REPORT



Construction Environmental Management Plan

Project Title: Proposed Large Residential Development at Kilnahue Gorey, Wexford.

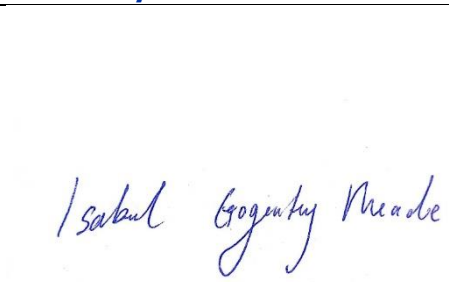
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1. INTRODUCTION

AWN Consulting, Trinity Consultants Company, has prepared this Construction Environmental Management Plan (CEMP) for McCutcheon Halley on behalf of Glenveagh Homes Ltd. for a Large-Scale Residential Development (LRD) at Kilnahue & Gorey Hill, Carnew Road (R725) & Kilnahue Lane (L10112), Gorey, Co. Wexford. This CEMP explains the construction techniques and methodologies which will be implemented during construction of the proposed development.

The CEMP mitigation measures will be implemented to ensure that pollution and nuisances arising from site clearance and construction activities is prevented where possible and managed in accordance with best practice environmental protection.

The CEMP will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the site will be trained in the implementation of the procedures.

The construction Contractor will provide a further detailed CEMP to include any subsequent planning conditions relevant to the proposed development and set out further detail of the overarching vision of how the construction Contractor of the proposed development manage the site in a safe and organised manner.

This CEMP has been prepared to account for activities at the site during the excavation and construction phases of the project.

The main issues that have been considered within this document are as follows:

- Description of works;
- Construction programme and phasing;
- Site logistics;
- Workforce;
- Public relations and community liaison;
- Construction traffic and access; and
- Safety, health and environmental management.

2. DESCRIPTION OF THE PROJECT

The applicant intends to apply for planning permission for a large-scale residential development consisting of 413 no. units, in a mix of detached, semi-detached, townhouses and apartments/duplexes and a creche to cater for 102 no. children and all associated site development works at Killnahue & Gorey Hill, Gorey, Co Wexford.



Figure 2.1 Proposed Site Layout & Redline Boundary Map

3. CONSTRUCTION PROGRAMME AND PHASING

The construction works associated with the development will be undertaken in 4 no. phases. Each phase will start at a different time, however, the construction timelines will mostly be concurrent.

Construction work is expected to commence in the third quarter (Q4) 2026 and take approximately 48 months for the construction and commissioning phases prior to the commencement of full operations and occupation.

- Phase 1 – 71 no. units & the 102 no. child creche &community room
- Phase 2 – 102 no. units
- Phase 3 – 132 no. units
- Phase 4 – 108 no. units

The indicative phasing plan is illustrated in Figure 3.1 below.

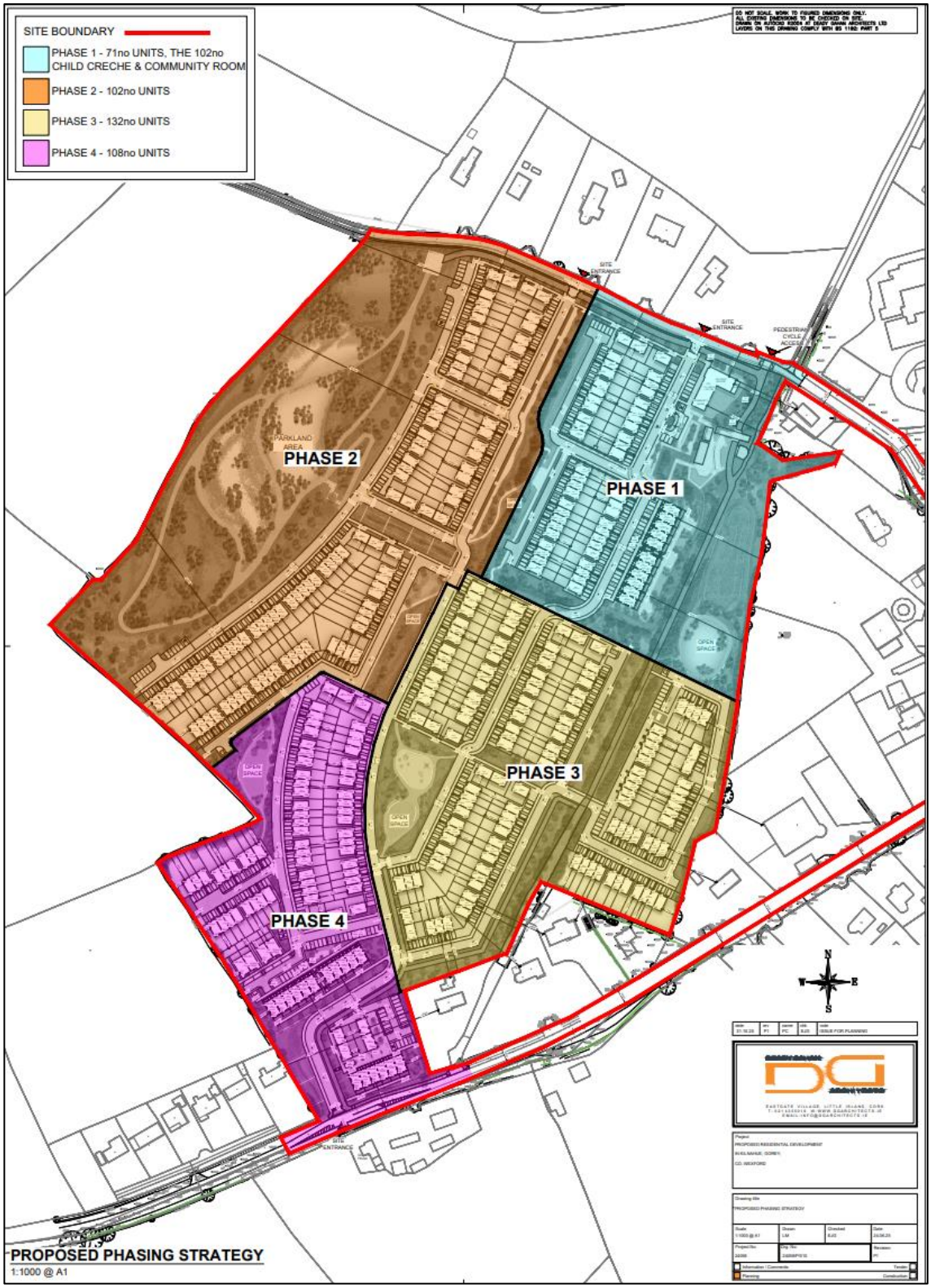


Figure 3.1 Proposed Phasing Strategy

Subject to detailed planning at the construction stage, it is currently envisaged that the construction compound, offices, staff parking and storage areas will be located at the position indicated in Figure 3.2.

