year 2043 PM Peak Hr	37.9%	5.2

The results of the modelling indicate that the assessed junctions will have more than adequate capacity to accommodate the worst-case traffic associated with the fully complete and occupied Proposed Development in opening and design years.

12.5.8 Assignment/Distribution - Future Year Traffic

Industry-standard hand assignment techniques, with the worst-case traffic, as outlined, have been assigned to the roads based on the observed established traffic patterns.

The standard methodology involved first establishing the baseline background traffic conditions for both the weekday AM and weekday PM commuter peak periods. Subsequently, the TII PE-PAG-02017 Project Appraisal Guidelines for National Roads Unit 5.3 were used to determine future year traffic conditions for the opening year (2028) and design year (2043) on the local road network.

12.5.9 Committed Development

A review of GCC's and An Coimisiún Pleanála's (ACP's) (formerly An Bord Pleanála (ABP)) online planning portals was undertaken to identify third-party developments located within the area of influence of the Proposed Development. The following key developments were identified:

- **BusConnects Galway – Cross City Link** – The BusConnects Galway: Cross-City Link (University Road to Dublin Road) Scheme (the Proposed Scheme) will form a central route for public transport, cyclists and better connect places of interest for pedestrians along an east-west corridor through Galway City centre. The aim of the Proposed Scheme is to provide improved walking, cycling and bus infrastructure on this key access corridor in Galway City, which will enable and deliver efficient, safe, and integrated sustainable transport movement along the corridor; and
- **Augustine Hill Development** - The Augustine Hill development is a flagship urban regeneration project in Galway, creating a vibrant, mixed-use quarter on a brownfield site adjacent to Ceannt Station, Galway.
- **Site at the corner of Lough Atalia Road and Bóthar na Long (Coal yard Site)** - a 15 No. storey hotel (including part mezzanine at ground floor level) providing 189 No. bedrooms (7,514 sq m).
- **Galway Harbour Extension** - Strategic Infrastructure Development to extend Galway Harbour with reclaimed lands and deep-water berths, relocating and expanding port operations east of the existing docks.

While committed development traffic has been considered in the assessment, it should be noted that the compound annual traffic growth rate (%) applied (based on TII PE-PAG-02017, using TII projections) already accounts for factors such as background development growth, changes in the transport network, and increases in car ownership etc. These elements are incorporated within the TII's national traffic forecasting models.

12.5.10 Sensitivity Test – Including the Trips Committed Developments

A sensitivity test has been undertaken to demonstrate that the Proposed Development will not have a significant impact in terms of traffic generation.

An EIAR was prepared for Cross-City Link by ARUP, which identified potential changes to traffic volumes along this the Lough Atalia Road. A review of this EIAR and the associated

proposed changes to the link flows adjacent to the site indicates that, under the BusConnects Cross-City Link, traffic volumes on Lough Atalia Road are projected to increase by 944 PCUs during the AM peak and 1,111 PCUs during the PM peak.

A Traffic and Transport Assessment was provided by ILTP for the Augustine Hill Development. A review of this assessment and the associated estimated changes to the link flows adjacent to the site indicates that traffic volumes on Lough Atalia Road are projected to increase by 35 PCUs during the AM peak and 59 PCUs during the PM peak as a result of the permitted scheme.

A Traffic and Transport Assessment has been provided by NRB for the “Coal yard” site. Reviewing the TTA and the proposed changes to link flows adjacent to the site shows Lough Atalia Road volumes rising by 26 PCU in the AM peak and 22 PCU in the PM peak.

An Environmental Impact Statement has been provided by for the Galway Harbour Extension. NRB have reviewed this EIS and the proposed changes to the link flows beside the site. Due to this scheme, traffic volumes using Lough Atalia Road are to increase by 94pcu in the AM peak and 92 pcu in the PM peak.

The cumulative impact of these developments has been incorporated into the current assessment. The results, as illustrated in the Network Flow Diagrams (with Committed Development), included within Appendix D, of the TTA Report (submitted under separate cover), (Refer Page 6 of Appendix D), confirm that the absolute worst-case traffic increase on the adjacent road network. This is summarised in Table 12-12.

Table 12-2 Threshold Assessment, Worst-Case Impact of Development – including the trips from Committed Development

Assessed Junction	Traffic Increase %		Comment
	AM PK Hr	PM Hour PK	
Proposed Lough Atalia Road / Proposed Access Road Junction	3.5%	3.7%	<5%, No Assessment Required
Existing Lough Atalia Road / Docks Road Junction	2.1%	2.6%	<5%, No Assessment Required
Existing Bothar na Long / Docks Car Park Junction	2.4%	2.8%	<5%, No Assessment Required
Existing Bothar na Long / Dock Road / Queen Street Junction	2.1%	2.3%	<5%, No Assessment Required

It has been demonstrated that the occupation of the Proposed Development is expected to result in only a minimal increase in traffic volumes on the existing network. The projected increase in trips on local roads, including Lough Atalia Road, remains well below the 5% thresholds outlined in industry-standard guidance that would trigger the need for further detailed assessment. The overall traffic impact is negligible, especially when compared to the significantly greater volumes expected from the proposed BusConnects scheme.

12.5.11 Cumulative Effects

Cumulative assessments have been undertaken for committed developments. The projected traffic increase remained below the threshold values outlined in the TII guidance and therefore do not trigger the requirement for further junction capacity analysis.

12.5.12 “Do Nothing” Effect

In the absence of the Proposed Development, the existing site conditions and associated traffic patterns would remain unchanged. No additional vehicular trips would be generated, and the current baseline traffic volumes, junction performance, and network capacity would be maintained. As such, there would be no new pressures on the local road network, and no requirement for mitigation or intervention in terms of traffic and transport.

12.6 Avoidance, Remedial and Mitigation Measures

12.6.1 Construction Phase

Mitigation during construction will include the implementation of a CTMP, which will outline strategies to manage and minimise traffic disruption. These measures will include restricted delivery hours and haulage hours to avoid peak traffic periods, clear signage to inform road users of temporary changes, and ongoing liaison with GCC to coordinate works and respond to any emerging issues. These actions will reduce the potential short-term effects on the local road network and ensure safe and efficient movement for all road users during the construction phase.

12.6.2 Operational Phase

Operational phase mitigation measures include the provision of a limited number of car parking spaces to discourage private car use, alongside the integration of high-quality cycle and pedestrian infrastructure to promote active travel. The Proposed Development also includes designated spaces for car club/car share vehicles to support shared mobility options. The implementation of a comprehensive MMP will encourage modal shift, reduce reliance on private vehicles and support long-term behavioural change among residents and visitors.

12.6.3 Mitigation Measures (Summary)

- **Construction phase**
 - Implementation of a Construction Traffic Management Plan (CTMP) as part of the CEMP.
 - Restrict HGV and delivery movements to off-peak periods.
 - Manage contractor parking and loading to avoid disruption.
 - Temporary signage and traffic management to protect pedestrians and cyclists.
- **Operational phase**
 - Low car parking provision (0.08 spaces per unit) to discourage car dependency.

- Provision of 741 secure cycle parking spaces (exceeding standards).
- Delivery of new pedestrian and cycle connections, including a Toucan crossing and greenway link.
- Car-share and EV spaces integrated into the scheme.
- Ongoing Mobility Management Plan (MMP) to encourage sustainable travel behaviour.

12.7 “Worst Case” Scenario

A sensitivity analysis was undertaken to assess the cumulative effect of traffic generated by committed developments. The combined worst-case traffic volumes were applied to the local road network to evaluate junction performance under maximum stress conditions. The results demonstrate that all assessed junctions are expected to operate well within their design capacity limits, indicating that the cumulative effect on the network remains negligible and does not give rise to significant effects in EIA terms.

12.8 Residual Effects

This chapter is informed by the findings of the TTA, attached in Appendix 12-1, which was undertaken in accordance with TII’s Traffic and Transport Assessment Guidelines and addresses the traffic impact of the proposal.

The assessment is based on recent (October 2024) classified traffic movement surveys taken during weekday AM and PM peak periods on the adjacent road network. These surveys were conducted by a specialist 3rd party data collection company and form the empirical basis for this assessment.

The Proposed Development is strategically located to benefit from existing and planned sustainable transport infrastructure, including the BusConnects Galway Cross-City Link.

This chapter demonstrates that the Proposed Development will generate minimal additional traffic and can easily be accommodated within the existing road network without giving rise to capacity constraints. The assessment also confirms that the proposed site access junctions are appropriately designed and has sufficient to accommodate the worst-case traffic associated with the Proposed Development.

The Travel Plan / Mobility Management Plan (submitted under separate cover) report is included as Appendix L.

An independent Quality / Stage 1 Road Safety Audit of the Proposed Development and adjacent junction upgrades, has been completed, with the Designer Feedback form and is provided in Appendix M, of the TTA Report. A Statement of Consistency with DMURS has been undertaken and provided in Appendix N, of the TTA confirming that the internal layout is compliant with the DMURS requirements. A Public Transport Capacity Assessment Report has been undertaken and provided in Appendix O, of the TTA.

The Proposed Development layout represents principles of sustainable urban design for residential development, particularly in terms of accessibility to non-car modes of travel. It’s location within Galway City Centre, in proximity to a range of services and amenities, supports the use of active modes of transport, over the need private car use.

Based on the findings of the assessment, there are no significant operational transportation, traffic safety or road capacity issues associated with the Proposed Development.

Taking account of the embedded design features and the proposed mitigation measures, the residual traffic and transportation impacts of the Proposed Development are negligible. Construction-related traffic will be temporary, limited in scale, and effectively managed through the CTMP, such that no significant residual congestion or safety issues are anticipated. In the operational phase, the very low car parking provision, extensive cycle parking, enhanced pedestrian and cycle connections, and implementation of the Mobility Management Plan will ensure that junctions operate well within capacity and sustainable travel modes are prioritised. Some minor, localised effects may still arise intermittently from kerbside servicing activity or during peak construction deliveries; however, these will be of short duration, low magnitude, and not significant in EIA terms. Overall, no significant residual adverse impacts on traffic, transport, safety, or network capacity are predicted.

12.9 Monitoring

12.9.1 Construction Phase

Construction traffic will be monitored under the CTMP framework in consultation with GCC.

12.9.2 Operational Phase

No specific ongoing monitoring is proposed during the operational phase beyond review of Travel Plan / Mobility Management Plan effectiveness.

12.10 Interactions

The key interactions between traffic and transportation and other EIAR topics are as follows:

- Population and human health – impacts on the operation of the local road network, and traffic-related noise and air quality effects have the potential to affect the local population.
- Land, soils, hydrology and hydrogeology – impacts on existing flow conditions or effects on surface or ground water quality due to the generation of additional vehicular traffic due to run-off from vehicles usage. Increased vehicular traffic can impact surface and groundwater quality by generating run-off with pollutants. Analysing soils and hydrology helps assess potential effects and develop mitigation strategies.
- Air quality and climate – vehicular emissions contain air pollutants, including greenhouse gases with climate impacts, and gases / particulates with potential human health impacts.
- Noise and vibration – traffic generates noise, with the associated potential for adverse human health impacts
- Material assets – waste – waste generated on site and the surplus excavated soil from the site will have to be transported off-site generating traffic on surrounding roads.

All of the above-listed interactions have addressed comprehensively, where appropriate, in the corresponding EIAR chapters. Where appropriate, specialist EIAR contributors have collaborated and shared information to ensure that potential impacts arising as a result of such interactions have been addressed. No significant effects are likely to occur in this respect.

12.11 Difficulties Encountered When Compiling

No significant difficulties were encountered. Traffic surveys and modelling data were readily available and validated.

12.12 Conclusion

This chapter has identified, described and evaluated the potential impacts arising from both the construction and operational phases of the Proposed Development.

During the construction phase, traffic generation will be limited and temporary in nature, with peak activity associated with the movement of excavated materials and deliveries. The number of HGVs and staff vehicle trips will be modest and programmed to avoid the commuter peak periods. A Construction Traffic Management Plan (CTMP), integrated within the Construction Environmental Management Plan (CEMP), will be implemented to manage vehicle routing, delivery scheduling and site access arrangements. With these measures in place, no significant adverse impacts on the local road network are predicted during construction.

During the operational phase, the Proposed Development will generate a low volume of traffic owing to its city-centre location and deliberately low level of car parking provision (0.08 spaces per unit). Comprehensive pedestrian and cycle infrastructure is integrated into the scheme, consistent with national and local policy objectives promoting modal shift towards sustainable transport. Junction capacity modelling confirms that all assessed junctions, including those on Lough Atalia Road and Dock Road, will continue to operate within capacity in both the opening year (2028) and the design year (2043), even under worst-case and cumulative development scenarios.

Mitigation measures have been embedded in the design, including:

- Very limited car parking provision to discourage reliance on private cars;
- Provision of 741 cycle parking spaces, exceeding national minimum standards;
- Delivery of new pedestrian and cycle links, including a Toucan crossing on Lough Atalia Road and a greenway connection;
- Designation of spaces for electric vehicles and shared mobility schemes; and,
- Implementation of a Mobility Management Plan (MMP) to encourage behavioural change and promote sustainable travel choices.

The chapter demonstrates that the residual impacts of the Proposed Development on traffic and transport are negligible. The combination of low trip generation, sustainable access measures and robust mitigation will ensure that the Proposed Development can be accommodated within the capacity of the existing road network without giving rise to significant effects on traffic safety, road capacity, air quality or noise.

In conclusion, the Proposed Development represents a sustainable form of urban regeneration in a highly accessible location. It supports national and local policy objectives for compact growth, active travel and reduced car dependency. No significant adverse impacts on the surrounding transport network are predicted, and the Proposed Development will contribute positively to the promotion of sustainable mobility in Galway City.

12.13 References

TII Traffic and Transport Assessment Guidelines (PE-PDV-02045).

Galway City Development Plan 2023–2029.

Galway Transport Strategy 2016.

TRICS Database.

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13 MATERIAL ASSETS: WASTE AND UTILITIES

13.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the Proposed Development on material assets including built services and waste.

13.1.1 Quality Assurance and Competency of Experts

This chapter has been prepared by Michelle Gaffney and Darragh Grant.

Michelle Gaffney is a Senior EIA Consultant at DNV. With over four years of experience in environmental consultancy and a B.A. (Hons) in Earth Science from Trinity College, Michelle is currently furthering expertise through an MSc in Environmental Sustainability at University College Dublin. Michelle has provided technical expertise for numerous EIARs across a range of sectors, including renewable energy, strategic infrastructure, and residential projects.

Darragh Grant is a Junior Environmental Consultant with DNV. Darragh is an EIA practitioner with a bachelor's degree in Zoology (University College Dublin) and an MSc in Environmental & Climate Law (University College Dublin).

This chapter was reviewed by Laura Griffin, Environmental Consultant at DNV. Laura has 5+ years of professional experience. Laura has experience preparing Environmental Impact Assessment (EIA) Screening Reports and a EIAR chapters for developments of a similar scale and nature to the Proposed Development.

This chapter was reviewed by Grainne Ryan, Principal EIA Consultant at DNV. Grainne is an Environmental Consultant with over 11 years' experience, specialising in EIAs for strategic infrastructure, renewable energy, residential, industrial and pharmaceutical projects. Grainne has a B.A. in Geography, Planning and Environmental Policy, an MSc in Environmental Policy and a Post Graduate Diploma in Project Management.

This chapter has been approved by Catherine Keogan, Technical Director and EIA Lead at DNV. Catherine is an environmental consultant with 37 years' experience in consultancy, specialising in EIAs for large-scale residential, commercial developments, pharmaceutical, BESS and solar projects working closely with a range of developers, planning consultants and architects within the public and private sector. Catherine has a B.Sc. (Hons) in Analytical Science and a Post Graduate Diploma in Renewable Energy Technology Systems.

13.2 Study Methodology

13.2.1 Relevant Legislation and Guidance

The methodology adopted for the assessment takes cognisance of a wide range of relevant legislation, guidelines, codes of practice, and plans. All phases of the Proposed Development were considered in evaluating potential effects on Material Assets, Waste and Utilities within the study area. The assessment of likely impacts was carried out in accordance with the documents listed below, which collectively ensure compliance with statutory requirements and alignment with best practice across environmental, infrastructure, and utility domains

Environmental Impact Assessment and Planning:

- Directive 2011/92/EU as amended by Directive 2014/52/EU
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).
- Environmental Protection Agency (EPA) (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR);
- Section 3.2 of the Urban Development and Building Heights: Guidelines for Planning Authorities (2018); and
- Galway City Development Plan 2023-2029.

Waste Management and Circular Economy:

- EPA (2021) Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects;
- Waste Framework Directive (Directive 2008/98/EC) as amended by Directive (EU) 2018/851;
- European Union (Waste Directive) Regulations 2020 as amended, S.I. No. 323 of 2020;
- Waste Management Act 1996 (as amended);
- Waste Action Plan for a Circular Economy (2020–2025);
- The National Waste Management Plan for a Circular Economy 2024-2030; and
- Galway City Council. (2019). Segregation, Storage, and Presentation of Household and Commercial Waste Bye-Laws.

Water and Wastewater Infrastructure:

- Water Services Acts 2007 (as amended);
- Uisce Éireann Code of Practice for Water Infrastructure Connections and Developer Services Design and Construction Requirements for Self-Lay Developments July 2020 (Revision 2);
- Uisce Éireann Code of Practice for Wastewater Infrastructure (IW-CDS-5030-03);
- IS EN752, Drain and Sewer Systems Outside Buildings; and
- CIRIA Report c753 “The SuDS Manual” (2015).

Utilities and Energy Infrastructure:

- ESB Networks National Code of Practice for the Customer Interface Version 5 (2021); and
- ESB Networks Construction Standards for MV Substation Buildings (2019).

Definitions of key terms such as “Material Assets,” “Waste,” and “Utilities” are applied consistently throughout this chapter in accordance with the EPA EIAR Guidelines (2022). “Material Assets” refers to physical infrastructure and services including energy, water, wastewater, telecommunications, and waste management systems.

Material Assets is a factor whose meaning has evolved over time. In Directive 2011/92/EU, it included architectural and archaeological heritage. Directive 2014/52/EU now includes those heritage aspects under the factor of Cultural Heritage. Material Assets can now be taken to mean built services and infrastructure. Traffic is included because, in effect, traffic consumes

roads infrastructure. Sealing of agricultural land and effects on mining or quarrying potential are considered under the factor of Land and Soils.

In this EIAR, the Material Assets: Waste and Utilities chapter specifically addresses built services and infrastructure including:

- Surface Water Drainage;
- Wastewater Drainage;
- Water Supply;
- Electrical Supply;
- Gas Supply;
- Telecommunications; and
- Waste.

Impacts on other aspects commonly associated with Material Assets, such as Traffic, Population and Human Health, Air and Climate, are assessed in the following chapters of this EIAR:

- Chapter 4: Population and Human Health;
- Chapter 8: Air Quality;
- Chapter 9: Climate; and
- Chapter 12: Traffic.

Impacts arising from land take and soil sealing, defined as the covering of soil with impervious surfaces such as buildings, roads, and paved areas, are considered under chapter 6: Land and Soils. These impacts include the loss of soil functions, reduced permeability, and changes to natural drainage and biodiversity. This approach aligns with EPA and European Environment Agency guidance on the treatment of land and soil in environmental assessments.

The scope of work undertaken for the impact assessment includes a desk-based study of waste management services and infrastructure within the defined study area, specifically Galway City Council's (GCC's) jurisdiction. The desk study involved collecting all the relevant data for the Proposed Development site and surrounding area including published information and details pertaining to the Proposed Development provided by the Applicant and design team.

This does not include original calculations of capacity and demand. Instead, it draws upon technical assessments and calculations presented in supporting engineering and waste reports prepared by qualified consultants. These include the Civil Design Report (TOBIN, 2025a), Resource Waste Management Plan (RWMP) (AWN, 2025a) and Operational Waste Management Plan (OWMP) (AWN, 2025b), and other documents listed below. All assessments are consistent with the methodologies and standards outlined in the relevant guidelines and legislation referenced in this section.

Information on built assets in the vicinity of the site was assembled by the following means:

- ESB Networks Utility Maps;
- Uisce Éireann Utility Plans;
- Gas Networks Ireland Service plans;

- EIR E-Maps;
- Climate Action and Energy Statement (Axiseng, 2025);
- Telecommunications Report (Independent Site Management, 2025);
- Civil Works Design Report (TOBIN, 2025a);
- Flood Risk Assessment (TOBIN, 2025b);
- Resource and Waste Management Plan (AWN, 2025a);
- Operational Waste Management Plan (AWN, 2025b); and
- Construction Environmental Management Plan (DNV, 2025).

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Each of the above reports was reviewed and referenced where relevant throughout this chapter.

13.2.2 Description and Assessment of Potential Effects

Effects vary in quality from negative, to neutral or positive. The effects will vary in significance on the receiving environment. Effects will also vary in duration. The terminology and methodology used for assessing the 'impact' significance and the corresponding 'effect' throughout this chapter is as described in chapter 1 of this EIAR.

13.2.3 National and Regional Policy

The National Waste Management Plan for a Circular Economy (NWMPCE) 2024 -2030, sets out the framework for the prevention and management of waste across Ireland. This document is a statutory document underpinned by national and EU waste legislation, and reflects the targets set out for construction and demolition (C&D) waste in the Waste Framework Directive (WFD). This Plan replaces the previous Regional Waste Management Plans, including the Connacht Ulster Waste Plan 2015-2021, which covered Galway City.

The strategic vision of the Plan is to rethink the approach to managing waste, and to move towards a 'circular economy' approach where resources are reused or recycled as much as possible, and the overall generation of waste is minimised.

In order to achieve this vision, the Plan has set out a series of specific and measurable performance targets in relation to construction and demolition waste, including:

- Achieve a 2% reduction per annum for total construction and demolition waste to achieve a cumulative 12% reduction by 2030 (Baseline is 9 million tonnes); and
- Achieve 70% of C&D waste sent for reuse, recycling and other recovery of construction and demolition waste (excluding natural soils and stones and hazardous wastes).

The Plan aims to “prioritise waste prevention and circularity in the construction and demolition sector to reduce the resources that need to be captured as waste”. In order to achieve the objectives, set out in NWMPCE, it is imperative that robust resource and waste management plans are developed for, and designed into, the pre-construction, construction and operational phases of the Proposed Development.

For the purposes of this development, the objectives and targets set out in the NWMPCE are addressed through the Resource and Waste Management Plan (RWMP) and Operational Waste Management Plan (OWMP) (DNV, 2025), which outline measures to minimise waste generation and maximise reuse and recovery across all phases of the Proposed Development.

The RWMP (AWN, 2025a) and OWMP (AWN, 2025b), which support alignment with the NWMPCE, are submitted under separate cover as part of the planning application. These documents have been reviewed as part of this assessment and are referenced throughout this chapter where relevant.

13.2.4 Article 27 of the European Communities (Waste Directive) Regulations 2011

Under Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended (referred to hereafter as Article 27), uncontaminated soil and stone free from anthropogenic contamination which is excavated during the construction phase of a development may be considered a by-product and not a waste, if (a) further beneficial use of the material is certain, (b) it can be used directly without any further processing, (c) it is produced as an integral part of the development works and (d) the use is lawful and will not have any adverse environmental or human health effects (EPA, 2019).

For Article 27 to apply, the beneficial use mentioned in point (a) above must be identified for the entirety of the excavated soil from the Proposed Development site prior to its production, with that use taking place within a definite timeframe, for it to be regarded as certain.

13.3 The Existing and Receiving Environment (Baseline Environment)

The Proposed Development site (hereinafter referred to as 'the site') is located in Galway Port at Dock Road and Lough Atalia Road, Galway City, and lies wholly within jurisdiction of Galway City Council (GCC). The site is approximately 1.621 hectares (ha) in area. The site is currently used for storage of wind turbine parts and bus parking, with the depot building for the latter present at the site's northeastern extent. Previously, it was used as a fuel storage compound with tanks for petrol, diesel and kerosene, although these features have been removed to ground level. Structures currently on-site include a 2-storey office-type building at the site's northern extent (used by a bus company), a 2-storey buildings to the southwest (understood to be a substation and ancillary structure) and a pumphouse to the south (adjacent to the bridge traversing the Lough Atalia outlet).

13.3.1 Immediate Surroundings

The site is approximately 1.621 hectares (ha) in area and is generally bound by: the Lough Atalia channel to the north-east and south-east; Dock Road to the south-west; and port lands, Lough Atalia Road and the Texaco filling station to the north-west.

13.3.2 Surface/Storm Water Drainage

Storm drainage is present in close proximity to site within the Harbour Road, which discharges to the bay at the New Docks Road bridge. The outfall is a 600mm diameter concrete culvert into which a 375mm pipe and a 225mm pipe converge.

13.3.3 Wastewater Drainage

Existing foul drainage within and in close proximity to the site includes:

- Single connection (100mm dia.) along western boundary;
- Rising main (100mm dia.) from a pumping station to the east of the bridge in New Docks Road;
- Combined sewer within Lough Atalia Road (450mm dia.); and

- Bus depot non-Uisce Éireann (UE) connection (150mm dia.) north of site.

13.3.4 Water Supply

There is an 300mm existing watermain line located in the Lough Atalia Road, north of the proposed site entrance.

13.3.5 Electrical Supply

EirGrid develop and operate the national electricity grid and are responsible for taking electricity from the power generators and delivering it to the distribution network, which is operated by ESB Networks. The high-voltage Irish electricity transmission grid comprises 6,800 km of power lines and operates at 400 kV, 220 kV and 110 kV. Substations provide entry points to, and exits from, the transmission grid. There is local EirGrid infrastructure running along the existing footpath adjacent to the redline site boundary at the southern / southwestern boundary close to the entrance to the bus parking facility.

The site is well located with regards to electrical supply infrastructure. Two 110kV substations are located in the area surrounding the site including Galway 110kV station and Salthill 110kV station (EirGrid Group, 2025).

The electrical supply for the Proposed Development will be provided via a new ESB MV substation to be constructed on-site as part of the development. This substation will be designed to accommodate the full electrical load of the scheme and will be delivered in coordination with ESB Networks..

13.3.6 Gas Supply

Gas Networks Ireland (GNI) builds, develops and operates Ireland's gas infrastructure, maintaining over 14,521 km of gas pipelines and two sub-sea interconnectors. GNI is responsible for connecting all new gas customers to the network, and for work on service pipes and meters at customers' premises, on behalf of all gas suppliers in Ireland.

According to the utilities map from GNI, there is a local medium-pressure gas distribution main running along Lough Atalia Road to the Northwest of the site. It is not anticipated that any diversions of GNI's infrastructure will be required as part of these works

13.3.7 Telecommunications

In terms of mobile telecommunication for transmission and reception, there are three mobile mast clusters adjacent to the site. To the northwest of the site is a group of two cells operated by Eircom and Vodafone. The west of the site has one cell operated by Three and to the southwest of the site is a cell operated by Vodafone.

The Department of the Environment, Climate and Communications (DoECC) has published a High-Speed Broadband Map which identifies locations and premises based on the availability of high-speed broadband services. The site is in a blue area where *"where commercial operators are delivering or have indicated plans to deliver high speed broadband services. Operators are continuing to enhance their services in these areas to improve access to high-speed broadband."* (DoECC, 2025).

13.3.8 Waste

The Proposed Development is located within GCC jurisdiction. GCC is the local authority responsible for setting and administering waste management activities in the area of the Proposed Development. The waste management policies, objectives, and actions for Galway City, as outlined in the Galway City Development Plan 2023-2029 and the Galway City Council Waste Bye-Laws 2019, emphasise sustainable practices crucial for Large-Scale Residential Developments (LRD). Key policies include waste prevention, promoting recycling and reuse, supporting a circular economy, and enhancing waste collection and management systems. Objectives focus on reducing illegal dumping, improving waste segregation, and supporting sustainable practices to meet climate goals. Actions involve enforcing waste bye-laws, promoting recycling programs, and conducting educational campaigns to raise public awareness about sustainable waste management practices.

13.4 Characteristics of the Proposed Development

A comprehensive description of the Proposed Development is presented in Chapter 2 (Description of the Proposed Development) of this EIAR.

13.4.1 Surface/Storm Water Drainage

The stormwater drainage design has been undertaken by TOBIN using Causeway Flow modelling software. The analysis considered the 30-year and 100-year return period plus an additional 10% and 20% respectively to account for the effects of climate change (TOBIN, 2025a).

The oil/petrol interceptor at the inlet to the attenuation unit will serve to prevent hydrocarbons entering the tank.

Ultimate disposal is to outfall in the public storm culvert adjacent the bridge to the south of the site, which in turn discharges into the Galway Bay at the mouth of Lough Atalia.

13.4.1.1 Sustainable Urban Drainage Systems

The existing site primarily consists of a brownfield/man-made surface with no existing drainage or Sustainable Urban Drainage Systems (SuDS) measures in place. The surface water has been designed including the greenfield runoff rate which has improved surface water runoff from the site, the surface water drainage for the Proposed Development will be designed in accordance with the principles of SuDS as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS addresses the issue of sustainability requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of greenfield sites.

The requirements of SuDS are typically addressed by the provision of the following:

- Interception storage;
- Treatment storage (not required if interception storage is provided); and
- Long-term storage (if this is not required growth rates should not be applied to Q_{bar}).

In the case of the site, interception and attenuation storage have been proposed by implementing attenuation tanks with calculated holding volume. Growth factors will not be applied to the allowable discharge for the 100-year event since the networks are contained

within the site and are not likely to be added to in the future. This means that both treatment storage and long-term storage (neither of which would be practical on this site) are not required. All SuDS measures will be designed with due reference to the recommendation set out in the EPA's document entitled 'Guidance on Authorisation of Discharges to Groundwater 2011'.

SuDS measures proposed are a combination of rain gardens, tree pits, permeable paving, and drainage kerbs with infiltration trenches/filter strips. These measures would seek to achieve interception storage. Storage capacity has been calculated and provided in attenuation zones beneath permeable hardened surfaces and planted zones as though no interception storage were provided. This approach ensures consistent performance across season conditions.

To prevent the mobilisation of existing pollutants within the made ground, all permeable paving and stone-fill attenuation zones will be impermeably lined unless and until site conditions are proven to be conducive and GCC is satisfied. This precautionary approach ensures that surface water does not leach contaminants into Galway Bay.

This measure is in addition to the removal of known contaminated ground at the commencement of the project, as identified in the Waste Classification Investigation conducted by GII. The integration of impermeable lining and early-stage remediation reflects a robust strategy to mitigate potential risks to water quality and the surrounding environment.

The objectives of SuDS are to improve water quality, manage water quantity, enhance amenity, and support biodiversity.

13.4.1.2 Proposed Storm Drainage

A dedicated storm water drainage system will be provided for the Proposed Development and will pick up surface water run-off from impermeable surfaces such as roadways, carparks, footways and roofs. The contained nature of the site constitutes a single catchment area for the outfall, but each surface acts as a localised 'mini' sub-catchment feeding into the drainage system.

The Proposed Development is being divided into 2 no. networks linked in series; Network A and Network B. These networks will each direct flow through a petrol interceptor before discharging into the proposed attenuation units. All proposed attenuation has been optimally located to cater for the associated catchment area.

Precast concrete gullies including lockable cast iron grating and frame connected to a piped system will be provided at all proposed gully locations.

All velocities within the networks fall within the limits of 0.8 and 3m/sec as set out in 'Recommendations for Site Development Works' as published by the Department for the Environment.

13.4.1.3 Attenuation Design

The attenuation system is proposed to discharge surface water run-off from the site to the existing storm water network. The required storage requirements have been designed based on the CIRIA SuDS Manual C753 Section 11.3 Hydraulic Design.

All storm water generated from roof; impermeable areas will be discharged to 2 no. attenuation units on the site. Accumulated stormwater will discharge to the existing storm network. The attenuation units are designed to hold water for the largest storage required over a 48-hour storm period with rainfall depths taken for the 100-year return period + 20% for climate change for sliding durations obtained from Met Éireann.

13.4.1.3.1 Attenuation Capacity Design

The CIRIA SuDS Manual C753 Section 11.3 discusses runoff coefficients for various surfaces, which are used for rainwater harvesting volumetric calculations. Although rainwater harvesting is not the focus of the SuDS design, these coefficients are relevant. The manual presents two approaches, both accounting for interception storage, resulting in runoff coefficients less than 1.0. For road/pavement surfaces, the first 1.5mm of rainfall is considered lost, affecting the runoff coefficient. This estimate is less accurate for intense storms.

Concerns raised by GCC during pre-planning engagement regarding the suitability of the subgrade to receive and convey surface water, due to the risk of historical contamination, led to a conservative design approach. A Dig Plan has been compiled to identify and mitigate this risk, but is based on samples from representative locations, it cannot conclusively define the extent of contamination.

As a result, attenuation storage and pipe capacities have been calculated assuming no infiltration. This approach aligns with Causeway Flow modelling software and uses Approach 1 from the CIRIA Manual to simplify design. If contamination risks are later deemed low and GCC is satisfied, the impermeable linear beneath the permeable surfaces and attenuation zone may be replaced with a suitable permeable geotextile, allowing and reducing required attenuation storage. This ensures the design accommodates maximum storage from the outset while allowing future flexibility (TOBIN, 2025a).

13.4.1.4 Petrol Interceptor

It is proposed to install a bypass Petrol Interceptor prior to outfall to each proposed attenuation unit in Network A, and Network B.

Notwithstanding that the SuDS and nature-based measures proposed, stormwater entering each attenuation unit will include run-off from the roadways and parking areas throughout the site and therefore may contain hydrocarbons. These hydrocarbon pollutants require removal and are not to be discharged back into the environment. The separators have been sized to cater for roads, footways, and driveway areas of each catchment area.

13.4.2 Wastewater Drainage

It is proposed that the wastewater generated by the Proposed Development will discharge via gravity to an existing 450mm public foul sewer to the north of the site.

It is proposed that all pipes in the network will be thermoplastic structured wall pipes. The maximum pipe diameter is to be 225mm with maximum and minimum gradients of 1/60 and 1/200 respectively. All pipework has been designed in accordance with the UÉ Code of Practice for Wastewater Infrastructure UE-CDS-5030-03. All velocities within the foul network comply with the requirements of Section 3.6 of the UÉ Code of Practice for Wastewater Infrastructure.

A Confirmation of Feasibility (CoF) from UÉ was obtained for the connection of 408 units to the wastewater network. It has been confirmed that a wastewater connection for the Proposed Development is feasible, subject to a 140-metre extension and upgrade to the existing network infrastructure. All foul sewer designs will be fully vetted by UÉ prior to receiving offer to connect.

13.4.3 Water Supply

There is an existing 300mm watermain line located in the Lough Road, north of the proposed site entrance to the Proposed Development. The watermain layout has been designed in accordance with UÉ Code of Practice for Watermain Infrastructure UE-CDS-5020-03.

The water supply required for the Proposed Development shall be via a 200mm watermain as per UÉ requirements. The 200mm PE watermain is proposed to act as the main run through the site to service the Proposed Development.

In accordance with Local Authority/UÉ standards, a water meter and Logging Device (Larson Type) are proposed at the connection into the Proposed Development site. A sluice valve, strainer and 200mm by-pass arrangement is also proposed to allow for possible disconnection of water meters by the Local Authority/UÉ.

13.4.4 Electrical Supply

The Proposed Development will require connection to the national grid for electricity supply. The electrical supply will be via a new ESB MV substation to be built as part of the Proposed Development.

13.4.5 Gas Supply

There is no gas supply proposed.

13.4.6 Telecommunications

A Telecommunications Report prepared by Independent Site Management (hereafter 'ISM') Limited (2025) identified a high concentration of telecommunication channels emanating from multiple sites within a close proximity to the site, which would be typical of an urban centre wireless telecommunication environment. Three particularly notable sites are as follows:

- Approximately 180m to the north by northeast of the Proposed Development, situated within Córas Iompair Éireann (CIE) lands at the railway bridge, is a moderate to large capacity telecommunication mast (Irish Rail) being utilised by 2 no. Irish mobile operators;
- Approximately 250m to the north by northwest of the Proposed Development, situated on the Victoria Hotel, is a moderate to large capacity telecommunication rooftop site being utilised by 2 no. Irish mobile operators; and
- Approximately 2,700m to the northeast of the Proposed Development, situated with the land of the Eir exchange, is 1 large high-capacity telecommunication mast rooftop site utilised by 2 no. Irish mobile operators.

The DoECC (2025) has published a High-Speed Broadband Map which identifies locations and premises based on the availability of high-speed broadband services. The site is in a blue

area where “where commercial operators are delivering or have indicated plans to deliver high speed broadband services. Operators are continuing to enhance their services in these areas to improve access to high-speed broadband.”

13.4.7 Waste

The waste management objectives for the Proposed Development are as follows, and will facilitate material reuse and recycling, where possible, and seek to divert waste from landfill:

- Prevention (construction phase): The Main Contractor will prevent and minimise waste generation where possible by ensuring large surpluses of construction materials are not delivered to the site through coordination with the suppliers, operating a ‘just-in-time’ delivery scheme and ensuring sub-contractors conform to the Contractor(s) Construction Environmental Management Plan (CEMP). The CEMP submitted with this application (under separate cover) outlines the overarching principles, and a more detailed, site-specific version will be prepared by the Main Contractor prior to the commencement of the works;;
- Reuse (construction and operational phases): Reuse of waste and surplus materials will be prioritised during construction, with efforts made to repurpose materials in high value applications. During the operational phase, reuse will be encouraged through appropriate waste segregation and management practices within the Proposed Development;
- Recycle (construction and operational phases): Recycling will be implemented during construction, including the potential use of on-site crushers to produce waste-derived aggregates, subject to testing and approvals. During operation, recycling facilities will be provided to support resident and commercial waste segregation in line with GCC requirements and national waste policy.; and
- Disposal (construction and operational phases): Where waste disposal is unavoidable, it will be carried out in accordance with the Waste Management Act 1996, as amended, and relevant guidance. This applies to both construction waste and operational waste streams, with licensed waste contractors used for all disposal activities.

13.5 Potential Effect of the Proposed Development

13.5.1 Construction Phase

13.5.1.1 Surface Water Drainage

Construction activities have the potential to cause contamination of surface water runoff with entrained sediment or other contaminants from groundworks areas and stockpiled soils. There will be no unauthorised discharge of water (groundwater or surface water runoff) to ground, drains or water courses during the construction phase. Surface runoff will be managed during construction and there will be no unauthorised discharges of water from the site. However, in the event of a rainfall event, surface runoff entering the open excavations could result in mobilisation of identified hydrocarbon contamination in soil and leaching and migration to groundwater beneath the site. The potential effects would be neutral, imperceptible and short-term and are considered non-significant in the context of the EIA Directive. Chapter 7 (Hydrology and Hydrogeology) of this EIAR has assessed the potential effects on surface water in further detail.

13.5.1.2 Wastewater Drainage

Commencement of construction will result in a net increase in the foul water / wastewater produced at the site. A pre-connection enquiry for the wastewater discharge from 408 residential units was submitted to UÉ. A CoF was received from UÉ. Connection feasibility has been confirmed, subject to a 140-metre extension and upgrade to the existing network infrastructure.

Due to the temporary and phased nature of the construction phase, the likely effect of the Proposed Development on the existing foul water network will be neutral, slight and short term and is non-significant in the context of the EIA Directive. Chapter 7 (Hydrology and Hydrogeology) has assessed the potential effects on wastewater in further detail.

13.5.1.3 Water Supply

Site offices and construction activities will create a demand for water supply to the site. A temporary connection is required to facilitate on-site works for all housing developments. Commencement of construction will, therefore, result in a net increase in the water demand for the site. Water supply for the Proposed Development shall be via a 200mm watermain as per UÉ requirements. UÉ has confirmed that the existing network has sufficient capacity to support the anticipated demand, and no upgrade works are required. New connection works may cause water supply disruptions during the construction phase. These disruptions will be controlled by UÉ and GCC in accordance with standard protocols. Due to the nature of the works during the construction phase, the likely effect will be neutral, imperceptible and short-term and is non-significant in the context of the EIA Directive.

13.5.1.4 Electricity Supply

Construction related activities will require temporary connection to the local electrical supply network. The Main Contractor will apply for a power supply from ESB Networks to power both the compound and the construction site. The size of supply will be calculated to ensure it is sufficient to power both the site compound and construction site activities. A temporary suspension of the network locally to facilitate the connection works is expected during the construction phase, and an additional temporary suspension will also occur when power is provided to the site of the Proposed Development. These temporary suspensions will be controlled by ESB Networks as the statutory undertaker and in accordance with standard protocols. The assessment has considered the worst-case scenario in terms of duration and extent of temporary network suspensions. The potential effect from the construction phase of the Proposed Development on the local electrical supply network is likely to be slightly negative to neutral, slight and temporary, and is non-significant in the context of the EIA Directive.

13.5.1.5 Gas Supply

It is not anticipated that there will be a requirement for gas connection during the construction phase.

13.5.1.6 Waste

An RWMP has been prepared for the Proposed Development (AWN, 2025a). There will be waste materials generated from the demolition of the existing structures and removal of hardstanding areas on site, as well as from the further excavation of any building foundations.

The volume of waste generated from demolition will be more difficult to segregate than waste generated from the construction phase, as many of the building materials will be bonded together or integrated e.g. plasterboard on timber ceiling joists, steel embedded in concrete, etc.

Approximately 16,063m³ of soil, stones, clay and made ground will be excavated to facilitate construction of new foundations and underground services. It is currently envisaged that 4,469m³ will be reused onsite, while the remaining 11,594m³ will require off-site removal for appropriate reuse, recovery, recycling and/or disposal.

Previous site investigations have reported concentrations of lead and benzo(a)pyrene in excess of the applicable Generic Assessment Criteria (GACs) for residential (without gardens) land use scenario. Detectable concentrations of other Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs) have also been reported in Made Ground soils beneath the site.

GII carried out site investigations at the request of the LDA in July 2024. Seven of forty-eight soil samples were classified as hazardous due to elevated levels of hydrocarbons and metals including lead and zinc. The excavation of soil and subsoil materials, including made ground excavated as part of remedial excavations (approximately 11,594.268m³), impacted with anthropogenic contamination and permanent removal offsite is a design requirement of the Proposed Development. As part of the incorporated design measures for the Proposed Development, in-situ soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite, which will be removed offsite to an appropriate facility.

As part of the incorporated design measures for the Proposed Development, in-situ soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite. Regardless, the re-use of any soil onsite will be subject to control procedures which will include soil quality testing to ensure suitability for use onsite and in accordance with engineering and environmental specification for the Proposed Development. The removal of the residual soil source will be undertaken under supervision of the Project Environmental Consultant and validated in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013) and guidance and standards current at the time of construction works to ensure that a 'clean edge' is reached in the area of excavation.

Additionally, the footprint of the proposed buildings will prevent any future contact or exposure of any remaining contaminated soil and as such, any areas which will be developed as public or communal open space (i.e., the landscaped courtyards and open spaces between the buildings) will be completed as necessary with imported clean soil to prevent site users from interacting with contaminated soil. Landscaping within public open / communal amenity space areas will comprise either 600mm of imported soil including minimum 150mm topsoil or 450mm imported soil including 150mm topsoil over a geotextile thereby removing any potential risks associated with direct contact of soils in the public open / communal amenity space areas (MKO, 2022). However, the details of these measures are to be developed during the detailed design stage.

Furthermore, the risks to future occupants posed by potential contamination can be mitigated through the provision of barrier layers in areas where contaminated soils are to remain. These

barrier layers may consist of the future development footprint (e.g. buildings, tarmac/concrete hardstanding) or engineered capping layers in communal landscaping areas (MKO, 2022).

Additionally, there is also a potential of encountering contaminated material arising from accidental spills (e.g., fuel or hydraulic fluid). In the event that contaminated material is encountered during excavation, its management will be undertaken in accordance with the procedures outlined in the Land and Soils chapter and the CEMP prepared by DNV (2025) and submitted under separate cover. Where required, the Main Contractor will instruct the Project Environmental Consultant to attend the site and complete an environmental site assessment. Contaminated soils will be excavated and removed from the site for treatment or disposal within a licensed waste facility. Contaminated soils will be excavated and removed from the site for treatment or disposal within a licensed waste facility.

In addition to these measures, the potential for ecological impacts arising from the disturbance, handling, or disposal of such material has been assessed in the Biodiversity chapter and the Natura Impact Statement (NIS) (submitted under separate cover, DNV 2025). These documents confirm that, with the implementation of appropriate mitigation measures, including water quality protection, dust and noise control, and timing restrictions, there will be no adverse effects on nearby European sites. The interaction between waste management and ecological protection is further detailed in the Interactions section of this chapter.

Additional construction waste may include surplus building materials, such as timber off-cuts, broken concrete blocks, cladding, plastics, metals and tiles generated. There may also be excess concrete during construction which will need to be disposed of. Plastic and cardboard waste from packaging and supply of materials will also be generated. The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Waste will also be generated from construction workers e.g. organic / food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided on site during the construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices. All office and canteen waste, including food waste, will be stored in wheelie bins on site and it will be collected by an appropriately authorised waste collector.

All waste will be segregated on site where practical, with off-site segregation carried out where necessary. Waste contractors will be required to hold valid collection permits, and receiving facilities must be appropriately licensed or permitted. Waste tracking logs will be maintained by the appointed Resource Manager (RM), including collection permits, facility licences, and receipts from receiving facilities.

The potential effect from the construction phase on waste recovery and disposal will be negative, slight and short-term and is considered non-significant in the context of the EIA Directive.

13.5.2 Operational Phase

13.5.2.1 Surface Water Drainage

During operation, the site will have a net increase in permeable surfaces due to the introduction of landscaped areas, permeable paving, and green infrastructure, replacing existing predominantly hardstanding and built-up conditions. Surface water runoff from roads and the impermeable areas of the Proposed Development may contain potentially contaminating compounds (petroleum hydrocarbons, metals, and suspended sediments). Surface water from the Proposed Development will be managed in accordance with the principles and objectives of SuDS. Although infiltration-based SuDS are not proposed, the drainage strategy for the Proposed Development will be neutral to slightly positive and long-term and is considered non-significant in the context of the EIA Directive. Chapter 7 (Hydrology and Hydrogeology) of this EIAR has assessed the potential effects on surface water in further detail.

13.5.2.2 Wastewater Drainage

Foul water from the Proposed Development will discharge via gravity to an existing 450mm public foul sewer located to the north of the site. This sewer ultimately conveys flows to the Mutton Island Wastewater Treatment Plant (WWTP). A pre-connection enquiry was submitted to UÉ for 408 residential units, and a Confirmation of Feasibility was received, indicating that a connection is feasible subject to a 140-metre extension and upgrade of the existing network infrastructure.

Discharge to the UÉ foul sewer will only proceed under formal agreement and subject to statutory consents confirming available capacity at the Mutton Island WWTP. While the development will contribute additional load to the WWTP, this effect is considered to be neutral, imperceptible, and long-term, and is deemed non-significant in the context of the EIA Directive.

13.5.2.3 Water Supply

It is proposed to connect a 200mm watermain to an existing 300mm UÉ watermain, that is located running along the existing Lough Atalia Road, north of the proposed site entrance. The proposed 200mm watermain is the required size to service the development as per UÉ specifications. The operational phase will have an increase in demand which will have a neutral, imperceptible, long-term effect and is considered non-significant in the context of the EIA Directive.

13.5.2.4 Electricity Supply

Electricity will be required to provide public lighting, domestic lighting, power supply, heating, ventilation, and hot water for each individual unit within the Proposed Development, as well as for electric vehicle (EV) charging infrastructure. In addition, electricity will be required to support the operation of centralised building services, including mechanical ventilation systems, heat interface units (HIUs), and the rooftop plant located on Block C, which houses air-to-water heat pumps (ASHPs) serving the Proposed Development.

The rooftop plant on Block C comprises a centralised heat pump system (Aermec ASHPs) with integrated controls and buffer vessels, designed to deliver space heating and domestic

hot water to the apartments via heat interface units. These systems are electrically powered and form a key component of the building's low-carbon energy strategy.

The Proposed Development is therefore likely to increase demand on the existing electricity supply network. However, the design incorporates energy-efficient systems and renewable technologies, including heat pumps with seasonal efficiencies exceeding 265% for space heating and 294% for domestic hot water, which contribute to reducing overall grid dependency.

The electricity requirements outlined above are based on the current design and energy strategy presented in the Climate Action Energy Statement prepared by Axiseng (2025) and submitted under separate cover. These may be subject to refinement during detailed design and utility coordination, including final confirmation of system specifications, metering arrangements, and fit out of commercial spaces.

The potential effect from the operational phase on the electricity supply network is likely to be slightly negative to neutral, imperceptible, and long-term, and is considered non-significant in the context of the EIA Directive, subject to confirmation of capacity and connection agreements with the relevant utility provider.

13.5.2.5 Gas Supply

There is no gas supply proposed.

13.5.2.6 Telecommunications

The operational phase will have a marginal increase in demand on the local telecommunications network. The site is located within an area where high speed broadband is available and there are three mobile mast clusters in proximity to the site.

The likely effect of the operational phase on the local telecommunications network will be neutral, and imperceptible in the long-term is considered non-significant in the context of the EIA Directive.

13.5.2.7 Waste

An Operation Waste Management Plan (OWMP) has been prepared for the Proposed Development by AWN (2025b) and is submitted with the planning application. The OWMP has been prepared to ensure that the management of waste during the operational phase of the Proposed Development is undertaken in accordance with the current legal and industry standards including, the Waste Management Act 1996 as amended and associated Regulations, Environmental Protection Agency Act 1992 as amended, Litter Pollution Act 1997 as amended, the NWMPCE 2024 – 2030 and the GCC Waste Management (*Segregation, Storage and Presentation of Household & Commercial Waste Bye-Laws 2019*).

In particular, the OWMP aims to provide a robust strategy for the storage, handling, collection and transport of the wastes generated at site.

The typical non-hazardous and hazardous wastes that will be generated at the Proposed Development will include the following:

- Dry Mixed Recyclables (DMR) - includes waste paper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons;
- Organic waste – food waste and green waste generated from internal plants / flowers;
- Glass; and
- Mixed Non-Recyclable (MNR)/General Waste.

In addition to the typical waste materials that will be generated at the development on a daily basis, there will be some additional waste types generated less frequently / in smaller quantities which will need to be managed separately including:

- Deposit Return Scheme (Drink Bottles and Cans);
- Green / garden waste may be generated from external landscaping;
- Batteries (both hazardous and non-hazardous);
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);
- Printer cartridges / toners;
- Chemicals (paints, adhesives, resins, detergents, etc.);
- Light bulbs;
- Textiles;
- Waste cooking oil (if any generated by units);
- Furniture (and, from time-to-time, other bulky wastes); and
- Abandoned bicycles.

Wastes should be segregated into the below waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

The operational phase of the Proposed Development will result in an increase in the production of municipal waste in the region and will increase demand on waste collectors and treatment facilities, however, as the surrounding area is urban in nature, waste collection is commonplace. Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code (previously referred to as European Waste Code or EWC) for typical waste materials expected to be generated during the operation of the Proposed Development are provided in Table 13-1.

Table 13-1 Expected Waste Types and List of Waste Codes

Waste Material	LoW/EWC Code
Paper and Cardboard	20 01 01
Plastics	20 01 39
Metals	20 01 40
Mixed-Non-Recyclable Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25
Textiles	20 01 11
Batteries and Accumulators*	20 01 33*-34
Printer Toner/Cartridges*	20 01 27*-28
Green Waste	20 02 01

Waste Material	LoW/EWC Code
WEEE*	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) *	20 01 13*/19*/27*/28/29*30
Fluorescent tubes and other mercury containing waste*	20 01 21*
Bulky Wastes	20 03 07

*Individual waste type may contain hazardous materials

A waste generation model (WGM) developed by AWN (2025b) has been used to predict waste types, weights and volumes expected to arise from operations within the Proposed Development. The WGM incorporates building area and use and combines these with other data, including Irish and US EPA waste generation rates.

The estimated quantum / volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units, while the waste generated by the commercial units (crèche, retail and café) is based on floor m² and their use.

The estimated waste generation for the Proposed Development for the main waste types is presented in Table 13-2 and Table 13-3.

Table 13-2 Estimated Waste Generation for the Proposed Development

Waste type	Waste Volume (m3/week)			
	Apartment Block A (Combined)	Apartment Block B (Combined)	Apartment Block C (Combined)	Block D (Retail Combined)
Organic Waste	118	1.52	0.95	1.51
DMR	8.35	10.78	6.73	10.70
Glass	0.23	0.29	0.18	0.29
MNR	4.39	5.67	3.54	5.62
Total	14.14	18.26	11.40	18.12

Table 13-3 Estimated Waste Generation for the Proposed Development

Waste type	Waste Volume (m3/week)			
	Crèche	Café/Restaurant 1 (Block A)	Café/Restaurant 2 (Block A)	Retail (Block B)
Organic Waste	0.03	0.25	0.17	0.05
DMR	0.94	0.56	0.38	1.07
Glass	0.00	0.29	0.07	0.03
MNR	0.51	5.67	0.46	0.44
Total	1.48	18.26	1.09	1.59

Three (3 no.) shared Waste Storage Areas (WSAs) have been allocated in the design of the development for the residential units, while two (2 no.) WSAs have been provided for the crèche and commercial units (AWN, 2025b).

The waste receptacles from the WSAs will be collected by facilities management, immediately prior to collection and brought to where the bins will be staged temporarily awaiting collection. The staging area is such that it will not obstruct traffic or pedestrians (allowing a footway path of at least 1.8m, the space needed for two wheelchairs to pass each other) as is recommended in the Design Manual for Urban Roads and Streets (2019).

Using the estimated waste generation volumes in Table 13-2 and Table 13-3, the waste receptacle requirements for MNR, DMR, organic waste, glass and medical waste have been established for the WSA. It is envisaged that all waste will be collected on a weekly basis.

Estimated waste storage requirements for the operational phase of the Proposed Development are detailed in the OWMP (AWN, 2025b). The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. All waste receptacles used will comply with the SIST EN 840-1:2020 and SIST EN 840-2:2020 as the standards for performance requirements of mobile waste containers, where appropriate. Receptacles for organic, MDR, glass and DMR waste will be provided in the WSAs prior to first occupation of the development i.e. prior to the first unit being occupied.

The OWMP will be provided to staff from first occupation of the development i.e. once the first unit is occupied. The OWMP will be updated, as required, by the property management company with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

The OWMP presents a waste strategy that addresses all legal requirements, waste policies and best practice guidelines and demonstrates that storage areas have been incorporated into the design of the Proposed Development.

Implementation of the OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus contributing to the targets set out in the NWMPCE.

Adherence to this plan will also ensure that waste management at the development is carried out in accordance with the requirements of the GCC Waste Bye-Laws.

The waste strategy presented in the OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated areas for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy.

While the potential for contaminated material is primarily associated with the construction phase, the operational phase waste strategy continues to support the protection of ecological receptors through appropriate segregation, storage, and disposal of waste. The mitigation measures outlined in the biodiversity chapter and NIS remain relevant in ensuring that operational waste practices do not result in indirect impacts on designated sites.

The potential effect from the operational phase on municipal waste disposal is likely to be long-term, negative and slight in nature and is considered non-significant in the context of the EIA Directive.

13.5.3 Potential Cumulative Effects

The EC *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions*, defines cumulative effects as “*effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project*”. Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects. Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor.

The projects considered for potential cumulative developments are detailed in Chapter 2 (Description of the Proposed Development) of this EIAR.

It is considered that there is no potential for the Proposed Development to act in combination with other permitted developments in the vicinity that could cause likely significant effects on;

- Surface/storm water drainage;
- Wastewater drainage;
- Water supply;
- Electrical supply;
- Gas supply;
- Telecommunications; and
- Waste.

