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* Except as provided for in Article 6(4) of the Habitats Directive, viz. There must be: (a) no alternative solution available; (b) imperative reasons of overriding public interest for the plan to proceed; and (c) adequate compensatory measures in place.

NHB 4 Ecological Appraisal of Biodiversity: Ensure, where appropriate, the protection and conservation of areas, sites, species and ecological/networks of biodiversity value outside designated sites. Where appropriate require an ecological appraisal, for development not directly connected with or necessary to the management of European Sites, or a proposed European Site and which are likely to have significant effects on that site either individually or cumulatively.

NHB 5 Ecological Connectivity and Corridors: Support the protection and enhancement of biodiversity and ecological connectivity in non-designated sites, including woodlands, trees, hedgerows, semi-natural grasslands, rivers, streams, natural springs, wetlands, stonewalls, geological and geo-morphological systems, other landscape features and associated wildlife areas where these form part of the ecological network and/or may be considered as ecological corridors in the context of Article 10 of the Habitats Directive.

NHB 6 Implementation of Plans and Strategies: Support the implementation of any relevant recommendations contained in the National Heritage Plan 2030, the National Biodiversity Plan, the All-Ireland Pollinator Plan and the National Peatlands Strategy and any such plans and strategies during the lifetime of this plan.

NHB 7 Mitigation Measures: Require mitigating measures in certain cases where it is evident that biodiversity is likely to be affected. These measures may, in association with other specified requirements, include establishment of wildlife areas/corridors/parks, hedgerow, tree planting, wildflower meadows/marshes and other areas. With regard to residential development, in certain cases, these measures may be carried out in conjunction with the provision of open space and/or play areas.

NHB 10 NPWS & Integrated Management Plans: Article 6(1) of the Habitats Directive requires that Member States establish the necessary conservation measures for European sites involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans. The NPWS's current priority is to identify site specific conservation objectives; management plans may be considered after this is done. Where Integrated Management Plans are being prepared by the NPWS for European sites (or parts thereof), the NPWS shall be engaged with in order to ensure that plans are fully integrated with the Plan and other plans and programmes, with the intention that such

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	<p>plans are practical, achievable and sustainable and have regard to all relevant ecological, cultural, social and economic considerations, including those of local communities.</p>	
<p>Galway City Council Development Plan 2023-2029</p>	<p>It is the Policy of the Council to:</p> <p>5.2.1: Protect European sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU Habitats Directive (92/43/EEC), EU Birds Directive (2009/147/EC) and associated national legislation.</p> <p>5.2.2: Ensure that all plans or projects within the Plan area will only be authorised and / or supported after the competent authority has ascertained based on scientific evidence, screening for appropriate assessment and /or a Habitats Directive Assessment that:</p> <p>i) The plan or project will not give rise to an adverse direct, indirect or secondary effect on the integrity of any European site (either individually or in combination with other plans or projects); or</p> <p>ii) The plan or project will have an adverse effect on the integrity of any European site (that does not host a priority natural habitat type/and or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000; or</p> <p>iii) The plan or project will have an adverse effect on the integrity of any European site (that hosts a natural habitat type and/or a priority species) but there are no alternative solutions and the plan or project must nevertheless be carried out for imperative reasons for overriding public interest, restricted to reasons of human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest. In this case, it will be a requirement to follow procedures set out in legislation and agree and undertake all compensatory measures necessary to ensure the protection of the overall coherence of Natura 2000.</p> <p>5.2.4: Protect, conserve and support the development of an ecological network throughout the city which will improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive.</p>	<p>There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.</p> <p>The Development Plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network. No potential for cumulative effects, considered in conjunction with the proposed development, were identified.</p>

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	<p>5.2.7: Encourage, in liaison with the NPWS, the sustainable management of features which are important for the ecological coherence of the network of European sites and essential, by their linear or continuous nature or as stepping stones for the migration, dispersal and genetic exchange of wild species.</p> <p>5.2.9: Co-operate with the NPWS, landowners and stakeholders in the preparation and implementation of management plans for designated sites and support conservation objectives of lands within Designated Sites for nature conservation Natura 2000 (SAC/SPA) and NHA sites.</p> <p>5.2.10: Protect and conserve rare and threatened habitats and their key habitats, (wherever they occur) listed on Annex I and Annex IV of the EU Habitats Directive (92/43EEC) and listed for protection under the Wildlife Acts 1976-2000 and plant species listed in the Flora Protection Order 2015.</p> <p>5.2.11: Ensure that plans and projects with the potential to have a significant impact on European sites (SAC or SPA) whether directly, indirectly or in combination with other plans or projects are subject to Appropriate Assessment, under Article 6 of the Habitats Directive (92/43EEC) and associated legislation and guidelines, to inform decision making.</p>	
<p>Regional Spatial and Economic Strategy: for the Northern and Western Regional Assembly – Project Ireland 2040</p>	<p>Overarching Environmental Regional Policy Objectives:</p> <p>The Assembly supports the process whereby applications for development consents for projects emanating from any policies that may give rise to likely significant effects on the environment will need to be accompanied by one or more of the following, as relevant:</p> <ul style="list-style-type: none">i. An Ecological Impact Assessment Report (EcIA)ii. Environmental Report (ER)iii. An Environmental Impact Assessment Report (EIAR) if deemed necessary under the relevant legislation (statutory document) <p>Natura Impact Statement (NIS) if deemed necessary under the relevant legislation (statutory document).</p>	<p>The Regional Spatial and Economic Strategy was comprehensively reviewed with particular focus on policies and objectives related to the Natura 2000 network. No negative effects to the Natura 2000 Network were identified with regard to the proposed development.</p> <p>There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.</p>

4th National Biodiversity Action Plan 2023-2027

Objective 2 - Meet Urgent Conservation and Restoration Needs

Outcome 2A: The protection of existing designated areas and species is strengthened and conservation and restoration within the existing protected area network are enhanced.

Outcome 2B: Biodiversity and ecosystem services in the wider countryside are conserved.

Outcome 2C: All freshwater bodies are of at least 'Good Ecological Status' as defined under the EU Water Framework Directive.

Outcome 2D: Genetic diversity of wild and domesticated species is safeguarded 39 Outcome 2E: A National Restoration Plan is in place to meet EU Biodiversity Strategy 2030 nature restoration targets.

Outcome 2F: Biodiversity and ecosystem services in the marine environment are conserved and restored.

Outcome 2G: Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.

The 4th National Biodiversity Action Plan was comprehensively reviewed with particular focus on policies and objectives related to the Natura 2000 network. No negative effects to the Natura 2000 Network were identified with regard to the proposed development.

There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

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Other Projects

Assessment material for this in-combination impact assessment was compiled on the relevant developments within the vicinity of the Proposed Development and was verified on the 25th September 2025. The material was gathered through a search of relevant online Planning Registers, reviews of relevant documents, planning application details and planning drawings, and served to identify past and future projects, their activities, and their environmental impacts. All relevant projects were considered in relation to the potential for in-combination effects. All relevant data was reviewed (e.g., individual EISs/EIARs, layouts, drawings etc.) for all relevant projects where available. The projects considered include those listed below as well as small-scale residential, commercial and agricultural development and extensions, modifications and remediation works to same.

- › Permission for development which consists of:- A commercial development on a total site area of 3.1 ha, comprised of: 1.Block A: a 1-2 storey retail block with a gross floor area of 3721 sq.m, comprising of: a. a convenience retail store, to include off-license use, (including warehouse and welfare block) and a net retail floor area of 2721 sq.m; b.1 no. retail unit; 2.Block B: a 2-3 storey mixed use development with a gross floor area of 2055 sq.m comprised of: a.Gym Space; b.5 no. retail units; c.Community Space; 3.Block C: a 2-3-storey, mixed use development (gross floor area of 1537 sq.m) comprised of: a.6 no. office/retail/medical units and ancillary plant, maintenance space; 4.1 no. covered bicycle storage unit (44 no. cycle spaces), 38 no. standard cycle parking spaces and 4 no. cargo bike parking spaces, with 16 no. dedicated staff cycle spaces; 5.172 surface car parking spaces (including 9 no. universal access and 8 no. quick EV charging spaces); 6.Provision of 2 no. new vehicular access points along Altan Road; 7.Upgrades to cycling and pedestrian infrastructure from Western Distributor Road along Altan Road; 8.Erection of surface mounted backlit retail signage, including 2 no. surface mounted backlit entry wall signage and 2 no. totem signage (max height 5500mm); 9.Site lighting, deposit return facilities, roof mounted solar PV, ESB substation, site landscaping and all ancillary site development and enabling works (pl ref: 2460377)
- › Permission for development on a site of 0.617 hectares at the junction of Bóthar Stiofáin & Western Distributor Road, comprising the construction of a single storey (with mezzanine plant deck) licensed Discount Foodstore supermarket with ancillary off-licence sales measuring 2,185 sqm gross floor space with a net retail sales area of 1,387sqm; the construction of a single storey Coffee shop/ Café measuring 66.5sqm gross floor space; and , the provision of associated car parking, free standing and building mounted signage, free standing trolley bay and enclosure refrigeration and air conditioning plant and equipment, public lighting, hard and soft landscaping, cycle parking, boundary treatment, vehicular and pedestrian accesses, drainage infrastructure and connections to services/utilities and all other associated and ancillary development above and below ground level (pl. ref: 18224)
- › Permission for development which will consist of (a) Change of use of 226.7sqm from amenity use permitted under Pl. Ref 16/136 to bulk retail use (b) Enclosure of an entrance lobby of 35.6 sqm under the exiting roof canopy, previously permitted under Pl Ref. 16/136 (c) Minor revisions to existing elevations previously permitted under Pl Ref 16/136. The works to connect to existing services and parking permitted and constructed under Pl Ref 362/99 (pl/ ref: 21351)
- › Permission for development which consists of a)Demolition of existing basement structures on site and associated infilling. b) Construction of 7 no. residential units consisting of: 6 no.3 storey 4-bed units and 1 no.2 storey 3-bed units. c) New vehicular entrances and pedestrian entrances onto Bóthar Stiofáin, and new pedestrian entrance onto Cloch Ard. d) Boundary treatments; and e) Provision of all associated surface water and foul drainage services and connections ancillary to the residential development, and all associated site works (pl. ref: 21233).
- › Permission for development which consists of the change of use of Block A, Galway West Business Park, Knocknacarra, Galway, from specialist office use to use as an Enhanced Community Care Hub (ECC) and Primary Care Centre (PCC) (Knocknacarra & Salthill). The EEC and PCC Hub will be comprised of: - Ground Floor: Clinical assessment, examination and treatment for ECC on ground floor to include an Integrated Care Programme along with diagnostic facilities, entrance/ reception/waiting areas and ancillary functions. - First Floor: Primary Care assessment, examination and treatment on first floor to include clinical facilities for two primary care teams along with education rooms and ancillary functions. - Second Floor: Combined clinical admin supporting ECC and Primary Care functions along with staff change/ rest

- areas, multi-disciplinary meeting rooms and ancillary functions. The proposed development includes for the modification of the existing site access roads and parking areas to provide: - Reconfiguration of existing car parking area, to comprise 80 no. public car parking spaces, including 3 no. accessible spaces, and 62 no. staff spaces, including 4 no. accessible spaces. - A new vehicle drop-off zone, paved forecourt area and one way road system. Provision of 20 no. public bicycle parking stands and a bike shed comprising 60 no. staff bicycle parking spaces. The proposed development also includes for a new mechanical plant, relocation of the main entrance to include a new single storey entrance lobby (GFA 16 sqm), all external hard and soft landscaping, alterations to the external fenestration of the building, the provision of roof mounted solar PV panels, and all works ancillary to the proposed development.” (pl. ref: 2360113)
- › Permission for the Construction of 3 offices blocks ranging in 4-8 storeys in height and all associated site works (pl. ref: 319508).
 - › Permission for development which consists of 3 no. offices blocks (GFA: 14,650 sqm) and all associated site development works as follows: •Block 1: 8 storey office building providing offices, stair and lift cores and plant rooms (GFA: 7,330 sqm). •Block 2: 6 storey office building providing offices, stair and lift cores and plant rooms (GFA: 4,445 sqm). •Block 3: 4 storey office building providing offices, stair and lift cores and plant rooms (GFA: 2,875 sqm). •The development includes a surface car park which comprises of 167 no. car parking spaces (including 9 no. accessible spaces and 33 no. EV charging spaces), and 216 no. bicycle parking spaces (including 22 no. electric bicycle charging spaces) and 9 no. motorbike spaces. •Provision of new vehicular access to site. •Provision of bin stores, ESB substation, roof mounted solar PV, landscaping, boundary treatments, staff changing facilities, public lighting and all other site development works and services ancillary to the proposed development (pl. ref: 2460021)
 - › Permission for development at “Rockfern”, Kingston road and Knocknacarra Road, Galway City. The development which will consist of; • The demolition of existing single storey detached house and attached garage, • The construction of 3 no. detached two storey detached houses, with provision for a revised single vehicular access point onto the Kingston road, • Revised boundary treatments including the provision of openings for pedestrian links onto the Knocknacarra road. • Provision for uncontrolled pedestrian crossing at the junction of the Knocknacarra Road with the Kingston Road. • Provision of onsite car parking, • Connection to existing foul sewer, storm sewer and water main located along the Kingston road, together with all associated site services and site development works (pl. ref: 2360139)
 - › Permission for revisions to previously permitted development granted under Pl. Ref. No. 18/148 (as extended under Pl. Ref. No. 23/376), as amended under Pl. Ref. No. 24/60160. The development will consist of Retention and completion of ; alterations of external elevations to rear building block (House Unit No.’s 4-9), and alterations to external elevations to front building blocks, Apartment Unit No.’s 1, 2 & 3, together with all associated site works and services. RPS No. 748, a Protected Structure, is located within the application site (pl. ref: 2560693)
 - › Permission for development which consists of: alterations and extensions to an existing club house to include a) a two storey extension to the front (250 M²) comprising meeting and amenity / exercise rooms, b) a new glazed link corridor (46 M²) with balcony overhead to front of premises, c) revised entrance arrangement comprising a new vehicle access control barrier and separate pedestrian access from Threadneedle Road, d) a revised front parking area to include additional bicycle parking and e) all associated site works. (pl. ref: 2560141)
 - › Permission for development which consists of: the retention and completion to previously granted planning permission ref: 23/157 at Clybaun Road and Minclon Cross, Galway. Amendments to include: The retention and completion of minor elevational changes and alterations to the internal layouts to Block 01 & 02 along with all ancillary site works and landscaping. (pl. ref: 2560115)
 - › Permission for development which consists of; a change of use of the adjacent ground floor vacant retail shop units (Ref: E, F1, F2, G, & H) to facilitate an extended commercial leisure/indoor recreation use. The development will include site works to existing structure to facilitate the change of use including internal: fit out of space to support the intended leisure use including bowling, bar service and general recreational facilities, minor internal alterations to facilitate access to/from the applicant’s adjacent existing leisure unit, (Planet Entertainment Centre), and minor alterations to existing fire escape routes and minor alterations to existing south façade to facilitate access and egress doors. (pl. ref: 2560003)
 - › Permission for development which consists of: for change of use of ground floor commercial unit to 2no. 1 bedroom apartments including associated changes to elevations and retention of ground floor level rear extension. (pl. ref: 2560138)

- › Permission for development which consists of: rear first floor extension (GIA 22m² / 235ft²) and reconfiguration of 1no. existing dwelling (3 bed apartment), to create 2no. dwellings: a 2 bed apartment and a studio apartment (39m² / 420ft²). The rear extension will not affect or change either of the Market Street or Church Lane Elevations. (pl. ref: 2560162)
- › Permission for development which consists of: The University of Galway are applying for planning permission to Galway City Council to facilitate the development of a new School of Medicine at a site located at the University of Galway, Co. Galway. There is an existing building, known as Block E, located on the site. Block E is a protected structure (RPS No. 10309 - Civil Engineering Block). There are 4 no. other protected structures in the vicinity of the subject site including RPS No. 10310 (Dept. of Education Block), RPS. No. 8501 (rivers & waterways, including embankments and walling), RPS No. 10308 (Former IMI Building) and RPS No. 10307 (Martin Ryan Institute). The proposed site extends to 0.36 hectares. (pl. ref: 2560220)
- › Permission for development which consists of: planning permission for development at Retail Units 60 and 61, Galway Shopping Centre, Headford Road, Galway. The amalgamation and change of use of 2 No. existing ground floor retail units No's 60 & 61 from retail to café to form a single café unit accessed off the internal Mall. Alterations to the existing mall shopfront of unit no. 61 to provide an additional set of glazed double doors and to provide an additional public glazed access door to the existing external north elevation of unit no. 61. Provision of Mall signage to the existing mall Fascia and all associated site works. (pl. ref: 2560202)
- › Permission for development which consists of: retention permission for the following at 18, 19, 20 and 21 Dominick Street Upper, Galway City, Co Galway; (a) Permission to retain existing ground floor meeting rooms, shop, communal areas, reception, store and toilets from basement and parking area granted under planning permission reference P94/265. (b) Permission to retain existing elevations and roof from the elevations and roof granted under planning permission reference P94/265. (c) Permission to retain the existing elevations and roof from the elevations and roof granted under planning permission reference P96/447. (d) Permission to retain the change of use of the ground floor apartment, meeting rooms, shop, communal areas, reception, store, toilets, twelve first floor apartments, fourteen second floor apartments and three third floor apartments to an Accommodation Centre for protected persons for a temporary period of three years. (pl. ref: 2560079)
- › Permission for development which consists of permission for a two storey extension of an existing school, landscaping & hardscaping, external retaining structures, parking, temporary construction access to Threedneedle road and related works at Coláiste Éinde (Protected Structure Ref: 10250) Threadneedle Road, Salthill, Galway (pl. ref: 2560091)
- › Permission for development which consists of; the amalgamation of Units 21-22, Sean Mulvoy Road Commercial Centre, Galway and the proposed amalgamation and change of use of an existing ground floor office and light manufacturing to a medical centre to include treatment rooms along with suitable ancillary rooms. The proposed works will also include amendments to the front and rear elevations including new windows, doors and signage. (pl. ref: 2560038)
- › The University of Galway are applying for a 10-year planning permission to Galway City Council to facilitate the development of a new Performance Place building on a site located at Earl's Island, University Road (R863), University of Galway, Co. Galway. There are 3 no. protected structures located in the vicinity of the site including RPS No. 3609 (a lime kiln), RPS No. 8501 (rivers & waterways, including embankments and walling) and RPS No. 3608 (known as Weir Lodge). The proposed site extends to 0.3 hectares. The development will consist of the following: (a) Demolish 5 no. existing warehouse buildings located on site. (b) The construction of a 2-storey building to accommodate a dual use academic teaching space and a creative arts and performance space. The proposed building extends to 2,567sqm, has an overall maximum height of 12.25m and features climbing plants on the western elevation. (c) The proposed Performance Place features a 420 no. seat theatre extending to 396.3sqm with tiered seating and an associated back of house space measuring 39.5sqm and a green room area measuring 39.3sqm. (d) The ground floor incorporates a central atrium space, a café and multi-purpose space. The building also includes a sustainable transport hub with secure bicycle storage, showers and changing facilities.(e) The first floor includes 5 no. offices, 6 no. practice rooms, a 35 no. desk classroom, a multipurpose room, store rooms and associated ancillary spaces.(f) The provision of an accessible set-down area in the southeastern portion of the site. (g) Provision of hard and soft landscaping, external bicycle parking (including accessible parking) and public lighting. (h) Provision of plant and photovoltaic panels at roof level of the proposed building. (i) An ESB substation and associated switch room is located in the southwestern portion of the