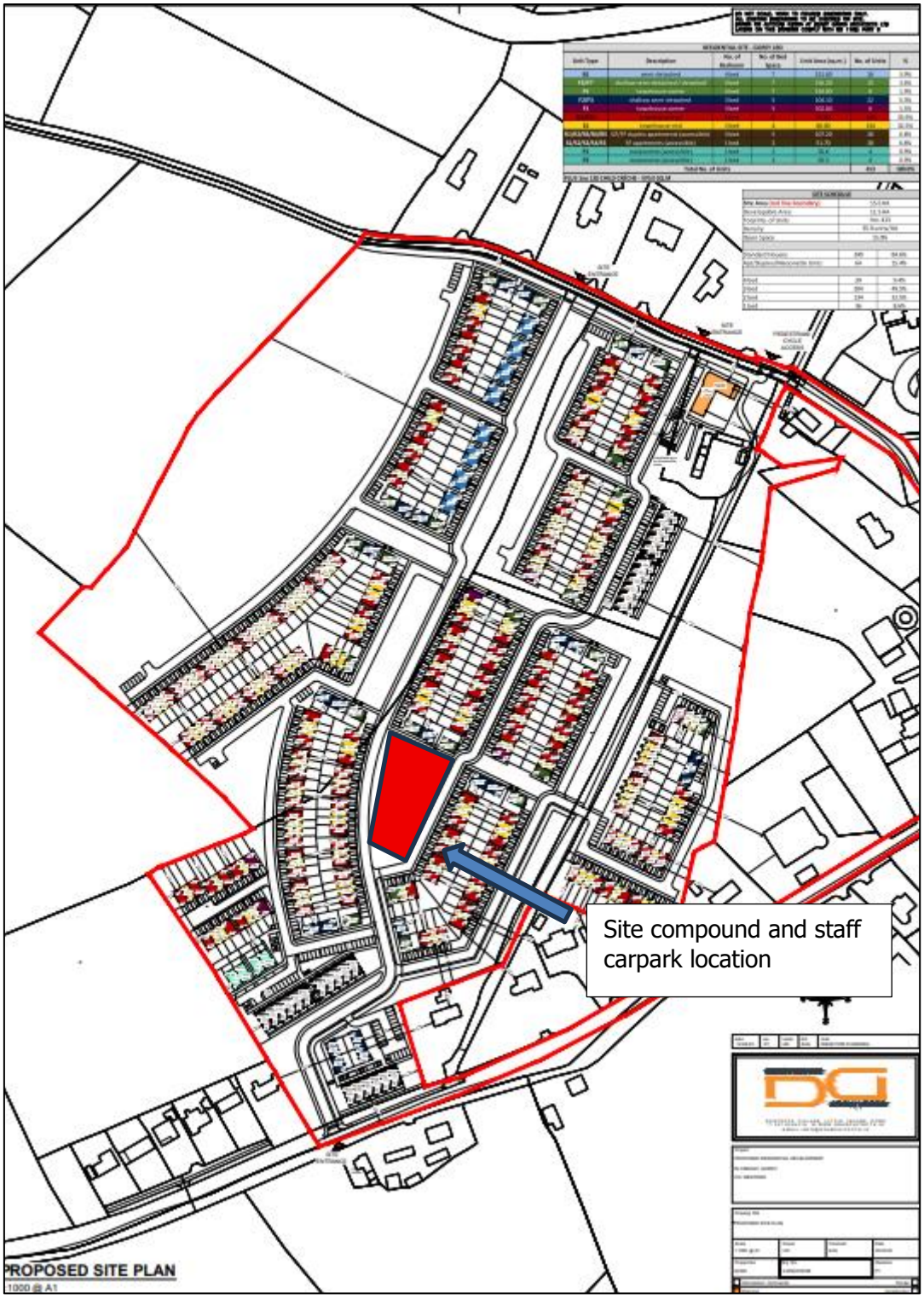


Figure 3.2 Potential Site Construction Compound Location

3.1 Demolition Phase

There will be no demolition required for this development.

3.2 Excavation & Construction Phase

The project excavations will involve excavations for new foundations, site levelling and excavations for roads and services. The Resource Waste Management Plan (RWMP) prepared by AWN Consulting Ltd (257501.0141WMR01) for the development will be updated by the main contractor and will be in compliance with the requirements of the *'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects'* published by the Environmental Protection Agency (November 2021) [1], which will identify and categorise any waste arising from the development.

The Plan will contain the proposals for the minimisation, re-use and recycling of site generated waste. As part of this Plan separate storage areas will be designated on the site for various types of material in order to maximise the re-use and recycling potential. Procedure will also be put in place to ensure that all sub-contractors fulfil the requirements of the Waste Management Plan.

As previously stated, the project involves the construction of 413 no. new residential dwellings and a creche, constructed over 4 phases.

The works will include:

- Site set up, welfare facilities and compound establishment, decommissioning and movement of site compound and facilities as needed.
- Set up of hoarding around compound and the site boundary.
- Erection of safety signage to all areas and implementation of traffic/pedestrian management plan.

4. EXCAVATIONS

4.1 Ground Conditions

Site investigations were undertaken by Site Investigations Ltd (S.I. Ltd) in June 2021. The findings were as follows:

8 No. trial pits were excavated using a wheeled excavator and environmental testing was scheduled on the 8 samples.

For material to be removed from site, Suite I testing was carried out to determine if the material is hazardous or non-hazardous and then the leachate results were compared with the published waste acceptance limits of BS EN 12457-2 to determine whether the material on the site could be accepted as 'inert material' by an Irish landfill. The Waste Classification report created using *HazWasteOnline™* software shows that the material tested can be classified as non-hazardous material. Following this analysis of the solid test results, the leachate disposal suite results indicate that the soils tested would be able to be treated as Inert Waste. Eight samples were tested but it cannot be discounted that any localised contamination may have been missed. Any made ground excavated on site should be stockpiled separately to natural soils to avoid any potential cross contamination of the soils. Additional testing of these soils may be requested by the individual landfill before acceptance and a testing regime designed by an environmental engineer would be recommended to satisfy the landfill.

No asbestos was detected in any of the samples. All 8 samples results were classified as non-hazardous and inert.

If any potentially contaminated material is encountered, it will need to be segregated from clean / inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled *'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [2] using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* [3]*,* which establishes the criteria for the acceptance of waste at landfills.

In the unlikely event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with the *Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010* [4] *and the Best Practice Guidance for Handling Asbestos (2023)* [5]*.* All asbestos will be taken to a suitably licensed or permitted facility.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify WCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorised waste collector(s).

5. SITE LOGISTICS

5.1 Site Safety Compliance

The Contractor shall be responsible for overall management of the site for the duration of the proposed works and will progress their works with reasonable skill, care, diligence and to proactively manage the works in a manner most likely to ensure the safety and welfare of those carrying out construction works.

The Contractor shall comply with all relevant Statutory requirements such as the 2005 Safety Health and Welfare at Work Act[6], The Construction Regulations (SI 291 of 2013)[7], the General Application Regulations (SI 299 of 2007)[8], etc. (and any amendments thereof).

In addition, the Contractor shall comply with all the reasonable safety requirements of the Client, the Project Supervisor for the Design Process and the Project Supervisor for the Construction Stage.

5.2 Site Establishment and Security

The first activity to be carried out at the site will be the establishment of site facilities and security. It is anticipated that site establishment works will take approximately four weeks. The site office and welfare facilities will be confirmed in advance of the commencement of site works and agreed with WCC. Figure 3.2 shows the proposed location of the site compound and staff parking.

