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Proposed Part 8 Residential Development Coolaghknock Glebe, Co. Kildare

Construction Environmental Management Plan (CEMP)

Kildare County Council

ENGINEERING A SUSTAINABLE FUTURE

ORS

Document Control Sheet

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Table of Contents

1 Introduction

This report is prepared on behalf of the NDFA and Kildare County Council to accompany a Part 8 proposal for the development of 131 no. residential units at Coolaghknock Glebe, Kildare, Co. Kildare.

The proposed development includes:

i. 131 no. social and affordable residential units including 91 no. houses and 40 no. own door apartment / duplex units to be delivered on a phased basis, comprising 40 no. one bed units; 38 no. two bed units; 43 no. three bed units; 6 no. four bed units; and 4 no. group houses, with renewable energy design measures (which may be provided externally) for each housing unit.
ii. 1 no. crèche facility of 270m^2 with potential for community use until such time as crèche becomes viable;
iii. Landscaping works including provision of (a) open space and kick about areas; (b) natural play features; (c) new pedestrian and cycle connections; and (d) attenuation pond;
iv. Associated site and infrastructural works including provision for (a) 2 no. ESB substations and switchrooms; (b) car and bicycle parking; (d) public lighting; (e) temporary construction signage; (f) estate signage; and (g) varied site boundary treatment comprising walls and fencing; and
v. All associated site development works.

1.1 Objective of Construction Environmental Management Plan

This Construction Environmental Management Plan (CEMP) is an outline document of the proposed approach to ensure that construction activities have the least impact on the surrounding environment. Below is an outline of the objectives:

- Ensure appropriate measures to prevent or mitigate nuisance emissions of noise and dust.
- Ensure that discharges to surface/groundwater sources are controlled.
- Ensure that any nearby ecological receptors (SPAs, SACs, NHAs) and archaeological sites are not adversely impacted by construction activities.
- Minimise the impact on local traffic conditions resulting from construction activities.
- Outline how the measures proposed above shall be implemented.

This CEMP has been prepared for the planning phase of the development to outline the general considerations of the works, from initial enabling works to sub-structure and superstructure construction with regards to waste and the environment. A contractor is yet to be appointed to this project. This document will be revised upon appointment of an experienced and competent contractor, and the development will be constructed in accordance with the environmental management measures contained herein.

The CEMP, due to its structure and nature, will also require constant updating and revision throughout the construction period. Therefore, this is a working document and will be developed further prior to and during construction.

1.2 Responsibility

A contractor has not yet been appointed to carry out the proposed project. Once appointed it will be the responsibility of the contractor to maintain and update the construction stage CEMP throughout the work and this updated document will be issued to Kildare County Council.

2 Site Details

2.1 Site Location

The proposed development will be located off Connagh Road, south of Melitta Road in the townland of Coolaghkock Glebe, Kildare, Co. Kildare. The site access point is proposed to be located along the Connagh Road located at the north end of the proposed development.

The site is bounded by the Connagh Green housing estate to the northwest and the Curragh Plains and the Coolaghknock Drive estates to the west. Adjacent to the southern, eastern and northern boundaries of the site are undeveloped greenfield spaces with residential units at sparse intervals. Some of these lands are used for agriculture and as stables.

An approximate outline of the subject site and its environs is provided in **Figure 2.1** below.

Figure 2.1: Site location and environs (Source: Google Maps)

2.2 Site Environmental Considerations

2.2.1 Topography

The proposed residential development is to be constructed on a greenfield site which is zoned as “New Residential phase 2” by Kildare County Council. At present, the site topography

ranges from 100m at the southern end of the development to 103m OD at the north end of the development.

2.2.2 Geology, Hydrology & Hydrogeology

Maps generated by the Environmental Protection Agency (EPA) and featuring data from the EU Water Framework Directive (WFD) were consulted to assess the extent and quality of waterbodies present in the vicinity of the proposed development. The closest waterbody to the site consists of the Tully stream which runs from north to south and is located approximately 1.9km south of the proposed development.

Taking the scale and nature of the proposed development into consideration, only waterbodies within a 1.5km radius of the site were considered as potential receptors, and as such, only these waterbodies were included in this analysis. A summary of the nearest waterbodies can be found in **Table 2.1** below.