- proposed building.(j) Removal of the columns currently supporting the existing warehouse building to be demolished, which is partially located in the Distillery River, to the immediate west of the application site.
- (k) Provision of a temporary site compound area to the east of the proposed Performance Place building to facilitate construction.(l) Provision of all associated surface water, watermain and foul water drainage services and connections (including nature-based drainage solutions) and all associated site works and ancillary services necessary to facilitate the proposed development. (pl. ref: 2560108)
- > Permission for development which consists of; We, Burkeway Homes Limited, intend to apply for planning permission to Galway City Council for development on a site located on the Letteragh Road (L1000), in the townland of Letteragh, Co. Galway. The proposed development will consist of the following: (a) Demolition of 1 no. dwelling house (222.3sqm) and 5 no. sheds on the southern portion of the site and the removal of the existing vehicular access fronting onto the Letteragh Road. The decommissioning and demolishing of the existing septic tank.(b) Construction of 53 no. units comprising of: 25 no. semi-detached houses (15 no. 3-bed and 10 no. 4-bed); 2 no. detached houses (2 no. 4-bed); Provision of Block A1 comprising 14 no. apartment units (13 no. 2-bed and 1 no. 3-bed); Provision of Block A2 comprising 2 no. apartments (2 no. 2-bed); Provision of Block A3 comprising 4 no. apartments (4 no. 2-bed); Provision of Block D2 comprising 6 no. duplex units (3 no. 2-bed and 3 no. 3-bed) (c) Provision of shared communal and private open space, car and bicycle parking, bin storage, site landscaping, public lighting and ESB substation. (d) Provision of pedestrian, cyclist and vehicular access via the existing Garraí na Sailí development.(e) Provision of pedestrian and cyclist entrance from the Letteragh Road (L1000). (f) Extension of existing footpath connecting into Garraí na Sailí fronting onto the Letteragh Road (L1000), and road improvements in the south of the development site to tie into the Letteragh Road (L1000).(g) All associated site works and ancillary services necessary to facilitate the proposed development. This application is accompanied by a Natura Impact Statement (NIS). (pl. ref. 2460394)
- > Permission for development which consists of: The development will consist of the installation of a compact modular substation and ancillary development works; to facilitate 3 no. shared electric vehicle charging units and 6 no. charging bays and ancillary site works and improvement and realigning of parking area (pl. ref: 2560178)
- > Permission for development which consists of: We, Clearwater Ventures Limited, are applying for planning permission to Galway City Council for development at the previously permitted Health and Wellness Centre (former Salthill Driving Range), in the townland of Knocknacarragh, Salthill, Galway. The development consists of the following: (a) An amendment to the previously permitted Health and Wellness Centre approved under Pl. Ref. 22/192, ABP. Ref. ABP-314714-22 and Pl. Ref. 24/60171. The amendment comprises of 475 sqm extension to the leisure centre building at ground floor and lower ground floor level to increase the floor area of the existing gym, studio spaces and ancillary café. (b) Minor amendments to the layout of the permitted timber deck along the southeast elevation. (c) Changes to the elevational treatment of the building to replace the larch cladding with coloured render. (d) Two additional windows on the northwestern elevation and an additional door on the northeastern elevation and minor modifications to the fenestration on the southeastern and southwestern elevation. (e) The provision of 30 no. cycle spaces (including 2 no. accessible spaces).(f) The provision of 320 sqm of photovoltaic panels at roof level.(g) All associated and ancillary site and development works. (pl. ref: 2560149)

In addition, the following development, which borders the northern extant of the Proposed Development site, was granted planning permission on the 23rd July 2025: Forbairt Snámh Thiar Cuideachta Faoi Theorainn Rátháiochta, intend to apply to Permission for development which consists of; Galway City Council for permission for the development of a swimming pool and sports facility at a 0.87ha site accessed from Altán Road and Millers Lane, in the townlands of Ragoon, Knocknacarra, Galway. The proposed development will consist of the construction of a prefabricated aluminium frame and fabric tensile envelope with independently constructed facilities building within the envelope and will include the following:

- > Provision of a 35 x 25m competition standard swimming pool with adjustable floor (max depth 2m);
- > Ground floor changing rooms ‘wet village’ including steam room, sauna and first aid (425 sq.m.), pool deck and spectator area (476 sq.m), reception and staff offices (57 sq.m.), gymnasium (576 sq.m), storage areas and plant spaces (52 sq.m.);

- > Provision of ancillary spaces on the mezzanine floor including multifunctional sports court (760sq. m), gymnasium (92 sq.m), staff offices (54 sq.m.); bathroom facilities and plant spaces (389 sq.m.);
- > Provision of plant area at basement level (495 sq.m.);
- > Provision of a coffee dock at ground floor level (85 sq. m.);
- > The provision of new vehicular and pedestrian access from Altán Road along with the provision of upgraded cycle and pedestrian infrastructure along Altán Road;
- > The provision of new active travel cycle and pedestrian access from Millers Lane;
- > Provision of site landscaping, wall mounted signage, public lighting, bike parking (89 no. Spaces), car parking (75 no. Spaces), bus parking (2 no. Spaces), 1 no. ESB Substation, 1 no. LV Switch room, ground mounted solar PV (250 sq. m) and all associated site development and site enabling works. A Natura Impact Statement (NIS) has been prepared in respect of the proposed development. (pl. ref: 2460370).

The NIS prepared for the above permitted development concluded, *'Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the proposed development does not adversely affect the integrity of European sites. Therefore, it can be objectively concluded that the Proposed Development, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site'*.

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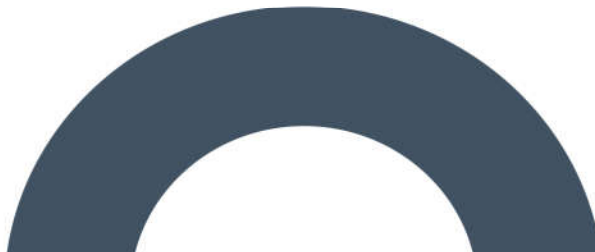


APPENDIX 6

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Construction and Environmental Management Plan

Kingston Stables
Knocknacarra Proposed
Large Scale Residential
Development



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DOCUMENT DETAILS

Client: **Kingston Stables Limited**

Project Title: **Kingston Stables Knocknacarra Proposed Large Scale Residential Development**

Project Number: **240142**

Document Title: **Construction and Environmental Management Plan**

Document File Name: **CEMP F - 2025.10.16 - 240142**

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1. INTRODUCTION

This Construction & Environmental Management Plan (CEMP) has been prepared by MKO on behalf of Kingston Stables Ltd. who intend to apply to Galway City Council (GCC) for permission to construct a large-scale residential development (LRD) comprising 362 residential dwellings, creche and all associated works at a site in Knocknacarra, Galway (Proposed Development). The Proposed Development is a component of a larger residential development project (Proposed Project). The Proposed Project involves the construction of more than 500 residential units, and the development will require separate, individual planning applications for each part of the project.

The CEMP provides the environmental management framework to be adhered to during the pre-commencement and construction phases of the Proposed Development, and it incorporates the mitigation measures necessary to ensure that the construction activities are carried out in a manner that minimises the potential for any adverse environmental impacts to occur. The CEMP has been informed by and takes account of the accompanying technical reports and assessments which have been prepared for the Proposed Development.

All measures identified in this CEMP, which will be finalised subsequent to any permission granted and updated prior to construction, will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the Proposed Development.

The CEMP will serve as a single amalgamated document that can be used throughout the construction phase of the project, as a single consolidated point of reference relating to all construction, environmental and drainage requirements for the Planning Authority, developer, and contractors alike. The CEMP may evolve over further iterations as the construction works progress, but at all times must meet or exceed the standards and requirements set out in this document. It will be the contractor's current version of the CEMP, which at any point in time, will guide the construction activities on site and the implementation of which will be audited, and updated as necessary during construction by the contractor.

1.1 Scope of the Construction and Environmental Management Plan

This report is presented as a guidance document for the management of construction activities and waste materials generated during the works and following completion. It outlines clearly the mitigation measures that are required to be adhered to in order to manage activities and waste materials in an appropriate manner.

For the purpose of the CEMP:

- Where the 'Proposed Development' is referred to, this relates to all the project components described in detail in Chapter 4 of the Environmental Impact Assessment Report (EIAR) i.e. large scale residential development and all associated works as detailed below.
- Where 'the site' is referred to, this relates to areas within the planning application boundary where it is proposed to carry out construction works.
- Where the 'Proposed Development Site' is referred to, this refers to the residential development and all associated works. The planning application for the Proposed Development will be made to GCC.

The report is divided into nine sections, as outlined below.

- **Section 1** provides a brief introduction as to the scope of the report.

- **Section 2** outlines the Proposed Development details, detailing the construction methodologies that will be adopted throughout the construction phase of the Proposed Development.
- **Section 3** sets out details of the environmental controls to be implemented on site for drainage principles, traffic management, dust control and invasive species management. A waste management plan is also included in this section.
- **Section 4** sets out a fully detailed implementation plan for the environmental management of the Proposed Development outlining the roles and responsibilities of the project team.
- **Section 5** outlines the Emergency Response Procedure to be adopted in the event of an emergency in terms of site health and safety and environmental protection.
- **Section 6** consists of a summary table of all mitigation proposals to be adhered to during the Proposed Development, categorised into three separate headings, 1) pre-commencement measures; 2) construction-phase measures and 3) operational-phase measures.
- **Section 7** consists of a summary table of all monitoring requirements and proposals to be adhered to during the Proposed Development, categorised into three separate headings, 1) pre-commencement measures; 2) construction-phase measures and 3) operational-phase measures.
- **Section 8** sets out a programme for the timing of the works.
- **Section 9** outlines the proposals for reviewing compliance with the provisions of this report.

1.2 Targets and Objectives

The construction phase works are designed to approved standards, which include specified materials, standards, specifications and codes of practice. The design of the project has considered environmental issues, and this is enhanced by the works proposals.

The key site targets are as follows;

- Adopt a sustainable approach to construction and, ensure sustainable sources for materials supply where possible.
- Correct fuel storage and refuelling procedures to be followed.
- Construction Methods and designs will be altered where it is found there is an adverse effect on the environment.
- Good waste management and housekeeping to be implemented.
- Using recycled materials, if possible, e.g., excavated stone, soil and subsoil material.
- Avoidance of vandalism.
- Air and noise pollution prevention to be implemented.
- Monitoring of the works and any adverse effects that it may have on the environment
- Provide adequate environmental training and awareness for all project personnel.

The key site objectives are as follows.

- Keep impact of construction to a minimum on the local environment and wildlife.
- Ensure construction works and activities are completed in accordance with any planning conditions for the development.
- Ensure construction works and activities have minimal impact/disturbance to local landowners and the local community.
- Ensure construction works and activities have minimal impact on the Natural Environment.
- Keep impact of construction to a minimum on the local environment, watercourses and wildlife.
- Correct fuel storage and refuelling procedures to be followed.

- > Good waste management and housekeeping to be implemented.
- > Air and noise pollution prevention to be implemented
- > Monitoring of the works and any adverse effects that it may have on the environment.
- > Construction Methods and designs will be altered where it is found there is an adverse effect on the environment.
- > Comply with all relevant water quality legislation.
- > Ensure a properly designed, constructed and maintained drainage system appropriate to the requirements of the site is kept in place at all times.

1.3

Potential Amendment Scenarios

This CEMP may require further updating and final agreement with the various stakeholders should the Proposed Development receive Planning Permission, in alignment with all the conditions which apply and in order to identify, assess and satisfy the contract performance criteria. The final CEMP will also require updating by the selected contractor. Therefore, this is a working document and will be developed further prior to construction commencing.

Triggers for amendments to the CEMP will include:

- > When there is a need to improve performance in an area of environmental impact;
- > As a result of changes in environmental legislation applicable and relevant to the project;
- > Where the outcomes from auditing establish a need for change;
- > Where Work Method Statements identify changes to a construction methodology to address high environmental risk; and
- > As a result of an incident or complaint occurring that necessitates an amendment.

2. SITE AND PROJECT DETAILS

2.1 Site Location and Description

The main site area comprises approximately 5.37 hectares (ha) of land located within the townland of Knocknacarra, Co. Galway, approximately 3.1 kilometres (km) to the west of Galway City. Irish Transverse Mercator (ITM) Coordinates for the approximate centre of the site are X 526636, Y 724682. A site location map is shown in Figure 2-1 below.

The site itself is comprised of a mixture of agricultural grassland and brownfield. Stone walls and treelines are also present within the boundary of the site. The surrounding area is urban in character with the site being surrounded by a number of residential estates and commercial and industrial buildings.

The site can be accessed via the Western Distributor Road which is located to the north of the site and the Kingston Road (R337) which runs in an east-west direction to the south of the site.

There are no Protected Structures or National Inventory Architectural Heritage (NIAH)-listed structures located within the Proposed Development site boundary.

The Proposed Development is not located in any European sites (designated pursuant to the obligations under the Habitats Directive and Birds Directive). The site is located approximately 795m north of the Galway Bay Complex Special Area of Conservation (SAC) and approximately 976m north of the Inner Galway Bay Special Protection Area (SPA).

There are no Environmental Protection Agency (EPA) mapped watercourses located within the confines of the Proposed Development site boundary. The closest mapped watercourse is located circa 10m to the northeast and is named as the Knocknacarragh Stream (EPA Code: 31K16 – Order 2). It should be noted that this stream is culverted and is not an open watercourse at this location.

The layout of the Proposed Development is outlined in Figure 2-2 below.

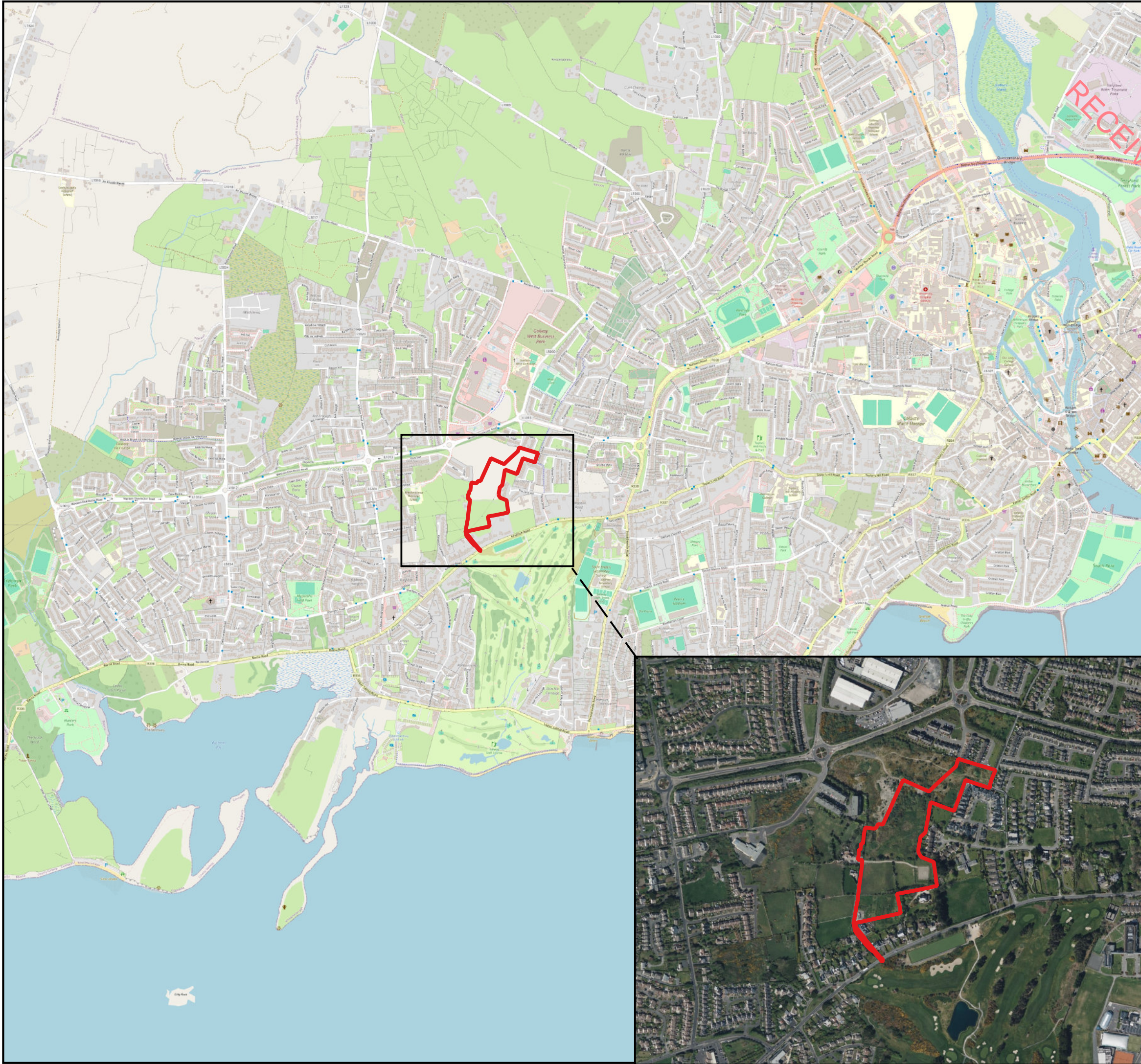
2.2 Development Description

The Proposed Development will consist of the following:

- Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following:
 - 4 no. 2-bed townhouses;
 - 40 no. 3-bed townhouses;
 - 21 no. 4-bed townhouses;
 - 15 no. 1-bedroom duplex apartments;
 - 46 no. 2-bedroom duplex apartments;
 - 15 no. 2-bedroom duplex houses;
 - 46 no. 3-bedroom duplex houses;
 - 114 no. 1-bedroom apartments;
 - 56 no. 2-bedroom apartments;
 - 5 no. 3-bedroom apartments.
- Demolition of existing structures (333.8 m²);
- Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers);

- > The provision of new active travel cycle and pedestrian access from Millers Lane;
- > Upgrades to the existing access at Kingston Road
- > The provision of a childcare facility (440 m²);
- > The provision of public open space;
- > The provision of 665 no. bicycle parking spaces;
- > The provision of 313 no. car parking spaces;
- > Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works.

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Map Legend

 Planning Application (Red Line) Boundary

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Drawing Title
Site Location - Planning Application (Red Line) Boundary

Project Title
Proposed Large-Scale Residential Development at Knocknacarra, Galway

Drawn By EC	Checked By TM/EOS
Project No. 240142	Drawing No. Figure2-1
Scale 1:18,000	Date 2025-10-10



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2.3 Construction Management

2.3.1 Introduction

All contractors which will be appointed will have the relevant experience to undertake the works for the construction phase of the Proposed Development. All contractors involved in the construction phase of the Proposed Development will be required to comply with this CEMP and any revisions made to this document. An overview of the anticipated Construction Methodologies is provided below under the following main headings.

2.3.2 Overview of Proposed Construction Methodology

The proposed anticipated construction methodology is summarised under the following main headings:

- > Site Establishment
- > Perimeter Fencing
- > Demolition Works
- > Site Excavation
- > Traffic Measures and Junction Upgrade Works
- > Proposed Site Roads and Footpaths
- > Services and Utilities
- > Residential Unit and Creche Construction
- > Landscaping Works

2.3.2.1 Site Establishment

It is anticipated that construction works will be carried out over two phases with a total duration of 36 months. Prior to the commencement of any construction, entrances to the Proposed Development site will need to be fully established with appropriate security gates. Access to the site will be via a road which connects to the Western Distributor Road to the north and also via the Kingston Road (R337) to the south.

A site construction compound inclusive of a parking area for construction worker's vehicles will be provided within the confines of the site. There will be no parking permitted for any vehicles associated with the Proposed Developments construction phase on the adjacent public roads unless agreed with the local authority prior to works inception. A designated section of the site will be fenced off as the construction compound.

2.3.2.2 Perimeter Fencing

The existing site boundaries are comprised primarily of stone/block walls along with a section of hedgerows and treelines. Perimeter hoarding will be provided around the site, where required. This will be in the form of heras fencing, hoarding or similar, to provide a barrier against unauthorised access from the public areas. A controlled access point in the form of a site entrance will be kept locked outside of normal working hours.

