



## **APPENDIX 3-3**

### **CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN**



Project

Knocknacarra District Centre, Ragoon, Galway

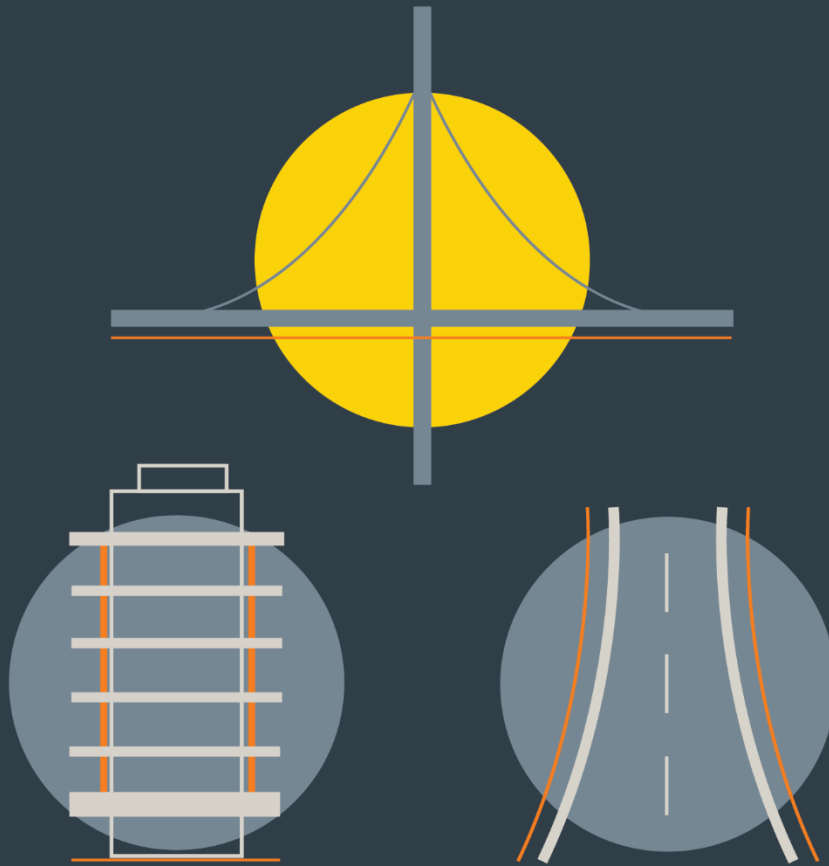
Report Title

Construction and Environmental Management Plan

Client

Glenveagh Living Limited

INFRASTRUCTURE



DBFL CONSULTING ENGINEERS



Glenveagh  
Living

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**Author:** Fernando Szeliga

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Planning Consultant  
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### DBFL Consulting Engineers

#### Dublin Office

Ormond House  
Upper Ormond Quay  
Dublin 7

**Tel** 01 4004000  
**Fax** 01 4004050  
**Email** info@dbfl.ie  
**Web** www.dbfl.ie

#### Waterford Office

Unit 2  
The Chandlery  
1-2 O'Connell Street, Waterford

**Tel** 051 309500  
**Email** info@dbfl.ie  
**Web** www.dbfl.ie

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## 1.0 INTRODUCTION

- 1.1 This document is an initial Construction and Environmental Management Plan for the proposed works to develop a mixed-use development in Knocknacarra, Galway. It includes an outline description of the proposed works and how these works will be managed for their duration. It includes details of the Preliminary Construction Traffic Management Plan, refer to section 11.
- 1.2 This project is currently at planning stage and as such input from the contractor has not been incorporated into the plan. On appointment of a contractor this document will be issued to them to be further developed into their final construction stage management plan for the project. This plan is a live document and subject to change/updates
- 1.3 The outline plan seeks to demonstrate how works can be delivered in a logical, sensible and safe sequence with the incorporation of specific measures to mitigate the potential impact on people and the surrounding environment.
- 1.4 Nothing stated in this document shall supersede or be taken to replace the terms of the Contract or the detailed design description issued with the Contract tender or the conditions of planning. Similarly, the issues covered within this document may be amended or added to by the Main contractors or in accordance with their specific works proposals, sequencing and procedures.
- 1.5 All works must be carried out in accordance with the mitigation measures outlined in this document and with the construction mitigation measures from the EIAR included in Appendix B.
- 1.6 When read by the contractor, this document should be read carefully in conjunction with all drawings, specifications and survey information provided.
- 1.7 Any consequences that result through failure to implement measures in this construction plan, or inadequate development of this plan by the contractor are the responsibility of the contractor and not DBFL.

## 2.0 SITE DESCRIPTION & EXISTING CONDITIONS

2.1 The subject site is located to the North of the Western Distributor Road and is bounded to the west by the existing Gateway Retail Park, which is approximately 2.6 Km from Galway City Centre. The site's southern boundary immediately bounds an Aldi supermarket. The primary school Gaelscoil Mhic Amhlaigh is to the north and residential developments are to the east. Refer to Figure 2.1 for site location.

The site is approximately 2.43Ha and is currently greenfield, however a construction compound is located in the southern end.

The site is within the Specific Local Objective Area of 'Enterprise, Light Industry and Commercial' in the Galway City Council Development Plan 2017-2023.



— Site Boundary

**Figure 2.1** - Site Location (Site Boundary Indicative Only).

2.2 The proposed development consists of the construction of 332 residential units up to 7 storeys with 2,667 m<sup>2</sup> of commercial space including a 174m<sup>2</sup> creche at ground floor level. The site will be dissected into Site 1 and Site 2 by the proposed diversion of the existing access road to the Gateway Retail Park, refer to Figure 2.1.