Each utility has been assessed individually, and the following conclusions support the cumulative effect assessment:

- **Surface Water Drainage:** During construction, surface runoff will be managed to prevent unauthorised discharges, and standard measures will be implemented to control sediment and potential contaminants. While there is a potential for mobilisation of hydrocarbons in the event of rainfall entering excavations, this is considered unlikely and will be mitigated through best practice site management. The construction phase effect is neutral short-term and non-significant. The Proposed Development includes a dedicated SuDS network designed to manage runoff from the site, including attenuation units, petrol interceptors, and impermeable lining. The system is designed to accommodate the 1-in-100-year storm event in accordance with GDSDS and EPA guidance. Adjacent developments are similarly required to meet these standards, and no shared infrastructure is relied upon. Therefore, no cumulative effect is anticipated. The potential effect is neutral, non-significant and long term;
- **Wastewater Drainage:** During construction, there will be a temporary increase in foul water generation. However, due to the phased nature of construction and the use of temporary facilities, the impact on the existing foul network will be minimal. The construction-phase effect is neutral, slight, short-term, and non-significant. UÉ has confirmed connection feasibility for the Proposed Development, subject to a 140m network extension funded by the developer. The foul drainage network is designed to discharge via gravity to the existing 450mm public sewer. No cumulative effect is anticipated, as the infrastructure is designed to accommodate the projected flows and adjacent developments will be assessed independently. The operational-phase effect is neutral, non-significant, and long term;
- **Water Supply:** During construction, a temporary connection will be required to supply water to site offices and construction activities. While this will result in a short-term increase in demand, UÉ has confirmed adequate capacity. Any potential disruptions during connection works will be managed under standard protocols by UÉ and GCC. The construction-phase effect is neutral, imperceptible, short-term, and non-significant. UÉ has confirmed that the existing network has sufficient capacity to support the Proposed Development without the need for upgrades. Water supply infrastructure will be managed under a connection agreement, and no cumulative pressure on the network is anticipated. The operational-phase effect is neutral, non-significant, and long term;

- Electricity Supply: ESB Networks will manage both temporary and long term connections. Each development is assessed independently for load and connection feasibility. While temporary network suspensions are expected, these are short-term and managed under standard protocols. No cumulative effect is expected. The construction-phase effect is neutral, short-term, and non-significant and the operational phase effect is slightly negative to neutral, imperceptible, and long term, and is considered non-significant;
- Gas Supply: No gas connection is proposed during construction or operation, so cumulative effects are not relevant;
- Telecommunications: A Telecommunications Report prepared by Independent Site Management (ISM, 2025) identified a high concentration of telecommunication channels emanating from multiple sites within close proximity to the Proposed Development, which is typical of an urban centre wireless telecommunication environment. The Proposed Development includes rooftop infrastructure to support future links and mitigate potential interference. In addition, the Department of the Environment, Climate and Communications (DoECC) High-Speed Broadband Map identifies the site as being located within a “blue area,” indicating that commercial operators are currently delivering or have committed to delivering high-speed broadband services. These networks are scalable and continuously upgraded. Therefore, no cumulative effect is anticipated the operational-phase effect is neutral, imperceptible, and long term, and is considered non-significant. During construction, telecommunications infrastructure will not be required beyond standard site communications. No significant demand or disruption to existing services is anticipated. The construction-phase effect is neutral, short-term, and non-significant; and
- Waste: An RWMP has been prepared to manage waste arising from demolition, excavation, and construction activities. Approximately 16,063m³ of soil, stones, clay, and made ground will be excavated, with 11,594m³ requiring off-site removal. Hazardous materials, including hydrocarbons and metals, have been identified in site investigations and will be managed in accordance with the CEMP and relevant environmental protocols. Additional construction waste will include surplus building materials, packaging, and office waste, all of which will be segregated and tracked by the appointed Resource Manager. The construction-phase effect is negative, slight, short-term, and non-significant. The OWMP confirms that the Proposed Development will be integrated into existing municipal waste collection routes. GCC’s Waste Management Strategy confirms sufficient capacity to accommodate new developments. The operational effect is neutral, long term and non-significant.

The Proposed Development will entail minimal use of material assets during construction, with temporary connections and phased infrastructure limiting demand on utilities. Construction-related effects are short-term and managed through standard protocols.

It is concluded that there are no other potentially significant cumulative effects on material assets arising from the Proposed Development in combination with the identified existing and permitted off-site developments, as described in Chapter 2 (Description of the Proposed Development) of this EIAR.

13.5.4 “Do Nothing” Effect

In the ‘Do Nothing’ scenario, the Proposed Development does not proceed and there would be no excavation, construction or operational waste generated at the site. There would, therefore, be no additional demand or loading on waste management infrastructure locally or nationally and thus there would be a neutral effect on the environment in terms of waste.

There would also be no increase in the demand on the existing surface water and wastewater drainage, water, electrical and gas supply or telecommunications. Therefore, the effect on surrounding utilities infrastructure would be neutral.

However, the demand for housing and associated infrastructure generated by the existing and projected population would persist. In the absence of development at this centrally located, serviced, and zoned site, this demand may be displaced to less sustainable, peripheral, or unserved locations. This could result in greater environmental impacts due to increased land take, car dependency, and pressure on less serviced or less accessible infrastructure.

As the site is zoned for development, in the absence of the Proposed Development, it is likely that a development of a similar nature is likely to be constructed in the future in line with national policy and the development plan objectives. Therefore, the construction and operational phase effects outlined in this assessment are likely to occur in the future, even in the absence of the Proposed Development.

13.6 Avoidance, Remedial & Mitigation Measures

13.6.1 Construction Phase

13.6.1.1 Surface Water

Specific avoidance, remedial and mitigation measures to be taken during the construction phase with respect to surface water drainage are detailed within Chapter 7 (Hydrology and Hydrogeology) of this EIAR. All works will be carried out in accordance with the CEMP prepared for the Proposed Development and the UÉ Code of Practice for Water Infrastructure (July 2020) and the UÉ Code of Practice for Wastewater Infrastructure (July 2020). Surface water management will include nature-based SuDS measures, petrol interceptors, attenuation units, and impermeable lining of permeable paving and attenuation zones to prevent leaching of contaminants from made ground.

13.6.1.2 Wastewater Drainage

Specific avoidance, remedial and mitigation measures to be taken during the construction phase with respect to foul water are detailed within Chapter 7 (Hydrology and Hydrogeology) of this EIAR. All works will be carried out in accordance with the CEMP prepared for the Proposed Development and the UÉ Code of Practice for Water Infrastructure (July 2020) and the UÉ Code of Practice for Wastewater Infrastructure (July 2020). The construction of any wastewater infrastructure will be in accordance with UÉ standards. A 140m extension and upgrade of the existing public foul sewer will be required to facilitate connection, as confirmed by UÉ.

13.6.1.3 Water Supply

A CoF has been received by UÉ. UÉ has confirmed that the existing network has sufficient capacity to support the anticipated demand, and no upgrade works are required. UÉ will be responsible for the connection process, and no additional measures are required.

13.6.1.4 Electricity

New connections for electricity supply will be coordinated with the relevant utility provider and will be carried out and tested by approved contractors as per standard protocols and as such, no mitigation measures are required.

13.6.1.5 Gas

There is no gas supply proposed and as such, no mitigation measures are required.

13.6.1.6 Telecommunications

Any new connections required for telecommunications will be coordinated with the relevant utility provider and will be carried out and tested by approved contractors as per standard protocols and as such, no mitigation measures are required.

13.6.1.7 Waste

The waste management objective will be to prevent waste arising in the first place, and to re-use, recycle or recover waste materials where possible. The following mitigation measures will be undertaken for the construction phase of the Proposed Development regarding waste management:

- Waste materials will be separated at source and will follow the RWMP and Contractor(s) CEMP;
- Prior to the commencement of the construction phase detailed calculations of the quantities of topsoil, subsoil and green waste will be prepared, and soils will be tested to confirm they are clean, inert or non-hazardous;
- A policy of 'as needed' ordering and strict purchasing procedures will be implemented to prevent waste arisings as far as possible;
- The Contractor will vet the source of aggregate, fill material and topsoil imported to the site in order to ensure that it is of a reputable origin and that it is "clean" (i.e., it will not contaminate the environment).
- The Contractor will implement procurement procedures to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance;
- The waste materials generated during the construction phase will be stored in suitably size receptacles and transferred offsite for appropriate processing, recycling and recovery;
- Waste materials generated from the construction phase that are unsuitable for reuse or recovery will be separately collected;

- Disposal of construction generated wastes will be considered a last resort and only after recycling or recovery options have been ruled out;
- A suitably competent and fully permitted waste management company will be employed to manage waste arising for the construction phase. The appointed waste contractor will have the relevant authorisations for the collection and transport of waste materials, issued by the National Waste Collection Permit Office (NWCPO);
- All waste materials will be transported to an appropriately authorised facility, which will have the relevant authorisations for the acceptance and treatment of the specific waste streams, i.e., a Certificate of Registration (COR) or a Waste Facility Permit (WFP) as granted by a Local Authority, or a Waste/Industrial Emission Licence as granted by the Environmental Protection Agency (EPA);
- In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS). The management of such material will follow the procedures outlined in the CEMP (DNV, 2025), including environmental site assessment in accordance with BS 10175:2011+A2:2017 and EPA (2018) guidance. Temporary stockpiling, if required, will be on impermeable surfaces, covered, and located away from watercourses, with silt fencing or diversion measures in place;
- Waste generated by construction workers will be stored in wheelie bins on site and it will be collected by an appropriately authorised waste collector. All wastes generated on site will be sent for recycling, recovery, or disposal to a suitably licensed or permitted waste facility; and
- All waste quantities and types will be recorded and quantified, and records will be retained onsite for the duration of the construction phase.

These measures are consistent with the EPA's Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects (2021), and with Regulation 27 (by-product) and Regulation 28 (End-of-Waste) of the European Communities (Waste Directive) Regulations 2011, as amended.

These measures are designed not only to ensure compliance with waste legislation but also to prevent any adverse effects on nearby designated ecological sites. The potential for ecological impacts arising from the handling or disposal of contaminated material has been assessed in the Biodiversity Chapter and the Natura Impact Statement (NIS), which confirms that, with mitigation, no significant effects will occur.

These mitigation measures will ensure that the waste arising from the construction phase of the Proposed Development is dealt with in compliance with provisions of the Waste Management Act 1996, as amended, associated Regulations and Litter Pollution Act 1997, and the NWMPCE 2024-2030. The mitigation measures will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

The Contractor will have the responsibility to record resource and waste management at the site in line with the RWMP. Some of the principal duties and responsibilities of this role include:

- Report to Project Manager on the management of resources and waste at the site;
- Identify all destinations for resources taken off-site;
- Address Regulation 27 by-product notifications with the EPA, where applicable;
- Maintain full records of all resources (both wastes and other resources) for the duration of the Proposed Development;
- Delegate responsibility to sub-contractors, where necessary;
- Coordinate with suppliers, service providers and sub-contractors; and
- Prioritise waste prevention and resource salvage.

13.6.2 Operational Phase

13.6.2.1 Surface Water

Due to the incorporated design measures relating to surface water, no additional mitigation measures are required. Surface water runoff will be managed via the dedicated SuDS infrastructure, including attenuation units, petrol interceptors, and impermeable lining, as outlined in the Civil Design Report (TOBIN, 2025a).

13.6.2.2 Wastewater Drainage

Due to the incorporated design measures relating to foul / wastewater, no additional mitigation measures are required. Following planning application stage, connection agreements will be made with UÉ to ensure water supply to the site and foul water discharge off site and no additional mitigation measures will be required.

13.6.2.3 Water Supply

A CoF has been received from UÉ. UÉ will be responsible for managing the water supply connection process, and has confirmed that the existing network has sufficient capacity to support the anticipated demand. No mitigation measures are required.

13.6.2.4 Electricity

Utilities providers will be responsible for the management and any required upgrades of electricity supply and as such no mitigation measures are required.

13.6.2.5 Gas

There is no gas supply proposed and as such, no mitigation measures are required.

13.6.2.6 Telecommunications

Future telecommunication channels may be impacted by the height and scale of the Proposed Development (ISM, 2025). To mitigate the impact the Proposed Development will have on the high concentration of Microwave and Radio links emanating from the surrounding city centre area, and from the existing high-capacity mast sites, the Applicant is seeking planning permission for the following:

- 6 No. 2m 2G/3G/4G antennas & 6 No. 5G antennas installed on support poles,

- affixed to the plant screen steel frame at roof level;
- 4 No. 300mm Microwave Transmission link dishes installed on 2 No. support poles, affixed to the plant screen steel frame at roof level;
- 2 No. Equipment Cabinets mounted on steel support frame(s), and;
- all associated ancillary equipment

In addition to serving as mitigation measures, the above provisions provide some capability for future links that may or may not be required.

13.6.2.7 Waste

The OWMP (AWN, 2025b) sets out how waste generated during the operational phase of the Proposed Development will be stored and collected in order to mitigate any potential effects. Mitigation measures for operational waste management include:

- The allocation of three shared WSAs in the Proposed Development's design for the residential units, and two WSAs for the commercial units. Receptacles for organic, mixed non-recyclables (MNR), glass, and dry mixed-recyclables (DMR) will be provided in the WSAs prior to the first residential unit of the Proposed Development being occupied. Each receptacle will be labelled and colour coded to avoid waste stream cross contamination;
- Provisions for three bin storage systems in the residential units to facilitate waste segregation at the source of waste generation;
- Provisions for separate small bins in commercial food preparation areas to account for increased waste generation in these areas;
- Waste collection from the Proposed Development on a weekly basis to prevent a buildup of waste. All waste collected will be collected by an appropriately permitted waste management company and transported to registered/permitted/licensed facilities only; and
- Provisions for the Facilities Management Company to ensure the correct storage of domestic waste within the Proposed Development. This includes daily inspections of the WSAs and the maintenance of a weekly register detailing the quantities and breakdown of wastes collected from the Proposed Development.

Implementation of the OWMP will ensure that a high level of recycling, reuse, and recover at the Proposed Development during the operational phase. All materials that are considered recyclable will be segregated and separated at source to reduce costs from the waste collector and ensure maximum diversion of material from landfill. The waste strategy presented in the OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated WSAs will provide sufficient room for the required receptacles in accordance with the details of this strategy.

13.6.3 "Worst Case" Scenario

This section considers potential worst-case scenarios during both the construction and operational phases of the Proposed Development. Where no operational phase worst-case scenario is anticipated, this is stated explicitly.

13.6.3.1 Surface Water

A worst-case scenario during the construction phase would be a failure or blockage of drainage infrastructure resulting in surface flooding. While no specific operational mitigation measures are required, the design incorporates nature-based SuDS features, impermeable lining, and petrol interceptors, which significantly reduce the likelihood of such events. Therefore, the worst-case scenario during the construction phase is deemed to be an unlikely scenario. No worst-case scenario is anticipated during the operational phase due to the robustness of the SuDS design.

13.6.3.2 Wastewater Drainage

A worst-case scenario during the construction phase would be where construction works resulted in an extended disruption to sewerage systems for existing properties in the area due to unforeseen delays on site. Mitigation measures include phased construction, adherence to the CEMP, and coordination with UÉ for connection and upgrades. Therefore, the worst-case scenario during the construction phase is deemed to be an unlikely scenario. No operational phase worst-case scenario is anticipated, as UÉ has confirmed sufficient capacity and the infrastructure will be fully commissioned prior to occupation.

13.6.3.3 Electricity

A worst-case scenario during the construction phase would be an extended disruption for existing properties in the area due to unforeseen delays on site. While no specific mitigation measures were outlined, coordination with utility providers and adherence to standard protocols will reduce the likelihood of such disruption. Therefore, the worst-case scenario during the construction phase is deemed to be an unlikely scenario. No operational phase worst-case scenario is anticipated, as electricity supply will be fully commissioned prior to occupation.

13.6.3.4 Gas

There is no gas proposed as part of the Proposed Development and, therefore, a worst-case scenario has not been assessed.

13.6.3.5 Telecommunications

A worst-case scenario in relation to telecommunications would be where construction works resulted in an extended disruption for existing properties in the area due to unforeseen delays on site. While no specific mitigation measures were outlined for construction-phase telecoms, utility providers will manage connections and upgrades. Therefore, the worst-case scenario during the construction phase is deemed to be an unlikely scenario. During the operational phase, mitigation measures include rooftop infrastructure to support future links, and no worst-case scenario is anticipated.

13.6.3.6 Waste

A worst-case scenario during the construction phase would be where a previously unclassified hazardous waste stream arose on the site during excavations, which was not identified and segregated appropriately and resulted in the contamination of a non-hazardous waste stream, such as soil and stones, resulting in a large volume of hazardous waste that would require specialist removal and treatment. Additionally, the contaminated soil and stones would no

longer be fit for use for fill and landscaping and would need to be replaced with imported materials. Mitigation measures outlined in Section 13.6.1.7 include pre-testing of soils, segregation procedures, and compliance with EPA guidance and the RWMP, which reduce the likelihood of this scenario substantially. No operational phase worst-case scenario is anticipated, as the OWMP provides sufficient capacity, segregation, and management protocols to prevent adverse effects.

13.7 Residual Effects

13.7.1 Construction Phase

13.7.1.1 Surface Water Drainage

Having regard to the prevention and mitigation measures proposed within this and other chapters of the EIAR, including temporary drainage controls, sediment management, and pollution measures, the residual effects on surface water drainage will be neutral to slightly positive, imperceptible and short-term, with no significant risk of contamination or alteration to local hydrology. This reflects the implementation of nature-based SuDS measures and impermeable lining to prevent leaching from made ground. These effects are considered non-significant in the context of the EIA Directive.

13.7.1.2 Wastewater Drainage

Having regard to the prevention and mitigation measures proposed within this and other chapters of the EIAR, the residual effects on wastewater will be neutral, imperceptible and short-term. These effects are considered non-significant in the context of the EIA Directive.

13.7.1.3 Water Supply

Having regard to the prevention and mitigation measures proposed within this and other chapters of the EIAR, the residual effects on water supply will be neutral, imperceptible and short-term, with capacity confirmed by UÉ without the need for infrastructure upgrades. These effects are considered non-significant in the context of the EIA Directive.

13.7.1.4 Electricity

Having regard to the prevention and mitigation measures proposed within this and other chapters of the EIAR, the residual effects on electrical supply will be slightly negative to neutral, slight and temporary, depending on the length of temporary network suspensions. These effects may arise from temporary network suspensions or utility works required to facilitate new connections and infrastructure upgrades. Such works will be coordinated with the relevant utility provider to minimise disruption. Therefore, the residual effects are considered non-significant in the context of the Environmental Impact Assessment (EIA) Directive.

13.7.1.5 Waste

The residual effects on waste management are considered slight, neutral, direct and short-term, this is due to:

- The prevention and mitigation measures proposed within this and other chapters of the EIAR;

- Compliance with national legislation and the allocation of adequate time and resources dedicated to efficient waste management practices; and
- Continued use of permitted/licensed waste hauliers and facilities. Waste removed from the facility will be managed appropriately and will avoid environmental effects or pollution. In addition, the correct management and storage of waste will avoid litter or pollution issues at the site.

The RWMP outlines a target of 70% reuse/recycling/recovery of construction waste, with detailed tracking and audit procedures to ensure compliance (AWN, 2025a). These effects are considered non-significant in the context of the EIA Directive.

13.7.2 Operational Phase

13.7.2.1 Surface Water

During operation, the Proposed Development will result in a net increase in permeable surfaces compared to the existing predominantly hardstanding site, due to the inclusion of landscaped areas, permeable paving, and green infrastructure. Surface water runoff will be managed in accordance with the principles of SuDS, including attenuation and treatment measures, though infiltration is not proposed. The residual effects on surface water drainage will be neutral to slightly positive, imperceptible and long-term, and are considered non-significant in the context of the EIA Directive.

13.7.2.2 Wastewater Drainage

Having regard to the incorporated design measures relating to foul / wastewater, the residual effects on wastewater will be neutral, imperceptible and long-term. Connection feasibility has been confirmed subject to a network extension. These effects are considered non-significant in the context of the EIA Directive.

13.7.2.3 Water Supply

No mitigation measures are proposed in relation to water supply; therefore, the residual effects will have a neutral, imperceptible, long-term effect. Capacity has been confirmed by UÉ without the need for upgrades. These effects are considered non-significant in the context of the EIA Directive.

13.7.2.4 Electricity

No mitigation measures are proposed in relation to electrical supply; therefore, the residual effects will have a slightly negative to neutral, imperceptible, long-term effect. These effects may arise from increased demand on the existing electricity network associated with the operation of building services, including centralised heat pumps, mechanical ventilation systems, and EV charging infrastructure. However, the incorporation of energy-efficient systems and renewable technologies, and coordination with the relevant utility provider, ensures that these effects are non-significant in the context of the Environmental Impact Assessment (EIA) Directive.

13.7.2.5 Telecommunications

Due to the comprehensive mitigation measures implemented, including the installation of antennas, microwave transmission link dishes, equipment cabinets, and associated ancillary equipment, as well as additional measures within this EIAR, no residual effects are predicted

for the Proposed Development. These measures ensure that potential effects are effectively managed and minimised. These effects are considered non-significant in the context of the EIA Directive.

13.7.2.6 Waste

Waste materials will be generated on an ongoing basis during the operational phase; these will for the most part consist of municipal waste and recyclable materials. Careful management of these, including segregation at source, will help to ensure a high level of waste recycling, reuse, and recovery at the development. Given the provision of appropriate facilities, and their correct use by residents, environmental effects (e.g. litter, contamination of soil or water, etc.) arising from operational waste storage and removal are expected to be minimal. The use of suitably licensed waste contractors will ensure compliance with relevant legal requirements and appropriate off-site management of waste. With the implementation of the proposed operational waste management measures, the Proposed Development is not expected to have a significant environmental effect with respect to operational waste. The likely effect of the operational phase on waste management will be neutral, direct and slight in the long-term. These effects are considered non-significant in the context of the EIA Directive.

13.7.3 Residual Cumulative Effects

Having regard to the mitigation and design measures incorporated into the Proposed Development, and the individual assessments of each utility, no significant residual cumulative effects are anticipated. The cumulative effect of the Proposed Development in combination with other permitted developments in the vicinity has been assessed in Chapter 13.5.3. All residual effects, whether from construction or operation are considered neutral to slight, short-term to long term and non-significant. Therefore, the Proposed Development is not expected to contribute to any significant cumulative environmental effects in the context of the EIA Directive.

13.8 Monitoring

13.8.1 Construction Phase

During the construction phase, a procedure for waste auditing will be in place as per the RWMP which has been prepared for the planning application and is submitted under separate cover. The purpose of the waste auditing is to identify any problems with the site's waste procedures and also the benefits of prevention and minimisation that is in place. The audit will be a 'self-audit' process carried out by the RM. The RM will create an Audit Plan and identify the appropriate frequency at which the audits are to be conducted over the course of the construction phase. The waste audit will document details of the quantity, type and composition of all waste removed from the site. The audit findings will highlight any corrective actions that may need to be taken in relation to waste management procedures or site practices. These corrective actions will be tracked in order to identify root- causes as appropriate (AWN, 2025a).

13.8.2 Operational Phase

The Facilities Management Company, residents, commercial tenants, and creche operators will be required to maintain the bins and storage areas in good condition as required by the

GCC Waste Bye-Laws. The waste strategy presented in the OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated WSAs will provide sufficient room for the required receptacles in accordance with the details of this strategy. The WSAs will be fitted with CCTV for monitoring.

13.9 Interactions

The Proposed Development will provide additional housing in a densely populated urban area. Material assets, utilities and waste interact with other environmental receptors as follows:

- **Population and Human Health:** The improper removal, handling and storage of hazardous waste could negatively impact the health of construction workers. The improper storage of domestic waste could negatively impact the health of residents, tenants and employees of the Proposed Development. Extended power or telecommunications outages, or disruption to water supply or sewerage systems for existing properties in the area could negatively impact on the surrounding human population and their overall health. Potential effects on population and human health are addressed in Chapter 4;
- **Biodiversity:** In accordance with the requirements of the Habitats Directive and the concerns raised in the LRD Opinion, the potential for contaminated land to impact nearby European sites has been carefully considered. A comprehensive Appropriate Assessment (AA) Screening and NIS have been undertaken, concluding that, with the implementation of proposed mitigation measures, the development will not result in deterioration or disturbance of natural habitats or species. These findings are supported by the Biodiversity Chapter of the EIAR, which includes baseline ecological surveys, identification of sensitive receptors, and detailed mitigation measures. These include surface water protection measures, dust and noise control, lighting restrictions, and timing of works, all of which are designed to prevent adverse effects on designated sites. The management of any contaminated material encountered during construction will be carried out in accordance with these measures, ensuring that ecological receptors are protected throughout the project lifecycle. Potential effects on biodiversity are addressed in Chapter 5;
- **Land and Soil:** Improper handling and segregation of hazardous or contaminated wastes could lead to the contamination of soil and stones excavated from the site. Potential effects on land and soils are addressed in Chapter 6;
- **Water (Hydrology and Hydrogeology):** Any connections to the public water network (water supply or foul sewer) during the construction and operational phases will be under consent from UÉ. Potential effects on water are addressed in Chapter 7;
- **Climate:** The Proposed Development has been designed in accordance with all relevant building design standards, including those relating to energy performance and climate resilience. Low carbon power and heating systems, including centralised heat pumps and mechanical ventilation with heat recovery, have been incorporated to reduce reliance on imported fossil fuels and reduce greenhouse gases (GHG) emissions. The direct and indirect effects of the Proposed Development on climate, such as GHG emissions are assessed in Chapter 9; and
- **Traffic:** Waste collection activities at the Proposed Development have the potential to impact upon traffic movements in the surrounding area. Potential effects on traffic are addressed in Chapter 12. Upgrades to electrical and water infrastructure required to

service the Proposed Development may result in temporary interactions with traffic and transport networks. Coordination between utility providers and traffic management planning will be essential to minimise disruption, ensure safe access, and maintain connectivity during both construction and operational phases.

13.10 Difficulties Encountered When Compiling

No difficulties were encountered in the preparation of this chapter.

13.11 Conclusion

The assessment of likely effects resulting from the Proposed Development on built services and waste in this chapter has identified the existing infrastructure in the surrounding area in relation to surface water, wastewater, water supply, electrical supply, gas supply, telecommunications and waste. Where relevant, appropriate mitigation and monitoring measures have been detailed.

It is reasonably considered that following all mitigation measures including design embedded and prescribed, adequate implementation of the CEMP, RWMP and OWMP and adherence to construction best practice that no significant effects to built services and waste will arise from the Proposed Development during the construction or operational phases. Accordingly, the site is considered suitable for development as proposed.

13.12 References

AWN (2025a) Resource Waste Management Plan.

AWN (2025b) Operational Waste Management Plan.

Axiseng Consulting Engineers (2025) Climate Action and Energy Statement.

Department of Housing Local Government and Heritage (2019) Design Manual for Urban Roads and Streets.

Department of the Environment, Climate and Communications (2025) National Broadband Ireland Web Map <https://nbi.ie/map/>. Consulted 09/06/2025.

DNV (2025) Construction Environmental Management Plan.

EirGrid Group (2025) All-Island Transmission System Map 2025.

Environmental Protection Agency (EPA), 2013. *Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites*.

Environmental Protection Agency (EPA) (2021) Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects.

EPA (2019) By-Product Guidance Note: A guide to by-products and submitting a by-product notification under Article 27 of the European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011).

EPA (2002) Guidelines on the information to be contained in Environmental Impact Statements.

ESB Networks (2021) National Code of Practice for the Customer Interface Version 5.

ESB Networks (2019) Construction Standards for MV Substation Buildings.

European Union (Waste Directive) Regulations 2020 (as amended)

Galway City Council (2022) Galway City Development Plan 2023-2029.

Galway City Council (2019) Segregation, Storage, and Presentation of Household and Commercial Waste Bye-Laws.

Geological Society of Ireland (2025) GSI web mapping.

<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>. Consulted on 28/04/2025.

Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, European Commission, 1999.

Health and Safety Authority (2010) Code of Practice for Avoiding Danger from Underground Services.

Irish Water Code of Practice for Water Infrastructure Connections and Developer Services Design and Construction Requirements for Self-Lay Developments July 2020 (Revision 2).

Litter Pollution Act 1997 as amended.

Local Government Ireland (2024) The National Waste Management Plan for a Circular Economy 2024-2030.

MKO Planning and Environmental Consultants (MKO, 2022). Phase 2 Ground Investigation - Galway Inner Harbour, Galway. Geo-environmental Interpretative Report. Project Number: 220628.

TOBIN (2025a) Civil Works Design Report.

TOBIN (2025b) Flood Risk Assessment.

Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste) as amended by Directive (EU) 2018/851.

Waste Management Acts 1996 (as amended).

Water Services Acts 2007 (as amended).

14 ARCHAEOLOGY AND CULTURAL HERITAGE

14.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents an archaeological and cultural heritage assessment of the Proposed Development on lands at Galway Port, off the Lough Atalia Road, Galway.

The cultural heritage resource encompasses assets relevant to tangible elements, such as archaeology and architectural heritage, and non-tangible assets such as historical associations, folklore, tradition, language and placenames.

14.1.1 Quality Assurance and Competency of Experts

This assessment has been compiled by Mr John Cronin and Mr Martin McGonigle of John Cronin & Associates. Short professional biographies are presented below:

John Cronin BA MRUP MUBC Dip. Geol MIAI

John Cronin is an archaeologist, town planner and building conservation consultant with over twenty-five years post-graduate experience, garnered in the public and private sectors. Mr Cronin holds the following qualifications: Bachelor of Arts (Honours) - Archaeology & Geography, University College Cork (UCC), 1991; Master of Regional & Urban Planning, University College Dublin (UCD), 1993; Diploma in Geology (Evening Course), UCC, 1996, and Master of Urban & Building Conservation, School of Architecture, UCD, 1999.

Mr Cronin has prepared numerous cultural heritage assessments for environmental impact assessments throughout Ireland and has supervised architectural surveys in Counties Cork, Donegal and Dublin. He advises private developers in relation to archaeological and building conservation issues and has acted as consultant to The Heritage Council, the National Inventory of Architectural Heritage (NIAH) and various planning authorities.

Martin McGonigle BA MSc MIAI

Mr McGonigle is a Senior Archaeologist with John Cronin & Associates (JC&A) and has been a full-time professional archaeologist since 2002, a Licensed Archaeologist in the Republic of Ireland (since 2008) and Northern Ireland (since 2009) and he is a full member of Institute of Archaeologists of Ireland (MIAI). Mr McGonigle graduated with a B.A. in Heritage Studies from G.M.I.T in 2001, followed by an MSc in Maritime Archaeology at the University of Ulster, Coleraine in 2002.

Since joining JC&A in 2008 Mr McGonigle has worked as Senior Archaeologist on numerous archaeological schemes and heritage projects, including cultural heritage assessments for environmental impact assessments, archaeological works on large infrastructure projects, etc. Mr McGonigle has also published nationally and internationally on a wide range of cultural heritage and archaeological subjects. In 2021 Mr McGonigle graduated with an MSc in Applied Landscape Archaeology from the University of Oxford, passing with distinction.

14.1.2 Relevant Legislation and Planning Framework

This EIAR chapter was prepared in accordance with the requirements of European Union Directive 2011/92/EU on the assessment of the effects of certain public and private projects

on the environment (the 'EIA Directive') as amended by Directive 2014/52/EU. The requirements of the following legislation are complied with:

- Directives 2011/92/EU and 2014/52/EU on the assessment of the effects of certain public and private projects on the environment, including Circular Letter PL 1/2017: Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive);
- S.I. No. 349 of 1989: European Communities (Environmental Impact Assessment) regulations and subsequent amendments; and S.I. 600 of 2001 Planning and Development Regulations and subsequent amendments, on the assessment of the effects of certain public and private projects on the environment;
- S.I. No. 296 of 2018: European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 which transposes the provisions of Directive 2014/52/EU into Irish law;
- Planning and Development Act, 2000 (as amended);
- Heritage Act 1995 (as amended);
- National Monuments Act 1930 (as amended);
- National Cultural Institutions Act (1997); and
- Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023.

The management and protection of the cultural heritage resource in Ireland is achieved through a framework of international conventions and national laws and policies. This framework was established in accordance with the provisions of the 'European Convention on the Protection of the Archaeological Heritage' (the Valletta Convention) and the 'European Convention on the Protection of Architectural Heritage' (Grenada Convention). Both conventions were ratified by the Republic of Ireland in 1997. While there is no current national legislation providing legal protection for the Irish intangible heritage resource it is noted that the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 2003, which seeks to safeguard and promote awareness of this element of cultural heritage, was ratified by Ireland in 2015.

The administration of national policy in relation to archaeological and architectural heritage resources is the responsibility of the National Monuments Service (NMS) and the National Built Heritage Service (NBHS) which are both currently based in the Department of Housing, Local Government and Heritage (DHLGH).

The Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 was signed into law on October 13th, 2023. The National Monuments Service within DHLGH circulated an Information Note in relation to this Act in November 2023 which provides an overview of its current status, and this is summarised hereafter (National Monuments Service 2023).

While the Act is now law, most of its provisions will not enter into force until the Minister has made one or more "Commencement Orders". This means that section 7 of the Act (which provides for the repeal of the National Monuments Acts 1930 to 2014 and related legislation) has not commenced.

Accordingly, the National Monuments Acts 1930 to 2014 and other legislation which section 7 of the Act will, when it comes into force, repeal, remain fully in force as they stood on 13th October and will continue to do so for the time being.

The Act contains transitional provisions which will, if necessary, enable certain aspects of the existing National Monuments Acts 1930 to 2014 to continue in operation notwithstanding their repeal post-commencement of the Act while successor provisions are being brought fully into operation.

This includes provisions enabling the Record of Monuments and Places (RMP) to continue to have effect pending the establishment of the new Register of Monuments (see section 48 of the Act).

A commencement order made on 31st May 2024, insofar as it relates to the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999 (other than section 5), has come into operation. On 12th December 2024, further provisions of the Act came into operation, and these relate to historic wrecks and underwater archaeological objects, and also for Irish citizens (and a range of specified other persons), and vessels operating in international waters if they intend to engage in activities directed at underwater cultural heritage.

The National Monuments Act of 1930 (as amended), therefore, currently remains the primary means of ensuring the satisfactory protection of the archaeological resource. The amended Act includes a number of provisions that are applied to secure the protection of archaeological monuments. These include the designations of nationally significant sites as National Monuments, the Register of Historic Monuments (RHM), the RMP, the Sites and Monuments Record (SMR), and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

Section 2 of the National Monuments Act, 1930 defines a National Monument as '*a monument or the remains of a monument the preservation of which is a matter of national importance*'. The State may acquire or assume guardianship of examples through agreement with landowners or under compulsory orders. The prior written consent of the Minister is required for any works at, or in proximity to, a National Monument in the ownership or guardianship of the State, the Minister or a local authority, or those which are subject to a Preservation Order. There are no National Monuments or archaeological sites with Preservation Orders located within the study area (within 300 metres of the Proposed Development site).

The National Monuments (Amendment) Act, 1994 made provision for the establishment of the RMP which comprises the known archaeological sites within the State. The RMP, which is based on the earlier RHM and SMR, provides county-based lists of all recorded archaeological sites with accompanying maps. All RMP sites receive statutory protection under the National Monuments Act 1994 and the NMS must be given two months' notice in advance of any work proposed at their locations.

The conservation principles of care and protection of architectural heritage and the facilitation of the listing of significant buildings of architectural heritage merit are set out in Part IV of the Planning and Development Act (2000). This requires planning authorities to maintain a Record of Protected Structures (RPS) of structures with special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, to be included in their Development Plans. Any changes that materially affect the character of a protected structure require planning permission. A protected structure also includes the land and other structures within its curtilage. While the notion of curtilage is not defined by legislation, the Architectural Heritage Protection Guidelines for Local Authorities (Department of Arts, Heritage and the

Gaeltacht 2011), describes it as the parcel of land immediately associated with a structure and which is (or was) in use for the purposes of the structure. There are no Protected Structures located within the boundary of the Proposed Development site. There are 27 Protected Structures located the study area, and these are outlined in Section 14.3.8 of this chapter. In addition, local authorities must provide for the preservation of places, groups of structures and townscapes of architectural heritage significance within their administrative areas through the designation of Architectural Conservation Areas (ACAs). There are four ACAs located within the study area.

The NIAH was established to record architectural heritage structures within the State. While inclusion in the NIAH does not provide statutory protection to a structure it is intended to advise local authorities on compilation of their Record of Protected Structures. The NIAH also includes a Designed Landscapes and Historic Gardens Survey which comprises a non-statutory, desk-based survey of such landscape features. There are no NIAH sites within the Proposed Development site. A total of 12 NIAH sites are recorded within the study area surrounding the Proposed Development site, and these are outlined in Section 14.3.8 of this chapter.

The *Galway City Development Plan 2023-2029* includes the following policy objectives in relation to the protection of the cultural heritage resource within the city:

Policy 8.4 Archaeology

- 1. Protect, preserve and promote the archaeological heritage of the city including underwater archaeology in rivers, lakes, canals, marine, intertidal and subtidal environments.*
- 2. Ensure that proposed development within the designated city centre Zone of Archaeological Notification is not detrimental to the character of an archaeological site or its setting.*
- 3. Have regard to the archaeological recommendations of the DHLGH on any planning applications.*
- 4. Endorse the sustainable use of archaeological heritage as an educational and cultural resource and promote public awareness of the archaeological heritage of the city.*
- 5. Require the surveying, recording or excavation of archaeological heritage to include standing historic buildings and underwater archaeological heritage during the development process, where appropriate.*
- 6. Seek the preservation in situ or, at a minimum, preservation by record of archaeological sites/monuments included in the Record of Monuments and Places and of previously unknown sites, features or objects of archaeological interest that are revealed through development activity.*
- 7. Ensure that any development proposal with potential to impact on archaeological heritage, including the setting and amenity of sites and monuments, includes for an archaeological assessment. This includes*

within terrestrial, riverine, lacustrine, marine inter-tidal and sub-tidal environments.

Policy 8.1 Record of Protected Structures

- 1. Protect structures listed in the Record of Protected Structures, in accordance with legislation and DEHLG Architectural Heritage Protection Guidelines 2011.*
- 2. Ensure new development enhances the character or setting of a protected structure.*
- 3. Avoid protected structures becoming endangered by neglect or otherwise by taking timely appropriate action.*
- 4. Have regard to the National Inventory of Architectural Heritage in the assessment of development.*
- 5. Consider the inclusion of buildings and structures of special interest or of distinctive heritage value in the Record of Protected Structures (RPS) and consider any recommendations for inclusion in the RPS made by Ministerial Recommendation.*
- 6. Consult with the DHLGH and have regard to recommendations of the DHLGH on planning applications relating to protected structures.*
- 7. Implement proactive measures to encourage the conservation of protected structures.*
- 8. Promote sustainable building design, best conservation practice and the appropriate maintenance, adaption and reuse of historic buildings.*

Policy 8.2 Architectural Conservation Areas

- 1. Protect and enhance the character and special interest of designated Architectural*
- 2. Conservation Areas, in accordance with legislation and DEHLG Architectural Heritage Protection Guidelines 2011.*
- 3. Prepare and implement management plans for the conservation and enhancement of designated Architectural Conservation Areas.*
- 4. Ensure that developments within an Architectural Conservation Area respects and enhances the character and special interest of the ACA.*
- 5. Ensure the character of Architectural Conservation Areas is preserved by protecting and conserving historic street furniture and paving features and ensure that new street furniture and surfacing is designed to be compatible with the character of the ACA.*

The *Galway City Development Plan 2023 – 2029* contains a range of policies for and built heritage. Under the chapter topic of ‘Built Heritage, Placemaking and Urban Design,’ the development plan states the following:

Managing growth and redevelopment in a way that respects and draws on Galway's heritage is vital for the success of the city. As the Plan includes policies to support infill, redevelopment and regeneration in the city core it is anticipated that overtures for large scale development will advance in the currency of this Plan. It is necessary for such developments to include for high quality architectural design, reflect good urban design principles and contribute to the public realm while integrating the new architecture respectfully and successfully into the valued historic context.

Chapter 5 – Natural Heritage, Recreation and Amenity within the Galway City Development Plan 2023 – 2029 contains the following policy related to Forthill Cemetery:

Policy 5.8 Community Spaces: Allotments, Community Gardens and Cemeteries

3. Protect historic graveyards within the city and ensure appropriate management and maintenance of those in the ownership or care of Galway City Council.

14.1.3 Relevant Guidance

This chapter of the EIAR was prepared having regard, where relevant, to guidance contained in the following documents:

- Environmental Protection Agency (2022): Guidelines on the Information to be contained in Environmental Impact Assessment Reports;
- Department of Arts, Heritage and Gaeltacht (2011) Architectural Heritage Protection: Guidelines for Planning Authorities;
- Department of Arts, Heritage, Gaeltacht and the Islands (1999) Framework and Principles for the Protection of Archaeological Heritage;
- Department of Housing, Local Government and Heritage (2022) Places for People - the National Policy on Architecture (2022)
- Office of the Planning Regulator (2022) A Guide to Architectural Heritage;
- Office of the Planning Regulator (2021) Archaeology in the Planning Process; and
- International Council on Monuments and Sites (ICOMOS) (2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties.

14.2 Study Methodology

The assessment was based on a programme of desktop research, coupled with site inspections carried out by Mr Martin McGonigle and Mr John Cronin. The research and site inspections were carried out in order to identify any features of archaeological, architectural or cultural heritage significance likely to be impacted by the Proposed Development.

The recorded and potential cultural heritage resource within a study area encompassing the Proposed Development site and surrounding lands extending for 300 metres in all directions from the Proposed Development site was reviewed. The Proposed Development site is located within an urban setting, containing a high density of modern interventions (including some tall and extensive buildings and structures) as well as numerous cultural heritage sites, particularly architectural heritage features. A study area consisting of the Proposed Development site and a 300m radius area around it provides a sufficient scope of the historic

environment and extent of the surrounding landscape/townscape from which to assess the cultural heritage constraints, as well as the archaeological potential of the Proposed Development site.

This review was carried out to compile a detailed cultural heritage context for the location of the Proposed Development and surrounding lands in order to inform the assessment of potential effects.

14.2.1 Desktop Study

The assessment presents the results of a desktop study of relevant published sources and datasets undertaken in order to identify all recorded and potential archaeological, architectural and other cultural heritage sites/features/areas within the study area.

The principal sources reviewed for the assessment of the recorded archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP). Galway City Council's Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH) were consulted for assessing the locations of designated elements of the architectural heritage resource.

Other sources consulted as part of the desktop study included the following:

- *Archaeological Inventory of County Galway, Vol. 1: West Galway*: This publication presents summary descriptions of the recorded archaeological sites within this area of the county and relevant entries are included within the chapter. In addition, the current national online database resources pertaining to recorded sites were reviewed on the National Monuments Service's Historical Environment Viewer.
- *Development Plan*: The local authority development plan relevant to the study area was consulted as part of this assessment. This plan outlines the local authorities' policies for the conservation of the archaeological and architectural heritage resource and include the RPS and any designated ACAs. The relevant development plan for the study area is the *Galway City Development Plan 2023-2029*.
- *Heritage Council of Ireland Map Viewer*: This online mapping source collates various cultural heritage datasets provided by, among others, the National Monuments Service, the National Museum of Ireland, Local Authorities and the Office of Public Works.
- *Topographical Files of the National Museum of Ireland*: These files comprise paper and digital records of known information on Irish artefacts, including their discovery locations. The file archive is stored in the museum premises in Kildare Street, Dublin and was inspected as part of the assessment.
- *Database of Irish Excavation Reports*: This online database contains summary accounts of archaeological site investigations carried out in Ireland (North and South) from 1960s to present.
- *National Monuments Service Wreck Viewer*: Provides an online platform to view and query the wreck data recorded by the National Monuments Service's Wreck Inventory of Ireland Database. The Wreck Inventory holds records of over 18,000 known and potential wreck sites in the marine and inland waterways of Ireland, gathered from a variety of sources. The Wreck Viewer displays entries for approximately 4000 wrecks that have a recorded location. The Wreck Viewer is not a definitive list of wrecks and is updated on an ongoing basis.

- *Literary Sources:* Various published sources were consulted in order to assess the archaeological, historical, architectural heritage and folklore record of the study area.
- *Cartographic Sources:* The detail on cartographic sources can indicate past settlement and land use patterns in recent centuries and can also highlight the impact of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded, or partially levelled, features of archaeological or architectural heritage interest. The cartographic sources examined for the study area include, Gooche's map of Galway city dated 1583, the mid seventeenth-century map redrawn in Hardiman (1820), Captain Thomas Phillip's plan of Galway dated 1685, Michael Logan's 1818 map of Galway, the first edition 1:10,560 (or '6-inch') Ordnance Survey (OS) map (1837-42), the 1:2500 (or '25-inch') OS map (1888-1913) and the last edition (6-inch) OS map (c.1940s). The Historic Town Atlas for Galway (compiled by Prunty and Walsh, 2016) is an invaluable collection of historic cartography for the city.
- *Aerial/Satellite/LiDAR imagery:* A review of online satellite imagery of the study area, published by Tailte Éireann, Google Earth and Bing Maps and LiDAR imagery published by the Geological Survey of Ireland, was undertaken in order to review the extent of modern interventions and to ascertain if any traces of unrecorded archaeological sites were visible on any images.
- *Historic photographs:* Historic photographs from the latter part of the 19th century and early 20th century can provide important information on the state of a site or structure when the photograph was taken and can be compared with later and/or modern photographs/current views to evaluate change and diachronic development over the time period involved. The National Library of Ireland houses over five million photographs from the 1840s to the present day, over 83,000 of which are available to view on the National Library of Ireland's digital archive.
- *Irish National Folklore Collection:* A review was undertaken of transcribed material from the National Folklore Collection archive which has been digitised and published online at www.duchas.ie.
- *Dictionary of Irish Architects:* The Dictionary of Irish Architects is an online database which contains biographical and bibliographical information on architects, builders and craftsmen born or working in Ireland during the period 1720 to 1940, and information on the buildings on which they worked. The Dictionary of Irish Architects was created and compiled in the Irish Architectural Archive over a period of thirty years. It was made publicly available online in January 2009. It remains a work-in-progress with new data added on a regular basis.
- *UNESCO World Heritage Sites and Tentative List:* There are two designated World Heritage sites in Ireland (Brú na Bóinne, Co. Meath and Sceilg Mhichíl, Co. Kerry) and a number of other significant examples have been included in a Tentative List (2023) that has been put forward by Ireland for inclusion. None of these designated or tentative sites are located within County Galway.

14.2.2 Description and Assessment of Potential Effects

The following summation of the criteria used to assess impacts is provided to concisely outline the methodology specifically applied to the cultural heritage resource.

This chapter applies the terminology and methodology for assessing the significance of impacts and the corresponding effects as set out in Chapter 1 of this EIAR. Assessment is

achieved by a consideration of the duration, quality, type, value and magnitude of effect(s) on the cultural heritage resource:

Quality of Effect on the cultural heritage resource can be positive, neutral or negative.

- Positive: a change which improves the quality of the cultural heritage environment (e.g. increasing amenity value of a site in terms of managed access, signage, presentation etc. or high-quality conservation and re-use of an otherwise vulnerable derelict structure);
- Neutral: no change or effects that are imperceptible, within the normal bounds of variation for the cultural heritage environment; and
- Negative: a change which reduces the quality of the cultural heritage resource (e.g. visual intrusion on the setting of an asset, physical intrusion on features/setting of a site).

Type of Effect on the cultural heritage resource can be described as follows.

- Direct Effect – where a cultural heritage site is physically located within the footprint of the Project, which will result in its complete or partial removal;
- Indirect Effect – Effects on the cultural heritage environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway;
- Cumulative Effect -The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects;
- ‘Do-nothing Effects’ - The cultural heritage environment as it would be in the future should the Project not be carried out;
- ‘Worst-case’ Effects - The effects arising from a Project in the case where mitigation measures substantially fail;
- Indeterminable Effects - When the full consequences of a change in the environment cannot be described;
- Irreversible Effects - When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost; or
- Residual Effects - The degree of environmental change that will occur after the proposed mitigation measures have taken effect.

The *Magnitude of Effect* is based on the degree of change, incorporating any mitigation measures, and is based on a consideration of the character, duration, probability and consequences (Table 14-1). The magnitude can be *negative* or *positive* and is ranked without regard to the value of the asset according to the following scale: *High*; *Medium*; *Low* and *Negligible*. The descriptions of magnitudes presented in Table 14-1 are based on guidance published in *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011, 16-7).

Table 14-1 Magnitudes of Effect on Cultural Heritage Assets

Magnitude	Description
High	- Most or all key archaeological or architectural materials affected such that the resource is totally altered; - Comprehensive changes to setting; - Changes to most or all key historic landscape elements, parcels or components, extreme visual effects; fundamental changes to use or access; resulting in total change to historic landscape character; or - Major changes to area that affect Intangible Cultural Heritage activities or associations or visual links and cultural appreciation
Medium	- Changes to many key archaeological or historic building materials/elements such that the resource is clearly/significantly modified; - Considerable changes to setting that affect the character of the archaeological asset; - Changes to the setting of a historic building, such that it is significantly modified; - Change to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, considerable changes to use or access, resulting in moderate changes to historic landscape character; or - Considerable changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Low	- Changes to key archaeological materials/historic building elements, such that the resource is slightly altered/slightly different; - Slight changes to setting of an archaeological monument; - Change to setting of a historic building, such that it is noticeably changed; - Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; slight changes to use or access; resulting in limited change to historic landscape character; or - Changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.
Negligible	- Very minor changes to key archaeological materials or setting; - Slight changes to historic building elements or setting that hardly affect it; - Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes to use or access; or - Very minor changes to area that affect the Intangible Cultural Heritage activities or associations or visual links and cultural appreciation.

Value/Sensitivity Criteria: While various national and local authority legal designations exist for elements of the Irish cultural heritage resource, there is no formal criteria for grading the value of individual constraints. The evaluations used in this assessment have been informed by guidelines presented in the *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS 2011). The evaluation of the values of cultural heritage assets is, therefore, not intended as definitive but rather as an indicator which contributes to a wider judgment based on the individual circumstances of each asset. The application of values included a consideration of their legal designations (e.g., National Monuments in State Care), condition/preservation; documentary/historical significance, group value, rarity, visibility in the landscape, vulnerability and amenity value on a case-by-case basis. Archaeological sites which possess little, or no surface expressions may retain low-medium sensitivity to effects on their wider setting while levelled archaeological sites that retain no visible surface traces are typically not sensitive to any setting effects. It is noted that archaeological monuments, whether extant or levelled, have the potential to possess sub-surface attributes, including

artefacts and other archaeological remains, which may possess values that cannot be discerned without recourse to archaeological excavation but are unlikely to be affected in the absence of direct negative effects. The values of known or potential cultural heritage assets are ranked according to the following scale as defined by ICOMOS: Very High; High; Medium; Low, Negligible and Unknown (Table 14-2). The values assigned to the identified constraints within the study area were determined following the completion of desktop research and site inspections and are outlined in Section 14.6 of this chapter.

Table 14-2 Guidance Criteria Used For Assessing Values of Cultural Heritage Assets

Indicative Value	Examples of Asset Types
Very High (International Significance)	• World Heritage Sites (including Tentative List properties) • Sites, buildings or landscapes of acknowledged international importance • Intangible associations with individuals or innovations of global significance
High (National Significance)	• Nationally designated sites, buildings and landscapes of significant quality, rarity, preservation and importance • Undesignated assets of the quality and importance to be designated • Assets that can contribute significantly to acknowledged national research objectives • Archaeological Landscapes with significant group value • Intangible associations with individuals or innovations of national significance
Medium (Regional Significance)	• Designated or undesignated assets that can contribute significantly to regional research objectives, including buildings that can be shown to have exceptional qualities in their fabric or historical associations • Conservation Areas and historic townscapes containing buildings that contribute significantly to its historic character • Intangible associations with individuals or innovations of regional significance
Low (Local Significance)	• Assets compromised by poor preservation and/or poor survival of contextual associations • Assets of limited value, but with potential to contribute to local research objectives • Historic Townscape or built-up areas of limited historic integrity in their buildings and settings • Intangible associations with individuals or innovations of local significance
Negligible	• Assets with very little or no surviving archaeological interest • Landscapes little or no significant historical interest • Buildings or urban areas of no architectural or historical note; buildings of an intrusive character
Unknown Potential	• Assets whose importance has not been ascertained • Buildings with some hidden (i.e., inaccessible) potential for historic significance

The *Significance of Effects* is assessed by combining the Magnitude of Impact, which is graded from High to Negligible based on character, duration, probability, and consequences, with the Value of the cultural heritage asset, also graded from High to Negligible based on its significance and sensitivity. The resulting significance of effect is described using a scale that includes Profound, Very Significant, Significant, Moderate, Slight, Not Significant, and Imperceptible, in accordance with the methodology outlined in Chapter 1 of this EIAR. This relationship is illustrated in the Significance of Effects Matrix, presented in Table 14-3.

Table 14-3 Significance of Effects Matrix (based on EPA EIAR Guidelines 2022)

Magnitude of Effect	High	Not Significant/ Slight	Moderate/ Significant	Significant/ Very Significant	Very Significant/ Profound
	Medium	Not Significant	Slight	Moderate/ Significant	Significant/ Very significant
	Low	Not Significant/ Imperceptible	Slight/ Not Significant	Slight	Moderate
	Negligible	Imperceptible	Not Significant/ Imperceptible	Not Significant/ Slight	Slight
		Negligible	Low	Medium	High
Value/Sensitivity of Asset					

14.2.3 Field Survey

Inspections of the Proposed Development site were carried out on 03/04/2024, 18/04/2024, and 23/06/2025. The study area was assessed in terms of historic landscape, land use, vegetation cover, presence and potential for undetected archaeological and architectural heritage sites/features. Extracts from the photographic record are presented in *Appendix 14-1*.

14.2.4 Consultation

An LRD meeting was held with Galway City Council on 11/03/2025. Arising from this meeting, Galway County Council provided their opinion of the LRD on 07/04/2025, including opinions in relation to 'Architectural Conservation & Archaeology' as follows:

Archaeology:

18. Works within the Zone of Archaeological Notification (Figure 8.12 – Galway City Development Plan 2023) will require licensed archaeological monitoring. In addition, there is some archaeological potential associated with the main body of the site due to the previous material from the city centre core being deposited as fill. Therefore, appropriate archaeological monitoring should also be proposed within this area as part of any Archaeological Impact Assessment recommendations submitted in any forthcoming planning application.

Architectural Conservation:

19. It is considered that the proposed development as presented in the documents submitted for the LRD Meeting will have a significant impact on views out of the Forthill Cemetery, a protected structure. The massing of the blocks is considered jarring, due to the widespread use of flat roofs, and significant areas of blank facades. As such, the proposed form is not considered to relate to the character of Galway City, or its docklands location; noting that other adjacent developments have addressed their setting in a more successful manner. A revision of the massing, and treatment of roofscape in particular should be addressed in order to lessen the impact on Forthill Cemetery and views of the City in general. Updated visual imagery should also be provided to support any application.

14.3 The Existing and Receiving Environment (Baseline Situation)

14.3.1 Location

The Proposed Development site is located within Galway Port, immediately southeast of Lough Atalia Road and southeast of the city centre (Figure 14-1 and 14-2). A portion of the south-western part of Lough Atalia Road is included within the planning boundary of the development in order to facilitate improved access to the site and water services infrastructure. The subject site is irregular in shape and extends to approximately 1.621 Ha. in area. It is largely composed of reclaimed lands close to where Lough Atalia connects with Galway Bay. A detailed review of cartographic and aerial photographic sources suggest that the majority of the subject site consists of land that was reclaimed during the latter half of the 20th century.