The fencing and hoarding will be maintained and painted or covered with graphics portraying project information. Due to the nature of the works and the construction traffic using the site entrance, appropriate signage will be provided along relevant footpaths and site entrances to alert pedestrians to the traffic exiting/entering the site. Likewise, appropriate signage will be installed within and outside the site to alert drivers of the pedestrians crossing ahead. The contractor will be required to undertake the following.

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- A site-specific Health and Safety Plan will be in place for the proposed site. All site staff will be made aware of and adhere to the Health and Safety Plan.
- Operate a Site Induction Process for all site staff,
- Ensure all site staff will have current Construction Skills Certification Scheme (CSCS) training or 'Safe Pass' cards,
- Site hoarding will include Health and Safety warnings at appropriate intervals.
- Fire extinguishers and first aid supplies to be available in the work area.
- All adjacent roadways will be maintained in clean condition at all times.
- Appropriate Personal Protective Equipment (PPE) to be worn at all times.
- Biometric turnstiles will be used at the site to prevent unauthorised access to the site.

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2.3.2.3 Demolition Works

Demolition works will be carried out on existing agricultural sheds (333.8m²) during the construction phase. The sequencing of the demolition works will be decided by the main contractor following detailed site survey of the buildings and surrounding area. Such a survey will provide detail on the:

- The condition of the buildings and demolition methods recommended.
- The location and removal methods for any toxic or hazardous materials.
- The type and location of adjoining and surrounding premises which may be affected by noise, vibration, dust and removal of the structures.

Demolition works at the Proposed Development site will primarily involve the following:

- Disconnection of services;
- Soft strip of the buildings to be demolished;
- Complete structural demolition of the buildings;
- Grubbing up of the rising walls, foundations and redundant underground services within the footprint of the demolished structures.

The demolition process will generally follow the sequencing shown in Table 2-1.

Table 2-1 Typical Demolition Sequence

Demolition Sequence	General Description
Removal of equipment	Plant & Equipment
Removal of fixtures	Fixtures & fittings
Removal of timber	Floors, trusses, rafters
Demolition of Structures Shells	Manual or mechanical demolition
Removal of groundworks	Foundation, slabs and redundant drainage infrastructure.
Source segregation of material fractions	C&D waste recovery
Transport of materials to authorised facilities	Authorised Waste Collection Permit holders and Waste Facility or Licence holders

2.3.2.4 Site Excavation

Soil Stripping and temporary stockpiling of soils and other excavated materials will be required around the site as the Proposed Development progresses. While these works occur, the following will apply:

- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies (i.e. ESB, Gas Networks Ireland, Eir, GCC, etc.,) will be contacted and all drawings for all existing services sought.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- All plant operators and general operatives will be inducted and informed as to the identification of invasive species.
- A tracked 360-degree excavator will be used to strip the topsoil, and a dumper will be used to move the excavated materials to the temporary stockpile location.
- All excavated material will be reused for future landscaping works or for backfill of excavations.
- All stockpiles will be covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation.
- In all circumstances, excavation depths and volumes will be minimised.
- All excavated spoil will be stockpiled and contained entirely within the confines of the site. Alternatively, spoil will be transported off site to a designated waste facility.
- Earthworks will only be carried out during periods of dry weather.
- Excavated (existing) overburden material will be reused on site, where possible;
- Temporary stockpiles will be covered with plastic sheeting;
- A minimal volume of topsoil and subsoil will be removed to allow for infrastructural work to take place due to optimisation of the layout by mitigation by design (no basement structures are proposed); and,
- Construction of service trenching, pumping station and surface water attenuation features will generate excess material. All excess material will be sent to an authorised soil and stone or waste recovery facility.

2.3.2.5 Traffic Measures and Junction Upgrade Works

As outlined in the Traffic and Transportation Assessment which has been prepared by Tobins Consulting Engineers for the Proposed Development, vehicular access to the Proposed Development will be gained via a priority T-junction off the Altan arm of the Western Distributor Road / Bothar Siofain / Altan roundabout and from the Kingston Road (R337) at the location of an existing laneway.

Vehicular access to the site is proposed along the Altan Road via the southern arm of the Bothar Siofain roundabout on the Western Distributor Road. Currently the roundabouts southern arm services the existing residential developments of Altan and Gort Siar along with the Knocknacarra National School.

Upgrades will include resurfacing which will have similar methodology to that outlined in Section 2.3.2.6 below

All internal roads will be designed in accordance with the requirements of DMURS and the Recommendations for Site Development Works for Housing Areas. Autotrack vehicle swept path analysis will be completed for the proposed site layout for a Large Car, a Refuse Truck and a Fire Tender to ensure the vehicles can safely manoeuvre around the Proposed Development site.

2.3.2.6 Proposed Site Roads and Footpaths

Site Roads and Parking Areas

The construction methodology for the proposed access roads and parking areas is as follows:

- Excavation will take place until a competent stratum is reached.
- The competent stratum will be overlain with up to 500mm of granular fill and compacted.
- A layer of geogrid/geotextile may be required at the surface of the competent stratum.
- A final hard surface layer will be placed over the excavated road to provide a road profile to accommodate construction traffic.
- Prior to completion of the construction works on site, the finished asphalt road surface will be applied.

Footpaths

- Excavation will be required to reach the desired levels,
- Shuttering will be installed along the section where footpaths are to be installed,
- A layer of granular material (clause 804 or similar) will be placed within the shuttered area. This layer will then be compacted.
- Once the layer of aggregate material has been compacted to the desired level, concrete will be poured into the shuttered area. The concrete will be levelled with the appropriate falls and allowed to cure for the appropriate time period.
- Once the concrete has cured, the shuttering will be removed.
- Mitigation measures to control potential concrete runoff are outlined in Section 3.3 below.

2.3.2.7 Services and Utilities

Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, etc.) will be contacted, and the appropriate procedure put in place. Backfill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications.

It is proposed to direct wastewater generated from the Proposed Development to an existing Uisce Eireann owned 225mm foul sewer line located west of the site, along the southern arm junction off the adjacent roundabout and Altan Road. The 225mm foul sewer outfalls to an existing Uisce Eireann 375mm foul network.

The foul sewer network has been designed using Causeway Flow drainage modelling software. All gravity pipes will be thermoplastic structured wall pipes, with diameters ranging from 150mm to 225mm. A pre-connection application was submitted to Uisce Eireann for the wastewater demand from the Proposed Development, and a Confirmation of Feasibility (CoF) statement has been received.

As outlined in the accompanying Civil Design Report (Appendix 4-4 of the EIAR) the proposed Storm water drainage infrastructure incorporates the philosophies of nature-based Sustainable Drainage Systems (SuDS) to manage surface water runoff quantity and quality.

Water will be provided to the Proposed Development via a new connection to a nearby Uisce Eireann owned 315mm watermain which runs along the Kingston Road.

The installation of services and connections to the residential units will be carried out as follows:

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- The area where excavations are planned will be surveyed and all existing services will be identified.
- All relevant bodies (i.e., ESB, Gas Networks Ireland, Eir, GCC etc.) will be contacted and all drawings for all existing services sought.
- A traffic management plan will be produced if required for connection works to the existing service network.
- A road opening licence will be obtained where required for connection to existing services.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the trench to the required dimensions.
- All excavated material will be removed to an authorised waste recovery facility or, if suitable, stockpiled and reused for backfilling and landscaping where appropriate.
- Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification.
- Once the service ducts/pipework has been installed couplers will be fitted as required and capped to prevent any dirt etc. entering the ducts/pipes.
- The as built location of the ducting/pipework will be surveyed using a total station/GPS.
- Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench.
- The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths.
- The surface will be reinstated as per original specification or to the requirements of the site layout/Local Authority as appropriate.

2.3.2.8 Residential Unit Construction

The residential dwellings along with the proposed creche will be constructed using the following methodology:

- The area where excavations are foundations are to be installed will be surveyed and all existing services will be identified.
- All relevant bodies (i.e. ESB, Bord Gáis, Eircom, GCC etc.) will be contacted and all drawings for all existing services sought.
- The area of each building will be marked out using ranging rods or wooden posts and the soil and overburden stripped and removed to nearby storage area for later use in landscaping.
- All plant operators and general operatives will be inducted and informed as to the location of any services.
- A tracked 360-degree excavator or similar will be used to excavate the area down to a competent stratum as approved by the Design Engineer and appropriately shuttered reinforced concrete will be laid over it.
- Foundations will be shuttered and cast with reinforced concrete as per the Design Engineer's specification.
- The pre-cast elements/block work/brick work walls will be built up from the foundation including a Damp Proof Course (DPC) and the floor slab constructed, having first located any ducts or trenches required by the follow on mechanical and electrical contractors.
- The block work will then be raised to wall plate level and the gables & internal partition walls formed. Scaffold will be erected around the outside of the buildings for these works.
- Any concrete floor slabs in the apartments or town houses will be lifted into position using an adequately sized mobile crane

- Any concrete flooring slabs will be lifted into position using an adequately sized mobile crane.
- The timber roof trusses will then be lifted into position using a telehandler or mobile crane depending on site conditions. The roof trusses will then be felted, battened, tiled and sealed against the weather.
- Windows, electrics, plumbing and all other building components and services will be installed in as timely a manner as is possible.
- Each building will be inspected and certified by the project design engineer at the appropriate stages of construction.

2.3.2.9 Landscaping Works

Prior to the completion of works on the Proposed Development site, the landscaping works will be carried out. This work will be carried out before the completion of works in order to ensure that the development will be an aesthetically pleasing place for residents to live. These works will involve the use of plant and machinery in order to carry out tasks such as earth moving. Materials which have been stockpiled for the task will be used as much as possible, and material will only be imported where it is required. During site preparation works, where topsoil is stripped prior to excavation, this material will be retained on site for use in landscaping.

Cunnane Stratton Reynolds have prepared detailed landscape drawings and a Landscape Design Report which can be found in Appendix 6-3 of the EIAR.

The Landscape Design Report and Chapter 6 Biodiversity of the EIAR outlines a number of biodiversity friendly measures which are as follows:

- The use of native species will generally be preferred. However, a complimentary element of non-native species will also be used, where appropriate to achieve particular aims or requirements.
- The planting of predominantly pollinator friendly shrub and herbaceous species will integrate the scheme in line with the 'All Ireland Pollinator Plan'.
- Significant additional native tree planting mitigates necessary removals and ultimately will significantly increase the sites tree and vegetation cover overtime.
- Proposed tree planting includes a selection of native and naturalised trees such as alder, beech, birch, cherry, oak, pine, rowan, sycamore and whitebeam. The use of such trees will provide vertical scale and structure to the landscape over time, as well as ecological benefits.
- Approximately 238 linear metres of clipped beech hedgerow will be provided. Although the proposed beech hedgerows are likely to be of lower ecological value to the existing native hedgerows on site, they will result in a net gain in terms of hedgerow habitat post-construction.
- Whilst the proposed landscaping does not provide replacement treelines to offset the loss of those currently on site, it does provide for the planting of approximately 1,310m² of woodland understorey, comprised of native species (hazel, holly, spindle and guelder-rose), in addition to 202 parkland, open space and feature trees and 389 street trees which will be comprise of native and non-native species. Therefore, it is likely that the Proposed Development will result in a net gain in terms of overall number of trees within the site.
- Approximately 784m² of wildflower meadow of Irish provenance, sourced from Design By Nature, or equivalent, will be created. A low frequency mowing regime in these areas will reduce the overall volume maintenance in the scheme and contribute to a reduction of carbon footprint.
- The proposed landscape plan aims to create a number of linear green corridors suitable for bat feeding

2.4

Hours of Working

It is expected that construction works will occur during normal working hours:

- > 08:00 and 18:00 from Monday to Friday (inclusive);
- > 09:00 to 13:00 on Saturday.
- > No works will be undertaken on Sunday; and
- > Public holidays will be observed unless otherwise agreed with the local planning authority.
- > Deliveries will also be scheduled to avoid peak times, i.e. avoiding rush hours and school drop off/pick up times.

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3.

ENVIRONMENTAL MANAGEMENT

3.1

Protecting Water Quality

Prior to the commencement of any subsequent construction activities, the necessary mitigation measures will be put in place to ensure that no silt laden water runoff generated at the site will flow to nearby watercourses or drains thus ensuring the protection of surface water during the works. This will involve confirming the location of all existing services and delineating between drainage systems. Surface waters will be managed to ensure the prevention of run off from areas where excavation occur does not result in silt laden water entering the existing storm water network.

Particular emphasis will also be placed on hazardous materials management and prevention of spills or leaks of fuel oils to ensure watercourses and groundwater are not impacted. Section 5 provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects

The site of the Proposed Development does not contain any open watercourses. The Proposed Development site is located within the Galway Bay North hydrological catchment (Catchment 31), and the Knock [Furbo]_SC_010 hydrological sub-catchment. The Knocknacarragh Stream (EPA code 31K16) watercourse, which is a 2nd order watercourse (part of the Knocknacarragh_010 system), and according to the EPA mapper, is located approximately 10m from the northeastern boundary of the site. During site walkovers, no evidence of this watercourse was recorded and it appears to have been culverted previously at this location. No other watercourses with perceptible flow were noted within the site.

The Proposed Development Site is underlain by the Spiddal groundwater body. The Water Framework Directive (WFD) status 2016-2021 for the Spiddal groundwater body was deemed "Good".

Waters will not be discharged directly to any existing surface water sewers or drains. Particular emphasis will also be placed on hazardous materials entering the surface water management system as well as spill or leaks of fuel oils. Section 5 provides an Emergency Response Plan for dealing with spillages which may result in adverse environmental effects.

Excavation works have the potential to encounter sub-surface waters and ground water. In the event of encountering groundwaters during excavation, the excavation will be de-watered using a pump equipped with a silt bag on the discharge outlet. The pumped water will be discharged to either the existing surface water drainage system or to a suitably vegetated area within the site boundary. Where discharge to a vegetated area is required, the area will be enclosed with silt fencing, as necessary, to prevent sediment-laden runoff and ensure compliance with best practice environmental controls. In order to avoid hydrocarbons encountering groundwaters onsite, Section 3.4 below presents mitigation measures to avoid the release of hydrocarbons onsite.

Surface and storm water generated during the operational phase will be captured by the proposed drainage network within the confines of the site boundary as outlined in Section 2.3.2.7 above.

3.2

Prevention Pollution Control Measures

The following measures will be put in place to prevent the transportation of silt laden water or pollutants from entering any of the wider environments including watercourses/drains within or near the site:

- There are no watercourses on site and surface water will not be directly discharged into any external water bodies, surrounding land, or adjacent roadways. Any run-off generated on-site will undergo the necessary filtration process as previously outlined in Section 3-1.

- The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site.
- Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall.
- Excavations will be carried out using a suitably sized excavator and, in all circumstances, excavation depths and volumes will be minimised where practically possible.
- Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries. Any stockpile areas will be surrounded with silt fencing, if deemed necessary to prevent runoff.
- The minimum number of soil/subsoils and bedrock material should be removed from site. Soil may be reused for landscaping elsewhere on the site. However, any excess construction material shall be removed from the area and sent to an authorized waste recovery facility.
- Works shall not take place at periods of high rainfall and shall be scaled back if or suspended if heavy rain is forecast during excavation works.
 - High rainfall' is defined as follows:
 - >10 mm/hr (i.e. high intensity local rainfall events);
 - >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day);
- In the event of encountering groundwaters during excavation, groundwater will be pumped out of the excavation using a pump equipped with a silt bag on the discharge pipe, if necessary, to capture any silty material prior to subsequent natural percolation to ground. The area surrounding the silt bag will be surrounded by silt fencing if deemed necessary.
- No wastewater will be discharged on-site during the construction phase. Toilet facilities will be provided in a prefabricated sanitary unit which will be placed in the construction compound. This unit will have an enclosed wastewater holding tank which will be fitted with a fill level alarm and will be emptied on an as needed basis by the appropriately licensed contractor.
- Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites, as outlined in *Control of Water Pollution from Construction Sites, guidance for consultants and contractors* (CIRIA, 2001). This guidance will be adhered to throughout the construction phase to ensure that surface water generated on site contains minimum sediment.

Details of control measures which will be implemented at the site, if required are included in the Plates below.



Plate 3-1. Silt Bag with water being pumped through.



Plate 3-2. Silt Bag under inspection.

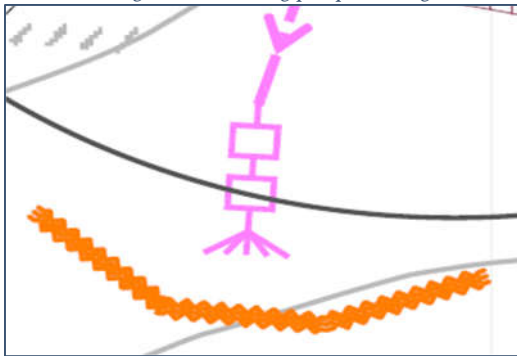


Plate 3-3. Silt Fence surrounding the discharge from Silt Bag.



Plate 3-4. Embedded Silt Fence

3.3

Cement Based Products Control Measures

The complete washing out of concrete trucks will not be permitted at the site. Suppliers will be directed back to their own facility to complete the washout process. However, a washout area for chute cleaning will be provided at various locations in close proximity to the concrete pour locations.

The following mitigation measures are proposed to avoid release of cement leachate from the site:

- No batching of wet-cement products will occur on site.
- Ready-mixed supply of wet concrete products and where possible, emplacement of pre-cast elements, will take place. Where possible pre-cast elements for culverts and concrete works will be used.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed.
- Use weather forecasting to plan dry days for pouring concrete.
- Ensure pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

3.4

Refuelling, Fuel and Hazardous Materials Storage

The following measures are proposed to avoid release of hydrocarbons at the site:

- Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station;
- On-site re-fuelling will be undertaken using a double skinned bowser or a refuelling truck with spill kits kept onboard;
- All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any drainage systems. A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available and construction staff will be familiar with the emergency procedures and use of the equipment;
- A temporary drainage system shall be installed prior to the commencement of the construction works;
- All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors'
- All plant and machinery will be serviced before being mobilised to site;
- No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed;
- Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings are not to be discharged into surface water drains/sewers;
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement tanks/ponds, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility;
- Foul drainage discharge from the construction compound will be transported off site to a licensed facility until a connection to the public foul drainage network has been established.

3.5

Dust Control

Construction dust can be generated from many on-site activities such as excavation and backfilling. The extent of dust generation will depend on the type of activity undertaken, the location, the nature of the dust, i.e. soil, sand, etc and the weather. In addition, dust dispersion is influenced by external factors such as wind speed and direction and/or periods of dry weather. Construction traffic movements also have the potential to generate dust as they travel along the approach road. The measures below will also prevent construction debris arising on the public road network.

Proposed means to control dust include:

- Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions.
- The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness, and cleaned as necessary.
- Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind.
- Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions.

- The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary.
- All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network.
- All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph.
- Daily inspection of construction sites to examine dust measures and their effectiveness.
- If deemed necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper.

It is also proposed to carry out dust monitoring at the site during the construction phase. Monitoring will be carried out quarterly using the Bergerhoff method. This monitoring will ensure that the mitigation measures outlined above are functional and being implemented. The locations of the dust monitoring gauges are outlined in Figure 3-1 below



Map Legend

- Planning Application (Red Line) Boundary
- Dust Monitoring Locations

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Drawing Title
Dust Monitoring Locations

Project Title
Proposed Large-Scale Residential Development at Knocknacarra, Galway.

Drawn By EC	Checked By TM/EOS
Project No. 240142	Drawing No. Figure 3-1
Scale 1:2,500	Date 2025-10-15

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3.6

Noise Control

The operation of plant and machinery, including construction vehicles, is a source of potential noise impacts. Construction phase noise is typically assessed in light of guidance set out in British Standards Institution (BSI) (2014) *BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise*¹, as well as the National Roads Authority (NRA) (now TII) (2014) *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes*². Although the NRA document is not directly relevant to the Proposed Works, it has seen increasing application to non-road projects in recent years in the absence of any specific Irish guidance.