2.3 Full details of the proposed development are included in the drawings and documentation submitted with the associated planning application. In summary they consist of the following;

- Construction of a residential development consisting of 332 residential units up to 7 storeys;
- Construction of 2,667m<sup>2</sup> of retail units;
- Construction of a creche;
- External Hard / Soft Landscaping incorporating courtyards/podiums;
- Diversion of existing access road to Gateway Retail Park;
- Construction of a vehicular access to the proposed car park at ground floor level;
- Under podium car parking at ground floor level providing 85 car spaces;
- Provision of a total of 291 cycle stand spaces located at ground level, and 386 enclosed bicycle parking stands, located at ground level;
- Associated new site services and drainage including foul and surface water sewer connections;
- Associated landscaping surrounding the site.
- Change of use of underground void to 183 bay underground car park.



## 3.0 CONSTRUCTION PROGRAMME & PHASING

### 3.1 GENERAL

- 3.1.1 The project is currently at planning stage and subject to approval and detailed design. It is estimated that the works would be tendered in Q2 2020 followed by commencement of the works and an estimated site programme of 24 months.
- 3.1.2 The proposed development will be constructed in two phases as indicated in the proposed development phasing plan included in Appendix A. Site 2 and the proposed access road realignment will be constructed in Phase 01. The existing access road to the existing retail park will be kept open to traffic until the proposed road diversion is complete. The existing access road will be decommissioned in Phase 2 after the new road diversion is complete. Specific control measures will be implemented to fully segregate construction traffic from external pedestrian traffic such as a site marshal.
- 3.1.3 The proposed order of construction of key elements in each phase is as follows, however this is subject to detailed review by the Contractors at construction stage and specifics may require adjustment once the contractor has been appointed;
- Site Setup;
  - Earthworks, including disposal of excess material to a licensed waste facility;
  - Construction of substructure and services;
  - Super Structure Frame to buildings in sequence;
  - Roof and Façade finishes;
  - External hard and soft landscaping;
  - Internal fit out;
- 3.1.4 The Contractor shall communicate with the public, local residences and businesses adjacent the development. All parties shall be kept up to date during the construction period at all times.

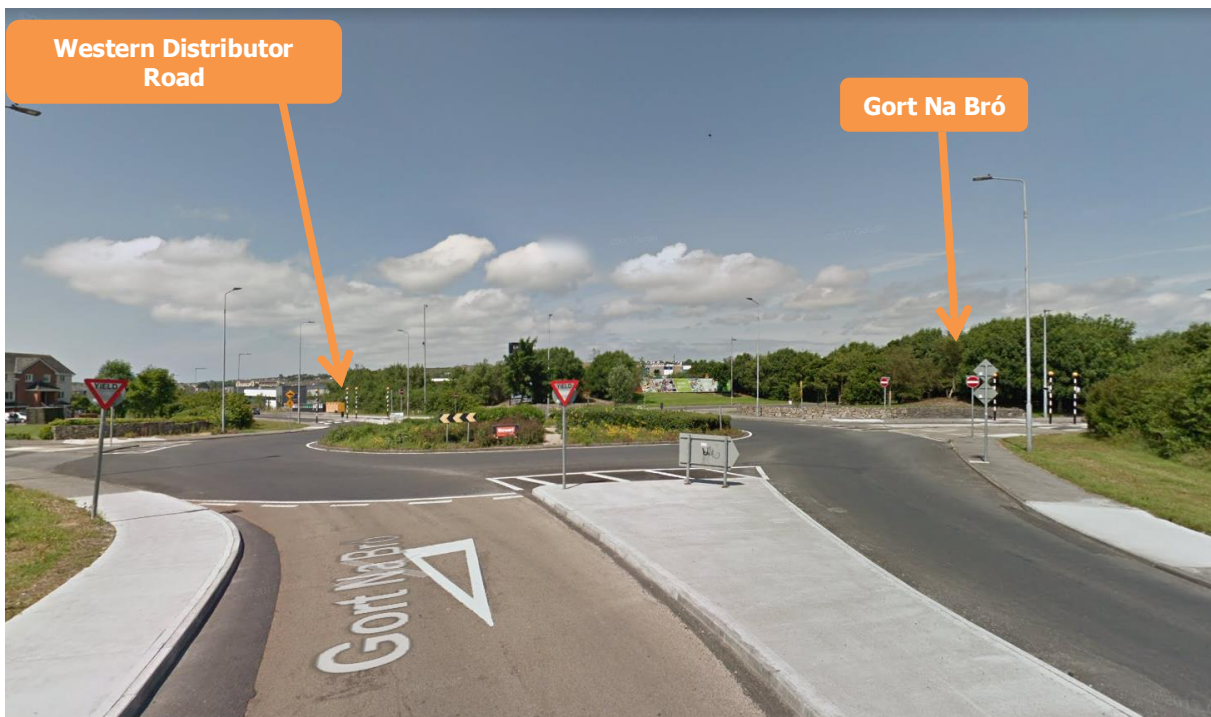
- 3.1.5 A Traffic Management Plan (TMP) shall be issued to Galway City Council for approval prior to works commencing on site. The approved TMP and any revisions thereof shall be set up and implemented on site. All necessary signage shall be erected in the weeks prior to any works commencing along and on adjacent roads to the proposed development giving advance warning to traffic, pedestrians / members of the public. Every effort shall be made to minimise the impact of the above works on local residences and traffic.
- 3.1.6 All personnel shall be inducted and made familiar with Risk Assessments / Method Statements (RAMS) and Traffic Management Plans.
- 3.1.7 All site-specific safety rules shall be adhered to.
- 3.1.8 All plant operators to have appropriate CSCS training.
- 3.1.9 All personnel to have SOLAS Safe Pass training
- 3.1.10 Fire extinguishers and first aid supplies to be available in the work area.
- 3.1.11 All adjacent roadways will be maintained in clean condition at all times.
- 3.1.12 Appropriate PPE to be worn at all times.
- 3.1.13 Biometric turnstiles to be used to prevent unauthorised access to the site.