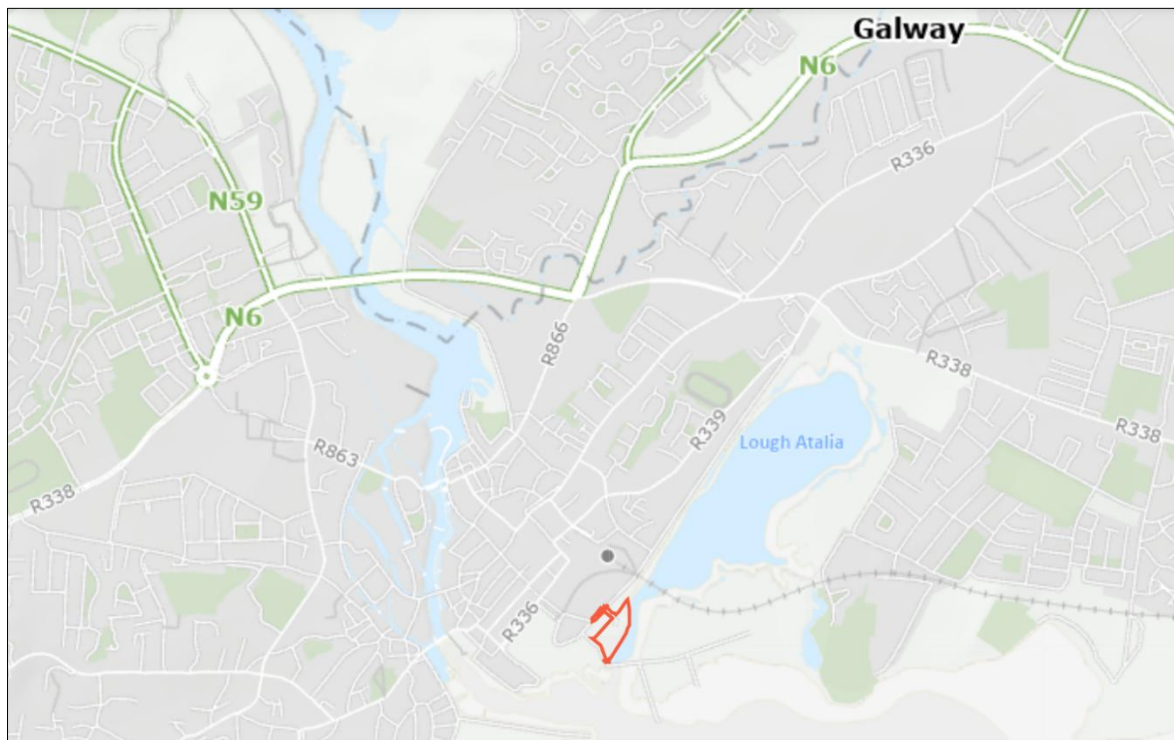


Figure 14-1 Map showing the general location of the subject site on the outskirts of Galway (Source: Government of Ireland & Tailte Éireann)



Figure 14-2 Map showing the general location of the subject site on Lough Atalia Road, with Ceannt Station to the north and the docks to the west (Source: Government of Ireland & Tailte Éireann)

14.3.2 Historical Context

The following section provides an overview of the diachronic development of Galway City overall, but also concentrates on the Proposed Development site and its immediate environs, in particular the adjacent Forthill/St Augustine's site and the nearby harbour area.

Though the city of Galway was established in the high medieval period, developing and prospering during the late medieval period, there is also plentiful evidence of settlement from earlier periods in the immediate vicinity of the city. The earliest settlement evidence in Galway is provided by Late Mesolithic lithic material found at the junction of High Street and Cross Street (Spellissy 1999, 29). Archaeological excavations in Galway have uncovered a small number of other prehistoric stone finds. These include a stone axe (97E82:135:5072) and stone adze (97E82:135:5073) from Courthouse Lane and a stone axe (95E226:12:3A) from Kirwan's Lane, all either Mesolithic or Neolithic in date but found within medieval contexts (McCartan 2004). A number of flint objects have also been found on excavation sites throughout the city.

Further prehistoric activity in and around the city area is apparent by the presence of Bronze Age (c.4000 – 2400 BC) monuments such as the megalithic structure (GA094-041----) at Ragoon and the stone circle (GA094-041----) at Pollnarooma East. Further Bronze Age or possibly Iron Age (c.500 BC – AD 400) activity is evidenced by the existence of the unclassified barrow (GA082-033----) at Dangan Lower. A dense early medieval (c.400 – 1100 AD) settlement pattern in the Galway City area is also demonstrated by the concentration of recorded ringfort sites within, and in immediate vicinity to the present-day city. Examples of such recorded ringfort sites include those at: Balbaan More (GA082-010----); Dangan Lower (GA082-034----); Newcastle (GA082-071----); Cappaveagh (GA094-015----); and Rinmore (GA094-059----).

The town of Galway is a 13th-century Anglo-Norman foundation. However, the strategic location of Galway on a headland surrounded by water on three sides within a sheltered natural harbour, with the River Corrib providing access inland to the north via Lough Corrib had been understood prior to the arrival of the Anglo-Normans. The first reference to Galway is documented in the Annals of the Four Masters (AFM) in 1124, when Toirdhealbhach Ua Conchobhair built a castle there: 'Three castles were erected by the Connaughtmen, the castle of Dun-Leodhar, the castle of the Gaillimh, and the castle of Cuil-maeile. (O'Donovan 1854, 1021).

This settlement known as Dun-Gaillmhe grew up around the Ua Conchobhair castle, which was burnt a number of times in the succeeding years, including in 1161 when 'Demon ships were seen on the Bay of Gaillimh, and they sailing against the wind. The fortress on the day following was consumed by fire' (*ibid.*, 1145). The Annals note that in 1154 Ua Conchobhair sent a force by sea to plunder Donegal: 'A fleet was brought by Toirdhealbhach Ua Conchobhair on the sea, round Ireland northwards, i.e. the fleets of Dun-Gaillmhe, of Connhaicne-mara, of the men of Umhall, of Ui-Amhalghadha, and Ui-Fiachrach, and the Cosnamhaigh Ua Dubhda in command over them; and they plundered Tir-Conaill and Inis-Eoghain.' (*ibid.*, 1112). The coastal positioning of the settlement allowed for transport and communication by sea, however, it also made it vulnerable to attack from both Munster to the south and Tir Conaill to the north.

The Anglo-Norman invasion of Connacht under Richard de Burgh resulted in the erection of a new castle in Galway in 1230 on the site of the destroyed Ua Conchobhair castle. This castle was then destroyed by Felirnid O'Conchobair in 1233 and was rebuilt the following year (Bradley & Dunne 1990, 74). The town was burned down a number of times in the succeeding years, before a wall enclosing the settlement was erected some time before 1272 (Walsh 2004, 273). It was around that time that Walter De Burgo, Richard's son granted Galway the legal status of a chartered borough (*ibid.*).

The medieval town was roughly rectangular in shape with the River Corrib to the west; an external fosse was constructed to the east of the town to provide extra protection. The walled town enclosed an area of 11ha (*ibid.*, 274). The street pattern may have been established from an early period, likely pre-dating the walls (*ibid.*). Outside the walls were three friaries (GA094-091----, GA094-099003-, GA094-102----), a hospital, a (nunnery and an infirmary (GA094-105----, GA094-106----, GA094-113----), as well as suburban settlements at the Claddagh, on west bank of the River Corrib and along the main thoroughfares on Bohermore and College Road.

By the middle of the 14th century trade and commerce in Galway was controlled by fourteen merchant families who gave the city its nickname as 'The City of The Tribes'. The fourteen families were: Athy, Blake, Bodkin, Browne, D'Arcy, Deane, Font, Ffrench, Joyce, Kirwan, Lynch, Martyn, Morris and Skerrett and their origins were a combination of Gaelic, Norman, Flemish, French and English (Bradley & Dunne 1990, 83). For centuries these 'Tribes of Galway' would dominate the economic, political and social life of the Galway city distinguishing themselves from the Norman and the Gaelic inhabitants of the surrounding hinterland (Walsh 2007, 152).

Galway was confirmed as a royal borough in 1396 (*ibid.*). The 14th and 15th centuries saw the town receive further charters and develop as a significant port with the importation of wine from France and Spain. In 1508, an Augustinian Friary (GA094-099003-) was founded by Margaret Athy, the wife of the mayor of Galway Stephen Lynch Fitz-Dominick. Walsh (1986, 80) states that the evidence points to the Augustinian foundation dating from between August 1508 and June 1509. The friary was located to the southeast of the city on Forthill which was

previously known as Abbey Hill. Following the dissolution of the monasteries in 1546 the Augustinians lost their land.

Galway, or at least its suburbs, were attacked by Red Hugh O'Donnell in 1597 and with the threat of a Spanish invasion becoming more real with their landing in Cork in 1601, Lord Mountjoy built a fort (GA094-099002-) on the site of the Augustinian Friary; the former church associated with the friary was used by the soldiers as a store. Sometime after 1607, Sir Josias Bodley, an experienced commander was tasked with surveying the existing fortifications in Ireland, including at Galway, with a view to improving them. St Augustine's Fort was repaired around 1609, and an associated fort was built on Mutton Island (GA094-032----) (O'Sullivan 1934, 31).

The following description of St Augustine's Fort by Sir Josias Bodley was written in 1611 following the repair of the fort:

The fort at Galway being raised by the first plotters with earth and sods against the side of a hill. Grew shortly so subject to sliding, that how to remedy the same and support the huge mass of earth which they had cast up they knew no better expedient than by binding in the fort round about with a stone wall of between 10 and 12 feet, which, successively happened. To meet this inconvenience and reduce that place to terms of true fortification, finding that the wall could bear no greater height, I caused another stone wall on a new foundation to be made, leaving four or five foot distance between both walls, and raised the same to some 18 foot of height that it might be equal with the plan of the rampier. On the lower wall I set a parapet of 5 foot high of stone work, and on the other a parapet of sods, which I judged fitter for that place; caused a ditch to be digged about the fort, vaulted passages through the rampier for sallies into the lower defences, erected a dwelling house for the commander and officers, with lodgings for the soldiers, made up of the drawbridge, gate, gate-house, and guard house, and so divided the chancel and body of the church within the fort by partitions of stone, from the ground to the roof, thus leaving sufficient space for divine service, of which the rest may conveniently be employed for the store of munition and victuals. This fort has little command over the haven, being somewhat remote, for which, if on the island that lies between the mouth of the haven and the fort, there were a small block-house made (which, for the expense of 2 or £300 might be effected) it would remove doubt of safety and security of those parts, that fort being of such strength that I dare confidently assure you neither this kingdom nor many others affordeth many comparable unto it.' (ibid.).

The fort being located outside the city area didn't come under the jurisdiction of Galway Corporation (*ibid.*, 27). Walsh (1987/88) notes that relations between the garrison at St Augustine's Fort and the townspeople of Galway were strained in the aftermath of the 1641 Rebellion. At the time of the rebellion, the fort was commanded by Anthony Willoughby in the absence of the fort's governor, his father Sir Francis Willoughby. Willoughby fired the fort's cannons into the town at the beginning of 1643 and the townspeople lay siege to the fort in late April and began the construction of two fortifications; Rinmore Fort and Rintinane Fort (*ibid.*, 120). These fortifications were used to repulse any efforts to relieve the siege, which ended after seven weeks with Willoughby's departure on 25 June (*ibid.*, 122). St Augustine's Fort was then demolished and initially the church inside the fort was spared but was also dismantled two years later (*ibid.*). This was done to stop the site, which was of strategic value from being used to lay siege to Galway in the future.

Following the demolition of the fort, the site went back to ecclesiastical use, with the Augustinians beginning to use the site (Forthill Graveyard/Cemetery, GA094-099001- & NIAH reg. no. 30319007) as a burial ground from 1727 (Walsh 1996). According to the NIAH description, the graveyard contains '...various cut-stone grave markers and mausolea, earliest visible date being 1745.' Hardiman noted that in 1811 *'the proprietor of the adjoining ground enclosed it with a stone wall and handsome gate and plaque'* (Hardiman 1820), however the outline of a possible corner bastion is evoked by the shape of the northwest corner of the current graveyard. Forthill Cemetery is the property of the Augustinian order and is maintained by the McDonagh family (Higgins undated). The 25-inch Ordnance Survey (OS) map shows that the graveyard was extended to its current shape and extent at some time in the second half of the 19th century.

Growth and development in Galway stagnated somewhat during the 18th century. Little building occurred and trade was hampered by smuggling (Walsh 2007, 161 & Cullen 1962). However, a new dock (mud dock) was constructed by Edward Eyre at the end of the Long Walk (Delany 2004, 284). At the beginning of the 19th-century a programme of building and expansion was evident throughout the town (Walsh 2007, 163). The waterways around Galway allowed for the establishment of 44 mills in the town by the mid-1820s (Delany 2004, 286). It was around this time that the docks were redeveloped, and it was noted that in 1832 trade in Galway had increased '...from 340l. to 2000l. per annum' following the construction of '...a floating dock of 5 acres in extent, fit to contain vessel of 500 tons...' (Tidal Harbours Commission 1846, vii). Lewis (1837, 647) states that 'The principal exports are corn, flour, kelp, marble, wool, and provisions; and the imports, timber, wine, salt, coal, hemp, tallow, and Swedish and British iron'.

The development of the city in the early part of the 19th century was closely linked to the development and expansion of the docks and its capacity to facilitate trade. By this stage, there were also two Irish transatlantic steamship companies operating out of Galway (Collins 1994, 1). From the middle of the century, this was highly augmented by the extension of the Midland Great Western Railway (MGWR) railway line from Dublin to the western seaboard, connecting Galway with the agricultural hinterlands of east county Galway and beyond. Ceannt Station (Ceannt Station and the adjoining railway hotel were designed by J.S. Mulvany in 1851) – located to the north of the Proposed Development site – was strategically located close to the docks area and was connected directly with Dún Aengus Dock. The development of the railway network to Galway city and beyond into Galway County significantly transformed the region's transportation infrastructure and economic landscape during the 19th century. The establishment of this railway line was important for Galway city, facilitating more efficient transportation of goods and passengers between the east and west of Ireland. The railway provided a critical link to Dublin and integrated Galway into the broader national railway network.

A key element of this network was the Lough Atalia viaduct, engineered by William Dargan. Completed in 1851, this viaduct was a crucial part of the Midland Great Western Railway's project to connect Dublin to the western seaboard of Ireland. Dargan designed the viaduct to traverse the tidal and marshy conditions of Lough Atalia. The construction involved the use of masonry piers and iron girders, materials advanced for the period, ensuring stability and durability to support railway traffic while withstanding the environmental conditions of the tidal lough (Casserley 1974).

The design of the Lough Atalia viaduct effectively maintained structural integrity despite fluctuating tides and soft ground. Dargan's design distributed the railway's weight evenly across multiple spans, each constructed to handle the pressures and movements of the water

below. This design facilitated rail connectivity to Galway, highlighting the impact of nineteenth-century engineering advancements on transportation infrastructure. The viaduct played a role in enhancing Galway's economic development by improving accessibility and fostering trade and tourism. The Lough Atalia viaduct remains a functional part of Galway's railway network today (Shepherd 1994).

The channel approaching Galway was dredged between 1937-1939 with most of the dredged material being dumped near Hare Island (Kenny 2021). Further dredging of the channel along with deepening of the Commercial Dock as well as an overhaul of the entire docklands begun in the early 1960s (*ibid.*). Kenny states that 'Much of the silt taken from the bottom of the docks was found to be wholly composed of sewage sludge'. It is possible that some of this material was deposited at the Proposed Development site.

The evidence from historic cartographic sources and an aerial image taken in 1954 shows that the Proposed Development site was still within the entrance to Lough Atalia and had not been reclaimed until the latter part of the 20th-century. The site, having been constructed on reclaimed land was used as an oil storage terminal for BP/Conoco from 1984. The construction of a new oil terminal at the Enterprise Park (built on lands partially reclaimed and opened in 1994) to the east in 2009, rendered the site redundant (Port of Galway (b) & Galway Harbour Company 2021). The fuel silos shown on several aerial images of the subject site were removed c.2018.

14.3.3 Cartographic and Aerial Photographic Review

The detail on historic cartographic sources demonstrates the nature of past settlements and land use patterns in recent centuries and can also highlight the impacts of modern developments and agricultural practices. This information can aid in the identification of the location and extent of unrecorded or partially levelled features of archaeological or architectural heritage interest.

The cartographic sources examined for the study areas include a number of historic map productions which detail the development of the town of Galway and the port area including Gooche's 1583 plan of Galway (Figure 14-3), Philip's plan of 1685 (Figure 14-4), an early 17th-century plan of St. Augustine's Fort (Figure 14-5), the mid-17th-century map of Galway redrawn in Hardiman (1820) (Figure 14-6), the First Edition 1:10,560 Ordnance Survey (OS) map (1837-42) (Figure 14-7), the 1:2500 (or '25-inch') OS map (1888-1913) (Figure 14-8) and the Last Edition (Cassini) OS map (c.1940s) (Figure 14-9). Historic aerial photographs of Galway, including an example from the National Library of Ireland collection (Figure 14-10) were also reviewed as part of this assessment.

Baranby Gooche's early map of Galway from 1583 depicts a single bridge over the River Corrib, a salmon fishery, and a wharf, illustrating the modest scale of maritime activity in the city at that time. As Prunty and Walsh (2016, 2) state

Founded for and sustained by maritime trade, it was during the late medieval period that Galway became a key player in the mercantile life of Europe's Atlantic seaboard.

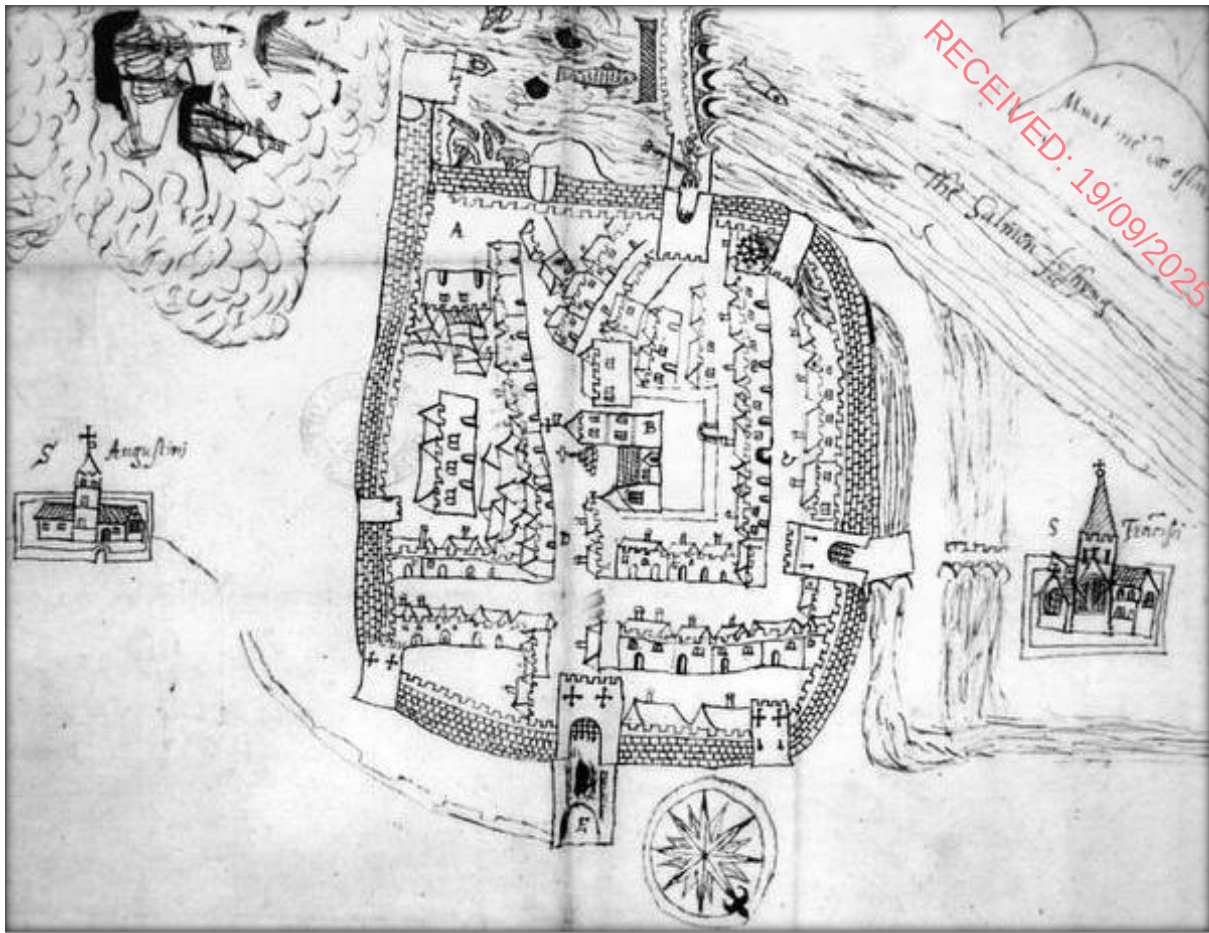


Figure 14-3 Extract from 'A plot of the town of Galway' by Barnaby Gooche, 1583, showing the Augustinian friary at Forthill (on the left of this map) outside of the city (Source: UCD Library)

In the early 17th century, the threat of a Spanish invasion led Lord Mountjoy to build a fort around 1602 on the site of the former Augustinian Friary (present-day Forthill Cemetery). The church associated with the friary was repurposed by soldiers as a storage facility. The fort was demolished in 1643, and the remaining monastery buildings were demolished in 1652 (Walsh 1985/1986). By 1727, the Augustinians began using the area as a burial cemetery (Walsh 1996). According to Hardiman, in 1811, 'the proprietor of the adjoining ground enclosed it with a stone wall and handsome gate and plaque' (Hardiman 1820). This development reflects the site's changing use over time, from a monastic centre to a military fortification and finally to a burial ground.



Figure 14-4 Phillips plan of Galway 1685, showing the fort built by Lord Mountjoy (St Augustine's Fort/Forthill) with the general location of the subject site circled in red (Source: Irish Historic Towns Atlas (IHTA))

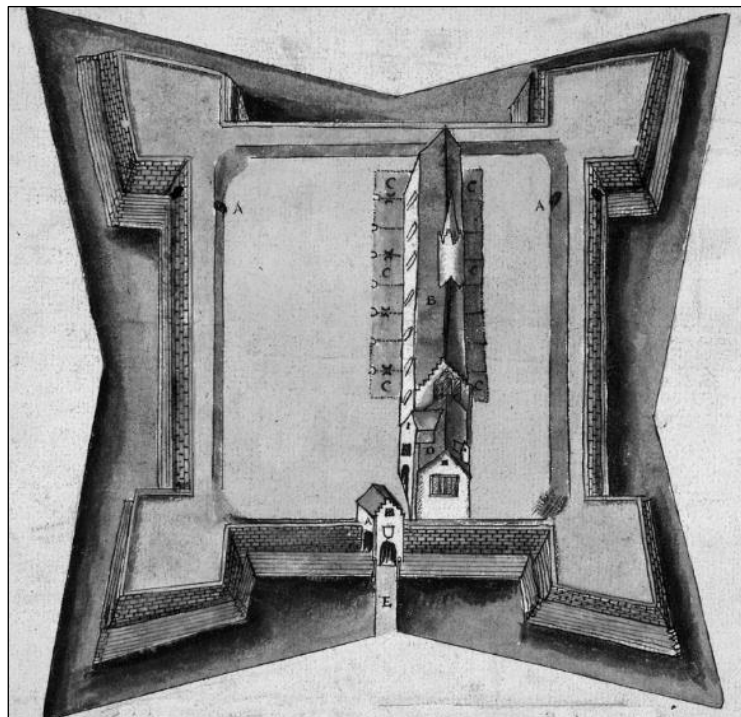


Figure 14-5 St Augustine's Fort 1608-11 (Source: IHTA)



Figure 14-6 Mid-17th-century map of Galway (Redrawn in Hardiman 1820); approximate location of proposed development site indicated by red arrow southeast of St Augustine's Fort, which later became Forthill Cemetery (Source: IHTA)

The walled town can be seen on the 17th-century map redrawn by Hardiman in 1820, with the fort evident to the east. Eyre Square originally known as Meyrick Square was located outside the East Gate and was laid out by this time as a public recreational area. *'It was enclosed with wooden rails and handsomely planted round with ash trees, many of which were standing in memory of a living person' (ibid.)*. According to Hardiman, a report by Stratford Eyre on the state of fortifications of the town in 1747 states *'that nothing remains on fort hill but the guard house'*.

The construction of the Long Walk in the 1670s marked a significant milestone, providing a spacious quay for cargo ships (*ibid.*). This period of economic growth was pivotal for the town, establishing its reputation as a key maritime hub in the region. The flourishing port attracted merchants and traders from various parts of Europe, further integrating Galway into broader commercial networks. The construction of the Long Walk began with the excavation of a new dock at the end of an embankment or jetty of stones. This development, depicted on mid-17th-century maps, was critical in enhancing Galway's maritime infrastructure. The dock, referred to in historical records and mid-18th-century maps, continued the line of the quay and was labelled the "old dock" by the Ordnance Survey (Prunty and Walsh 2016). This project reflected the increasing confidence in Galway's economic prospects during the late 18th century.

A significant aspect of the Long Walk's development was the reclamation of marshland immediately east of the embankment. This reclamation was essential for the further development of the area outside the old southern town wall. The reclaimed land facilitated the

construction of new infrastructure, including roads and commercial buildings, which were crucial for supporting the growing maritime trade. In 1779, the creation of Merchants Road marked a significant expansion linked to the Long Walk. This new road was aptly named due to the numerous warehouses and stores established there, highlighting the area's burgeoning commercial activity. Merchants Road, along with the Long Walk, became central to Galway's economic landscape, serving as key locations for trade and commerce.

From 1822 onwards, a major development project was undertaken by the harbour commissioners, beginning with the construction of new quay walls at Claddagh Quay and the commencement of building a much larger commercial dock, which was completed in 1842. A canal linking Lough Corrib to the sea was built as part of a wider drainage and navigation project, completed in 1852, with Dún Aengus Dock being completed in 1883 (*ibid.*). Throughout the second half of the 19th and into the early 20th centuries, the port continued to play an important role within the city and surrounding areas, with efforts to promote Galway as a transatlantic port (Collins 1995).

A review of historic Ordnance Survey (OS) maps allows for the development of the subject site over time. The first edition OS map (Surveyed 1838) (Figure 14-7) shows the 'New Dock' (later referred to as the 'Commercial Dock') to the southwest of the Proposed Development site following its construction after 1833. This map also shows the 'Old Dock' (later referred to as 'Mud Dock') to the southwest, as well as some kilns, including one immediately outside the boundary of Forthill Cemetery. Forthill Cemetery is depicted as sub-square in plan with the southeastern corner bearing a striking resemblance in shape to the corner bastion of a bastioned fort. The main body of the Proposed Development site is clearly within the subtidal area at the entrance to Lough Atalia at this time.



Figure 14-7 Extract from first edition OS map showing Forthill Graveyard (or Cemetery) which was subsequently extended later in 19th-century, as indicated on the 25-inch map below (Source: Government of Ireland and Tailte Éireann)

The 25-inch OS map (Surveyed 1894) (Figure 14-8) shows several changes to the docklands landscape since the first edition map was surveyed. This includes the extension of Forthill Graveyard/Cemetery to the west and east, giving it its current pentagonal shape. Also evident in an access road – the progenitor of Lough Atalia Road – running along the southeast edge of the graveyard between Dún Aengus Dock and the railway line. The docks area have been substantially transformed in the interim period between the two mapping editions. The 25-inch OS map shows the 'Dock' (later Dún Aengus Dock) and a large grain store (now the Harbour Hotel and Cé na Mara Apartments) had been established immediately southwest of the Proposed Development site. As noted above, there were 44 mills in Galway by the mid-1820s, and the position of the grain store close to the docks shows the importance of this product right into the 20th century. This map shows a lime kiln within Forthill graveyard but the main body of the Proposed Development site is still within Lough Atalia. The area immediately south of the Proposed Development site, southeast of the aforementioned grain store building has been reclaimed from the entrance of Lough Atalia, extending the docklands further south-eastward. A dock, which is depicted as dry at low tide (tidal dock) is also depicted to the southeast of the grain store.

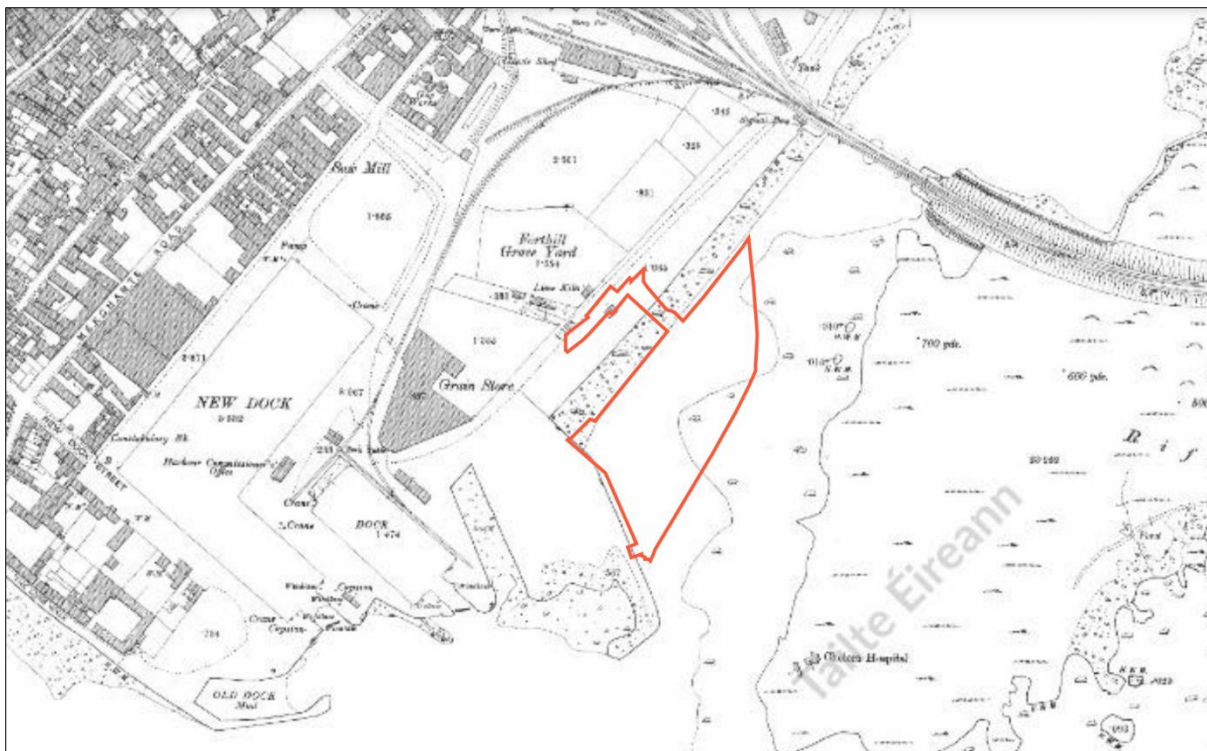


Figure 14-8 Extract from the 25-inch edition Ordnance Survey map c.1898, showing extended graveyard and newly constructed Lough Atalia Road. The subject site remains within the entrance to Lough Atalia (Source: Government of Ireland and Tailte Éireann)

The most discernible change evident on the 25-inch map is the establishment of the railway line, with its viaduct crossing Lough Atalia, railway station, hotel and ancillary buildings and infrastructure transforming the landscape to the northeast of the docks. This transformation required the removal of established buildings and attendant grounds, such as Frenchville and the nearby rope walk, an essential feature of the maritime landscape of any major coastal settlement. An off-chute of the railway line extends in a broad curve to the north of Forthill Cemetery and the grain store, connecting Dún Aengus Dock with the railway station.

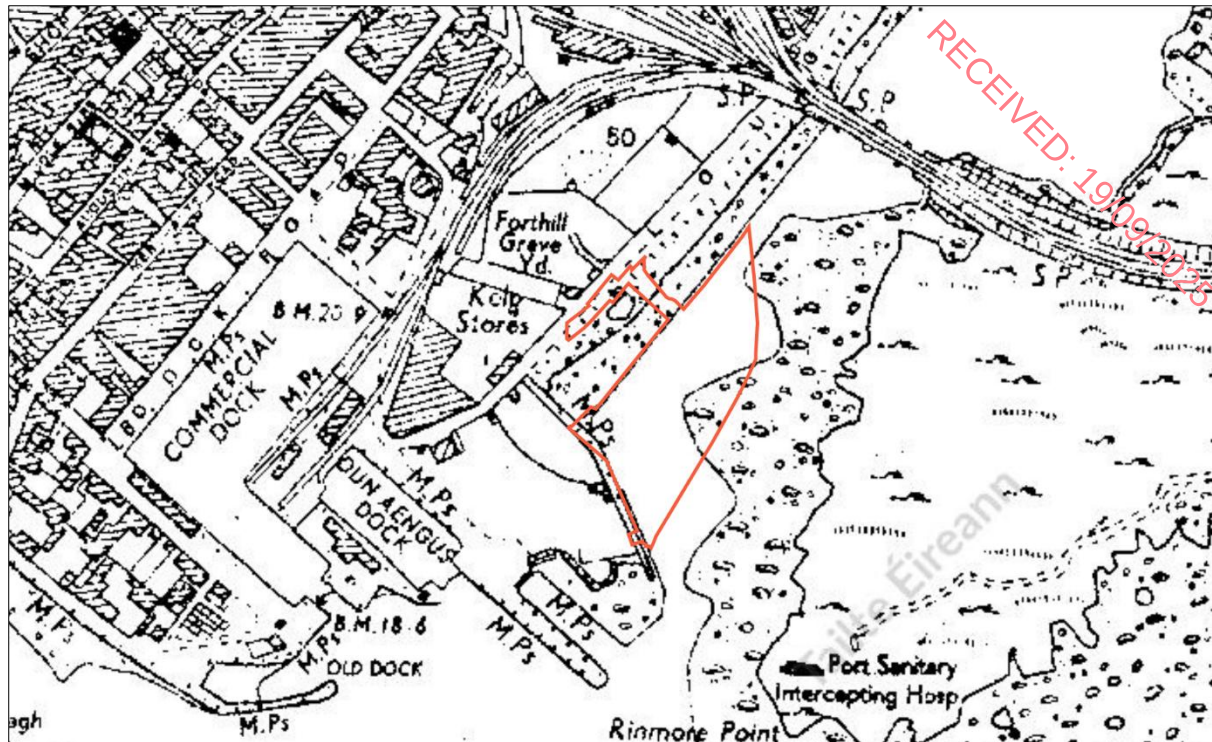


Figure 14-9 Extract from the last edition (Cassini) Ordnance Survey map c.1940s, showing subject site within the entrance to Lough Atalia (Source: Government of Ireland & Tailte Éireann)

The Last Edition 1:10,560 OS map (c.1940s) (Figure 14-9) shows no discernible changes to the Proposed Development site, the main body of which remained submerged within Lough Atalia. The grain store beside Dún Aengus Dock is now labelled 'kelp stores', perhaps reflecting a change in the products being exported from Galway by the middle of the 20th century. This mapping edition shows the main dock now labelled 'Commercial Dock' and 'Dún Aengus Dock'. The tidal dock depicted on the 25-inch map to the south of the grain store has been removed, with a new dock constructed extending further south-eastward into the approach to Lough Atalia.

The earliest available aerial photography showing the area of the Proposed Development site from 1954 (Figure 14-10) show that the site remained undeveloped and had not been reclaimed by that stage. In the early 1960s, the docks were dredged, the docklands area refurbished, and the Commercial Dock and Dún Aengus Dock were converted and merged (Spellissy 1999).



Figure 14-10 Aerial view of Galway docks, railway bridge and Forthill cemetery facing west (1954). Red arrow points to general location of subject site. Note the building on foreshore which corresponds to the building in this position on the 25-inch OS map (Source: National Library of Ireland)

The Proposed Development site, having been constructed on reclaimed land was used as an oil storage terminal for BP/Conoco from 1984. The Enterprise Park was built on lands partially reclaimed beside Rinmore Point and involved the construction of a bridge connecting it to the new docks, opened in 1994. A new oil terminal was constructed in the Enterprise Park in 2009, rendered the old oil storage terminal at the Proposed Development site redundant (Port of Galway(b) & Galway Harbour Company 2021). The fuel silos shown on several aerial images of the subject site were removed c.2018 (Figures 14-11-14-14).



Figure 14-11 Aerial view of the subject site from 2006-2012 (Source: Government of Ireland and Tailte Éireann)



Figure 14-12 Aerial view of the subject site from 2013-2018 (Source: Government of Ireland and Tailte Éireann)



Figure 14-13 Aerial image of the port, showing the fuel silos within the subject site (centre of photo – indicated by red arrow) prior to their removal in c.2018 (Source: Port of Galway)



Figure 14-14 Cartesian view of the subject site from April 2024 after silos had been removed with approximate site boundary in red (Source: Altu Architects)

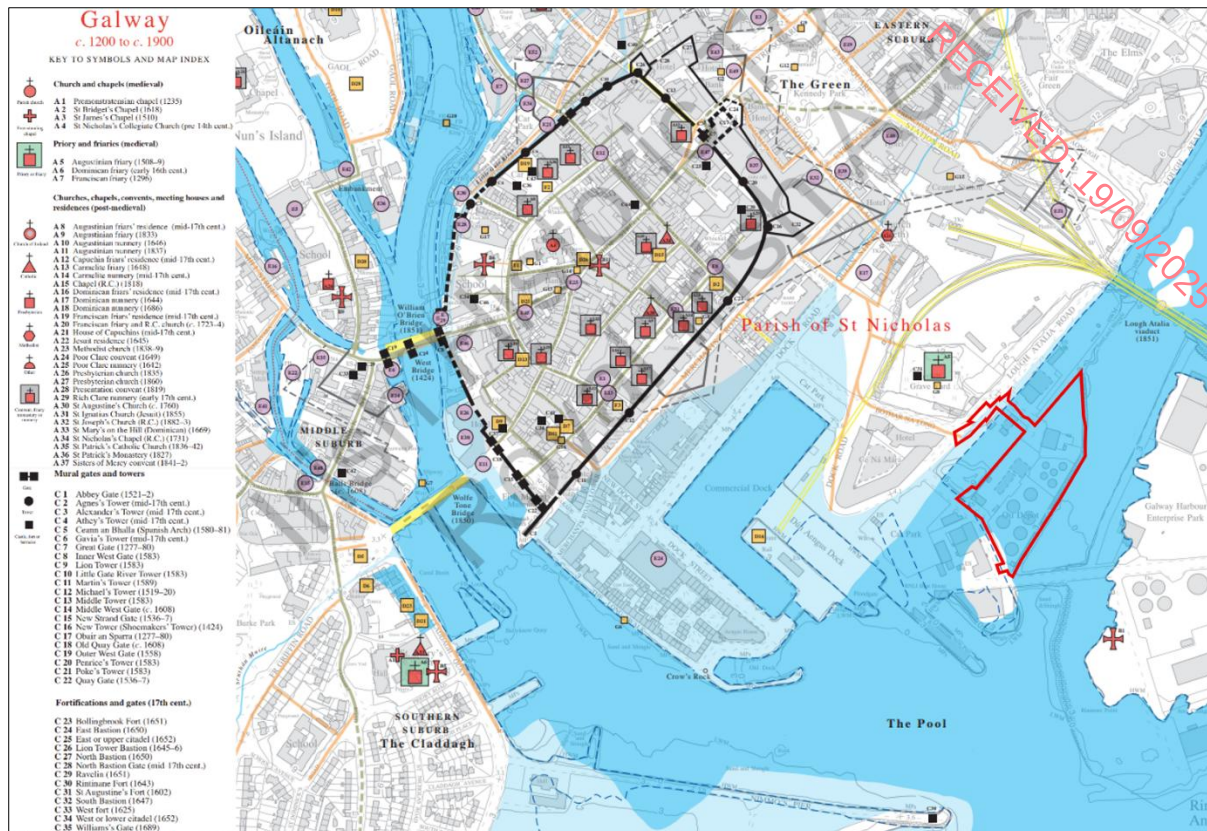


Figure 14-15 Map showing the archaeological and built heritage features (from 1200 to 1900) in and around Galway. The edge of the water in 1839 is shown in dark blue and during the 17th-century in light blue. The subject site (main portion of which is outlined in red) was clearly within the entrance to Lough Atalia. This land was reclaimed during the second half of the 20th-century. This map also shows the spatial relationship between the fort and the entrance to Lough Atalia, which includes the site (Source: IHTA)

14.3.4 Recorded Archaeological Heritage

There are a total of five archaeological sites (as recorded by the Archaeological Survey of Ireland (ASI)) recorded within the study area surrounding the Proposed Development site (Table 14-4 and Figures 14-16 and 14-17). However, three of these archaeological sites are located within, and form, Forthill Cemetery which is located to the north-west of the Proposed Development site; these three sites are:

- a 16th-century Augustinian Friary (GA094-099003-);
- an early 17th-century bastioned fort (GA094-099002-), which was constructed around the friary site circa 1601-03, and
- Forthill Graveyard/Cemetery (GA094-099001-), which continued in use following the demolition of the fort.

In addition, the *zone of notification* for the historic town of Galway (GA094-100-000) and part of the south-eastern line of the Town Defences (GA094-100001-) are located within 300 metres of the Proposed Development site.

Table 14-4 Archaeological sites recorded within the study area (i.e. within 300 metres of the Proposed Development site)

Monument no.	Class	Townland	Condition*	Period* (if known)	Approx. distance from development boundary
GA094-100----	Historic Town	Townparks (St. Nicholas' Parish)	N/A	Late Medieval 1230	0m
GA094-099001-	Graveyard	Townparks (St. Nicholas' Parish)	N/A	Post- medieval	c.6m NW
GA094-099002-	Bastioned fort	Townparks (St. Nicholas' Parish)	No visible surface trace survives	Post- medieval 1603	c.50m NW
GA094-099003-	Religious house - Augustinian friars	Townparks (St. Nicholas' Parish)	No visible surface survives	Late Medieval 1508	c.50m NW
GA094-100001-	Town defences	Townparks (St. Nicholas' Parish)	N/A	Late Medieval	c.270m NW

*Condition and potential periods are based on Historical Environment Viewer descriptions

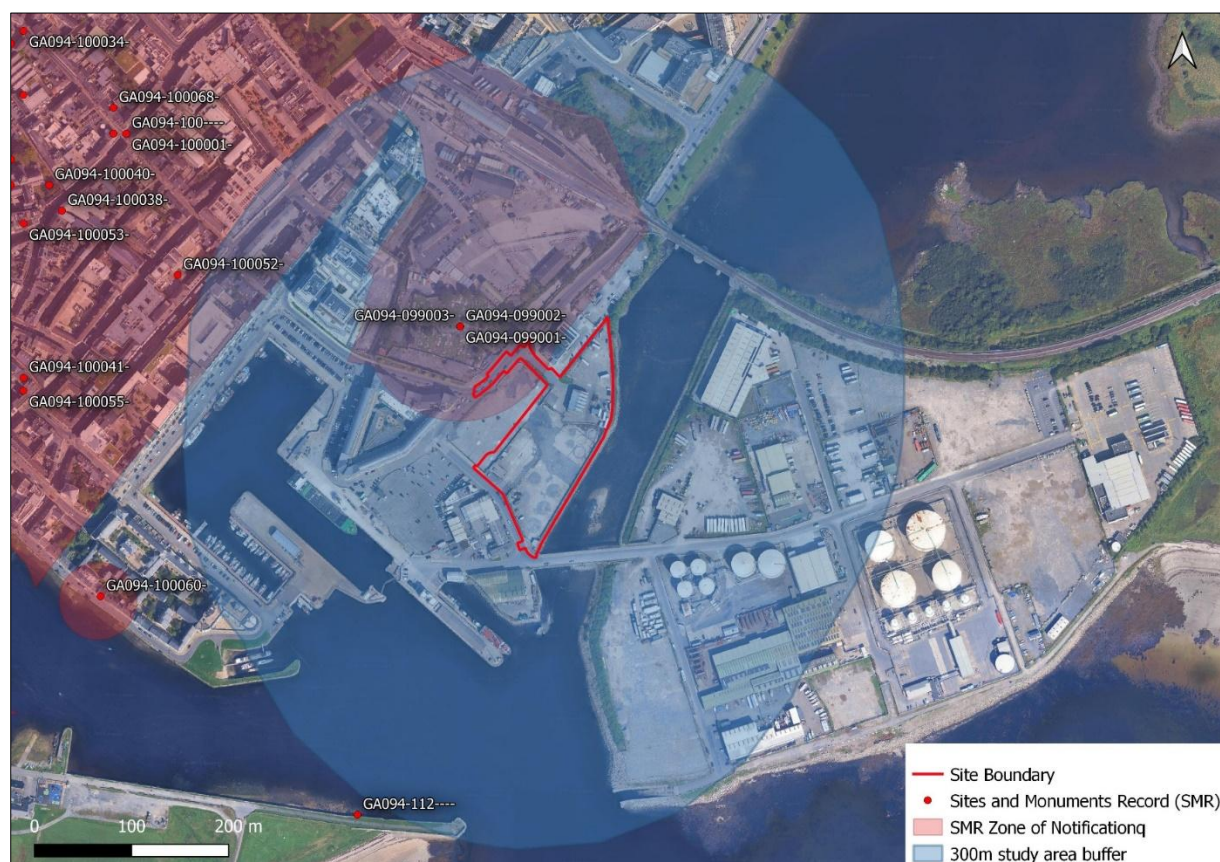


Figure 14-16 Recorded archaeological sites (as recorded by ASI) within 300m of the Proposed Development site boundary (300m buffer zone shaded in blue, ZoN surrounding recorded archaeological sites shaded in pink)



Figure 14-17 Close up of Proposed Development (outlined in red), showing relationship with ZoN) surrounding the historic medieval core of Galway, which includes the Forthill site

No visible surface trace survives of either the friary or the fort. The approximate footprint of the fort is contained within the present-day boundaries of Forthill Cemetery/Graveyard whose eastern boundary wall is located immediately northwest of the Proposed Development's red-line boundary. Consultation of historic cartographic sources indicates that the area of the subject site is located outside the historic boundaries of the above-listed archaeological sites.

The main body of the site is situated to the southeast of Lough Atalia Road, built on reclaimed land and contains no recorded archaeological sites (as recorded by the ASI). However, the redline boundary for the Proposed Development includes a portion of the approach (on Lough Atalia Road) to the main body of the site, which encroaches into the zone of notification for historic town of Galway (GA094-100-), and includes the Augustinian Friary (GA094-099003-), bastioned fort (GA094-099002-), and Forthill Cemetery/Graveyard (GA094-099001-) (Figures 14-16 and 14-17).

There are no National Monuments in State Care, Ownership or Guardianship within the study area. The closest National Monuments in State Care, Ownership or Guardianship to the Proposed Development is Merlin Park Castle (GA094-023-) National Monument No. 609, which is located approximately 3.1km to the east-northeast (National Monuments Service 2009). However, the Town Defences (GA094-100001-) comprising the remains of the medieval town wall (considered a National Monument in the ownership of Galway City Council (GCC)) are located within the study area, approximately 270m northwest of the Proposed Development site.

14.3.5 Previous archaeological investigations

The Excavations Database (www.excavations.ie) contains summary accounts of licensed archaeological investigations carried out in Ireland (North and South) from the 1960s to present. The Database gives access to over 33,000 reports and can be browsed or searched using multiple fields, including year, county, site type, grid reference, license number, SMR number and author.

A large number of licenced archaeological investigations have taken place within and around Galway City, and these are recorded and published within the Excavations Database and in *Archaeological Investigations in Galway City, 1987-1998* (eds. E. Fitzpatrick, M. O'Brien & P. Walsh).

A total of 28 archaeological investigations (some licences consist of multiple entries or extensions) are recorded within the study area on the Excavations Database. These investigations include archaeological testing, monitoring, excavation, dredging works and geophysical and dive surveys. The vast majority of the investigations are recorded as either produced nothing of archaeological significance, or nothing earlier than the 19th century. Very occasional mentions of medieval remains are recorded (e.g. Licence no. 22E0152 and an excavation at Kirwan's Lane/Cross St Upper (no Licence no.) (see Appendix 14.2 for details). One excavation (Licence no. 07E0416) found a layer of clay that may have been either associated with the construction of the railway line (c.1850) or part of a 17th-century redan (defensive clay bank), but this could not be verified.

There are no licenced archaeological investigations recorded within the Proposed Development site, due to the fact that it is primarily a reclaimed site. The closest of these programmes of investigation included monitoring of geotechnical site investigations at the former 'Coal Yard' site off Lough Atalia Road (under Excavation Licence 19E0163) to the immediate west of the Proposed Development site. These works revealed nothing of an archaeological nature but noted that the ground levels within the Coal Yard site had been reduced by as much as 2-4m.

Test trenching close to the location of the Augustinian Priory (GA094-099003) immediately west of the Proposed Development site, carried out in 2005 (under Excavation Licence 05E0132) did not produce any archaeological deposits/material.

Also, in the immediate vicinity of the Proposed Development site, licensed monitoring of the lowering of Lough Atalia Road at the Lough Atalia Bridge was carried out in 2015 (under Excavation Licence 15E0140). A 19th/early 20th-century deposit was recorded at the north-western approach to the bridge and a minor shell deposit was identified on the southern approach to the bridge. However, the shell deposit was not viewed as archaeological given its location and lack of charcoal or other associated cultural material.

The majority of the investigations undertaken in vicinity of the Proposed Development site revealed nothing of archaeological significance. These results, along with the fact that the site is primarily reclaimed land, strongly suggests that the potential to find *in situ* archaeological deposits or artefacts in context/ with provenance is low. However, Galway City Council's LRD opinion notes that '*...there is some archaeological potential associated with the main body of the site due to the previous material from the city centre core being deposited as fill*'.

14.3.6 National Museum of Ireland Topographical Files

A review of the National Museum of Ireland (NMI) Topographical Files for the townland of Townparks has revealed that although numerous artefacts or archaeological finds have been recorded within this townland, none are recorded as having been found within the Proposed Development site.

14.3.7 National Monuments Service: Wreck Viewer

The NMS Wreck Viewer was reviewed to seek evidence of recorded wrecks within the study. There are no recorded wrecks within the study area. The closest recorded wreck to the Proposed Development site is W10591, an unknown wreck, the recorded proximal location of which is c.850m south-southeast of the Proposed Development site boundary.

14.3.8 Architectural heritage

Galway City contains numerous architectural and built heritage structures, many of which are also recorded archaeological sites. This rich historic environment includes numerous protected structures, NIAH records and ACAs.

14.3.8.1 National Inventory of Architectural Heritage (NIAH) & Record of Protected Structures (RPS)

There are no NIAH structures or RPS sites located with the Proposed Development site.

There are a total of 12 sites recorded by the NIAH within the study area surrounding the Proposed Development site (Table 14-5 and Figure 14-18). Of these, 11 are also listed on the RPS) and one, Forthill Cemetery/Graveyard (NIAH reg. no. 30319007) is also a recorded archaeological monument (GA094-099001-).

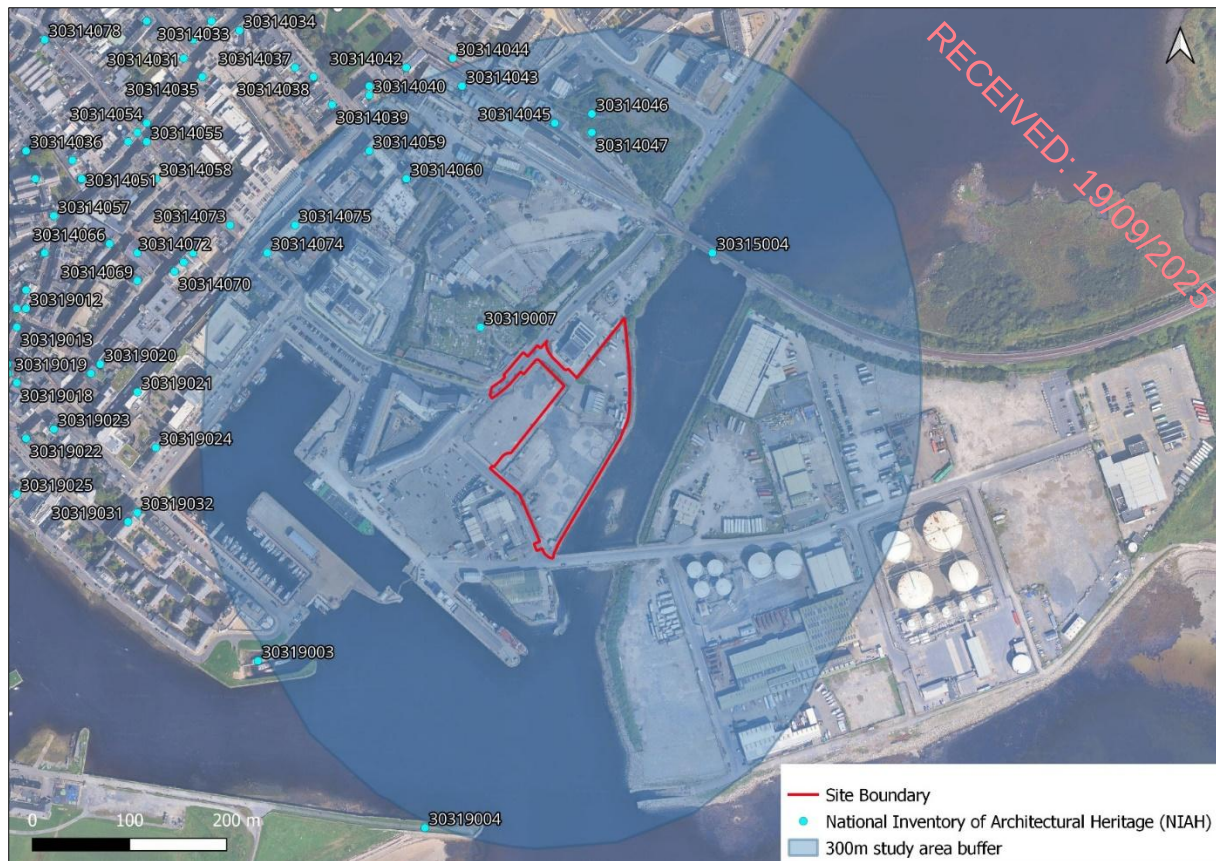


Figure 14-18 NIAH sites within 300m of the Proposed Development site boundary (300m buffer zone shaded in blue)

There are 27 protected structures (on GCC's Record of RPS) recorded within the study area surrounding the Proposed Development site (Table 14.6 below and Figure 14-19). As noted above, there is some overlap between the RPS sites and NIAH structures, with all but one of the NIAH sites being protected structures. Some of the individual features that are recorded as a protected structure have been given separate records by the NIAH, for example RPS 10002 has three NIAH records (30314045, 30314046) and 30314047) (see Table 14-5).