All construction plant used on-site will be required to comply with maximum sound power levels set out in *Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000*³ on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors, implemented in Ireland by the *European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 (S.I. 632 of 2001)*⁴, as amended by the *European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations, 2006 (S.I. 241 of 2006)*⁵.

Proposed measures to control noise include:

- Construction operations will in general be confined to the periods Monday-Friday 0800-1800 h and Saturday 0900-1300 h.
- Hooting will be prohibited onsite. Drivers of plant and vehicles will be instructed to avoiding hooting at all times.
- Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced.
- Queuing of trucks on public roads will be prohibited.
- Machinery not in active use will be shut down.
- A site representative will be appointed as a liaison officer with the local community.
- Any complaints of noise received during the construction phase will be logged in a register, and investigated immediately. Details of follow-up action will be included in the register.
- Where it is proposed to import potentially noisy plant to the site, the potential impact of noise emissions will be assessed in advance.
- Guidance set out in BS 5228-1:2009 with respect to noise control will be applied throughout the construction phase.
- Advance notification will be given to residents immediately outside the site boundary when works are proposed within 50m of their dwellings.

3.7

Vibration Control

Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an

¹ British Standards Institution (BSI). (2014) *BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise*. London: BSI.

² National Roads Authority (NRA) (now TII) (2014) *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes*.

³ Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000

⁴ European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 (S.I. 632 of 2001)

⁵ European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations, 2006 (S.I. 241 of 2006)⁵.

annoyance. Guidance relevant to the protection of building structures is contained in the following documents:

- **British Standards Institution (BSI). (1993) BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration. London: BSI⁶.**
- **British Standards Institution (BSI). (2014) BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration. London: BSI⁷.**

Vibration can be more difficult to control than noise, and there are few generalisations which can be made about its control. It should be borne in mind that vibration can cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. The following mitigation measures will be implemented at the site during the demolition and construction phases to control vibration levels:

- The hours of working should be planned, and account should be taken of the effects of vibration upon persons in areas surrounding site operations and upon persons working on site, taking into account the nature of land use in the areas concerned and the duration of work.
- Where reasonably practicable, low vibration working methods should be employed. Consideration should be given to use of the most suitable plant, reasonable hours of working for operations which might give rise to perceptible vibrations, and economy and speed of operations.
- Vibration should be controlled at source and the spread of vibration should be limited.
- Where reasonably practicable, plant and/or methods of work causing significant levels of vibration at sensitive premises should be replaced by other less intrusive plant and/or methods of working.
- Vibration from stationary plant (e.g. generators, pumps, compressors) can, in some instances, prove disturbing when located close to sensitive premises or when operating on connected structures. In these instances, equipment should be relocated or isolated using resilient mountings.
- Where processes could potentially give rise to significant levels of vibration, on-site vibration levels should be monitored regularly by a suitably qualified person appointed specifically for the purpose, particularly if changes in machinery or project designs are introduced. A method of vibration measurement should be agreed prior to commencement of site works.
- On those parts of a site where high levels of vibration are likely to be a hazard to persons working on the site, prominent warning notices should be displayed.
- Offsite fabrication - In method statement/risk assessment the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task specific.
- Best practice vibration control measures will be employed by the contractor.
- A designated member of staff will be appointed as the point of contact for any queries or complaints from nearby local residents.

⁶ **British Standards Institution (BSI). (1993) BS 7385-2:1993 Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage Levels from Ground Borne Vibration. London: BSI**

⁷ **British Standards Institution (BSI). (2014) BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration. London: BSI**

3.8

Ecological Measures

As outlined in Chapter 6 Biodiversity of the EIAR, the following measures will assist in reducing the impact of habitat loss on local bats during construction:

- A pre-commencement survey is recommended on each of the structures to assess the buildings prior to any works. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the survey in 2023 and 2024.
- 3 trees identified as potential roosts (PRF) are proposed for removal. While no roosting bats were recorded within any of the trees identified as PRF-Is, given the transient nature of tree roosts and in recognition of the fact that bats are a mobile species, a pre-commencement survey, at the appropriate time of year, will be undertaken on trees to be felled/pruned with suitable potential roost features, by a qualified ecologist to ensure there are no roosting bats. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the surveys in 2024. If a bat roost is identified within any of the trees to be removed/pruned, a bat derogation licence will be obtained from the National Parks and Wildlife Service (NPWS), prior to felling and the felling activity will be supervised by a qualified ecologist.

3.9

Traffic Management Proposals

A Traffic Management Plan (TMP) for the construction stage will be developed and agreed with GCC prior to the commencement of works.

The proposed traffic management measures (As listed in Chapter 15 Material Assets of the EIAR) to be adopted during the construction works are summarised below. Please note that this is not an exhaustive list, and it will be updated accordingly by the appointed contractor in consultation with the local authority:

- A detailed haulage plan will be put in place to ensure minimal impact on the surrounding road network. Spoil removal from site will be kept to a minimum with a detailed site survey completed to ascertain where spoil can be distributed on the site.
- All deliveries and removals will be subject to stringent site rules governing the loading / off-loading times, location of loading / off loading, covering of loads and cleaning of vehicles exiting the site, etc.
- Delivery loads to and from the site and management of large deliveries on site to occur outside of peak periods.
- No vehicle will be allowed to stop or park on the access road to the proposed development site.
- Ample parking will be provided within the site to cater for the staff and visitors during the construction phases of the proposed development.
- Construction traffic will be managed and scheduled to ensure no queuing occurs on either the internal road system or the main approach roads. The provision of an on-site vehicle staging area will facilitate waiting vehicles.
- Routine sweeping/cleaning of the road and footpaths in front of the site; and
- No uncontrolled runoff to the public road from dewatering/pumping carried out during construction activity.

3.10 Archaeological Management

3.10.1 Pre-Construction Investigations

The northern area of the Proposed Development site has been subject to significant modern ground disturbance while the southern end remains as a largely undisturbed area of green field pastureland containing areas of bedrock outcrops and waterlogging. The lands have been assessed by a geophysical specialist (Dr. Ger Dowling) and were considered to be unsuitable for an archaeo-geophysical survey due to the presence of areas of prior ground disturbance, undulating terrain with bedrock outcrops, waterlogged conditions and the presence of overhead electricity cables.

A programme of archaeological test trenching, under licence by the National Monuments Service, will therefore be carried within the Proposed Development site in advance of the construction phase. This archaeological investigation will also include the compilation of a written and photographic record of the existing field boundaries within the Proposed Development site. In the event that any sub-surface archaeological deposits, features or objects are identified during test trenching, their locations will be recorded and securely cordoned off while the National Monuments Service are notified of the discovery and consulted to determine further mitigation measures, which may entail preservation *in situ* by avoidance or preservation by record through a systematic archaeological excavation.

3.10.2 Monitoring of Mitigation Measures

There are a number of obligatory processes to be undertaken as part of applications to the National Monuments Service for licences to carry out archaeological test trench excavations and these will allow for monitoring of the successful implementation of the mitigation measures. A detailed method statement stating the proposed strategy for the site investigations will accompany the submitted licence application which will clearly detail the extent of the archaeological works and outline the processes to be enacted in the event that any archaeological features are encountered. Reports on the archaeological site investigations will then be submitted to the National Monuments Service, the National Museum of Ireland and the Planning Authority which will clearly describe the results of all archaeological works in written, mapped and photographic formats.

3.11 Invasive Species Management

A multidisciplinary walkover survey was carried out on the 20th of March 2024, 24th of April 2024, 15th of May 2024, 20th of March 2025 and a dedicated invasive species survey was carried out the 24th of April 2024 in line with NRA (2009) guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes) by Fiona Killeen (B.Sc.) of MKO.

As outlined in the accompanying Invasive Species Management Plan (ISMP) (Appendix 6-2 of the EIAR), two invasive species listed on the Third Schedule of of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011) and First Schedule of the European Union (Invasive Alien Species) Regulations 2024 (S.I. 374 of 2024) were recorded within the Proposed Development site boundary.

Three-cornered leek (*Alium triquetrum*) was recorded in the Proposed Development Site. A small cluster of Three-cornered leek was recorded in the east of the site adjacent a hedgerow habitat.

Sea buckthorn (*Hippophae rhamnoides*) saplings, categorised as minor infestations, were recorded in lands to the west of the Proposed Development site. Mature Sea buckthorn plants were recorded overhanging the western boundary of the EIAR Study Area. Overall, the infestation of Sea buckthorn within the site is very small in scale, with only juvenile saplings recorded.

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The treatment and control of invasive alien species will follow best practice guidelines, including:

- National Roads Authority (NRA) (2010) Guidelines on the Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads. Revision 1. Dublin: National Roads Authority.
- INNSA (2017) Code of Practice: Managing Japanese Knotweed. Invasive Non-Native Specialists Association.

3.11.1 Treatment and Management Methodologies

3.11.1.1 Preliminary Stages

A dedicated invasives species survey of the Proposed Development site will be carried out three months prior to commencement of works on site to determine if the species have spread further throughout the site. Surveys should be undertaken during the summer months (June - July) when the extent of infestation will be fully visible.

The treatment methodologies have been carefully considered and are proposed to eradicate Sea buckthorn and Three-cornered leek and manage their spread further within the Proposed Development site. These treatment measures are considered as part of the planning application. An ecologist will be on site to supervise the treatment. The infested areas will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.

3.11.1.2 Three-Cornered Leek

The following management is proposed in relation to Three-cornered Leek:

- An ecologist will be on site to supervise the treatment.
- The infested area will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area.
- Chemical treatment is the chosen treatment method. It is advised to treat the plant *in-situ* and avoid disturbance and the increased risk for spread and dispersal.
- This plant can be treated with a Glyphosate based chemical herbicide on an annual basis. It is recommended that a Glyphosate-based herbicide will be applied as a spot treatment to individual plants, or by foliar and stem spray in early spring before the plant flowers which typically happens between April and June. It is best to manually break the leaves prior to applying the chemical to ensure it enters the leaf. Follow-up annual treatments are necessary as large numbers of shoots may re-appear the following year as may new seedlings.
- The timing of the treatment applied is vital for the eradication of three-cornered leek. The control methods must be implemented in March or April when the leaves of the three-cornered leek are fully formed. Control methods should not be carried out if plants have finished flowering and produced seed (from the outset of May) as the movement of plants at this stage in the plant's cycle can cause a further spread of the invasive species.
- Three-cornered leek produces vast amounts of seeds annually and these seeds can persist and remain dormant in the soil for years before germinating. Due to this, a monitoring programme will be established to eradicate the invasive plant where the plants currently exist onsite. Therefore, it is key to undertake the control and treatment measures for a consecutive number of years to eradicate the seed bank and bulbs. The area will need to be surveyed by an ecologist in March/April, May and again in September for the presence of Three-cornered leek for a minimum of 3 years after the treatment to ensure no further spread is taking place.

3.11.1.3 Sea Buckthorn

Mechanical/ physical removal of Sea buckthorn controls the spread of the invasive species by either damaging or removing the plant material via physical action, i.e., uprooting, felling, slashing, mowing, grubbing etc. Juvenile Sea buckthorn saplings were recorded within the site. It is anticipated that the construction phase will span 3 years and as such it is likely to mature with time, in the absence of control measures being implemented.

The recommended treatment methodology for Sea buckthorn includes;

- Any juvenile new shoots of Sea buckthorn will be removed by hand pulling or manual removal using hand tools. The plant will be physically cut and dug up from the root either by hand or using an excavator to grub up the plant.
- Larger stumps will be cut and the stumps painted with Glyphosate herbicide.
- Following clearance of woody material, any necessary excavation of the ground will be undertaken. As sea-buckthorn can readily regenerate from root and rhizomatous material present in soil, any soil arising from areas infested with sea-buckthorn must be contained and disposed of appropriately.
- The vegetation material can be disposed of by burning or incineration.
- If for any reason, burning of plant material is not feasible on-site this material and the soil potentially contaminated within root or rhizome fragments must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence. In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery should be agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used must be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation.

3.11.1.4 Post Treatment Monitoring

Ongoing monitoring will be required within the Proposed Development site for all invasive species listed on the Third and First Schedules with suitable follow-up management implemented, in order to control new growth or re-establishment within the infested areas.

Following the initial removal, treatment and completion of the development, the treated areas will be re-surveyed annually and if necessary, re-treated until no growth of Three-cornered leek or Sea buckthorn is recorded for two consecutive years. If Three-cornered Leek or Sea buckthorn are found to be re-establishing, they shall be treated as per the measures outlined above and in Section 4 of the ISMP.

3.11.1.5 Site Hygiene

The following measures will be adhered to throughout the duration of the proposed construction works:

- The Project Ecologist will give a Toolbox Talk to all staff in relation to Three-cornered leek and Sea buckthorn and their management on site.
- A designated bio-secure area/exclusion zone will be set up at the Three-cornered Leek and Sea buckthorn locations to prevent disturbance in these areas.
- Prior to leaving the invasive species exclusion zones, all boots and clothing will be thoroughly brushed down to remove any contaminated material prior to leaving the area.

- The contractor will assign a member of their team as Environmental Officer to ensure the management plan is adhered to throughout the proposed works
- All works in relation to invasive species will be supervised by the Ecological Clerk of Works (ECoW).
- As a precautionary measure, machinery will be thoroughly cleaned down before entering the site to prevent potential spread of invasive species from elsewhere.
- Clean down will be carried out using brushes and shovels and power washing avoided insofar as possible. This is to prevent potentially contaminated run-off spreading outside the site.
- All measures prescribed in the invasive species management plan will be incorporated into the contractor's respective method statements for works.

Plant and equipment which is operated within an area for the management of materials in contaminated areas will be decontaminated prior to relocating to a different works area. The decontamination procedures will take account of the following:

- Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it.
- Decontamination will only occur within designated wash-down areas.
- Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g., wheel treads and arches
- All run off will be isolated and treated as contaminated material and will be also sent for disposal to an authorized waste facility.

3.12

Resource Waste Management Plan

The generation of waste as a result of construction and demolition related activity will provide the majority of on-site wastes which will need to be managed under guidelines set out in this document. This section of the CEMP provides a Resource Waste Management Plan (RWMP) which outlines the best practice procedures during the construction and demolition phases of the project. This plan has been compiled based on The Department of the Environment document entitled, '*Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects*' (2021)⁸.

The plan is based on the European waste hierarchy which sets out the most to least preferred options for waste management. Waste prevention and re-use are viewed as the most desirable options for managing wastes with the least desirable option considered being disposal to a licensed landfill.

This plan has a number of key objectives as outlined below:

- To set out management prescriptions that adhere to the waste management hierarchy.
- To outline the roles and responsibilities of the appointed Waste Manager.

The generation of waste as a result of construction & demolition related activity will provide the majority of on-site wastes which will need to be managed under guidelines set out in this document

3.12.1

Legislation

The Waste Management Act 1996 and its subsequent amendments, provide for measures in relation to waste management, recycling and recovery and provide a regulatory framework for attaining the

⁸ **The Department of the Environment (2021)** '*Best Practice Guidelines on the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects*'

objectives of EU and Irish law. The Act also provides a regulatory framework for meeting higher environmental standards set out by other national and EU legislation.

The Act requires that anyone carrying out a waste activity must have all necessary licenses and authorisations. It will be the duty of the Waste Manager on the site of the Proposed Development to ensure that all contractors hired to remove waste from the site have valid Waste Collection Permits and that waste is delivered to a licensed or permitted waste facility. The hired waste contractors and subsequent receiving facilities must adhere to the conditions set out in their respective permits and authorisations.

3.12.2 Guidance

This RWMP – which will incorporate all the measures set out in this document will be finalised subsequent to any permission granted by GCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed – has a number of key objectives as outlined below:

- To set out management prescriptions that adhere to a waste management hierarchy;
- To outline the roles and responsibilities of the Waste Manager;
- Prevention and minimisation of waste at the construction stage of the development.

This RWMP is cognisant of Chapter 9 – Environment and Infrastructure Section 9.10 of the Galway City Development Plan 2023-2029 which states that waste management and disposal should be carefully considered as part of the construction process and waste management plans are required for medium to large scale developments. This RWMP also takes into account Chapter 15 Development Management (DM) Standards 39: Construction and Demolition Waste as outlined in the Galway County Development Plan 2022-2028. DM Standard 39 states that Construction and Demolition Waste Management Plans shall be required as part of any planning application in excess of the following thresholds:

- New residential development of 10 houses or more;
- Developments including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 m²;
- Demolition/renovation/refurbishment projects generating in excess of 100 m³ in volume, of Construction and Demolition waste;
- Civil engineering projects producing in excess of 500 m³ of waste, excluding waste materials used for development works on the site.

3.12.3 Waste Management Hierarchy

The waste management hierarchy sets out the most efficient way of managing waste in the following order:

Prevention and Minimisation:

The primary aim of the RWMP will be to prevent and thereby reduce the amount of waste generated at each stage of the project. The prevention and minimisation of waste of this development will be developed by implementing effective on-site materials management in terms of both material acquisition and storage on site

Reuse of Waste:

Reusing as much of the waste generated on site as possible will reduce the quantities of waste that will have to be transported off site to recovery facilities or landfill. Site management will be required to

encourage the appropriate reuse of materials where possible as well as identify re-use opportunities to achieve ultimate goal of waste reduction.

Recycling of Waste:

There are a number of established markets available for the beneficial use of construction waste such as using waste concrete as fill for new roads. A designated Waste Storage Area (WSA) will be maintained on site which will cater for segregation and recycling of various waste streams.

At all times during the implementation of the RWMP, disposal of waste to an appropriately licenced facility will be considered only as a last resort.

3.12.4 Resource Waste Management

3.12.4.1 Design Approach

The client and the design team have integrated the 'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' guidelines into the design workshops, to help review processes, identify and evaluate resource reduction measures and investigate the impact on cost, time, quality, buildability, second life and management post construction. The design team have undertaken the design process in line with the international best practice principles to firstly prevent wastes, reuse where possible and thereafter sustainably reduce and recover materials. The below sections have been the focal point of the design process and material selections and will continue to be analysed and investigated throughout the design process and when selecting material. The approaches presented are based on international principles of optimising resources and reducing waste on construction projects through:

- > Prevention;
- > Reuse;
- > Recycling;
- > Green Procurement Principles;
- > Off-Site Construction;
- > Materials Optimisation; and
- > Flexibility and Deconstruction.

The RWMP will be updated prior to construction and regularly revisited throughout the project's lifecycle so that opportunities to maximise waste reduction/efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

3.12.5 Construction Phase Waste Management

The Proposed Development will involve the excavation of soil and subsoil material. Although a quantity of this material will be used for landscaping, backfilling and general restoration of excavated areas, it is anticipated that the majority of the excavated material will be removed off-site by a licenced haulier to an authorised waste and or soil recovery facility.

Waste generated post excavation on-site will be managed in the Waste Storage Area (WSA) where the various waste components will be segregated into a number of waste categories in accordance with a general waste segregation policy and placed into individual skips. The WSA will be located within a designated section of the Construction Compound. The categories for segregation will include timber, metal, cardboard and plastics. This material will be removed by authorised waste collection contractors for recycling and recovery at various licenced facilities. The remaining volume of waste material which cannot be allocated to any of these four waste streams will be disposed of in a general waste skip. This waste material will be transferred to a Materials Recovery Facility (MRF) by a fully licenced waste

contractor where the waste will be further sorted into individual waste streams for recycling, recovery or disposal. This general waste will be subject to constant monitoring by site management to ensure that potential reusable and recyclable material is not being disposed of therein. The on-site canteen will include waste receptacles for dry recyclables and food waste which will eliminate the potential of any waste produced within the canteen being sent to landfill. The expected wastes arising from the works including the individual List of Waste (LoW) codes are outlined in Table 3-1.

Table 3-1 Expected waste types arising during the Construction Phase

Materials type	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Surfacing, foundations, flooring material	17 01 01
Insulation	Cavity & Floor Insulation	17 06 04
Tiles and ceramics	Wall and floor tiles	17 02 03
Bituminous materials	Tarmacadam	17 03 01
Metals	Rebar, reinforced steel joists, lead	17 04 07
Mixture of inert material	Sand, stones, plaster, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Gypsum materials	Roof tiles/slabs	17 08 02
Wood	Frames and doors,	17 02 01
Canteen Waste	Miscellaneous waste from site staff	20 01 08

3.12.5.1 Waste Arisings and Proposals for Minimisation, Reuse and Recycling of Construction Waste

Construction waste will arise on the project mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste.