All of the sub-contractors as well as the main contractor and project managers will occupy offices within the construction compounds. The site parking for all staff, contractors and visitors will also be located in this area. Carpooling and the use of public transport will be encouraged to reduce pressure on parking in the area.

Perimeter hoarding will be provided around the entire site to provide a barrier against unauthorised access from public areas. All areas of construction will be fenced / hoarded off to prevent unauthorized access. This fencing shall remain closed at all times during construction works and closed and locked after construction work hours / break times.

This fencing shall be erected in accordance with good practice and the Construction Regulations 2013. Fencing arrangements shall be reviewed as the life of the project progresses.

5.3 Consents and Licenses

All statutory consents and licences required to commence on-site construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. These will include, but are not limited to:

- Site notices;
- Construction commencement notices; and
- Licence to connect to existing utilities and mains sewers, where required;

5.4 Services and Utilities

5.4.1 Surface Water Drainage

The proposed surface water drainage network will be designed in accordance with the requirements and recommendations of Wexford County Council Taking-in-Charge policy, the Greater Dublin Strategic

Drainage Study & Regional Code of Practice and CIRIA SuDS Guide. The measures incorporated into the design will:

- Limit the discharge rate of stormwater runoff;
- Provide attenuation volume for excess runoff and;
- Provide treatment prior to discharge to the public network.

During the construction of the Surface Water drainage, the system shall be inspected and monitored for compliance with the design and relevant Wexford Co. Co. and GDSDS standards in accordance with the Preliminary Inspection Plan. Pressure testing shall be carried out on all sewer installations during construction while exfiltration testing shall be carried out on all manholes. Records of these tests shall be maintained by the Contractor. The connection to the existing open water course will not be made until all the works are complete within each Phase, and temporary surface water management will remain in place until this time to ensure only clean, uncontaminated surface water is discharged to the public drainage network.

5.4.2 Wastewater

The proposed public wastewater network has been designed in accordance with the Uisce Eireann Code of Practice and all private drainage will be in accordance with the Building Regulations Technical Guidance Document Part H. Any required upgrades to the public drainage network are to be fully agreed with UE at connection application stage. This will ensure capacity in the internal & receiving networks and adequate performance of the network by preventing contamination and ensuring adequate flow velocities.

All wastewater pipework and manholes will be designed, constructed and tested in accordance with the Uisce Eireann Code of Practice and Standard Details and will be subject to inspection by the UE Field Engineer and the Consultant Design Engineer during construction. Upon completion the contractor will submit for review a QA pack for review including but not limited to:

- CCTV analysis
- As-Built Drawings
- Pressure Test Records
- Manhole Exfiltration Test Records

No connection to the public network will be made until all QA information is reviewed and approved by the Consultant Design Engineer and UE Field Engineer.

5.4.3 Water Supply

The water supply network has been designed in accordance with the Uisce Eireann Code of Practice and any upgrades to the existing network to provide capacity for the proposed development will be fully agreed with UE at connection application stage.

During the construction of the water supply network, the system shall be inspected, tested and monitored in accordance with the requirements of the relevant Uisce Éireann Code of Practice. Records of these tests shall be maintained by the Contractor as required and shall be witnessed by Uisce Éireann in accordance with the relevant Quality Procedures. No connection to the public network will be made until all relevant QA information is reviewed and approved by the Consultant Design Engineer and UE Field Engineer.

5.4.4 Electricity Supply

All proposed power cables within the development will be buried underground or internal within buildings and will be installed according to the relevant ESB Networks specifications.

The ESB shall monitor the existing and proposed networks during the diversion and undergrounding of the existing overhead MV (10KV/20KV) and LV (400V/230V) powerlines. The ESB shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

5.4.5 Telecommunications

The proposed telecommunications infrastructure within the development will be buried underground or internal within buildings.

The incoming telecommunications provider shall monitor the existing and proposed networks during the installation of the proposed telecommunications network throughout the site during construction. The incoming telecommunications provider shall carry out ongoing testing and commissioning of the installed infrastructure during construction.

5.5 Material Handling and Storage

Key materials will be ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage.

Where possible it is proposed to source general construction materials from the Wexford area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in the compound area within the site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – *BS EN 1992-3:2006* [9]) to prevent spillage.

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape of material along the public roadway.

The majority of construction waste materials generated will be soil from excavation works. Material will be removed from site regularly to ensure there is minimal need for stockpiling.

5.6 Visitor Management

Visitors will only be allowed to enter the main site compound via the designated pedestrian access gate. A dedicated, secured footpath to the site office is established at the gate for registration and obtaining PPE prior to entering the site. A log will be maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the compound and/or construction site unless being accompanied by an inducted member of the site team.

Visitors will then be taken by an inducted member of the construction team to the required area of the site.

5.7 Site Working Hours

Site development and building works will only be carried out between the hours of 0800 to 1900 Mondays to Fridays inclusive and between 0800 and 1400 hours on Saturdays There will be no construction works carried out on Sundays or public holidays. Deviation from these times will only take place when written approval is granted by WCC in exceptional circumstances

5.8 Employment and Management Workforce

It is estimated that there will initially be 70 staff on site on a typical day, however during peak construction periods this may fluctuate and increase the number of staff and contractors on site per day.

It is anticipated that the key project managers and main contractor representatives will maintain a presence on site for the whole duration of the project and the labour workforce will be determined by the specialist contractors required on site.

All employees working on the site will be required to have a SafePass Card (or similar approved Construction Health & Safety card), manual handling training, and the necessary certificates to operate machinery as required. The details of training required, records maintained, and induction procedures will be outlined in the Main Contractor's Health and Safety Plan(s).

6. CONSTRUCTION TRAFFIC AND SITE ACCESS

Mitigation during the construction phase focuses on controlling temporary traffic impacts, ensuring safe movement for vehicles and vulnerable road users, and preventing disruption to the adjacent school zone. All measures will be implemented through a detailed Construction Traffic Management Plan (CTMP) prepared by the Contractor and agreed with Wexford County Council prior to commencement.

Key mitigation measures include:

- Preparation and implementation of an operational CTMP, outlining haul routes, delivery schedules, signage, access arrangements, and traffic control measures.
- Designation of construction access points to avoid conflict with school peak periods on Kilnahue Lane (particularly 08:00–09:00 and 15:00–16:00).
- Time-restricting HGV and delivery movements outside of school drop-off/pick-up times to minimise risk and local congestion.
- Use of banksmen/marshals at site entrances during busy periods to ensure safe interaction between construction vehicles, pedestrians, and cyclists.
- Temporary traffic management signage, including advance warning signs, speed controls and localised barriers as required.
- Clear separation between construction areas and public pedestrian/cycle routes, with fencing, hoarding and controlled crossing points as required.
- Wheel-wash and sediment control facilities at exits to prevent mud and debris on the public road.
- Monitoring of road condition on the R725 and Kilnahue Lane, with repair works undertaken by the Contractor if damage arises.
- Provision of safe temporary footpaths/cycleways where existing public routes are affected by works, ensuring continuous safe access to nearby schools.
- Construction worker mobility planning, including car-pooling, shuttle services or designated off-site parking to avoid overspill onto local roads.