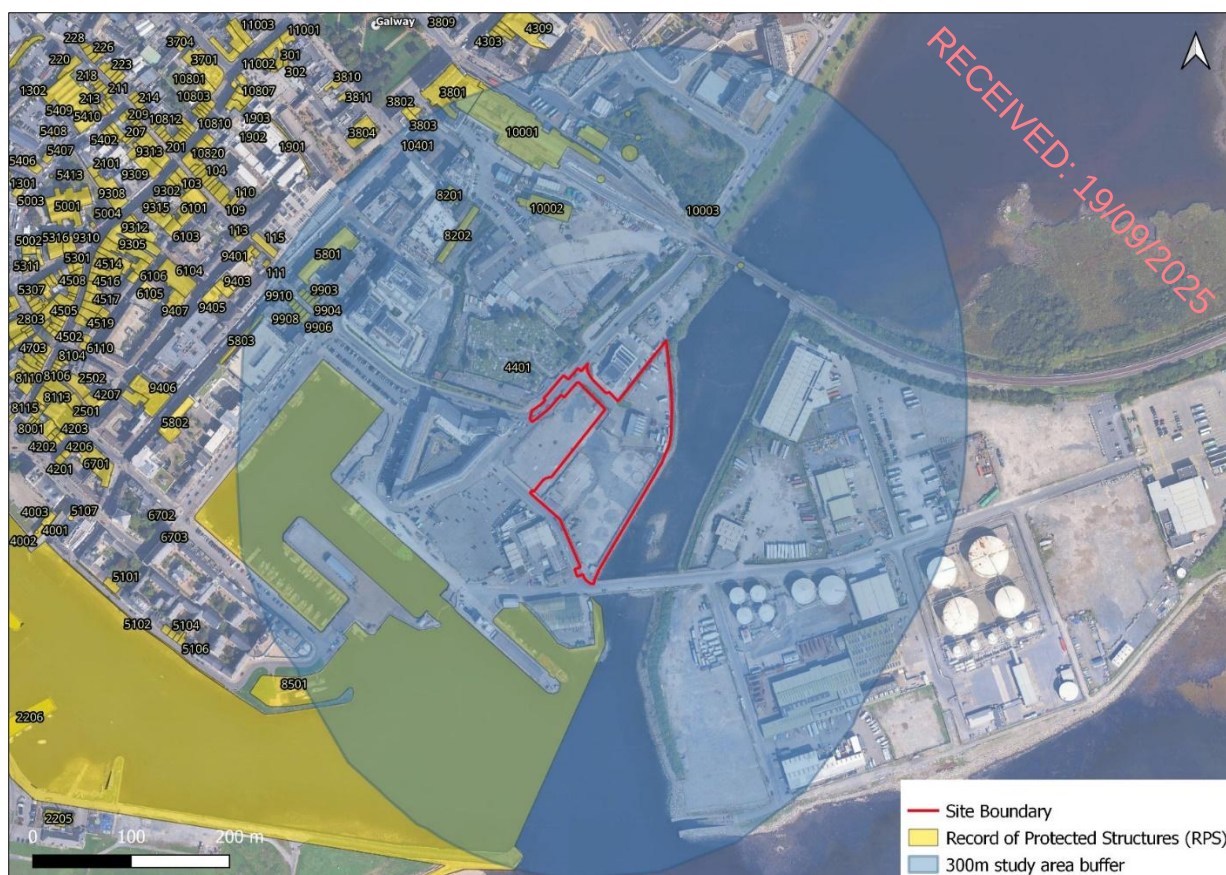


Figure 14-19 Protected Structures (RPS sites) within 300m of the Proposed Development site boundary (300m buffer zone shaded in blue)

Therefore, a total of 28 sites of built heritage significance (i.e. a combination of NIAH and RPS sites) have been identified within the study area for this assessment.

Table 14-5 RPS and NIAH sites recorded within the study area (all within the townland of Townparks (St. Nicholas' Parish))

RPS no.	NIAH no.	Name/type	Approx. distance from site boundary
4401	30319007	Graveyard/cemetery – Forthill Cemetery	6m NW
10002	30315004	Bridge – Lough Atalia Viaduct	111 NE
10003	n/a	Water tower – Station Road	135m NNE
10002	30314047	Signal box, water tower, turntable, Ceannt Railway Station	190 N
10002	30314046	Foot bridge (over disused Galway-Clifden railway line)	200 N
10002	30314045	Train shed, Ceannt Railway Station	210 N
8201	30314060	Church/chapel - Galway United Methodist and Presbyterian Church	212 NW
9905	n/a	2 bay 2 storey residential building – No. 5 St. Nicholas Street	240m NW
9904	n/a	2 bay 2 storey residential building – No. 4 St. Nicholas Street	245m NW
9906	n/a	2 bay 2 storey residential building – No. 6 St. Nicholas Street	245m NW

RPS no.	NIAH no.	Name/type	Approx. distance from site boundary
9903	n/a	2 bay 2 storey residential building – No. 3 St. Nicholas Street	255m NW
9907	n/a	2 bay 2 storey residential building – No. 7 St. Nicholas Street	255m NW
n/a	30314059	House - 1 Victoria Place	260 NW
5801	30314075	Shop/retail outlet – 1-3 Merchant's Road	260 NW
10001	30314043	Ceannt Railway Station	265 NNW
9908	n/a	2 bay 2 storey residential building – No. 8 St. Nicholas Street	265m NW
9902	n/a	2 bay 2 storey residential building – No. 2 St. Nicholas Street	266m NW
10401	n/a	3 bay 3 storey commercial building - Victoria Place	270m NW
9901	n/a	2 bay 2 storey residential building – No. 1 St. Nicholas Street	270m NW
9909	n/a	2 bay 2 storey residential building – No. 9 St. Nicholas Street	270m NW
9910	n/a	2 bay 2 storey residential building – No. 10 St. Nicholas Street	275m NW
5801	30314074	Office – 5 Merchant's Road	277 NW
3801	n/a	13 Bay, 5 Storey over basement Commercial Building - No. 14 & 15 Eyre Square	290m NNW
8501	30319003	Quay/wharf – Old Dock	293 SW
3803	n/a	2 Bay 4 Storey over basement Commercial Building - No. 17 Eyre Square	300m NNW
5803	n/a	Hynes Yard - Reused Stone Front wall – Merchant Road	300m NNW
8202	n/a	Cut Stone Stores (C.I.E) - Multi bay 2 storey building – Queen Street	300m NNW
8501	30319004	Pier/jetty - Nimmo's Pier	300m SW

14.3.8.2 Architectural Conservation Areas

GCC have designated eleven ACAs. The Proposed Development site is not within any of these ACAs, but it is located within 300 metres of four (see Figure 14-19). The four ACAs of relevance to this assessment are:

- **Saint Nicholas Street ACA:** This is a terrace of 19th-century artisan's dwellings; it is located approximately 200 metres to the west of the Proposed Development site. According to the current city development plan it is 'one of the few such groups of this extent and completeness, which survive in the city, and therefore merits preservation from a social and architectural interest';
- **City Core ACA:** Approximately 300 metres from the site at its nearest point, where Abbey Gate Street Lower meets Merchants Road. This area is described by GCC as the most important area of built heritage in Galway with a unique medieval street pattern and an array of historic architecture;
- **Eyre Square ACA:** Located around 300 metres from the site. Eyre Square is a significant open space and a townscape element of cultural and historic importance to the city and wider Galway region; and

- **Long Walk ACA:** Located approximately 300 metres from the development site, the Long Walk is a historic quay with a terrace of 18th and 19th-century houses.

It should be noted that Nos. 1 – 6 Dock Road ACA is located just over 300 metres from the Proposed Development site.

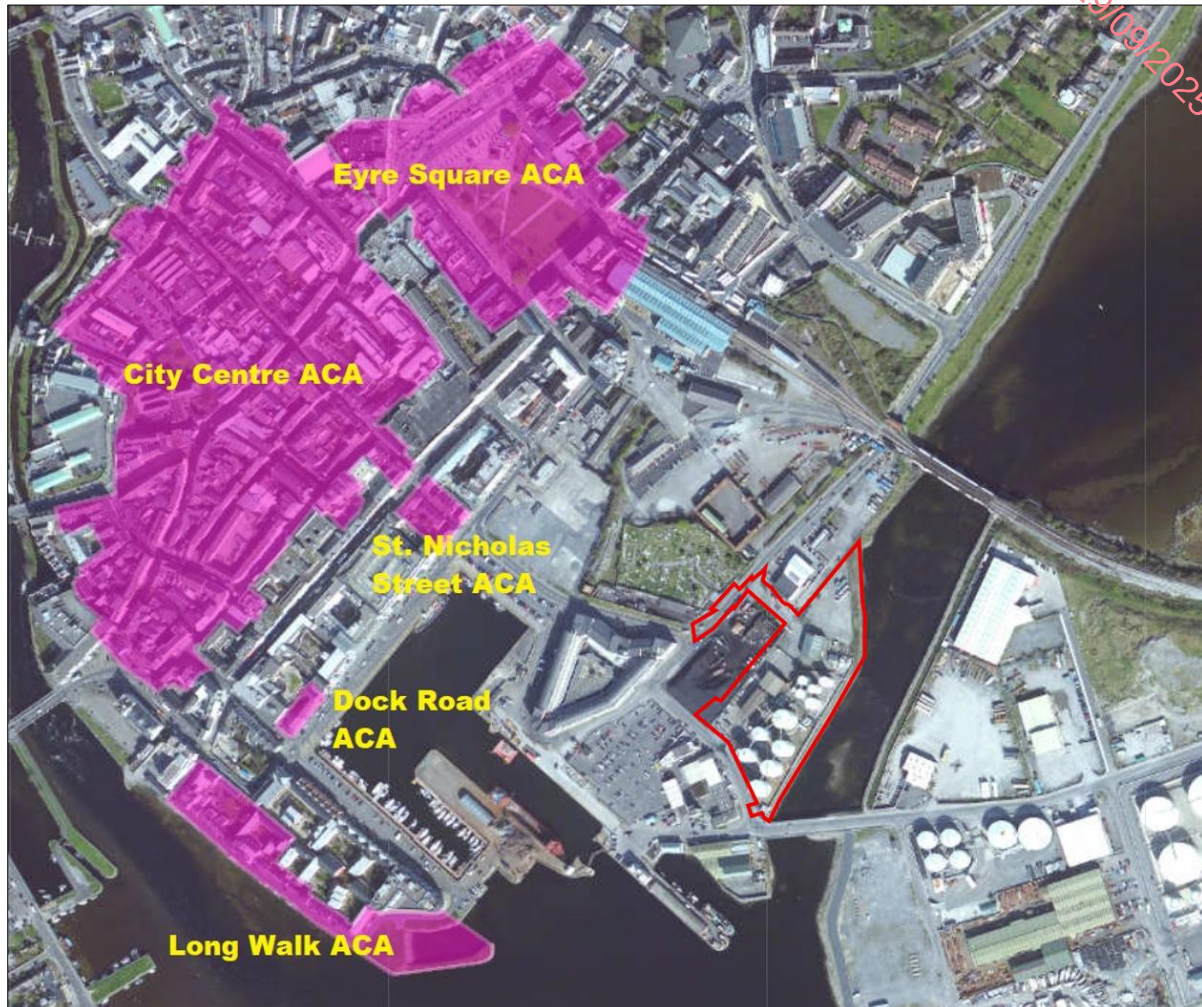


Figure 14-20 Galway City Architectural Conservation Areas (pink shading) within the environs of the development site (red polygon) (Source: Heritage Mapping, The Heritage Council)

The Galway City Development Plan 2023-2029 (amended 19 May 2025) provides short descriptions of these ACAs as follows:

St. Nicholas Street Architectural Conservation Area (ACA)

St. Nicholas Street is a terrace of 19th century artisan's dwellings and is one of the few such groups of this extent and completeness, which survive in the city, and therefore merits preservation from a social and architectural interest.

The City Core Architectural Conservation Area (ACA)

The medieval core of Galway is a mix of streetscape and buildings of many periods. The layout and the scale of some of the streets reflect the medieval street pattern. The city core is the most important area of built heritage in

Galway. Its designation is beneficial in ensuring the area's character is enhanced and protected.

Eyre Square Architectural Conservation Area (ACA)

Eyre Square is a significant historical civic space within the city, the green area itself dates back to the mid-17th Century. The square comprises both historic and modern buildings with varying styles ranging from late Georgian to Victorian and modern. While significant intervention has taken place, it still retains the original form with a unified streetscape.

The Long Walk Architectural Conservation Area (ACA)

The Long Walk has a particularly attractive setting, with views towards the sea and the Claddagh. The area characterises a distinct urban form, which reflects Galway's historic relationship with the sea and is a landmark area for the city.

14.3.9 UNESCO Word Heritage

The locations of Cultural World Heritage Sites (Ireland) and the Tentative List of Cultural World Heritage Sites submitted by the Irish State to UNESCO were reviewed and there are no such monuments located within the study area. The two Cultural World Heritage Sites in Ireland, *Brú na Bóinne* and *Sceilg Mhichíl*, are located approximately 170km east-northeast and 190km southwest of the Proposed Development site respectively. The closest site on Ireland's Tentative List of Cultural World Heritage Sites in Rathcroghan, County Roscommon (part of the *Royal Sites of Ireland* entry), and is located approximately 75km northeast of the Proposed Development site.

In 2014, Galway was designated a UNESCO City of Film under the *UNESCO Creative Cities Network*, as '*The surrounding landscape, culture and language have attracted artists, musicians and writers for generations*' (The Heritage Council: HeritageMaps.ie).

The Irish Folklore Commission Collection 1935-1970 has been inscribed by Ireland on UNESCO's Memory of the World Register (2017).

Ireland has also inscribed five elements on the list of Intangible Cultural Heritage: Uilleann piping (2017), Hurling (2018), Irish harping (2019), Falconry, a living human heritage (2021), and Art of dry stone construction, knowledge and techniques (2024) (<https://ich.unesco.org/en/state/ireland-IE>).

The Proposed Development site is not directly associated with any of these elements. However, Galway City is renowned for its association with traditional Irish music. Beyond the Proposed Development site, dry stone walls are a unique feature of the landscape of County Galway. Ireland's School of Falconry is set within the grounds of Ashford Castle, Cong, County Mayo, located approximately 35km north-northwest of the Proposed Development site. Hurling has a long-standing and ongoing connection with Galway City. In 1527, the mayor and corporation of Galway prohibited the playing of hurling (O'Sullivan & Downey 2017, 25).

14.3.10 Placename Evidence and Folklore

Townlands are the smallest unit of land division in the Irish landscape, and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest. The layout and nomenclature of the Irish townlands was recorded and standardised by the work of the

Ordnance Survey in the 19th century. The Irish translations of the townland names often refer to natural topographical features, but name elements may also give an indication of the presence of past human activity within the townland. The translations of the townland names within the study area were sourced from www.logainm.ie and mainly record topographical features and associations with past landowners. The subject site is located within the townland of Townparks in the Parish of Saint Nicholas within Galway City.

Table 14-6 Placenames (sourced from www.placenames.ie).

Name	Irish	Translation	Indicative potential
Townparks	Páirceanna an Bhaile	This is an English placename. <u>baile</u> - townland, town, homestead <u>páirc</u> - field	The placename doesn't provide any indication of previous landuse or unrecorded cultural features

The National Folklore Collection, curated by UCD contains within it 'The Schools Collection', a record of folklore and local traditions collected by the children in 5,000 primary schools in the Irish Free State between 1937 and 1939. This material includes some 740,000 pages of children's essays on a variety of subjects relating to oral traditions, local beliefs, apocryphal stories, and anecdotes, etc. A review of the Schools Collection for the National Schools lead to the discovery of some folklore associated with Forthill Cemetery, directly relevant to the current chapter.

Table 14-7 Folklore (sourced from www.duchas.ie.)

School	Collector	Informant	Details
Rahoon	Carmel Kavanagh	Mrs Monaghan	Forthill which is situated on the south side of Galway within a few minutes' walk of the Docks ranks amongst the most ancient and historic cemeteries in Ireland. Though the date on the tablet over the entrance of the old Mortuary Chapel is 1500 A.D. there is very reason for believing that it was in existence for some centuries previous to that date. An ecclesiastical writer (Allemande) states that an Augustinian Church existed on the spot now known as Forthill early in the 13th century. If such is the case it is more than probable that the Cemetery also existed, as a cemetery almost immediately sprang up round each old Irish Abbey. Re that however, as it may, we know for certain that the old Cemetery was the site of the beautiful Church erected for the Augustinian Friars by Margaret Athy wife of Stephen Lynch Fitz Dominic for many years Mayor of Galway. Thirty years later, 1538, the Church, Monastery and adjoining lands including the Cemetery, were confiscated, but the Augustinians backed up by the townspeople managed to retain the Church and small portion of ground which constituted the Cemetery. Later on, in 1596, the Irish Chiefton, Red Hugh O'Donnell, gathered his forces on Forthill (then called Abbey Hill) for the purpose of attacking Galway, which was then as far as its inhabitants were concerned an English city. An armed party sallied forth from the town and the two forces met on the hill (Forthill) and many been slain and wounded Red Hugh was compelled to retreat. Four years later, 1600, by order of the Supreme Council a Fort one of the most formidable in the King was erected on the site of the Cemetery,

School	Collector	Informant	Details
			and from this fort it takes its present name of Forthill. For 43 years the fort remained in the hands of the military but finally the townspeople rose in rebellion, surrounded it, cut off all supplies from the garrison, compelled them to surrender. Once again it was handed back to the Augustinian Fathers and has since remained in their possession. When Cromwell was approaching the town in, 1652 it was feared that like Red Hugh O'Donnell he might take advantage of Forthill as a vantage ground from which to attack the town and so the Augustinians consented to allow their Church to be pulled down, the Corporation guaranteeing to build a similar one for them within the city. In 1811 Robert Hedges Eyre, a Protestant out of respect for his fellow citizens erected a handsome wall round the cemetery and in 1852, a portion of the old Abbey lands was added, and a still more substantial wall built. Nothing more was done until 1914 when the citizens on the initiative and under the chairmanship of Mr M. McDonagh: J.P. Chairman of the Urban Council co-operated with the Augustinian Fathers in taking effective steps for the preservation and renovation of such an historic and holy spot. Already a great many improvements have been carried out and it is hoped that as the result of a Bazaar to be held in August of this year (1915) sufficient funds will be obtained to give a permanent character to the good work. https://www.duchas.ie/en/cbes/4649677/4645827/4659322?HighlightText=forthill&Route=stories&SearchLanguage=ga
Naomh Nioclás, An Cladach	Pat Barrett	Mrs Barrett	Graveyards:- There are four graveyards in this district - Forthill, New Cemetery, Dominican and Rahoon. The dead people are put in three of these but not in the Dominican which is only for priests. The Dominican graveyard is round; New Cemetery is square, Forthill is circular and Rahoon is square. There is the ruin of an ancient chapel in Forthill and people are not usually buried in this place. There is a slope running east in Forthill, running south in New Cemetery. Rahoon has a level graveyard and so has the Dominican Church. There are trees growing in the graveyards - yew trees or weeping willows. There is a large cross which is very old in the graveyard at Forthill. There is a large tree growing through one of the tombs in the Dominican graveyard. https://www.duchas.ie/en/cbes/4566079/4565330/4572176?HighlightText=Forthill&Route=stories&SearchLanguage=ga

14.3.11 Field Survey

Inspections of the Proposed Development site were carried out on 03/04/2024 and 18/04/2024 by Mr John Cronin and Mr Martin McGonigle of John Cronin & Associates. A supplementary inspection was undertaken on 23/06/2025 by Mr Cronin. The study area was assessed in terms of historic landscape, land use, vegetation cover, presence and potential for undetected archaeological and architectural heritage sites/features.

The subject site measures approximately 1.621 Ha. in total area. It is irregular in shape, bounded by the Lough Atalia channel to the northeast and southeast, Dock Road to the southwest; and port lands, Lough Atalia Road and the Texaco filling station to the northwest.

The site comprises a flat hardstand area, mostly surfaced with concrete or compacted stone chippings and is currently used for the storage of wind turbine parts and bus parking. Large circular patches on the ground surface denote the locations of the filled-in foundations of fuel storage silos following their removal in c.2018 (see *Appendix 14-1*, Plates 14.1 – 14.3). The subject site boundaries are demarcated by modern metal railings along the roadside edges to the northwest and southeast, by a concrete block wall forming the boundary with the petrol filling station and by a rendered wall topped with metal railings along the southeast boundary with Lough Atalia (See *Appendix 14-1*, Plates 14.4 – 14.6).

There are some upstanding modern buildings currently extant within the subject site, including a 2-storey office-type building at the site's northern extent (See *Appendix 14-1*, Plates 14.1 – 14.5), a single-storey building and ancillary structure to the southwest (understood to be a substation) (See *Appendix 14-1*, Plate 14.2) and a pumphouse to the south (adjacent to the bridge traversing the Lough Atalia outlet). These structures are all modern and of no architectural merit.

The main body of the subject site was reclaimed from Lough Atalia in the second half of the 20th century. No potential archaeological or architectural heritage features exist within the site.

Forthill Cemetery/Graveyard (GA094-099001-), which is the location of a former Augustinian Friary (GA094-099003-) and former bastioned fort (GA094-099002-) is clearly visible to the northwest from the subject site (See *Appendix 14-1*, Plates 14.2 and 14.4). Forthill Cemetery/Graveyard is also a protected structure (RPS no. 4401) and is recorded on the NIAH (NIAH no. 30319007).

The Lough Atalia viaduct (RPS no. 10002 & NIAH no. 30315004) (See *Appendix 14-1*, Plates 14.5 and 14.6) is visible to the north from the subject site. Views towards the west and southwest of the docks and the nearby ACAs are screened from view by the Harbour Hotel, Coal Yard site and other modern interventions.

14.4 Characteristics of the Proposed Development

A comprehensive description of the Proposed Development is presented in Chapter 2 (Description of the Proposed Development) of this EIAR.

The main body of the Proposed Development site is reclaimed land, which was up to recently used for fuel storage, and was heavily disturbed during the construction, operation and decommissioning of the site. The *Ground Investigations Report* for the project, compiled by Ground Investigations Ireland in October 2024, noted that the surface of the site consisted of concrete and tarmac, and in some areas crushed rock fill up to a depth of 0.9m. Under the surface was a deposit of 'made ground' which overlay the bedrock to a depth of between 5.8m and 9.45m. A further layer of 'possible made ground' was noted under the main deposit of made ground in some areas. The ground investigation (GI) works indicate that the main body of the site contains several meters of modern fill material and thus possesses a low archaeological potential.

A portion of the approach (on Lough Atalia Road) and entrance to the main body of the site is located within the *zone of notification* for historic town of Galway (GA094-100----); the zone of

notification for the historic town includes the nearby Augustinian Friary (GA094-099003-), bastioned fort (GA094-099002-), and Forthill Cemetery/Graveyard (GA094-099001-). This portion of the Proposed Development site consists of existing hard surfaces, including Lough Atalia Road, however, some of this area is set atop the former shoreline of Lough Atalia (as well as being in close proximity to recorded archaeological sites). The site works that will be required at this location will include surface treatments and the establishment of site boundaries, which will be set within modern layers, along with the establishment of a foul water pipe to connect with existing foul water pipes within the carriageway of Lough Atalia Road. The Proposed Development boundary is outside the established boundary wall around Forthill Cemetery/Graveyard (GA094-099001-), which was built close to the shore of Lough Atalia. There are no upstanding remains of the Augustinian Friary (GA094-099003-) and bastioned fort (GA094-099002-), though the evidence from early mapping suggests that these sites were set on the ridge away from the edge of Lough Atalia and therefore it is unlikely that they extended beyond the boundary wall around Forthill Cemetery/Graveyard, into the Proposed Development site boundary. Taking this into account and given the level of modern disturbance within this portion of the Proposed Development site, this discrete portion of the Proposed Development site is considered to retain a moderate archaeological potential. However, as this portion of the Proposed Development site is located within the zone of notification for the historic town of Galway (GA094-100----) and in close proximity to the locations of the Augustinian Friary (GA094-099003-), bastioned fort (GA094-099002-), and Forthill Cemetery/Graveyard (GA094-099001-), archaeological supervision/monitoring is warranted during ground reduction works (see Mitigation section below).

Given its proximity to the Proposed Development site, the setting of the Forthill site has been examined to assess potential indirect impacts. The Forthill site has had a long and varied history, being originally established in 1508-9 as an Augustinian Friary located just outside the walled city of Galway. Less than a century later, after the dissolution of the religious site, a bastioned fort was built on the site. The bastioned fort was also short lived, and by the middle of the 17th century it and the church within it had been demolished, leaving no above-ground traces. By the middle of the 18th century, the site had become a Christian burial ground and is still in use at the present time. The assessment of the setting of this site must ultimately concentrate on its current use and the physical remains that are extant.

In the case of Forthill, the physical space around it has been considerably altered over the past few centuries, bearing little resemblance to how it looked when the site was first established in the 16th century or even when it took on its current usage during the 18th century. Both the character and topography of the surrounding landscape, particularly to the south and east of Forthill has changed dramatically. This transformation was most acute from the second half of the 20th century, with the reclamation of lands around the docks and subsequent industrial development, and the establishment of the Enterprise Park at Rinmore Point further east.

The historical maps show that the Augustinian Friary was established on a headland immediately east of the walled city of Galway. Although the physical setting of the friary would have allowed visibility to and from the entrance to Galway harbour to the south and the city to the northwest, this may not have been a primary consideration for the choice of location and may not have been important to its functional setting. However, these physical and visual setting attributes were important determining factors in the choice of this site for the location of a bastioned fort built in c.1602, and contributed to its functional setting during this period of

usage. Views towards the entrance to Galway harbour and in particular, over the city, which the fort was built to protect were the primary views during the lifetime of the fort. The fort itself would have been an imposing structure measuring 60m square and with walls in excess of 7m in height (Walsh 2007, 318), overlooking the city to the northwest. Following its demolition and later re-use as a graveyard, the importance of these views to the functional and visual setting of the site would have greatly reduced. Views towards the site from the harbour area and from the city would have changed over time, with the expansion of the port area coupled with the addition of modern interventions to the built environment.

The present surroundings to the east and south comprise a modern industrial docklands landscape, interspersed with retail outlets, commercial premises and a hotel. An important aspect of the visual spectrum that is experienced from one location to another is the background. Views east and southeast from Forthill, include the Proposed Development site and are backgrounded by the modern industrial landscape of the Enterprise Park at Rinmore. These views in particular may be improved by the presence of the well-designed and sympathetic textures of the buildings associated with the Proposed Development, which will screen the industrial landscape beyond from view. Views from Forthill northwest towards the city centre include modern high-rise buildings such as Bonham Quay. Views from Forthill south towards the harbour entrance are currently screened by the Coal Yard and the Harbour Hotel. Overall, the primary views from Forthill and the supplementary vistas include modern structures and bear no relation to the views that were experienced in the past.

In a possible/likely future scenario that may include the development of a multi-storey hotel on a land parcel known as the Coal Yard, which is currently being assessed by An Coimisiún Pleanála and the consented *Ceannt Quarter Regeneration Site/Augustine Hill Development*, views from Forthill in the direction of these proposed developments (to the southwest and to the north) will include the structures associated with them. This portion of the city would be transformed in terms of the elevation and fabric of the built environment. However, in this scenario the Forthill site will clearly be visually legible among the taller buildings and its heritage value remaining inviolate.

Chapter 11 of this EIAR presents a Landscape Visual Impact Assessment (LVIA) of the Proposed Development and assess a photomontage view from Forthill towards the Proposed Development. The LVIA notes that the photomontages demonstrate that the proposed buildings are tall, within the surrounding context, and this is further emphasised by their relatively close proximity. However, the LVIA notes that the screening effect of the proposed buildings in relation to the industrial landscape beyond may be considered to enhance views in this direction. The Galway Inner Harbour Masterplan (currently in preparation) includes indicative development of the lands in the interstice between Forthill and the Proposed Development site. Any development of the land in the interstice (or intervening space) between Forthill Cemetery and the Proposed Development will have to have regard and respect for the sensitivity, setting and heritage significance of Forthill.

14.5 Potential Effect of the Proposed Development

A total of 33 cultural heritage sites have been identified within a study area that included the Proposed Development site and an area of up to 300 metres from the boundaries of the Proposed Development site. These sites include RMP, buildings/structures identified by the NIAH, protected structures (RPS) and ACA.

The potential effects of the Proposed Development on this catalogue of cultural heritage sites have been tabulated in Table 14-8. No significant effects, as defined under the EIA Directive, have been identified.

The assessment of effects on cultural heritage sites is based on the methodology set out in Section 14.2, including the Significance of Effects as per Table 14-3, which has been informed by the EPA EIAR Guidelines 2022. In line with this guidance, effects classified as 'Slight', 'Not Significant', or 'Imperceptible' are considered not significant in EIA terms. While some effects have been identified as slight, they do not meet the threshold of significance under the EIA Directive and therefore are not considered significant residual effects.

Table 14-8 Assessment of effects on cultural heritage sites (CHS)

CHS Ref.	Name/type of site	Designation	Cultural Heritage Value	Magnitude of Effect	Significance of Effect	Quality of Effect	Type of Effect	Duration of Effect	Likely Significant Effect?
1	Historic Town	RMP	Medium	Low	Slight	Neutral	Indirect	Permanent	No
2	Forthill cemetery (containing graveyard, bastioned fort and religious house - Augustinian friars)	RMP, NIAH & RPS	Medium	Low	Slight	Negative	Indirect	Permanent	
3	Bridge – Lough Atalia Viaduct	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
4	Water tower – Station Road	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
5	Signal box, water tower, turntable, Ceannt Railway Station	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
6	Saint Nicholas Street ACA	ACA	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
7	Foot bridge (over disused Galway-Clifden railway line)	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
8	Train shed, Ceannt Railway Station	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
9	Church/chapel - Galway United Methodist and Presbyterian Church	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
10	2 bay 2 storey residential building – No. 5 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
11	2 bay 2 storey residential building – No. 4 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
12	2 bay 2 storey residential building – No. 6 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
13	2 bay 2 storey residential building – No. 3 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
14	2 bay 2 storey residential building – No. 7 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
15	House - 1 Victoria Place	NIAH	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
16	Shop/retail outlet – 1-3 Merchant's Road	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
17	Ceannt Railway Station	NIAH & RPS	High	Negligible	Slight	Neutral	Indirect	Permanent	No

CHS Ref.	Name/type of site	Designation	Cultural Heritage Value	Magnitude of Effect	Significance of Effect	Quality of Effect	Type of Effect	Duration of Effect	Likely Significant Effect?
18	2 bay 2 storey residential building – No. 8 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
19	2 bay 2 storey residential building - – No. 2 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
20	3 bay 3 storey commercial building - Victoria Place	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
21	2 bay 2 storey residential building – No. 1 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
22	2 bay 2 storey residential building – No. 9 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
23	2 bay 2 storey residential building – No. 10 St. Nicholas Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
24	Office – 5 Merchant's Road	NIAH & RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
25	13 Bay, 5 Storey over basement Commercial Building - No. 14 & 15 Eyre Square	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
26	Quay/wharf – Old Dock	NIAH & RPS	Medium	Low	Slight	Neutral	Indirect	Permanent	No
27	2 Bay 4 Storey over basement Commercial Building - No. 17 Eyre Square	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
28	Hynes Yard - Reused Stone Front wall – Merchant Road	RPS	Low	Negligible	Not Significant/ Imperceptible	Neutral	Indirect	Permanent	No
29	Cut Stone Stores (C.I.E) - Multi bay 2 storey building – Queen Street	RPS	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
30	Pier/jetty - Nimmo's Pier	NIAH & RPS	Medium	Low	Slight	Neutral	Indirect	Permanent	No
31	City Core ACA	ACA	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
32	Eyre Square ACA	ACA	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No
33	Long Walk ACA	ACA	Medium	Negligible	Not Significant/ Slight	Neutral	Indirect	Permanent	No

Subject to the application of the proposed mitigation measures, the Proposed Development will not result in significant effects on archaeological, architectural and cultural heritage sites. Effects identified as slight or of lower magnitude are considered not significant in EIA terms, consistent with the EPA EIAR Guidelines (2022).

14.5.1 Construction Phase

The Proposed Development will be executed in three distinct phases to facilitate a staged completion and occupation. The proposed sequence of construction outlined below is subject to confirmation once the building contract has been awarded and on completion of the Detailed Construction Management Plan for agreement with GCC. The duration of the demolition phase is anticipated to span approximately 3 months, and the overall construction phase is anticipated to span approximately 27 months, starting with Blocks A and B, followed by Blocks C and D.

Demolition Phase (Approximately 3 months):

- Demolition of the existing office / bus depot building (370.2 sq m) and ancillary building (26.0 sq m);
- Partial demolition of the existing ESB sub-station and ancillary building (67.4 sq m); and
- Demolition of existing boundary walls at the south-west and north-west of the site.

Construction Phase 1 (Approximately 15 months):

- Construction of Blocks A and B (186 no. units);
- Road works along Dock Road;
- New internal street and parking court;
- Upgrade of road adjacent to petrol filling station;
- Installation of toucan crossing and associated footpath; and
- Landscaping around public square, courtyard and Lough Atalia Walk.

Construction Phase 2 (Approximately 12 months):

- Construction of Blocks C and D (170 no. residential units); and
- Completion of landscaping, including the remainder of Lough Atalia Walk.

There are no Protected Structures or structures listed in the NIAH located within the Proposed Development site and it is not within an ACA. Indirect visual impacts on nearby sites such as Forthill Cemetery/Graveyard, during the construction phases, are predicted to be slight, temporary and not significant in EIA terms. The construction phase of the Proposed Development will, therefore, result in no predicted direct effects on the architectural heritage resource during construction phase but the potential for indirect visual impacts of a slight, temporary but are not considered significant.

The main body of the site is situated to the southeast of Lough Atalia Road, primarily comprised of reclaimed land and contains no recorded archaeological sites. However, a portion of the Proposed Development site includes a portion of the approach (on Lough Atalia Road) to the main body of the site and this area encroaches into the zone of notification for historic town of Galway (GA094-100----) (this zone also includes the Augustinian Friary (GA094-099003-), bastioned fort (GA094-099002-), and Forthill Cemetery/Graveyard (GA094-099001-)). Ground works, including surface treatments and the establishment of site

boundaries, which will be set within modern layers, along with the establishment of a foul water pipe to connect with existing foul water pipes within the carriageway of Lough Atalia Road will be within the zone of notification but will not interact directly with the recorded archaeological sites themselves.

As the existence, nature and extent of any unrecorded archaeological features or artefacts within the Proposed Development site are unknown; the significance of construction phase impacts cannot be quantified, but construction phase ground excavation works will have the potential to result in *permanent, direct, negative effects* on any such remains if they are present.

Therefore, as a precautionary measure, licensed archaeological monitoring/supervision of ground development works will be carried out by a suitably qualified archaeologist during the construction phase. The programme of archaeological monitoring will be undertaken under an excavation licence from the NMS. In the event any archaeological sites or features are identified during monitoring, ground works will halt at that location, and they will be recorded and will be left to remain securely in situ within a cordoned off area. The NMS and GCC will be notified of the discovery and consulted to determine further appropriate mitigation measures, which may entail preservation *in situ* by avoidance or preservation by record through a licensed archaeological excavation.

There are no undesignated vernacular structures, demesne lands, or other undesignated features located within the Proposed Development site and no intangible attributes, such as historical events or folklore directly associated with the Proposed Development site. Therefore, there are no predicted negative effects on undesignated heritage or intangible heritage during construction phase.

14.5.2 Operational Phase

As noted above, there are no cultural heritage sites recorded within the main body of the Proposed Development site however, a portion of the approach to the main body of the site encroaches into the zone of notification for historic town of Galway (GA094-100----) and includes the Augustinian Friary (GA094-099003-), bastioned fort (GA094-099002-), and Forthill Cemetery/Graveyard (GA094-099001-). Forthill Cemetery is also a protected structure (RPS no. 4401) and is recorded on the NIAH (NIAH no. 30319007). The proximity of the Proposed Development site to the multi-designation Forthill site means that the Proposed Development has the potential to have an indirect effect during operational phase.

In relation to Forthill, Galway City Council, had during a formal LRD pre-planning consultation had raised potential concerns regarding impacts on its setting and significance from the Proposed Development. Chapter 11 of this EIAR presents a Landscape and Visual Impact Assessment (LVIA) of the Proposed Development. The LVIA notes that while the cemetery is a valued cultural heritage feature, visitor attraction, and green infrastructure asset, it has in the recent past been surrounded by an industrial townscape and enclosed by high boundary walls, limiting its interaction with the surrounding environment. The LVIA finds that the proposed development will increase the built/visual enclosure of the cemetery due to the height and scale of the buildings. However, the buildings are designed with high-quality materials, articulated facades, and steps in height to reduce perceived massing. The cemetery's role in the townscape would shift as it becomes part of a high-density, mixed-use city centre quarter of Galway City.

Given the c.60m separation distance between the Proposed Development site and Forthill the proposed building height (varying from heights of 6 No. to 13 No. storeys) will not detract from the heritage value and setting of Forthill Cemetery and its associated features. Furthermore, the scale, massing and configuration of the Proposed Development is wholly consistent with the *Galway Inner Harbour Masterplan* (currently in preparation) and the policy objectives within the *Galway City Development Plan* as it relates to this area of the city.

14.5.3 Potential Cumulative Effects

Chapter 2 (Description of the Proposed Development) of this EIAR details the existing, proposed and granted planning permissions of relevance on record in the area, a review of these planning permissions has been completed as part of this assessment.

Given the absence of any direct effects on the recorded cultural heritage resource arising from the Proposed Development, in combination with the results of the above review of existing, proposed and granted planning permissions on record in the area, it is concluded that the Proposed Development is not predicted to contribute to any significant direct cumulative impacts on the cultural heritage resource of the wider area.

14.5.4 “Do Nothing” Effect

A ‘Do Nothing Scenario’ will see the continued use of the main body of the Proposed Development site as a port and industrial storage area for the port of Galway. This will have no predicted effect on the known cultural heritage resource within the study area.

14.6 Avoidance, Remedial and Mitigation Measures

14.6.1 Construction Phase

As noted, in Section 14.4, the Proposed Development site is considered to retain a moderate potential to contain previously unrecorded archaeological deposits and artefacts subsurface. Although subject to modern development and disturbance, the portion of the Proposed Development site extending onto Lough Atalia Road is located within the archaeological *zone of notification* associated with the historic town of Galway. Furthermore, this area was the location of the foreshore of Lough Atalia until the main body of the site was reclaimed and filled during the second half of the 20th century.

Galway City Council’s LRD opinion also states that ‘...*there is some archaeological potential associated with the main body of the site due to the previous material from the city centre core being deposited as fill*’.

Archaeological monitoring will be carried out during all ground reduction works within the Proposed Development site boundaries during the construction phase. The archaeological monitoring will be undertaken by a suitably qualified archaeologist under licence from the NMS within the Department for Housing, Local Government and Heritage, in accordance with an archaeological method statement, submitted to and agreed with the NMS. The archaeological monitoring will result in the compilation of associated reports detailing the findings of the archaeological monitoring programme and this will be disseminated to the NMS and the local authority.

Should archaeological material be uncovered during the archaeological monitoring programme, the NMS will be informed and consulted to establish suitable measures to record

and recover the archaeological material. This may include the preservation of archaeological deposits *in situ*, where possible, archaeological excavation (preservation by record) of archaeological deposits and/or the retrieval of artefacts of archaeological consequence, whether found in and archaeological context or out of context within modern fill materials. The discovery of archaeological material will lead to a post-excavation phase of works involving analysis and further reporting for dissemination to the relevant authorities. The level of the post-excavation analysis and reporting will be commensurate with the level of archaeology discovered.

The Contractor will employ an archaeologist to undertake these investigations under licence from the NMS. The Developer will employ a Project Archaeologist to oversee the archaeological works being undertaken by the contractor's archaeologist.

The Proposed Development will result in no predicted effects on any architectural or other cultural heritage constraints and, therefore, no mitigation measures for these elements of the cultural heritage resource are required.

14.6.2 Operational Phase

The Proposed Development proposal has evolved through an iterative design process that included (a) pre-planning consultation with Galway City Council through the LRD planning application process, (b) public consultation, (c) consultation with GHC, (d) cooperation with the architect (Scott Tallon Walker) responsible for preparation of the Galway Inner Harbour Masterplan 2025, and (e) ongoing, iterative assessment of the proposal's potential environmental effects – including its potential archaeological, architectural and cultural heritage effects.

The scheme has been designed to minimise the potential for negative impacts on built heritage resources within the environs of the Proposed Development site. A slight effect on the setting of Forthill Cemetery may occur and this may be perceived as negative, however, this effect is considered not significant in EIA terms. The effect will derive from the changing character of the dockland and brownfield sites located to the south and east of Forthill. The change of setting will be in keeping with the planned transformation of Galway city's docklands.

Following the successful implementation of the archaeological mitigation measures during the construction phase of the Proposed Development, as detailed above, no operational phase archaeological mitigation measures will be necessary.

14.6.3 “Worst Case” Scenario

If the Proposed Development were to proceed without the implementation of the archaeological mitigation measures detailed above, the construction phase of the Proposed Development would have the potential to result in direct negative effects on previously unrecorded, sub-surface archaeological remains within the Proposed Development site.

14.7 Residual Effects

The mitigation measures presented in Section 14.6.1 provide for the identification of any subsurface archaeological material through a programme of archaeological monitoring during site development works. The archaeological monitoring will be carried out by a suitably-qualified archaeologist working under licence from the National Monuments Service. Preservation *in situ* of any identified features within the site shall allow for a negligible

magnitude of impact resulting in a potential not significant to imperceptible significance of effect in the context of residual impact on the archaeological resource.

Preservation by record through archaeological excavation shall allow for a high magnitude of impact, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be publicly disseminated. This shall result in a potential slight to moderate range of significance.

In accordance with the EPA EIAR Guidelines (2022) and for the purposes of this chapter, effects rated as 'Moderate' are considered to be either significant or not significant, depending on professional judgement and context. Effects rated as 'Slight', 'Imperceptible', or 'Not Significant' are considered not significant in EIA terms.

Based on this, the slight to moderate range of residual effects from archaeological excavation is considered not significant in the context of the overall EIA.

Indirect visual impacts on nearby sites such as Forthill Cemetery/Graveyard, during the construction phases, are predicted to be slight, temporary and not significant in EIA terms.

The other cultural heritage constraints within the study area, as identified in Table 14-8, are located within third-party properties where no construction works will occur and, therefore, no residual construction phase effects on those constraints will occur.

While the operational phase of the Proposed Development will have the potential to result in permanent, indirect, residual negative effects of a visual nature on Forthill Cemetery, these effects are predicted to be low in magnitude and slight in significance. No residual operational phase effects on other archaeological, architectural and cultural heritage constraints within the study area are predicted from the Proposed Development.

14.8 Monitoring

The proposed mitigation measures will necessitate obligatory processes to be undertaken as part of an application to the NMS for the provision of an archaeological excavation licence. The NMS (in consultation with the NMI) have responsibility for the regulation of archaeological activities (including the use of detection devices) and works to monuments. The application for an archaeological excavation licence will need to be submitted prior to commencement of site development works.

All archaeological investigations/excavations undertaken under licence from the NMS will require the production of a report (as per the licence conditions). The production of a full archaeological report and deposition of copies to the NMS and the Planning Authority will ensure compliance with licence conditions as well as the proposed mitigation measures. The report will clearly describe the results of all relevant archaeological works in written, mapped and photographic formats.

14.9 Interactions

14.9.1 Climate

The Climate chapter, Chapter 9 of the EIAR notes that '*Cultural heritage sites are also at risk due to climate change, with increased weathering, flooding, and temperature fluctuations potentially accelerating their deterioration.*' There are no cultural heritage sites recorded within the Proposed Development site. Any potential archaeological material that is identified with

the Proposed Development site during the construction phase will be subject to preservation *in situ* or by record. No significant effects on archaeology and built heritage within the Proposed Development site are predicted as a result of climate change.

14.9.2 Landscape and Visual

The Landscape and Visual aspect of the environment assessed in this EIAR will have the potential to interact with the assessment of effects on the cultural heritage resource. The Landscape and Visual assessment (LVIA) detailed in Chapter 11 of the EIAR has been reviewed during the compilation of this assessment. The Archaeology and Cultural Heritage chapter (current chapter) and the LVIA have both noted the industrial landscape in current view towards the southwest from Forthill. The LVIA notes that the screening effect of the proposed buildings in relation to the industrial landscape beyond may be considered to enhance this view.

14.10 Difficulties Encountered When Compiling

There were no difficulties encountered during compilation of this assessment.

14.11 Conclusion

The Proposed Development will not result in any direct adverse effects to any known archaeological sites, designated architectural heritage structures or undesignated cultural heritage assets/constraints. However, there is potential for the presence of unrecorded, sub-surface archaeological features within the Proposed Development site.

In the event that any sub-surface archaeological remains are identified during the site development works, they will be cleaned, recorded and left to remain *in situ* within cordoned off areas while the NMS are notified and consulted in relation to appropriate future mitigation strategies, which may entail preservation *in situ* by avoidance or preservation by record by archaeological excavation.

The construction phase of the Proposed Development has the potential to give rise to indirect visual effects on nearby sites, such as Forthill Cemetery/Graveyard. These effects are predicted to be slight, temporary and not significant, and will cease following completion of the construction works.

The operational phase of the Proposed Development will have the potential to result in permanent, indirect, residual negative effects of a visual nature on Forthill Cemetery, these effects are predicted to be low in magnitude and slight in significance and are therefore considered not significant in the context of the EIA Directive. No other residual operational phase effects on other archaeological, architectural and cultural heritage constraints within the study area are predicted from the Proposed Development.

In summary, subject to the implementation of proposed mitigation measures, no significant residual effects on archaeological, architectural or cultural heritage are predicted as a result of the Proposed Development.

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15 RISK MANAGEMENT

15.1 Introduction

This chapter sets out the assessment of the vulnerability of the Proposed Development to risks of major accidents and/or disasters. It assesses the expected effects on the environment of the Proposed Development due to the potential risk of major accidents and disasters, and the Proposed Developments vulnerability to same, including the methodology used for the assessment. The interactions and mitigation and monitoring measures are included in Chapters 16 and 17, respectively.

15.1.1 Quality Assurance

This chapter was prepared by Laura Griffin, Environmental Consultant at DNV. Laura has a Master of Science (Hons) degree in Climate Change from Maynooth University and a Bachelor of Arts (Hons) degree in English and Geography from Maynooth University. Laura has 5+ years of professional experience. Laura has experience preparing Environmental Impact Assessment (EIA) Screening Reports and a EIAR chapters for developments of a similar scale and nature to the Proposed Development.

This report was reviewed by Gráinne Ryan, Principal EIA Consultant at DNV. Gráinne is an Environmental Consultant with 11 years' experience, specialising in EIAs for strategic infrastructure, renewable energy, residential, industrial and pharmaceutical projects. Gráinne has a B.A. in Geography, Planning and Environmental Policy, an MSc in Environmental Policy and a Post Graduate Diploma in Project Management.

This chapter has been approved by Catherine Keogan, Technical Director and EIA Lead at DNV. Catherine is an environmental consultant with 37 years' experience in consultancy, specialising in EIAs for large-scale residential, commercial developments, pharmaceutical, BESS and solar projects working closely with a range of developers, planning consultants and architects within the public and private sector. Catherine has a B.Sc. (Hons) in Analytical Science and a Post Graduate Diploma in Renewable Energy Technology Systems.

15.2 Study Methodology

15.2.1 Scope and Context

The relevant legislation that applies to this chapter is the Planning and Development Regulations 2001 as amended, and in particular Schedule 6 – Information to be contained in EIAR. The following paragraph of Schedule 6, Paragraph 2(e)(i)(IV), specifically refers to "*a description of the likely significant effects on the environment of the proposed development resulting from ... the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)*".

Paragraph 2(h) further expands with "*a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the*

Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events."

Additionally, the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), which implement the Seveso III Directive (2012/18/EU), and which revoked the 2006 Major Accident Regulations also applies to this chapter.

Further relevant legislation includes:

- The Safety, Health and Welfare at Work Act 2005, which outlines the responsibilities of employers and others to ensure the health and safety of persons at work, including risk assessments and emergency preparedness; and
- The Floods Directive (2007/60/EC), which establishes a framework for flood risk assessment and management, aiming to reduce adverse impacts on human health, the environment, cultural heritage, and economic activity.

15.2.2 Guidelines and Reference Material

Cognisance has been taken of the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022). This document follows the requirements laid out in the Directive 2014/52/EU.

Specifically, the EPA Guidelines state that the EIAR must take account of:

"...the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk)... The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g., the potential effects of floods on sites with sensitive plants. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required. The EIAR should refer to those separate assessments while avoiding duplication of their contents."

Reference has also been made to the *Guide to Risk Assessment in Major Emergency Management* (Department of the Environment, Heritage and Local Government (DoEHLG) Publication '2010) and the *National Risk Assessment for Ireland* (Office of Emergency Planning, Department of Defence (DOD),2020).

To ensure consideration of most-up-to-date strategic and emerging risks, reference has also been made to the *National Risk Assessment 2023*, *National Risk Assessment 2024 – Overview of Strategic Risks*, and the EPA's *National Climate Change Risk Assessment (2025)*. These reports identify Ireland's most pressing and emerging risks across civil, environmental, geopolitical, technological, and economic domains.

A consolidated list of national hazards, drawing on these documents, is presented in Table 15-1. Table 15-1 Consolidated List of National Hazards (Sources: Department of Defence (2020); National Risk Assessments (2023 and 2024) and EPA National Climate Change Risk Assessment (2025))

Hazard: Civil	Hazard: Natural/Environmental
• Large Crowd Event • Pandemic (including zoonotic Diseases, AMR) • Water Supply Distribution and Contamination • Food Chain Contamination • Animal Disease • Terrorist Incident (including hybrid/Cyber-CBRN threats) • Social Cohesion and Civil Unrest • Migration and Integration Pressures • Misinformation/Disinformation Impacting Public Response	• Storm • Snow and Ice (including prolonged low temperature) • Flooding (including pluvial, fluvial and coastal) • Coastal Erosion • Extreme Heat Events (and associated health impacts) • Biodiversity Loss • Climate Change (cumulative risk category) • Wildfires (emerging)
Hazard: Transportation	Hazard: Technological
• Maritime Incident • Air Incident • Disruption at Transport Hub (including airports, ports and rail stations) • Disruption to Critical Supply Chains (fuel, food, medicine)	• Structural Collapse (including dam, tunnel, bridge and building) • Nuclear Incident (Abroad) • Cyber Incident (including ransom, infrastructure attack, digital networks) • Disruption of Energy Supply (including oil, gas, electricity and digital networks) • Disruption to Communication Infrastructure (telecom and satellite systems) • Disruption to Undersea Infrastructure (e.g. data cables, pipelines) • Risks from Artificial Intelligence (AI) and Autonomous Technologies • Failure of Emerging Tech (e.g. 5G, IoT, automated control systems)
Hazard: Geopolitical	Hazard: Emerging/Strategic
• Terrorists Incidents • Armed Conflict Abroad • Hybrid Threats (e.g. disinformation, sabotage) • Instability in Northern Ireland • Global Instability Affecting Supply Chains or Migration	• AI-Enabled Drone Threats • Infrastructure Failure Due to Ageing or Climate Impacts • Food Security Issues (supply distribution, climate-related crop failure) • Economic Risks (protectionism, inflation, loss of competitiveness)

15.2.3 Risk Assessment Methodology

The risk assessment methodology applied in this EIAR draws on both established emergency management principles and current national strategic risk policy. Hazard analysis and risk assessment are internationally recognised as essential steps in identifying challenges that may need to be addressed by society, particularly in the context of emergency planning and resilience building.

Mitigation as a risk treatment process involves reducing or eliminating the likelihood and/or the impact of an identified hazard (DoEHLG, 2010). While the National Risk Assessment 2023 (Department of the Taoiseach) presents Ireland's most up-to-date overview of strategic risks, it does not apply quantified recurrence intervals. Therefore, this EIAR adopts the likelihood classification framework previously used in A National Risk Assessment for Ireland (DOD, 2020), shown in Table 15-2, to support structured hazard evaluation.

The projects considered for potential cumulative developments are detailed in Chapter 2 (Description of the Proposed Development) of this EIAR. In addition to the standalone risk assessment, cumulative effects have been considered in the context of these developments. This includes potential interactions that may amplify risks related to emergency management, infrastructure capacity, and environmental resilience. The assessment draws on planning data and consultation with local authorities to ensure that cumulative risks are appropriately identified and mitigated.

Table 15-2 Classification of National Likelihood Criteria (Source: A National Risk Assessment for Ireland (2020) Department of Defence)

National Likelihood Criteria		
Rating	Classification	Average Recurrence Interval
1	Extremely Unlikely	500 or more years between occurrences
2	Very Unlikely	100-500 year between occurrences
3	Unlikely	10-100 years between occurrences
4	Likely	1-10 years between occurrences
5	Very Likely	Less than 1 year between occurrences

15.3 Predicted Effects

The chapters within this EIAR identify that the Proposed Development has been designed in accordance with best practice and that the Proposed Development can be safely undertaken without risk to human health and the environment.

In order to understand the potential consequences and predicted effects of any major accident or disaster due to the Proposed Development, and the vulnerability of the Proposed Development, a desk study was undertaken. The assessment reviewed:

- The vulnerability of the Proposed Development to major accidents or disasters; and
- The potential for the Proposed Development to cause risks to human health, cultural heritage and the environment, as a result of that identified vulnerability.

A methodology has been used including the following phases:

Phase 1: Assessment

The DOD Consolidated List of National Hazards was used to identify a preliminary list of potential major accidents and disasters. Receptors covered by legislation were not included within the assessment, for example, the quarry operatives.

Phase 2: Screening

The list was screened and major events caused by geological faults or natural phenomena were not included as the site is not located in a tectonically active region. The likelihood of such events occurring is extremely low within the context of Ireland's stable geological setting. Examples of events screened include earthquakes, volcanic activity, and landslides. Risks such as building collapse, which have been comprehensively addressed through design measures and engineering controls, are acknowledged but not repeated in detail within this chapter to avoid duplication. Their integration into the design process demonstrates that such risks have been appropriately mitigated.

Phase 3: Mitigation and Evaluation

In the event that mitigation measures included did not mitigate the risk, then, the potential effects on receptors are identified in the relevant chapter. Table 15-3 lists the major accidents and/or disasters reviewed.

Table 15-3 Major Accidents and/or Disasters Reviewed

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Civil				
Large Crowd Event (An event with over 5,000 people)	N	Not considered vulnerable due to the nature of the Proposed Development i.e., a residential development including 356 no. residential apartments, 1 no. crèche and 2 no. café/restaurant units.	N/A	N/A
Water Supply Contamination	Y	Waterborne diseases can be caused by consuming contaminated drinking water. No public health issues have been identified for the Proposed Development.	Local water users	Chapter 7 Hydrology and Hydrogeology of this EIAR identifies the control measures required to avoid contamination of water supplies.
Food Chain Contamination	N	Not considered vulnerable	N/A	N/A
Animal Disease	N	Not considered vulnerable	N/A	N/A
Terrorist Incident	N	Not considered vulnerable	N/A	N/A
Transportation				
Maritime Incident	Y	The Proposed Development is located at Galway Port.	N/A	N/A
Air Incident	N	The closest operational airport is Shannon Airport which is located approximately 65km south.	N/A	Public safety zones are discussed in Section 15.4.2 of this chapter.

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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Transport Hub (Includes Airports, Ports and Rail Stations)	Y	The Proposed Development is located within Galway Port, approximately 500 metres from Galway Ceannt Train Station, and within walking distance of Galway Coach Station and Eyre Square, which serve intercity and local bus routes. While the development itself is primarily residential in nature with minimal parking provision, its location within a well-connected transport hub supports sustainable travel and reduces reliance on private vehicles. From a risk perspective, the absence of high-risk transport infrastructure (e.g., hazardous freight, fuel depots) in the vicinity means that no significant transport-related risk is anticipated.	N/A	N/A
<u>Natural</u>				
Archaeology	Y	The main body of the site is situated to the southeast of Lough Atalia Road, built on reclaimed land and contains no recorded archaeological sites (as recorded by the ASI). However, the redline boundary for the Proposed Development includes a portion of the approach (on Lough Atalia Road) and entrance to the main body of the site, which encroaches into the Zone of Notification (ZoN) for historic town of Galway (GA094-100----) and includes the Augustinian Friary (GA094-099003-), bastioned fort (GA094-099002-), and Forthill Graveyard (GA094-099001-)	Cultural Heritage	Chapter 14 – Archaeology and Cultural Heritage of the EIAR assesses the effect of the Proposed Development on Archaeology and Built Heritage and proposes mitigation measures where required/appropriate.