Appropriate measures will be taken to ensure excess waste is not generated during construction, including;

- Ordering of materials will be on an ‘as needed’ basis to prevent over supply to site.
- Purchase of materials pre-cut to length to avoid excess scrap waste generated on-site.
- Require suppliers to use least amount of packaging possible on materials delivered to the site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal.
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.

Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately. In addition to fuel as outlined above, the potentially hazardous wastes that may be generated at the site during the construction include;

- Paints including all associated by products.
- Glues and solvents.
- Asphalt materials from roofing products and external paving finishes.

3.12.5.2 Wastes Arising from Construction Activities

All waste generated on site will be contained in waste skips at the WSA. This WSA will be kept tidy with skips clearly labelled to indicate the allowable material to be disposed of therein.

Site personnel will be instructed at induction that no under no circumstances can waste be brought to site for disposal in the on-site waste skip. It will also be made clear that the burning of waste material on site is forbidden.

3.12.5.3 Demolition Waste Management Plan

Prior to the commencement of any demolition works, as described in Section 2.3.2.3 above, a full audit of waste material that will be generated will be carried out. A list of expected waste types that may be generated has been drawn up and the European List of Waste (LoW) Codes pertaining to each waste type is included in Table 3-2.

Table 3-2 Expected Waste Types Arising from the Demolition Phase

Materials type	Example	LoW Code
Cables	Electrical wiring	17 04 11
Concrete	Surfacing, flooring material	17 01 01
Metals	Steel supports and cladding, roof and wall coverings, utility piping,	17 04 07
Mixture of inert material	Sand, stones, plaster, brick, rock	17 01 07
Plastic	PVC frames, electrical fittings	17 02 03
Soil & Stones	Overburden, soil, subsoil	17 05 04
Wood	Rafters, frames, doors, MDF	17 02 01

The majority of the waste generated by the demolition works will consist of concrete rubble, metal cladding and other associated support components (steel beams/wooden rafters). These materials will be segregated from all other waste components and sent by an authorised waste collector to an authorised waste recovery facility. The remaining volume of waste material will not be large enough to warrant any further segregation, therefore, this waste generated during the demolition works will be deposited into a single skip. This waste material will be transferred to a MRF by a fully licensed waste contractor where the waste will be sorted into individual waste streams for recycling, recovery or disposal. It is unlikely that re-use of materials will be possible at the site. However, clean inert concrete, rubble and stones may have a re-use potential for landscaping and raising levels to formation levels.

3.12.5.4 Reuse

Many construction materials can be reused a number of times before they have to be disposed of:

- Concrete can be reused as aggregate for roads backfilling material.
- Plastic packaging, etc. can be used to cover materials on-site or reused for the delivery of other materials.
- Soils and subsoils will be reused as part of landscaping and site re-instatement.

3.12.5.5 Recycling

If a certain type of construction material cannot be reused on-site, then recycling is the most suitable option.

All waste that is produced during the construction phase including dry recyclables will be sent directly for subsequent segregation at a remote facility. The low volume of such material that is anticipated to be generated at the Proposed Development is the justification for adopting this method of waste management.

3.12.5.6 Wastewater

The removal and disposal of wastewater from site welfare facilities, will be carried out by a fully permitted waste collector holding valid Waste Collection Permits as issued under the *Waste Management (Collection Permit) Regulations (2007)*, as amended. Information on the appointed permitted contractor and evidence of a maintenance will be retained on-site and available for inspection on request.

3.12.6 Implementation

3.12.6.1 Roles and Responsibilities for Waste Management

Prior to the commencement of the Proposed Development a Waste Manager will be appointed by the project team. The role of Waste Manager is likely to be fulfilled by the Site Manager given the scale of the development and will be responsible for the implementation of the objectives of this plan, ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy is adhered to. The person nominated will have sufficient authority so that they can ensure everyone working on the Proposed Development adheres to the management plan. The Waste Manager will also be required to conduct regular waste audits in the WSA and throughout the site to ensure that the waste management plan is operating effectively.

3.12.6.2 Training

The Waste Manager will communicate effectively with colleagues in relation to the aims and objectives of the RWMP. All employees working on-site during the construction phases of the project will be trained in materials management and thereby, will be able to:

- Distinguish reusable materials from those suitable for recycling;
- Ensure maximum segregation at source;
- Co-operate with site manager on the best locations for stockpiling reusable materials;
- Separate materials for recovery; and
- Identify and liaise with waste contractors and waste facility operators.

3.12.6.3 Record Keeping

The implementation of the RWMP will ensure that all arisings, movements and treatments of construction and demolition waste to be recorded. This system will enable records the quantity of waste being generated to be maintained. It will highlight the areas from which most waste occurs and allows the measurement of arisings against performance targets. The RWMP can then be adapted with changes that are seen through record keeping.

The fully licensed waste contractor employed to remove waste from the site will be required to provide documented records for all waste dispatches leaving the site of the Proposed Development. Each record will contain the following:

- > Consignment Reference Number
- > Material Type(s) and LoW Codes
- > Company Name and Address of Site of Origin
- > Trade Name and Collection Permit Ref. of Waste Carrier
- > Trade Name and Licence Ref. of Destination Facility
- > Date and Time of Waste Dispatch
- > Registration no. of Waste Carrier vehicle
- > Weight of Material
- > Signature of Confirmation of Dispatch detail
- > Date and Time of Waste Arrival at Destination
- > Weight of Material
- > Site Address of the Destination Facility

3.12.7 Resource Waste Management Plan Conclusion

The RWMP will be adhered to by all staff involved in the project which will be outlined within the induction process for all site personnel. The waste hierarchy will always be employed when designing the plan to ensure that the least possible amount of waste is produced during the construction and demolition phases. Reuse of certain types of construction waste will cut down the costs and requirement of raw materials, therefore further minimising waste levels.

4. ENVIRONMENTAL MANAGEMENT IMPLEMENTATION AND EMERGENCY RESPONSE

4.1 Environmental Manager

The main contractor appointed to carry out the works on site will be required to provide a level of supervision on site in the form of an Environmental Manager who will also fulfil the role of Waste Manager. Due to the scale of activity proposed for the site, this role can be adopted by a Site Manager/Foreman as part of their duties. In general, this Environmental Manager will maintain responsibility for monitoring the works and Contractors/Sub-contractors from an environmental perspective. The Environmental Manager will act as the regulatory interface on environmental matters by reporting directly to the client and liaising with GCC and other statutory bodies as required. The Site Environmental Manager will report to the Site Supervisor/Construction Manager. The duties of the appointed Environmental Manager are summarised as follows:

- Maintain and update as required the Construction Phase CEMP and supporting environmental documentation and review/approval of contractor method statements.
- Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP.
- Monitor the implementation of the CEMP, particularly all proposed/required Environmental Monitoring.
- Generate environmental reports as required to show environmental data trends and incidents and ensure environmental records are maintained throughout the construction period.
- Advise site management/contractor/sub-contractors on:
 - Prevention of environmental pollution and improvement to existing working methods.
 - Changes in legislation and legal requirements affecting the environment.
 - Suitability and use of plant, equipment and materials to prevent pollution.
 - Environmentally sound methods of working and systems to identify environmental hazards.
- Ensure proper mitigation measures are initiated and adhered to during the construction phase.
- Liaise with Project Team and present the findings of site audits/inspections that are completed.
- Ensure adequate arrangements are in place for site personnel to identify potential environmental incidents.
- Ensure that details of environmental incidents are communicated in a timely manner to the relevant regulatory authorities, initially by phone and followed up as soon as is practicable by email.
- Support the investigation of incidents of significant, potential or actual environmental damage, and ensure corrective actions are carried out, recommend means to prevent recurrence and communicate incident findings to relevant parties.
- Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers.
- Fulfil the role of Waste Manager and implement the objectives of the Resource Waste Management Plan as set out in Section 3.12 above.

5. EMERGENCY RESPONSE PLAN

5.1.1 Emergency Response

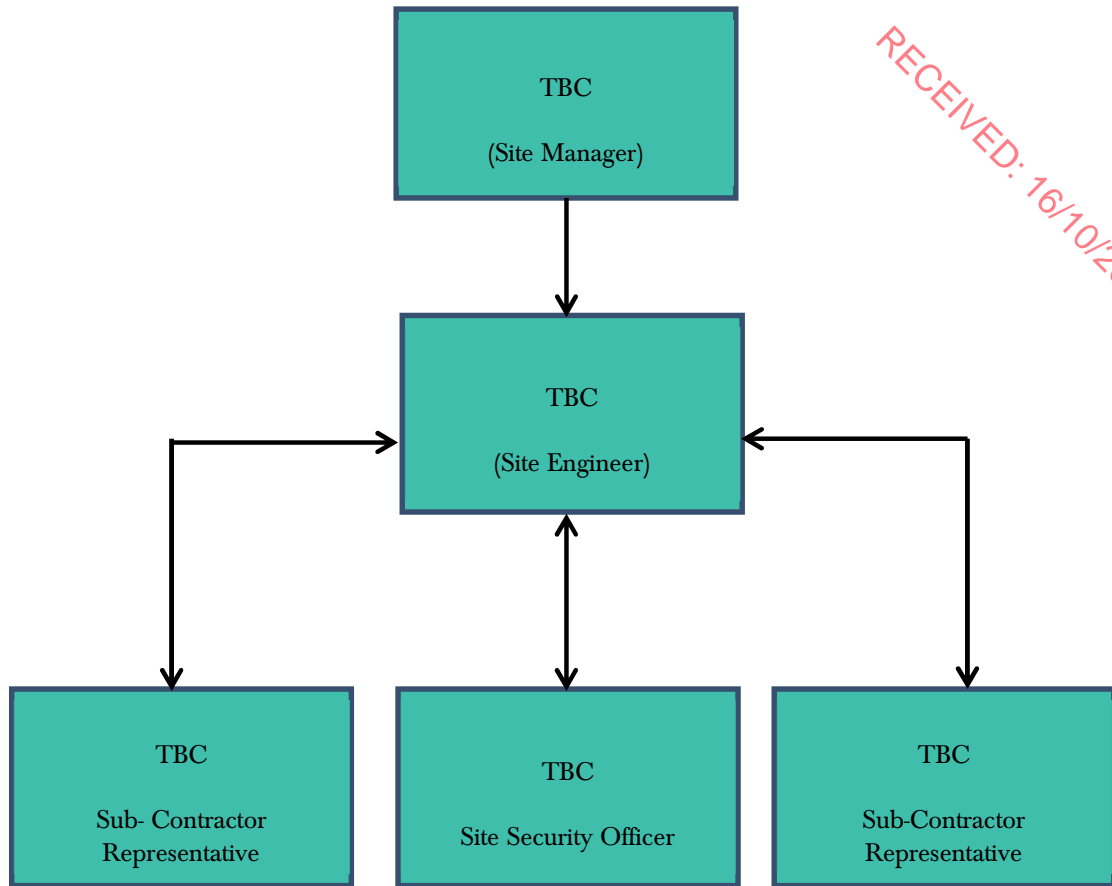
The Emergency Response Plan (ERP) is presented in this section of the CEMP. It provides details of procedures to be adopted in the event of an emergency in terms of site health and safety and environmental protection. The site ERP includes details on the response required and the responsibilities of all personnel in the event of an emergency. The ERP will require updating and submissions from the contractor and suppliers as the proposed project progresses. Where sub-contractors that are contracted on site are governed by their own emergency response procedure a bridging arrangement will be adopted to allow for inclusion of the sub-contractor's ERP within this document.

This is a working document that requires updating throughout the various stages of the project.

5.1.2 Roles and Responsibilities

The chain of command during an emergency response sets out who is responsible for coordinating the response. The Site Manager will lead the emergency response which makes him responsible for activating and coordinating the emergency response procedure. The other site personnel who can be identified at this time who will be delegated responsibilities during the emergency response are presented in Figure 5-1. In a situation where the Site Manager is unavailable or incapable of coordinating the emergency response, the responsibility will be transferred to the next person in the chain of command outlined in Figure 5-1. This will be updated throughout the various stages of the project and considering the scale of the development, all roles may not be applicable during the construction phase.

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Figure 5-1 Emergency Response Procedure Chain of Command

5.1.3 Initial Steps

In order to establish the type and scale of potential emergencies that may occur, the following hazards have been identified as being potential situations that may require an emergency response in the event of an occurrence.

Table 5-1 Hazards associated with potential emergency situations

Hazard	Emergency Situation
Construction Vehicles: Dump trucks, tractors, excavators, cranes etc.	Collision or overturn which has resulted in operator or third-party injury.
Abrasive wheels/Portable Tools.	Entanglement, amputation or electrical shock associated with portable tools.
Contact with services.	Electrical shock or gas leak associated with an accidental breach of underground services.
Fire	Injury to operative through exposure to fire.
Falls from heights including falls from scaffold towers, scissor lifts, ladders and roofs.	Injury to operative after a fall from a height.
Sickness	Illness unrelated to site activities of an operative e.g. heart attack, loss of consciousness, seizure.

In the event of an emergency situation associated with, but not restricted to, the hazards outlined in Table 5-1 above, the Site Manager will carry out the following:

- Establish the scale of the emergency situation and identify the number of personnel, if any, have been injured or are at risk of injury.
- Where necessary, sound the emergency siren/foghorn that activates an emergency evacuation on the site.
- Make safe the area if possible and ensure that there no identifiable risk exists with regard to dealing with the situation e.g. if a machine has turned over, ensure that it is in a safe position so as not to endanger others before assisting the injured.
- Contact the required emergency services or delegate the task to someone if he is unable to do so. If delegating the task, ensure that they follow the procedures for contacting the emergency services as set out in Section 5.2.1.
- Take any further steps that are deemed necessary to make safe or contain the emergency incident e.g. cordon off an area where an incident associated with electrical issues has occurred.
- Contact any regulatory body or service provider as required e.g. ESB Networks the numbers for which as provided in Section 5.2.2.
- Contact the next of kin of any injured personnel where appropriate. The procedure for this is outlined in Section 5.2.1.

5.1.4 Site Evacuation/Fire Drill

A site evacuation/fire drill procedure will provide basis for carrying out the immediate evacuation of all site personnel in the event of an emergency. The following steps will be taken:

- Notification of the emergency situation. Provision of a siren or foghorn to notify all personnel of an emergency situation.
- An assembly point will be designated in the construction compound area and will be marked with a sign. All site personnel will assemble at this point.
- A roll call will be carried out by the Site Security Officer to account for all personnel on site.
- The Site Security Officer will inform the Site Manager when all personnel have been accounted for. At this time the Site Manager will decide the next course of action which will be determined by the situation that exists at that time. The Site Manager will advise all personnel accordingly.

All personnel will be made aware of the evacuation procedure during site induction. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specified intervals and the keeping of records of such drills.

5.1.5 Environmental Emergency Response Procedure

5.1.5.1 Spill Control Measures

It is not proposed to store any large volumes of oils/fuels for the purpose of refuelling on the site. A bunded fuel tank will be stored at the temporary construction compound which will be used for smaller plant and equipment i.e. site dumpers and teleporters. This will be stored on an impermeable surface and will be equipped with a spill kit. Onsite plant (excavator) will be refuelled by an external contractor who will call to site as required. Road vehicles will not be refuelled at the site.

Every effort will be made to prevent an environmental incident during the construction and operational phase of the proposed project. Oil/Fuel spillages are one of the main environmental risks that will exist on the proposed site which will require an emergency response procedure. The importance of a swift

and effective response in the event of such an incident occurring cannot be over emphasised. The following steps provide the procedure to be followed in the event of such an incident.

- Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident
- Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill.
- If possible, cover or bund off any vulnerable areas where appropriate such as drains or sensitive habitats.
- If possible, clean up as much as possible using the spill control materials.
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited.
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action.
- The Environmental Manager will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring.
- The Construction Manager will notify the appropriate regulatory body such as GCC and EPA etc. if deemed necessary.

Environmental Incidents are not limited to just fuel spillages. Therefore, any environmental incident must be investigated in accordance with the following steps.

- The Environmental Manager must be immediately notified.
- If necessary, the Environmental Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- The details of the incident will be recorded on an Environmental Incident Form which will provide information such as the cause, extent, actions and remedial measures that were used following the incident. The form will also include any recommendations made to avoid reoccurrence of the incident.
- If the incident has impacted on an ecologically sensitive receptor, such as a sensitive habitat, protected species or designated conservation site, (SPA or SAC), the Environmental Manager will liaise with an Ecologist.
- If the incident has impacted on a sensitive receptor such as an archaeological feature the Environmental Manager will liaise with the Project Archaeologist.
- A record of all environmental incidents will be kept on file by the Environmental Manager and the Main Contractor. These records will be made available to the relevant authorities such as GCC and the EPA if required.

The Environmental Manager will be responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Main Contractor as appropriate.

5.2 Contacting the Emergency Services

5.2.1 Emergency Communications Procedure

In the event of requiring the assistance of the emergency services the following steps should be taken:

- **Stay calm.** It is important to take a deep breath and not get excited. Any situation that requires 999/112 is, by definition, an emergency. The dispatcher or call-taker knows that and will try to move things along quickly, but under control.
- **Know the location of the emergency and the number you are calling from.** This may be asked and answered a couple of times but do not get frustrated. Even though many emergencies call centres have enhanced capabilities meaning they are able to see your location on the computer screen they are still required to confirm the information. If for some reason you are disconnected, at least emergency crews will know where to go and how to call you back.
- **Wait for the call-taker to ask questions, then answer clearly and calmly.** If you are in danger of assault, the dispatcher or call-taker will still need you to answer quietly, mostly "yes" and "no" questions.
- **If you reach a recording, listen to what it says.** If the recording says your call cannot be completed, hang up and try again. If the recording says all call takers are busy, **WAIT**. When the next call-taker or dispatcher is available to take the call, it will transfer you.
- **Let the call-taker guide the conversation.** He or she is typing the information into a computer and may seem to be taking forever. There is a good chance, however, that emergency services are already being sent while you are still on the line.
- **Follow all directions.** In some cases, the call-taker will give you directions. Listen carefully, follow each step exactly, and ask for clarification if you do not understand.
- **Keep your eyes open.** You may be asked to describe victims, suspects, vehicles, or other parts of the scene.
- **Do not hang up the call** until directed to do so by the call taker.

All staff members will know the address and location of the site as it may be necessary to liaise with the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services.

5.2.2 Contact Details

A list of emergency contacts is presented in Table 5-2. A copy of these contacts will be included in the Site Safety Manual and in the site offices and the various site welfare facilities.

Table 5-2 Emergency Contacts

Contact	Telephone no.
Emergency Services – Ambulance, Fire, Gardaí	999/112
Doctor – Knocknacarra Medical Centre	091 862 220
Hospital –Galway University Hospital	091 524 222
ESB Emergency Services	1850 372 999
Gas Networks Ireland	1850 20 50 50
Gardaí – Mill Street Garda Station	091 538 00
Health and Safety Coordinator - Health & Safety Services	TBC
Health and Safety Authority	1890 289 389
Project Supervisor Construction Stage (PSCS): TBC	TBC

Contact	Telephone no.
Client –Kingston Stables Ltd	TBC

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5.2.3 Procedure for Personnel Tracking

All operatives on site without any exception will have to undergo a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.

In the event of a site operative becoming involved in an emergency situation where serious injury has occurred, and hospitalisation has taken place, it will be the responsibility of the Site Manager or next in command if unavailable to contact the next of kin to inform them of the situation that exists.

5.2.4 Induction Checklist

Table 5-3 provides a list of items highlighted in this ERP which must be included or obtained during the mandatory site induction of all personnel that will work on the site. This will be updated throughout the various stages of the project.