The mitigation measures will therefore ensure that the presence of construction traffic will not lead to any significant environmental degradation or safety concerns in the vicinity of the proposed works. Furthermore, it is in the interests of the construction programme that deliveries, particularly concrete deliveries are not unduly hampered by traffic congestion, and as a result continuous review of haulage routes, delivery timings and access arrangements will be undertaken as construction progresses to ensure smooth operation.

In general, the impact of the construction period will be temporary in nature. HGV vehicle movements per hour during the busiest period of construction works are estimated at a peak of 20 (40 for all HGV) earth-moving vehicles on site at once. Outward heavy duty vehicle movements per day (worst case) – 100.

Construction traffic will be monitored under the CTMP framework in consultation with WCC. The following mitigation and monitoring measures will be implemented for the construction stage traffic management:

To manage the temporary increase in construction traffic on R725 and L10112, a Construction Traffic Management Plan (CTMP) including haul routes, delivery scheduling, temporary traffic controls, and restrictions on HGV movements during school peak hours will be implemented. Regular review of the CTMP compliance; on-site supervision of access/egress; weekly contractor audits; liaison with Wexford County Council will ensure the management of temporary increase in construction traffic.

To manage localised delays near schools during AM peak Scheduling of HGV arrivals outside 08:00–09:00 and 15:00–16:00; the use of banksmen at access points will be implemented as well as temporary signage

and speed controls. There will be daily logs of delivery times, monitoring by the site manager and periodic checks during school peak periods.

To manage the increased pedestrian–vehicle conflict risk there will be use of traffic marshals, controlled crossing points, temporary footpath/cycleway protection and barriers and safe pedestrian detours implemented. Monitoring will include on-site audits to ensure barriers and diversions remain in place and unobstructed, and safety inspections.

To mitigate against potential debris/mud on public roads, wheel-wash facilities and road sweeping will be utilised as required to maintain road cleanliness. There will be daily visual checks of road condition and a contractor log of cleaning activities.

To avoid construction worker parking causing local congestion, a Worker mobility plan including off-site parking, car-pooling and shuttle options will be implemented. This will be monitored through periodic monitoring of roadside parking and enforcement through site management.

If there is temporary disruption of pedestrian/cycle links, provision of safe temporary diversion routes and clear signage and lighting will be implemented. There will be inspections during construction to ensure routes remain safe and unobstructed.

7. SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS

7.1 Biodiversity

7.1.1 Habitats

All site clearance and landscaping works will comply with current legislative requirements and best practice. Once operational, the development will have a detailed landscape strategy implemented to maximise biodiversity value on site, this will include the retention of 1900 linear metres of native hedgerows within and along the site boundary. Approximately 1734 trees, including species such as oak, ash, and beech, will be planted across the site. These will be arranged in structured treelines, with additional woodland planting areas integrated into the overall landscape design strategy. This planting scheme is intended to support and enhance biodiversity on site.

Other operational mitigation measures to improve the biodiversity value will include:

- Post construction, an inspection of drainage connections to the watercourse network including petrochemical interception will be carried out by the project ecologist.
- 20 bird boxes to be placed on site in consultation with project ecologist.
- A post construction bat survey and light spill assessment will be carried out to ensure compliance with the lighting plan.
- A number of bat boxes will be placed in dark vegetated areas to mitigate the loss of the bat roost. The installation and number put in place will be determined by the project ecologist as deemed appropriate.

During constructions, there will be measures implemented to protect habitats including, where possible, treelines and mature trees that are located immediately adjacent to planned construction areas or are not directly impacted will be avoided and retained intact. Retained trees will be protected from root damage by machinery by an exclusion zone of at least 5 metres or equivalent to canopy height. Such protected trees will be fenced off by adequate temporary fencing prior to other works commencing.

Removal of deciduous trees. Should any mature broadleaved tree be scheduled for removal, it will first be surveyed for roosting potential and bat presence if required. If bats are found, an application for a derogation licence should be made to the National Parks and Wildlife Service to allow its legal removal. Such trees will be felled in the period late August to late October, or early November, in order to avoid disturbance of any roosting bats as per National Roads Authority guidelines (NRA 2006a and 2006b) and also to avoid the bird breeding seasons. Any tree felling will be completed by mid-November at the latest as bats roosting in trees are very vulnerable to disturbance during their hibernation period (November – April). Trees may be removed at other times but the likelihood of encountering bats during works will be higher. Trees with ivy-cover, once felled, will be left intact onsite for 24 hours prior to disposal to allow any bats beneath foliage to escape overnight.

7.1.2 Fauna

A pre-construction survey for bats and terrestrial mammals will be carried out. This will include an inspection for resting and breeding places for both terrestrial mammals and bats. Given the nature of the dense scrub on site no machinery access to the site for construction will be allowed without consultation and approval of the project ecologist. The ecologist will oversee site clearance and will be on site during the removal of scrub and hedgerows. Should resting or breeding places be found a derogation licence will be acquired from NPWS and conditions followed prior to works commencing in the vicinity of the resting or breeding place.

An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity in neighbouring areas including birds, mammals including bats, badger and otter will not be significantly impacted.

Where feasible and practicable, the removal of vegetation suitable for use by nesting birds will be undertaken outside the bird nesting season (avoiding the period 1st March to 31st August, unless otherwise agreed). If removal is required during this season the removal of woody material will be carried out under the supervision of an ecologist. If nesting birds are present NPWS will be contacted, and removal will be subject to conditions outlined by NPWS.

7.1.2.1 Bats

As outlined in the Bat Fauna Impact Assessment, the following mitigation measures will be implemented specifically in relation to bats on site:

- Landscaping has also been designed to include bat friendly plants including trees and native hedgerows to attract insects.
- The tree roost on site will be removed, subject to licence approval, using the methodology outlined below:
  - Felling of the bat roost tree will take place from November to February when bats are in hibernation.
  - A pre felling inspection of the trees will be carried out by a bat specialist. If no bats are present during the inspection the tree will be felled in sections and lowered to the ground, where the sections will remain for 24 hours. If a bat is, or bats are found, a specialist, licenced in manual handling of bats, will oversee the removal of the bat from the tree and the safe relocation of the bat to a suitable site within the site outline. This may include the placing of the bat in a cardboard box for release at night or placing the bat in a safe suitable temporary roosting location, depending on weather conditions.
- Any tree felling will be undertaken at an appropriate time of year, as deemed by the project ecologist.
- Pre-Construction inspection for bats in all buildings to be demolished and emergent survey will be carried out by a suitably qualified ecologists/bat worker, prior to the demolition of buildings.
- All trees with bat roosting potential that are scheduled for felling will undergo a pre-felling inspection by a suitably qualified ecologist or bat worker, using appropriate survey techniques such as endoscope inspection, thermal imaging, and, where suitable, emergence surveys.
- Lighting at all construction stages should be done sensitively on site with no direct lighting of hedgerows and treelines.
- Lighting during construction should only be used during working hours with no floodlighting of the site.
- A post construction bat survey and light spill assessment will be carried out to ensure compliance with the lighting plan.
- A number of bat boxes will be placed on site to mitigate the loss of the bat roost. The installation and number put in place will be determined by the project ecologist as deemed appropriate.
- During operation, lighting will comply with Bat Lighting Guidelines and is set to 2700K.