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Built Heritage	Y	There are no National Inventory of Architectural Heritage (NIAH) structures or Record of Protected Structures (RPS) sites located with the Proposed Development site. However, there are a total of 23 RPS sites and 12 NIAH (11 of which are also RPS sites) within the 300m study area surrounding the Proposed Development site. Forthill Graveyard RPS no. 4401, NIAH reg. no. 30319007 (also a recorded archaeological monument, GA094-099001-) is located directly adjacent to the Proposed Development site. The Proposed Development site is not within an Architectural Conservation Area (ACA), but it is located relatively close to the St. Nicholas Street ACA, the City Core ACA, the Eyre Square ACA, the Long Walk ACA and Nos. 1-6 Dock Road ACA. Galway City Council's opinion of the LRD (Issued 24/04/2025) considered that the development as proposed at that point would potentially have '...a significant impact on views out of the Forthill Cemetery, a protected structure' and requested a '...revision of the massing, and treatment of roofscape... in order to lessen the impact on Forthill Cemetery and views of the City in general.'	Cultural Heritage	Chapter 14 – Archaeology and Cultural Heritage of the EIAR assesses the effect of the Proposed Development on Archaeology and Built Heritage and proposes mitigation measures where required/appropriate. The massing, and treatment of roofscape have been addressed by the scheme designers, and revised visual imagery is being produced to support the application. This revised material will be reviewed to assess the indirect effect on built heritage, particularly on the Forthill site.
Landslides	N	Geological Survey Ireland (GSI) has mapped the majority of the site as being of "Made" ground and is not located in an area with landslide susceptibility (GSI, 2025).	Residents, service users, members of the public and nearby properties.	Chapter 6 Land and Soils of this EIAR assessed the vulnerability of the Proposed Development to landslides.
Earthquakes	N	Earthquakes are not likely to occur in the vicinity of the site at a sufficient intensity to pose a risk for the Proposed Development.	N/A	N/A
Floods/ Storm surge/tidal flooding	Y	The site has a coastal location, with proximity to Galway Bay and the River Corrib.	Proposed Development and surrounding developments.	Chapter 7 Hydrology and Hydrogeology of this EIAR along with the Flood Risk Assessment identifies the vulnerability of the Proposed Development to flooding and provides measures to mitigate that risk.

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Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Severe weather such as storms, blizzards, droughts, tornados, heatwaves	N	Not considered vulnerable. In the event of severe weather events, the national meteorological service, Met Éireann, provides advance notice of severe weather, usually several days in advance. When appropriate, colour-coded weather warnings are issued. The Office of Emergency Planning works with the government departments and other key public authorities in order to ensure the best possible use of resources and compatibility across different emergency planning requirements.	N/A	N/A
Air Quality events	Y	Dust emissions during the construction phase and vehicular emissions during the construction and operational phase.	Residents/workers	Chapter 8 Air Quality of this EIAR identifies the effect of the construction and operation of the development on ambient air quality.
Wildfires	N	Not considered vulnerable to wildfires due to urban location.	N/A	N/A
Fire	N	Potential fire incidents during both the construction and operational phases. Construction-related risks, such as hot works, temporary electrical installations, and storage of flammable materials, are mitigated through site-specific fire safety plans, emergency procedures, and compliance with health and safety regulations. Operational phase risks are addressed through fire safety design measures including alarms, extinguishers, evacuation strategy, and emergency access provisions. As a result of these measures, the Proposed Development is not considered vulnerable to fire.	Residents, service users, members of the public and nearby properties.	Section 15.4.1 of this chapter outlines fire safety measures for both construction and operational phases, including site-specific fire safety planning, emergency procedures, design standards, Autotrack analysis, and DMURS compliance.

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Invasive species	Y	Habitat surveys of the site were conducted by DNV on the 2 nd of May 2024 and updated in June 2025. In addition, the site was searched for invasive flora, with a particular focus on those listed in the Third Schedule of S.I. No. 477/2011. Importantly, no invasive alien plant species were identified on the site, with the sole exception of a single strand of sycamore (<i>Acer pseudoplatanus</i>) located in the northeast section (outside of the redline boundary). While sycamore is not listed as a high-risk invasive species in Ireland, its presence is consistent with disturbed or unmanaged urban environments and does not contribute positively to the ecological value of the site.	Native species/local biodiversity	Chapter 5 of this EIAR identified the effect of invasive species.
Technological				
Structural Collapse (Building)	N	The design criteria of the buildings will be in accordance with all relevant building design standards. No further assessment is required.	N/A	N/A
Structural Collapse (Dam, Bridge, Tunnel)	N	Not considered vulnerable as no dams, bridges or tunnels are proposed as part of the development.	N/A	N/A
Flood defence failure	N	Appropriate drainage design, Sustainable Drainage Systems (SuDS) and attenuation design, have all been included in the design of the Proposed Development and will be installed according to appropriate regulations and guidelines.	Residents, service users, members of the public and nearby properties.	Chapter 7 Hydrology and Hydrogeology of this EIAR and the Flood Risk Assessment identifies the vulnerability of the Proposed Development to flooding.
Nuclear incident	N	Not considered vulnerable.	N/A	N/A
Cyber incident	N	Not considered vulnerable.	N/A	N/A
Disruption of energy supply (oil, gas, electricity)	N	Not considered vulnerable. ESB Networks maintain the electricity network in Ireland. Gas Networks Ireland maintain the natural gas network in Ireland.	N/A	Chapter 13 Material Assets – Utilities contains information on energy supply

Major Accident or Disaster	Relevant for this Proposed Development?	Why relevant?	Potential Receptor	Covered within EIAR?
Utilities failure (communications)	N	Not considered vulnerable. In Ireland, the fixed-line communications market is primarily served by Eir; while Eir, Three, and Vodafone own Ireland's mobile telecommunications infrastructure.		Chapter 13 Material Assets – Utilities contains information on communications
Utilities failure (water supply)	N	Not considered vulnerable	N/A	Chapter 7 Hydrology and Hydrogeology and Chapter 13 Material Assets – Utilities contains information on water supply
Utilities failure (wastewater, sewage)	N	Not considered vulnerable	N/A	Chapter 7 Hydrology and Hydrogeology and Chapter 13 Material Assets – Utilities contains information on wastewater management
Utilities failure (solid waste)	N	Not considered vulnerable	N/A	Chapter 13 Material Assets – Waste contains information on waste management
Industrial accidents (defence, energy, oil and gas refinery, food industry, chemical industry, manufacturing, quarrying, mining)	Y	The Circle K Galway Terminal Upper Tier COMAH site is ca. 288m east of the site.	N/A	Section 15.4.3 of this chapter details the potential major emergency management and includes a comprehensive COMAH Land Use Planning (LUP) assessment for the nearby Circle K Galway Terminal Upper Tier COMAH site. This assessment confirms that the Proposed Development complies with Health and Safety Authority (HAS) guidelines and presents no unacceptable risk

Additional Consideration of Emerging and Strategic Risks

In addition to the major accidents and disasters reviewed in Table 15-3, emerging risks identified in the National Risk Assessment 2023, including digital exclusion, cyber threats, energy supply disruption, and AI-enabled technologies, have been considered in the context of the Proposed Development. Given the nature of the Proposed Development, these emerging risks are not expected to present significant vulnerabilities specific to the development. Standard design, operational protocols, and national infrastructure resilience frameworks are considered adequate to mitigate any indirect exposure to these strategic risks.

15.4 Management Plans

15.4.1 Fire Safety and Emergency Response Plan

The design criteria of the buildings are in accordance with all relevant building regulations and fire safety standards. Fire alarms, fire extinguishers and fire blankets will be installed in communal and private apartments. All fire alarms will be in accordance with the current IS3218:2013 + A1 2019 and the Fire Certificate, and all fire extinguishers will meet the requirements of IS291:2015 - Selection, Commissioning, Installation, Inspection and Maintenance of Portable Fire Extinguishers.

A fire evacuation strategy will be put in place in advance of occupancy. Appropriate means of escape in case of fire involving escape stairs, ventilated corridors and sprinkler systems have been designed into each of the residential units. Fire safety checks and fire drills will be employed by the Management Company once the Proposed Development is operational.

During the construction phase, fire risks such as those arising from hot works, temporary electrical installations, and storage of flammable materials will be mitigated through site-specific fire safety plans, emergency procedures, and compliance with the Safety, Health and Welfare at Work Act 2005 and associated regulations. Fire prevention measures will include appropriate training, supervision, and provision of firefighting equipment, as well as the appointment of a competent person to oversee fire safety on site.

Access routes serving the Proposed Development have been designed to provide adequate space for emergency vehicles, including fire tenders. Swept path analysis using Autotrack software has been undertaken for both large refuse and fire tender vehicles. While these vehicles may track into the opposing lane at tight radii, such movements are infrequent and considered acceptable under DMURS Section 4.3.3, which prioritises low vehicle speeds over strict lane adherence in local or lightly trafficked streets. The corner geometry also supports reduced pedestrian crossing distances and promotes lower operating speeds, further enhancing safety.

15.4.2 Public Safety Zone

Public Safety Zones (PSZs) are mapped out around airport runways to protect the public on the ground from possible aircraft crashes in populated areas. PSZs are used to prevent inappropriate use of land where the risk to the public is greatest, e.g., by limiting the type and allowable height of buildings and structures within the zones.

The closest operational airport with designated PSZs is Shannon Airport, located approximately 65 km south of the Proposed Development site. Ireland West Airport Knock is also located approximately 73 km north-east of the site. Given the substantial distances involved, neither airport has PSZs that extend to or affect the Proposed Development.

Carnmore (Galway) Airport is located approximately 7.5km east of the Proposed Development site on the site of the former Galway Airport. It is no longer operational and is currently being redeveloped for non-aviation economic uses by Galway City and County Councils. As such, it does not have designated PSZs, nor is it considered a source of aviation-related risk.

Considering the distance between the Proposed Development and the nearest operational airports with PSZs, and the non-operational status of Carnmore Airport, an aircraft strike disaster is not considered relevant to the Proposed Development.

15.4.3 Potential Major Emergency Management Sites and Seveso Sites

Seveso Sites are defined as industrial sites that, due to the presence of dangerous substances in sufficient quantities, are regulated under Directive 2012/18/EU (Seveso III), which replaces earlier Directives 96/82/EC and 2003/105/EC. These sites are categorised as Lower or Upper depending on the type and quantity of hazardous substances stored at the site.

The Proposed Development is not classified as an establishment under the Control of Major Accident Hazard (COMAH) Regulations (SI 209 of 2015). However, as the site is located at Galway Port, there are several COMAH establishments in the vicinity.

There is 1 no. Upper Tier COMAH establishment, the Circle K Galway Terminal, located approximately 288m southeast of the site. The following additional Upper Tier COMAH establishments are also located within 30km of the Proposed Development:

- Chemoran: 7.8km east; and
- Cold Chon Galway Ltd: 8km east.

There are no Lower Tier COMAH establishments within 30km of the site.

The Health and Safety Authority (HSA), as the central competent authority, sets and reviews a protective consultation distance around each COMAH establishment within which there may be significant consequences from major accidents to people (or to the environment).

Within this consultation distance, three zones of risk are defined based on the location, quantity and hazards of the dangerous substances present. The zones of risk are illustrated in Figure 15-1, which outlines the inner, middle, and outer zones based on annual fatality risk thresholds, as defined by the HAS (2023).



Figure 15-1 Zones of Risk (HSA, 2023)

Based on Appendix 2 of the HSA's "Guidance on Technical Land-use Planning Advice" (2023) the Proposed Development is classified as a Level 3 sensitivity development, corresponding to 'Larger housing developments for more than 30 dwelling units' (DT 2.1.2).

Appendix 3 of the of the HSA's "Guidance on Technical Land-use Planning Advice" provides detail on the developments that are either advised against or not advised against within each of the three COMAH risk zones. Based on its classification as a Level 3 sensitivity development ('Larger housing developments for more than 30 dwelling units'), the Proposed Development is only considered acceptable within the Outer Zone (Zone 3). It is not permitted within the Inner or Middle Zones (Zones 1 and 2), in accordance with the HAS's land use planning matrix. This is illustrated in Figure 15-2, which presents the compatibility of sensitivity levels with each of the three risk zones.

	Inner Zone (Zone 1)	Middle Zone (Zone 2)	Outer Zone (Zone 3)
Level 1	✓	✓	✓
Level 2	✗	✓	✓
Level 3	✗	✗	✓
Level 4	✗	✗	✗

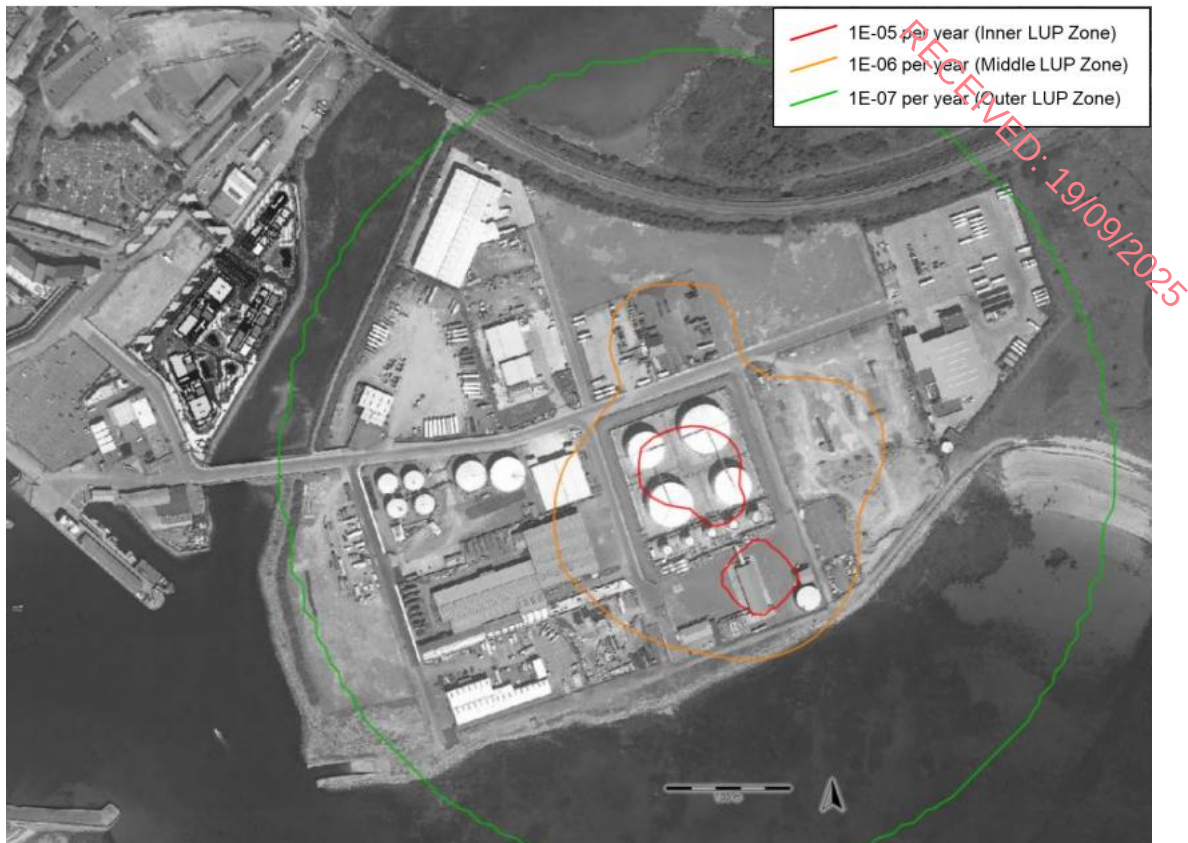
Figure 15-2 Sensitivity Levels and Risk Zone Compatibility Matrix (HSA, 2023)

A COMAH Land Use Planning (LUP) Assessment was prepared by AWN Consulting Ltd. (2025) (submitted with the application under separate cover) to determine the level of risk that would be presented to the Proposed Development from the potential for major accident scenarios to occur at any of the nearby Upper Tier COMAH establishments. The assessment was completed in accordance with the Health and Safety Authority's Guidance on Technical Land-use Planning Advice for planning authorities and COMAH establishment operators (HSA, 2023) and the Land Use Planning Policy and Approach Document (HSA, 2010).

At the request of the HSA, the assessment included a Buncefield-type vapour cloud explosion (VCE) scenario. This was modelled using the methodology outlined in the HSA's 2010 guidance and UK HSE Research Report RR512, as the 2023 guidance does not provide a specific approach for Buncefield-type events.

The Circle K Galway Terminal handles the import and storage of ultra-low sulphur diesel (ULSD), kerosene (kero) and gasoline delivered by ship, as well as ethanol received via road tankers. The LUP assessed major accident scenarios identified in the "Guidance on Technical Land-use Planning Advice", including pool fires, vapour cloud explosions and flash fires.

The individual risk contours, to persons outdoors and persons indoors (CIA 2), for the Circle K upper tier COMAH establishment are illustrated in Figure 15-3 and Figure 15-4. These correspond to the boundaries of the Inner, Middle and Outer risk-based land use planning zones.



*Figure 15-3 Individual Risk Contours, to Persons Outdoors, for Circle K Galway Terminal
(Source: LUP Assessment, AWN, 2025)*

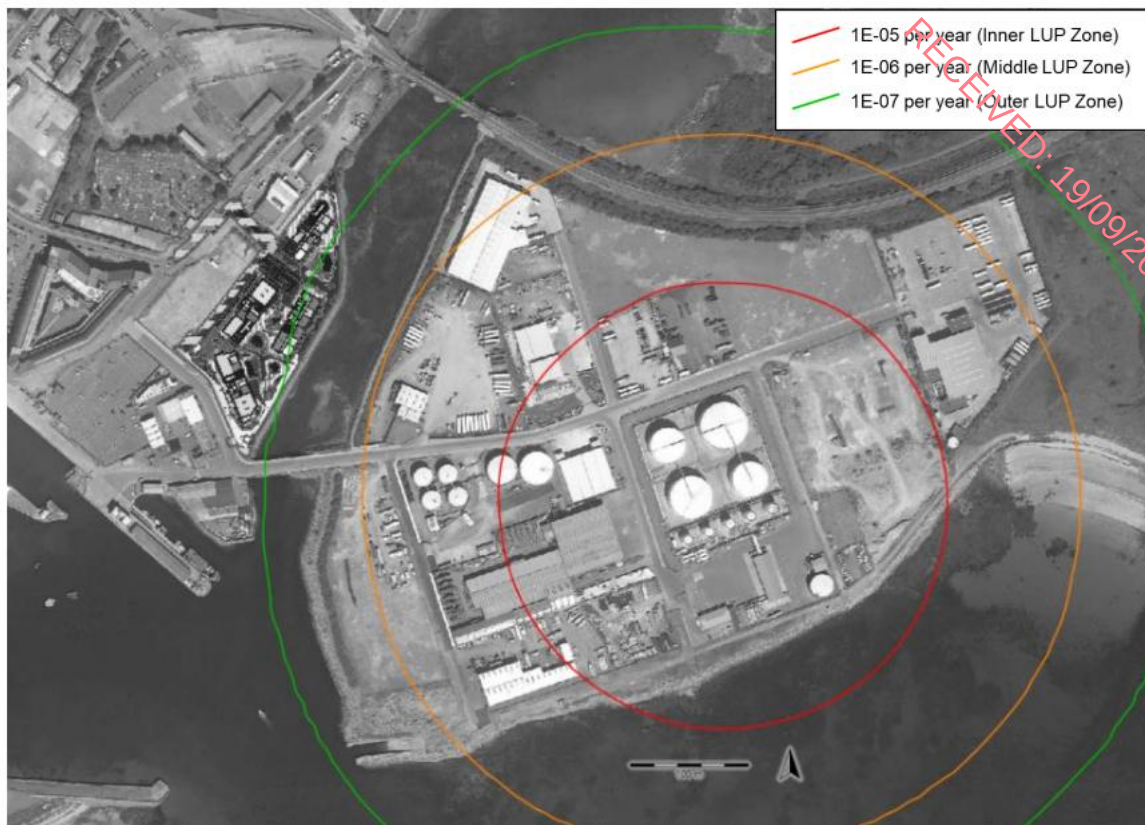


Figure 15-4 Individual Risk of Facility Contours, to Persons Indoors (CIA 2), for Circle K Galway Terminal (Source: LUP Assessment, AWN, 2025)

Based on the findings of the COMAH Land Use Planning Assessment prepared by AWN Consulting Ltd. (2025), the Proposed Development is considered acceptable in terms of both individual and societal risk. This conclusion is supported by:

- The Proposed Development's classification as a Level 3 sensitivity use, which is permitted within the Outer Zone under HSA guidance;
- The location of the Proposed Development entirely within the Outer Zone of the Circle K COMAH site;
- The results of quantitative risk modelling, which show that individual risk contours do not extend to the site; and
- A calculated Expectation Value (EV) of 667, which is well below the HSA's threshold of 2,000 for requiring further societal risk assessment.

Accordingly, the Proposed Development satisfies the HSA's land use planning criteria and presents no COMAH-related constraints to planning approval, as confirmed through quantitative risk modelling and comparison with HSA-defined thresholds for individual and societal risk.

15.4.4 Contaminated Ground

The Proposed Development site is a brownfield site comprising an area of 1.621 hectares (ha), used for the storage of wind turbine parts and bus parking, with an office building associated with the depot located at the northeastern extent. Historically, the site also

operated as a fuel storage compound with tanks for petrol, diesel, and kerosene, although these have been removed to ground level.

Previous site investigations undertaken by (RSK, 2009 and MKO, 2022) identified concentrations of lead and benzo(a)pyrene exceeding the applicable Groundwater Assessment Criteria (GACs) for a residential (without gardens) land use scenario. Additional contaminants detected in Made Ground soils include mineral oil, total petroleum hydrocarbons (TPHs), benzene, toluene, ethylbenzene, xylene isomers, methyl tert-butyl ether, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) (GII, 2024). In contrast, samples from the underlying natural ground (Possible Estuarine Sediments) showed contaminant levels below relevant GACs and were not considered to pose an unacceptable risk to human health.

The risk to future site users and construction workers from soil contamination was assessed as low to medium, primarily due to elevated concentrations of lead and PAHs in the Made Ground (MKO, 2022). To manage this risk, in-situ soil validation sampling will be collected from the area to be excavated in a phased approach prior to construction. A remediation plan will be prepared to guide the removal of residual contamination offsite. The excavation and off-site disposal of impacted soils is a design requirement of the Proposed Development.

Should contaminated material be encountered during excavation, it will be managed in accordance with the procedures outlined in Chapter 6: Land and Soils and the Construction Environmental Management Plan (CEMP) prepared by DNV (2025), and the Resource and Waste Management Plan (RWMP) prepared by AWN Consulting Ltd. (2025), which outlines the protocols for the classification, handling, and off-site disposal of hazardous and non-hazardous soils (both submitted under separate cover). With the implementation of these measures, the residual risk associated with contaminated land is considered to be low.

15.4.5 Flood Risk

The Flood Risk Assessment (FRA) completed by TOBIN (2025) has concluded that:

- **Fluvial Flooding:** *The river Corrib, which is located approximately 500m west of the subject site was studied as part of the Western CFRAM Study. The mapping shows that in a 1 in 1000- year (0.1% AEP (Annual Exceedance Probabilities)) MRFS (Mid-Range Future Scenario) event, the fluvial flood extents are at minimum 120m southwest of the subject site. Therefore, the risk of fluvial flooding to the subject site is minimal.*
- **Coastal Flooding:** *Based on the NCFHM (National Coastal Flood Hazard Mapping) NCFHM study, which supersedes the CFRAM, 75% of the subject site is located in Flood Zone C (flooding less frequent than the 1 in 1000-year event), approximately 20% of the site is located in Flood Zone B (between 1 in 200-year and 1 in 1000-year event) and approximately 5% of the site is located in Flood Zone A (More frequent than the 1 in 200-year event) In order to defend the subject site against a 1 in 1000-year (0.1% AEP) MRFS flood event, which is required for critical infrastructure, the FFL at the subject site is required to be at minimum 5.05mOD to account for climate change and a freeboard of 300mm. Therefore, it is estimated that risk of coastal flooding associated with the Proposed Development is minimal.*
- **Pluvial Flooding:** *The OPW's PFRA (Preliminary Flood Risk Asssement) indicative mapping indicates that there are no areas of pluvial flooding within the subject site.*

Surface water arising on the proposed mixed-use development will be managed by a dedicated stormwater drainage system in accordance with Sustainable Drainage Systems (SuDS) principles, limiting discharge from the site to greenfield runoff rates. The proposed stormwater drainage system has been designed to cater for all surface water runoff from hard surfaces within the development including roadways, roofs etc. All surface water generated onsite will pass through oil/petrol interceptors designed to separate hydrocarbons from water before discharging to one of 2 no. proposed attenuation units. Ultimate disposal is to outfall in the public storm culvert adjacent the bridge to the south of the site, which in turn discharges into the Galway Bay at the mouth of Lough Atalia. The landscaping and topography of the developed site will provide safe exceedance flow paths and prevent surface water ponding to minimise residual risks associated with an extreme flood event or a scenario where the stormwater drainage system becomes blocked. Therefore, it is estimated that risk of pluvial flooding associated with the Proposed Development is minimal.

- **Groundwater Flooding:** There is no evidence to suggest groundwater as a potential source of flood risk to the proposed subject site.
- **Justification Test:** The Proposed Development was subject to the Justification Test as the southwestern corner of the subject site was shown as flooding in the 1 in 1000-year coastal flood event by the NCFHM Study, with an even smaller area liable to flooding in the 1 in 200-year event, and as such was partially located in Flood Zone B and A respectively. The Proposed Development satisfied all criteria of the Justification Test.

Based on the results of this flood risk assessment, it is estimated that the risk of flooding to the Proposed Development will be minimal, and that the development will not increase the risk of flooding elsewhere. There is an evident coastal risk at the southwestern portion of the subject site. We propose to mitigate the flood risk to "Highly vulnerable" infrastructure by raising the minimum FFL to 5.05mOD, this allows for a 300mm freeboard above the 1 in 1000-year (0.1% AEP) MRFS event. Additionally, the proposed stormwater drainage system, as discussed, is capable of managing all surface water on the development. The designated access and egress route, located to the northwest of the site, lies outside all mapped flood extents under both current and MRFS scenarios, ensuring safe evacuation during the highly unlikely event of a flood. Furthermore, the tidal nature of the flood risk allows for reliable forecasting, supported by a tidal gauge located just upstream at Wolfe Tone Bridge.

15.4.6 Invasive Alien Species

The spread of invasive alien species poses a risk to surrounding ecology and biodiversity. Habitat surveys of the site were conducted by DNV in May 2024 and updated in June 2025, including a targeted search for invasive flora listed in the Third Schedule of S.I. No. 477/2011. No invasive alien plant species were identified on-site, with the exception of a single strand of sycamore (*Acer pseudoplatanus*) in the northeast section (outside of the redline boundary). While sycamore is not classified as a high-risk invasive species in Ireland, its presence is typical of disturbed urban environments and does not significantly affect the ecological value of the site. As such, the risk of invasive species introduction or spread associated with the Proposed Development is considered low.

15.5 Residual Effects

Control measures will be implemented for health, safety, and environmental management in accordance with the Construction Environmental Management Plan (CEMP) prepared by DNV (2025) (submitted under separate cover), relevant codes of practice, and applicable legislation, including:

General Environmental Legislation

- Environmental Protection Act 1992 (as amended);
- Local Government (Water Pollution) Acts 1977 and 1990;
- Wildlife (Amendment) Act 2000; and
- Litter Pollution Act 1997.

Waste Management

- Waste Management Act 1996 (as amended);
- Waste Management (Collection Permit) Regulations 2007 (as amended);
- Waste Management (Facility Permit and Registration) Regulations 2007 (as amended);
- Waste Management (Licensing, Packaging, Planning, Landfill Levy, Food Waste, Hazardous Waste, Shipments of Waste, Movement of Hazardous Waste) Regulations;
- European Communities (Waste Directive) Regulations 2011 (as amended);
- EU Council Decision 2003/33/EC (Waste Acceptance Criteria);
- EPA (2018): List of Waste and Determining if Waste is Hazardous or Non-Hazardous; and
- EPA (2020): Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities.

Water and Pollution Control

- EPA (2013): Storage and Transfer of Materials for Scheduled Activities;
- CIRIA C648, C741, C697: Water Pollution Control and Environmental Good Practice
- UK Environment Agency (2004): Pollution Prevention Guidelines; and
- Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries during Construction Works.

Noise and Vibration

- BS 5228:2009+A1:2014 - Noise and Vibration Control;
- BS 7385:1993 - Vibration in Buildings;
- ISO 4866:2010, ISO 1996-1:2016, ISO 1996-2:2017 - Environmental Noise Assessment; and
- National Roads Authority (2004): Noise and Vibration Guidelines.

Biodiversity and Ecology

- Bat Conservation Trust and Institution of Lighting Professionals (2023);

- Bat Conservation Ireland (2010); and
- Transport Infrastructure Ireland (2010): Management of Noxious Weeds and Non-Native Invasive Plant Species.

Construction and Site Management

- BS 5837:2012 – Trees in Relation to Design, Demolition and Construction;
- BS 10175:2011+A2:2017 – Contaminated Sites Investigation;
- Environment Agency (2001 and 2002): Piling into Contaminated Sites;
- Institute of Air Quality Management (2018 and 2024): Air Quality and Dust Assessment; and
- Transport Infrastructure Ireland (2024): Carbon Tool for Road, Greenway and Light Rail Projects.

Residual effects will be negligible once all control, mitigation and monitoring measures have been implemented. The potential for dust or noise from site operations to cause any nuisance to nearby receptors is deemed to be negligible and the adherence and full implementation of the appropriate control and mitigation measures will ensure there is no potential for cumulative effects to arise.

15.6 Monitoring

There is no monitoring required with regards to risk management. All monitoring proposals for the interacting chapters have been detailed in the relevant technical chapters and are included in Chapter 17 Mitigation Measures and Monitoring.

15.7 Difficulties Encountered When Compiling

No difficulties were encountered in completing this chapter.

15.8 References

AWN Consulting Ltd. (2025) Land-use Planning Assessment.

AWN Consulting Ltd. (2025) Resource and Waste Management Plan.

Bat Conservation Trust and Institution of Lighting Professionals (2023). *Bats and Artificial Lighting at Night: Guidance Note GN08/23*.

Bat Conservation Ireland (2010). *Guidance Notes for Planners, Engineers, Architects and Developers*.

BS 5228:2009+A1:2014 - *Code of Practice for Noise and Vibration Control on Construction and Open Sites*.

BS 7385:1993 - *Evaluation and Measurement for Vibration in Buildings Part 2: Guide to Damage Levels from Ground Borne Vibration*.

BS 5837:2012 - *Trees in Relation to Design, Demolition and Construction. Recommendations*.

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ISO 1996-2:2017 – *Acoustics - Description, Measurement and Assessment of Environmental Noise - Part 2: Determination of Sound Pressure Levels*.

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S.I. 1 of 1977. Local Government (Water Pollution) Act, 1977.

S.I. 21 of 1990. Local Government (Water Pollution) (Amendment) Act, 1990.

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TOBIN (2025) Flood Risk Assessment.

UK Environment Agency (2004): *Pollution Prevention Guidelines*.

Waste Management Act 1996 (No. 10 of 1996) as amended 2001 (No. 36 of 2001), 2003 (No. 27 of 2003) and 2011 (No. 20 of 2011).

Waste Management (Collection Permit) Regulations (S.I. No. 820 of 2007) as amended 2008 (S.I. No. 87 of 2008), 2015 (S.I. No. 197 of 2015) and 2016 (S.I. No. 24 and 346 of 2016).

Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended 2008 (S.I. No. 86 of 2008), 2014 (S.I. No. 320 and No. 546 of 2014), and 2015 (S.I. No. 198 of 2015).

Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010).

16 INTERACTIONS

16.1 Introduction

As a requirement of the Planning and Development Regulations 2001-2025 (as amended) and the Environmental Protection Agency's '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' (2022), interrelationships between various environmental aspects must be considered when assessing the impact of the Proposed Development, as well as any individual significant impacts that could arise as a result of the Proposed Development. The significant impacts of the Proposed Development and the proposed mitigation measures have been detailed in the preceding chapters of this report. However, as with all developments that pose potential environmental impacts, there also exists potential for interactions/interrelationships between the impacts of different environmental aspects assessed. The results may exacerbate or ameliorate the magnitude of impacts. This chapter of the EIAR addresses the interactions between the various environmental factors assessed as a result of the Proposed Development.

The following Section is directed by Article 3 Section 1(e) of the EIA Directive. The EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022), Advice Notes for Preparing Environmental Impact Statements (Draft, September 2015) and OPR Practice Note PN02 Environmental Impact Assessment Screening (June 2021) were also considered.

Article 3 Section 1(e) of the Directive states:

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

16.1.1 Quality Assurance and Competence

This chapter has been prepared by Aisling Jones, Junior Environmental Consultant with DNV. Aisling has a Bachelor of Civil Law degree from University College Dublin and a Master of Science degree in Environmental and Climate Law also from University College Dublin. Aisling is employed as a Junior Environmental Consultant with DNV and has experience preparing Environmental Impact Assessment (EIA) Screening Reports, Mitigation and Monitoring chapters of EIARs and Feasibility Studies for onshore wind projects.

This chapter has been reviewed by Laura Griffin, Environmental Consultant at DNV. Laura has a Master of Science (Hons) degree in Climate Change from Maynooth University and a

Bachelor of Arts (Hons) degree in English and Geography from Maynooth University. Laura has 5+ years of professional experience. Laura has experience preparing Environmental Impact Assessment (EIA) Screening Reports and a EIAR chapters for developments of a similar scale and nature to the Proposed Development.

This chapter has been approved by Catherine Keogan, Technical Director and EIA Lead at DNV. Catherine is an environmental consultant with 37 years' experience in consultancy, specialising in EIAs for large-scale residential, commercial developments, pharmaceutical, BESS and solar projects working closely with a range of developers, planning consultants and architects within the public and private sector. Catherine has a B.Sc. (Hons) in Analytical Science and a Post Graduate Diploma in Renewable Energy Technology Systems.

16.2 Study Methodology

The interactions between impacts on different environmental factors have been addressed throughout this EIAR. Close co-ordination and management with the EIAR team was carried out to ensure that all likely relevant interactions were addressed at the scoping stage of the EIAR, and interactions have been adequately assessed.

Following a review of the EIAR, a matrix was produced to display where interactions between impacts on different factors have been addressed. This has been carried out by use of chapter headings included in the EIAR and details of any interaction during all phases of the Proposed Development.

16.3 Interactions

The following matrix has been produced to show where potential significant interactions between effects on different environmental factors have been identified, see Table 16-1. The matrix includes interactions at both the construction and operational phases.

As this EIAR has been prepared by a number of specialist consultants, an important aspect of the EIA process was to ensure that interactions between the various disciplines have been taken into consideration. The principal interactions requiring information exchange between the environmental specialists and the design team are summarised in Table 16-2 to Table 16-12.

Table 16-1: Interactions between Factors of the Proposed Development

Interaction	4. Population and Human Health	5. Biodiversity	6. Land and Soils	7. Hydrology and Hydrogeology	8. Air Quality	9. Climate	10. Noise and Vibration	11. Landscape and Visual	12. Material Assets - Traffic	13. Material Assets - Waste and Utilities	14. Archaeology and Cultural Heritage
Population and Human Health											
Biodiversity											
Land and Soils											
Hydrology and Hydrogeology											
Air Quality											
Climate											
Noise and Vibration											
Landscape and Visual Amenity											
Material Assets – Traffic											
Material Assets - Waste and Utilities											
Archaeology and Cultural Heritage											

	No Interaction
	Potential Interaction
	N/A

Table 16-2 Population and Human Health

Population and Human Health	
Summary	
Chapter 4 of this EIAR, <i>Population and Human Health</i>, details the direct and indirect effects of the Proposed Development on Population and Human Health; and sets out any required mitigation measures where appropriate. There are numerous inter-related environmental topics described in detail throughout this EIAR which are of relevance to population and human health.	
Interactions	
Biodiversity	There is an interaction with Biodiversity in relation to lighting within public open spaces. While lighting is necessary to ensure a safe and accessible environment for residents and the public, it has the potential to impact nocturnal species such as bats, otters, and seals. Mitigation measures, as outlined in the Biodiversity chapter, have been incorporated into the design to minimise these effects.
Land and Soils	During the construction phase, potential risks to construction workers may arise from exposure to ACMs and other soil contaminants (e.g. lead, PAHs, hydrocarbons). These risks will be effectively managed through the implementation of standard health and safety procedures, use of personal protective equipment (PPE), good site hygiene, and compliance with relevant asbestos and contaminated land regulations. Licensed contractors will undertake the removal and disposal of any asbestos or contaminated materials in accordance with statutory requirements. During the operational phase, potential risks to future occupants from residual soil contamination (e.g. asbestos, lead and PAHs) will be mitigated by the incorporation of permanent barrier layers. These will include building footprints, hardstanding, and engineered capping layers in landscaped areas. This design approach ensures that no exposure pathways remain between future occupants and contaminated soils. With the implementation of these measures, the potential effects of contaminated soils and asbestos on population and human health during both the construction and operational phases of the Proposed Development are assessed as neutral, short to long term and slight, and are therefore considered not significant in EIA terms.

Hydrology – Water Quality	Pollution events can impact the water quality and thus impact the human health of the surrounding population. Appropriate surface water control measures will be implemented as part of the Proposed Development. No public health issues associated with the water conditions at the site have been identified for the construction phase or operational phase of the Proposed Development. There are no likely significant adverse effects as a result of water quality (Hydrology) and as such there will be no significant effects on population and human health.
Air Quality	The Proposed Development has the potential to generate dust during construction and emissions from traffic during both construction and operation, which could affect nearby sensitive receptors if not properly managed. However, as outlined in Chapter 8, no significant air quality effects are anticipated. All relevant ambient air quality legislative limits will be met, and appropriate mitigation measures will be implemented. As a result, the predicted effect on air quality is not significant, with a neutral effect on population and human health.
Climate	Interactions between climate and human health have been considered with regard to GHG emissions and the potential long-term effects of climate change. As assessed in Chapter 9, emissions associated with the Proposed Development are not significant, and the development has been designed to incorporate energy-efficient measures and climate resilience features, including appropriate drainage infrastructure. Flood risk has also been assessed and is considered not significant. As such, the overall effect on climate, and any indirect effects on population and human health, is considered to be neutral and not significant.
Noise and Vibration	Construction activities such as site clearance, building construction works, and trucks and vehicles entering and exiting the site have the potential to interact with the surrounding population and human health and cause noise disturbance. The impact assessment of noise and vibration has concluded that additional noise associated with the construction phase will not cause a significant adverse effect, with the implementation of proposed Mitigation measures. Operational phase noise effects have also been assessed in relation to traffic and plant equipment and no significant adverse effects will be experienced. As such, there will be no significant effect on population and human health.
Landscape and Visual	The Proposed Development will alter the visual appearance of the site which is predominantly a brownfield site including the existing buildings to be demolished. It is not considered that the Proposed

	Development by virtue of its visual appearance and in the context of the proposed zoning of the site of the Proposed Development and the suburban nature of the surrounding landscape, will cause any significant effects and as such there will be no significant effect on population and human health.
Traffic and Transport	Construction and operational activities will result in an increased number of traffic movements. There is a potential effect on population and human health in relation to the capacity and operation of the surrounding road network. The overall effect of the Proposed Development on the transportation infrastructure in the local area will not be significant and subsequently there will be no significant effect on population and human health.
Material Assets: Waste and Utilities	Improper removal, handling, or storage of hazardous or domestic waste, as well as extended disruption to electricity, telecommunications, water supply, or sewerage systems, could adversely affect Population and human health. However, as detailed in Chapter 13 of this EIAR, appropriate mitigation measures will be implemented. As a result, the predicted effect on Material Assets: Waste and Utilities is not significant, with a neutral effect on population and human health.
Conclusions	
It is unlikely that significant adverse effects on Land and Soils, Hydrology and Hydrogeology, Material Assets, Air Quality, Climate, Noise and Vibration, Traffic and Transport, Landscape and Visual and Biodiversity will occur, and mitigation measures have been set out for any of these potential interactions.	

Table 16-2: Biodiversity

Biodiversity	
Summary	
Chapter 5 of this EIAR, <i>Biodiversity</i>, details the direct and indirect effects of the Proposed Development on the local flora and fauna; and sets out any required mitigation measures where appropriate. Interactions between Biodiversity and other environmental factors of the EIAR have been identified with the following sections: Hydrology, Landscape, Noise, Material Assets, Climate Change, Air Quality, Land and Soils, and Population and Human Health. The final impact of interactions for each environmental factor has been assigned accounting for the various embedded design features as well as mitigation measures proposed in this chapter and the accompanying NIS and CEMP reports.	
Interactions	
Population and Human Health	The open space, including Lough Atalia Walk incorporated into the design of Proposed Development will provide outside areas for residents/members of the public, including play and amenity areas. Interaction with population and human health involves the provision of lighting to provide a safe outdoor realm for the people which, without mitigation, could impact on nocturnal species, particularly on bats, otter, and seal which may be present in the wider area. Mitigation measures proposed and outlined in further detail in Section 5.6 of the Biodiversity chapter, include restricted lighting in the core and buffer zones that overlook Galway Bay, as appropriate, and a lighting design minimising impact on bats and other nocturnal animals, ensuring suitable commuting and foraging habitat is maintained throughout. With the implementation of the outlined mitigation measures, the interaction between population/human health and biodiversity will be <i>long-term, not significant and neutral</i>.
Land and Soils	The Proposed Development will involve the excavation and removal of approximately 11,594m³ of soil and subsoil including made ground as part of remedial excavations at the site during the construction phase which will then be removed offsite for disposal to a licensed facility. This will result in a permanent but non-significant impact on land and soil, in line with local zoning objectives. Works will also generate dust and potentially impact on the air quality in the locality. However, the generation of dust will be temporary and is restricted

	to the construction phase of the Proposed Development. As such, it is not anticipated to have the ability to cause a significant impact on biodiversity. The excavation of Made Ground impacted with anthropogenic contamination (i.e., hydrocarbons and metals) and permanent removal offsite is a design requirement of the Proposed Development, which will improve the quality of the shallow soils beneath the site. There is a potential risk to construction workers from shallow soil impacted by contamination which is considered low to medium and will be mitigated through best practice measures outlined in the Construction Environmental Management Plan (CEMP). No significant adverse effects are anticipated under the EIA Directive. Waste materials will be managed by authorised contractors and sent to licensed facilities. The impact of the interactions between land and soils (Chapter 6) and biodiversity (this chapter) are considered to be temporary, imperceptible, and neutral. These effects are deemed non-significant within the context of the EIA Directive.
Hydrology	Water is the primary environmental medium through which the Proposed Development may interact with biodiversity. Potential effects on the hydrological and hydrogeological environment are assessed in Chapter 7 – Hydrology of this EIAR, as well as in the accompanying AA Screening Report and Natura Impact Statement (DNV, 2025a; 2025b). These assessments ensure that both the quality (e.g. pollution, sedimentation) and quantity (e.g. surface water runoff) of water are maintained to appropriate standards throughout the lifecycle of the Proposed Development. Hydrology and biodiversity are closely linked, particularly where ecological receptors, such as sensitive habitats or species, are dependent on water quality and flow regimes. For example, an accidental pollution event during the construction or operational phases could adversely affect nearby aquatic or intertidal habitats, especially those hydrologically connected to the Site, such as Galway Bay and Lough Atalia. To address these risks, a suite of mitigation measures is proposed within the NIS and this biodiversity chapter, designed to prevent any significant deterioration in water quality. These include surface water management controls, pollution prevention protocols, and construction-phase safeguards, ensuring that biodiversity is protected from hydrological impacts. In addition, Chapter 5 – Biodiversity of this EIAR provides a detailed assessment of the potential impacts of the Proposed Development on habitats, flora, and fauna. Particular emphasis is placed on species and habitats that may be affected by excavation, material

	importation, and other site activities. The chapter also evaluates impacts on species protected under national and international legislation, or considered of conservation importance, and outlines appropriate mitigation measures to avoid or reduce these impacts. The impact of the interactions between hydrology and biodiversity (this chapter) are considered to be <i>temporary, imperceptible, and neutral</i>. These effects are deemed non-significant within the context of the EIA Directive.
Air Quality	Interactions between air quality and biodiversity have been considered in conjunction with Chapter 5 (Biodiversity). During the demolition and construction phase, dust emissions could potentially affect nearby habitats and species. However, the mitigation measures outlined in the chapter will minimise dust deposition and no significant impacts on designated sites or sensitive ecological receptors are anticipated. No significant interactions are expected during the operational phase. The impact of the interactions between air quality (Chapter 8) and biodiversity (this chapter) are considered to be <i>short-term, imperceptible, and neutral</i>. These effects are deemed non-significant within the context of the EIA Directive.
Climate	Climate change can alter habitat conditions, encourage spread of invasive species, disrupt species distributions, and affect ecological balances. These shifts may impact local flora and fauna, particularly in sensitive coastal and estuarine environments adjacent to the Proposed Development. The Biodiversity chapter outlines a suite of mitigation and enhancement measures that directly support climate resilience, including: • Planting of native tree and hedgerow species selected for their adaptability to changing climatic conditions; • Integration of green infrastructure such as permeable paving, green walls, and pollinator-friendly planting to support ecosystem services; • Sustainable drainage systems (SuDS) to manage water quality and quantity; and • Lighting design to reduce disturbance to nocturnal species. • Long-term habitat management, including for the prevention of the introduction and spread of invasive species. • Biodiversity measures listed above and included within the biodiversity chapter align with national and EU climate adaptation strategies, contributing to broader goals such as

	carbon neutrality, nature-based solutions, and ecosystem-based adaptation. Such strategies include: • CAP25 explicitly supports a transition to a biodiversity-rich, climate-resilient, and environmentally sustainable economy • National Adaptation Framework (NAF) 2025, which identifies biodiversity as a priority sector for climate adaptation, promotes ecosystem-based adaptation and nature-based solutions to address climate risks such as flooding, drought, and habitat loss, and encourages local and sectoral adaptation plans to integrate biodiversity and climate resilience. • EU Adaptation Strategy (2021 Update) which emphasizes nature-based solutions (NbS) as a key cross-cutting priority. Supports ecosystem restoration, urban greening, and coastal protection as climate adaptation tools, and promotes integration of NbS into urban planning, water management, and disaster risk reduction. • EU Biodiversity Strategy 2030 which aims to restore at least 30% of degraded ecosystems by 2030. Recognizes biodiversity as essential for climate mitigation and adaptation, and supports green infrastructure and ecological connectivity to enhance resilience. These measures contribute to carbon sequestration, urban cooling, and ecological connectivity, enhancing the site's resilience to climate change and supporting long-term biodiversity conservation. The impact of the interactions between climate change and biodiversity (this chapter) are considered to be <i>long-term, imperceptible, and neutral</i>. These effects are deemed non-significant within the context of the EIA Directive.
Noise and Vibration	This chapter has also been developed in close liaison with the author of the Noise chapter to evaluate the potential effects of noise and vibration on sensitive ecological receptors. Particular attention was given to the potential for disturbance at nearby designated sites, including the Inner Galway Bay Special Protection Area (SPA), Galway Bay Complex Special Area of Conservation (SAC), and Lough Corrib SAC. Biodiversity assessment data informed the assessment of potential impacts on protected species and habitats, particularly in relation to noise-sensitive periods such as breeding or foraging. This collaborative approach ensures that any required mitigation measures are appropriately aligned to safeguard both ecological and human receptors from adverse noise and vibration effects. The impact of the interactions between noise and biodiversity (this chapter) are considered to be <i>temporary, negative,</i>

	<i>and slight</i>. These effects are deemed non-significant within the context of the EIA Directive.
Landscape	As the habitats present on Site are largely man-made, and heavily modified/urbanised, significant impacts on flora and fauna arising from the Proposed Development within the footprint of the Site are not envisaged. However, the landscape masterplan introduces a comprehensive suite of green infrastructure and ecological planting measures designed to significantly enhance biodiversity, improve habitat connectivity, and support native flora and fauna. These include: ○ Grass lawns ○ Nature-based play areas ○ Native hedgerow and tree planting ○ Ornamental perennials and grasses ○ Green walls & raised planting beds ○ Communal areas Open spaces are therefore being incorporated into the Site to provide amenity areas for residents and visitors, which will include play areas, grass lawns, and communal areas to include the plaza and the Lough Atalia Walk. Overall, the landscape plan for the Proposed Development clearly reflects a strong emphasis on ecological enhancement and sustainable urban design. Through the incorporation of native plant species, habitat features, and biodiversity-friendly infrastructure across the Site, the Proposed Development will revitalise a previously low ecological value urban area into a meaningful local ecological asset. The proposed planting will establish ecological corridors that support movement and foraging, offer potential nesting sites, and enhance food availability for small mammals, birds, and bat species that may inhabit the site and surrounding landscape. These measures align with national biodiversity strategies and contribute to the overall environmental resilience of the Galway Bay coastal zone. Therefore, the interactions between biodiversity and landscape are considered to be <i>long-term, moderate, positive</i> impact. These effects are deemed non-significant within the context of the EIA Directive.
Material Assets	In accordance with the requirements of the Habitats Directive and the concerns raised in the LRD Opinion, the potential for contaminated land to impact nearby European sites has been carefully considered. A comprehensive Appropriate Assessment (AA) Screening and NIS have been undertaken, concluding that, with the implementation of proposed mitigation measures, the

Development will not result in deterioration or disturbance of natural habitats or species. These findings are supported by this Biodiversity Chapter, which includes baseline ecological surveys, identification of sensitive receptors, and detailed mitigation measures. These include surface water protection measures, dust and noise control, lighting restrictions, and timing of works, all of which are designed to prevent adverse effects on designated sites. The management of any contaminated material encountered during construction will be carried out in accordance with these measures, ensuring that ecological receptors are protected throughout the project lifecycle. Potential effects on biodiversity are addressed in Section 5.5 of the Biodiversity Chapter. The impact of the interactions between material assets and biodiversity (this chapter) are considered to be *short-term, imperceptible, and neutral*. These effects are deemed non-significant within the context of the EIA Directive.

Conclusions

Interactions between Biodiversity and other environmental factors of the EIAR have been identified with the following sections: Population and Human Health, Land and Soils, Air Quality, Climate, Noise and Vibrations, Landscape and Material Assets.

Table 16-3: Land and Soils

Land and Soil	
Summary	
Chapter 6 of this EIAR, <i>Land and Soils</i>, details the direct and indirect effects of the Proposed Development on the local land, soils, and geology; and sets out any required mitigation measures where appropriate. There are a number of potential pollutants associated with the construction and operational phases which have the potential to impact on the environment.	
Interactions	
Population and Human Health	An assessment of the potential effect of the Proposed Development on human health is included in Chapter 4 of this EIAR.
	The soils beneath the site are locally impacted with lead and benzo(a)pyrene in excess of the GACs for residential (without gardens) end use scenario. Detectable concentrations of mineral oil, TPHs, benzene, toluene, ethylbenzene, m&p-xylene, o-xylene and methyl tert-butyl ether, other speciated PAHs and PCBs have also been reported in Made Ground soils beneath the site. Without suitable remedial measures the contamination in the soils under the Proposed Development poses a risk to site workers and future occupants of the site.
	Appropriate industry standard and health and safety legislative requirements will be implemented during the construction phase of the Proposed Development that will be protective of site workers. All works will be undertaken by the appointed contractor in accordance with industry best practice to manage risk from contaminated soils. These will be designed by the appointed contractor dependent on his construction practices and may to include the use of gloves, dust masks and potentially disposable overalls. These and other appropriate measures will minimise the exposure of the site workers. The design of the Proposed Development will ensure that there is no risk to future occupants. The footprint of the proposed buildings will prevent any future contact or exposure to any remaining contaminated soil. It is anticipated that the majority of contaminated soils will be excavated during bulk excavations for the Proposed Development. Nevertheless, as part of incorporated design measures for the Proposed Development in-situ soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite. In addition, any areas which will be

	developed as public open or communal amenity space (i.e., the landscaped courtyards and open spaces between the buildings) will be completed as necessary with imported clean soil to prevent site users from interacting with contaminated soil. Accordingly, it is considered that there will be no impact on future occupants of the site.
Biodiversity	An assessment of the potential effects of the Proposed Development on the Biodiversity of the site, with emphasis on habitats, flora and fauna which may be affected as a result of the excavation and importation of materials to the site are included in Chapter 5 of this EIAR. It also provides an assessment of the effects of the Proposed Development on habitats and species, particularly those protected by national and international legislation or considered to be of particular conservation importance and proposes measures for the mitigation of these effects.
Hydrology and Hydrogeology	An assessment of the potential effect of the Proposed Development on the hydrological and hydrogeological environment is included in Chapter 7 of this EIAR. Groundwater locally impacted with petroleum hydrocarbons is present in the groundwater in close proximity to the site boundary. The removal of residual sources of contamination in soils will likely improve the quality of groundwater beneath the site. The mobilisation of residual contamination in soil beneath the site during the construction phase could result in an adverse impact on the receiving hydrogeological and hydrological environment. Piling during the construction phase of the Proposed Development may also potentially create pathways for sources of contamination in shallow soils, groundwater and leachates to enter underlying groundwater. Procedures for the protection of the receiving water environment are addressed in Chapter 7, Section 7.6 of this EIAR.
Air Quality	The excavation of soils across the site and the temporary stockpiling of soils pending reuse or removal offsite has the potential to generate nuisance effects (i.e., dust) during the construction phase of the Proposed Development. An assessment of the potential effect of the Proposed Development on air quality is included in Chapter 8, Section 8.5 of this EIAR.
Landscape and Visual	During the construction phase and into the operational phase of the Proposed Development, the site landscape will undergo a change from undeveloped lands to residential use. An assessment of the

	potential effect of the Proposed Development on the receiving landscape is included in Chapter 11, Section 11.6 of this EIAR.
Material Assets: Traffic, Transport, and Waste	Where possible, it is intended to retain and re-use excavated soil and subsoil on the site for engineering fill and landscaping. However, it is anticipated that the majority of excavated soil and subsoil, including contaminated soil, will require removal offsite in accordance with all statutory legislation. Additionally, there is a requirement to import aggregates during the construction phase of the Proposed Development. An assessment of the potential effect of the Proposed Development on the material assets (traffic and transport) and material assets (waste) are included in Chapter 12, Section 12.5 and Chapter 13, Section 13.5 of this EIAR, respectively.
Conclusions	
Potential impacts have been outlined in the respective chapters specified above. The mitigation measures outlined in the Construction Environmental Management Plan (CEMP), and the respective chapters outlined above, will ensure that there will be no significant adverse impacts on the receiving land, soil and geology associated with the construction phase and the operational phase of the Proposed Development.	

Table 16-4: Hydrology and Hydrogeology

Hydrology and Hydrogeology	
Summary	
Chapter 7 of this EIAR, <i>Hydrology and Hydrogeology</i>, provides an assessment of the potential impacts of the Proposed Development on hydrology, water and hydrogeology and sets out any required mitigation measures where appropriate. Consideration is given to habitats and species protected by national and international legislation or considered to be of particular conservation importance.	
Interactions	
Population and Human Health	An assessment of the potential impact of the Proposed Development on human health is included in Chapter 4, Section 4.5 of this EIAR. The soils and groundwater beneath the site are locally impacted with hydrocarbons, PAHs and some metals. Without suitable remedial measures, the contamination under the Proposed Development site (i.e., presence of hydrocarbons in the made ground) poses a risk to structures, site workers and future occupants of the site from inhalation, dermal contact, etc. Appropriate industry standard and health and safety legislative requirements will be implemented during the construction phase of the Proposed Development that will be protective of site workers.
Biodiversity	An assessment of the potential impacts of the Proposed Development on the Biodiversity of the site, with emphasis on habitats, flora and fauna which may be impacted as a result of the excavation and importation of materials to the site, is included in Chapter 5 of this EIAR. It also provides an assessment of the impacts of the Proposed Development on habitats and species, particularly those protected by national and international legislation or considered to be of particular conservation importance and proposes measures for the mitigation of these impacts.
Land and Soils	An assessment of the potential impact of the Proposed Development on the land and soils is included in Chapter 6 of this EIAR. During the construction of earthworks, heavy rainfall events have the potential to mobilise contaminated runoff and impact on the usability of materials stored onsite. This could therefore require the importation of additional material from external sources. Mitigation measures to reduce the risk of damage to construction materials

	from heavy rainfall and flood events are outlined in this Chapter of the EIAR.
Material Assets: Waste and Utilities	An assessment of the potential impact of the Proposed Development on the material assets - waste and utilities including built services and infrastructure has been set out in Chapter 13, Section 13.5 of this EIAR. During the construction phase of the Proposed Development, discharges of water to the public foul sewer will be in accordance with the necessary discharge licence issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations. During the operational phase of the Proposed Development, any discharges to the public foul sewer and water supply to the proposed development will be under consent from Uisce Éireann (UE).
Conclusions	
The protective/avoidance/mitigation measurements that will be applied as set out in the CEMP, will ensure that the Proposed Development will not give rise to any likely significant impacts.	