Table 5-3 Emergency Response Plan Items Applicable to the Site Induction process

ERP Items to be included in Site Induction	Status
All personnel will be made aware of the evacuation procedure during site induction.	
Due to the location of the site it may be necessary to liaise with and assist the emergency services on the ground in terms of locating the site. This may involve providing an escort from a designated meeting point that may be located more easily by the emergency services. This should form part of the site induction to make new personnel and sub-contractors aware of any such arrangement or requirement if applicable.	
All operatives on site without any exception will have undergo a site induction where they will be required to provide personal contact details which will include contact information for the next of kin.	

6.

MITIGATION PROPOSALS

The Mitigation Measures which will be implemented during the construction phase of the Proposed Development are presented in this section of the CEMP and set out in various sections of the EIAR and NIS prepared as part of the planning application to GCC. The CEMP will be finalised subsequent to any permission granted by GCC and will be updated prior to construction to include, inter alia, any additional requirements pursuant to relevant planning conditions imposed.

By presenting the mitigation proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the project.

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Table 6-1 Mitigation Measures

Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase				
MM1	CEMP Section 1	All measures identified in the EIAR, Natura Impact Statement (NIS) and this Construction Environmental Management Plan, which will be finalised subsequent to any permission granted and updated prior to construction will include all mitigation measures identified to be adhered to during the pre-commencement and construction phases of the proposed development.		
MM2	CEMP Section 4.1	The main contractor will be required to engage a Construction Manager that will also fulfil the role of Environmental Manager (EM), and to monitor all site works and to ensure that methodologies and mitigation are followed throughout construction to avoid negatively impacting on the receiving environment.		
MM3	CEMP Section 2.3 EIAR Section 4	<p>Prior to the commencement of any construction, entrances to the Proposed Development site will need to be fully established with appropriate security gates. Access to the site will be via a road which connects to the Western Distributor Road to the north and also via the Kingston Road (R337) to the south.</p> <p>A site construction compound inclusive of a parking area for construction worker’s vehicles will be provided within the confines of the site. There will be no parking permitted for any vehicles associated with the Proposed Developments construction phase unless agreed with the local authority prior to works inception. A designated section of the site will be fenced off as the construction compound.</p>		
MM4	CEMP Section 2.3	<ul style="list-style-type: none"> ➤ A site-specific Health and Safety Plan will be in place for the proposed site. All site staff will be made aware of and adhere to the Health and Safety Plan. ➤ Operate a Site Induction Process for all site staff, 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
	EIAR Section 5	<ul style="list-style-type: none"> ➤ Ensure all site staff will have current Construction Skills Certification Scheme (CSCS) training or ‘Safe Pass’ cards, ➤ Site hoarding will include Health and Safety warnings at appropriate intervals. ➤ Fire extinguishers and first aid supplies to be available in the work area. ➤ All adjacent roadways will be maintained in clean condition at all times. ➤ Appropriate Personal Protective Equipment (PPE) to be worn at all times. ➤ Biometric turnstiles will be used at the site to prevent unauthorised access to the site. 		
MM5	CEMP Section 3 EIAR Section 15	A Traffic Management Plan (TMP) for the construction stage will be developed and agreed with GCC prior to the commencement of works.		
MM6	CEMP Section 3 EIAR Section 6	<p>A pre-commencement survey is recommended on each of the structures to assess the buildings prior to any works. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the survey in 2023 and 2024.</p> <p>3 trees identified as PRF-I are proposed for removal. While no roosting bats were recorded within any of the trees identified as PRF-Is, given the transient nature of tree roosts and in recognition of the fact that bats are a mobile species, a pre-commencement survey, at the appropriate time of year, will be undertaken on trees to be felled/pruned with suitable potential roost features, by a qualified ecologist to ensure there are no roosting bats. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the surveys in 2024. If a bat roost is identified within any of the trees to be removed/pruned, a bat derogation licence will be obtained from the NPWS, prior to felling and the felling activity will be supervised by a qualified ecologist.</p>		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
Construction Phase				
Fuel and Oil Control				
MM7	CEMP Section 3 NIS Section 6.2 EIAR Section 4, 7 & 8	<ul style="list-style-type: none"> ➤ Minimal refuelling or maintenance of construction vehicles or plant will take place on site. Where possible, off-site refuelling will occur at a controlled fuelling station; ➤ On-site re-fuelling will be undertaken using a double skinned bowser or a refuelling truck with spill kits kept onboard; ➤ All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refuelling and servicing of construction machinery will take place in a designated hardstand area which is also remote from any drainage systems. A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available and construction staff will be familiar with the emergency procedures and use of the equipment; ➤ A temporary drainage system shall be installed prior to the commencement of the construction works; ➤ All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors' ➤ All plant and machinery will be serviced before being mobilised to site; ➤ No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed; ➤ Concrete batching will take place off site, wash down and wash out of concrete trucks will take place off site and any excess concrete is not to be disposed of on site. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings are not to be discharged into surface water drains/sewers; ➤ Discharge from any vehicle wheel wash areas is to be directed to on-site settlement tanks/ponds, debris and sediment captured by vehicle wheel washes are to be disposed off-site at a licensed facility; 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> Foul drainage discharge from the construction compound will be transported off site to a licensed facility until a connection to the public foul drainage network has been established. 		
MM8	CEMP Section 4 NIS Section 6.2 EIAR Section 7 & 8	<ul style="list-style-type: none"> Stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers. If applicable, eliminate any sources of ignition in the immediate vicinity of the incident Contain the spill using the spill control materials, track mats or other material as required. Do not spread or flush away the spill. If possible, cover or bund off any vulnerable areas where appropriate such as drains or sensitive habitats. If possible, clean up as much as possible using the spill control materials. Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited. Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action. The Environmental Manager will inspect the site and will assist by providing any advice possible to ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring. The Construction Manager will notify the appropriate regulatory body such as GCC and EPA etc. if deemed necessary. 		
Prevention Pollution Control Measures				
MM9	CEMP Section 3 NIS Section 6.2	<ul style="list-style-type: none"> There are no watercourses on site and surface water will not be directly discharged into any external water bodies, surrounding land, or adjacent roadways. Any run-off generated on-site will undergo the necessary filtration process as previously outlined in Section 3-1. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
	<p>EIAR Section 4, 7 & 8</p>	<ul style="list-style-type: none"> ➤ The works will be managed to ensure there will be no silt-laden run-off beyond the site boundary. This will be achieved through the use of appropriate excavation techniques during the initial construction works. Where necessary, silt fencing will be installed downslope of the construction areas, particularly where drains or drainage pathways are present. These measures will serve as a protective measure to contain silt material within the site. ➤ Any requirement for temporary fills or stockpiles will be damped down or covered with polyethylene sheeting as required to avoid sediment release associated with heavy rainfall. ➤ Excavations will be carried out using a suitably sized excavator and, in all circumstances, excavation depths and volumes will be minimised where practically possible. ➤ Excavated spoil will be stockpiled and contained entirely within the confines of the site boundaries. Any stockpile areas will be surrounded with silt fencing, if deemed necessary to prevent runoff. ➤ The minimum number of soil/subsoils and bedrock material should be removed from site. Soil may be reused for landscaping elsewhere on the site. However, any excess construction material shall be removed from the area and sent to an authorized waste recovery facility. ➤ Works shall not take place at periods of high rainfall and shall be scaled back if or suspended if heavy rain is forecast during excavation works. ➤ High rainfall' is defined as follows: <ul style="list-style-type: none"> ➤ >10 mm/hr (i.e. high intensity local rainfall events); ➤ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); ➤ In the event of encountering groundwaters during excavation, groundwater will be pumped out of the excavation using a pump equipped with a silt bag on the discharge pipe, if necessary, to capture any silty material prior to subsequent natural percolation to ground. The area surrounding the silt bag will be surrounded by silt fencing if deemed necessary. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> ➤ No wastewater will be discharged on-site during the construction phase. Toilet facilities will be provided in a prefabricated sanitary unit which will be placed in the construction compound. This unit will have an enclosed wastewater holding tank which will be fitted with a fill level alarm and will be emptied on an as needed basis by the appropriately licensed contractor. ➤ Good construction practices will be implemented at the site. This will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites, as outlined in <i>Control of Water Pollution from Construction Sites, guidance for consultants and contractors</i> (CIRIA, 2001). This guidance will be adhered to throughout the construction phase to ensure that surface water generated on site contains minimum sediment. ➤ Adjacent drainage systems/groundwater need to be protected from sedimentation and erosion due to direct surface water runoff generated onsite during the construction phase. To prevent this from occurring surface water discharge from site will be managed and controlled within the site boundary for the duration of the construction works until the permanent surface water drainage system of the proposed site is complete. There will be no temporary construction phase uncontrolled discharges to surface water from the site. ➤ A temporary drainage system shall be installed, comprising sump areas which will allow existing runoff regimes to be maintained, prior to the commencement of the construction works to collect surface water runoff from the site during construction. ➤ As construction advances there may be a requirement to collect and treat surface water within the site. This will be completed using perimeter swales at low points around the construction areas, and if required water will be pumped from the swales into sediment bags prior to overland discharge allowing water to percolate naturally to ground. ➤ Any proposed discharge area will avoid potential surface water ponding areas, and will only be located where suitable subsoils are present; ➤ All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> ➤ All stockpiles will be damped down or covered in a sheet of polythene, as required, which will prevent the creation of nuisance dust, and will also prevent sediment runoff in times of heavy precipitation. Silt fencing will be installed around these stockpiles, if required. ➤ Material stockpiles will be kept at least 10m from any manholes. ➤ Preventative measures during construction have been incorporated into the Construction and Environmental Management Plan (CEMP), which will be updated upon grant of permission and to provide any additional measures required pursuant to planning conditions and agreements with the planning authority. ➤ Self-contained port-a-loo toilets within portacabins with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works; and, ➤ No wastewater will be discharged on-site during either the construction or operational phase. 		
Air Quality and Dust Control				
MM10	CEMP 3 NIS Section 6.2 EIAR Section 4 & 9	<ul style="list-style-type: none"> ➤ Any site roads with the potential to give rise to dust will be regularly watered, as required, during dry and/or windy conditions ➤ The designated public roads outside the site and along the main transport routes to the site will be regularly inspected by Site Management for cleanliness, and cleaned as necessary ➤ Material handling systems and material storage areas will be designed and laid out to minimise exposure to wind ➤ Water misting or bowsers will operate on-site as required to mitigate dust in dry weather conditions ➤ The transport of soils or other material, which has significant potential to generate dust, will be undertaken in tarpaulin-covered vehicles where necessary ➤ All vehicles leaving the construction areas of the site will rinse their wheels at a designated wheel wash area prior to entering the local road network. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> ➤ All construction related traffic will have speed restrictions on un-surfaced roads to 15 kph ➤ Daily inspection of construction sites to examine dust measures and their effectiveness. ➤ If deemed necessary, sections of the approach road will be swept using a truck mounted vacuum sweeper. ➤ All vehicles to switch off engines when not in use; ➤ No idling vehicles; ➤ On-road vehicles to comply to set emission standards; ➤ All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust system and to be regularly serviced; ➤ Haul routes to be hard surfaced and cleaned and appropriate speed limits applied around the site; ➤ The methods of working will comply with all relevant legislation and best practice guidelines in reducing the environmental effects of the works. 		
Noise				
MM11	CEMP 3 EIAR Section 4 & 11	<ul style="list-style-type: none"> ➤ Construction operations will in general be confined to the periods Monday-Friday 0800-1800 h and Saturday 0900-1300 h. ➤ Hooting will be prohibited onsite. Drivers of plant and vehicles will be instructed to avoiding hooting at all times. ➤ Plant used onsite during the construction phase will be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers will be fitted and operating correctly at all times. Defective silencers will be immediately replaced. ➤ Queuing of trucks on public roads will be prohibited. ➤ Machinery not in active use will be shut down. ➤ A site representative will be appointed as a liaison officer with the local community. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> ➤ Any complaints of noise received during the construction phase will be logged in a register, and investigated immediately. Details of follow-up action will be included in the register. ➤ Where it is proposed to import potentially noisy plant to the site, the potential impact of noise emissions will be assessed in advance. ➤ Guidance set out in BS 5228-1:2009 with respect to noise control will be applied throughout the construction phase. ➤ Advance notification will be given to residents immediately outside the site boundary when works are proposed within 50m of their dwellings. 		
Traffic Management				
MM12	CEMP Section 3 EIAR Section 4 & 15	<ul style="list-style-type: none"> ➤ A detailed haulage plan will be put in place to ensure minimal impact on the surrounding road network. Spoil removal from site will be kept to a minimum with a detailed site survey completed to ascertain where spoil can be distributed on the site. ➤ All deliveries and removals will be subject to stringent site rules governing the loading / off-loading times, location of loading / off loading, covering of loads and cleaning of vehicles exiting the site, etc. ➤ Delivery loads to and from the site and management of large deliveries on site to occur outside of peak periods. ➤ No vehicle will be allowed to stop or park on the access road to the proposed development site. ➤ Ample parking will be provided within the site to cater for the staff and visitors during the construction phases of the proposed development. ➤ Construction traffic will be managed and scheduled to ensure no queueing occurs on either the internal road system or the main approach roads. The provision of an on-site vehicle staging area will facilitate waiting vehicles. ➤ Routine sweeping/cleaning of the road and footpaths in front of the site; and ➤ No uncontrolled runoff to the public road from dewatering/pumping carried out during construction activity. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
Waste Management				
MM13	CEMP Section 3.10 EIAR Section 4	<p>Construction waste will arise on the project mainly from excavation and unavoidable construction waste including material surpluses and damaged materials and packaging waste.</p> <p>Appropriate measures will be taken to ensure excess waste is not generated during construction, including;</p> <ul style="list-style-type: none"> ➤ Ordering of materials will be on an ‘as needed’ basis to prevent over supply to site. ➤ Purchase of materials pre-cut to length to avoid excess scrap waste generated on-site. ➤ Require suppliers to use least amount of packaging possible on materials delivered to the site. ➤ Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal. ➤ Ensuring correct sequencing of operations. ➤ Use reclaimed materials in the construction works. <p>Hazardous waste will be kept separate from all other construction waste to prevent contamination and removed appropriately. In addition to fuel as outlined above, the potentially hazardous wastes that may be generated at the site during the construction include;</p> <ul style="list-style-type: none"> ➤ Paints including all associated by products. ➤ Glues and solvents. ➤ Asphalt materials from roofing products and external paving finishes. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
Invasive Species Management				
MM14	CEMP Section 3.9 NIS Appendix 4 EIAR Section 6	<p>Three Cornered Leek</p> <p>The following management is proposed in relation to Three-cornered Leek:</p> <ul style="list-style-type: none"> ➤ An ecologist will be on site to supervise the treatment. ➤ The infested area will be marked out with posts and hazard tape prior to any machinery ingress or works within or near this area. ➤ Chemical treatment is the chosen treatment method. It is advised to treat the plant <i>in-situ</i> and avoid disturbance and the increased risk for spread and dispersal. ➤ This plant can be treated with a Glyphosate based chemical herbicide on an annual basis. It is recommended that a Glyphosate-based herbicide will be applied as a spot treatment to individual plants, or by foliar and stem spray in early spring before the plant flowers which typically happens between April and June. It is best to manually break the leaves prior to applying the chemical to ensure it enters the leaf. Follow-up annual treatments are necessary as large numbers of shoots may re-appear the following year as may new seedlings. ➤ The timing of the treatment applied is vital for the eradication of three-cornered leek. The control methods must be implemented in March or April when the leaves of the three-cornered leek are fully formed. Control methods should not be carried out if plants have finished flowering and produced seed (from the outset of May) as the movement of plants at this stage in the plant's cycle can cause a further spread of the invasive species. ➤ Three-cornered leek produces vast amounts of seeds annually and these seeds can persist and remain dormant in the soil for years before germinating. Due to this, a monitoring programme will be established to eradicate the invasive plant where the plants currently exist onsite. Therefore, it is key to undertake the control and treatment measures for a consecutive number of years to eradicate the seed bank and bulbs. The 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<p>area will need to be surveyed by an ecologist in March/April, May and again in September for the presence of Three-cornered leek for a minimum of 3 years after the treatment to ensure no further spread is taking place.</p> <p>Sea Buckthorn</p> <p>Mechanical/ physical removal of Sea buckthorn controls the spread of the invasive species by either damaging or removing the plant material via physical action, i.e., uprooting, felling, slashing, mowing, grubbing etc. Juvenile Sea buckthorn saplings were recorded within the site. It is anticipated that the construction phase will span 2 years and as such it is likely to mature with time, in the absence of control measures being implemented.</p> <p>The recommended treatment methodology for Sea buckthorn includes;</p> <ul style="list-style-type: none"> ➤ Any juvenile new shoots of Sea buckthorn will be removed by hand pulling or manual removal using hand tools. The plant will be physically cut and dug up from the root either by hand or using an excavator to grub up the plant. ➤ Larger stumps will be cut and the stumps painted with Glyphosate herbicide. ➤ Following clearance of woody material, any necessary excavation of the ground will be undertaken. As sea-buckthorn can readily regenerate from root and rhizomatous material present in soil, any soil arising from areas infested with sea-buckthorn must be contained and disposed of appropriately. ➤ The vegetation material can be disposed of by burning or incineration. ➤ If for any reason, burning of plant material is not feasible on-site this material and the soil potentially contaminated within root or rhizome fragments must be gathered and disposed of off-site, to a waste disposal facility that has a pollution prevention and control permit or waste management licence. In order to move material potentially contaminated with Third or First Schedule invasive plant species, a licence is required to be obtained from NPWS. The conditions of the permit or licence of the waste disposal facility must allow the disposal of invasive plants at the site. Delivery should be 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		agreed with the waste site in advance to make sure they can accept material containing invasive plants. When transporting invasive plant material and soil potentially contaminated with invasive plant material, any vehicle used must be covered or securely sheeted so that plant material cannot be accidentally dispersed during transportation.		
MM15	CEMP Section 2.3 EIAR Section 6 Landscape Design Report	<p>The Landscape Design Report and Chapter 6 of the EIAR outlines a number of biodiversity friendly measures which are as follows:</p> <ul style="list-style-type: none"> ➤ The use of native species will generally be preferred. However, a complimentary element of non-native species will also be used, where appropriate to achieve particular aims or requirements. ➤ The planting of predominantly pollinator friendly shrub and herbaceous species will integrate the scheme in line with the ‘All Ireland Pollinator Plan’. ➤ Significant additional native tree planting mitigates necessary removals and ultimately will significantly increase the sites tree and vegetation cover overtime. ➤ Proposed tree planting includes a selection of native and naturalised trees such as alder, beech, birch, cherry, oak, pine, rowan, sycamore and whitebeam. The use of such trees will provide vertical scale and structure to the landscape over time, as well as ecological benefits. ➤ Approximately 238 linear metres of clipped beech hedgerow will be provided. Although the proposed beech hedgerows are likely to be of lower ecological value to the existing native hedgerows on site, they will result in a net gain in terms of hedgerow habitat post-construction. ➤ Whilst the proposed landscaping does not provide replacement treelines to offset the loss of those currently on site, it does provide for the planting of approximately 1,310m² of woodland understorey, comprised of native species (hazel, holly, spindle and guelder-rose), in addition to 202 parkland, open space and feature trees and 389 street trees which will be comprise of native and non-native species. Therefore, it is likely that 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<p>the Proposed Development will result in a net gain in terms of overall number of trees within the site.</p> <ul style="list-style-type: none"> ➤ Approximately 784m² of wildflower meadow of Irish provenance, sourced from Design By Nature, or equivalent, will be created. A low frequency mowing regime in these areas will reduce the overall volume maintenance in the scheme and contribute to a reduction of carbon footprint. ➤ The proposed landscape plan aims to create a number of linear green corridors suitable for bat feeding. 		
Operational Phase				
MM16	<p>EIAR Section 4</p> <p>EIAR Section 6</p> <p>CEMP Section 2</p>	<p>Any underground services encountered during the works will be surveyed for level and where possible will be left in place. If there is a requirement to move the service, then the appropriate body (ESB, Gas Networks Ireland, etc.) will be contacted, and the appropriate procedure put in place. Back fill around any utility services will be with dead sand/pea shingle where appropriate. All works will be in compliance with required specifications.</p> <p>It is proposed to direct wastewater generated from the Proposed Development to an existing Uisce Eireann owned 225mm foul sewer line located west of the site, along the southern arm junction off the adjacent roundabout and Altan Road. The 225mm foul sewer outfalls to an existing Uisce Eireann 375mm foul network.</p> <p>The foul sewer network has been designed using Causeway Flow drainage modelling software. All gravity pipes will be thermoplastic structured wall pipes, with diameters ranging from 150mm to 225mm. Gradients will vary between 1/21 and 1/200, and flow velocities will remain within the required range of 0.75 to 2.5 m/s, in accordance with Uisce Éireann standards. A pre-connection application was submitted to Uisce Eireann for the wastewater demand from the Proposed Development, and a Confirmation of Feasibility (CoF) statement has been received.</p>		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<p>As outlined in the accompanying Civil Design Report 9Appendix 4-4 of the EIAR) which has been prepared by Tobins Consulting Engineers, the proposed Storm water drainage infrastructure incorporates the philosophies of nature-based Sustainable Drainage Systems (SuDS) to manage surface water runoff quantity and quality.</p> <p>Water will be provided to the Proposed Development via a new connection to a nearby Uisce Eireann owned 315mm watermain which runs along the Kingston Road.</p> <p>The installation of services and connections to the residential units will be carried out as follows:</p> <ul style="list-style-type: none"> ➤ The area where excavations are planned will be surveyed and all existing services will be identified. ➤ All relevant bodies (i.e., ESB, Gas Networks Ireland, Eir, GCC etc.) will be contacted and all drawings for all existing services sought. ➤ A traffic management plan will be produced if required for connection works to the existing service network. ➤ A road opening licence will be obtained where required for connection to existing services. ➤ All plant operators and general operatives will be inducted and informed as to the location of any services. ➤ A tracked 360-degree excavator or similar will be used to excavate the trench to the required dimensions. ➤ All excavated material will be removed to an authorised waste recovery facility or, if suitable, stockpiled and reused for backfilling and landscaping where appropriate. ➤ Once the trench has been excavated the ducting/pipework will then be placed in the trench as per specification. ➤ Once the service ducts/pipework has been installed couplers will be fitted as required and capped to prevent any dirt etc. entering the ducts/pipes. 		