Table 2.1: Waterbodies in Proximity to Proposed Site

Waterbody	WFD Sub-basin Name	Code	Distance from Site	Direction from Site
Tully Stream	TULLY_STREAM_010	IE_SE_14T020200	1.9km	South
Clongownagh Stream	CLONCUMBER_STREAM_010	IE_SE_14C170200	3.4km	Northeast
Lenagorra Stream	TULLY_STREAM_030	IE_SE_14T020500	4.5km	Southwest
Grand Canal Milltown Feeder (Barrow)	CLONCUMBER_STREAM_010	IE_14_AWB_GCMF	4.5km	Northeast

The WFD runs in 6-year cycles with the most recent data being generated between 2016-2021. The Directive takes rivers, lakes, estuaries, groundwater and coastal waters into consideration and each waterbody can be awarded one of five statuses: High, Good, Moderate, Poor, and Bad. Additionally, waterbodies can be assigned a risk level (“At Risk”, “Not At Risk”, “Review”) which represents the risk of the waterbody of failing its WFD objectives by 2027.

The WFD status of the Tully Stream is considered to be ‘Poor’ and the risk level of the stream is currently ‘At risk’ of meeting WFD objectives by 2027.

The proposed site is located within WFD catchment 14, Barrow, and is located within sub-catchment “Barrow_SC_060”. The 3rd Cycle Draft Barrow Catchment Report (HA 14) published in 2021 provides a summary of the quality assessment outcomes of waterbodies within the catchment. According to this report, excess nutrients and morphological impacts remain the most prevalent issues in the Barrow catchment.

The nearest major water source consists of the River Liffey located *ca*. 7.2km to the east of the site where it runs through Newbridge Town from south to north and follows course in a north-easterly direction to outflow into the Irish Sea via Dublin Bay. The source of the River Liffey begins at Mt. Kippure, County Wicklow where it flows through the Poulaphouca Reservoir. It runs a total length 125 km and has a basin size of 1,256km^2. The Liffey is not hydrologically

connected to the site.

The closest lake waterbody consists of Golden Falls Reservoir which is located *ca*. 19 km east of the site. This is a heavily modified water body which serves dual purposes for power generation and is located downstream of the larger Pollaphuca hydroelectric power station. The Golden Falls Reservoir is not hydrologically connected to the site.

The site was cross-referenced with the Teagasc Soil Information System (SIS) soil profile map which states that the surface soil at the site location is classed as 'Elton' series. These soils are derived from dominantly limestone drift with a small admixture of shale and sandstone. The soils of this series are deep, well-drained, of loam texture and high base status. The profile has a dark brown to brown loamy surface. The subsoil of the site is classed as gravels derived from limestones.

The underlying bedrock of the proposed site is classed as Dinantean carboniferous limestone. This bedrock region extends southeast to underlie the agricultural lands which extend towards Suncroft and Cut Bush.

2.2.3 Groundwater Vulnerability

According to the Geological Survey of Ireland map viewer, the site is underlain by a Regionally Important Gravel Aquifer consisting of the aforementioned bedrock. The groundwater vulnerability is classed as 'High'. The subsoil permeability is classified as 'High'. Based off the EPA groundwater vulnerability matrix obtained from the 'GSI Guidelines for Assessment and Mapping of Groundwater Vulnerability to Contamination 2003' it can be assumed that bedrock is >2m from the soil surface.

2.2.4 Flood Risk

The OPW Floodinfo.ie website was consulted for high level information on any potential flood risk on or near the site. The closest flood events occurred in Kildare town *ca*. 740m southwest of the proposed site on a recurring basis. A significant portion of the surface water drainage in Kildare town is piped to this location. **Table 2.2** summarises the sources of the nearest floods and their proximity to site.