Table 16-5: Air Quality

Air Quality	
Summary	
Chapter 8 (a) of this EIAR, <i>Air Quality</i>, provides an assessment of the potential impacts of the Proposed Development on ambient air quality and sets out appropriate mitigation measures where necessary. This section has been informed by, and should be read in conjunction with, other relevant chapters including Population and Human Health, Biodiversity, Land and Soils, Climate, and Traffic and Transport, to ensure a consistent and comprehensive assessment of potential interactions.	
Interactions	
Population and Human Health	The Proposed Development has the potential to generate dust during demolition and construction and emissions from traffic during the operational phase, which could affect nearby sensitive receptors if not properly managed. However, the mitigation measures employed at the Proposed Development during demolition and construction, as outlined in Section 8.6.1, will ensure that all effects are compliant with ambient air quality standards, and that exposure levels remain below thresholds known to impact human health. Furthermore, traffic-related pollutants have been assessed and determined as having an overall insignificant effect, therefore air quality effects from the Proposed Development are not expected to have a significant effect on population and human health. This chapter should be read in conjunction with Chapter 4 (Population and Human Health), to provide a comprehensive understanding of potential health-related interactions.
Biodiversity	Interactions between air quality and biodiversity have been considered in conjunction with Chapter 5 (Biodiversity). During the demolition and construction phase, dust emissions could potentially affect nearby habitats and species. However, the mitigation measures outlined in this chapter will minimise dust deposition and no significant impacts on designated sites or sensitive ecological receptors are anticipated. No significant interactions are expected during the operational phase.

Land and Soil	Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential to generate dust, which may interact with land and soils. This interaction has been considered alongside Chapter 6 (Land and Soils). With the application of the appropriate dust control measures, no significant effects are predicted during the construction phase. There are no potentially significant interactions identified during the operational phase between air quality and land and soils.
Climate	Air quality and climate are interrelated due to shared sources of emissions, particularly from the combustion of fossil fuels during both the demolition/construction and operational phases of the Proposed Development. These activities generate pollutants that contribute to both local air quality impacts and global climate change. During the construction phase, emissions may arise from machinery, equipment, and vehicle movements, contributing to both air pollutants and greenhouse gases. During the operational phase, traffic-related emissions associated with the Proposed Development are the primary source of ongoing contributions to climate-related impacts. While air quality does not directly influence climate, the sources of emissions that affect both are closely linked. As such, the assessment of air quality has been undertaken in parallel with the climate assessment presented in Chapter 9 (Climate) to ensure consistency in the evaluation of emissions and their potential impacts. Based on the nature and scale of the Proposed Development, and the mitigation measures in place, no significant effects on climate are anticipated during either the construction or operational phases.
Material Assets: Traffic	There can be a significant interaction between air quality and traffic. This is due to traffic-related pollutants that may arise during both the construction and operational phases. In the current assessment, traffic derived pollutants which may affect air quality have been deemed not significant. Therefore, the effect of the interaction between air quality and traffic is not significant for both the construction and operational phases of the Proposed Development.
Conclusions	
Mitigation measures employed at the Proposed Development will ensure that no significant impacts occur.	

Table 16-6: Climate

Climate	
Summary	
Climate interactions with various environmental topics are extensive and significant, highlighting the broad effect of climate factors across different aspects of the environment. The “avoidance, remediation and mitigation” section of the Climate chapter outlines effective management and reduction measures for the following identified interactions. One of the most critical interactions is between climate and GHG emissions. The Proposed Development’s carbon footprint, including emissions from construction and operational activities, energy use, and transportation, plays a role in influencing climate change. Effective management and reduction measures for these emissions are outlined in the mitigation section to support climate resilience and regulatory compliance.	
Interactions	
Population and Human Health	Human health and well-being are closely linked to climate factors. Climate change can exacerbate health issues such as heat stress, respiratory conditions, and vector-borne diseases. While the Population and Human Health chapter focuses on direct health determinants, the Climate Chapter also considers indirect pathways through which climate-related measures may influence public health. These include: • Air quality impacts from construction and operational traffic, which are addressed in parallel with climate assessment (see Chapter 8); • Noise and vibration disturbance, particularly in relation to sensitive receptors such as residential dwellings and The Harbour Hotel Galway; • Green infrastructure and landscaping, which contribute to urban cooling, improved air quality, and enhanced amenity; • SuDS and water management systems, which reduce flood risk and associated health hazards; and • Traffic emissions, which were assessed using DMRB LA 114 criteria and scoped out for both construction and operational phases, confirming no significant climate-related health effects These measures support climate resilience and help safeguard public health in the context of a changing climate.

Biodiversity

Climate change can alter habitat conditions, encourage spread of invasive species, disrupt species distributions, and affect ecological balances. These shifts may impact local flora and fauna, particularly in sensitive coastal and estuarine environments adjacent to the Proposed Development.

The Biodiversity chapter outlines a suite of mitigation and enhancement measures that directly support climate resilience, including:

- Planting of native tree and hedgerow species selected for their adaptability to changing climatic conditions;
- Integration of green infrastructure such as permeable paving, green walls, and pollinator-friendly planting to support ecosystem services;
- Sustainable drainage systems (SuDS) to manage water quality and quantity; and
- Lighting design to reduce disturbance to nocturnal species.
- Long-term habitat management, including for the prevention of the introduction and spread of invasive species.
- Biodiversity measures listed above and included within the biodiversity chapter align with national and EU climate adaptation strategies, contributing to broader goals such as carbon neutrality, nature-based solutions, and ecosystem-based adaptation. Such strategies include:
 - CAP25 explicitly supports a transition to a biodiversity-rich, climate-resilient, and environmentally sustainable economy
 - National Adaptation Framework (NAF) 2025, which identifies biodiversity as a priority sector for climate adaptation, promotes ecosystem-based adaptation and nature-based solutions to address climate risks such as flooding, drought, and habitat loss, and encourages local and sectoral adaptation plans to integrate biodiversity and climate resilience.
 - EU Adaptation Strategy (2021 Update) which emphasizes nature-based solutions (NbS) as a key cross-cutting priority. Supports ecosystem restoration, urban greening, and coastal protection as climate adaptation tools, and promotes integration of NbS into urban planning, water management, and disaster risk reduction.
 - EU Biodiversity Strategy 2030 which aims to restore at least 30% of degraded ecosystems by 2030. Recognizes biodiversity as essential for climate mitigation and

	adaptation, and supports green infrastructure and ecological connectivity to enhance resilience. These measures contribute to carbon sequestration, urban cooling, and ecological connectivity, enhancing the site's resilience to climate change and supporting long-term biodiversity conservation.
Land and Soils	Climate change can affect soil moisture, erosion rates, and land productivity. Increased rainfall may lead to soil erosion, while extended dry periods can degrade soil quality. The Proposed Development includes mitigation measures to manage these risks. Site investigations have identified elevated concentrations of lead, PAHs, and other contaminants in Made Ground soils. The excavation and removal of impacted soils is a design requirement of the Proposed Development, representing a positive and permanent improvement in soil quality. The Resource and Waste Management Plan (AWN, 2025) estimates that approximately 16,063 m³ of soil, stones, clay and made ground will be excavated to facilitate construction. Of this, 4,469 m³ is expected to be reused onsite, while 11,594 m³ will be removed offsite for appropriate reuse, recovery, recycling or disposal. To mitigate climate-related risks such as increased rainfall and potential erosion, the Proposed Development incorporates engineered capping layers in landscaped areas and suspended floor slabs supported by piles. These measures enhance resilience to changing soil conditions and reduce the risk of contaminant mobilisation. The Construction Environmental Management Plan (CEMP) outlines procedures for managing soil stockpiles, preventing dust generation, and controlling runoff, all of which are critical in the context of climate variability. No significant adverse effects are anticipated during the operational phase, and the site will be suitable for long-term residential and commercial use.
Hydrology and Hydrogeology	Climate variability, such as increased rainfall or prolonged droughts, can affect water availability, quality, and management practices. This includes effects on stormwater runoff, flood risk, and water supply. Chapter 7 outlines the Proposed Development's water management strategies, including SuDS, attenuation systems, and flood resilience measures, ensuring robustness against future climate scenarios.
Air Quality	Air quality and climate are interrelated due to shared sources of emissions, particularly from the combustion of fossil fuels during both the demolition/construction and operational phases. These activities generate pollutants that contribute to both local air quality impacts and global climate change. The air quality assessment was

	undertaken in parallel with the climate assessment to ensure consistency in evaluating emissions and their potential impacts.
Material Assets: Traffic	Traffic-related emissions are a key contributor to climate change. The UK Highways Agency's DMRB guidance document LA 114 (2019) outlines criteria for determining whether a detailed climate assessment is required. These include: • A change of more than 10% in Annual Average Daily Traffic (AADT); • A change of more than 10% in the number of heavy-duty vehicles; or • A change in daily average speed of more than 20 km/hr These criteria were applied to both the construction and operational phases of the Proposed Development. For the construction phase, NRB Consulting Engineers Ltd (2025) confirmed that projected traffic volumes fall below the thresholds set out in TII guidance, based on project-specific traffic modelling. Therefore, no significant climate effects are anticipated from construction traffic. For the operational phase, traffic flow information was obtained from NRB Consulting Engineers (2025) for the purposes of this assessment. Two different year scenarios are presented in Table 8-14 of Chapter 8: Air Quality of the EIAR: the 'Do Nothing' and 'Do Something' scenarios for the Opening Year (2028) and Design Year (2043), in line with TII guidance (Opening Year + 15 years). This data, based on project-specific traffic modelling, confirms that none of the impacted road links meet the DMRB thresholds. As such, a quantitative assessment of traffic emissions on climate has been scoped out, and no significant climate effects are anticipated from either construction or operational traffic.
Material Assets: Waste and Utilities	The Proposed Development has been designed in accordance with relevant building design standards, including those related to energy performance and climate resilience. Low-carbon power and heating systems, such as centralised heat pumps and mechanical ventilation with heat recovery, have been incorporated to reduce reliance on imported fossil fuels and minimise GHG emissions. These design choices represent a direct and indirect interaction with climate and are assessed in this chapter.

Archaeology and Cultural Heritage

Cultural heritage sites are at risk due to climate change, with increased weathering, flooding, and temperature fluctuations potentially accelerating their deterioration. Mitigation measures employed at the Proposed Development will ensure that no significant impacts occur.

Conclusions

In summary, the Proposed Development's interactions with climate encompass a range of factors including GHG emissions, water resources, biodiversity, soil, human health, air quality, cultural heritage, utilities, and traffic. Effective mitigation strategies and robust monitoring will be essential to address these interactions, minimise adverse effects, and ensure the Proposed Development's resilience to climate change.

Table 16-7: Noise and Vibration

Noise and Vibration	
Summary	
Chapter 10 of this EIAR, <i>Noise and Vibration</i>, provides a description and assessment of the likely impact of the proposed activities from noise, and sets out appropriate mitigation measures where necessary. This chapter has the potential to interact with the following environmental topics: • Population and Human Health (Chapter 4); • Biodiversity (Chapter 5); and • Material Assets: Traffic and Transportation (Chapter 12).	
Interactions	
Population and Human Health	In this EIAR, the Noise and Vibration chapter has been developed in close coordination with the Population and Human Health chapter to assess the potential effects of noise on NSLs. The location of NSLs informed the selection of assessment locations for noise modelling. Predicted noise levels from both the construction and operational phases have been evaluated in terms of their potential effects on human health, including annoyance and disturbance. The integrated approach ensures that the assessment considers, not only technical compliance with noise limits, but also the broader implications for community wellbeing.
Biodiversity	This chapter has also been developed in close liaison with the author of the Biodiversity chapter to evaluate the potential effects of noise and vibration on sensitive ecological receptors. Particular attention was given to the potential for disturbance at nearby designated sites, including the Inner Galway Bay SPA, Galway Bay Complex SAC, and Lough Corrib SAC. Biodiversity assessment data informed the assessment of potential impacts on protected species and habitats, particularly in relation to noise-sensitive periods such as breeding or foraging. This collaborative approach ensures that any required mitigation measures are appropriately aligned to safeguard both ecological and human receptors from adverse noise and vibration effects.
Material Assets: Traffic	This chapter incorporates data from the traffic consultants to assess the potential noise effects from both construction and operational traffic associated with the Proposed Development. Annual Average

Daily Traffic (AADT), vehicle speed and vehicle types (including HGVs) have been considered to calculate the additional noise generated by the Proposed Development, relative to the baseline conditions. Based on the predicted increase in traffic volumes, in particular along Bothar na Long, a predicted increase of 1dB will be seen along Bothar na Long during the operational phase of the Proposed Development, this increase is considered negligible, as the lowest decibel change the human ear can discern is 3dB making this increase negligible in terms of magnitude of change.

Conclusions

Noise associated with the operational plant or machinery will not create any significant adverse impacts beyond the site boundary. Mitigation and monitoring measures will be incorporated to further reduce the potential for noise generation from the Proposed Development.

Table 16-8: Landscape and Visual

Landscape and Visual	
Summary	
Chapter 11 of the EIAR, <i>Landscape and Visual Assessment</i> , provides a description and assessment of the likely impact of the Proposed Development on the landscape and visual amenities of the area.	
Interactions	
Biodiversity	The change in use from industrial to residential, and the associated transformation of the site landscape, would have a positive effect on biodiversity. The site is currently almost devoid of vegetation and hard surfaced. The development would result in a significant increase sort/permeable surface, with associated water attenuation benefits, and a net gain in vegetation cover including trees. The proposed trees, shrubs and groundcovers have been selected by the project landscape architect, in consultation with the project ecologist, for their biodiversity value and suitability for the coastal location. Additionally, proposed Blocks A, B and D feature extensive green roof systems.
Population and Human Health	During the construction stage, there is potential for negative townscape and visual effects of construction to combine with noise and dust emissions from the construction site to negatively impact the amenities of human receptors near the site. The nearest potential sensitive receptors are the apartments at Ce na Mara c. 75m to the northwest of the site. Beyond that, the nearest residential receptors are on Dock Street around the Inner Harbour, c. 300m to the west of the site. Following the construction phase, the site would be transformed into a high-density residential neighbourhood with a large new resident population. This population would benefit directly from the change in the townscape - from the provision of homes and new public realm including waterfront public open spaces and pedestrian and cycle routes, etc. The population would benefit from the proximity to the existing city centre, the public transport hub at Ceannt Station, and a variety of open space amenities around Lough Atalia and Galway Bay.
Climate Change	The change in townscape character by the introduction of a high-density residential neighbourhood in the city centre, well served by public transport, has implications for climate change. Higher

	density development, appropriately located, is more sustainable than low density development. The new resident population would have access - by foot or bicycle - to shops, services, schools, employment opportunities, public transport services and public open space, reducing the need for use of private cars.
Conclusions	
No significant effect interactions identified for Landscape and Visual aspects of the surrounding environment are expected from the Proposed Development.	

Table 16-10: Material Assets - Traffic

Material Assets - Traffic	
Summary	
Chapter 13 of the EIAR, <i>Material Assets: Traffic</i>, addresses the traffic and transportation effects arising from the Proposed Development. The key interactions between traffic and transportation and other EIAR topics are as follows:	
Interactions	
Population and Human Health	Impacts on the operation of the local road network, and traffic-related noise and air quality effects have the potential to affect the local population.
Land, Soil, Hydrology and Hydrogeology	Impacts on existing flow conditions or effects on surface or ground water quality due to the generation of additional vehicular traffic due to run-off from vehicles usage. Increased vehicular traffic can impact surface and groundwater quality by generating run-off with pollutants. Analysing soils and hydrology helps assess potential effects and develop mitigation strategies.
Air Quality and Climate	Vehicular emissions contain air pollutants, including greenhouse gases with climate impacts, and gases / particulates with potential human health impacts.
Noise and Vibration	Traffic generates noise, with the associated potential for adverse human health impacts.
Material Assets: Waste	Waste generated on site and the surplus excavated soil from the site will have to be transported off-site generating traffic on surrounding roads.
Conclusions	
All of the above-listed interactions have addressed comprehensively, where appropriate, in the corresponding EIAR chapters. Where appropriate, specialist EIAR contributors have collaborated and shared information to ensure that potential impacts arising as a result of	

such interactions have been addressed. No significant effects are likely to occur in this respect.

With the implementation of all mitigation measures detailed in the respective Chapters, there will be no negative residual impacts upon the Material Assets: Traffic.

Table 16-9: Material Assets: Waste and Utilities

Material Assets - Waste and Utilities	
Summary	
Chapter 13 of the EIAR, Material Assets: Waste and Utilities provides an assessment of the potential impacts of the Proposed Development on Material Assets including built services and infrastructure. The Proposed Development will provide additional housing in a densely populated urban area. Material assets, utilities and waste interact with other environmental receptors as follows:	
Interactions	
Population and Human Health	The improper removal, handling and storage of hazardous waste could negatively impact the health of construction workers. The improper storage of domestic waste could negatively impact the health of residents, tenants and employees of the Proposed Development. Extended power or telecommunications outages, or disruption to water supply or sewerage systems for existing properties in the area could negatively impact on the surrounding human population and their overall health. Potential effects on population and human health are addressed in Chapter 4.
Biodiversity	In accordance with the requirements of the Habitats Directive and the concerns raised in the LRD Opinion, the potential for contaminated land to impact nearby European sites has been carefully considered. A comprehensive Appropriate Assessment (AA) Screening and NIS have been undertaken, concluding that, with the implementation of proposed mitigation measures, the development will not result in deterioration or disturbance of natural habitats or species. These findings are supported by the Biodiversity Chapter of the EIAR, which includes baseline ecological surveys, identification of sensitive receptors, and detailed mitigation measures. These include surface water protection measures, dust and noise control, lighting restrictions, and timing of works, all of which are designed to prevent adverse effects on designated sites. The management of any contaminated material encountered during construction will be carried out in accordance with these measures, ensuring that ecological receptors are protected throughout the project lifecycle. Potential effects on biodiversity are addressed in Chapter 5.

Land and Soils	Improper handling and segregation of hazardous or contaminated wastes could lead to the contamination of soil and stones excavated from the site. Potential effects on land and soils are addressed in Chapter 6.
Hydrology and Hydrogeology	Any connections to the public water network (water supply or foul sewer) during the construction and operational phases will be under consent from UÉ. Potential effects on water are addressed in Chapter 7.
Climate	The Proposed Development has been designed in accordance with all relevant building design standards, including those relating to energy performance and climate resilience. Low carbon power and heating systems, including centralised heat pumps and mechanical ventilation with heat recovery, have been incorporated to reduce reliance on imported fossil fuels and reduce greenhouse gases (GHG) emissions. The direct and indirect effects of the Proposed Development on climate, such as GHG emissions are assessed in Chapter 9.
Material Assets: Traffic	Waste collection activities at the Proposed Development have the potential to impact upon traffic movements in the surrounding area. Potential effects on traffic are addressed in Chapter 12. Upgrades to electrical and water infrastructure required to service the Proposed Development may result in temporary interactions with traffic and transport networks. Coordination between utility providers and traffic management planning will be essential to minimise disruption, ensure safe access, and maintain connectivity during both construction and operational phases.
Conclusions	
With the implementation of all mitigation measures detailed in the respective Chapters, there will be no negative residual impacts upon the Material Assets: Waste and Utilities.	

Table 16-12: Archaeology and Cultural Heritage

Archaeology and Cultural Heritage	
Summary	
Chapter 14 of the EIAR, <i>Archaeology and Cultural Heritage</i>, provides information on the known architectural, archaeological, and cultural heritage sites in the study area. The Landscape and Visual aspect of the environment assessed in this EIAR will have the potential to interact with the assessment of effects on the cultural heritage resource. The Landscape and Visual assessment detailed in Chapter 11 of the EIAR has been reviewed during the compilation of this assessment.	
Interactions	
Landscape and Visual	The Archaeology and Cultural Heritage chapter (current chapter) and the LVIA have both noted the industrial landscape in current view towards the southwest from Forthill. The LVIA notes that the screening effect of the proposed buildings in relation to the industrial landscape beyond may be considered to enhance this view.
Climate	The Climate chapter, Chapter 9 of the EIAR notes that '<i>Cultural heritage sites are also at risk due to climate change, with increased weathering, flooding, and temperature fluctuations potentially accelerating their deterioration.</i>' There are no cultural heritage sites recorded within the Proposed Development site. Any potential archaeological material that is identified with the Proposed Development site during the construction phase will be subject to preservation <i>in situ</i> or by record. No significant effects on archaeology and built heritage within the Proposed Development site are predicted as a result of climate change.
Conclusions	
There are no interactions between Archaeological and Cultural Heritage resources and the following factors: Population and Human Health, Biodiversity, Land and Soils, Hydrology, Air Quality, Noise and Vibration, and Traffic.	

16.4 References

Chapter 4 Population and Human Health

Chapter 5 Biodiversity

Chapter 6 Land and Soil

Chapter 7 Hydrology and Hydrogeology

Chapter 8 Air Quality

Chapter 9 Climate

Chapter 10 Noise and Vibration

Chapter 11 Landscape and Visual Impact Assessment

Chapter 12 Traffic

Chapter 13 Material Assets: Waste Management and Utilities

Chapter 14 Archaeology and Cultural Heritage

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17 MITIGATION AND MONITORING

17.1 Introduction

This Environmental Impact Assessment Report (EIAR) has assessed the potential impacts and effects likely to occur as a result of the Proposed Development on the various aspects of the receiving environment.

The Proposed Development will be operated in a manner that will ensure that the potential impacts on the receiving environment are avoided where possible. In cases where impacts or potential impacts have been identified, mitigation measures have been identified to reduce the significance of particular impacts. These mitigation measures are contained within each chapter exploring specific environmental aspects.

This chapter of the EIAR collates and summarises the mitigation comments made in Chapter 4 to Chapter 14

17.2 Competency of the Authors

This chapter has been prepared by Darragh Grant, Environmental Consultant with DNV. Darragh is an EIA practitioner with a bachelor's degree in Zoology (University College Dublin) and a master's degree in Environmental & Climate Law (University College Dublin).

This chapter has been reviewed by Laura Griffin, Environmental Consultant at DNV. Laura has a Master of Science (Hons) degree in Climate Change from Maynooth University and a Bachelor of Arts (Hons) degree in English and Geography from Maynooth University. Laura has 5+ years of professional experience. Laura has experience preparing Environmental Impact Assessment (EIA) Screening Reports and a EIAR chapters for developments of a similar scale and nature to the Proposed Development.

This chapter has been approved by Catherine Keogan, Technical Director and EIA Lead at DNV. Catherine is an environmental consultant with 37 years' experience in consultancy, specialising in EIAs for large-scale residential, commercial developments, pharmaceutical, BESS and solar projects working closely with a range of developers, planning consultants and architects within the public and private sector. Catherine has a B.Sc. (Hons) in Analytical Science and a Post Graduate Diploma in Renewable Energy Technology Systems.

The mitigation and monitoring measures outlined in this chapter have been developed in accordance with the relevant legislation, guidance documents, and best practice standards referenced in each of the technical chapters of this EIAR. For a full list of applicable guidance and statutory instruments, please refer to the respective chapters (Chapters 4–14).

17.3 Summary of Mitigation Measures

17.3.1 Population and Human Health

17.3.1.1 Construction Phase

17.3.1.1.1 Mitigation

No specific mitigation measures are required during the construction phase in relation to population and human health, given the lack of direct, adverse effects resulting from the Proposed Development. The potential effects on the human environment relate to other environmental aspects such as land and soils, water quality, air emissions, climate, noise and vibrations, traffic, and landscape and visual and where required, the related mitigation measures are dealt with in the corresponding chapters of this EIAR.

17.3.1.1.2 Monitoring

No specific monitoring is proposed in relation to population and human health during the construction phase. However, where required, monitoring in relation to water quality, soils, air quality, climate, noise and vibration, traffic and transport and landscape and visual impact are identified in their respective chapters in this EIAR.

17.3.1.2 Operational Phase

17.3.1.2.1 Mitigation

No specific mitigation measures are required during the operational phase of the Proposed Development in relation to population and human health, given the lack of direct, adverse effects resulting from the Proposed Development. The potential effects on the human environment relate to other environmental aspects such as land and soils, water quality, air emissions, climate, noise and vibrations, traffic, and landscape and visual and where required, the related mitigation measures are dealt with in the corresponding chapters of this EIAR.

17.3.1.2.2 Monitoring

No specific monitoring is proposed in relation to population and human health during the operational phase. However, where required, monitoring in relation to water quality, soils, air quality, climate, noise and vibration, traffic and transport and landscape and visual impact are identified in their respective chapters in this EIAR.

17.3.2 Biodiversity

17.3.2.1 Avoidance by Design (Embedded Mitigations)

Embedded measures incorporated as a component of the design of the Proposed Development which will have a secondary effect of preventing significant effects on the ecology of the site and surrounds, including protected designated sites, are described below.

These include the application of standardised international best practice measures as outlined in the accompanying Construction Environment Management Plan (CEMP), and the Sustainable Drainage Systems (SuDS) which are to be included as part of the overall design of the operational phase of the proposal. The operational phase will also include a Lighting Plan.

17.3.2.1.1 Building Specifications to Reduce Collision Risk Impact

The following specifications are embedded into the design of the project which serve to further reduce collision risk impact on bird species which may be using the greater Galway Bay area for commuting/foraging.

Building Appearance

Whilst the design of the façades of the buildings do include windows, as shown on the elevation drawings prepared by Altu Architects (2025) for the Proposed Development no large continuous surfaces of glass are proposed. Rather the overall façades of the proposed buildings are well broken up, with a varied material composition interspersing any reflective areas.

These architectural design features provide important visible cues as to the presence and extent of the proposed structures to any commuting/foraging bird species should they be in the vicinity of the site. This overall visual heterogeneity of the building façades will be sufficient to further ensure that the risk of bird collisions as a result of the Proposed Development is negligible. These architectural design features are part of the overall design of the Proposed Development and are not considered to represent specific mitigation measures to prevent collisions, however, they will contribute to the overall effect in this regard. It is noted that birds are not deemed to be at any particular risk of collisions with the proposed buildings at the site.

As such, based on the physical appearance of the proposed structures and the nature of their location, it is deemed that birds including any 'at-risk' species, do not have the potential to be significantly impacted by the Proposed Development in terms of collisions and the risk is therefore deemed to be imperceptible in the absence of any mitigation.

Building Height

In Galway City, bird species that are present are considered to navigate the urban environment with built structures daily.

To put some context on some of their avoidance capabilities, in a different setting and for use in collision risk modelling for onshore wind turbines, an avoidance rate of 99.5% is applied for large gull species and an avoidance rate of 99.2% is applied for small gull species (Furness, 2019), which essentially means that 99.5% and 99.2% of gull flights, respectively, will avoid collision with a moving turbine. For Curlew, the avoidance rate applied is 98% (SNH, 2018).

The risk of collision is even less with a static, clearly detectable building. The proposed buildings consist of glazing, broken up with a varied material composition interspersing any reflective areas. While the presence of the Proposed Development might alter flight patterns of bird species slightly to avoid the proposed building structures, the risk of collision is extremely low.

The Proposed Development entails the construction of relatively low-level residential buildings ranging in height from 6-13 storeys, and as such, the risk of migrating birds colliding with the structure due to its height is deemed to be negligible. Migrating species tend to commute far above this with Swans and Geese flying up to 2500ft (ca.750m) during migration along Irish Coasts (Irish Aviation Authority, 2020).

It is considered that birds that fly over the site to commute between feeding grounds at various locations would fly lower than this, however, once the proposed structures are made of visible materials i.e., not entirely comprised of continuous reflective materials such as glass, the birds would simply fly around or over them.

As such, flightline/collision risk impacts on bird species present at the site, Galway Bay and wider surrounds, are not expected to occur.

17.3.2.2 Construction Phase

17.3.2.2.1 Mitigation

CEMP

As per the accompanying CEMP (DNV, 2025b), several best practice measures will be adopted during construction. Relevant information below has been extracted from the CEMP.

Construction Lighting

Construction work will generally be confined to daylight hours and lighting will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required (works on roadways and power floating floors as examples). Where possible and without jeopardising site safety lights will be pointed down at a 45-degree angle and away from sensitive receptors. The site compound will have external lights for safety and security. These lights will be pointed down at a 45- degree angle and away from sensitive receptors where possible.

Air Quality

To ensure the effects of dust are minimised the following will be implemented:

- Complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- Equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive; and
- Pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional.

Dust will be monitored via the following:

- The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2)

days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities.

- The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures.
- After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in mg/m² /day in accordance with the relevant standards.
- Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager.

During excavation, the following will be implemented:

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust,
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.
- The movement of trucks containing materials with a potential for dust generation to an offsite location will be enclosed or covered.

Concrete Run-off

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Concrete shut wash-outs will only be allowed to take place in designated areas with an impervious surface. No barrel washouts will be allowed onsite.

Chemicals on Site

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately banded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from surface water drains.

Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.

The following mitigation measures will be taken at the construction site in order to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:

- Refuelling will be undertaken off site where possible,
- Where mobile fuel bowsers are used the following measures will be taken:
 - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use:

- The pump or valve will be fitted with a lock and will be secured when not in use,
- All bowzers must carry a spill kit,
- Operatives must have spill response training; and
- Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

Surface Water Management

Surface water discharge rates from the proposed surface water drainage network will be controlled by the below proposed embedded measures, which have the capacity to provide attenuation on the surface water run-off rates from the site, thereby reducing run-off rates from surface water on site during its operational phase, and further mitigating the risk of surface water overflow during excessive rainfall/flooding events:

- SuDS measures.
- Interceptors.
- 2 no. Attenuation Tank.

It should also be noted that surface water at the Proposed Development will discharge into the existing public stormwater network.

SuDS

The following paragraph summarises SuDS information for the Proposed Development, provided under separate cover in the Civil Works Design Report. These SuDS measures have been embedded into the design of the proposal (TOBIN, 2025):

“The surface water drainage strategy for the Proposed Development will follow the principles of Sustainable Urban Drainage Systems (SuDS), as outlined in the Greater Dublin Strategic Drainage Study (GSDSDS). This approach aims to replicate the natural runoff characteristics of the existing brownfield site and minimise the environmental impact of urbanisation. The GSDSDS sets out specific drainage criteria to ensure sustainability, including the use of interception, treatment, attenuation, and long-term storage. For this site, interception and attenuation storage will be provided through infiltration tanks with calculated holding volumes. Treatment and long-term storage are not required, as the design avoids applying growth factors to the allowable discharge for the 100-year storm event. All SuDS measures will be developed in line with the EPA’s 2011 guidance on discharges to groundwater. The proposed SuDS features include water butts, rain gardens, swales, tree pits, permeable paving, and drainage kerbs with infiltration trenches or filter strips. These elements are intended to achieve interception storage, while discharge soakaways are sized conservatively to account for any seasonal variability in performance. The overall SuDS strategy is designed to meet four key objectives: improving water quality, managing water quantity, enhancing amenity, and supporting biodiversity”.

Foul Water Drainage

The proposed wastewater network will use gravity flow to connect to an existing combined sewer, directing foul water to the Mutton Island Wastewater Treatment Plant (WwTP), located 1.6 km southwest of the site in Galway Bay. The plant, originally built in 2003 and operated by Murphy, was recently upgraded under a design-build-operate (DBO) contract to increase its

capacity from 91,600 to 170,000 population equivalent (PE). It currently operates at 103,000 PE, leaving sufficient capacity for the proposed development. The plant uses anaerobic digestion and combined heat and power (CHP) units to generate renewable energy from biogas. According to the 2024 Annual Environmental Report, the plant complies with emission limits, so no further mitigation measures are required for foul water impacts.

Lighting Plan

The public Lighting Design plan (Axiseng, 2025) adopts a wildlife-sensitive approach by utilizing LED fixtures mounted on columns under 8 meters in height, emitting warm light with a colour temperature below 2700K, and limiting light spill along the eastern boundary near the water to approximately 1 LUX. This combination is particularly beneficial to nocturnal species, including bats and small mammals, as it minimizes disruption to their natural behaviours.

LEDs offer precise directional control, reducing unnecessary light scatter and helping preserve dark corridors essential for safe foraging and movement. The lower column height ensures that light remains close to the ground, avoiding illumination of tree canopies and flight paths used by bats.

Warm lighting (<2700K) emits less blue light, which is known to interfere with circadian rhythms and can disorient both nocturnal mammals and birds. For birds, especially migratory species, this is crucial, as artificial lighting can cause fatal disorientation, disrupt navigation, and increase the risk of collisions. By maintaining light spill at just 1 LUX along the sensitive eastern boundary that runs contiguous to Galway Bay, the design protects adjacent aquatic and riparian habitats, which are vital to bird species for both resting and feeding. This low-level illumination helps maintain the natural darkness required by many bird species for roosting and by mammals for undisturbed nocturnal activity.

Overall, the lighting strategy supports biodiversity, reduces ecological disturbance, and aligns with best practices (such as BCT Guidelines) for environmentally responsible outdoor lighting.

17.3.2.3 Best Practice – Mitigation by Design (Embedded) Measures

The following mitigation measures which are considered best practice for completing the construction phase element of Proposed Developments, and as such have been embedded into the Proposed Development design.

Mitigation 1: Construction Phase Best Practices

Construction Phase Best Practice

The following measures, designed to protect surface water quality, will serve to prevent any negative effects occurring in the adjacent Galway Bay and Lough Atalia as a result of construction phase groundwater discharges from the site. These mitigation measures will treat the source (e.g., refuelling of plant to be carried out at designated refuelling station locations on site) or remove the pathway (e.g., no release of wastewater generated on-site to ground during the construction phase).

All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990. Personnel working on the site will be trained in the implementation of environmental control and emergency procedures. Procedures and relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction sites, Guidance for Consultants and Contractors;
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;
- BPGCS005, Oil Storage Guidelines;
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004;
- Construction Industry Research and Information Association CIRIA C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006);
- CIRIA C648: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

In addition, standard best practice measures will be implemented throughout the construction phase to ensure no construction-related pollutants are discharged into the surface water or groundwater at and surrounding the site, which could subsequently be transferred by same to the adjacent Galway Bay and Lough Atalia. Standard best practice measures that will be implemented on the site during the construction phase are as follows:

- Silt fencing will be used along the water boundary and any streams and/or drainage ditches on site which may have a hydrological link to nearby designated sites;
- Any drains or sewers, where present, which could act as pathways for contamination from the site will be blocked where required;
- Location of stilling/settling ponds will take into account groundwater vulnerability at the site and will be located in suitable areas and at distance from the water's edge;
- Discharge water generated during placement of concrete will be stored and removed off site for treatment and disposal;
- There will be no washing out of any concrete trucks on site. Any washing of chutes will be carefully collected in a designated container which will be subsequently sent off site for compliant waste management;
- Specific areas for storage, delivery, loading/unloading of materials will be designated, which will have appropriate containment/spill protection measures where required. These storage areas will be located in suitable areas and at distance from any watercourses hydrologically connected to nearby designated sites;
- Leachate generation from stockpiles or waste receptacles will be prevented by using waterproof covers;
- Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary;
- Appropriate bunding, storage and signage arrangements for all deleterious substances will be used;
- Robust and appropriate Spill Response Plan and Environmental Emergency Plans will be included within the Contractor's CEMP and the details of which will be communicated, resourced and implemented for the duration of the works;
- Control measures and spill clean-up equipment adequate to treat spills at the site will be available and staff will be trained and experienced in using said equipment;
- A register will be kept of all hazardous substances either used on site or expected to be present. The register shall be available at all times and shall include as a minimum:

valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material;

- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the site;
- A plan for dealing with any unknown drains or services which may be encountered during the works will be set out and implemented; and
- Any surface water inflow into the main areas of excavation will be minimised where possible.

Maintenance of Plant and Machinery

- All plant and equipment will be regularly cleaned and properly maintained;
- There will be no washing out of any concrete trucks on site; and
- Pumped concrete will be monitored to ensure there is no accidental discharge and will be carried out in dry weather and with impermeable pouring mats laid down where possible.

Building/Road Network and Services

- Constructing buildings and roads above flood level to ensure that backflows through the surface water outfalls will not occur;
- The Proposed Development's road network will be finished with tarmac or asphalt surface which will discharge runoff to a piped drainage system, and surface water drains will be installed in roads and streets and in pre-determined wayleaves adjacent to building structures; and
- All car parking and refuel areas at the site will be located on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater.

Earthworks Mitigation

The proposed earthworks mitigation measures for the construction phase includes:

- A street sweeper will attend site regularly to clean the road when there are truck movements in and out of the site;
- Hard surface roads will be regularly swept to remove mud and aggregate materials from their surface;
- Public roads outside the site will be regularly inspected for cleanliness, and cleaned as necessary;
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind; and
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods.

Storage and Use of Fuels, Oils, and Chemicals

- Appropriate bunding, storage and signage arrangements for all deleterious substances (e.g., fuels, oils, and chemicals) will be used;

- Fuels, lubricants, and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice (Enterprise Ireland BPGCS005);
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling;
- Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled;
- Potential spillage and leaks of oil from cars parked on the site during the construction phase are unavoidable. To reduce the potential impacts, oil interceptors will be incorporated into the site drainage design;
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the site and properly disposed of;
- Refuelling will be carried out from tanks or delivery vehicles on a designated impermeable surface and will not be left unattended; and
- Plant will not be left running when not in use (i.e., no idling) and plant with dust arrestment equipment will be used where practical.

Spill/Emergency Response Plans

- Robust and appropriate Spill Response Plan and Site Environmental Emergency Plans (SEP) will be implemented for the duration of the works:
 - Identifying fuel storage and refuelling locations on designated areas within the compound, away from drainage ditches/waterbodies (where present), and on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater;
 - Identifying spill kit locations (spill kits will be required for each piece of heavy equipment (e.g., excavators, loaders, trucks, etc.,) which will be at least 21L drum size each with spill pads, sorbent, small boom, plastic rubbish bag and gloves;
 - A specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on site; and
 - Staff will be trained and experienced in using appropriate control measures and spill kits on-site and will be familiar with the location of all spill kit locations and the site layout.
- A register will be kept of all hazardous substances either used on site or expected to be present. The register shall be available at all times and shall include as a minimum:
 - Valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials;
 - Emergency response procedures/precautions for each material; and
 - PPE is required when using the material.

Waste Management and Disposal

Waste management and disposal will comprise the following:

- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the site;

- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from the Proposed Development site by a licenced waste disposal contractor; and
- Mixer washings are not to be discharged into ground or drainage ditches and will be collected and disposed of at a suitably licenced facility.

In addition, a minimal waste approach of reduction, reuse and recycling will be utilized where practicable/appropriate. Where this cannot be carried out, all wastes will be disposed of at licenced waste facilities.

Mitigation 2: Air Quality Control (Dust Reduction)

In addition to the embedded design measures detailed in Section 17.3.2.2.1, in order to protect the surrounding waters and habitats/species therein from dust deposition during earthworks, the following mitigation measures are proposed and included shall be included the accompanying CEMP (DNV, 2025):

- Dust generation will be controlled through proper placement of stockpiles away from sensitive receptors and taking note of the prevailing wind direction;
- In situations where the source of dust is within 25m of sensitive receptors screens (permeable or semi-permeable) will be erected;
- Stockpiles will be located in sheltered parts of the site and watered where required;
- Staff will monitor dust levels during working hours;
- Bowsers will be available during dry periods for surface watering to keep unpaved areas moist;
- Any dust emitting works will be postponed during high winds (gales) until winds have subsided;
- Vehicles delivering material will be covered to prevent the escape of dust;
- A wheel washing facility will be installed near the site compound for use by vehicles exiting the site;
- Dust deposition rate will be measured by Bergerhoff Dust Deposit Gauges situated in strategic locations in the site including boundary vegetation, if required;
- Results will be quantified in a lab after 30 days and monitoring reports prepared by the relevantly qualified person; and
- A limit of 350mg/m² per day will be adhered to.

Mitigation 3: Reduction of Noise Related Impacts

Bird species are sensitive to disturbance from increased noise as a result of the construction phase of the Proposed Development. Otter is similarly susceptible to noise disturbance.

Mitigation to reduce the effects of noise during the construction phase (including human presence, plant, machinery and vehicles) is required to avoid significant adverse effects on the birds present on the site, and on waterbirds associated with Galway Bay and Lough Atalia and is as follows:

- High noise disturbance works (such as demolition and heavy drilling) shall be undertaken between April and September to avoid most sensitive time for wintering birds;

- Minimise/avoid any working time outside of the designated area (in this instance the site boundary) within the Proposed Development site;
- Acoustic barriers shall be installed along the entire length of the eastern boundary of the site;
- Acoustic barriers shall be opaque so as to additionally reduce visual disturbance. As per Cutts et al (2013), the removal of the majority of visual stimuli in combination with the reduction in noise levels will decrease overall disturbance to waterbirds that may be using Oranmore Bay to 'Low level disturbance'. This is defined as "*Works that are out of sight of birds and create a low-level noise,*" and "*Noise of 55-72dB in a highly disturbed environment*", both of which will be achieved by the installation of the opaque acoustic barriers;
- Selection of plant machinery with low inherent potential for generating noise;
- Siting of plant as far away from sensitive receptors as permitted by site constraints;
- Avoidance of unnecessary revving of engines and switch off plant items when not required;
- Keep plant machinery and vehicles adequately maintained and serviced;
- Proper balancing of plant items with rotating parts;
- Keep internal routes well maintained and avoid steep gradients; and
- Minimise drop heights for materials or ensure a resilient material underlies; and

The above has been compiled with reference made to Goodship, N.M & Furness, R.W (2022) and Ruddock, M. & Whitfield, D.P (2007), please see the Reference section below for further details.

Acoustic barriers are readily available online and have the benefit of reducing noise levels by up to 43dB. Noise levels at the site in conjunction with bird species and otter present will be monitored regularly by a suitably qualified ecologist to ensure the effectiveness of the measures described above. Monitoring is discussed in more detail in Section 17.3.2.3.1. Where works are occurring outside of the wintering bird sensitive season (April to September), monitoring is not required. Acoustic barriers shall remain in place for the duration of construction activity.

Mitigation 4: General Site Tidiness

The following general avoidance measures will be incorporated to minimise impacts to mammals that may traverse the site during the construction phase:

Hours of work

The hours of working will be limited to daylight hours where possible, so as to limit disturbance to nocturnal and crepuscular animals.

Waste management

As best practice, all construction-related rubbish on site e.g., plastic sheeting, waste, wires, bags, netting in which animals can become entangled etc. will be kept in a designated area and kept off ground level so as to prevent small mammals or reptiles from entrapment and death.

Excavations and Pipes

Trenches/pits will be either covered when not in use/at the end of each working day with caps (especially at night) or include a means of escape for any animal falling in and getting stuck. If this is not possible, then a strategically placed plank or object will be placed in the corner of an excavation to enable animals to safely escape.

Any temporarily exposed open pipe system will be capped in such a way as to prevent fauna from gaining access as may happen when contractors are off-site.

Mitigation 5: Construction phase Lighting Regime

To minimise ecological disturbance during the construction phase, lighting will be managed with a strong emphasis on environmental sensitivity. Where possible, all construction lighting will be switched off during non-working hours to reduce unnecessary illumination of the surrounding environment (CIEEM, n.d.).

When lighting is required, directional lighting will be the preferred method. This approach significantly reduces light spill beyond the immediate work area, thereby limiting potential disruption to nearby habitats. This is particularly important for nocturnal mammals, bats, and marine or aquatic species that may be using the site or adjacent areas for commuting, foraging, or other essential behaviours. These species are often highly sensitive to artificial lighting, which can interfere with their natural activity patterns and ecological functions (IEMA, n.d.).

To further mitigate impacts, it is recommended that LED luminaires with a warm white spectrum (2700K–3000K) be utilised. This spectrum reduces the blue light component, which is known to be more disruptive to wildlife. LED lighting is also advantageous due to its sharp cut-off angles, lower intensity, and dimming capabilities, all of which contribute to minimising light pollution and ecological disturbance (Amos Lighting + Home, n.d.).

In addition, wooden hoarding will be installed along the perimeter of the site to provide visual screening to protected species such as otter, who are present in the vicinity and may be sensitive to the increased human presence and activities during the construction phase (CIEEM, n.d.).

These measures are intended to support the protection and conservation of local biodiversity, ensuring that construction activities are carried out in a manner that is both responsible and environmentally conscious.

Mitigation 6: Ecological Clerk of Works (ECoW)

Prior to the commencement of any works, an Ecological Clerk of Works (ECoW) shall be appointed.

The role of the ECoW is to ensure there is no light spillage from the site during construction in the later hours of the working day during winter, and to check the acoustic/screening barrier functionality. This will serve to further mitigate against potential disturbance noise/visual impacts. The ECoW will also be responsible for ensuring that no species such as otter are using the site and are entrapped within any pipes/machinery.

17.3.2.3.1 Monitoring

Measure 1: Water Quality Protection Controls

To ensure the continued effectiveness of water quality mitigation measures implemented on-site, weekly inspections and checks will be carried out throughout the operational phase of the Proposed Development. These routine assessments are essential for identifying any emerging issues, verifying the functionality of installed systems, and maintaining compliance with environmental standards.

The checks will include:

- Visual inspections of water bodies, drainage channels, and SuDS features (e.g., attenuation ponds) to detect signs of pollution, sediment build-up, or blockages;
- Testing of water parameters, such as pH, turbidity, dissolved oxygen, and nutrient levels, where applicable, to ensure water remains within acceptable ecological thresholds;
- Verification of mitigation infrastructure, including oil interceptors/filtration systems, to confirm they are operating as intended and have not been compromised by debris or mechanical failure;
- Checks to ensure all best practice guidance outlined in this chapter is being followed;
- All surface water/groundwater protection measures will be checked on a weekly basis, and more often during wet weather; and
- Documentation and reporting of findings, with any issues flagged for immediate remedial action to prevent deterioration of water quality or harm to aquatic and riparian species;

These weekly checks form part of a broader environmental management plan (CEMP), ensuring that water quality protections remain robust and responsive to changing site conditions. Regular monitoring also supports long-term ecological health and demonstrates a proactive commitment to environmental stewardship.

Measure 2: Noise Monitoring and Acoustic Barrier Performance Checks

To ensure that acoustic barriers installed as part of the Proposed Development continue to function effectively in mitigating noise impacts, regular noise level checks will be conducted during the operational phase. These checks are essential for maintaining compliance with environmental noise standards and safeguarding the acoustic environment for both residents and surrounding communities.

As per the CEMP, the monitoring process will include:

- Baseline and comparative noise measurements taken at strategic locations near acoustic barriers, residential units, and site boundaries to assess the effectiveness of noise attenuation over time;
- Verification of barrier integrity, including inspections for physical damage, gaps, or deterioration in materials that could compromise acoustic performance;
- Assessment of barrier placement and orientation, ensuring that structures remain correctly positioned and unobstructed by vegetation, debris, or new construction elements;

- Monitoring during peak activity periods, such as high traffic hours or communal area usage, to evaluate real-world performance under varying conditions;
- Documentation and reporting of noise levels, with reference to applicable guidelines (e.g., protected species disturbance levels, local planning conditions, etc.), and identification of any exceedances or anomalies; and
- Responsive maintenance protocols, whereby any identified issues with acoustic barriers, such as reduced effectiveness or structural faults, are addressed promptly through repair, replacement, or adjustment.

These measures ensure that acoustic barriers continue to deliver their intended function of minimising noise pollution, enhancing resident comfort, and protecting local wildlife from excessive disturbance.

Measure 3: Designation of No Access Zone for Ecologically Sensitive Areas

It is proposed to establish the designation of no access zones so as to safeguard ecologically sensitive habitats within and adjacent to the Development site, particularly the eastern boundary bordering Galway Bay. These zones are critical for protecting vulnerable coastal and marine ecosystems from disturbance associated with human activity, including noise, light, trampling, and pollution.

Contiguous to the eastern portion of the site lies the shore of Galway Bay and the Lough Atalia inlet/outlet channel, which is of particular ecological importance due to its designated conservation status, being an area that supports a diverse range of species, including waterbirds, marine mammals, and intertidal flora and fauna. Unregulated access to this area could result in habitat degradation, disturbance to nesting and foraging wildlife, and the introduction of litter or contaminants.

To mitigate these risks, the following actions will be implemented for the duration of the construction phase:

- Clearly defined no-access boundaries will be established using screening and unobtrusive fencing where necessary, to discourage entry without fragmenting the landscape;
- Signage and interpretation panels will be installed to inform site personnel of the ecological sensitivity of the area and the importance of respecting access restrictions to the shore;
- Monitoring and enforcement protocols will be developed to ensure compliance, including periodic site inspections; and
- Pathway and circulation design will direct human activity away from the shoreline along the eastern boundary, with alternative routes provided to reduce pressure on sensitive zones.

(Biodiversity Infrastructure Initiative, 2023).

These measures will ensure that the Proposed Development remains compatible with the conservation objectives of Galway Bay and contributes positively to the protection of local biodiversity during the construction phase. The conservation objectives can be viewed in the NIS which is provided in Appendix 5-4 of this EIAR.

Measure 4: Dust Control Measures for Ecologically Sensitive Areas

During the construction phase of the Proposed Development, effective dust control is essential to prevent airborne particulates from migrating off-site and entering Galway Bay, which lies along the eastern (and southeastern) boundary of the site. Galway Bay is a highly sensitive and protected marine environment, being both a designated Special Area of Conservation (Galway Bay Complex SAC 000268) and a Special Protection Area (Inner Galway Bay SPA 004031), supporting a range of habitats and species, including intertidal communities, waterbirds, and marine mammals. As such, construction-related dust can pose a serious threat to this ecosystem by degrading water quality, smothering vegetation, and introducing pollutants. Degradation of water quality can in turn lead to negative impacts for aquatic species and prey availability.

To mitigate these risks, a comprehensive dust management plan will be implemented, with weekly checks forming a core part of the monitoring and compliance strategy. These checks will ensure that all dust suppression measures remain effective and are being properly maintained throughout the construction period (An Bord Pleanála, 2021, TII, 2022, and Government of Ireland, 2022).

Key components of this approach include:

- **Weekly Dust Monitoring and Inspections**
 - Visual assessments of dust-generating activities (e.g. excavation, material handling, vehicle movement) to identify areas of concern;
 - Inspection of dust control equipment, such as water bowzers, misting systems, and wheel-wash stations, to confirm they are operational and used appropriately;
 - Monitoring of weather conditions, particularly wind direction and speed, to anticipate periods of increased dust risk—especially when winds are blowing toward Galway Bay; and
 - Use of dust monitoring devices, such as PM10 sensors, to track particulate levels and ensure they remain within acceptable thresholds.
- **Dust Suppression Measures**
 - Regular damping down of exposed soil, stockpiles, and haul roads using water sprays, particularly during dry or windy conditions;
 - Covering of loose materials during transport and storage to prevent wind-blown dust;
 - Minimising drop heights when loading or unloading materials to reduce dust generation;
 - Limiting vehicle speeds on unpaved surfaces to reduce dust lift-off; and
 - Stabilisation of stockpiles using temporary coverings or hydroseeding where appropriate.
- **Reporting and Adaptive Management**
 - Weekly reporting of inspection findings, including any exceedances or failures of dust control measures;
 - Immediate corrective actions where dust levels are found to be elevated or mitigation measures are not functioning as intended; and
 - Ongoing review and adaptation of dust control strategies based on site conditions, construction progress, and monitoring results.

By implementing these measures and maintaining a proactive monitoring regime, the Proposed Development will minimise the risk of dust-related impacts on Galway Bay's sensitive marine and coastal ecosystems, ensuring compliance with environmental regulations and contributing to the overall sustainability of the Proposed Development.

17.3.2.4 Operational Phase

17.3.2.4.1 Mitigation

Artificial Lighting

The Proposed Development will result in a shift from the current baseline lighting conditions on-site, as the area is presently largely disused and experiences minimal maintenance and artificial illumination. Given the ecological sensitivity of the site and its surroundings, particularly for bats, nocturnal mammals, and species associated with the nearby Galway Bay waterfront, such as seals, otters, and waterbirds, a comprehensive lighting mitigation strategy has been developed to ensure that no significant adverse effects occur.

To address these concerns, a bat-friendly lighting plan is proposed by DNV for incorporation into the operational phase internal lighting design (*ILP & BCT Guidance Note GN08/23*). This plan will be designed to minimise light spill and glare, thereby protecting light-sensitive species that may be commuting, foraging, or roosting within or near the site. The lighting strategy therefore considers three primary sources of potential light emissions:

- Internal lighting from proposed buildings;
- Public lighting associated with development works; and
- External lighting sources, such as vehicle headlights on Milltown Road

Internal Lighting Mitigation

Although internal lighting is not expected to significantly impact commuting or foraging bats, given that buildings are largely presented around or fronting the site boundary with open space centrally located, and potential bat activity, although considered unlikely, is considered to be concentrated along boundary vegetation and adjacent shoreline, specific measures will be implemented to further reduce potential light spill:

- Recessed lighting fixtures will be used, particularly in units facing buffer zones;
- Lighting near windows will be reduced or avoided, especially in areas overlooking sensitive habitats;
- Warm-white or amber LEDs ($\leq 2700\text{K}$) will be used to reduce blue light emissions;
- Full cut-off fixtures will be installed to prevent upward or outward light spill;
- Avoid uplighting and floodlighting.
 - No architectural lighting will illuminate trees, water surfaces, or skyward;
- Common Areas: Avoid/reduce lighting near windows or terraces that overlook the watercourse;
- Motion sensors and timers will ensure lighting is only active when necessary;
- Façade and balcony lighting will be low-intensity, shielded, and sensor-controlled; and

- Ecological zoning will treat areas adjacent to the watercourse as Zone E1 (Intrinsically Dark), with light levels kept below 1 lux, (ILP, 2021).

Public Lighting Mitigation

The public lighting design, as detailed in the Lighting Report and Drawings (Veelite Lighting Ltd., 2025), incorporates several mitigation measures to reduce ecological disturbance:

- Lighting shall be directed away from sensitive ecological areas/receptors, specifically it should be directed away from the waters and Lough Atalia;
- Light spill outside of the site's boundaries shall be minimised;
 - Light spill along the eastern boundary (by the water) will be limited to approximately 1 LUX.
- The lighting design is based on the use of LED lighting which has minimal or no UV output of significance. Warmer 2700°K LED lighting will be utilized for amenity areas, as the warmer colour temperatures with peak wavelengths greater than 550nm (~3000°K) cause less impacts on bird species. This accounts for;
 - The fact that birds are sensitive to shorter wavelengths (blue and UV light) which can disorient migratory birds, leading to collisions with infrastructure or exhaustion, especially at night, when most migrations are considered to occur.
 - The fact that warmer LEDs emit less blue light and more light in longer wavelengths (yellow-red spectrum) which is less disruptive to circadian rhythms and navigation.