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Mitigation Measure	Reference	Mitigation Measure	Audit Result	Action Required
		<ul style="list-style-type: none"> ➤ The as built location of the ducting/pipework will be surveyed using a total station/GPS. ➤ Backfill material will be carefully placed so as not to displace the ducting/pipework within the trench. ➤ The appropriate warning/marker tape will be installed above the ducts/pipes at the appropriate depths. ➤ The surface will be reinstated as per original specification or to the requirements of the site layout/Local Authority as appropriate. 		

7. MONITORING PROPOSALS

All monitoring proposals relating to the construction phases of the Proposed Development are set out in various sections of the EIAR and NIS prepared as part of the planning application to GCC.

This section of the Construction and Environment Management Plan groups together all of the monitoring proposals presented in the EIAR. The monitoring proposals are presented in the following pages. The monitoring proposals are also outlined within Chapter 17: Schedule of Mitigation and Monitoring Measures.

By presenting the monitoring proposals in the below format, it is intended to provide an easy to audit list that can be reviewed and reported on during the future phases of the Proposed Development. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

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Table 7-1 Monitoring Measures

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	General Construction Measures	EIAR Section 4 CEMP Section 4	<p>The main contractor appointed to carry out the works on site will be required to provide a level of supervision on site in the form of an Environmental Manager. Responsibilities will include:</p> <ul style="list-style-type: none"> ➤ Undertake inspections and reviews to ensure the works are carried out in compliance with the CEMP. ➤ Monitor the implementation of the CEMP, particularly all proposed/required Environmental Monitoring. ➤ Identify environmental training requirements and arrange relevant training for all levels of site-based staff/workers. 	On going	Monthly	Site Contractor/Environmental Manager
MX2	Biodiversity	EIAR Section 6 CEMP Section 3	<p>Monitoring</p> <p>Evidence should be provided of how the mitigation measures will be monitored, and, should mitigation failure be identified, how that failure will be rectified. The applicant should not use any proposed post construction monitoring as mitigation to supplement inadequate information in the assessment.</p>	Once	As required	Environmental Manager
MX3	Archaeological Monitoring	EIAR Section 12	<p>As detailed in Section 12.3.2 of the EIAR, the northern area of the Proposed Development site has been subject to significant modern ground disturbance while the southern end remains as a largely undisturbed area of green field pastureland containing areas of bedrock outcrops and waterlogging. The lands have been assessed by a geophysical specialist (Dr. Ger Dowling) and were considered to be unsuitable for an archaeo-geophysical survey due to the presence of areas of prior ground disturbance, undulating terrain with bedrock</p>	Once	As Required	Project Archaeologist

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Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			<p>outcrops, waterlogged conditions and the presence of overhead electricity cables. A programme of archaeological test trenching, under licence by the National Monuments Service, will therefore be carried within the Proposed Development site in advance of the construction phase. This archaeological investigation will also include the compilation of a written and photographic record of the existing field boundaries within the Proposed Development site. In the event that any sub-surface archaeological deposits, features or objects are identified during test trenching, their locations will be recorded and securely cordoned off while the National Monuments Service are notified of the discovery and consulted to determine further mitigation measures, which may entail preservation <i>in situ</i> by avoidance or preservation by record through a systematic archaeological excavation.</p>			
Construction Phase						
MX4	Air Quality and Dust Control	CEMP Section 3 EIAR Section 4 & 8	<p>It is also proposed to carry out dust monitoring at the site during the construction phase. Monitoring will be carried out quarterly using the Bergerhoff method. This monitoring will ensure that the mitigation measures outlined above are functional and being implemented.</p> <p>A complaints log will be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated. A sample Complaints Form is included in the CEMP.</p>	Quarterly	As Necessary	Environmental Manager
MX5	Plant and Equipment Inspections	CEMP Section 4 EIAR Section 4	<p>All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel.</p> <p>Fule and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage.</p>	As Required	Monthly	Environmental Manager



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Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
MX6	Traffic and Transport	CEMP Section 3 EIAR Section 4	The designated public roads outside the site and along the main transport routes to the site will be regularly inspected for cleanliness, and cleaned as necessary, including cleaning silt from road gullies	Daily	Monthly	Environmental Manager

8. PROGRAMME OF WORKS

8.1 Construction Programme

The construction of the Proposed Development will take approximately 36 months to complete. Each stage is typically broken down into several phases. An example of the programme of works is outlined in Table 8-1 below. The construction programme will be finalised on appointment of a contractor before commencement of the development.

Table 8-1 Phasing Scope of Works

Phase No.	Description	Scope of works
Phase 1	Site Setup	This occurs in month 1 to 6 and includes laying the matting or gravel for the site setup and machinery mobilisation.
Phase 2	Foundations	This occurs from months 6-12. It includes digging laying foundations and other preparatory works.
Phase 3	Building Structures	This occurs from months 12-24. It includes building the main structures within the site.
Phase 4	Internal Fit Out and Underground Cabling	This occurs from months 24-30. It includes the fitting out of the buildings and civils connections.
Phase 5	Close Out	This occurs in the last months of construction (months 30 to 36) and includes landscaping followed by machinery demobilisation and site disassembly.

9. COMPLIANCE AND REVIEW

9.1 Site Inspections and Environmental Audits

Routine inspections of activities will be carried out on a daily and weekly basis by the Site Environmental Manager/Construction Manager as appointed by the applicant to ensure all controls to prevent environmental impact, 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 this CEMP. Environmental site inspections will be carried out by suitably trained staff.

9.2 Environmental Compliance

The following definitions shall apply in relation to the classification of Environmental Occurrences during the infilling works:

Environmental Near Miss

An occurrence which if not controlled or due to its nature could lead to an Environmental Incident.

Environmental Incident

Any occurrence which has potential, due to its scale and nature, to migrate from source and have an environmental impact beyond the site boundary.

Environmental Non-Compliance

Non-fulfilment of a requirement and includes any deviations from established procedures, programs and other arrangements related to the CEMP.

9.3 Corrective Action Procedure

A corrective action is implemented to rectify an environmental issue on-site. Corrective actions will be implemented by the Construction Manager, as advised by the Site Environmental manager. Corrective actions may be required as a result of the following:

- > Environmental Audits
- > Environmental Inspections and Reviews
- > Environmental Incidents
- > Environmental Complaints

A Corrective Action Notice will be used to communicate the details of the action required to the main contractor. A Corrective Action Notice is a form that describes the cause and effect of an environmental problem on site and the recommended corrective action that is required. The Corrective Action Notice, when completed, will include details of close out and follow up actions.

If an environmental problem occurs on site that requires immediate attention direct communications between the Construction Manager and the Site Environmental manager will be conducted. This in turn will be passed down to the site staff involved. A Corrective Action Notice will be completed at a later date.

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APPENDIX 7

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**Kingston Stables Ltd.
Residential Development at
Kingston, Knocknacarra,
Galway.**

Civil Works Design Report

BUILT ON KNOWLEDGE

Document Control Sheet	
Document Reference	11893 - Civil Works Design Report
Client:	Kingston Stables Ltd.
Project Reference	11893

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Rev	Description	Author	Date	Reviewer	Date	Approval	Date
D01	First Issue	MN	22/05/2024	RB	24/05/2024	BH	24/05/2024
P01	Stage 2 Submission	MN	31/01/2025	RB	04/02/2025	RB	04/02/2025
P02	Issued for Planning	MN	30/05/2025	RB	12/06/2025	RB	12/06/2025
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- Appendix A** Foul Sewer Network Design and Longsections
- Appendix B** Storm Sewer Network Design and Longsections
- Appendix C** HR Wallingford Greenfield Runoff Rate Report
- Appendix D** Petrol Interceptor Brochure
- Appendix E** Uisce Eireann Correspondence (COF & SoDA)



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1. INTRODUCTION

TOBIN were appointed by Kingston Stables Ltd. to provide engineering consultancy services for a proposed Large Residential Development (LRD) at Kingston, Knocknacarra, Galway, off the Western Distributor Road in Knocknacarra. The site development description is as follows:

Planning permission is sought by Kingston Stables Ltd for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 5.37 ha on lands located at Knocknacarra, Galway.

The proposed development will consist of the following:

1. Provision of 362 no. residential units in 4 no. development areas with a mix of apartment and house types on a site area of 5.37 ha. The buildings range between 2 no. and 6 no. storeys in height. The development will comprise the following:
 - 4 no. 2-bed townhouses;
 - 40 no. 3-bed townhouses;
 - 21 no. 4-bed townhouses;
 - 15 no. 1-bedroom duplex apartments;
 - 46 no. 2-bedroom duplex apartments;
 - 15 no. 2-bedroom duplex houses;
 - 46 no. 3-bedroom duplex houses;
 - 114 no. 1-bedroom apartments;
 - 56 no. 2-bedroom apartments;
 - 5 no. 3-bedroom apartments.
2. Demolition of existing structures (333.8 sqm);
3. Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers);
4. The provision of new active travel cycle and pedestrian access from Millers Lane;
5. Upgrades to the existing access at Kingston Road
6. The provision of a childcare facility (440 sq.m.);
7. The provision of public open space;
8. The provision of 665 no. bicycle parking spaces;
9. The provision of 313 no. car parking spaces;
10. Public lighting, bin stores, signage, services, ESB substation, site landscaping and all ancillary site development and enabling works.

An Environmental Impact Assessment (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of the proposed development.

This report outlines the civil works planning submission for the proposed development, detailing the wastewater drainage, proposed surface water drainage, watermain design and connection details, roads design, and SuDS measures. The site location is presented in Figure 1 below, and the site layout is shown graphically in the design team drawings accompanying this application. This report should be read in conjunction with the foul and storm drainage, watermain, roads, and SuDS design drawings submitted as part of the planning application.

Figure 1 – Site Location (Microsoft Bing)



1.1 WASTEWATER DRAINAGE OVERVIEW

Wastewater generated from the proposed development will outfall to an existing Uisce Éireann (UE) owned 225mm foul sewer line located west of the development along the southern arm junction of the adjacent Western Distributor Road roundabout and Altan Road. The 225mm foul sewer outfalls to an existing Uisce Éireann 375mm foul network. It is envisaged that the 225mm sewer line will require upgrading to a 300mm sewer line to service the development as the number of units flowing through this network will exceed the maximum 330 units allowable for a 225mm pipe.

The foul sewer network has been designed using Causeway Flow drainage modelling software. All gravity pipes will be thermoplastic structured wall pipes, with diameters ranging from 150mm to 225mm. Gradients will vary between 1/21 and 1/200, and flow velocities will remain within the required range of 0.75 to 2.5 m/s, in accordance with Uisce Éireann standards. The proposed foul sewer network is presented graphically on engineering design drawings that accompany this report as separate documents.

A pre-connection application was submitted to Uisce Éireann for the wastewater demand from the proposed development, and a Confirmation of Feasibility (CoF) statement has been received.

All foul sewer designs were also submitted to Uisce Éireann for design vetting to obtain a Statement of Design Acceptance (SoDA) prior to the submission of the planning application. Both the CoF and SoDA are included in **Appendix E**.

Following the grant of planning permission, the final sewer designs will be submitted to Uisce Éireann for review and approval prior to the issuance of a connection offer.

1.2 SURFACE WATER DRAINAGE OVERVIEW

The storm water drainage infrastructure incorporates the philosophies of nature-based Sustainable Drainage Systems, (SuDS), to manage surface water runoff quantity and quality. However, in accordance with the CIRIA SuDS guidelines, exceedance measures have been provided in that seasonal under-performance or outright failure of surface SuDS features can be accommodated by a conventional drainage network design, and in the instance that any or all surface SuDS features are overwhelmed, exceedance flow is directed back into the piped network. The piped network has been sized to achieve controlled outflows without the presence of surface SuDS features, thereby providing an additional factor of safety to the stormwater management system.

Infiltration testing will be conducted on site as part of the detailed design stage to establish infiltration rates at various strategic locations for possible reduction of attenuation units and inclusion of soakaways and other SuDS measures in addition to those already proposed.

The proposed storm water drainage system has been designed to cater for all surface water runoff from all hard surfaces in the proposed development including roadways, roofs, parking areas, etc. All stormwater generated on site from roadways and roofs will discharge via an oil/petrol Interceptor to soakaways/attenuation units to remove possible hydrocarbons. The soakaway/attenuation units have been strategically situated within the site.

The maximum and minimum pipe sizes being between 450mm and 225mm respectively with the maximum and minimum stormwater pipe gradients between 1/50 and 1/450. All velocities at said gradients fall within the limits of 0.75m/sec and 3m/sec as set out in 'Recommendations for Site Development Works' as published by the Department of Environment.

Where there is adequate infiltration storm water will discharge to ground via soakaways (to be confirmed during detailed design), otherwise at a controlled Greenfield runoff rate to the existing 450mm storm sewer network located west of the development along the southern arm junction of the adjacent roundabout and Altan Road. It is stressed that the current design is not reliant on infiltration to ground (in anticipation of extensive bedrock across the site). However, as favourable infiltration test results are obtained, the conservative use of infiltration will be adopted into the design.

It is proposed to install by-pass separators prior to discharging to the proposed soakaways/attenuation units and existing storm sewer. The separators have been sized to cater for the impermeable areas, i.e., roads, car parking and footpath areas of the site to which they have been allocated.

The entire stormwater network, including the detention basin, have been designed to handle a 100-year storm event plus an additional 20% capacity to account for climate change.

1.3 WATERMAIN OVERVIEW

The watermain layout has been designed in accordance with Uisce Éireann Code of Practice for Watermain Infrastructure IW-CDS-5020-03.

In accordance with Local authority/Uisce Éireann standards, a water meter and Logging Device (Larson Type) are proposed at the entrance of the connection into the proposed site. A sluice valve, strainer and 150mm diameter by-pass arrangement are also proposed to allow for possible disconnection of water meters by the Local Authority/ Uisce Éireann.

A Pre-Connection Enquiry for the water demand from the proposed residential development was submitted to Uisce Éireann, and a subsequent Confirmation of Feasibility (CoF) statement has been received. All watermain designs were also submitted to Uisce Éireann for design vetting to obtain a Statement of Design Acceptance (SoDA) prior to the submission of the planning application. Both the CoF and SoDA are included in **Appendix E**.

Following the grant of planning permission, the final designs will be submitted to Uisce Éireann for review and approval, prior to the issuance of a connection offer.

1.4 ROADS OVERVIEW

Vehicular access is proposed from an existing roundabout on the Western Distributor Road, off the southern arm junction. Due to the large scale of the Masterplan development, upgrade works to the southern arm junction have been permitted by Galway City Council (Planning Reference 24/60370). Currently the junction services Altan, an existing residential development, and Knocknacarra National School. The permitted road layout, (Planning Reference 24/60370), amends the alignment of this road to have the access to the proposed development as the major road, with the school access being the minor road. Discussions have been held with Galway City Council to include arrangements to tie in with the Active Travel Scheme proposed for the area.

At the southern boundary of the site, pedestrian and cyclist access is proposed via an existing laneway off Kingston Road. This laneway will be upgraded in accordance with the *Design Manual for Urban Roads and Streets (DMURS)* and will feature a shared active travel facility for pedestrians and cyclists on the right-hand side upon entry to the development. This access route will extend northward, providing a continuous link through the scheme.

Additional pedestrian and cyclist connections are proposed throughout the development to enhance permeability and promote sustainable modes of transport. Notably, Millers Lane will be extended at the northeast corner of the site, introducing a 4-metre-wide shared pedestrian and cycleway. This route will traverse the entire development, ensuring connectivity to all key areas.

The proposed maximum speed limit within the development is to be 30km/h, with appropriate traffic control measures where suitable.

Proposed road widths throughout the development will vary from 4.8m for 'Homezone' areas, to 5.5m where footpaths are separated from the vehicle carriageway for pedestrian mobility. All internal roads have been designed in accordance with the requirements of DMURS and the Recommendations for Site Development Works for Housing Areas.

Autotrack vehicle swept path analysis have been completed for the proposed site layout for a Large Car, a Refuse Truck and a Fire Tender to ensure the vehicles can safely manoeuvre around the site.

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2. WASTEWATER DRAINAGE NETWORK DESIGN

2.1 INTRODUCTION

All wastewater generated from the proposed development will outfall, via gravity, to an existing Uisce Eireann (UE) owned 225mm foul sewer line located west of the development along the southern arm junction of the adjacent roundabout and Altan Road.

The 225mm foul sewer outfalls to an existing Uisce Eireann 375mm foul network. It is envisaged that the 225mm sewer line will require upgrading to a 300mm sewer line to service the development as the number of units flowing through this network will exceed the maximum 330 units allowable for a 225mm pipe.

The pipework for the wastewater drainage system has been designed to provide for six times the dry weather flow in accordance with the Uisce Eireann's Code of practice and standard details. The proposed foul sewer network has been designed using Causeway Flow modelling software. Modelling outputs and foul sewer long sections from the software are included in **Appendix A**. The existing foul line and proposed foul sewer network and connection is graphically represented on the engineering drainage drawings which accompany this document.

2.2 LOADING RATES

An average rate of 2.7 P.E. per dwelling has been taken for the development to account for the varying unit occupancies. The sewer network has been designed to cater for six times the dry weather flow rate. The occupancy per dwelling figures have been obtained from the Uisce Eireann Codes of Practice as per Wastewater Code of Practice, Appendix B – Gravity Sewer Design Requirements, section 2.2.1 Housing Density & Occupancy.

A flow of 150 litres per head per day plus an additional 10% allowance to account for infiltration within a new development have been considered in the foul sewer design as per Uisce Eireann Code of Practice for Wastewater Infrastructure - Section 3.6 Hydraulic Design for Gravity Sewers.