## **4.0 WORKING HOURS**

- 4.1 Working hours will be strictly in accordance with the granted planning conditions with no works on Sundays or Bank Holidays. If work is required outside of these hours, written approval will be sought by the contractor from the Local Authority.
- 4.2 It is anticipated that normal working hours may be 7am to 7pm Monday to Friday and 8am to 5pm on a Saturday. Working outside these hours will be subject to agreement with the Local Authority.
- 4.3 Deliveries of material to site will be planned to avoid high volume periods. There may be occasions where it is necessary to have deliveries within these times. The Contractor will develop, agree and submit a detailed Traffic Management Plan for the project prior to commencement.

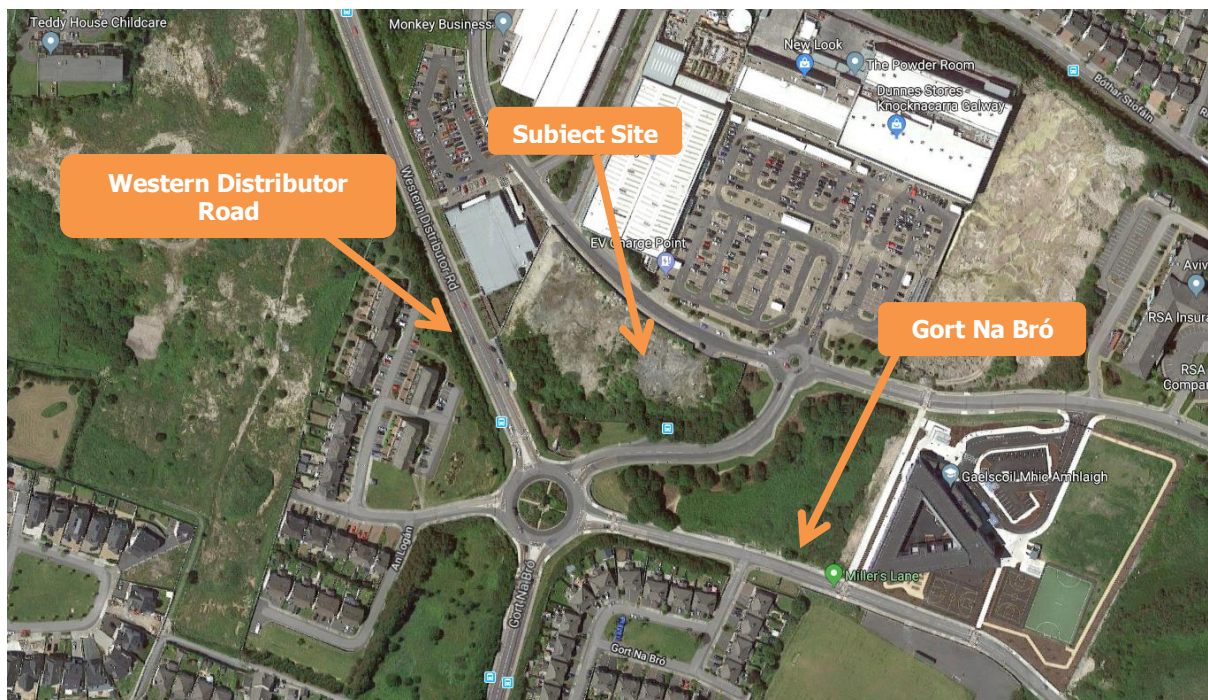
## 5.0 SITE SETUP

- 5.1 The proposed site access is via Gort Na Bró, which can be accessed from the roundabout to the east of the subject site on the Western Distributor Road. The existing access road to the existing retail park shall be kept open to traffic until the proposed road diversion is fully completed. Specific control measures will be implemented to fully segregate construction traffic from external pedestrian traffic such as a site marshal.



**Figure 7.1: Proposed Vehicle Entrance**

- 5.2 The proposed site access is detailed in Figure 7.1 and 7.2. The Contractor shall provide arrangements to provide for vehicular traffic to the site with control measures where crossing the public footpath. The proposed location of the Contractor compound will be internally within the site for the initial stages, but an external site compound may be required as works progress.
- 5.3 Immediately after access to the site is made and it is secure, the site compound will be established. Existing site services will be isolated including the decommissioning of any existing power supplies in conjunction with the ESB and the provision of a temporary builders power supply.



**Figure 7.2: Proposed Vehicle Entrance Plan**

- 5.4 The site will be secured with painted timber hoarding circa 2.4m high including supports and appropriate anchoring (Designed by Temporary Works Engineer), external lighting and Safety signage. Site hoarding will include Health and Safety warnings at appropriate intervals.
- 5.5 Site security will be provided by way of a monitored infrastructure systems such as site lighting and CCTV cameras, when deemed necessary.