External Lighting and Landscape Integration

To further buffer the site from external light sources:

- Native planting between the proposed buildings and the promenade which abuts the waterfront will enhance foraging opportunities for bats and provide visual screening;
- Open spaces will be designed to act as ecological buffers, incorporating the same lighting mitigations as the built areas; and
- Landscape design ensures ecological connectivity both within the site and to the wider urban and natural landscape.

This integrated lighting strategy reflects best practices as recommended by the Institution of Lighting Professionals (ILP) and is tailored to the specific ecological sensitivities of the site. It ensures that the Proposed Development proceeds in a manner that is both environmentally responsible and aligned with biodiversity conservation goals.

Biodiversity Enhancement Measures

Biodiversity Enhancement by Design

The Landscape Plan incorporates native planting throughout the open green spaces of the Proposed Development. This will take the form of trees, hedgerow, shrubs, grasses and wildflower meadow. The planting schedule is shown in Chapter 5 Biodiversity, and can be found in full in the Landscape Report, along with specifications for plant material, the requirements of the Landscape Contractor and proposals for monitoring establishment of green spaces. The landscaping will offset habitat loss at the site to an extent, producing an imperceptible net effect on habitats.

Enhancement 1: Wildflower Meadows

The Landscape Plan includes the introduction of wildflower meadows across the site. All wildflower seeds will be Irish Provenance Certified Seed, from a reputable source such as Design by Nature (Wildflowers.ie). To maximise the biodiversity value of the landscaping at the site, consideration has been made to the All-Ireland Pollinator Plan planting code (NBDC, 2022).

Enhancement 2: Native Hedgerow and Tree Planting

The proposed planting scheme places a strong emphasis on the use of native hedgerows and trees, which are essential for enhancing local biodiversity, improving ecological connectivity, and contributing to the overall environmental resilience of the site.

Native Hedgerows

The integration of native hedgerows, established using multi-purpose topsoil and bark mulch, will create valuable linear habitats that support a wide range of wildlife. These include nesting birds, small mammals, and pollinating insects such as bees and butterflies. Hedgerows act as ecological corridors, enabling species to move safely across the landscape, which is particularly important in fragmented urban or semi-urban environments.

Native hedgerows also provide natural screening, offering visual privacy and reducing noise pollution from surrounding areas. Their seasonal variation adds aesthetic value and supports year-round ecological functions, including food provision (berries, seeds, nectar) and shelter.

Native Tree Planting

The tree planting strategy includes a mix of clear-stemmed and multi-stemmed semi-mature native trees, carefully selected for their adaptability to local soil and climatic conditions. Key species include:

- Alder: A nitrogen-fixing species that thrives in wetter soils and supports a wide range of invertebrates;
- Downy Birch: A pioneer species that enhances soil quality and provides habitat for insects and birds;
- Pedunculate Oak: A keystone species in Irish woodlands, supporting hundreds of insect species and providing acorns for birds and mammals; and
- Hawthorn: A dense, thorny shrub ideal for nesting birds, with spring blossoms for pollinators and autumn berries for wildlife.

These trees can contribute significantly to urban greening, offering benefits such as carbon sequestration, urban cooling, and stormwater management. Their presence also helps to visually soften the built environment, creating a more natural and welcoming landscape for both people and wildlife.

In addition to their ecological value, the selected species will enhance the site's resilience to climate change, improve air quality, and support the long-term sustainability of the Proposed Development. The planting design also ensures that these features are integrated into the wider green infrastructure network, maintaining connectivity with adjacent habitats and contributing to a cohesive ecological framework across the Galway Port landscape.

Enhancement 3: Hedgerow Management

Planted trees and hedgerows at the site will be managed using a low-intervention approach i.e., in a way that maximises the ecological value they provide, with habitat connectivity promoted and maintained along the western, northern and eastern margins of the site, connecting it with the wider area.

This connectivity is vital for wildlife such as birds, bats, mammals and insect pollinators in a human landscape such as that which will be provided by the Proposed Development. Additionally, by managing hedgerows and woodland in a more natural way, they will provide more in terms of biodiversity; through increased plant diversity, increased provision of food resources and higher quality shelter to wildlife inhabiting and commuting through the area.

A low-intervention management approach may not be appropriate for internal ornamental hedgerows planted within the main residential area of the Proposed Development, due to aesthetics or logistics, however, it is suited to the remaining native hedgerows within the site.

The following measures will be adopted by the Management Company tasked with maintaining the site's landscaping into the future:

- The hedgerow areas located along the outer boundaries of the site will, as much as is practicable, be allowed to link up with each other. The provision of an almost continuous vegetative margin around the site; through planted native hedgerows and trees, will maintain habitat connectivity with the surrounding environment;
- Hedgerows will be maintained with a minimum natural meadow strip of 1-2m at their base wherever possible. Hedges with plenty of naturally occurring flowers and grasses at the base support will provide higher quality habitat for local wildlife using the hedges;
- The 1-2m strip at the base of the hedgerow will be cut on a reduced mowing regime to encourage wildflower growth and maximise the value of the hedgerow for pollinators. A two-cut management approach is ideal for suppressing coarse grasses and encouraging wildflowers. Cut the hedgerow basal strip once during February and March (this is before most verge plants flower and it will not disturb ground-nesting birds). Cut the verge once again during September and October (this slightly later cutting date allows plants that were cut earlier in the year time to grow and set seed);

Raising the cutter bar on the back cut will lower the risk to small mammals.

- Where hedgerow, scrub or woodland understorey trimming needs to occur, trimming will be delayed as late as possible – until January and February as the surviving berry crop will provide valuable food for wildlife. The earlier this is cut; the less food will be available to help birds and other wildlife survive through the winter. Any hedgerow/scrub/woodland trimming will be done outside of the nesting season and due consideration of the Wildlife Act 1976 (as amended) will be taken;
- Where possible, these outer boundary hedgerows will be cut on a minimum **3-year cycle** (cutting annually stops the hedgerow flowering and fruiting), and cut in rotation rather than all at once - this will ensure some areas of hedgerow will always flower (blackthorn in March, hawthorn in May etc.); and
- Where they occur naturally, bramble and ivy should be allowed to grow in hedgerows as they provide key nectar and pollen sources in summer and autumn.

Hedgerow Management Methods to Avoid

Hedgerows and woodland understorey will not be over-managed. Tightly cut hedges and vegetation mean there are fewer flowers and berries, thus reducing available habitats, feeding sources and suitable nesting sites.

Hedgerows will not be cut between March 1st and August 31st inclusive. It is both prohibited (except under certain exemptions) and very damaging for birds as this is the period they will have vulnerable nests containing eggs and young birds.

Pesticide/ herbicide sprays or fertilisers will not be used at all as they can have an extremely negative effect on the variety of plants and animals they support.

Enhancement 4: Creation of Invertebrate Habitat

As part of the biodiversity enhancement strategy for the Proposed Development, the integration of bee bricks and bee hotels offers a simple yet highly effective means of supporting urban pollinator populations, particularly solitary bees. These species, which include mason bees and leafcutter bees, do not form hives and instead rely on small cavities in wood, stone, or soil to nest. In urbanised environments, such natural nesting sites are often scarce due to the dominance of hard landscaping and building materials. These will be placed on site, where applicable, with the placement of same selected by a qualified Ecologist.

By embedding bee bricks directly into the fabric of buildings, such as external walls, garden structures, or boundary features, and installing bee hotels in communal green spaces, balconies, and landscaped areas, the Proposed Development can provide essential nesting habitat for these important pollinators. These features require minimal space and maintenance, making them a practical addition to both private and public areas within the site.

The ecological benefits are significant. Solitary bees are highly efficient pollinators, contributing to the health and productivity of nearby wildflower meadows, gardens, and planted areas. Their presence enhances plant diversity, supports food webs, and contributes to the overall resilience of urban ecosystems. In turn, this supports other wildlife such as birds and small mammals that rely on flowering plants and insects for food and shelter.

Beyond ecological value, bee bricks and hotels also offer educational and community engagement opportunities. They serve as visible, tangible features that can foster awareness of biodiversity among residents, encouraging environmentally responsible behaviours and a sense of stewardship. Informational signage or community-led monitoring initiatives can further enhance their impact.

From a sustainability perspective, these features align with green building standards such as Building Research Establishment Environmental Assessment Method (BREEAM) and Leadership in Energy and Environmental Design (LEED), which reward biodiversity-friendly design. They also contribute to climate adaptation goals by supporting ecosystem services like pollination, which are vital for urban greening and food production. Guidance from the All-Ireland Pollinator Plan states *“Don’t install a large bee or insect hotel. Large bee hotels are attractive to humans, but not great for pollinators. They can encourage the spread of disease and attract predators. Avoid anything bigger than an average-sized bird box. There are many other ways to provide nesting habitats for pollinators, such as providing wild areas of undisturbed long grass, and scraping back some bare earth. If you want to make a bee hotel,*

make sure it is small, and position it away from bird feeders so the insects aren't easy targets."¹. An appointed ecologist will oversee the creation of these habitats.

In summary, the inclusion of bee bricks and bee hotels within the Proposed Development design represents a low-cost, high-impact intervention that supports biodiversity, enhances ecological connectivity, and contributes to the environmental and social sustainability of the site.

Enhancement 5: Habitat Management Plan

A habitat management plan for the site will be developed in conjunction with a suitably qualified contractor, to ensure longevity and proper maintenance of the proposed enhancement features for the site. This plan will include, but not be limited to, the following:

- Native Planting Maintenance: Regular care of native hedgerows, trees, wildflower meadows, and green roofs to ensure healthy growth and prevent invasive species;
- Seasonal Pruning: Conduct pruning outside of bird nesting season (typically March–August) and use less intensive measures where possible (e.g., hand tools) to avoid disturbance;
- Deadwood Retention: Leave some deadwood in situ (where safe) to support invertebrates and fungi as trees/hedgerows are pruned;
- Regular Maintenance of SuDS Features: Ensure swales, rain gardens, and attenuation ponds are functioning properly and not overgrown or polluted;
- Biodiversity-Friendly Design: Maintain vegetation around SuDS to attract and support amphibians, insects, and birds; and
- Invertebrates: maintain bee bricks/bee hotels as necessary to ensure they remain functional.

Enhancement 6: Swift Boxes

It is proposed to include a minimum of 20 no. swift bricks as part of the Proposed Development. The bricks should be located in groups of up to 20, as swifts are a social nesting species. As per best practice, swift bricks will be installed at least 5 metres above the ground, in safe areas where they will not be disturbed, with a clear unobstructed run up to the boxes/bricks. As the bricks tend not to overheat, they can be placed facing in any direction. Care will be taken to ensure no obstacles or plate glass windows are located below the bricks.

Guidelines for the bird box scheme follow the guidelines published by Swift Conservation Ireland, and those published by Birdwatch Ireland entitled "Saving Swifts" (2009/2010). The incorporation of Swift Bricks will help recover the declining swift population, which are now Red Listed in Ireland (Gilbert et al., 2021).

Swifts are a "clean" bird species which remove their own wastes from their nests periodically. As such, Swift bricks do not require any cleaning by the management company, however

¹ A link to a "How-to-guide Creating wild pollinator nesting habitat" is provided for the development management company to put these habitats in place: <https://pollinators.ie/wp-content/uploads/2022/12/Pollinator-Nesting-How-to-Guide-2022-WEB.pdf>.

placement should be cognizant of any non-natural surfaces beneath that may accumulate bird waste or present a health and safety hazard (e.g., placement above outdoor eating areas or paved footpaths).

While not altogether necessary, it is advised to install a **Swift calling system** to attract Swifts and encourage them to take up residence at a new site. A Swift calling system is a small speaker set-up that plays Swift calls during the summer. It should be located close to the brick entrances and has been seen to greatly increase the chances of Swifts using the Swift boxes/bricks. Solar powered options are possible and advised.

Should installation of the system go ahead, an Ecologist will be instructed to set up the Swift calling system once the construction of the Proposed Development is complete.

Enhancement 7: Bat Boxes

A minimum of four summer bat boxes (e.g., Woodcrete 1FF Schwegler design) will be erected on suitably sized trees within the site, the placement of which will be determined by a bat ecologist. The boxes will be installed as part of the landscaping works, so as to not delay their deployment and potential positive effects.

Bat boxes will be sited carefully, with reference made to Bat Conservation Trust Guidelines², and this will be undertaken by a bat specialist. The bat ecologist will erect the bat boxes with assistance from the contractor. Some general points that will be followed include:

- Bat boxes will be erected on buildings, trees (or telegraph poles) with no crowding branches or other obstructions for at least 1 metre above and below the bat box;
- Diameter of tree should be wide and strong enough to hold the required number of boxes;
- Locate bat boxes in areas where bats are known to forage or adjacent to suitable foraging areas. Locations will be sheltered from prevailing winds;
- Bat boxes will be erected at a height of 4-5 metres to reduce the potential for vandalism and predation of roosting bats; and
- The recommended Woodcrete 1FF design is open at the bottom, allowing the droppings to fall out, and so does not need cleaning.

17.3.2.4.2 Monitoring

Measure 5: Post Construction Lighting Assessment by a Bat Ecologist

Following the completion of the Proposed Development, a post-construction lighting assessment will be undertaken by a suitably qualified bat ecologist. This assessment is a critical component of the site's biodiversity mitigation strategy, ensuring that the installed night-time lighting does not adversely affect local nocturnal species, including local bat populations, particularly in areas that may be important for commuting and foraging activities.

The bat ecologist will conduct a site-wide evaluation of all lighting, including streetlights, building-mounted luminaires, bollard lighting, and any landscape or architectural lighting features. The assessment will be carried out during the active bat season (typically between

² [Putting up your box - Bat Boxes - Bat Conservation Trust](#)

April and October) and under suitable weather conditions to ensure accurate observations of bat activity in relation to lighting.

Key elements of the assessment will include:

- Measurement of light levels (lux) at ground level and at canopy height in key sensitive areas, particularly along linear features, treeline/hedgerow edges, and buffer zones adjacent to Galway Bay;
- Identification of light spill or glare into Galway Bay;
- Behavioural observations of bat activity in relation to illuminated areas, using bat detectors and visual surveys, where required, to assess whether lighting is deterring or displacing bat movement; and
- Comparison with pre-construction ecological data, including this report, to determine whether lighting has altered bat usage patterns across the site in any way (positive or negative).

Based on the findings, the ecologist will provide recommendations for remedial action, if necessary. These may include:

- Retrofitting or re-aiming luminaires to reduce light spill into sensitive areas;
- Installing shields, baffles, or louvres on existing lights to direct illumination away from sensitive habitats;
- Adjusting lighting schedules to reduce illumination during peak nocturnal species activity hours (typically dusk to dawn); and
- Replacing high-intensity or cool-spectrum lights with warm-white LEDs ($\leq 2700\text{K}$) to minimise ecological disruption.

The implementation of these recommendations will ensure that the Proposed Development remains compliant with wildlife protection legislation and continues to support the long-term conservation of local nocturnal species, including migratory bird and local bat populations.

In addition, a follow-up report documenting the assessment findings and any corrective actions taken will be submitted to the relevant planning authority or ecological oversight body as part of the site's post-construction compliance obligations.

Measure 6: Post-Construction Bird Box Assessment by an Ecologist

Bird box placement and installation will be undertaken and overseen by an Ecologist to ensure they are carried out per specifications. Bird boxes will be monitored by the existing maintenance team and any defects or faults reported to an Ecologist who can supervise the installation of new boxes during the appropriate season (before February).

The bird boxes will require emptying from October onwards, which will help prevent the spread of any parasites or disease between nesting birds and encourage birds to nest in the future breeding season. This task will be done once annually by the existing maintenance team.

Measure 7: Post-Construction Bat Box Assessment by an Ecologist

As with the bird boxes, bat box placement and installation will be undertaken and overseen by an Ecologist to ensure they are carried out per specifications

Bat boxes installed shall be subject to regular monitoring and maintenance to ensure their continued suitability and to promote long-term use by bats. As such, annual inspections will

be carried out during autumn or winter when bats are less likely to be present, to check for structural integrity, signs of damage, and secure mounting. While bat boxes typically do not require cleaning, any accumulation of droppings or debris that could obstruct entry or reduce internal space should be carefully inspected and removed.

Inspections should also include checks for pest activity, such as wasp or bird nests, which may deter bat use. Vegetation around the box should be managed to maintain clear flight paths (entry/egress), and artificial lighting in the vicinity should be avoided to preserve a dark environment conducive to bat activity. Lighting will be monitored per Measure 5.

17.3.3 Land and Soils

17.3.3.1 Construction Phase

17.3.3.1.1 Mitigation

Incorporated Design Mitigation

The excavation of soil and subsoil materials, including made ground excavated as part of remedial excavations (approximately 11,594.268m³), impacted with anthropogenic contamination and permanent removal offsite is a design requirement of the Proposed Development. As part of incorporated design measures for the Proposed Development in-situ soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite.

Landscaping within public open / communal amenity space areas will comprise either 600mm of imported soil including minimum 150mm topsoil or 450mm imported soil including 150mm topsoil over a geotextile thereby removing any potential risks associated with direct contact of soils in the public open / communal amenity space areas (MKO, 2022). However, the details of these measures are to be developed during the detailed design stage.

Construction Phase Mitigation

During the construction phase, all works will be undertaken in accordance with the CEMP (DNV, 2025) and the Resource Waste Management Plan (RWMP) (AWN, 2025). Following appointment, the contractor will be required to further develop the CEMP and RWMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground and surface water with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001).

The CEMP and RWMP will be implemented for the duration of the construction phase, covering construction and waste management activities that will take place during the construction phase of the Proposed Development.

Management of Contaminated Soil

As documented in the MKO report (MKO, 2022), the concentrations of the parameters analysed within the 'natural ground' were below the specific assessment criteria (i.e., Residential (without Private Gardens) and Commercial) and therefore were not considered to present an unacceptable risk to human health. However, due to the elevated concentrations of lead and polycyclic hydrocarbons (PAHs) noted in the Made Ground it was considered that the potential risks to future occupants via dermal contact, inhalation and ingestion pathways can be mitigated through the provision of a suitable barrier layers (i.e. the footprint of the proposed buildings, hardstanding for roads and pavements or capping layers in soft landscaping areas). It is anticipated that the majority of contaminated soils will be excavated during bulk excavations for the Proposed Development. Nevertheless, as part of incorporated design measures for the Proposed Development *in-situ* soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite. The removal of the residual soil source will be undertaken under supervision of the Project Environmental Consultant and validated in accordance with relevant guidelines including Environmental Protection Agency (EPA) 'Guidance on the Management of Contaminated Land and

Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works to ensure that a 'clean edge' (i.e., area where all the contamination soil has been removed and the remaining soil is clean) is reached in the area of excavation.

The management and removal of soils offsite will be undertaken in accordance with the GII Waste Classification Report (August 2024), the Waste Management Act 1996 -2011 as amended and associated regulations and guidance. Where required, additional sampling and waste classification assessment of potentially contaminated soil to be excavated will be undertaken in advance of construction works commencing.

All works will be undertaken by the appointed contractor in accordance with industry best practice to manage risk from contaminated soils and groundwater. These will be designed by the appointed contractor dependent on his construction practices and are likely to include the use of gloves, dust masks and potentially disposable overalls. These and other appropriate measures will minimise the exposure of the site workers.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase or in the unlikely event soil becomes contaminated, by for example a fuel spill onsite or a burst / leaking hydraulic hose, the Main Contractor will ensure that the management of contaminated material is undertaken in accordance with the procedures outlined in Section 9 of the CEMP (DNV, 2025). Where required, the Main Contractor will instruct the Project Environmental Consultant to attend the site and complete an environmental site assessment in accordance with BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites – Code of Practice and the requirements set out in Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous, (EPA, 2018). Contaminated soils excavated and removed from the site for treatment or disposal within a licensed waste facility

Asbestos

Asbestos Containing Materials (ACMs) were identified in the Made Ground during the site investigations undertaken in 2019 (MKO, 2019) outside of the boundary of Proposed Development.

While ACMs were not identified in samples tested from the Made Ground within the site boundary during the subsequent site investigations in 2022 or 2024, given the presence of asbestos in the wider area surrounding the site, the potential for asbestos to be present at the site has been considered.

The potential risks to construction workers will be further considered as part of the construction management plans including the CEMP prepared and updated by the appointed contractor in advance of construction work commencing and will be managed via the implementation of effective mitigation measures appropriate the risks. The risk posed to construction workers will be minimised by the use of appropriate health, safety and welfare provisions. These include but are not limited to good site hygiene and the use of appropriate personal protective equipment (PPE).

Where ACMs are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. All asbestos will be taken to a suitably licensed or permitted facility.

An asbestos demolition survey will be undertaken prior to the demolition of the existing buildings onsite. If asbestos is encountered onsite (i.e., during demolition or excavation works), a suitably permitted/licenced waste contractor will be employed to remove the asbestos from the site in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010 and the Best Practice Guidance for Handling Asbestos (2023). All material will be taken to a suitably licensed or permitted facility.

Reuse of Soil

It is anticipated that the majority of soil and subsoil, including contaminated soils, will be excavated during bulk excavations for the Proposed Development and removed offsite in accordance with the RWMP and all statutory legislation. However, when soil and subsoil materials are reused within the Proposed Development (i.e., for engineering fill and landscaping), their suitability will be assessed in accordance with engineering and environmental specifications. This process will comply with relevant legislation, including the Waste Framework Directive (2008/98/EC), transposed in Ireland via the European Union (Waste Directive) Regulations, and EPA guidance such as the Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites (EPA, 2013a). Materials may be classified as by-products subject to EPA approval under Article 27, ensuring lawful reuse without risk to human health or the environment. This will include:

- Define the criteria by which the suitability of the soils for reuse will be assessed (e.g., analytical parameters and limits), the engineering requirements such as geotechnical parameters for the material to be used within the works;
- Delineation of areas where excavated soil is intended for disposal offsite as waste or contaminated material, and where it is intended for reuse on site;
- Identification and recording of the location from where the soil will be excavated and its proposed reuse location and function;
- Engineering assessment to confirm its suitability for reuse;
- Any proposed treatment or processing required to enable its reuse, as well as any associated treatment permits, or licences required; and
- All topsoil stripping associated with the Proposed Development will be monitored by a suitably qualified licensed archaeologist making sure to include any non-natural subsoil deposits to ensure that any potential archaeological features are exposed in the works. The licensed archaeologist onsite will be responsible, on behalf of the developer, for the identification and appropriate treatment (e.g. excavation and recording) of all archaeological remains encountered. The results of all excavations, including site evaluation and monitoring, will be compiled into a fully illustrated report.

Management and Control of Soils and Stockpiles

Any construction and demolition (C&D) waste generated from construction activities will be managed in accordance with the procedures which will be outlined in the CEMP (DNV, 2025) and RWMP (AWN, 2025) and will be stored onsite in such a manner as to:

- Prevent environmental pollution (bundled and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required);
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent reuse, recycling and recovery; and

- Prevent hazards to site workers and the general public during the construction phase (largely noise, vibration and dust).

Stockpiling of excavated materials, waste materials generated at the site or construction materials (e.g., imported aggregates, pipework, etc.) will be kept to a minimum. However, when stockpiling of materials at the site is necessary for disposal offsite the material will be segregated and temporarily stored onsite pending removal in accordance with the CEMP (DNV, 2025) which will be prepared by the main contractor (once appointed) in advance of construction works commencing.

Where possible, stockpiling of soil and stone onsite will be avoided. However, in the event that stockpiling is required, stockpiled materials, pending reuse onsite or removal offsite, will be located away from the location of any sensitive receptors (i.e., drains, watercourses, etc.). Temporary storage areas will be located at least 10m away from any watercourses (i.e., the Corrib Estuary and the River Corrib) and open drainage channels which will be protected for the duration of the works (i.e., surrounded with silt fencing) or temporary diversion put in place.

When a stockpile has been sampled for re-use or waste classification purposes, it will be considered to be complete, and no more soil will be added to that stockpile prior to removal. An excavation/stockpile register will be maintained on-site.

The reuse of suitable excavated soil and subsoil for the Proposed Development (i.e., landscaping or engineering) will be undertaken in accordance with the engineered design and landscape plan for the Proposed Development.

Stockpiling of excavated material (i.e., soils and subsoils) should be avoided. However, where required (i.e., awaiting reuse onsite, if required, or removal offsite), it will be appropriately managed onsite during the construction phase of the Proposed Development in accordance with the measures outlined in the CEMP (DNV, 2025). To minimise the overall effect on soils arising during the construction works, the following mitigation measures will be adhered to:

- A suitable temporary storage area will be identified and designated;
- All stockpiles will be assigned a stockpile number;
- Stockpiled materials will be protected from exposure to wind by storing the material in sheltered regions of the site;
- Soil waste categories will be individually segregated and all segregation, storage & stockpiling locations will be clearly delineated on the site drawing;
- Material identified for reuse on site, off site and waste materials will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on the Site drawings;
- Soil stockpiles will be covered to prevent run-off from the stockpiled material generation and/or the generation of dust;
- Material identified for reuse on site, if required, removal offsite and waste materials will be individually segregated;
- Topsoil shall not be stored in piles of greater than two metres in height as the soil matrix (internal structure) can be damaged beyond repair. It should also be kept as dry as possible and used as soon as possible to reduce any deterioration through lengthy storage and excess moving around the site;

- Any waste that will be temporarily stored / stockpiled will be stored on impermeable surface high-grade polythene sheeting, hardstand areas or skips to prevent cross-contamination of the soil below or cross contamination with soil;
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust;
- Stockpiles of materials shall be kept to a minimum and if necessary, they shall be kept away from sensitive receptors such as residential areas etc;
- Soil stockpiles will be sealed / covered polythene sheeting with to prevent run-off of rainwater and silt from the stockpiled material generation and/or the generation of dust; and
- Earthworks excavations shall be kept damp where necessary and where reasonably practicable.

Import of Aggregates and Materials

Contract and procurement procedures will ensure that all imported aggregates and materials required for the construction phase of the Proposed Development will be sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. The importation of aggregates and materials will be subject to management and strict quality control procedures in accordance with the design specification and relevant Building Regulations, which will include testing for contaminants, invasive species and other anthropogenic inclusions and assessment of the suitability for use in accordance with engineering and environmental specifications for the Proposed Development. Therefore, any unsuitable material will be identified prior to unloading / placement onsite.

Airborne Dust Generation

Dust and fine particle generation from construction and demolition activities on the site can be substantially reduced through the selection of adequate mitigation techniques and effective management as detailed in the CEMP (DNV, 2025). The most effective technique is to control dust at source and prevent it from becoming air borne by implementing the following mitigation measures:

- Excavated soils will be carefully managed and maintained in order to minimise potential effect on soil quality and soil structure;
- Handling of soils and materials will be undertaken in accordance with documented procures outlined in the CEMP and RWMP that will be set out in order to protect ground and minimise airborne dust;
- The normal measures required to prevent airborne dust emissions and associated nuisance arising from site work will be in place including measures to prevent uncovered soil drying out, leading to wind pick up of dust and mud being spread onto the local road network and adjoining properties. This may require additional wetting at the point of dust release, dampening down during dry weather and wheel cleaning for any vehicles leaving the site;
- Vehicles travelling on any unsurfaced site roads shall have their speed restricted to 20 kph;
- Vehicles entering and leaving sites will be covered to prevent escape of materials during transport;

- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers must be covered (e.g., tarpaulin or similar) during transit onsite and offsite to restrict the escape of dust;
- Footpaths immediately around the site will be cleaned by hand regularly, with damping as necessary;
- Dry sweeping of large areas shall be avoided;
- High level walkways and surfaces such as scaffolding shall be cleaned regularly using safe 'wet' methods, as opposed to dry methods;
- Vehicle waiting areas or hard standings will be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary;
- Dust dispersal over the site boundary shall be minimised using static sprinklers or other watering methods as necessary;
- Equipment and techniques for cutting / grinding / drilling / sawing / sanding etc, which minimise dust emissions and which have the best available dust suppression measures, shall be employed;
- Prior to commencement, the main contractor shall identify the construction operations which are likely to generate dust and to draw up action plans to minimise emissions, utilising the methods highlighted above. Furthermore, the main contractor shall prepare environmental risk assessments for all dust generating processes, which are envisaged;
- The main contractor will demonstrate full compliance with the dust control conditions at all times. Regular Toolbox Talks / briefings will be given to construction staff, sub-contractors, and operatives to raise awareness of the need to minimise dust;
- The implementation of dust suppression will be monitored, reviewed and any actions required addressed on an ongoing basis;
- At all times, the procedures put in place will be strictly monitored and assessed;
- The main contractor shall allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled;
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board shall also include head/regional office contact details; and
- Where ACMs are encountered during demolition and excavation works, these will be managed in accordance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006–2010 and the Construction Regulations 2013, including the use of licensed asbestos contractors, appropriate risk assessments, and safe removal and disposal procedures as outlined by the Health and Safety Authority.

Potential effects and avoidance and mitigation measures associated with generation of dust are addressed in Chapter 8 (Air Quality) of this EIAR.

Soil Structure

The extent of the required work area and the bulk excavation at the site will be minimised where appropriate to prevent unnecessary excavation of soil and tracking over soil and subsoil outside of the excavation work areas as a result of compaction and rutting from construction traffic.

Soil including topsoil and subsoil will be segregated and stored appropriately to prevent deterioration of soil structure and quality to ensure the material will be suitable for re-use onsite.

Export of Resource (Soil and Subsoil) and Waste

All surplus materials and any waste will be removed offsite in accordance with the requirements outlined in the CEMP (DNV, 2025) and RWMP (AWN, 2025) and will be managed in accordance the Waste Management Act 1996 -2011 as amended and associated regulations and guidance.

It will be the contractor's responsibility to either; obtain a waste collection permit or, to engage specialist waste service contractors who will possess the requisite authorisations, for the collection and movement of waste offsite.

Where appropriate, excavated soil and material intended for recovery or disposal offsite will require appropriate waste classification in order to select an appropriate receiving facility. Assessment of the excavated material will be carried out with due regard to the following guidance and legislation:

- Environmental Protection Agency document entitled Waste Classification; List of waste and determining if waste is Hazardous or Non-Hazardous.
- EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002).
- Environmental Protection Agency documented entitled Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities.
- Environment Agency, 2018. Technical Guidance WM3: Guidance on the classification and assessment of waste.
- Any other guidance or legislation that might be applicable or relevant at the time of disposal

The re-use of soil offsite will be undertaken in accordance with all statutory requirements and obligations including, where appropriate, re-use as by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended. Any surplus material not suitable for re-use as a by-product and other waste materials arising from the construction phase will be removed offsite by an authorised contractor and sent to the appropriately authorised (licensed/permited) receiving waste facilities. As only authorised facilities will be used, the potential effects at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures.

Any waste soils will be transported under a valid waste collection permit issued under the Waste Management (Collection Permit) Regulations 2007, as amended and will be delivered to an appropriately authorised waste management facility.

Prior to site works commencing, the CEMP (DNV, 2025) and RWMP (AWN, 2025) will be updated to reflect specific measures to minimise waste generation and resource consumption, including providing details of proposed waste contractors and destinations for each waste stream.

Materials and waste will be documented prior to leaving the site. All information will be entered into a waste management register kept on the site.

Vehicles transporting material with potential for dust emissions to an offsite location shall be enclosed or covered with a tarpaulin at all times to restrict the escape of dust.

Public roads outside the site will be regularly inspected for cleanliness, as a minimum, on a daily basis, and cleaned as necessary. Where required, trucks entering / leaving the site will pass through a wheel washing system. The wheels of all lorries will be cleaned as required prior to leaving the site to prevent the generation of dust or cause the build-up of aggregates and fine material in the public domain. The correct use and management of the wheel washing system (where required) will be undertaken by the main contractor to ensure that there is no harm or effect to the receiving water environment.

Concrete Works

The use of cementitious grout used during the construction phase of the Proposed Development will avoid any contamination of the receiving hydrogeological environment through the use of appropriate design and methods implemented by the appointed contractor and in accordance with the CEMP (DNV, 2025), and relevant industry standards to prevent effect on groundwater and surface water quality such as the use of water compatible grout.

The following are mitigation measures that need to be adhered to when using concrete for the Proposed Development:

- All ready-mixed concrete will be delivered to the site by truck;
- Concrete batching will take place offsite;
- Wash down and wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip for appropriate compliant removal offsite in accordance with all relevant waste management legislation;
- Any excess concrete will not be disposed of onsite;
- Pouring of cement-based materials for works will only be carried out in dry conditions and pumped concrete will be monitored to ensure there is no accidental discharge;
- A suitable risk assessment for wet concreting shall be completed prior to works being carried out. Pumped concrete will be monitored to ensure there is no accidental discharge; and
- Pouring of concrete will not be permitted within 50m of any watercourse during inclement weather.

Handling of Fuels, Chemicals and Materials

Fuelling and lubrication of equipment will be carried out in accordance with the procedures outlined in the CEMP (DNV, 2025), in a designated area of the site (i.e., bunded areas) away from any watercourses and drains (where not possible to carry out such activities offsite) with full attendance of plant operatives.

The storage and use of fuel and oils will be kept to a minimum at the site for the duration of the construction phase and will be strictly controlled in accordance with procedures outlined in the CEMP (DNV, 2025). Fuel will only be brought to site via mobile fuel bowser. Any other

oils or hydraulic oils stored onsite will be stored in designated areas in suitable tanks and containers.

- Refuelling of plant during the construction phase will be carried out in accordance with standard best practice. Onsite refuelling will not be undertaken within 50m of any open drains in the vicinity of the site which will be protected / temporary diversion put in place (i.e., sandbags) in order to prevent contamination of nearby waterbodies such as the Corrib Estuary transitional waterbody (Lough Atalia) which is adjacent to the site and the River Corrib which is located approximately 230 meters to the west of the site;
- Onsite refuelling will only be carried out at the out at the designated, impermeable refuelling station location onsite with appropriate containment in place. The refuelling station will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response Team will be appointed before the commencement of works at the site;
- Bunds will have regard to Environmental Protection Agency Guidelines 'Amendment to IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities' (EPA, 2013). All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:
 - 110% of the capacity of the largest tank or drum within the bunded area; or
 - 25% of the total volume of substance that could be stored within the bunded area;
- Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised onsite is in good working condition;
- Any equipment not meeting the required standard will not be permitted for use within the Proposed Development site;
- Only emergency breakdown maintenance will be carried out onsite;
- Drip trays and spill kits will be available onsite to ensure that any spills from vehicles are contained and removed offsite;
- Spill kits will be made available and kept onsite at all times and identified with signage for use in the event of an environmental spill or leak;
- A spill kit will be kept in close proximity to the fuel storage area for use in the event of any incident during refuelling or maintenance works;
- Any fuels retained on drip trays, mobile bunds, etc., will be emptied into a secure bunded waste oil drum to await appropriate disposal offsite in accordance with all relevant waste management legislation;
- Heavy machinery used on the site will also be equipped with its own spill kit;
- Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative;
- There may also be the requirement for use of portable generators or similar fuel containing equipment during the construction phase of the Proposed Development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times;
- Suitable bunded areas will be installed for oil and petrol storage tanks;
- Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills;
- Spill kits will be provided by the main contractor to cater for any other spills;

- Where contractors are required to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent escape of fluids to the river. No refuelling is permitted on site, i.e. within or adjacent to any waterbody, specifically the Corrib Estuary transitional waterbody (Lough Atalia) and drainage ditches, due to risk of spillage;
- The local authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase.

Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available onsite including in vehicles operating onsite. Remedial action will be immediately implemented to address any potential effects in accordance with industry standards and legislative requirements, which will ensure minimal risk to the receiving hydrological and hydrogeological environment associated with the construction phase of the Proposed Development. The following mitigation measures will be adhered to as follows:

- Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development site;
- Emergency response procedures and contingency plans will be put in place, in the unlikely event of emergency accidents (i.e., spillages of fuels or lubricants);
- Spill kits, including oil absorbent material, will be provided and available onsite, so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained;
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development site and compliantly disposed offsite. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures, standards and EPA guidelines;
- All site staff (i.e., construction staff) staff will be familiar with the emergency procedures in the event of accidental fuel spillages; and
- All construction works staff onsite will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving land, soil and geology associated with the construction stage of the Proposed Development.

Welfare Facilities

Welfare facilities have the potential, if not managed appropriately, to release organic and other contaminants to ground or surface water courses. Foul drainage from temporary welfare facilities during the construction phase of the Proposed Development will be discharged to temporary holding tank(s) the contents of which will periodically be tankered offsite to a licensed facility. All waste from welfare facilities will be managed in accordance with the relevant statutory obligations by an appropriately authorised contractor.

Any connection to the public foul drainage network during the construction phase of the Proposed Development will be undertaken in accordance with the necessary temporary discharge licences issued by Uisce Éireann (UE).

17.3.3.1.2 Monitoring

During the construction phase of the Proposed Development, the following monitoring measures will be implemented:

- Routine inspections of construction activities will be carried out on a daily basis by the contractor staff to ensure all controls to prevent environmental effect, relevant to the construction activities taking place at the time, are in place. Environmental inspections will ensure that the works are undertaken in compliance with the CEMP (DNV, 2025) and that the requirements of the Conditions of Planning, the Natura Impact Statement (NIS) and associated documentation are being adhered to during construction;
- Routine monitoring and inspections during refuelling, concrete works to ensure no effects and compliance with avoidance, remedial and mitigation measures;
- Inspections and monitoring will be undertaken during excavations and other groundworks to ensure that measures that are protective of soil quality, water quality and human health (i.e., workers onsite) are fully implemented and effective;
- Inspections of stockpiles with regular review of weather conditions to ensure appropriate wetting occurs during dry periods and appropriate covering during windy periods;
- The removal of the residual soil source will be validated by the Project Environmental Consultant in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works;
- The appointed contractor will monitor excavations to ensure consistency with the descriptions and classifications according to waste acceptance criteria testing carried out as part of the site investigations in 2024 (GII, 2024) which will be undertaken in advance of construction works commencing;
- Soil and subsoil materials to be reused within the Proposed Development (i.e., for engineering fill and landscaping) will be subject to an assessment of the suitability for use, in accordance with engineering and environmental specification for the Proposed Development;
- In the event that previously unidentified contaminated soils are encountered during the excavation soil samples will be submitted for chemical analysis to confirm that residual sources of contamination do not remain on site. The soil should be excavated and removed from the site for treatment or disposal within a licensed waste facility. Additional validation samples should be taken to ensure that a 'clean edge' is reached in the area of excavation. A Validation Report will be prepared detailing extent of excavation to included confirmatory sampling demonstrating effective removal of impacted materials. Removal of materials offsite will also be supported by the provision of a compliant waste classification report in line with duty of care obligations;
- A dust deposition monitoring programme will be implemented during the construction phase in order to verify the continued compliance with relevant standards and limits. Where required, the appointed contractor will undertake dust monitoring at a range of nearest sensitive receptors during the construction phase of the Proposed Development; and

- Materials management and waste audits will be carried out at regular intervals to monitor the following:
 - Management of soils onsite and for removal offsite.
 - Record keeping.
 - Traceability of all materials, surplus soil and other waste removed from the site.
 - Ensure records are maintained of material acceptance at the end destination.

17.3.3.2 Operational Phase

17.3.3.2.1 Mitigation

There is no requirement for mitigation measures for the operational phase taking account of the incorporated design measures for the Proposed Development. It is concluded that there will be no likely significant effects on the receiving land, soil, or geological environment during the operational phase. The predicted effects are considered to be imperceptible and not significant in the context of the EIA Directive. Therefore, there is no requirement for mitigation measures for the operational phase.

17.3.3.2.2 Monitoring

Landscaping within public / communal open space areas shall be validated by the Project Environmental Consultant to ensure the design of the capping layer is in accordance with the detailed design ensuring that any potential risks associated with direct contact of soils is removed.

There are no other monitoring requirements specifically in relation to land, soil and geology during the operational phase of the Proposed Development.

17.3.4 Hydrology

17.3.4.1 Construction Phase

17.3.4.1.1 Mitigation

Incorporated Design Mitigation

The excavation of Made Ground soils impacted with anthropogenic contamination and permanent removal off-site is a design requirement of the Proposed Development. As part of incorporated design measures for the Proposed Development *in-situ* soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite.

In accordance with current UKWIR16 guidance, the design for the Proposed Development will include the use of barrier pipes for water supply in certain areas of the site to prevent potential permeation of contaminants into drinking water supplies.

The design and specification of the concrete will be undertaken by a suitably qualified engineer during the detailed design stage.

The site is located in the proximity to Galway Bay and the River Corrib, which is estuarine in nature, suggesting a heightened risk of coastal flooding. As documented in Stage 2 Flood Risk Assessment (FRA) (TOBIN, 2025), in order to protect the site against the 1 in 1000-year (0.1% Annual Exceedance Probability) mid-range future scenario flood event, which is required for critical infrastructure, the floor level (FFL) at the site is required to be at a minimum 5.05m Ordnance Datum (OD) to account for climate change and a freeboard of 300mm.

Construction Phase Mitigation

During the construction phase, all works will be undertaken in accordance with the CEMP (DNV, 2025). Following appointment, the contractor will be required to further develop the CEMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground and surface water with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001). The CEMP and RWMP will be implemented for the duration of the construction phase, covering construction and waste management activities that will take place during the construction phase of the Proposed Development.

Mitigation works will be adopted as part of the construction works for the Proposed Development. These measures will address the main activities of potential impact which include:

- Control and management of contaminated soil;
- Control and management of surface water runoff;
- Control and management of water including potentially contaminated groundwater and management of dewatering activities;
- Piling;
- Borehole decommissioning;
- Control and handling of cementitious materials;
- Appropriate fuel and chemical handling, transport and storage;
- Management of accidental release of contaminants at the site;
- Flooding; and

- Welfare facilities.

The construction works will be managed in accordance with all statutory obligations and regulations and with standard international best practice. Good construction management practices will minimise the risk of pollution from construction activities at the subject site including but not limited to:

- Construction Industry Research and Information Association (CIRIA), 2001. Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- CIRIA, 2015. Environmental Good Practice on Site (C741).
- Enterprise Ireland Oil Storage Guidelines (BPGCS005).
- EPA, 2013. IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities.
- CIRIA, 2007. The SuDS Manual (C697).
- UK Environment Agency, 2004. UK Pollution Prevention Guidelines (PPG).
- CIRIA, 2006. Control of Water Pollution from Linear Construction Projects: Technical Guidance (C648).
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

Control and Management of Contaminated Soil

Contaminated soil will be encountered during groundworks at the site (refer to Chapter 6-Land and Soil- of this EIAR for further details). It is anticipated that the majority of contaminated soils will be excavated during bulk excavations for the Proposed Development. Nevertheless, as part of incorporated design measures for the Proposed Development, *in-situ* soil validation samples will be collected to ensure that residual contamination in soil has been removed offsite. The removal of the residual soil source will be undertaken under supervision of the Project Environmental Consultant and validated in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works to ensure that a 'clean edge' is reached in the area of excavation.

The removal of localised hotspots shall be undertaken prior to the bulk excavation works for the construction of building foundations, utility infrastructure and other works to reduce the potential risks associated with exposure of soils to rainfall or surface runoff and leaching to groundwater.

Where possible, stockpiling of soils and subsoils onsite will be avoided. However, in the event that stockpiling is required, stockpiled materials, pending reuse onsite, where required, will be located away from the location of any sensitive receptors (watercourses and drains). In accordance with Inland Fisheries Ireland guidelines (Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, 2016), stockpiles will not be allowed within 50m of the open water where sufficient working areas are available within the site boundary.

Surplus material, not suitable for reuse, will be segregated, and stockpiled appropriately for removal offsite. For any excavated material identified for removal offsite, while assessment and approval of acceptance at a destination reuse, recovery site or waste facility is pending, excavated soil for recovery/disposal shall be stockpiled as follows:

- A suitable temporary storage area will be identified and designated;
- All stockpiles will be assigned a stockpile number;
- Stockpiled soil and stone materials will be protected from exposure to wind by storing the material in sheltered regions of the Proposed Development site;
- Soil waste categories will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on the site drawing;
- Any waste to be temporarily stockpiled will be stockpiled only on hard standing on heavy gauge polythene sheeting and soil stockpiles will be sealed to prevent run-off of rainwater and leaching of potential contaminants from the stockpiled material generation and/or the generation of dust; and
- There will be no storage of materials within 10m of any boundary, drains and watercourses

Control and Management of Water and Surface Runoff

There will be no direct discharge to groundwater or surface water during the construction phase of the Proposed Development. The following mitigation measures will be adhered to during the construction phase of the Proposed Development:

- Surface water from the surrounding areas will be prevented from draining into the open excavations onsite during construction works through the use of temporary bunds / sandbags around excavation areas to provide diversion of surface water away from excavations. A 10m buffer zone will be established around any open drainage courses and road gullies during construction works and other methods such as bunding implemented where appropriate to ensure that all watercourses or drainage gullies are appropriately isolated;
- Where surface water runoff must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA C750), the CEMP (DNV, 2025) and regulatory consents to minimise the potential impact on the local groundwater flow regime within the underlying aquifer and surface water bodies;
- Unauthorised discharge of water (groundwater / surface water runoff) to ground, drains or watercourses will not be permitted. The appointed Contractor will ensure that the discharge of water to ground, drains or watercourses will be in accordance with the necessary discharge licences issued by UE under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from Galway City Council under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water;
- The use of wheel wash and water treatment facilities will be used as required onsite. The correct use and management of these will be undertaken by the appointed contractor to ensure that there is no harm to the receiving water environment;
- Where required, stockpiles of loose materials pending reuse onsite (although unlikely) will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains.
 - To help shed rainwater and prevent ponding and infiltration, the sides and top of the stockpiles will be regraded to form a smooth gradient with compacted sides reducing infiltration and silt runoff.
 - Where required, silt fences will be erected at the toe of stockpiles to prevent runoff.

- The silt fences will be monitored daily by the appointed contractor and silt will be removed as required;
- Excavation works for piling caps; utility infrastructure and other works will be undertaken in a phased manner in order to minimise the exposure of soil to rainfall. Where feasible groundworks will be undertaken during dryer weather and avoided where heavy rainfall is forecast. Suitable temporary cover (e.g., tarpaulins) of potentially contaminated areas will be required to prevent ingress of rainfall;
- A regular review of weather forecasts of heavy rainfall will be conducted, in particular during groundworks, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible; and
- Public roads outside the site will be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. If required, a road sweeper will be deployed to ensure that public roads are kept free of debris to prevent any runoff entering road gullies and the receiving water environment.

Control and Management of Groundwater

Shallow groundwater may be encountered during excavations required to achieve the required formation levels for the site including building foundations, surface water and foul water drainage, roads and all other associated infrastructure. Groundwater control is likely to be achieved within shallow excavations within the Made Ground by adopting a sump and pump system around the perimeter of the excavation (MKO 2022).

The results of chemical testing indicate that shallow groundwater has been impacted by contamination in isolated locations. Where water must be pumped from the excavations, water will be managed through robust dewatering methodologies in accordance industry best practice standards (i.e., CIRIA – C750) that will be designed by the contractor to minimise the potential impact on the local groundwater flow regime.

- Dewatering must be carried out in cells or localised work areas and larger scale dewatering of the entire site must be avoided to prevent an extensive groundwater drawdown across the site and potential mobilisation of contaminants present in localised areas beneath the site and / or outside of the site boundary;
- The current groundwater flow regime must not be altered to ensure any risk of increasing the distribution of contaminants within the groundwater beneath the site; and
- Monitoring of groundwater levels and contaminant concentrations around the periphery of the works area will be required as part of the groundwater management.

There will be no authorised discharge of water to ground during the construction phase. Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be discharged by the contractor to sewer in accordance with the necessary discharge licences issued by UÉ under Section 16 of the Local Government (Water Pollution) Acts and Regulations for any water discharges to sewer or from FCC under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990 for discharges to surface water. To facilitate this, a temporary water treatment facility, including holding tanks and other necessary apparatus (such as activated carbon filtration and silt busters), will be constructed onsite. This facility will ensure compliance with the conditions of

the temporary discharge consent. Water will be treated and pumped to a holding area, where it will be sampled and tested by the contractor before discharge. Upon receiving analysis results and screening against required consent limits, the contractor will arrange for appropriate disposal. Groundwater will be treated and discharged to sewer in accordance with the temporary discharge consent.

Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released offsite. Where required, all public sewers will be protected to ensure that any untreated wastewater generated onsite does not enter the public sewers.

Piling

Given the presence of contamination (i.e., hydrocarbons, PAHs, heavy metals, cyanide) in soil and groundwater beneath the site, a piling risk assessment will be completed by the appointed Contractor at detailed design stage and in advance of construction works commencing onsite. The proposed piling methodology will refer to the Environment Agency's (EA) guidance on 'Piling into Contaminated Sites' (EA, 2002) and 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (EA, 2001), (or similar best practice) in order to minimise the potential for the introduction of any temporary conduit between any potential sources of contamination at the ground surface, made ground and underlying groundwater. The piling method will also include procedures to ensure any potential impact to water quality is prevented including preventing surface runoff or other piling/drilling fluids from entering the pile bores and surrounding formation. Where there is a requirement to use lubricants, drilling fluids or additives the contractor will use water-based, biodegradable, and non-hazardous compounds under controlled conditions.

Borehole Decommissioning

Existing groundwater monitoring wells at the site that are no longer required will be decommissioned in advance of construction works commencing. This work will be undertaken prior to the bulk excavation works for the construction of building foundations, utility infrastructure and other works to remove any direct conduit or pathway from ground surface for any contaminants to enter groundwater beneath the site.

Prior to commencing the demolition works, all wells will be inspected. The proposed schedule of wells to be decommissioned will be identified by the appointed Contractor in advance of construction works commencing onsite.

Monitoring wells within the site to be retained during the construction phase of the Proposed Development will be protected to ensure that the well head is not damaged during works. Any required wells that will unavoidably be removed during construction works will be decommissioned and replaced with a new monitoring well.

Decommissioning of wells will be undertaken in strict accordance with current best-practice at the time of decommissioning and at a minimum the specifications outlined in EPA Advice Note 14 (EPA, 2013b). This will remove any potential direct conduit for contaminants to enter the groundwater directly and potentially migrate offsite.

Any wells to be retained will be appropriately protected from damage during construction works using precast concrete rings, steel road plates or permanent metal bollards to protect

them from damage throughout the works. Clear legible signage will be maintained, and daily inspection of the integrity of wells and protection measures completed.

Concrete Works

The use of cementitious grout used during the construction phase of the Proposed Development will avoid any contamination of the receiving hydrogeological environment through the use of appropriate design and methods implemented by the appointed contractor and in accordance with the CEMP (DNV, 2025), and relevant industry standards to prevent effect on groundwater and surface water quality such as the use of water compatible grout.

The following mitigation measures will be adhered to when using concrete for the Proposed Development:

- All ready-mixed concrete will be delivered to the site by truck;
- Concrete batching will take place offsite;
- Wash down and wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip for appropriate compliant removal offsite in accordance with all relevant waste management legislation;
- Any excess concrete will not be disposed of onsite;
- Pouring of cement-based materials for works will only be carried out in dry conditions and pumped concrete will be monitored to ensure there is no accidental discharge;
- A suitable risk assessment for wet concreting shall be completed prior to works being carried out. Pumped concrete will be monitored to ensure there is no accidental discharge; and
- Pouring of concrete will not be permitted within 50m of any watercourse during inclement weather.

Handling of Fuels and Chemicals

Fuelling and lubrication of equipment will be carried out in accordance with the procedures outlined in the CEMP (DNV, 2025), in a designated area of the site (i.e., bunded areas) away from any watercourses and drains (where not possible to carry out such activities offsite) with full attendance of plant operatives.

The storage and use of fuel and oils will be kept to a minimum at the site for the duration of the construction phase and will be strictly controlled in accordance with procedures outlined in the CEMP (DNV, 2025). Fuel will only be brought to site via mobile fuel bowser. Any other oils or hydraulic oils stored onsite will be stored in designated areas in suitable tanks and containers.

- Refuelling of plant during the construction phase will be carried out in accordance with standard best practice. Onsite refuelling will not be undertaken within 50m of any open drains in the vicinity of the site which will be protected / temporary diversion put in place (i.e., sandbags) in order to prevent contamination of nearby waterbodies such as the Corrib Estuary which is adjacent to the site and the River Corrib which is located approximately 230 meters to the west of the site;
- Onsite refuelling will only be carried out at the out at the designated, impermeable refuelling station location onsite with appropriate containment in place. The refuelling

station will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response Team will be appointed before the commencement of works at the site;

- Bunds will have regard to EPA Guidelines 'Amendment to IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities' (EPA, 2013). All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:
 - 110% of the capacity of the largest tank or drum within the bunded area; or
 - 25% of the total volume of substance that could be stored within the bunded area;
- Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised onsite is in good working condition;
- Any equipment not meeting the required standard will not be permitted for use within the Proposed Development site;
- Only emergency breakdown maintenance will be carried out onsite;
- Drip trays and spill kits will be available onsite to ensure that any spills from vehicles are contained and removed offsite;
- Spill kits will be made available and kept onsite at all times and identified with signage for use in the event of an environmental spill or leak;
- A spill kit will be kept in close proximity to the fuel storage area for use in the event of any incident during refuelling or maintenance works;
- Any fuels retained on drip trays, mobile bunds, etc., will be emptied into a secure bunded waste oil drum to await appropriate disposal offsite in accordance with all relevant waste management legislation;
- Heavy machinery used on the site will also be equipped with its own spill kit;
- Method statements for dealing with accidental spillages will be provided the Contractor for review by the Employer's Representative;
- There may also be the requirement for use of portable generators or similar fuel containing equipment during the construction phase of the Proposed Development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times;
- Suitable bunded areas will be installed for oil and petrol storage tanks;
- Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to provide protection from accidental spills;
- Spill kits will be provided by the main contractor to cater for any other spills;
- Where contractors are required to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent escape of fluids to the river. No refuelling is permitted on site (i.e. within or adjacent to any waterbodies, specifically the Corrib Estuary transitional waterbody and drainage ditches) due to risk of spillage; and
- The local authority will be informed immediately of any spillage or pollution incident that may occur onsite during the construction phase.

Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available onsite including in vehicles operating onsite. Remedial action will be immediately implemented to address any potential effects in

accordance with industry standards and legislative requirements, which will ensure minimal risk to the receiving hydrological and hydrogeological environment associated with the construction phase of the Proposed Development. The following mitigation measures will be adhered to as follows:

- Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development site;
- Emergency response procedures and contingency plans will be put in place, in the unlikely event of emergency accidents (i.e., spillages of fuels or lubricants);
- Spill kits, including oil absorbent material, will be provided and available onsite, so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained;
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development site and compliantly disposed offsite. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures, standards and EPA guidelines;
- All site staff (i.e., construction staff) staff will be familiar with the emergency procedures in the event of accidental fuel spillages;
- All construction works staff onsite will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving land, soil and geology associated with the construction stage of the Proposed Development.

Infrastructure

All below ground drainage infrastructure will be constructed in accordance with current UÉ requirements to ensure that there are no potential impacts to groundwater quality.

Flooding

The appointed Contractor will provide method statements for weather and tide/storm surge forecasting and continuous monitoring of water levels in the Corrib Estuary transitional waterbody. The appointed Contractor will also provide method statements for the removal of site materials, fuels, tools, vehicles, and persons from flood zones in order to minimise the risk to persons working on the site as well as potential input of sediment or construction materials into the waterbodies during flood events.

Welfare Facilities

Welfare facilities have the potential, if not managed appropriately, to release organic and other contaminants to ground or surface water courses. Foul drainage from temporary welfare facilities during the construction phase of the Proposed Development will be discharged to temporary holding tank(s) the contents of which will periodically be tankered offsite to a licensed facility. All waste from welfare facilities will be managed in accordance with the relevant statutory obligations by an appropriately authorised contractor.

Any connection to the public foul drainage network during the construction phase of the Proposed Development will be undertaken in accordance with the necessary temporary discharge licences issued by UÉ.

