

**CONSTRUCTION & ENVIRONMENTAL
MANAGEMENT PLAN**

FOR

GLENVEAGH HOMES LTD

RELATING TO A PROPOSED

RESIDENTIAL DEVELOPMENT

AT

**LANDS AT NEWTOWNPARK AVENUE, BLACKROCK
CO. DUBLIN**

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TABLE OF CONTENTS

1.0	Introduction.....	3
2.0	Site Location.....	3
3.0	Description of Development Site Activities.....	4
4.0	Construction Management Plan.....	5
5.0	Construction Phase Environmental Monitoring and Management Plan...9	

1.0 INTRODUCTION

This document presents the Construction and Environmental Management Plan (CEMP) for the control and management and monitoring of construction works and environmental impacts associated with a proposed residential development on lands at Newtownpark Avenue, Blackrock, Co. Dublin.

The development will consist of the demolition of the existing c. 26sqm single storey shed on site and construction of a residential development comprising 140 no. residential apartments and duplex units across 5 no. 2 to 5 storey buildings (with a basement under Blocks C + D), an ancillary single storey concierge/reception building, 97 no. carparking spaces, 226 no. cycle spaces, a single storey ESB substation, hard and soft landscaped areas, public lighting, attenuation, service connections, bin stores, a new pedestrian crossing on Newtownpark Avenue and all ancillary site development works, all on the 1.46ha site.

This document has been prepared with regard to *Dun Laoghaire Rathdown County Council's Guidance for Environmental Management of Construction Projects, September 2019*.

This CEMP provides details of the following aspects of the construction phase:

Part A Construction Management

- Community Liaison
- Complaints Management
- Working Hours
- Traffic Management
- Materials Management
- Site Compound and Staff Parking
- Site stripping and soil excavation
- Construction Waste Management

Part B Environmental Management

- Air Quality Control, Mitigation and Monitoring
- Noise & Vibration Control, Mitigation and Monitoring
- Groundwater and Surface Water protection
- Ecological Assessment

2.0 SITE LOCATION

The subject development site is located in an urban setting accessed off Newtownpark Avenue in Blackrock, Co, Dublin with existing residential development located adjacent the eastern site boundary, a school located south of the site and a convent located adjacent the western site boundary. Figure 1 provides an image of the development site location and the construction phase vehicle access route through the adjoining Cluain Mhuire site.

Figure 1 Site Location



3.0 DESCRIPTION OF CONSTRUCTION SITE ACTIVITIES

The range of works required for the Construction Phase are summarised in Table 1.

Table 1 Sequence of Construction Works

Activity Sequence	General Description
Identification of Existing Utility Services	Set up bunting, mark location of live services, including E.S.B., Gas etc.
Removal of Vegetation	e.g. Trees and vegetation
Removal of structures	Demolition of shed building 26m ²
Site Preparation	Soil stripping, stockpiling, soil export
Infrastructure installation	Drainage, Utility ducts, power
Substructure	Piling Basement excavation Rebar, Formwork
Superstructure	Rebar, Formwork and Pour
Roof	Rebar, Formwork and Pour and Waterproof
External Envelope	Place façade to superstructure
Internal Finishes	Mechanical & Electrical etc.
External Landscaping	Hard and soft landscaping

SECTION A CONSTRUCTION MANAGEMENT PLAN

4.0 CONSTRUCTION MANAGEMENT PLAN

This section describes the general construction management plan that shall be implemented during the construction phase of the site.

4.1 COMMUNITY LIAISON & COMPLAINT MANAGEMENT

The Site Manager shall appoint a delegate who shall act as Community Liaison Officer (CLO) and shall manage all issues and complaints that may arise throughout the construction phase. The CLO shall be competent on all aspects of the construction phase that have the potential to impact the receiving environment, local residential receptors and other receptors (schools, churches, businesses) located in proximity to the site.

The CLO shall have access to all live environmental monitoring data and shall be alerted by text and email should a limit be approached or exceeded.

On appointment, DLRCoCo shall be advised of the name and contact details of the CLO and a deputy CLO in case of absence from the site.

All complaints received shall be logged on a data base and shall include the time, source and nature of each complaint, a review of monitoring data where applicable, measures taken to identify the specific cause of the complaint and the follow-up actions taken to minimise the potential for a similar type complaint re-occurring.

4.2 CONSTRUCTION WORKING HOURS

Construction activities shall only take place in accordance with the permitted times as per the grant of permission. Typical hours are as follows:

07:00hrs – 18:00hrs Monday to Friday

No Rock Breaking/Piling to occur before 8am or after 5pm

08:00hrs – 14:00hrs Saturdays

No works Sundays or on Public Holidays

Out of hours works only to be conducted in consultation with DLRCoCo.