## 6.0 DUST & DIRT GENERATION

- 6.1 The Contractor shall put in place a regime for monitoring dust levels in the vicinity of the site during the works. The level of monitoring and adoptions of mitigation measures will vary throughout the construction works depending on the type of activities being undertaken and the prevailing weather conditions at the time.
- 6.2 The minimum criteria to be maintained shall be the limit for Environmental Protection Agency (EPA) specification for licensed facilities in Ireland, which is 350mg/m<sup>2</sup>/day.
- 6.3 The Construction team will monitor the contractor's regime on an ongoing basis throughout the project to endeavour to minimise impact on a surrounding community.
- 6.4 If dust levels become an issue, then all dust generating activities on site will cease until such time as weather conditions improve (e.g. wind levels drop or rain falls) or mitigation measures such as damping down of the ground are completed.
- 6.5 During peak vehicle movements, where there is a likelihood of dirt on construction vehicles exiting the site, a dedicated road sweeper will be put in place until these works are completed.
- 6.6 If dirt generation extends onto public roads, road sweeping will be carried out as well, including if necessary cleaning of silt from road gullies.
- 6.7 Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. Material stockpiles containing fine or dusty elements shall be covered with tarpaulins. Aggregates will be transported to and from the site in covered trucks.
- 6.8 Where drilling or pavement cutting, grinding or similar types of stone finishing operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers. All concrete cutting equipment shall be fitted with a water dampening system.
- 6.9 A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated.
- 6.10 A dedicated road sweeper shall be put in place during peak vehicle movements.

- 6.11 Site roadways shall be maintained in a stoned hardcore condition not allowing soil to accumulate that may create dust.
- 6.12 Wheel wash equipment shall be set up at the site exit gate for all construction vehicles to pass through prior to leaving the site thus ensuring that no dirt etc. is transported outside the site onto the roadways.

## 7.0 WASTE MANAGEMENT

- 7.1 The treatment of waste is to be employed by the contractor or a specialist waste management contractor as a trade package. This contractor is responsible for:
- Ensuring the site is kept clean and safe
  - The collection of waste from a central point
  - Segregation of waste on site.
- 7.2 The waste management contractor shall ensure that all access routes, fire escapes and staircases are swept and kept clear of debris on a regular basis to maintain high standards of health and safety on the project. No fires will be permitted on site.
- 7.3 The contractor shall adhere to the Construction and Demolition Waste Management Plan (CDWMP) for the project to ensure that all material is disposed of at an appropriately licensed land fill site.
- 7.4 The Contractor shall ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible.
- 7.5 In order to ensure appropriate segregation of waste on site, a material storage zone shall be provided in the compound area. This storage zone will include material recycling areas and facilities. A series of 'way finding' signage will be provided to route staff and deliveries into the site and to designated compound or construction areas, as appropriate.



## 8.0 INVASIVE SPECIES

- 8.1 The following control measures are proposed to mitigate the risk of spreading invasive species, such as Japanese Knotweed, Himalayan Knotweed, Himalayan Balsam, Gunnera, and Giant Hogweed:
- 8.1.1 All earthworks machinery shall be thoroughly pressure-washed prior to arrival on site and prior to their further use elsewhere.
  - 8.1.2 Care should be taken not to disturb or cause the movement of invasive species fragments, either intentionally or accidentally.
  - 8.1.3 There are not believed to be any existing stands of invasive species on site, but should any be found, they should be clearly demarcated by temporary fencing and tracking within them should be strictly avoided. A minimum buffer of seven metres should be applied to avoid disturbance of lateral rhizomes.
  - 8.1.4 If any excavations must be carried out in areas of Japanese Knotweed, the excavated material should not be moved from the location. The machinery must be thoroughly pressure-washed in a designated area at least 25 metres from any watercourse before moving on to an area that is not yet infected.
  - 8.1.5 All contractors and staff should be briefed about the presence, identification and significance of Japanese Knotweed before commencement of works.
  - 8.1.6 Good construction site hygiene should be employed to prevent the spread of these species with vehicles thoroughly washed prior to leaving any site with the potential to have supported invasive species. All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) should be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species such as Japanese Knotweed and Rhododendron. All washing must be undertaken in areas with no potential to result in the spread of invasive species.
  - 8.1.7 When working at locations in proximity to natural watercourses, a suitable barrier should be erected between the watercourse and the stand of invasive species. This will assist in preventing the spread of any invasive species into the watercourse during their removal. There are no watercourses on the proposed development site, but cognizance should be had of any watercourses on neighbouring sites.

- 8.1.8 Any material that is imported onto any site to be verified by a suitably qualified ecologist to be free from any invasive species listed on the 'Third Schedule' of Regulations 49 & 50 of Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). This will be carried out by searching for rhizomes and plant material.
- 8.1.9 Any soils or subsoils contaminated with invasive species will be sent for disposal to an authorized waste facility.
- 8.1.10 The treatment and control of invasive alien species will follow guidelines issued by the National Roads Authority – The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads (NRA 2010) and the Environment Agency (2013) – The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites (Version 3, amended in 2013).