Table 2.2: Flood Events in Proximity to Proposed Site

Flood Event Code	Location	Date	Flood Source	Distance from Site
ID-1487	Kildare Town	Annually Recurring	Low lying land	740 m SW

The proposed site itself is of sufficient distance from the projected flood risk area hence the fluvial flood risk is considered to be low. The site is not located within benefitting land associated with the Arterial Drainage and District Drainage Schemes. National Indicative Fluvial Mapping (NIFM) models the extent of land that might be flooded by rivers during a theoretical flood with an estimated probability of occurrence. The proposed site is not within the range of a Medium Probability flood event (1 in 100 years) according to NIFM mapping. Based on current data available it is not foreseen that the development will present any significant increase in flooding risk either within the site or downstream of the site.

2.2.5 Archaeology

According to the Historic Environment map viewer there are no sites of archaeological importance within the proposed site boundaries. The nearest site of importance is located *ca.* 140m northwest of the site and consists of a Burial site (Code: KD022-037). This site consisted of a burial found near the surface and is currently the location of a residential development. Additionally, a Barrow (KD022-049) with a diameter of 20m is located *ca*. 300m northeast of the proposed development.

Overall, the archaeological sensitivity of the area in immediate proximity to the proposed site is considered to be low due to the neighbouring residential estates and absence of any archaeologically significant sites within the immediate vicinity of the development.

An Archaeological Impact Assessment was conducted by John Purcell Archaeological Consultancy to assess the cultural heritage impact of the development. It was determined that the area is of archaeological potential based on a previous find 1966 in what was then within the boundaries of the same field. As such, further archaeological testing is recommended to take place.

2.2.6 Ecological Receptors

According to the National Parks & Wildlife Service map viewer, the proposed site is located a sufficient distance (1.5km) from any designated Special Protection Areas (SPAs) or Special Areas of Conservation (SACs). The proposed development is located *ca*. 300m from the Curragh, a proposed Natural Heritage Area (NHA).

A Screening for Appropriate Assessment (AA) has been carried out by NM Ecology Ltd. on behalf of Kildare County Council and has determined that a Natura Impact Statement (NIS) is not required in respect of this proposed development. It was determined that through the AA Screening that is no risk of direct impacts on European sites.

As per the AA Screening assessment and given the scale and nature of the proposed development, it is unlikely that any designated sites will be impacted as a result of the works. Best practice measures will nevertheless be outlined in **Section 4** of this report which will ensure as little impact as possible to the surrounding environment.

An ecological survey of the site was conducted by NM Ecology Ltd. on behalf of Kildare County Council. The report identified important ecological features of the site which included hedgerows, foraging bats, small mammals and nesting birds. The report recommends that the hedgerows along all boundaries of the site be retained and incorporated into the development. This proposition is in line with **Chapter 12: Biodiversity and Green Infrastructure, Objective BI O26** from the Kildare County Development Plan 2023-2029 which aims to "*Prevent, in the first instance, the removal of hedgerows to facilitate development. Where their removal is unavoidable, same must be clearly and satisfactorily demonstrated to the Planning Authority*". **Objective BI O27** is to "*Require the retention and appropriate management of hedgerows and to require infill or suitably sized transplanted planting where possible in order to ensure an uninterrupted green infrastructure network*."

It is also recommended that site clearance works be conducted between September and February to avoid nesting season for birds and small mammals.

2.2.7 Historical Maps

The GeoHive Historic map viewer was consulted to assess previous land uses or developments within or in the vicinity of the proposed site boundaries. According to the First Edition 6" maps developed between 1829-1841, the location of the proposed site previously consisted of open farmland. Cleared land is visible to the northwest to make way for the Coolaghknock estates can be seen in black and white aerial survey maps generated in 1995, while the lands to the north, east, south and southwest remain as open farmland. The full-colour aerial survey maps from 1996-2000 show development progressing on the Coolaghknock estate to the west and southwest of the development site. Aerial survey maps spanning from 2006-2012 show further development progressing on the Coolaghknock estate to the west and southwest of the site and the Ruanbeg estate beyond. These estates can be seen completed in subsequent aerial survey maps completed between 2013-2018. From these maps, evidence of some development on the proposed site in the form of a gravel road can be seen.