A pre-connection enquiry was submitted to Uisce Eireann for the wastewater demand of the development and subsequent confirmation of feasibility letter received confirms the existing network has sufficient capacity to cater for the proposed development - **Appendix E**.

2.3 WASTEWATER NETWORK DESIGN

The foul sewer drainage services have been designed to take account of the requirements of the Civil Engineering Specification for the Water Industry (CESWI), subject to the requirements applied to it by Uisce Eireann, as outlined in the Uisce Eireann Code of Practice for Wastewater Infrastructure. Other design guidelines adhered to include the Department of Environment 'Recommendations for Site Development Works for Housing Areas', 1998, and "Sewers for Adoption" published by WRC, UK.

It is proposed that all pipes will be thermoplastic structured wall pipes with the maximum and minimum pipe sizes being between 300mm and 150mm respectively. The maximum and minimum pipe gradients shall fall between 1/30 and 1/200. All velocities at said gradients will fall within the limits of 0.75m/sec and 3m/sec as set out in Uisce Eireann Code of Practice for



Wastewater Infrastructure and 'Recommendations for Site Development Works' as published by the Department of Environment.

The pipework for the drainage system has been designed to provide for six times the dry weather flow in accordance with the Recommendations for Site Development Works as published by the Department of the Environment and Local Government and to Uisce Éireann Code of Practice and Standard Details.

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3. SURFACE WATER DRAINAGE NETWORK DESIGN

3.1 INTRODUCTION

The surface water drainage design has been undertaken using Causeway Flow modelling software. The analysis considered both the 1-in-30-year and 1-in-100-year storm events, with an additional allowance of 10% and 20% respectively to account for the anticipated impacts of climate change. The design inputs, modelling results, and outputs from the Causeway Flow analysis are included in the appendices of this report. The proposed stormwater drainage networks are illustrated on the engineering drainage and SuDS layout drawings, which accompany this report as separate documents. The design also considers the wider site under the applicant's ownership, ensuring that any potential future development can be accommodated within the surface water management strategy.

Due to the topography and constraints of the site, the surface water drainage has been split into several networks and catchment areas. There is an existing Galway City Council 450mm surface water network located west of the proposed development. All surface water within development has been designed to flow via gravity and attenuate within the site boundaries. Strategically placed SuDS measures and attenuation tanks will attenuate the surface water prior to any outfall to the existing network at a controlled Greenfield run-off rate using hydrobrake manholes and/or orifices. High-level outfalls have been set at such levels below the lowest ground level on the network should the attenuation storage reach its full capacity to eliminate the risk of flooding in extreme weather events.

The amount of water discharged from the final hydro brake manhole before entering the existing stormwater network has been determined by using the calculated allowable Greenfield Runoff rate for the developable area of the site. The greenfield runoff rate was calculated for the developable area using the site location and the HR Wallingford Greenfield Runoff Tool online. Refer to **Appendix C** for the Greenfield Runoff estimation report for the site.

The surface water entering the network will include run-off from the roadways and parking areas throughout the site and therefore may require the removal of hydrocarbons. Prior to discharge to the existing network the surface water will flow through an oil/petrol interceptor, sized to cater for the catchment area it services, which will remove these hydrocarbons.

Where appropriate, storage units will be lined with a permeable geotextile membrane to allow the surface water to infiltrate through the perimeter and into the surrounding medium to leverage any infiltration capacity that exists in the surrounding soils. No reliance on infiltration is currently made, but infiltration testing will be assimilated into the design at detailed design stage.

A range of Sustainable Drainage Systems (SuDS) measures—including tree pits, infiltration trenches, swales, and rain gardens—have been strategically located across the development to manage surface water and achieve greenfield runoff rates. These features have been carefully coordinated with the landscape architect throughout the planning and design process to ensure integration with the overall site layout and landscape strategy. Where ground conditions permit, surface water will infiltrate naturally. To ensure resilience and safeguard against exceedance events, each SuDS element will incorporate a high-level outfall connected to the surface water drainage network. This approach aligns with best practice in sustainable urban



drainage and supports compliance with planning policy objectives for climate adaptation and water management.

Precast concrete gullies, including lockable cast iron grating and frame, and drainage kerbs will be provided where needed to collect run-off from road and parking areas to mitigate any flooding. The proposed surface water pipe diameters are between 225mm and 450mm and will be laid at gradients varying between 1/60 and 1/250.

All velocities within said gradients fall within the limits of 0.75 and 3m/sec as set out in 'Recommendations for Site Development Works' as published by the Department for the Environment.

The following parameters formed the basis of the design for all networks:

- A design return period of 1 year has been adopted for the sewer network in accordance with good design practice.
- The rainfall intensity is based on rainfall data received from Met Eireann at the coordinates of the site in question.
- Minimum self-cleansing velocity of 0.75m/s
- M5-60 = 15.400mm
- Ratio R = 0.254

In accordance with the requirements of Galway City Council, a Surface Water Management and SuDS audit has been carried out on the proposed design. The audit report has been submitted as a separate document as part of this planning application.

3.2 SUSTAINABLE URBAN DRAINAGE SYSTEMS

The existing site is currently a greenfield site with no existing surface water drainage or SuDS measures in place. To limit surface water runoff from the site, the surface water drainage for the proposed development has been designed in accordance with the principles of Sustainable Urban Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GSDSDS). The GSDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of the partly brownfield site.

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

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

In the case of the subject site, interception storage has been achieved by implementing SuDS measures and attenuation storage tanks. Growth factors have been applied to the allowable discharge for the 100-year event. This means that both treatment storage and long-term storage, neither of which would be practical on this site, are not required.

SuDS measures proposed would be a combination of water butts, (not reflected on the SuDS layout), tree pits, rain gardens, permeable paving (in-curtilage parking only), detention swales and drainage kerbs with infiltration trenches. These measures would seek to achieve interception storage as a minimum. Attenuation storage capacity has been calculated and



provided as though no interception storage were provided. Thereby is mitigated any seasonal performance of interception storage measures.

SuDS objectives relate to:

1. Water Quality
2. Water Quantity
3. Amenity
4. Biodiversity

3.2.1 Water Quality

Water quality is managed in the form of the proposed petrol interceptors and the inclusion of nature-based SuDS measures. Drainage kerbs with an infiltration trench, swale or rain garden combination allows for isolation of hydrocarbons for nature-based treatment within green zones adjacent to roads where appropriate. Hydrocarbon-tolerant planting mixes will be used in the SuDS measures adjacent to roads where water treatment will be required.

3.2.2 Water Quantity

The extensive usage of SuDS measures, (as mentioned above) plus additional attenuation structures achieve this requirement throughout the development. The main drainage system is also designed to achieve the required thresholds in the event of localized exceedance of SuDS measures, or seasonally sensitive capacity reductions, thereby ensuring the quantity of water is kept within the site and that greenfield run-off rates are maintained.

3.2.3 Amenity

A number of SuDS measures such as proposed rain gardens, tree pits and detention swales proposed in the landscape plan would meet this requirement. There is scope for further small-scale SuDS features to be developed during the detailed design stage towards the provision of further public amenity and will be considered as part of the landscape plan.

3.2.4 Biodiversity

The landscaping design addresses measures for biodiversity. The SuDS measures proposed support the landscaping measures as might be employed to meet the biodiversity goals of the development.

3.3 SOAKAWAY/ATTENUATION DESIGN

The attenuation units act as 'offline' storage for the surface water in the event of extreme storms when the network may surcharge. The storage areas are to be constructed as cellular units where there are spatial constraints requiring larger void ratios, or stone where applicable to decrease the void ratios. The required storage requirements have been designed using Causeway Flow. Infiltration properties of the existing ground are currently being determined through infiltration tests carried out throughout the site. The infiltration rates received will be added to the storage areas, where allowable, to reduce the footprints of each at detailed design stage.

The proposed cellular units will be constructed providing a minimum 95% porosity. They will be constructed on a clean stone base which will provide additional capacity. This additional



capacity has not been considered in the design of the units. The proposed stone attenuation beds will provide a minimum of 43% porosity and will be wrapped in a permeable or impermeable geotextile membrane, as is appropriate to their location.

Hydrobrake manholes have been installed at strategic locations to control the flow of surface water to allow the soakaway/attenuation areas fill to their capacity.

All storage areas will be sized to attenuate the water generated 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 Eireann.

Outputs, including the storage area information, from Causeway Flow modelling software form part of the appendices of this report and can be sourced in **Appendix B**. The proposed storage locations are shown in the engineering drainage and SuDS layout drawings.

3.4 OIL/PETROL INTERCEPTORS

It is proposed to install separators prior to the outfall to the existing surface water network and immediately downstream of any hydrobrake manholes. The surface water will include run-off from the roadways and parking areas therefore may contain hydrocarbons. The installation of the separators will allow for the removal of these pollutants and prevent them from being discharged to the environment. The locations of the separators are shown graphically on the engineering drainage and SuDS layout drawings.

An example of a Separator Product Brochure is presented in **Appendix D**. The separators are selected by capacity based on the catchment area for which they are catering. These separators will also trap sand and silt in surface water runoff prior to outfall allowing for easy removal of the debris. Debris build-up can cause reduction in the available void space and storage capacity of an attenuation unit. Therefore, a regular maintenance regime is necessary to maintain the efficiency of these separators.

3.5 SURFACE WATER MAINTENANCE

To ensure the long-term effectiveness of the surface water management strategy, all drainage infrastructure—including road gullies, silt traps, flow control devices, and attenuation systems—shall be subject to a routine inspection and maintenance programme. This programme will be carried out in accordance with the manufacturer's specifications and industry best practices. Regular maintenance will help prevent blockages, ensure optimal hydraulic performance, and reduce the risk of localised flooding. Records of inspections and maintenance activities should be kept and reviewed periodically to inform future asset management and ensure compliance with planning and environmental requirements.



4. WATERMAIN NETWORK DESIGN

The proposed watermain layout is presented in the engineering watermain layout drawings. The watermain layout has been designed in accordance with Uisce Éireann Code of Practice for Watermain Infrastructure IW-CDS-5020-03.

Hydrants, sluice valves, air valves and scour valves have been positioned within the site as shown on the layout drawings. All watermains are to be commissioned and pressure tested to Uisce Éireann standards. The typical construction details and the meter details are outlined in the engineering Standard Watermain Details drawing.

4.1 GENERAL WATERMAIN LAYOUT

There are currently 2 No. Uisce Éireann owned watermain networks near the proposed site boundary. A 315mm HDPE watermain runs along the Kingston Road at the southern boundary of the development and a 150mm watermain runs along the western boundary along the southern arm junction of the adjacent Western Distributor Road roundabout and Altan Road.

It is proposed to connect the watermain to supply the proposed development at the existing 315mm watermain on the Kingston Road as per Uisce Éireann confirmation of feasibility letter. The water supply will be via a 200mm 'arterial' watermain which will run through the development to cater for the demand. 150mm, where required, and a 100mm watermain will branch off this arterial watermain to service the housing blocks, apartments and cul-de-sacs.

In accordance with Local authority/Uisce Éireann standards, a water meter and Logging Device (Larson Type) are proposed at the entrance of the connection into the proposed site. A sluice valve, strainer and 150mm diameter by-pass arrangement are also proposed to allow for possible disconnection of water meters by the Local Authority/ Uisce Éireann.

A Pre-Connection Enquiry for the water demand from the proposed residential development was submitted to Uisce Éireann, and a Confirmation of Feasibility (CoF) statement has been received. All watermain designs have been submitted to Uisce Éireann for design vetting to obtain a Statement of Design Acceptance (SoDA). Both the CoF and SoDA are included in Appendix E.

4.2 FIRE FIGHTING FLOWS

To meet required fire flow requirements, it is proposed to install a static storage capacity within the site. This is being provided as Uisce Éireann will not guarantee available fire flow within the hydrants located on site. It is proposed to provide an underground storage tank capable of supplying 20-35l/s of flow for a 1-hour period. This equates to a minimum volume required for the site of 72,000 litres (72m³ of storage).

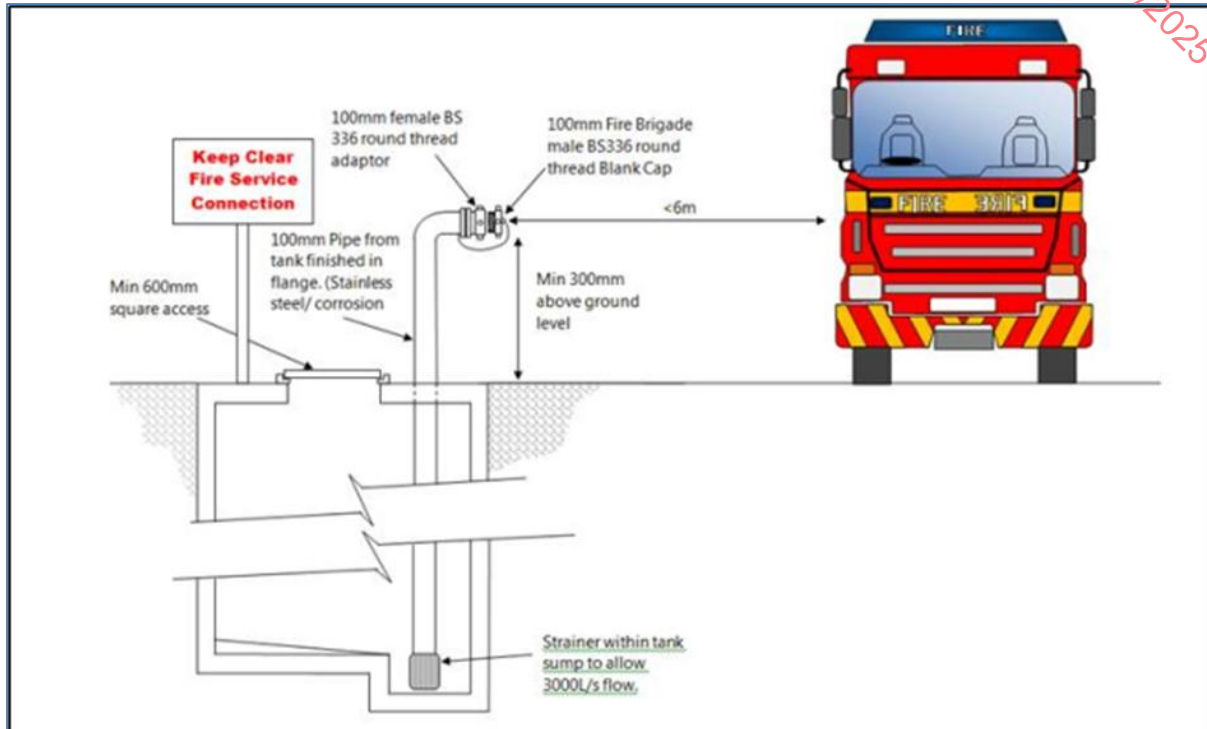
The flow range of 20-35l/s is derived from the 'National Guidance Document on the provisions of water for Firefighting – Water UK 3rd Edition'. The tank shall be located within a grassed area and easily accessible by fire tenders and tankers should they need access. A top up supply from the 150mm water main will be provided.

It is noted that in addition to the static storage tank, a significant volume of water will still be available from hydrants located throughout the development. Any specific requirements as requested by the local fire authority will be incorporated at the detail design stage.



The above is subject to Uisce Eireann network performance testing. Should Uisce Eireann confirm that 20-35l/s can be achieved within the network then the above tank maybe omitted at the discretion of the local Fire Dept allowing the development to be serviced by the hydrants solely. Any such omissions will be agreed with the Fire Officer of at construction stage.

Figure 2 Typical detail of a below ground static storage tank for firefighting.



5. ROADS LAYOUT

All internal roads have been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS), May 2019 and the Recommendations for Site Development Works for Housing Areas, 1998. Auto track vehicle swept path analysis has been completed for the proposed site layout for a Large Car, a Refuse Truck, and a Fire Tender to ensure the vehicles can safely manoeuvre around the site. The swept paths are shown on the engineering Auto tracking drawings that accompany this report as separate documents.

Vehicular access is proposed from an existing roundabout on the Western Distributor Road, off the southern arm junction. Due to the large scale of the Masterplan development, upgrade works to the southern arm junction have been permitted by Galway City Council (Planning Reference 24/60370). Currently the junction services Altan, an existing residential development, and Knocknacarra National School. The permitted road layout, (Planning Reference 24/60370), amends the alignment of this road to have the access to the proposed development as the major road, with the school access being the minor road. Discussions have been held with Galway City Council to include arrangements to tie in with the Active Travel Scheme proposed for the area.

At the southern boundary of the site, pedestrian and cyclist access is proposed via an existing laneway off Kingston Road. This laneway will be upgraded in accordance with the *Design Manual for Urban Roads and Streets (DMURS)* and will feature a shared active travel facility for pedestrians and cyclists on the right-hand side upon entry to the development. This access route will extend northward, providing a continuous link through the scheme.

Discussions have been held with Galway City Council regarding the proposed southern arm junction upgrade works and to include arrangements to tie in with the Active Travel Scheme proposed for the area. There are additional pedestrian and cyclist linkages proposed around the development which encourages permeability and promotes sustainable modes of transport.

It is proposed to extend Millers Lane in the northeast corner of the development bringing a 4m wide pedestrian and cycleway throughout the development with linkages to all surrounding areas.

The proposed maximum speed limit within the development is to be 30km/h, with appropriate traffic control measures where required. Road widths within the development are generally 5.5m wide and 4.8m wide where 'Homezone' areas are proposed. Footpaths are 2m wide in general and are delineated where they are needed in the 'Homezone' areas. Pedestrian paths have been provided throughout the site adjacent to the roads, behind parking where feasible and throughout the green open spaces.

Road levels for the site have been derived taking cognisance of the existing topography and ground conditions. Road build-up shall be in accordance with Galway City Council Taking In-Charge requirements and as per the engineering Typical Site Works Details drawing. The use of raised junctions/crossings and pedestrian crossing points along with strategically positioned drop kerbs and tactile paving will allow for full linkage for visually impaired and less-able pedestrians. Refer to the DMURS 2019 Statement of Consistency for further details on the road's layout. The 'Homezone' areas, shall be finished in a distinct surface material to differentiate them from vehicle priority roads. Roads will include a 1:40 camber from the centre of the road or a 1:40 crossfall from one side to the other and longitudinal gradients of road sections lie between 1:21 and 1:200 to ensure adequate surface water drainage is achieved.



Lockable gullies are located, at a minimum, every 200m² with local low points allowing for double gullies as per Recommendations for Site Development Works for Housing Areas to ensure surface water drainage will not be blocked.

A Traffic and Transport Assessment, (TTA), has also been conducted on the proposed development and accompanies this report as a separate document. An independent Road Safety Audit has also been carried out on the site during the final stage of this LRD planning process. The Auditor's report is included as an appendix of the TTA Report. The items raised by the Road Safety Audit have been addressed in detail within a section of the TTA.



6. RETAINING AND SUBSURFACE STRUCTURES

Proposed road and finished floor levels have been designed to keep any retaining structures at an absolute minimum, whether they are retaining the proposed development or the neighbouring ground. However, due to the large scale of the development and constraints such as road-tie in points, road gradients and surrounding sites, some retaining is required. All required retained heights have been kept to a minimum.

The construction of subsurface structures such as attenuation tanks and structural elements such as building foundations are necessary for the proposed development. It is envisaged that buildings will be founded upon either raft or strip foundations. The possibility of piling also remains. The type of foundation to be employed will be confirmed through detailed design considering the ground conditions.

All structures will be required to be founded upon firm subgrade or bedrock to be confirmed by onsite testing prior to the construction of any structure or foundation.



7. CONCLUSION

The report should be read in conjunction with the associated drawings, layouts, and specifications. We trust that adequate detail has been provided for the wastewater drainage layout and the surface water drainage layout, watermain design layout, SuDS design layout and road layouts. Should any further detail be required, we will be happy to meet and supply same, as may be deemed appropriate.

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