## 9.0 NOISE & VIBRATION

- 9.1 It is not envisaged that any significant prolonged noise and vibration producing activities will be carried out on site.
- 9.2 The Contractor shall ensure that the level of noise and vibration resulting from the construction of the works does not constitute a nuisance, and that noise and vibration emissions conform to the requirements of BS 5228: 2009 Code of Practice for Noise and Vibration Control on Construction Sites, Part 1 and Part 2. All plant shall be adequately silenced to conform to the requirements of BS 5228.
- 9.3 Short-term vibration levels and continuous vibration guideline levels as measured in buildings shall be less than the guideline values in BS 5228.
- 9.4 Vibration limits to be applied for infrastructure works are those specified in the NRA document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRA, Revision 1, 2004). Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of;

Allowable vibration velocity (Peak Particle Velocity) at the closest part of any sensitive property to the source of vibration, at a frequency of		
Less than 10Hz	10 to 50Hz	50 to 100Hz (and above)
8 mm/s	12.5 mm/s	20 mm/s

Table 2: Allowable vibration during road construction in order to minimise the risk of building damage

- 9.5 If significant noise and vibration activities are to be carried out on site, the contractor will ensure that there is prior liaison with other resident / local business etc. with a view to ensuring that excess noise is not generated by the works beyond the site curtilage and that contract details are available along with agreed protocols.
- 9.6 Contractor to use the Best Management Practice and mitigation measures to prevent or minimise noise levels from the works through the provision and proper maintenance, use and operation of all machinery. Contractor shall operate in accordance with the Safety, Health and Welfare at Work (General Application) Regulations 2007, part 5 Noise and Vibration.
- 9.7 The contractor shall appoint a designated person to manage all environmental complaints including noise. A noise complaint procedure shall be implemented in which

- the details of any noise related complaint are logged, investigated and where required, measures are taken to ameliorate the source of the noise complaint. A strictly enforced noise management programme shall be implemented at the site from the outset of construction activities.
- 9.8 Appropriate signage shall be erected in the vicinity of the site to inform HGV drivers that engines shall not be left idling for prolonged periods and that the use of horns shall be banned at all times. HGV's queuing on any local or public road shall not be permitted and it shall be the responsibility of site management to ensure this policy is enforced.
- 9.9 All onsite generator units (if required) used to supply electricity to the site shall be super silenced or enclosed and located away from any receptor.
- 9.10 The principal of controlling noise at source shall be implemented at the site. Best practice mitigation techniques as specified in *BS 5228:2009+A1 2014 – Noise and Vibration Control on Construction and Open Sites* shall be implemented during the construction phase and are detailed in this Section.
- 9.11 Construction operations shall be confined to the period Monday-Friday 0700-1900 h, and Saturday 08:00-17:00 h.
- 9.12 Plant used onsite during the construction phase shall be maintained in a satisfactory condition and in accordance with manufacturer recommendations. In particular, exhaust silencers shall be fitted and operating correctly at all times. Defective silencers will be immediately replaced.
- 9.13 Where it is proposed to operate plant during the period 0700-0800 h, standard 'beeper' reversing alarms shall be replaced with flat spectrum alarms.
- 9.14 Solid barriers (hoarding) shall be erected to site boundary

## 10.0 POLLUTION CONTROL

- 10.1 Contamination of drainage systems and ground water is a risk during the construction phase. Detailed construction method statements will need to be approved by the client's design team.
- 10.2 Identified risks include spillages into drainage systems and unprotected ground, allowing pollutants to enter watercourses or ground water. The measures proposed to be put in place to mitigate this risk would be the use of exclusion zones around drainage systems where practicable.
- 10.3 Sediment and Erosion – Similar to the above, 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 for the duration of the construction works until the permanently surface water drainage system of the proposed site is complete.
- A temporary drainage system shall be installed prior to the commencement of the construction works to collect surface water runoff from the site during construction.
- 10.4 All works shall be undertaken in accordance with the CIRIA document, 'Control of Water Pollution from Construction Sites, guidance for consultants and contractors',
- 10.5 Accidental Spills and Leaks – All oils, fuels, paints and other chemicals will be stored in a secure bunded construction hardstand area. Refueling 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.
- 10.6 Concrete – 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.

- 10.7 Disposal of Wastewater from Site – 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 tankered off site to a licensed facility until a connection to the public foul drainage network has been established.

## 11.0 CONSTRUCTION TRAFFIC

### 11.1 GENERAL SITE ACCESS / EGRESS

- 11.1.1 Construction traffic will be predominantly via the Western Distributor Road roundabout to the east of the site. By necessity it will entail traversing the existing estate roads which will be maintained by the Contractor for the duration of the works. Warning signage will be provided for pedestrians and other road users on all approaches in accordance with Chapter 8 of the Traffic Signs Manual and the Contractor's Traffic Management Plan.
- 11.1.2 As part of the Construction Stage Safety Plan for the works a Traffic Management Plan (TMP) will be prepared in accordance with the principles outlined below and held on site. It shall comply at all times with the requirements of;
- Chapter 8 of the Department of the Environment Traffic Signs Manual, current edition, published by The Stationery Office, and available from the Government Publications Office, Sun Alliance House, Molesworth Street, Dublin 2;
  - Guidance for the Control and Management of Traffic at Road Works (June 2010) prepared by the Local Government Management Services Board;
  - Any additional requirements detailed in the Design Manual for Roads and Bridges & Design Manual for Urban Roads & Streets (DMURS)
- 11.1.3 During the construction of the proposed infrastructure works, any unsuitable material or unusable material will be disposed offsite to a suitably licensed landfill facility in accordance with the regulations for same and the project Construction Waste Management Plan.
- 11.1.4 Construction traffic will consist of the following categories:
- Private vehicles owned and driven by site construction and supervisory staff.
  - Excavation plant, dumper trucks and materials delivery vehicles involved in site development works.
- 11.1.5 The location of the vehicular entrance and access will be regularly reviewed during the construction to ensure that the pedestrian and vehicular access points are located and maintained appropriately.