2.2.8 Noise Pollution

Under the Environmental Noise Directive (END) 2002/49/EC, members are required to develop strategic noise maps and noise management action plans for transport noise sources every 5 years. These strategic noise maps can be accessed via the EPA.ie website. **Figure 2.2** below outlines the modelled noise extents of the roads in the vicinity of the site undertaken by the EPA. As can be seen the southern portion of the proposed site is contained within the modelled (55-59dB) noise extents of the survey. The southern portion of the development lies within the noise extents of the M7 Motorway (Kildare Bypass / The Curragh Motorway). The new development is not foreseen to significantly increase ambient noise levels. The highest concentration of noise generation along the M7 Motorway to the south of the site range from 55dB to >75dB.

Noise generation during the construction phase is projected to increase due to the movement of heavy goods vehicles and construction equipment along the R413 Road and within the site itself. Noise emission within Kildare Town may increase temporarily, although proposed mitigation steps outlined in **Section 5.2** will ensure that construction traffic is routed in such a way that minimises disruption to nearby amenities and regular flow of traffic.

Figure 2.2: EPA Strategic Noise Map (Daytime Noise) (Source: epa.ie Map Viewer)

3 Development Description

3.1 Phasing of the Development

This Construction Environmental Management Plan (CEMP) will outline the intended sequence of works. A construction program of 12 - 18 months serves as the agreed estimated timeline for the project. A layout plan of the development is detailed in **Figure 3.1** below.

The proposed development includes the following sequence of works:

- **i.** 131 no. social and affordable residential units including 91 no. houses and 40 no. own door apartment / duplex units to be delivered on a phased basis, comprising 40 no. one bed units; 38 no. two bed units; 43 no. three bed units; 6 no. four bed units; and 4 no. group houses, with renewable energy design measures (which may be provided externally) for each housing unit.
- **ii.** 1 no. crèche facility of 270m^2 with potential for community use until such time as crèche becomes viable;
- **iii.** Landscaping works including provision of (a) open space and kick about areas; (b) natural play features; (c) new pedestrian and cycle connections; and (d) attenuation pond;
- **iv.** Associated site and infrastructural works including provision for (a) 2 no. ESB substations and switchrooms; (b) car and bicycle parking; (d) public lighting; (e) temporary construction signage; (f) estate signage; and (g) varied site boundary treatment comprising walls and fencing; and
- **v.** all associated site development works.

Access to the development is proposed along the R413 / Melitta Road north of the development site which adjoins the Connagh Road. A local road will extend south-easterly through the proposed estate. **Figure 3.1** shows the proposed site plan.