4.3 PRE-CONSTRUCTION WORKS

The following aspects will be implemented prior to the commencement of construction works.

Prior to the commencement of site activities, pre-construction surveys on adjacent third-party buildings, site boundaries and road / pavement infrastructure shall be conducted.

Installation of continuous noise, vibration and dust monitoring equipment in proximity to/at adjacent receptors.

Installation of secure 2.4m site hoarding, entrance gates and security systems at the site.

Identification of all existing services and utilities.

Development of a construction site compound with a hard-standing base of rolled stone, site offices and staff welfare units and demarcated staff and visitor parking areas.

Development of a secure materials and plant storage area adjacent the site compound

Development of a construction waste storage compound.

4.4 SITE ACCESS AND TRAFFIC MANAGEMENT

Access to the development site and the materials delivery compound shall be managed by flag-men and signage.

The site compound including the site offices, materials storage area and the construction waste compound shall be located as shown below in Appendix I.

All construction related traffic shall enter / exit the site via Cluain Mhuire as per legal agreement.

Visitors to the site shall park within the site compound area.

Pedestrian footpaths & site access crossover points shall be managed by flagmen.

The use of truck horns shall be banned and shall be indicated by signage at the site entrance.

A road sweeping/cleaning vehicle shall be utilised to clean roads and pavements as required during the construction phase.

Construction materials will be delivered to the site at a rate of approximately 1-deliveries per hour throughout the construction phase.

Refuelling of site plant and vehicles shall only be conducted by using a mobile refuelling vehicle fitted with spill kits. Diesel fuel shall not be stored on-site.

4.5 SITE CLEARANCE WORKS

Prior to the commencement of any groundworks, a specialist contractor shall implement the Invasive Species Management Plan as prepared by Enviroguide Consulting (Sept 2020).

Prior to the commencement of any groundworks, a Flora and Fauna survey and assessment shall be conducted by a competent Ecologist.
Site Clearance Works including the stripping of top and subsoils. (c. 13,000m³ Ref DBFL)

All top soils shall be stored in managed berms.

Top soils shall be re-used during the landscaping works at the site.

4.6 LOADING, UNLOADING AND STORAGE OF MATERIALS

Materials shall be unloaded and stored within the site compound. All vehicle oils and lubricants and liquid construction materials shall be secured storage container. The refuelling of vehicles shall be facilitated by a third party on-site refuelling truck.

Spill kits shall be located in the site compound to ensure any accidental spillages are cleaned and the waste material shall be placed in a dedicated labelled impermeable waste container for subsequent off-site disposal at a permitted facility.

4.7 CONSTRUCTION WASTE MANAGEMENT

A Construction Waste & By-Product Management Plan which specifically addresses the management of construction waste associated with the proposed development has also been prepared as part of this application.

4.8 SITE COMPOUND AND FACILITIES

The construction compound will include adequate welfare facilities such as wash rooms, drying rooms, canteen and first aid room as well as foul drainage and potable water supply.

The site compound and the general site shall be managed in accordance with CIF Covid-19 plans.

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.

The construction compound's potable water supply shall be protected from contamination by any construction activities or materials.

The construction compound will be enclosed by a security fence.

Access to the compound will be security controlled and all site visitors will be required to sign in on arrival and sign out on departure.

A permeable hardstand area will be provided for staff carparking.

A separate permeable hardstand area will be provided for construction machinery and plant.

The construction compound will include a designated Construction material recycling area.

A series of way finding signage will be provided to direct staff, visitors and deliveries as required.

All construction materials, debris, temporary hardstands etc. in the vicinity of the site compound will be removed off-site on completion of the works.

SECTION B CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PLAN

5.0 CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT & MONITORING PLAN

This Section describes the mitigation, control and monitoring methodologies that shall be implemented throughout the construction phase to ensure that noise, vibration and dust impacts on the receiving environment associated with construction activities, on local third-party properties are minimised. This section also defines how excavated soils shall be managed and how groundwaters and surface waters shall be protected.

Environmental noise, vibration and dust deposition monitoring surveys shall be conducted throughout the construction phase to monitor and assess the extent of the impact that site works may have on the receiving environment and on local receptors. The results of all surveys shall be maintained by the Project Manager, CLO and made available to Dun Laoghaire Rathdown County Council as requested.