17.3.4.1.2 Monitoring

During the construction phase of the Proposed Development the following monitoring measures will be considered:

- The removal of the residual soil source will be validated by the Project Environmental Consultant in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works;
- Groundwater and surface water monitoring will be undertaken by the Project Environmental Consultant during the construction phase of the Proposed Development. A period of monitoring will also be undertaken post completion of the construction phase. The programme of monitoring will be agreed with the local authority in advance of construction works commencing onsite;
- Inspections will be undertaken during excavations and other groundworks to ensure that measures that are protective of water quality outlined in this EIAR, and the CEMP (DNV, 2025) are fully implemented and effective;
- The decommission of boreholes onsite will be supervised by the Project Environmental Consultant to ensure it is completed in accordance with industry best practice standards including the EPA's advice note on "Borehole Construction and Wellhead Protection" (EA, 2013);
- All surface water control measures including silt traps, silt fences and settlement ponds will be checked regularly and maintained as necessary, in order to ensure continued effectiveness throughout the construction phase;
- During dewatering works, monitoring of groundwater levels and contaminant concentrations around the periphery of the works area will be required as part of the groundwater management;
- Discharges to sewer will be monitored where required in accordance with statutory consents (i.e., discharge licence). Where required, water pumped from excavations will be treated and pumped to a holding area, where it will be sampled and tested by the contractor before discharge. Upon receiving analysis results and screening against required consent limits, the contractor will arrange for appropriate disposal. Groundwater will be treated and discharged to the foul sewer in accordance with the temporary discharge consent; and
- Routine monitoring and inspections will be undertaken during refuelling and concrete works to ensure that there are no impacts arising from those works and to ensure compliance with avoidance, remedial and mitigation measures.

17.3.4.2 Operational Phase

17.3.4.2.1 Mitigation

There will be no risk to water quality, including groundwater and surface water, associated with the operational phase of the Proposed Development. It is considered that the design of the Proposed Development is in line with the objectives of the Water Framework Directive (2000/60/EC), as amended (WFD) to prevent or limit any potential impact on water quality.

There will be no requirement for bulk storage of petroleum hydrocarbon-based fuels during the operational phase, as the main operating systems for heating will be either communal (centralised) heat pump solution which delivers better energy performance or Exhaust Air Heat

Pump (EAHP) solution thereby removing any potential contaminant sources associated with fuels. Further details are provided in Chapter 13 (Material Assets- Waste and Utilities) of this EIAR.

There will be no discharges to ground from drainage and only rainfall on public and communal open spaces will infiltrate to ground.

All drainage from paved areas along roads and impermeable roads will be collected and managed within the surface water drainage and SuDS solutions as outlined in the Civil Works Design Report (TOBIN, 2025).

The surface water management strategy includes a number of measures that will capture any potentially contaminating compounds (hydrocarbons, metals, and suspended sediments) in surface water runoff from the higher risk areas including roads and the impermeable areas that could potentially otherwise discharge to groundwater or receiving water courses in the vicinity the site. The measures incorporated in the SuDS design include a combination of water butts, rain gardens, swales, tree pits, permeable paving, and drainage kerbs with infiltration trenches/filter strips. The SuDS measures implemented will be effective in the treatment and removal of any contaminants (metals, hydrocarbons and suspended solids) entrained in surface water runoff. The effectiveness of these SuDS measures is documented in Transport for Ireland (TII) guidance (TII, 2014). Furthermore, prior to discharging from the site will pass through a Bypass Separator that will be effective in removal of hydrocarbons that may enter the drainage system in particular in the event of worst-case scenario spill incident (e.g., collision on the roadway resulting in the loss of fuel from a vehicle).

Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be incorporated into the overall management strategy for the Proposed Development. This will ensure that there are no impacts on water quality and quantity (flow regime) during the operational phase of the Proposed Development.

Accordingly, any potential impact on receiving surface water and groundwater beneath the Proposed Development site will be avoided taking account of the design proposals. Therefore, it is considered that the water quality protection criteria and objectives of the Greater Dublin Sustainable Drainage System (GDSDS) and WFD will be achieved.

There is no other requirement for mitigation measures for the operational phase of the Proposed Development.

17.3.4.2.2 Monitoring

Ongoing regular operational monitoring and maintenance of drainage and the SuDS measures will be undertaken throughout the lifetime of the operational phase of the Proposed Development.

17.3.5 Air Quality

To minimise potential air quality impacts during construction, a suite of best practice mitigation measures will be implemented at the Proposed Development site. These measures are informed by guidance from the Institute of Air Quality Management (IAQM) (2024) and are designed to effectively manage dust and emissions. The following measures will be adopted as appropriate to the scale and nature of the works:

17.3.5.1 Construction Phase

17.3.5.1.1 Mitigation

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site;
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager;
- Display the head or regional office contact information; and
- Develop and implement a Dust Management Plan (DMP), the final dust management plan will form part of the overall construction management plan which will formally be prepared and submitted to Galway City Council post grant of planning permission.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints log available to the local authority when asked;
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the site log book; and
- Hold regular liaison meetings with other high risk construction sites within 250m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

Monitoring

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Galway City Council when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to Galway City Council when asked; and
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below; and
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable; and
- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles using unpaved haul roads.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/ mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Demolition

- Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground;
- Avoid explosive blasting, using appropriate manual or mechanical alternatives; and
- Bag and remove any biological debris or damp down such material before demolition.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and
- Only remove the cover in small areas during work and not all at once.

Measures Specific to Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Measures Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Record all inspections of haul routes and any subsequent action in the site log book;
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems or mobile water bowsers and regularly cleaned;
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permit; and
- Access gates to be located at least 10 m from receptors where possible.

Measures Specific to Ecological Receptors

- Dust suppression: Using water sprays, dust suppressants, or covering materials to reduce dust particles;
- Vegetative barriers: Planting trees, shrubs or grasses to act as windbreaks and capture dust particles;
- Site management: Implementing good housekeeping practices, such as regular cleaning of access roads and minimising the movement of vehicles on unpaved surfaces;
- Monitoring: Regularly monitoring dust levels and ecological receptors to ensure that mitigation measures are effective; and
- Timing of activities: Scheduling dust-generating activities during periods of low wind or when ecological receptors are less sensitive.

These measures will be monitored and reviewed throughout the construction phase to ensure their effectiveness and compliance with relevant standards.

17.3.5.1.2 Monitoring

The monitoring of construction dust during the construction phase of the Proposed Development is recommended to ensure that effects are not experienced beyond the site boundary. Monitoring of dust can be carried out by using the Bergerhoff Method. This involves placing Bergerhoff Dust Deposit Gauges at strategic locations along the site boundary for a period of 30 +/- 2 days. The selection of sampling point locations should be carried out in consideration of the requirements of *VDI 2119* with respect to the location of the samplers relative to buildings and other obstructions, height above ground, and sample collection and analysis procedures. After the exposure period is complete, the gauges should be removed from the site; the dust deposits in each gauge will then be determined gravimetrically and expressed as a dust deposition rate in mg/m²/day in accordance with the relevant standard.

17.3.5.2 Operational Phase

17.3.5.2.1 Mitigation

It has been determined that the operational phase air quality effect is imperceptible and, therefore, no site-specific mitigation measures are proposed.

17.3.5.2.2 Monitoring

Due to the negligible effect on air quality from the operational phase of the Proposed Development, no specific monitoring is recommended except for monitoring via the Bergerhoff Method.

17.3.6 Climate

17.3.6.1 Mitigation

Embodied carbon of materials and construction activities is the primary source of climate effects during the construction phase. The RWMP prepared by AWN Consulting Ltd (2025) which accompanies this planning application details a number of measures to reduce the embodied carbon of the demolition works. Further pre-construction carbon Avoidance, Remedial & Mitigation Measures include:

Design for Performance

- Request a Design for Performance approach from design teams and contractors.
- Include contractual targets for whole life carbon with a focus on Net Zero and nature-positive goals where possible.

Circularity in Design

- Require design teams to develop a circularity concept for projects, focusing on adaptability, disassembly, and reuse.
- Set a target for a percentage of reused and recycled materials in designs.

Building Lifecycle Report

- Ensure the building lifecycle report is regularly reviewed and updated in line with current policy and best practice for sustainable construction.

Carbon Literacy

- Develop carbon literacy within design and construction teams by providing training on carbon literacy, ESG reporting, and disclosure.
- Incorporate sustainability and carbon considerations into site team talks, construction targets, and reporting.
- Include training clauses for contractors and sub-contractors to upskill their teams in low-energy construction techniques.

Building Renovation Passports (BRPs)

- Request Building Renovation Passports for this asset as part of the roadmap to decarbonise each asset.

Cement Reduction

- Specify the minimum amount of cement needed in concrete and substitute where feasible to reduce cement usage.

Sustainable Procurement

- Review sustainable procurement and material choices during detailed design to identify and implement lower embodied carbon options.
- Request Environmental Product Declarations (EPDs) and prefer products with EPDs where possible within procurement restrictions.
- Drive demand for EPDs by increasing the percentage of products used in the project with EPDs.

European Framework for Sustainable Buildings

- Commit to using key indicators from the European Framework for sustainable buildings, Level(s), with support from the IGBC.
- Focus on indicators such as Life Cycle Assessment (LCA), Life Cycle Cost (LCC), Indoor Air Quality (IAQ), and Circularity.

Energy and Carbon Performance Reporting

- Plan to disclose the operational energy and carbon performance of the project in your annual reporting.

Post-Occupancy Evaluation

- Allow for post-occupancy evaluation of completed developments to ensure feedback is passed to the design team.

Demolition and Construction Waste Management

- Create a demolition and construction programme allowing sufficient time to determine reuse and recycling opportunities for demolition waste.
- Appoint a competent demolition contractor to undertake a pre-demolition audit detailing resource recovery best practice and identifying materials for reuse and recycling.
- Reuse materials on site in the new build areas where possible.

EU Taxonomy Compliance

- Commit to complying with EU taxonomy requirements on the circular economy, specifically reuse, recycling, and material recovery of demolition and construction waste.
- Review and ensure compliance with the EU Taxonomy Regulation (EU) 2020/852 regarding circular economy practices for demolition and construction waste.

Local Material Sourcing

- Source materials locally where possible to reduce transport-related CO₂ emissions.

Building Certifications

- Aim for building certifications such as HPI (Home Performance Index), LEED (Leadership in Energy and Environmental Design), or equivalent, to ensure sustainable and high-performance standards are met throughout the project.

The Land Development Agency (LDA) has published its Sustainable Development Strategy, which sets out a roadmap for the organisation to achieve its ambition of maximising the supply of affordable and social homes while mitigating environmental effects and boosting biodiversity gains.

The LDA has identified six strategic objectives – with a near to medium term focus on mitigating carbon effect and focusing on the potential for Biodiversity Net Gain (BNG) across the LDA portfolio. The strategic objectives of the LDA are to:

- Reduce Carbon (Embodied and Operational)

- Promote Water Stewardship
- Optimise Sustainable Land-Use & Mobility
- Enhance Biodiversity & Climate Resilience
- Promote Circularity
- Support the Creation of Social Value

Regarding the Proposed Development's resilience to climate change, the Contractor will be required to mitigate the effects of extreme weather, such as heavy rainfall, flooding, windstorms, and temperature fluctuations, through site risk assessments and method statements. Additionally, certified datasheets for construction materials will outline their operational temperature limits, ensuring that temperature-sensitive materials perform adequately. The Contractor will also address risks associated with fog, lightning, and hail through appropriate risk assessments and mitigation plans.

During the construction phase the following best practice measures shall be implemented on site to prevent significant greenhouse gas (GHG) emissions and reduce effects to climate:

- **Energy-Efficient Equipment:** Use energy-efficient machinery and equipment on-site. Regular maintenance and proper operation can also help reduce fuel consumption and emissions.
- **Renewable Energy:** Incorporate renewable energy sources, such as solar panels, to power construction activities. This can significantly reduce reliance on fossil fuels
- **Reduce Idling:** Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- **Sustainability Awareness:** Ensure that sustainability and carbon specifically is incorporated into site team talks, construction and reporting targets. Integrate training clauses for contractors and sub-contractors to upskill their onsite personnel including sub-contractors in low energy construction skills. Appoint sustainability champions to ensure that the project continues to perform in a sustainable manner.
- **Sustainable Transportation:** Encourage carpooling, use of public transportation, or electric vehicles for workers commuting to the site.
- **Monitoring and Reporting:** Regularly monitor and report GHG emissions from the construction site. This helps in identifying areas for improvement and ensuring compliance with environmental standards Sustainability spot checks should be added to ongoing site inspections and feedback shared with all onsite to ensure measures are being adopted.
- **Maintenance:** Ensure all plant and machinery are well maintained and inspected regularly.
- **Waste Management:** Implement a robust waste management plan to reduce, reuse, and recycle construction waste. Proper waste management can significantly cut down on emissions Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. Application of the waste hierarchy to all waste material generated.
- **Sustainable Procurement:** Sourcing low carbon materials locally where possible to reduce transport related CO₂ emissions.

17.3.6.1.2 Monitoring

The following monitoring strategies as informed by ISEP and the IGBC are proposed to ensure compliance with the environmental objectives outlined in this EIA. These strategies are essential for effectively managing the environmental effects associated with the demolition and construction phases, with a particular focus on resource recovery, waste management, and the reduction of GHG emissions.

Monitoring of Demolition Waste Reuse and Recycling

To optimise the reuse and recycling of demolition materials, the following will be implemented:

- **Material Reuse Tracking System:** A digital tracking system to monitor materials identified for reuse or recycling. This system will log details such as quantities, conditions, and intended applications within the new construction areas. It is important that this system is regularly updated to reflect ongoing recovery efforts;
- **Weekly Progress Reports:** The demolition contractor will be required to submit weekly progress reports. These reports shall provide detailed metrics on the volumes of materials recovered, reused, and recycled, alongside any challenges encountered. This approach will allow for the early identification of issues and timely adjustments to the recovery plan; and
- **Regular On-Site Inspections:** Regular inspections to verify that materials earmarked for reuse are being properly stored and handled. These inspections shall ensure that materials remain in suitable condition for their intended use in the new build areas.

Competency and Performance of Demolition Contractor

To ensure that the demolition process aligns with the Proposed Development's environmental goals, the following monitoring measures will be implemented:

- **Verification of Pre-Demolition Audit:** The pre-demolition audit conducted by the appointed contractor shall be thoroughly reviewed to confirm that all materials and components suitable for reuse or recycling have been accurately identified. This review will ensure that the audit reflects best practice in resource recovery; and
- **Periodic Contractor Performance Reviews:** Periodic performance reviews of the demolition contractor will be conducted. These reviews shall focus on their adherence to the resource recovery plan, the accuracy of material identification, and their overall compliance with project timelines without compromising environmental standards.

Compliance with EU Taxonomy for Circular Economy

Given the project's commitment to meeting EU taxonomy requirements, the following monitoring measures will be implemented:

- **Comprehensive Documentation and Reporting:** Detailed records that document compliance with the circular economy principles outlined in the EU taxonomy will be maintained. This documentation should include logs of all recycled materials, percentages of materials reused on-site, and detailed descriptions of how circular economy practices are being implemented; and
- **Independent Third-Party Audits:** An independent auditor will be engaged to periodically assess the project's compliance with the EU taxonomy. The audit will verify the

accuracy of reported data and ensure that the circular economy requirements are fully adhered to throughout the Proposed Development.

Monitoring of GHG Emissions Reduction Measures

To mitigate the Proposed Development effect on climate change, the following activities will be applied:

- Appointment of Sustainability champions to ensure that the project continues to perform in a sustainable manner including monitoring and reporting of performance on site;
- Idle Time Monitoring for Vehicles and Machinery: GPS or telematics systems on all vehicles and machinery will be used on-site to monitor engine idling times. Automatic alerts will be set up to notify site managers when idling exceeds a specified threshold, enabling prompt corrective action to reduce unnecessary emissions;
- Maintenance Logs for Plant and Machinery: Implementation of a digital maintenance log system to track the inspection and maintenance of all on-site equipment. This system will record inspection dates, maintenance activities, and any identified issues, ensuring that all machinery operates efficiently and with minimal emissions; and
- Material Waste Minimisation Tracking: A monitoring system will be developed to track material orders and usage. This system will identify trends in over-ordering or inefficient material use, enabling the project team to take corrective actions that will help minimise the embodied carbon footprint of the site.

Application of Waste Hierarchy

To optimise waste management on-site, the following monitoring protocols will be applied:

- Waste Segregation Audits: Regular audits will be conducted to ensure that waste is being properly segregated according to the waste hierarchy (reduce, reuse, recycle). These audits will help identify opportunities for improving waste management practices and reducing overall waste generation; and
- Monthly Waste Management Reports: Monthly reports detailing the volume of waste reduced, reused, and recycled will be generated. These reports will be compared against predefined targets to assess the effectiveness of the waste management strategies and to identify areas for improvement.

Local Sourcing of Materials

To reduce transport-related emissions and support local suppliers, the following practices will be implemented:

- Supplier Distance Monitoring: A database of suppliers will be developed, documenting the distance of each supplier from the construction site. This database will be used to monitor and minimise the carbon footprint associated with material transportation, prioritising local suppliers wherever possible; and
- Transport-Related Carbon Footprint Analysis: Conducting a carbon footprint analysis for the transportation of all materials to the site. This analysis will inform the selection of suppliers, with a preference for those within a closer radius to reduce CO₂ emissions.

These monitoring measures are designed to ensure that the project adheres to its environmental commitments, particularly in the areas of resource recovery, waste

management, and GHG emissions reduction. By implementing these strategies, the Proposed Development will not only comply with regulatory requirements but also contribute to broader environmental sustainability goals. Regular reporting, on-site inspections, and third-party audits will be critical to maintaining compliance and achieving the desired environmental outcomes.

17.3.6.2 Operational Phase

17.3.6.2.1 Mitigation

A number of measures have been incorporated into the design of the Proposed Development in order to mitigate against the effects of future climate change. For example, adequate attenuation and drainage have been incorporated into the design of the Proposed Development to avoid potential flooding effects as a result of increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the Proposed Development to climate change

The Proposed Development has been designed to reduce the effect on climate as a result of energy usage during operation. The Building Lifecycle Report (Aramark; 2025) submitted under separate cover with this planning application details a number of incorporated design mitigation measures that have been incorporated into the design of the Proposed Development to reduce the effect on climate wherever possible.

Such measures included in the Proposed Development to reduce the effect to climate from energy usage are:

- The development will be in compliance with the requirements of the Near Zero Energy Building (NZEB) Standards.
- EU Taxonomy alignment with 10% lower than NZEB.
- A renewable energy rating (RER) of 20% will be achieved to comply with Part L (2021) of the NZEB regulations.
- A Building Energy Rating (BER) of A2/A3 is being targeted.
- Low U-values either matching or exceeding TGD L 2022 minimum elemental U-values
- Air permeability target of 3m³ /hr/m² @ 50Pa in line with industry norms.
- Variable Refrigerant Flow (VRF) system serving all occupied areas with an SCOP of 3.50 and SEER of 4.50
- Local mechanical ventilation with plate heat exchanger heat recovery with an efficiency of 80%
- Low specific fan power values of 1.6 W/l/s on local MVHR
- LED lighting with an efficacy of 130Lm/W
- High Temperature heat pump for Domestic Hot Water production for each unit
- Green roof systems

In addition, the Proposed Development has been designed with a focus on low carbon design. Electric vehicle and bicycle parking will be provided within the Proposed Development which will promote the use of more sustainable modes of transport and reduce potential transport emissions. Full descriptions of the measures proposed, and their benefits are outlined within the Building Lifecycle Report submitted with this application.

17.3.6.2.2 Monitoring

Environmental Management Plan that incorporates adaptive management principles.

Ensure climate change resilience plans are robust; continued monitoring of trends in weather events; and continued review of resilience measures related to interdependencies.

The following monitoring strategies will be applied to ensure that the Proposed Development meets its environmental objectives. These strategies focus on mitigating the effects of climate change, enhancing energy efficiency, and promoting sustainable transport, all of which are aligned with best practices outlined in Institute of Sustainability & Environmental Professionals (ISEP) guidelines.

Monitoring of Climate Change Mitigation Measures

- **Attenuation and Drainage Systems Monitoring:** Consistent with ISEP's guidance on climate resilience (ISEP EIA Guide to: Climate Change Resilience and Adaptation (2020), regular inspections will be undertaken to verify the functionality of the attenuation and drainage systems. These inspections will be conducted during construction, after significant rainfall events, and periodically thereafter to ensure long-term effectiveness in preventing flooding; and
- **Climate Vulnerability Assessment Review:** In accordance with ISEP's recommendation to periodically reassess climate risks, the climate vulnerability assessment will be reviewed at regular intervals. This review will incorporate the latest climate projections to ensure the mitigation measures remain adequate and effective.

Monitoring of Energy Efficiency and Climate Impact Reduction

To minimise the impact of the Proposed Development on climate through energy use during operation, the following monitoring activities will be applied:

- **NZEB Compliance Verification:** Continuous monitoring during the construction phase will ensure that the development complies with the Near Zero Energy Building (NZEB) Standards. This includes verifying that all building components and systems meet the NZEB criteria;
- **EU Taxonomy Alignment Monitoring:** Will ensure that the Proposed Development achieves energy performance that is at least 10% lower than the NZEB requirements. Regular energy performance assessments will be conducted to confirm alignment with the EU Taxonomy for sustainable development;
- **Renewable Energy Ratio (RER) Compliance:** Monitor the implementation of renewable energy systems, such as solar panels and air source heat pumps, to ensure that the development achieves a Renewable Energy Ratio (RER) of 20%, in line with Part L (2021) of the NZEB regulations. Post-installation, periodic checks will be performed to verify ongoing compliance;
- **Building Energy Rating (BER) Target Achievement:** Regular energy audits will be carried out to monitor the building's energy performance, ensuring that the targeted Building Energy Rating (BER) of A2/A3 is achieved. This includes verifying the efficiency of insulation, windows, HVAC systems, and other energy-related components; and
- **Thermal Performance Monitoring:** Continuous monitoring during construction will ensure that the building achieves the improved thermal transmittance (U-Values), air

permeability, and thermal bridging standards specified in the design. Post-construction thermal imaging surveys and air tightness tests will be conducted to confirm that these standards have been met.

Monitoring of Renewable Energy Systems

To ensure the successful implementation and operation of renewable energy systems, the following monitoring measures will be applied:

- **Air Source Heat Pump Performance:** Regular inspections and maintenance checks will be conducted on the air source heat pumps to ensure they are operating efficiently and contributing effectively to the building's energy needs. Performance metrics such as Coefficient of Performance (COP) and Seasonal Performance Factor (SPF) will be tracked and compared against the expected values.
- **Occupant Sustainability Information:** Consistent with ISEP's emphasis on stakeholder engagement, it is important to ensure that all building occupants receive comprehensive sustainability information. This will include guidance on energy conservation practices and how to use renewable energy systems effectively. Feedback mechanisms, such as surveys, will be used to assess the impact of this information on occupant behaviour.

Monitoring of Sustainable Transport Initiatives

To promote sustainable transport and reduce transport-related emissions, we recommend the following monitoring strategies:

- **Electric Vehicle (EV) and Bicycle Parking Usage:** Regular monitoring will be carried out to assess the usage of electric vehicle charging stations and bicycle parking facilities within the Proposed Development. This will help gauge the effectiveness of these measures in promoting sustainable transport modes. Usage data can inform whether additional facilities or adjustments are needed; and
- **Transport Emissions Impact Assessment:** Periodic assessments will be conducted to evaluate the effect of the provided sustainable transport facilities on reducing overall transport emissions. This could include monitoring the uptake of electric vehicles by residents and the corresponding reduction in greenhouse gas emissions.

These monitoring measures are designed to ensure that the development's climate change mitigation measures, energy efficiency initiatives, and sustainable transport provisions are effectively implemented and maintained throughout the lifecycle of the project. By adhering to these strategies, the Proposed Development will not only comply with relevant regulatory requirements but also contribute to broader environmental sustainability goals. Regular inspections, energy performance assessments, and occupant engagement will be crucial to achieving the desired environmental outcomes.

17.3.7 Noise and Vibrations

17.3.7.1 Construction Phase

17.3.7.1.1 Mitigation

Noise Mitigation Recommendations

Best practice measures for noise from construction sites are found within BS 5228 (2009+A1:2014) Part 1 and Part 2. Construction noise effects are expected to vary during the construction phase of the Proposed Development; this effect will depend on the distance between the construction activities and noise sensitive receptors. The contractor will ensure that all best practice noise control measures will be used, to ensure any negative noise effects at noise sensitive locations are minimised. The mitigation measures outlined in the Noise and Vibrations chapter will be incorporated into the CEMP.

The best practice measures set out in BS 5228 (2009) Part 1 and Part 2 includes guidance on several aspects of construction site mitigation measures, this includes the

- Selection of quiet plant and equipment;
- Noise control at source of the noise;
- Screening; and
- Public liaison.

General Recommendations

Selection of Plant and Machinery

The noise effect of all plant and machinery shall be assessed prior to selection of the plant for the project. All plant used on-site will comply with S.I. No. 632/2001-European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001.

Noise Control at Source

Where replacing a noisy item of plant is not viable or practical, noise shall be controlled at source. This includes modifying the piece of plant or machinery to generate less noise, using dampening to control vibration induced noise or rattling. Example best practice mitigation measures to be used are as follows:

- All plant and equipment to be switched off when not in use to prevent idling;
- The use of white noise reversing alarms;
- Restriction on the dropping and loading of materials to less sensitive hours;
- The use of local screening for noisy activities or works with hand tools;
- Not dropping materials onto hard surfaces and using rubber mats etc for the dropping of materials; and
- Ensure all plant and equipment is well maintained and cleaned, all lubrication should be in line with manufacturers guidelines.

Vibration Control

Vibration monitoring will be implemented during the demolition and substructure stages of the construction phase to ensure vibration effects are monitored and controlled adequately as to

not cause significant effects at the surrounding sensitive receptors. Suitable locations for vibration monitoring are at NSL1 and the Wildlife SPA/SAC boundary with the Proposed Development lands.

Screening

Screening will be used to reduce the construction noise effect on the Noise Sensitive Locations (NSLs). The use of site hoarding and careful selection of areas for noisy works, using buildings on the site, site offices and the building being constructed to screen noise from the works.

Local screening of noisy works with the use of temporary acoustic barriers, examples are as follows:



Figure 17-1 Temporary Construction Noise Barrier © Ventac

Public Engagement

A public liaison officer shall be put forward by the contractor to liaise with the local residents on matters relating to noise. Residents shall be informed of any noise works scheduled where there is the potential to generate high levels of construction noise or if specialist works etc. need to be conducted out of the working hours. This person shall also be the point of contact for all complaints and be responsible for reviewing the noise monitoring results and exceedances.

This is crucial as the construction of the Proposed Development is proposed to be a phase construction and occupancy approach with the construction of Blocks A and B being constructed and occupied during phase 1, with phase 2 beginning shortly after occupancy of phase 1. A public liaison officer shall be appointed by the contractor to liaise with the occupants of phase 1 regarding matters of noise and vibration disturbance.

Site Specific Recommendations

Figure 17-1 the required attenuation for each construction stage.

Table 17-1 Attenuation Required at Each Stage Based on the Construction Noise Predictions

Location	Noise Limit	Noise reduction required at each stage of works to meet criteria (dBA)					
		Site Up	Set	Demolition	Substructure	Superstructure	External Finishes
NSL1	65	4		6	6	6	4
NSL2	65	0		0	0	0	0
NSL3	65	3		3	3	3	3
NSL4	65	3		4	4	4	3
NSL5	65	3		9	10	9	0
NSL6	65	0		0	0	0	0
NSL7	65	0		0	0	0	0
NSL8 (Block A)	65	5		--	12	11	0
NSL9 (Block B)	65	8		--	15	14	0

Table 17-2 outlines the recommended site-specific noise mitigation measures.

Table 17-2 Mitigation Measures Required during Construction Phase

Construction Stage	Recommended Noise Mitigation Measures
Site Setup	Erect a minimum 2.4m high site hoarding that blocks the line of sight between noise source and receiver. Example construction for the site hording would be as follows: A 2.4m high and 9mm plywood (4.5 kg/m2). Barrier must be solid and not contain gaps at the bottom or between adjacent panels Local screening are required around hand tools in addition to hoarding. An absorptive lining shall be considered for screening around hand tools will need to have an absorptive lining to avoid reflections increasing noise at other receivers. On this project 8 NSL's have been identified, It is recommended that a noise monitor shall be placed on the boundary of the nearest noise sensitive locations closest to the works i.e. NSL1 and NSL8/NSL9 during phase 2 in this case.
Demolition	Site hoarding to block line of sight. Local screening around noisy plant and equipment. Noise and vibration monitoring.
Substructure	Site hoarding to block line of sight. Local screening around noisy plant and equipment. Noise and vibration monitoring as above
Superstructure	Local screening around saws/hammers where possible. Use external new building to screen noise from works where possible.

Construction Stage	Recommended Noise Mitigation Measures
	Noise and vibration monitoring as above
External finishes	Local screening around hand tools. Noise and vibration monitoring as above

Ecological Mitigation Measures

To minimise the potential adverse effects of construction-related noise and vibration on nearby the nearby SPA and SAC, the following mitigation measures will be implemented:

- Exercise additional caution during construction works in the nesting season (March 1st to August 31st);
- Implement a key-turn policy to ensure machinery is not left idling when not in use;
- Use low-noise equipment wherever possible;
- Schedule works outside of dawn and dusk, which are peak activity times for birds;
- Appoint an Ecological Clerk of Works to monitor and advise on ornithological sensitivities;
- Install noise and vibration monitoring equipment along the SPA/SAC boundaries to track construction impacts in real time. Monitoring systems shall include hard thresholds and alert mechanisms to pause work if exceedances occur until a solution is identified;
- Use acoustic barriers along the works boundary to screen construction noise as effectively as possible; and
- Avoid construction works near known otter holts during the breeding season (typically May to August) and implement buffer zones of at least 150 metres from active holts to minimise disturbance.

17.3.7.1.2 Monitoring

Noise and vibration monitoring will be implemented during the construction phase of the Proposed Development, particularly during the substructure works when piling operations are likely to occur. Given the proximity of multiple Noise Sensitive Locations (NSLs) to the site, monitoring equipment shall be installed at NSL 1 during phase 1 and NSL8 and NSL9 during phase 2, as these locations are closest to the anticipated construction activities. In addition, monitoring shall also be conducted to protect the surrounding SPA and SCA conservation areas.

17.3.7.2 Operational Phase

17.3.7.2.1 Mitigation

The assessment conducted on the operational phase of the Proposed Development takes into account the operation of the external amenity spaces, car parking, plant and equipment, creche play area and café/restaurant breakout noise. The predicted results of the operational noise assessment predict that there will be no significant noise effect on the surrounding sensitive receptors, therefore no mitigation measures are required to control operational noise levels.

At design development stage, and the final plant and equipment schedule developed, noise levels for each piece of equipment shall be reviewed by an Acoustic Consultant to ensure compliance with the limits set in the Noise and Vibration chapter and to protect the amenity of the future residents of the Proposed Development.

Based on the assessment carried out for ventilation through openable windows on the floors of the surrounding apartment blocks that are above the energy centre, the predicted internal noise levels are in exceedance of project criteria based on an assessment of plant noise breakout through acoustic louvres and the uncovered roof of the energy centre. Mitigation has been developed and recommended in the form of enhanced glazing performance to the façades facing the energy centre.

To mitigate potential noise effects on surrounding sensitive receptors and the Proposed Development's residential blocks, a louvered acoustic enclosure will surround the units. Wave Dynamics Limited has provided specific design specifications for this enclosure, which is detailed on the drawings provided by ALTU Architects, ensuring that noise breakout from the rooftop plant remains within acceptable limits and prevents any adverse noise disturbances.

Louvre Performance

An acoustic louvre is proposed to surround the energy centre plant to aid in the reduction of noise effects on the floors that are at the same level on the surrounding blocks. The louvred walls will aid in the reduction of noise effects on the floors located along the same level of below the energy centre but will not reduce the noise effect on the floors above the energy centre of the surrounding blocks. Table 17-3 outlines the louvre performance proposed for the louvred walls. Figure 17-2 and Figure 17-3 outline the location of the louvred walls and plant location at roof level.

Table 17-3 Energy Centre Louvre Performance Requirements

Description	Octave Band Transmission Loss (dB) at Octave Band Centre Frequencies, Hz								Overall Transmission Loss dB
	63	125	250	500	1000	2000	4000	8000	
QEF AC300 PF	10	6	8	11	18	21	19	17	17



Figure 17-2 Block C Elevation Detailing Louvred Enclosure (Ref: P104.3 Block C-Elevations Sections)



Figure 17-3 Block C Elevation Detailing Louvred Enclosure (Ref: P104.3 Block C-Elevations Sections)

Assessment of Openable Windows

Figure 17-4 displays a façade noise map or a grid noise map from the 8th floor up as these are the most exposed façades to the energy centre noise emissions. The assessment includes the louvre performance outlined in Table 17-3.

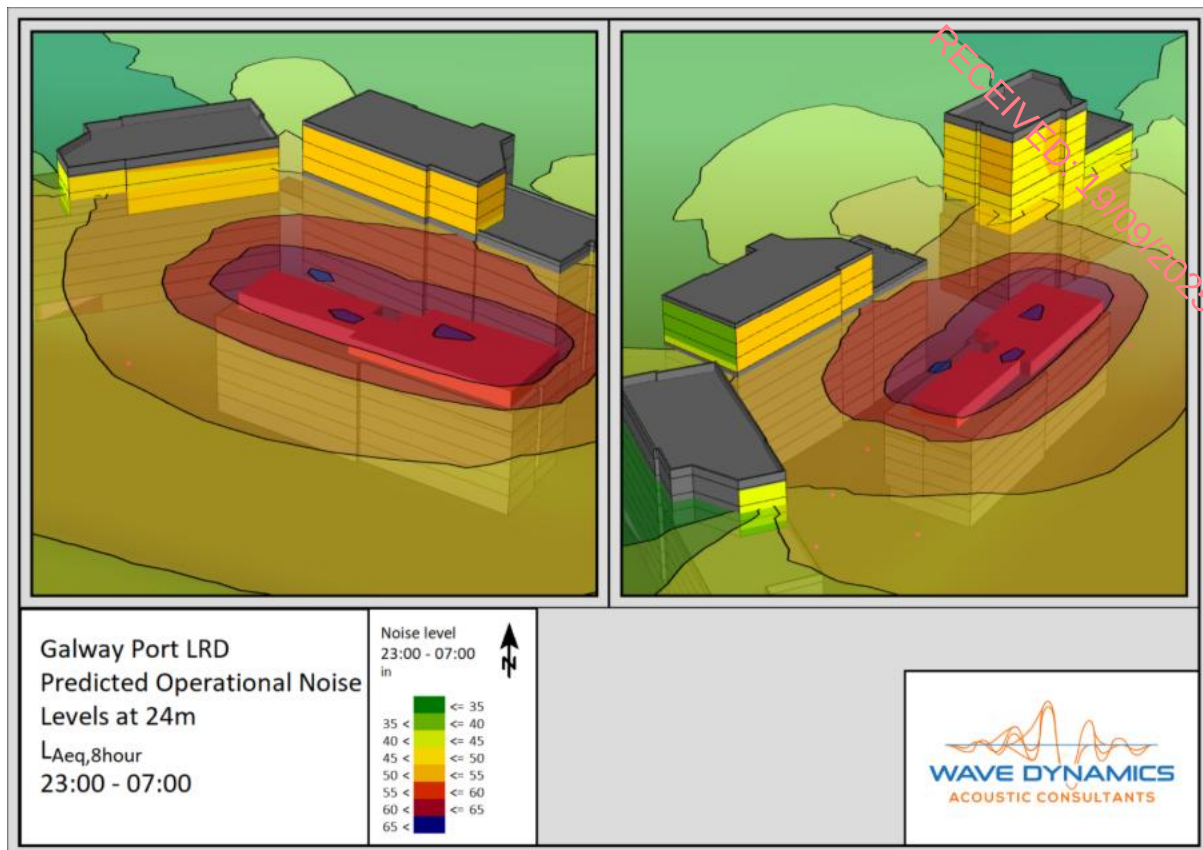


Figure 17-4 Façade Noise Map of Energy Centre Effect on Surrounding Façade

Based on the results of the internal noise levels through openable windows assessment it is recommended that the unit load conditions and corresponding sound power levels are reviewed at detail design stage (as the model currently accounts for 100% load operating 100% of the time) to ensure that the noise effect on the floors above the energy centre is minimised as much as practicable. An enhanced glazing specification is recommended for the upper floors on the surrounding apartment blocks to sufficiently reduce the internal noise levels during the daytime and nighttime periods. Mechanical ventilation should be considered at the design development stage when the ventilation strategy is confirmed and further information regarding the mechanical plant specification is readily available. The standalone Acoustic Design Statement (*WDA240937RP_A_01-Acoustic Design Statement*) provided at Volume III Appendix 10-2 reflects this recommendation. The enhanced glazing specification for the floors above the energy centre is outlined in Table 17-4 and Figure 17-5.

Table 17-4 Sound Insulation Performance for Glazed Elements and Ventilation

Façade	Glazed Elements (Frame & Glazing) Sound Insulation Requirements (Indicative requirements equal or approved)							Façade Ventilation Requirement(2)
	Octave Band Frequency Requirements1 R dB						Glazing Acoustic Performance dB RW	
	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz		
RED	28	28	29	38	38	34	35dB Rw	38dB Dn,e,w (1) Natural Ventilation or Mechanical Ventilation

- 1) Natural ventilation assumed throughout, the performance cited for the ventilator is in the **open position**. Should this change to mechanical ventilation the above specification may be reduced. An acoustic consultant should be engaged to assess the level of reduction appropriate to maintain the internal noise level criteria.
- 2) The calculation assumes a maximum of 1 ventilation opening per bedroom at the specification outlined in the Acoustic Design Statement.



Figure 17-5. Façade Specification Markup Detailing Enhanced Glazing Specification to the Upper Floors

Vibration Mitigation Recommendations

There are no predicted vibration sources during the operational phase, therefore, mitigation measures are not required to control operational phase vibrations. The plant and equipment located at roof level of Block C will be placed on vibration isolation pads to negate any structure-borne noise that may arise from the units in operation, these vibrations will not have

an effect on the surrounding sensitive receptors. This shall be reviewed as part of the design review once the final plant and equipment selections are known.

17.3.7.2.2 Monitoring

Noise and vibration monitoring is not required during the operational phase of the Proposed Development as the predicted noise levels during the operational phase fall within project criteria, and there are no predicted sources of operational vibration proposed for the development.

17.3.8 Landscape and Visual

17.3.8.1 Construction Phase

17.3.8.1.1 Mitigation

Construction is inherently disturbing of the landscape/townscape, and unsightly. The most effective mitigation for the potential townscape and visual impacts of construction is site hoarding. However, this is only effective for ground level activity. When buildings under construction rise above ground level they are exposed and unsightly. Negative impacts are unavoidable in the construction phase of multi-storey development.

Good practice in site management can reduce unnecessary visual impacts. These may include (a) considered layout of the construction site with regard to the most sensitive visual receptors, (b) dust control (e.g. water sprays to avoid dust plumes; spraying of vehicles before site departure to avoid dirtying roads), (c) waste control (e.g. netting/covering of storage bins/areas; regular site inspection for litter), and (d) considered positioning of security lighting.

A CEMP has been prepared and submitted with the large-scale residential development (LRD) application. The CEMP includes measures – or a framework for the future agreement of measures – such as those identified above. No further mitigation measures for construction stage townscape and visual impacts are recommended

17.3.8.1.2 Monitoring

No monitoring of townscape or visual effects during construction is required.

17.3.8.2 Operational Phase

17.3.8.2.1 Mitigation

The Proposed Development proposal has evolved through an iterative design process that included (a) pre-planning consultation with Galway City Council through the LRD planning application process, (b) public consultation, (c) consultation with Galway Harbour Company (GHC), (d) cooperation with the architect (Scott Tallon Walker) responsible for preparation of the Galway Inner Harbour Masterplan 2025, and (e) ongoing, iterative assessment of the proposal's potential environmental effects – including its townscape and visual effects.

The Proposed Development proposal has been informed by this, and this is reflected in the findings of this assessment.

- The operational stage visual effects of the Proposed Development would be positive or neutral for all 19 no. representative viewpoints assessed. The effects would be long term/permanent (as summarised in Table 11-7 of Chapter 11); and
- The operational phase townscape effects have been classified as 'moderate' positive (using the EPA scale, see Table 11-4 of Chapter 11) or significant positive (using a binary classification of significant or not significant). The effects would be long term/permanent.

Therefore, no operational stage mitigation measures for townscape and visual impacts are recommended.

17.3.8.2.2 Monitoring

No monitoring of townscape or visual effects during operation is required.

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17.3.9 Material Assets-Traffic

17.3.9.1 Construction Phase

17.3.9.1.1 Mitigation

Mitigation during construction will include the implementation of a Construction Traffic Management Plan (CTMP), which will outline the strategies to manage and minimise traffic disruption. These measures will include restricted delivery hours and haulage hours to avoid peak traffic periods, clear signage to inform road users of temporary changes, and ongoing liaison with Galway City Council to coordinate works and respond to any emerging issues. These actions are intended to reduce potential short-term effects on the local road network and ensure safe and efficient movement for all road users during the construction phase.

17.3.9.1.2 Monitoring

Construction traffic will be monitored under the CTMP framework in consultation with Galway City Council.

17.3.9.2 Operational Phase

17.3.9.2.1 Mitigation

Operational phase mitigation measures include the provision of a limited number of car parking spaces to discourage private car use, alongside the integration of high-quality cycle and pedestrian infrastructure to promote active travel. The Proposed Development also includes designated spaces for car club/car share vehicles to support shared mobility options. The implementation of a comprehensive Mobility Management Plan will encourage modal shift, reduce reliance on private vehicles and support long-term behavioural change among residents and visitors.

17.3.9.2.2 Monitoring

No specific ongoing monitoring is proposed during the operational phase beyond review of Travel Plan/ Mobility Management Plan effectiveness.

17.3.10 Material Assets-Waste and Utilities

17.3.10.1 Construction Phase

17.3.10.1.1 Mitigation

Surface Water

Specific mitigation measures to be taken during the construction phase with respect to surface water drainage are detailed within Chapter 7 (Hydrology and Hydrogeology) of this EIAR. All works will be carried out in accordance with the CEMP prepared for the Proposed Development and the UÉ Code of Practice for Water Infrastructure (July 2020) and the UÉ Code of Practice for Wastewater Infrastructure (July 2020). Surface water management will include nature-based SuDS measures, petrol interceptors, attenuation units, and impermeable lining of permeable paving and attenuation zones to prevent leaching of contaminants from made ground.

Wastewater Drainage

Specific mitigation measures to be taken during the construction phase with respect to foul water are detailed within Chapter 7 (Hydrology and Hydrogeology) of this EIAR. All works will be carried out in accordance with the CEMP prepared for the Proposed Development and the UÉ Code of Practice for Water Infrastructure (July 2020) and the UÉ Code of Practice for Wastewater Infrastructure (July 2020). The construction of any wastewater infrastructure will be in accordance with UÉ standards. A 140m extension and upgrade of the existing public foul sewer will be required to facilitate connection, as confirmed by UÉ.

Water Supply

Confirmation of Feasibility has been received by UÉ. UÉ has confirmed that the existing network has sufficient capacity to support the anticipated demand, and no upgrade works are required. UÉ will be responsible for the connection process, and no additional measures are required.

Electricity

New connections for electricity supply will be coordinated with the relevant utility provider and will be carried out and tested by approved contractors as per standard protocols and as such, no mitigation measures are required.

Gas

There is no gas supply proposed and as such, no mitigation measures are required.

Telecommunications

Any new connections required for telecommunications will be coordinated with the relevant utility provider and will be carried out and tested by approved contractors as per standard protocols and as such, no mitigation measures are required.

Waste

The waste management objective will be to prevent waste arising in the first place, and to re-use, recycle or recover waste materials where possible. The following mitigation measures

are recommended for the construction phase of the Proposed Development regarding waste management:

- Waste materials will be separated at source and will follow the RWMP and Contractor(s) CEMP;
- Prior to the commencement of the construction phase detailed calculations of the quantities of topsoil, subsoil and green waste will be prepared, and soils will be tested to confirm they are clean, inert or non-hazardous;
- A policy of 'as needed' ordering and strict purchasing procedures will be implemented to prevent waste arisings as far as possible;
- The Contractor will vet the source of aggregate, fill material and topsoil imported to the site in order to ensure that it is of a reputable origin and that it is "clean" (i.e., it will not contaminate the environment).
- The Contractor and/or Council will implement procurement procedures to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance;
- The waste materials generated during the construction phase will be stored in suitably size receptacles and transferred offsite for appropriate processing, recycling and recovery;
- Waste materials generated from the construction phase that are unsuitable for reuse or recovery will be separately collected;
- Disposal of construction generated wastes will be considered a last resort and only after recycling or recovery options have been ruled out;
- A suitably competent and fully permitted waste management company will be employed to manage waste arising for the construction phase. The appointed waste contractor must have the relevant authorisations for the collection and transport of waste materials, issued by the National Waste Collection Permit Office (NWCPO);
- All waste materials will be transported to an appropriately authorised facility, which must have the relevant authorisations for the acceptance and treatment of the specific waste streams, i.e., a Certificate of Registration (COR) or a Waste Facility Permit (WFP) as granted by a Local Authority, or a Waste/Industrial Emission Licence as granted by the EPA;
- In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS). The management of such material will follow the procedures outlined in the CEMP (DNV, 2025), including environmental site assessment in accordance with BS 10175:2011+A2:2017 and EPA (2018) guidance. Temporary stockpiling, if required, will be on impermeable surfaces, covered, and located away from watercourses, with silt fencing or diversion measures in place;
- Waste generated by construction workers will be stored in wheelie bins on site and it will be collected by an appropriately authorised waste collector. All wastes generated

on site will be sent for recycling, recovery, or disposal to a suitably licensed or permitted waste facility; and

- All waste quantities and types will be recorded and quantified, and records will be retained onsite for the duration of the construction phase.

These measures are consistent with the EPA's Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects (2021), and with Regulation 27 (by-product) and Regulation 28 (End-of-Waste) of the European Communities (Waste Directive) Regulations 2011, as amended.

These measures are designed not only to ensure compliance with waste legislation but also to prevent any adverse effects on nearby designated ecological sites. The potential for ecological impacts arising from the handling or disposal of contaminated material has been assessed in the Biodiversity Chapter and the NIS which confirm that, with mitigation, no significant effects will occur.

These mitigation measures will ensure that the waste arising from the construction phase of the Proposed Development is dealt with in compliance with provisions of the Waste Management Act 1996, as amended, associated Regulations and Litter Pollution Act 1997, and the National Waste Management Plan for a Circular Economy 2024-2030. The mitigation measures will also ensure optimum levels of waste reduction, reuse, recycling and recover are achieved and will promote more sustainable consumption of resources.

The Contractor will have the responsibility to record resource and waste management at the site in line with the RWMP. Some of the principal duties and responsibilities of this role include:

- Report to Project Manager on the management of resources and waste at the site;
- Identify all destinations for resources taken off-site;
- Address end-of-waste and by-product notifications with the EPA, where applicable;
- Maintain full records of all resources (both wastes and other resources) for the duration of the Proposed Development;
- Delegate responsibility to sub-contractors, where necessary;
- Coordinate with suppliers, service providers and sub-contractors; and
- Prioritise waste prevention and resource salvage.

17.3.10.1.2 Monitoring

During the construction phase, a procedure for waste auditing will be in place as per the RWMP which has been prepared for the planning application and is submitted under separate cover. The purpose of the waste auditing is to identify any problems with the site's waste procedures and also the benefits of prevention and minimisation that is in place. The audit will be a 'self-audit' process carried out by the Resource Manager (RM). The RM will create an Audit Plan and identify the appropriate frequency at which the audits are to be conducted over the course of the construction phase. The waste audit will document details of the quantity, type and composition of all waste removed from the site. The audit findings will highlight any corrective actions that may need to be taken in relation to waste management procedures or

site practices. These corrective actions will be tracked in order to identify root- causes as appropriate (AWN, 2025).

17.3.10.2 Operational Phase

17.3.10.2.1 Mitigation

Surface Water

Due to the incorporated design measures relating to surface water, no additional mitigation measures are required. Surface water runoff will be managed via the dedicated SuDS infrastructure, including attenuation units, petrol interceptors, and impermeable lining, as outlined in the Civil Design Report (TOBIN, 2025a).

Wastewater Drainage

Due to the incorporated design measures relating to foul / wastewater, no additional mitigation measures are required. Following planning application stage, connection agreements will be made with UÉ to ensure water supply to the site and foul water discharge off site and no additional mitigation measures will be required.

Water Supply

Confirmation of Feasibility has been received by UÉ. UÉ will be responsible for managing the water supply connection process and has confirmed that the existing network has sufficient capacity to support the anticipated demand. No mitigation measures are required.

Electricity

Utilities providers will be responsible for the management and any required upgrades of electricity supply and as such no mitigation measures are required.

Gas

There is no gas supply proposed and as such, no mitigation measures are required.

Telecommunications

Future telecommunication channels may be impacted by the height and scale of the Proposed Development (ISM, 2025). To mitigate the impact the Proposed Development will have on the high concentration of Microwave and Radio links emanating from the surrounding city centre area, and from the existing high-capacity mast sites, the Applicant is seeking planning permission for the following:

- 6 No. 2m 2G/3G/4G antennas & 6 No. 5G antennas installed on support poles,
- affixed to the plant screen steel frame at roof level;
- 4 No. 300mm Microwave Transmission link dishes installed on 2 No. support poles, affixed to the plant screen steel frame at roof level;
- 2 No. Equipment Cabinets mounted on steel support frame(s), and;
- all associated ancillary equipment

In addition to serving as mitigation measures, the above provisions provide some capability for future links that may or may not be required.

Waste

The Operational Waste Management Plan (OWMP) prepared by AWN Consulting Ltd (2025) sets out how waste generated during the operational phase of the Proposed Development will be stored and collected in order to mitigate any potential effects. Mitigation measures for operational waste management include:

- The allocation of three shared Waste Storage Areas (WSAs) in the Proposed Development's design for the residential units, and two WSAs for the commercial units. Receptacles for organic, mixed non-recyclables (MNR), glass, and dry mixed-recyclables (DMR) will be provided in the WSAs prior to the first residential of the Proposed Development being occupied. Each receptacle will be labelled and colour coded to avoid waste stream cross contamination;
- Provisions for three bin storage systems in the residential units to facilitate waste segregation at the source of waste generation;
- Provisions for separate small bins in commercial food preparation areas to account for increased waste generation in these areas;
- Waste collection from the Proposed Development on a weekly basis to prevent a buildup of waste. All waste collected will be collected by an appropriately permitted waste management company and transported to registered/permitted/licensed facilities only; and
- Provisions for the Facilities Management Company to ensure the correct storage of domestic waste within the Proposed Development. This includes daily inspections of the WSAs and the maintenance of a weekly register detailing the quantities and breakdown of wastes collected from the Proposed Development.

Implementation of the OWMP will ensure that a high level of recycling, reuse, and recover at the Proposed Development during the operational phase. All materials that are considered recyclable will be segregated and separated at source to reduce costs from the waste collector and ensure maximum diversion of material from landfill. The waste strategy presented in the OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated WSAs will provide sufficient room for the required receptacles in accordance with the details of this strategy.

17.3.10.2.2 Monitoring

The Facilities Management Company, residents, commercial tenants, retail units and creche operators will be required to maintain the bins and storage areas in good condition as required by the Galway City Council Waste Bye-Laws. The waste strategy presented in the OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated WSAs will provide sufficient room for the required receptacles in accordance with the details of this strategy. The WSAs will be fitted with CCTV for monitoring.

17.3.11 Archaeology and Cultural Heritage

17.3.11.1 Construction Phase

17.3.11.1.1 Mitigation

The Proposed Development site is considered to retain a moderate potential to contain previously unrecorded archaeological deposits and artefacts subsurface. Although subject to modern development and disturbance, the portion of the Proposed Development site extending onto Lough Atalia Road is located within the archaeological *zone of notification* associated with the historic town of Galway. Furthermore, this area was the location of the foreshore of Lough Atalia until the main body of the site was reclaimed and filled during the second half of the 20th century.

Galway City Council's LRD opinion also states that '*...there is some archaeological potential associated with the main body of the site due to the previous material from the city centre core being deposited as fill*'.

Archaeological monitoring will be carried out during all ground reduction works within the Proposed Development site boundaries during the construction phase. The archaeological monitoring will be undertaken by a suitably qualified archaeologist under licence from the National Monuments Service (NMS) within the Department for Housing, Local Government and Heritage, in accordance with an archaeological method statement, submitted to and agreed with the NMS. The archaeological monitoring will result in the compilation of associated reports detailing the findings of the archaeological monitoring programme and this will be disseminated to the NMS and the local authority.

Should archaeological material be uncovered during the archaeological monitoring programme, the NMS will be informed and consulted to establish suitable measures to record and recover the archaeological material. This may include the preservation of archaeological deposits *in situ*, where possible, archaeological excavation (preservation by record) of archaeological deposits and/or the retrieval of artefacts of archaeological consequence, whether found in and archaeological context or out of context within modern fill materials. The discovery of archaeological material will lead to a post-excavation phase of works, involving analysis and further reporting for dissemination to the relevant authorities. The level of the post-excavation analysis and reporting will be commensurate with the level of archaeology discovered.

The Contractor will employ an archaeologist to undertake these investigations under licence from the NMS. The Developer will employ a Project Archaeologist to oversee the archaeological works being undertaken by the Contractor's archaeologist.

The Proposed Development will result in no predicted effects on any architectural or other cultural heritage constraints and, therefore, no mitigation measures for these elements of the cultural heritage resource are required.

17.3.11.1.2 Monitoring

The proposed mitigation measures will necessitate obligatory processes to be undertaken as part of an application to the NMS for the provision of an archaeological excavation licence. The NMS (in consultation with the National Museum of Ireland) have responsibility for the regulation of archaeological activities (including the use of detection devices) and works to

monuments. The application for an archaeological excavation licence will need to be submitted prior to commencement of site development works.

17.3.11.2 Operational Phase

17.3.11.2.1 Mitigation

The Proposed Development proposal has evolved through an iterative design process that included (a) pre-planning consultation with Galway City Council through the LRD planning application process, (b) public consultation, (c) consultation with GHC, (d) cooperation with the architect (Scott Tallon Walker) responsible for preparation of the Galway Inner Harbour Masterplan 2025, and (e) ongoing, iterative assessment of the proposal's potential environmental effects – including its potential archaeological, architectural and cultural heritage effects.

The scheme has been designed to minimise the potential for negative impacts on built heritage resources within the environs of the Proposed Development site. A slight effect on the setting of Forthill Cemetery may occur and this may be perceived as negative, however, this effect is considered not significant in EIA terms. The effect will derive from the changing character of the dockland and brownfield sites located to the south and east of Forthill. The change of setting will be in keeping with the planned transformation of Galway city's docklands

Following the successful implementation of the archaeological mitigation measures during the construction phase of the Proposed Development, as detailed above, no operational phase archaeological mitigation measures will be necessary.

17.3.11.2.2 Monitoring

The proposed mitigation measures will necessitate obligatory processes to be undertaken as part of an application to the NMS for the provision of an archaeological excavation licence. The NMS (in consultation with the National Museum of Ireland) have responsibility for the regulation of archaeological activities (including the use of detection devices) and works to monuments. The application for an archaeological excavation licence will need to be submitted prior to commencement of site development works.

All archaeological investigations/excavations undertaken under licence from the NMS will require the production of a report (as per the licence conditions). The production of a full archaeological report and deposition of copies to the NMS and the Planning Authority will ensure compliance with licence conditions as well as the proposed mitigation measures. The report will clearly describe the results of all relevant archaeological works in written, mapped and photographic formats.

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