7.1.3 Construction Lighting

Construction work will generally be confined to daylight hours and lighting will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required (works on roadways and power floating floors as examples). Lighting during construction will be carried out in consultation with the project ecologist and treelines, boundary hedgerows or wooded areas will not be lit.

Where possible and without jeopardising site safety lights will be pointed down at a 45-degree angle and away from sensitive receptors. In general, artificial light creates a barrier to bats so lighting will be avoided where possible. Where lighting is required, directional lighting (i.e. lighting which only shines on work areas and not nearby countryside) will be used to prevent overspill during construction. This can be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvers and shields to direct the light to the intended area only. The site compound will have external lights for safety and security. These lights will be pointed down at a 45-degree angle and away from sensitive receptors where possible.

7.1.4 Habitat degradation – Surface Water Quality

As well as these generic mitigation measures, other specific mitigation and/or monitoring measures may be required, which will include, but will not be limited to:

- Construction methods used by the contractor are to be tailored to reduce, where possible, sediment runoff and leaks or spills to ground and to minimise effects on the local environment.
- Designated roadways and internal access/construction routes will be clearly designated and fenced off in-order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. Similarly existing hedgerows and site features which are to be maintained will be fenced off. Silt fencing to be used as necessary.
- Any spoil or waste material generated from the construction process is to be temporarily stored on more level ground at an approved location on site, and segregated from surface water runoff, before being either re-used on site or removed off-site to a suitably licenced waste management facility. Silt fencing to be used as necessary.
- All fill and aggregate for the project will be sourced from reputable suppliers.
- Designation of bunded refuelling areas on the site (as required) as well as the provision of spill kits across the site will reduce the potential for fuel or oil spills occurring or their extent.
- Fuel, oil and chemical storage should be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 10m away from drains, ditches, excavations and other locations where it may cause pollution. Bunds should be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination.
- All bowsers to carry a spill kit and operatives must have spill response training; and portable generators or similar fuel containing equipment will be placed on suitable drip trays and/or absorbent fuel 'nappies'. In the case of drummed fuel or other potentially polluting substances (i.e. cement) which may be used during construction the following measures will be adopted:
- The use of a dedicated concrete truck washout areas and secure storage areas for the storage of concrete materials. All containers that contain potential polluting substances to be stored in dedicated internally bunded chemical storage cabinet units or inside concrete bunded areas. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.
- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines.
- Potable water supply networks and wastewater infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with the requirements of Uisce Eireann.
- Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning.
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.
- Best practice environmental guidance will be incorporated into the projects Construction Environmental Management Plan (CEMP) for the development.

All of the above measures implemented on site will be monitored throughout the duration of construction/ to ensure that they are working effectively, to implement maintenance measures if required/applicable and to address any potential issues that may arise.

7.1.5 Monitoring

A suitably experienced Project Ecologist (Ecological Clerk of Works) will be appointed for the duration of the construction phase and regular monitoring of all related works will take place to ensure the correct and full implementation of all mitigation measures. The Site Manager will ensure that all construction works take place in accordance with planning conditions, the project CEMP and the mitigation measures set out in this EIAR.

As noted above, vegetation clearance will only be permitted outside the bird-nesting season. Should vegetation clearance be required during the bird nesting season, and should this work be unavoidable, such clearance will take place only after the Project Ecologist has undertaken a survey to ensure that no active bird nests are present. Pre-construction surveys will be required to ensure that any unavoidable tree-felling or other works have no impact on roosting bats.

On completion of construction, the lighting installed will be reviewed by the Project Ecologist and a bat specialist, to ensure that it is operating according to the approved specifications. The landscape architect will similarly ensure that all works undertaken are in full compliance with the landscape specification.

7.2 Soils & Geology

In order to reduce impacts on the soils and geological environment, a number of mitigation measures will be adopted as part of the construction works on site. The mitigation measures will include:

- Control of Soil Excavation and Export from Site using the reduce, reuse and recycle approach with any excavation arisings to be reused on site where possible with the implementation of an appropriate earthworks handling protocol to be used.
- The areas where the excavation of unconsolidated soil and subsoils is required within each building phase will be kept to a minimum and only extended as already stripped ground has been built over. Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments in wet conditions. Potential effects are therefore avoided.
- Limiting activities to designated work areas, thereby not allowing machinery or construction activity in proposed future green, open space and/or undeveloped areas will ensure that there is no dust or sediment runoff generated and no soil compaction will occur in those areas.
- Designated roadways and internal access/construction routes will be clearly designated and fenced off in order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation.
- Dust can be reduced by damping down of the works areas and especially along roads and access tracks where vehicle activity increases the generation of dust and fine particulates. Vehicle wheel washes, road sweeping and general housekeeping will ensure that the surrounding environment are free of nuisance dust and dirt on roads.
- A designated contractor compounds, located in an area of level ground, will be established for the site. This compound will enable the safe storage of building materials, car parking, waste skips and will include a designated refueling station and wash down area.
- Designated stockpile areas for the temporary storage of topsoil, subsoils and rock material required for site use will be established in areas where the ground level is relatively flat and well away (>10m) from steeper slopes and surface water drainage features.

- Sand and gravel stockpiles will be kept to a minimum, stored on leave ground, away (>10m) from drainage features and will be covered as necessary.
- Shallow berms, silt fences and/or cut-off trenches can be established around compound, work and stockpile areas which will prevent clean surface water runoff from flowing across these areas and will also help contain any impacted runoff flowing away from these parts of the site.
- Any sediment laden runoff will be channeled through silt traps and ponds to allow, as far as possible, the settlement of suspended solids. The discharge of silty water over grass field areas will be considered if necessary.
- Runoff from machine service and/or concrete mixing areas will not be allowed to discharge to ground or enter watercourses. Dedicated service and concrete wash down bunded areas will be established.
- Any finished construction, landscaped and green areas will be finished and re-grassed as soon as possible to limit the potential for dust and surface water generation from those areas.
- Activity of plant equipment and machinery operating in the construction area could result in small scale fuel spills to ground - mitigating against accidental leaks and spillages during the development will involve implementing good practices including regular plant maintenance, use of drip trays, adequate bunding for storage containers, refuelling in designated areas etc.
- All fuel storage areas on the site are sufficiently bunded and any mobile bowsers used on site will be double skinned. Bunds sufficiently large to fully contain accidental spills will be provided around all tanks/storage areas containing harmful substances.
- Spill kit materials will be maintained on site and site staff trained in the response to accidental spills and the use of clean up materials.
- Good housekeeping (site clean-ups, use of disposal bins, etc.) around the site and proper use of storage and disposal facilities for lubricants fuels and oils will be used.
- The construction contractor and design team will prepare a Construction Environmental Management Plan (CEMP) for the development works and this will be reviewed during the construction phase and be augmented with additional controls as and if required.

7.2.1 Monitoring

All topsoil, soil and rock excavation work will be observed by a banks man. While there is no evidence of foreign fill or waste material on the site this operative will be instructed to lookout for any physical evidence, (discolouration, odour, sheen etc,), of potential contamination in the excavations.