5.1 AIR QUALITY CONTROL, MITIGATION AND MONITORING MEASURES

The following control and mitigation measures shall be implemented during the construction phase to reduce the impact of works on ambient air quality.

- Avoidance of unnecessary vehicle movements and manoeuvring, and limit speeds on site so as to minimise the generation of airborne dust.
- Use of rubble chutes and receptor skips during construction activities.
- During dry periods, dust emissions from heavily trafficked locations (on and off site) will be controlled by spraying surfaces with water and wetting agents.
- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only.
- Re-suspension in the air of spillages material from trucks entering or leaving the site will be prevented by limiting the speed of vehicles within the site to 10kmh and by use of a mechanical road sweeper.
- The overloading of tipper trucks exiting the site shall not be permitted.
- Road sweeping will be conducted to clean public road surfaces.
- Aggregates will be transported to the site in covered trucks.
- Where the likelihood of windblown fugitive dust emissions is high and during dry weather conditions, dusty site surfaces will be sprayed by a mobile tanker bowser.
- Exhaust emissions from vehicles operating within the construction site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised by routine servicing of vehicles and plant, rather than just following breakdowns; the positioning

of exhausts at a height to ensure adequate local dispersal of emissions, the avoidance of engines running unnecessarily and the use of low emission fuels.

- All plant not in operation shall be turned off and idling engines shall not be permitted for excessive periods.
- 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.
- 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 systems if required.
- A programme of air quality monitoring shall be implemented at the site boundaries during the construction phase activities to ensure that the air quality standards relating to dust deposition are not exceeded. Where levels exceed specified air quality limit values, dust generating activities shall immediately cease and enhanced mitigation measures shall be implemented.
- 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.

Dust Monitoring Methodology

Dust deposition levels will be monitored on a monthly basis throughout the construction phase as part of the Construction Management Plan in order to assess the impact that site activities may have on the local ambient air quality and to demonstrate that the environmental control measures in place at the site are effective in minimising the impact of demolition and construction site activities on the local receiving environment. Dust deposition measurements shall be conducted to determine the potential for dust nuisance or complaint to arise from local residents' adjacent site works areas. The following procedure shall be implemented at the site on commencement of site activities:

The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 +-2 days.

The selection of sampling point locations will be completed after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures. The optimum locations will be determined by a suitably qualified air quality expert to ensure that the dust gauge locations are positioned in order to best determine potential dust deposition in the vicinity of the site boundaries and existing off-site buildings.

After each (30 +-2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined

gravimetrically by an accredited laboratory and expressed as a dust deposition rate in mg/m²-day in accordance with the relevant standards.

Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager and made available to Dun Laoghaire Rathdown County Council as requested.

The *German Federal Government Technical Instructions on Air Quality Control - TA Luft* specifies an emission value for the protection against significant nuisances or significant disadvantages due to dustfall. This limit value is 350 mg/m²-day and it is to this limit value that all measured dust deposition levels shall be assessed. This limit value is commonly specified by Local Authorities at construction site

Figure 1 below presents the proposed dust monitoring locations.

5.2 NOISE & VIBRATION CONTROL, MITIGATION AND MONITORING MEASURES

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.

The following control and mitigation measures shall be implemented during the construction phase to reduce the noise impact of works on the receiving environment including local receptors.

- All plant where possible shall be low noise rated.
- High noise activities such as pneumatic hammering / rock breaking shall not occur before 08:00hrs and not after 17:00hrs Mondays to Fridays and not before 09:00hrs and not after 14:00hrs on Saturdays.
- Where necessary the use of enclosures and noise screens shall be used to control noise from plant.
- Plant shall be located away from the closest noise sensitive receptors where practicable.
- All site vehicles shall either be turned off when not in use or throttled down when idle.
- Site plant and vehicles shall be maintained to ensure they are not excessively noisy.
- Vibration sources such as compressors, pumps or generators shall be isolated and placed on anti-vibration pads to minimise ground vibrations and vibrational noise.
- Site offices / cabins shall be grouped together in a manner that forms an additional noise barrier relative to the closest receptors to the site boundaries.

- Sound attenuated generators shall only be used on-site.
- Pneumatic breaking shall only be conducted using insulated pneumatic hammers (city breakers)
- Broadband reverse warning alarms shall be fitted to all site vehicles

Noise Monitoring

Noise levels shall be monitored on a continuous basis using a live noise monitoring system capable of transmitting live text and email alerts should the specified limit values be exceeded.

Noise levels shall be assessed against the construction noise limit criteria defined in *BS 5228 Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise 2009+A1: 2014* and as detailed below in Table 2.