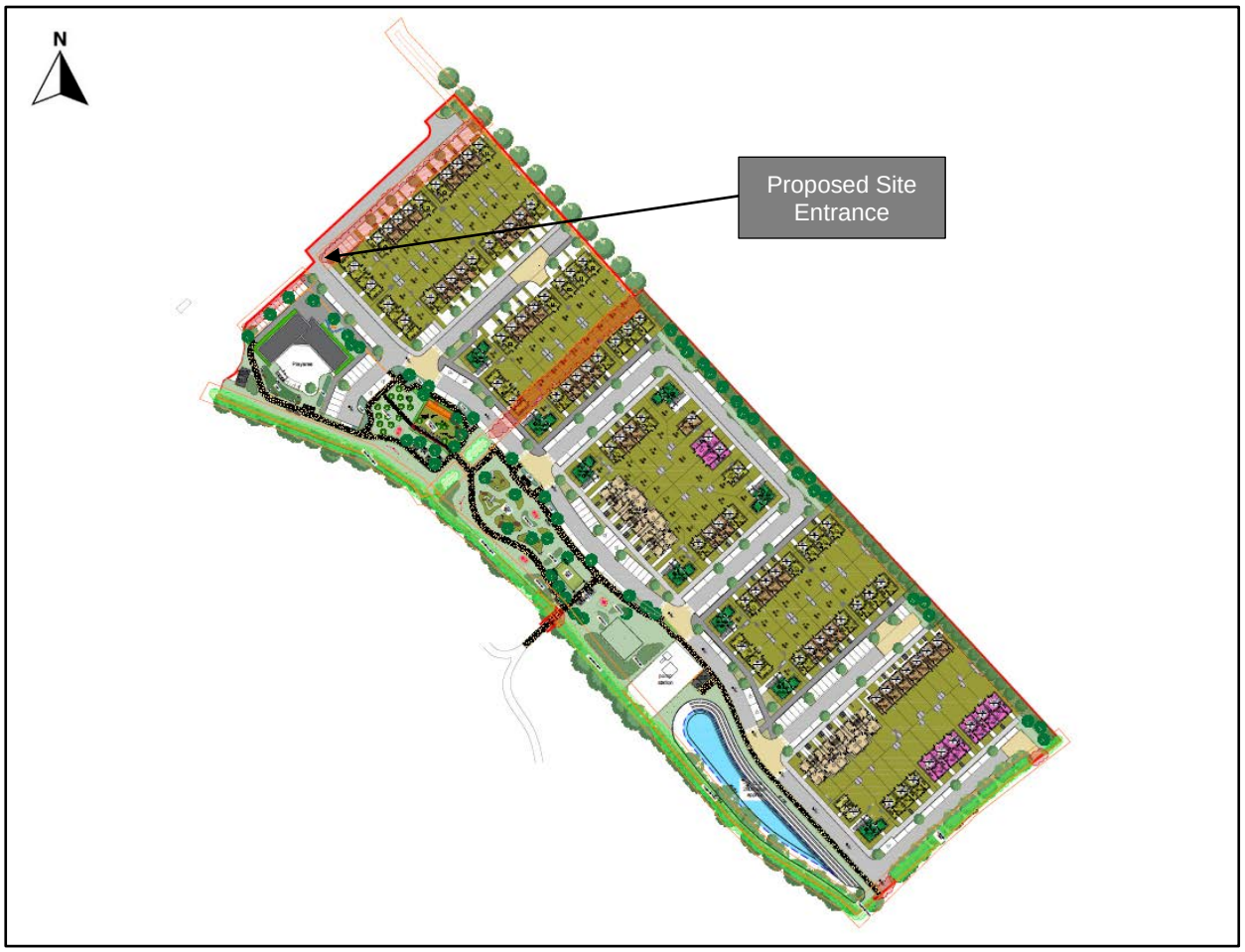

Figure 3.1: Site Plan (Cropped) (A refinement of this site layout may be circulated by the architect)

The project is to be divided into several distinct phases as follows:

Pre-Construction Phase – Site clearance and preliminary works

- Removal of any existing debris to a suitably licenced facility to facilitate the works.
- Site set-up, temporary services, site hoarding / fencing, staff welfare facilities.
- Ground works and landscaping.

Phase 1 – Construction

- 99 no. residential units in houses and apartment / duplex style buildings.
- 1 no. crèche facility

Phase 2 – Construction

- 32 no. residential units in houses and apartment / duplex style buildings.

Ancillary works – which will consist of:

- Sustainable Drainage System (SuDS)
- Surface water and foul sewer network and associated attenuation
- Car and bicycle parking spaces
- Electrical and telecom services
- Mains water supply connections
- Wastewater drainage connections
- Pedestrian access routes
- Asphalt installation and road markings
- Landscaping of public open areas

The construction phasing is shown in **Figure 3.2** below.

Figure 3.2: Phasing of the development depicting Phase 1 (green) and Phase 2 (blue).

3.2 Pre-Construction Activities

The main contractor will conduct enabling works for excavations, establish site setup, appropriate signing, hoarding, security fencing and welfare facilities.

3.2.1 Site Set-Up and Hoarding

Perimeter hoarding will be provided around the site to provide a barrier against unauthorized access from the public areas. Controlled access points to the site, in the form of gates or doors, will be kept locked at any time that these areas are not monitored (e.g., outside working hours).

The hoarding will be well-maintained and may be painted. Any hoardings may contain graphics portraying project information. The site hoarding may be branded using the appointed Contractors logos, etc. Some marketing images or information boards may also be placed on the hoarding. Access to site will be controlled and monitored outside of site working hours. All personnel working on site must have a valid Safe Pass card and the relevant CSCS cards.

A suitably secure site compound will be set up, wherever the restricted confines of the site will allow and will facilitate the efficient delivery of materials and personnel to the site. This compound is to include material storage, site office and meeting room, and staff welfare facilities.

Figure 3.2 below provides an outline of proposed site compound location. It is proposed that the area northwest of the site is used as an initial compound location at the beginning of works. This would facilitate efficient monitoring and traversal of visitors to and from the site as well as minimize impact to groundworks required on the site overall.