Runoff from works, stockpile and compound areas will be observed to ensure that it is not impacting the site drainage. Both hydrocarbons and silt cause discolouration so are easy to visually monitor for their presence. If necessary water sampling of downstream drains could be completed to test for Total Suspended Solids (TSS) and Hydrocarbon concentrations.

In areas where temporary retaining structures are required then observations of the exposed face will help monitor for potential collapse. Ideally any retaining wall structures will be constructed promptly after the excavations are completed to ensure good ground stability.

7.3 Water & Hydrology

There will be a requirement for a Construction Environmental Management Plan to oversee the development and earthwork operations will be carried out such that surfaces, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and suspended sediments from going off site.

Construction Phase Mitigations will include:

- Construction methods used by the contractor are to be tailored to reduce, where possible, sediment runoff and leaks or spills to ground and to minimise effects on the local environment.
- Designated roadways and internal access/construction routes will be clearly designated and fenced off in-order to prevent uncontrolled tracking of construction vehicles across the site. This will help reduce the surface area of disturbed ground which will limit the potential for soil compaction, sediment runoff or dust generation. Similarly existing hedge rows and site features which are to be maintained will be fenced off. Silt fencing to be used as necessary.
- Any spoil or waste material generated from the construction process is to be temporarily stored on more level ground at an approved location on site, and segregated from surface water runoff, before being either re-used on site or removed off-site to a suitably licenced waste management facility. Silt fencing to be used as necessary.
- All fill and aggregate for the project will be sourced from reputable suppliers.
- Designation of bunded refuelling areas on the site (as required) as well as the provision of spill kits across the site will reduce the potential for fuel or oil spills occurring or their extent.
- Fuel, oil and chemical storage should be sited within a bunded area. The bund must be able to take the volume of the largest container plus 10% and be located at least 10m away from drains, ditches, excavations and other locations where it may cause pollution. Bunds should be kept clean and spills within the bund area will be cleaned immediately to prevent groundwater contamination.
- All bowsers to carry a spill kit and operatives must have spill response training; and portable generators or similar fuel containing equipment will be placed on suitable drip trays and/or absorbent fuel 'nappies'. In the case of drummed fuel or other potentially polluting substances (i.e. cement) which may be used during construction the following measures will be adopted:
- The use of a dedicated concrete truck washout areas and secure storage areas for the storage of concrete materials. All containers that contain potential polluting substances to be stored in dedicated internally bunded chemical storage cabinet units or inside concrete bunded areas. Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.
- All new infrastructure is to be installed and constructed to the relevant codes of practice and guidelines.
- Potable water supply networks and waste water infrastructure are to be pressure tested by an approved method during the construction phase and prior to connection to the public networks, all in accordance with the requirements of Uisce Eireann.
- Connections to the service providers are to be carried out to the approval and / or under the supervision of the Local Authority or relevant utility service provider, prior to commissioning.
- All new sewers are to be inspected by CCTV survey post construction; to identify any possible physical defects for rectification prior to operational phase.
- All construction works will be completed in line with the recommendations of
  - the Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site 4th Ed (C741 - 2015) & Control of Water Pollution from Construction Site (C532 - 2001).
  - The SuDs Manual (C752) Construction Industry Research and Information Association (CIRIA), 2015.
  - UK Environmental Agency Guidance Series for Pollution Prevention (GPP), including GPP5: Works and maintenance in or near water (NRW, NIEA, SEPA), January 2017 and GPP22: Dealing with Spills, (NRW, NIEA, SEPA), October 2018.

Best practice environmental guidance will be incorporated into the projects Construction Environmental Management Plan (CEMP) for the development.

7.3.1 Suspended Solids

The two attributes that are relevant to Kilnahue site are the underlying aquifers and the Banoge River system, which are ultimately the final receiving water that will get either groundwater recharge through percolation or the attenuated storm water runoff discharges from the site. In order to manage the potential

impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase:

- The phased and controlled nature of the sites development will reduce the foot print of open ground and active earth work areas as the site is being prepared for construction works.
- The areas where the excavation of unconsolidated soil and subsoils is required within each building area will be kept to a minimum and, as far as practicable, only extended as already stripped ground has been built over.
- Keeping the surface area of exposed soils in the construction areas to a minimum is the most effective way of preventing the release of dust in dry weather and suspended sediments during or after wet conditions. Potential dust and suspended solids runoff impacts are therefore reduced or avoided.
- Limiting excavation works and machinery activity during and immediately after periods of heavy rainfall will also be incorporated into the earth works management to help limit sediment generation.
- Control of Soil Excavation and Export from site using the Reduce, Reuse and Recycle approach with all excavation arisings to be reused on site where possible. The implementation of an appropriate earthworks handling protocol with adequate runoff control and dust suppression measures (e.g. damping down during dry periods), vehicle wheel washes, road sweeping and general housekeeping will ensure that the surrounding environment are not significantly impacted by the of nuisance dirt on roads which will reduce sediment runoff and dust generation.

7.3.2 Wastewater Management

Foul wastewater arising from the site will be managed and controlled for the duration of the construction works.

Foul water and sewage from the offices and welfare facilities on the site will be piped to the existing Uisce Eireann Waste Water Treatment piping infrastructure on the Carnew Road and east towards in Gorey Town. All foul drainage ultimately goes to the Gorey Wastewater Treatment Plant (WWTP) and Pump Station before being pumped to Courtown WWTP.

7.3.3 Monitoring Measures

Runoff from works, stockpile and compound areas will be observed during the construction phase to ensure that it is not impacting on the local watercourse. Both hydrocarbons and silt cause discolouration so are easy to visually monitor for their presence.

If necessary water sampling and monitoring of the Glashaboy River can be completed to test for Total Suspended Solids (TSS) and Hydrocarbon concentrations for the construction phase. No operational monitoring is required.

7.4 Air Quality

This section describes the site policy with regard to dust management and the specific mitigation measures which will be put in place during construction works. The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the measures set out below have been formulated by drawing on best practice guidance from Ireland, the UK and the US, such as:

- Department of Environment, Heritage and Local Government (DOEHLG), Quarries and Ancillary Activities, Guidelines for Planning Authorities (2004) [10];
- US Environment Protection Agency (USEPA), Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated) (1986) [11];

- The Scottish Office – Development Department, Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings (1996) [12]; and
- Institute of Air Quality Management (IAQM), Guidance on the Assessment of Dust from Demolition and Construction (2014) [13].

7.4.1 Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.

7.4.2 Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will also be implemented to ensure impacts are minimised:

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes

Dust deposition levels will be monitored on a regular basis in order to assess the impact that site activities may have on the local ambient air quality. The following procedure will be implemented:

- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary.
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work

commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

7.4.3 Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period.

7.4.4 Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

7.4.5 Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

7.4.6 Waste Management

- Avoid bonfires and burning of waste materials.

7.4.7 Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.

7.4.8 Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

7.4.9 Measures Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

7.4.10 Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the Proposed Development is recommended to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m2/day during the monitoring period of 30 days (+/- 2 days).

7.5 Climate

7.5.1 Construction Stage

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. During the construction phase the following best practice measures shall be implemented on site to reduce the embodied carbon of the construction works:

- Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.
- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.

- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Sourcing materials locally where possible to reduce transport related GHG emissions.
- Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. For example a 30% minimum clinker replacement in cement may be utilised in line with the requirements for public bodies.

In terms of impact on the proposed development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements.

7.5.2 Climate Monitoring

Monitoring and reporting of the embodied carbon in the construction phase will be conducted. The aim of monitoring will be to seek further ways to minimise climate impacts. Monitoring will include contractual obligations, in line with the most recent Climate Action Plan and sectoral targets, for the successful tenderer to ensure that the proposed development stays in line with updated aims. Commitments to monitor GHG emissions during the construction phase will also be secured through the final Construction Environmental Management Plan (CEMP). Monitoring will include embodied carbon of construction materials, water usage, power and fuel usage, and waste generation (including reuse and recycling rates). Where monitoring shows that the proposed development is not meeting its targets, further mitigation will be put in place.

Monitoring should also include reviewing potential for extreme weather events which may cause damage during construction. Contractors' Environmental Management System (EMS) will include measures to address risks during such events i.e. flooding.

7.6 Noise and Vibration

7.6.1 Noise Criteria

Noise impacts arising from construction activities have the potential to cause annoyance or nuisance to local residents and businesses in the area.

Appropriate criteria relating to permissible construction noise levels for this development are taken from British Standard BS 5228 – 1: 2009 +A1 2014[14]: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise. The standard (BS5228-1:2009+A1) provides examples of acceptable limits for construction noise in both subjective and objective form. The approach adopted here calls for the designation of a noise sensitive location into a specific category (A, B or C) based on exiting ambient noise levels in the absence of construction noise.

In accordance with the standard, ambient measured noise levels representative of noise sensitive locations should be rounded to the nearest 5 dB and construction noise limits are then set according to the category definitions above. This then sets a threshold noise value that, if exceeded at this location, indicates a potential significant noise impact is associated with the construction activities depending on context. The approach is summarised in Table 7.1.

Table 7.1: Threshold of Potential Significant Effect at Dwellings (BS5228-1)

Assessment Category and Threshold Value Period	Threshold Value (dB)		
	Category A [A])	Category B [B])	Category C [C])
Night Time (23:00-07:00)	45	50	55
Evenings and Weekends [D])	55	60	65
Daytime (07:00-19:00) and Saturdays (07:00 – 14:00)	65	70	75

A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.
B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.
C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category B values.
D) 19:00–23:00 weekdays, 13:00–23:00 Saturdays and 07:00–23:00 Sundays.

7.6.2 Vibration Criteria

Vibration criteria are taken from BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites- Vibration. This document sets the following vibration limits for transient vibration. For buildings or structures that are structurally unsound, lower vibration magnitudes will apply, typically 50% of those for structurally sound buildings. Protected or historic buildings are not automatically assumed to be more vulnerable to vibration unless they have existing structural defects. The recommended transient vibration thresholds from BS5228-2 for the avoidance of cosmetic damage to light and heavy framed buildings are summarised in Table 8.2, below.

Table 7.1 Transient Vibration threshold values for buildings

Type of Building	Peak component particle velocity in frequency range of predominant pulse Note 1	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings	50mm/s	
Unreinforced or light framed structures. Residential or light commercial buildings.	15 mm/s at 4 Hz Note 2 increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Note 1: Values referred to are at the base of the building.

Note 2: At frequencies below 4 Hz, a maximum displacement of 0.6 mm (zero to peak) is not to be exceeded.

7.6.3 General Noise and Vibration Mitigation

Best practice noise and vibration control measures will be employed by the contractor during the construction phase in order to control noise and vibration impacts at the nearest noise sensitive locations. All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. This includes guidance on several aspects of construction site mitigation measures, including, but not limited to:

- Selection of quiet plant;
- Noise control at source;
- Screening,
- Hours of work; and;
- Liaison with the Public

7.6.3.1 Selection of Quiet Plant

- This practice is recommended in relation to sites with static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures where possible. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected wherever possible.

7.6.3.2 Noise Control at Source

The following measures will be implemented, if required, by the appointed contractor to control noise at source. These measures relate to specific site considerations:

- For mobile plant items such as cranes, dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB. Mobile plant should be switched off when not in use and not left idling.
- For percussive tools such as pneumatic concrete breakers and tools 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.
- For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Demountable enclosures can also be used to screen operatives using hand tools/ breakers and will be moved around site as necessary.
- 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.

7.6.3.3 Screening

Screening is typically an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen and its position relative to both the source and receiver.

Screening may be a useful form of noise control when works are taking place at basement and ground level to screen noise levels at ground floor adjacent buildings.

In addition, careful planning of the site layout should also be considered. The placement of site buildings such as offices and stores and in some instances materials such as aggregate can provide a degree of noise screening if placed between the source and the receiver. The use of localised mobile hoarding screens and / or acoustic quilts to items of plant with the potential to generate high levels of noise are an effective noise control measure. These options should be considered when percussive works are taking place in close proximity to the nearest sensitive perimeter buildings.

7.6.3.4 Hours of Work

Construction works will be undertaken within the times below, taken from the Section 5.7 of the Draft Construction Management Plan:

- Monday to Friday: 08:00 to 19:00hrs
- Saturday: 08:00 to 14:00hrs
- Sunday and Public Holidays: No noisy work shall take place on site.

7.6.3.5 Liaison with the Public

The designated environmental 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, where a particularly noisy construction activity is planned or other works with the potential to generate high levels of noise, or where noisy works are expected to operate outside of normal working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

7.6.3.6 Monitoring

During the construction phase, spot check noise monitoring may be required where the construction noise thresholds have the potential to be exceeded at noise sensitive locations. The monitoring shall be carried out by the contractor and used to inform the requirement for any control measures on site to reduce construction noise levels.

Noise monitoring will be conducted in accordance with the International Standard ISO 1996-2:2017 - *Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels* (ISO 2017)[15].

Where required, or requested by the local authority, unattended external noise monitoring will be undertaken at locations on the site boundary closest to sensitive locations. It is considered that it will be appropriate to amend the monitoring program and location as the works progress. Accordingly, monitors may be added, removed or relocated as necessary.

The noise monitoring terminals should provide the following at minimum:

- Logging of two concurrent periods, e.g., 15-minute & hourly.
- Daily automated Charge Injection Calibration (CIC). E-mail alert on threshold exceedance.
- E-mail alert on low battery and low memory.
- Remote access to measured data.
- Live display of noise levels.

In addition, it is recommended that spot-check noise measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have the potential to generate high levels of noise on site in order to confirm the potential extent of effects.

A monthly noise-monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these should also be clearly stated and implemented promptly.

Where required (i.e. where there is potential for exceedance of the vibration thresholds for buildings in Table 8.2), or requested by the local authority, vibration monitoring will be installed at the site boundary to monitor Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with

BS ISO 4866: 2010: *Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures* [16].