Table 2 BS 5228 – 1:2009+A1 2014 Construction Noise Limit Criteria

Construction Phase		Noise Limit Criteria	
Location / Day	Assessment Period	External Noise Limit Criteria	
All Receptors Monday to Saturday Morning	07:00hrs – 08:0hrs	70 dB(A), L _{Aeq} , 1hr	
All Receptors Monday to Friday Daytime	08:00hrs – 18:00hrs	75 dB(A), L _{Aeq} , 10hr	
All Receptors Saturday Daytime	08:00hrs – 14:00hrs	75 dB(A), L _{Aeq} , 6hr	

A full technical noise assessment report together on recommendations on noise control and mitigation shall be issued and maintained by the Project Manager and made available to Dun Laoghaire Rathdown County Council as required.

Figure 1 below presents the proposed noise monitoring locations.

Vibration Monitoring

In order to ensure that site construction activities are conducted to minimise the vibration impacts on the receiving environment, structural vibration monitoring shall be conducted during the course of the project works as required. It is proposed that vibration monitoring will be conducted at adjacent properties as required using calibrated vibration monitors and geophones with text and email alert capability to ensure that if vibration levels are approach or exceed specified warning and limit values, site personnel will be alerted to cease at the earliest instance and appropriate mitigation measures may then be implemented to minimise the vibrational impacts of protected structures.

Transient vibration guide values for cosmetic damage are specified in *British Standard BS 7385: Evaluation and measurement for vibration in buildings, Part 2*

1993 Guide to damage levels arising from ground borne vibration as per Table 2 below.

The monitoring points chosen for locating the geophone of the vibration measuring instrument will be determined according to the guidelines in *British Standard BS 7385: Evaluation and measurement for vibration in buildings, Part1 1990 Guide for measurement of vibrations and evaluation of their effects on buildings and Part 2 1993 Guide to damage levels arising from groundborne vibration.*

Table 3 British Standard BS 7385:, Evaluation and measurement for vibration in buildings, Part 2 1993

Type of building	PPV (mm/s) in frequency range of predominant pulse	
	4-15Hz	15Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings.	50mm/s at 4Hz and above.	50mm/s at 4Hz and above.
Unreinforced or light framed structures. Residential or light commercial buildings.	15mm/s at 4Hz increasing to 20mm/s at 15Hz.	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above.

Table 4, reproduced from *BS 5228 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration 2009+A1 2014* outlines the vibration levels (in terms of PPV) from construction activities and their likely effect on humans.

Table 4 Guidance on the effect of construction vibration levels on humans

Vibration Level (PPV)	Effect
0.14mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.30mm/s	Vibration might be just perceptible in residential environments.
1.0mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

5.3 DUST, NOISE & VIBRATION MONITORING METHODOLOGIES

The proposed locations of the dust, noise and vibration monitoring systems are shown below in Figure 1.

Figure 1 Proposed Noise, Vibration and Dust monitoring locations



5.4 GROUNDWATER AND SURFACE WATER MANAGEMENT

Groundwater Protection

Groundwater may become contaminated with lime from cement and accidental oil and fuel spillages. To mitigate these impacts, spill kits shall be located at the site and shall be used to clean up any spillages. Diesel fuel for plant and site vehicles shall not be stored on site. Re-fueling shall be conducted using a mobile fuel tanker. All oils, lubricants and other hydrocarbon based oils shall be stored in a secure impermeable container.

Sediment & Erosion

Watercourses/groundwater shall be protected from sedimentation to direct surface water runoff generated onsite during the construction phase. To prevent this from occurring surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated 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 by the site during construction. A 'siltbuster' silt control unit can be used on the outfall. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed before being discharged in a control manner to the agreed outfall.

Water quality monitoring

It is proposed to implement a programme for monitoring water quality for silts and hydrocarbons as part of the construction phase, in agreement with the Planning Authority. This programme and locations of sampling will be agreed with Dun-Laoghaire-Rathdown County Council.

Trade Effluent Discharge Licensing

Surface water discharges to storm water systems or watercourse shall only occur in accordance with the conditions of the discharge licence and agreeing the same with the Site Engineer and Local Authority Area Engineer.

Disposal of Wastewater off Site

A record of all receipts for the removal of toilet or interceptor waste off site shall be maintained to insure its disposal in a traceable manner. These will be available for inspection by the Environment Section of Dun Laoghaire County Council at all times

Road Sweepers / Cleaning

The cleaning of public roads in and around the subject site will be undertaken to reduce environmental impacts and care will be taken to prevent any pollution of watercourses from this activity.