## 11.2 STAFF AND PARKING

- 11.2.1 The site is readily accessible by bus services within nearby walking distance. On-site employees will generally arrive before 07:00, thus avoiding the morning peak hour traffic. Construction employees will generally depart after 17:00. It should be noted that a large proportion of construction workers may arrive in shared transport.
- 11.2.2 Construction traffic will not be permitted to park on the public roads or within the general area outside the main site. Restricted parking facilities will be provided by the contractor.

## 11.3 ON SITE ACCOMODATION

- 11.3.1 Facilities will be provided by the contractor as follows;
- Adequate materials drop-off and storage area;
  - Set down areas for trucks;
  - Dedicated staff parking and visitor parking; at an external location to be confirmed by the contractor.
  - Staff welfare facilities i.e. toilets etc.

## 11.4 CONSTRUCTION ACTIVITIES

- 11.4.1 The most onerous construction period with regards to traffic generation is expected to be HGVs during the following work elements;
- Excavation stage where waste and soil is removed from site;
  - Bringing construction materials to site;
  - Bringing concrete to site for Sub and Superstructure.



## 11.5 MINIMISATION OF MOVEMENT AND IMPACT

- 11.5.1 Construction vehicle movements and their impact will be minimised through;
- Consolidation of delivery loads to / from the site and management of large deliveries on site to occur outside of peak periods;
  - Use of precast / prefabricated materials where possible;
  - Adequate storage space on site to be provided where possible;
  - Scheduling of movements to outside peak traffic times and school pick-up / drop-off times.
- 11.5.2 All vehicles to switch off engines when not in use – no idling vehicles
- 11.5.3 Vehicle cleaning and wheel washing to take place on leaving site.
- 11.5.4 On-road vehicles to comply to set emission standards.
- 11.5.5 All non-road mobile machinery (NRMM) to be fitted with appropriate exhaust system and be regularly serviced.
- 11.5.6 Haul routes to be hard surfaced and cleaned and appropriate speed limits applied around the site.
- 11.5.7 The aggregates required for the construction of the proposed development will be sourced, as much as is possible and practicable, from quarries and suppliers located as near as possible to the proposed development. This will reduce the potential for any negative impacts associated with the haulage of the materials to the site of the proposed development. Existing soils and subsoils located on the site will be used where possible to reduce the amount of such materials required for import onto the site.

## 11.6 PUBLIC ROADS

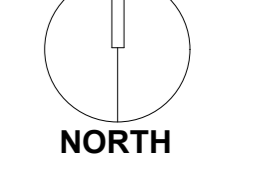
- 11.6.1 The following measures will be taken to ensure that the site and surroundings are kept clean and tidy;
- A regular programme of site tidying to be established to ensure a safe and orderly site;
  - Mud spillages on roads and footpaths outside the site to be cleaned regularly and will not be allowed to accumulate;
  - Dedicated road sweeper will be put in place if site conditions require.

**Appendix A**  
**PHASING PLAN**



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NOTES  
ALL LEVELS ARE GIVEN IN METRES AND ARE REFERRED TO O.S. DATUM (M.S.N. HEAD C.O. LONGER, 1970 ADJUSTMENT)



- KEY
- SITE OF PLANNING APPLICATION OUTLINED IN RED 3.00 HA
  - GATEWAY RETAIL PARK PHASE 02 PLANNING REF. 17/158 UNDER CONSTRUCTION
  - PHASE 01 - NEW LINK ROAD, SIGNALISED JUNCTION & ROAD WIDENING CONSTRUCTED. NORTHERN PORTION OF SITE CONSTRUCTED.
  - PHASE 02 - EXISTING LINK ROAD REMOVED. BASEMENT CHANGE OF USE & REMAINING ROAD WORKS COMPLETED. SOUTHERN PORTION OF SITE CONSTRUCTED.



REV	DATE	DRN	ISSUE
1	03/2019	OM	STAGE 03 APPLICATION

**reddy** architecture+urbanism

Reddy Architecture + Urbanism  
 100m Office  
 100m Office, Derry Road, Dublin 6  
 T: +353 (0)1 4983000  
 F: +353 (0)1 4983000  
 E: info@reddyarchitecture.com

FOR PLANNING

JOB: KNOCKNACARRA DISTRICT CENTRE, RAHOON, GALWAY

CLIENT: GLENVEAGH LIVING

DRAWING: PHASING

DATE	DRN	DRN	DRN	SCALE	SCALE	SCALE
OCT 2019	O MORGAN	O MORGAN	O MORGAN	1:500@A0	1:500@A0	1:500@A0
				CHECKED	CHECKED	CHECKED
				M. FREANEY	M. FREANEY	M. FREANEY

JOB NO. 18-179 DWG NO. 18-179\_1016 REVISION A

ORIGINAL SHEET SIZE = A1

## Appendix B

### EIAR CONSTRUCTION MITIGATION MEASURES

## 14. SCHEDULE OF MITIGATION

### 14.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) provides a schedule of mitigation measures which are taken from all previous chapters of the EIAR. It is provided in an easily viewed table (Table 14.1). Further detail and background information is provided in the relevant EIAR Section.