The mounting of the transducer to the vibrating structure will need to comply with BS EN ISO 5348: 1998: *Mechanical vibration and shock – Mechanical mounting of accelerometers* [17]. In summary, the following ideal mounting conditions apply:

- The transducer and its mountings should be as rigid as possible;
- The mounting surfaces should be as clean and flat as possible;
- Simple symmetric mountings are best;
- The mass of the mounting should be small in comparison to that of the structure under test;
- The monitoring equipment should be set to monitor vibration in 5-minute periods;
- E-mail alert on threshold exceedance;
- E-mail alert on low battery and low memory;
- Remote access to measured data;
- Live display of vibration levels.

In addition, it is recommended that spot-check vibration measurements are conducted on a monthly basis. These spot checks can be organised to coincide with works that have potential to generate high levels of vibration on site in order to confirm the potential extent of effects.

A monthly vibration monitoring report should be prepared by the contractor. Reports should identify any exceedances above nominal limit values and attempts to clarify the causes. Where remedial measures are required and identifiable, these should also be clearly stated.

7.7 Resource and Waste Management

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment. A site-specific RWMP has been prepared by AWN Consulting (257501.0141WMR01) and will be implemented to ensure sustainable and effective waste management throughout the excavation and construction phases of the project.

Adherence to the RWMP prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the *Waste Management Act 1996* as amended [18], and associated Regulations, the *Litter Pollution Act of 1997* as amended [19] and the *National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024)* [20], and that it will achieve optimum levels of waste reduction, re-use and recycling.

Typical waste materials that will be generated from the construction works will include:

- Soil and stones;
- Concrete, bricks, tiles and ceramics;
- Wood, glass and plastics;
- Metals;
- Gypsum-based construction material;
- Paper and cardboard;
- Mixed construction and demolition (C&D) waste;
- Chemicals (solvents, paints, adhesives, detergents etc.); and

The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management.

7.7.1 Waste Minimisation

Waste minimisation measures proposed are summarised as follows (and are described in more detail in the RWMP):

- Materials will be ordered on an 'as needed' basis to prevent over supply;
- Materials will be correctly stored and handled to minimise the generation of damaged materials;
- Materials will be ordered in appropriate sequence to minimise materials stored on site;
- A waste tracking log will be established;
- Sub-contractors will be responsible for similarly managing their wastes; and
- All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

7.7.2 Waste Storage

The main waste storage area will be located in the site compound. A dedicated and secure area containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development.

Waste materials generated will be segregated at the site compound, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Wexford Region that provide this service.

The site Resource Manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

7.7.3 Pest Management

A pest control operator will be appointed as required to manage pest onsite during the construction phase of the project. Organic and food wastes generated by staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

7.7.4 Responsibility

It will be the responsibility of the construction manager to ensure that a written record of all quantities and natures of wastes removed from the site are maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager or his/her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licensed or permitted waste facility in compliance with the relevant Regulations as outlined in the RWMP.

The contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will assist the project manager in implementing the measures under the RWMP and in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

Prior to commencement of the excavation and construction activity and removal of any waste off-site, details of the proposed destination of each waste stream will be provided to WCC, along with waste collection permit numbers.

7.8 Archaeological and Architectural Heritage

The ground excavation works required to facilitate the upgrade of existing wastewater pipes within the Zone of Archaeological Potential around the historic town of Gorey will be monitored by a suitably qualified archaeologist, under a licence issued by the National Monuments Service. This will allow for any previously unrecorded archaeological features or sites to be identified and, following consultation with NMS, mitigated measures implemented.

Following a grant of planning, and in advance of the construction phase, a suitably qualified archaeologist will be appointed to prepare and submit a licence application to the National Monuments to preserve by record (through full archaeological excavation) the full extent of the archaeological sites/features located within the boundary of the proposed development.

Additionally, as the potential exists for the presence of previously unknown archaeological features within the remainder of the proposed development site, all ground works/clearance of topsoil should be archaeologically monitored by a suitably qualified archaeologist.

All archaeological excavation works to preserve by record identified archaeological remains will be carried out under licence issued by the National Monuments Service and in advance of construction works at their locations. All required archaeological excavation works, including post-excavation analyses and reporting, will be carried out in accordance with the archaeological method statement submitted to the National Monuments Service and the National Museum of Ireland as part of the licence application. An archive containing stratigraphic records (including all associated digital and hard copy records and reports) will be submitted to the National Monuments Service upon completion of archaeological works. Any archaeological objects and relevant environmental material retrieved during archaeological excavation works, as well as all relevant reports, including post-excavation analysis reporting, will be provided to the National Museum of Ireland upon completion of all archaeological works. The results of all excavation works will also be published in the Database of Irish Excavation Reports and dependent on the nature of the results, the potential for additional publication in appropriate periodicals/journals will also be appraised.

The vernacular structures within the northeast corner of the development site are to be retained within the development. An updated record of these buildings will be compiled in advance of any to be carried out to them.

7.8.1 Monitoring

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 excavation works which will allow for monitoring of the successful implementation of the mitigation measures. A detailed method statement stating the proposed strategy for the archaeological excavation works will accompany the submitted licence application which will clearly detail the extent of the archaeological works and the onsite and post-excavation processes that will be enacted in order to preserve identified archaeological remains by record. Following the completion of all archaeological excavation works, preliminary and final reports will be submitted to the National Monuments Service, the National Museum of Ireland and the Planning Authority which will clearly describe the results of all onsite archaeological works and post-excavation analyses in written, illustrative and photographic formats.

8. SUMMARY

This CEMP sets out the overall management strategy for the excavation and construction works for the proposed development. The CEMP aims to ensure the management of construction activity is carried out in a planned, structured and considerate manner which minimises the impacts of the works on the local environment, residents and commercial activities in the vicinity of the site. Due to the nature of construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required.

The CEMP will be reviewed regularly and will be updated by the construction contractor to account for any subsequent planning conditions issued, any updated guidance released and circumstantial changes at the site as the development progresses.

The project team are committed to ensuring that the construction activities to be carried out are pro-actively managed so as to minimise potential impacts.

9. REFERENCES

1. Environmental Protection Agency (EPA) *'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021).*
2. Environmental Protection Agency (EPA), *Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018).
3. *EC Council Decision 2003/33/EC*
4. *Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.*
5. Local Government Ireland, *Best practice guidance for handling asbestos (2023).*
6. 2005 Safety Health and Welfare at Work Act
7. The Construction Regulations (SI 291 of 2013)
8. The General Application Regulations (SI 299 of 2007)
9. British Standards Institution (BSI), *BS EN 1992-3:2006 Eurocode 2: Design of concrete structures. Liquid retaining and containment structures*. (2006).
10. Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004).
11. US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)* (1986).
12. The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996).
13. Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014).
14. British Standards Institution (BSI), *BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites. Vibration (+A1:2014)* (2009).
15. International Standard ISO 1996-2:2017 - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels (ISO 2017).
16. BS ISO 4866: 2010: *Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures.*
17. British Standards Institution (BSI), *BS EN ISO 5348: 1998: Mechanical vibration and shock – Mechanical mounting of accelerometers* (1998).
18. *Waste Management Act 1996* as amended, including sub-ordinate and associated legislation.
19. *Litter Pollution Act 1997* as amended
20. Regional Waste Management Planning Offices, *The National Waste Management Plan for a Circular Economy 2024 - 2030 (2024).*