Generators or connection to electricity and water services will be set up to facilitate site works.

3.2.2 Communication

Communication regarding construction methodologies and phasing will be communicated throughout development through finalised site plans as well as through the relevant Civils Report which will outline the scope of works required. The Site Contractor and Site Manager will ensure effective communication among site personnel and contractors.

Figure 3.3: Proposed Site Compound Location (blue)

3.3 Construction Sequence of New Structures

The exact construction specifications of the proposed residential units and associated infrastructure are yet to be finalised. This section of the CEMP will be updated once a main contractor is appointed and a definitive construction program is established, in advance of the commencement of the project.

A summary of operations for the construction phase is listed in **Table 3.1** below.

Table 3.1: Summary of Operations Expected	
External envelope will or may require the following operations: • Blockwork/Brickwork • Sand & cement rendering • Windows & doors • Roof Coverings – Slate and Tile • Flashing, Aprons and Tray – Leadwork/Powder coated metal **Above ground external operations:** • Landscaping • Installation of manholes • Lamp posts • Tarmac/ surfacing • Signs • Car parking and mobility compliant car parking **Below ground operations:** • Foul sewer, surface water, rainwater, and potable water networks • Electrical ducting	**Internal work will or may require the following operations:** • Electrical installation • Mechanical installation • Fireproofing • Partitions and ceilings – use of gypsum based products • Painting • Plastering • Stairs • Joinery • Tiling • Air Tightness sealing and testing • Metal Work • Sanitary-ware installation • Vanity units • Reinforcement works • Insulation • Plumbing • Concreting/ floor slab • Carpet installation • Timber floors • Roofing

3.4 Site Working Hours

Construction operations on site will generally be subject to a planning permission and conditions. However, it may be necessary for some construction operations to be undertaken outside these times, for example, service diversions and connections, concrete finishing and fit-out works, etc.

Deliveries of materials to site will generally be between the hours of 07:00 – 18:00 Monday to Friday, and 08:00 to 14:00 on Saturdays, or as specified by the Kildare County Council. There may be occasions where it is necessary to make certain deliveries outside these times, for example, where large loads are limited to road usage outside peak times.

4 Environmental Management Plan

4.1 Background

A preliminary risk assessment was carried out for the proposed site location in accordance with the Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition, produced by the London Authorities Noise Action Forum, July 2016. This assessment took into account factors relating to the proximity of the site to sensitive receptors and rated the levels of nuisance and disruption anticipated with scheduled work practices.

Following the completion of this risk assessment, available in **Appendix A**, the proposed development was determined to be a moderate-risk site. This section outlines suitable measures to minimise nuisance noise and dust emissions in order to minimise any impact of the proposed developments on surrounding receptors.

4.2 Noise

The Contractor will aim to restrict noise levels to the following levels:

- Daytime (08:00 to 19:00 hrs) – 70dB
- Evening (19:00 to 23:00 hrs) – 50dB
- Night-time (23:00 to 08:00 hrs) – 45dB (measured from nearest noise sensitive location).

To minimise noise from construction operations, no heavy construction equipment/ machinery (to include pneumatic drills, construction vehicles, generators, etc.) shall be operated on or adjacent to the construction site before 08:00 or after 19:00, Monday to Friday, and before 08:00 or after 14:00 on Saturdays. No activities shall take place in site on Sundays or Bank Holidays. No activity, which would reasonably be expected to cause annoyance to residents in the vicinity, shall take place on site between the hours of 19:00 and 08:00am.

The proposed development will be obliged to comply with BS 5228 "*Noise Control on Construction and open sites Part 1*". The contractor shall implement the following measures to eliminate or reduce noise levels where possible:

- All site staff shall be briefed on noise mitigation measures and the application of best practicable means to be employed to control noise.
- All staff should be briefed on the complaints procedure, the mitigation requirement and their responsibilities to register and escalate complaints received.
- Good Quality site hoarding is to be erected to maximise the reduction in noise levels. It is recommended to incorporate a 2.4m timber hoarding to mitigate excessive noise pollution to neighbouring estates and sensitive receptors.
- Contact details of the contractor and site manager shall be displayed to the public, together with the permitted operating hours.
- Material and plant loading and unloading shall only take place during normal working hours.
- Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC.
- Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer.
- Use all plant and equipment only for the tasks for which it has been designed.