Table 14-1 Proposed Mitigation Measures

Ref. No.	Reference Heading	Location	Mitigation Measure
<b>Construction Phase</b>			
<b>Construction Management</b>			
MM10	Operating hours	EIAR Section 4	Construction operations will in general be confined to the period Monday-Friday 0700-1900 h, and Saturday 08:00-17:00 h.
MM11	Health and Safety	EIAR Section 4	<ul style="list-style-type: none"> <li>➤ A site-specific Health and Safety Plan will be in place for the proposed facility. All site staff will be made aware of and adhere to the company Health and Safety Plan.</li> <li>➤ Operate a Site Induction Process for all site staff,</li> <li>➤ Ensure all site staff will have current 'Safe Pass' cards,</li> <li>➤ Install adequate site hoarding to the site boundary,</li> <li>➤ Maintain Site Security staff at all times,</li> <li>➤ Install access security in the form of turn-styles and gates for staff,</li> <li>➤ Separate public pedestrian access from construction vehicular access,</li> <li>➤ Only appropriately qualified and trained personnel will be permitted to operate machinery onsite.</li> <li>➤ Appropriate barriers and signage will be used.</li> <li>➤ The proposed development site will not be accessible to members of the public.</li> <li>➤ The site will also be secure to prevent the risk of trespass through signage and provision of barriers.</li> </ul>
MM12	Road Cleaning and Wheel Wash	EIAR Section 3	The Contractor will make provision for the cleaning by road sweeper etc. of all access routes to and from the site during the course of the works as required. It is intended that cleaning will be undertaken as required. A wheel wash facility will be provided on site to clean site traffic leaving the site. Waste water generated at this washing facility will be suitably treated on site and all settled silts disposed offsite to licensed landfill. All road sweeping vehicles will be emptied off site at a suitably licensed facility as per our construction stage environmental waste management document.
MM13	Wastewater Management	EIAR Section 3	Portable toilets will be provided for the working on the construction site. Wastewater arising on-site from these toilets is stored in a sealed tank located within the portable toilets, and these will be emptied

			periodically (as required) by permitted waste contractors and transported to municipal wastewater treatment plants for treatment..
MM14	Water Supply	EIAR Section 3	Water will be supplied on site by water tankers for general use. Potable water will be provided in the form of bottled water for staff use.
MM15	Site Signage	EIAR Section 4	Temporary warning signs and Hoarding will be provided along the site frontage to protect pedestrians using the footpaths.
MM16	Other Services	EIAR Section 12	The contractor must comply with and standard construction codes of practice in relation to working around electricity, gas, water, sewage and telecommunications networks.
<b>Drainage Design and Management</b>			
MM17	Hydrocarbons	EIAR Section 6, CEMP Section 8	<ul style="list-style-type: none"> <li>➤ All plant and machinery will be serviced before being mobilised to site;</li> <li>➤ No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed;</li> <li>➤ Refuelling will be completed in a controlled manner using drip trays at all times;</li> <li>➤ Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water;</li> <li>➤ Fuel containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores;</li> <li>➤ Containers and bunding for storage of hydrocarbons and other chemicals will have a holding capacity of 110% of the volume to be stored;</li> <li>➤ Ancillary equipment such as hoses and pipes will be contained within the bund;</li> <li>➤ Taps, nozzles or valves will be fitted with a lock system;</li> <li>➤ Fuel and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage;</li> <li>➤ Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills;</li> <li>➤ Only designated trained operators will be authorised to refuel plant on site;</li> <li>➤ Procedures and contingency plans will be set up to deal with emergency accidents or spills; and,</li> <li>➤ An emergency spill kit with oil boom, absorbers <i>etc.</i> will be kept on-site for use in the event of an accidental spill. A specific team of staff will be trained in the use of spill containment.</li> <li>➤ Highest standards of site management will be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment</li> </ul>

			during construction. A named person will be given the task of overseeing the pollution prevention measures agreed for the site to ensure that they are operating safely and effectively.
MM19	Concrete Deliveries and Management	EIAR Section 7	No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products will be used and where possible
MM20	Concrete Deliveries and Management	EIAR Section 7	No washing out of any plant used in concrete transport or concreting operations will be allowed on-site
MM21	Concrete Deliveries and Management	EIAR Section 7	Where concrete is delivered on site, only the chute need be cleaned, 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. Chute cleaning water is to be directed into a dedicated lined washout area. This lined area will be removed from site once the construction phase is complete;
MM22	Concrete Deliveries and Management	EIAR Section 7	Weather forecasting will be used 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
MM23	Silt Fences	EIAR Section 7	Silt fences will be placed up-gradient of all drains where construction is proposed. Silt fences are effective at removing heavy settleable solids. This will act to prevent entry to watercourses of sand and gravel sized sediment, released from excavation of mineral sub-soils of glacial and glacio-fluvial origin, and entrained in surface water runoff.
MM24	Surface Water	EIAR Section 7	<ul style="list-style-type: none"> <li>➤ Collection and treatment of surface water within the site 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 or disperse by diffuse flow into local drainage ditches;</li> <li>➤ Discharge onto ground will be via a silt bag which will filter any remaining sediment from the pumped water. The entire discharge area from silt bags will be enclosed by a perimeter of double silt fencing;</li> <li>➤ Any proposed discharge area will avoid potential surface water ponding areas, and will only be located where suitable subsoils are present;</li> <li>➤ No pumped construction water will be discharged directly into any local watercourse;</li> </ul>



MM26	Silt Bags	EIAR Section 7	Silt bags will be used where small to medium volumes of water need to be pumped from excavations or swales. As water is pumped through the bag, most of the sediment is retained by the geotextile fabric allowing filtered water to pass through. Silt bags will be used with natural vegetation filters.
<b>Peat, Subsoils and Bedrock</b>			
MM28	Excess material	EIAR Section 6	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
<b>Flora and Fauna</b>			
MM29	Replanting	EIAR Section 5	A landscape plan has been developed for the site. The planting schedule will include the native trees Scots pine ( <i>Pinus sylvestris</i> ), oak ( <i>Quercus robur</i> ), silver birch ( <i>Betula pendula</i> ), strawberry tree ( <i>Arbutus unedo</i> ) and wild cherry ( <i>Prunus avium</i> ). Specimen semi mature tree planting along the site boundary will include oak ( <i>Quercus robur</i> ) and silver birch ( <i>Betula pendula</i> ). Planting within the amenity areas will include the following pollinator friendly species as recommended in the Pollinator friendly planting code (All Ireland Pollinator Plan 2015-2020) - <i>Allium</i> sp., <i>Lavandula angustifolia</i> (English lavender), <i>Rosmarinus officinalis</i> (Rosemary), <i>Salvia</i> sp., <i>Mahonia</i> sp. Such measures will maintain the local biodiversity in the area.
	Birds	EIAR Section 5	Vegetation clearance will be undertaken in line with the provisions of the Wildlife Acts (As Amended), 1976-2017.
	Bats	EIAR Section 5	The proposed landscape plan will maintain foraging and commuting habitat for bats.
<b>Noise</b>			
MM32	Construction Noise	EIAR Section 8 CEMP Section 6	<ul style="list-style-type: none"> <li>➤ Plant and machinery with low inherent potential for generation of noise and/or vibration will be selected. All construction plant and equipment to be used onsite will be modern equipment and will comply with the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations.</li> <li>➤ Site compounds should be located away from noise sensitive boundaries within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.</li> <li>➤ For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation.</li> <li>➤ Mobile plant should be switched off when not in use and not left idling.</li> </ul>

			<ul style="list-style-type: none"> <li>➤ For percussive tools such as pneumatic breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker ‘tool’ and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.</li> <li>➤ For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.</li> <li>➤ For all materials handling drop heights will be minimized. Drop chutes and dump trucks will be lined with resilient materials.</li> <li>➤ Compressors, generators and pumps will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.</li> <li>➤ All items of plant should be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.</li> <li>➤ Site will be screened with standard construction site hoarding (2.4m in height) with a mass per unit of surface area greater than 7 kg/m<sup>2</sup> to provide adequate sound insulation.</li> <li>➤ A designated noise liaison officer will be appointed to site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the liaison officer. In addition, prior to particularly noisy construction activity, e.g. piling, the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.</li> </ul>
<b>Air Quality/Dust</b>			
MM33	Air Quality	EIAR Section 4, 8.	<ul style="list-style-type: none"> <li>➤ All construction vehicles and plant will be maintained in good operational order while onsite, thereby minimising any emissions that arise.</li> <li>➤ Mobile plant should be switched off when not in use and not left idling.</li> </ul>
MM34	Dust Suppression	EIAR Section 3, 4, 8 CEMP Section 5	<ul style="list-style-type: none"> <li>➤ Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. Material stockpiles containing fine or dusty elements shall be covered with tarpaulins. Aggregates will be transported to and from the site in covered trucks.</li> <li>➤ If dust levels become an issue, then all dust generating activities on site will cease until such time as weather conditions improve (e.g. wind levels drop or rain falls) or mitigation measures such as damping down of the ground are completed.</li> <li>➤ Site road ways will be maintained in a stoned hard core condition not allowing soil to accumulate which when dry can create dust.</li> </ul>

			<ul style="list-style-type: none"> <li>&gt; Wheel wash equipment will be set up at the site exit gate for all construction vehicles to pass through prior to leaving the site thus ensuring that no dirt etc. is transported outside the site onto the roadways.</li> <li>&gt; Plant and equipment that have the potential to create volumes of dust will have appropriate attachments to allow water source to dampen dust to not allow it to get airborne.</li> <li>&gt; By the use of barriers such as debris netting on scaffolding around the building to block dust escaping where the building is within 10m of the site boundary where residential properties exist.</li> <li>&gt; Where drilling or pavement cutting, grinding or similar types of stone finishing operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers.</li> <li>&gt; All concrete cutting equipment shall be fitted with a water dampening system. During peak vehicle movements, where there is a likelihood of dirt on construction vehicles exiting the site, a dedicated road sweeper will be put in place until these works are completed.</li> <li>&gt; Deploy Road Sweeper as required on External Roads.</li> </ul>
<b>Traffic</b>			
MM35	Construction Traffic	EIAR Section 12  CEMP Section 9	<ul style="list-style-type: none"> <li>&gt; On-site employees will generally arrive before 07:00, thus avoiding the morning peak hour traffic.</li> <li>&gt; Construction traffic will not be permitted to park on the public roads or within the general area outside the main site. Restricted parking facilities will be provided by the contractor.</li> <li>&gt; Due to proximity of site to Gaelscoil Mhic Amhlaigh school the construction traffic adjacent to school will be limited to the outside of the school hours. Additionally, a temporary pedestrian/cycle routes will be required at the proposed site access locations to fully segregate construction traffic from pedestrian traffic. Site marshal will be provided especially during morning and afternoon school drop-off/pick-up times.</li> <li>&gt; Construction vehicle movements and their impact will be minimised through;             <ul style="list-style-type: none"> <li>○ Consolidation of delivery loads to / from the site and management of large deliveries on site to occur outside of peak periods;</li> <li>○ Use of precast / prefabricated materials where possible;</li> <li>○ Adequate storage space on site to be provided where possible;</li> <li>○ The design of the works has involved an element of minimising the quantity of material to be removed from site by way of cut and fill balance;</li> <li>○ Scheduling of movements to outside peak traffic times and school pickup / drop-off times</li> </ul> </li> </ul>