- Locate movable plant away from noise sensitive receptors.
- Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.
- Ensure written confirmation is received from Kildare County Council Planning Department when applying for extensions to normal working hours. No out of hours work to be undertaken unless permission to do so has been granted.
- In the event that excessive noise levels are deemed necessary, Kildare County Council and local residents must be suitably notified in advance of said works.

4.3 Dust and Air Quality

Dust prevention measures will be put in place for any particulate pollution. The extent of dust generation under construction activities being carried out is dependent on environmental factors such as rainfall, wind speed and wind direction. The most likely sources of dust generation at this site include soil stripping and excavation of foundations for the main building and the sawing of wood and concrete throughout the duration of the project. Dust can also be dispersed by excessive vehicular movement around the site during dry periods. Control Measures are outlined as follows:

- Soil will not be exposed until a replacing capping layer is almost ready to be placed. This is to ensure that soil is left exposed for the minimum amount of time possible.
- Material stockpiles will be strategically placed to reduce wind exposure. Materials will be ordered on an ‘’as needed’’ basis to reduce excessive storage.
- The contractor will spray water on the surface of all roads in the vicinity of the site if required in order to minimise dust generation from the construction activities.
- Appropriate dust suppression will be employed to prevent fugitive emissions affecting those occupying neighbouring properties or pathways.
- Restrict vehicle speeds to 15 kmph as high vehicle speeds cause dust to rise.
- Covers or dampening of soil stockpiles when high wind and dry weather are encountered, if required.
- All consignments containing material with the potential to cause air pollution being transported by skips, lorries, trucks or tippers shall be covered during transit on and off site.
- Street and footpath cleaning shall be undertaken during the ground works phase to minimise dust emissions.
- A road sweeper with vacuuming capabilities will operate along construction traffic routes throughout the development cycle to alleviate excessive material deposition along transport routes in the vicinity of the site.
- Wet cut concrete saws are only to be used on site. Tools with dust extraction filters are to be used when and where possible.
- No materials shall be burned on-site.

4.4 Surface Water and Groundwater Protection

Surface water runoff from new internal road surfaces, footpaths, other areas of hardstanding and the roofs of buildings will be collected within a gravity drainage network and directed towards a detention basin. The detention basin is sized to cater for a 1 in 100-year storm event. During a 1 in 100-year storm event, this basin will store a maximum of 1525.2m^3 of surface water runoff.

It is proposed to provide a number of discrete, shallow landscaped areas located in the front curtilage areas of the housing units which will overflow and drain to the detention basin. A number of tree pits will be constructed to provide additional storage of runoff from roads, car parking, and footpaths.

It is proposed to provide a dry pond adjacent to the access road in the southwest corner of the site. This system may also be referred to as a detention basin. The detention basin will be planted in order to promote settlement of silt particles and for the promotion of biodiversity. Runoff will also be treated through the adsorption of particles by vegetation or by soil, and by biological activity.

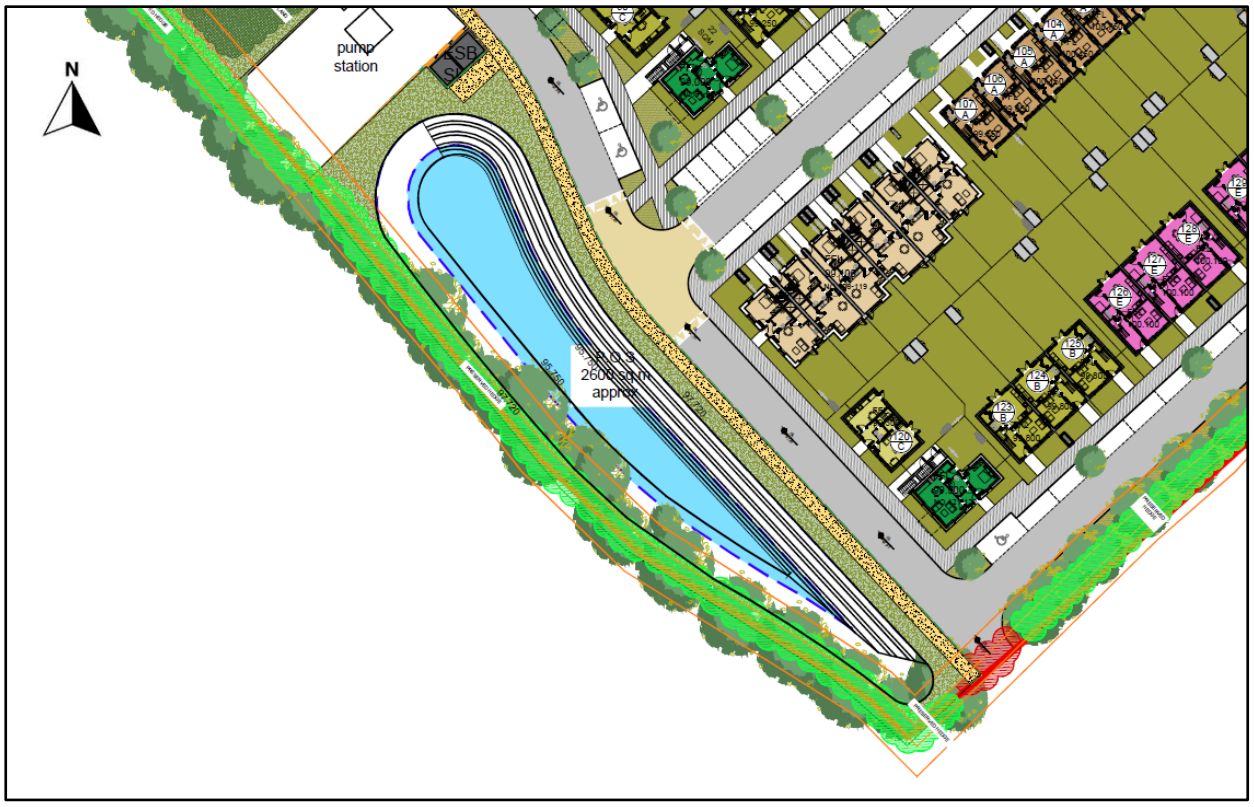

Figure 4.1: The detention basin

The main pollutants with the potential to impact water receptors are silt, fuel/oil, concrete and chemicals. The steps outlined below aim to eliminate contamination of site surface water runoff. The below recommendations are advised with reference to the Inland Fisheries Board recommendations for protection of adjacent water courses during the construction phase:

- Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays.
- All manholes and gullies will be covered with silt fencing material and sandbags to limit silt and chemical run-off into surface water.
- Refuelling will not be permitted within 10m of surface drains, with the exception of pumps for dewatering purposes, which are to be stored on portable spill bunds.
- Runoff from machine service and concrete/grout mixing areas must not enter storm water

drains and gullies leading off-site.
- No direct discharges to be made to waters where there is potential for cement/ residues/ oils/ chemicals in discharges.
- Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.
- Open excavations to be backfilled immediately following installation of services, etc.
- Earthworks and the movement of plant on soil surfaces will be avoided during periods of extensive rainfall to limit silt laden runoff and damage to soil structure.
- Pre-cast concrete should be used wherever possible. When this is not possible, any works using cast-in-place (poured) concrete must be done in the dry and effectively isolated from any flowing water or drains for a sufficient period to ensure no leachate from the concrete.
- As per the plans, a detention basin will be constructed towards the southwestern boundary of the site. Runoff from the roofs will be directed towards the basin where particles and silt will be adsorbed / attenuated by vegetation, soil and biological activity.
- Following heavy rainfall events, it is important to mitigate excessive outflow of silt and particulates to the surrounding surface water drainage system. During the pre-construction phase, silt outflows to surface water drainage infrastructure (gullies, drains, etc.) along the Connagh Road may be mitigated using sandbags or silt fencing, where suitable. During the construction phase, once site-specific surface water drainage infrastructure has been developed, silt chambers should be blocked off following high rainfall events to prevent excessive silt outflows to the surface water drainage system.

4.5 Protection of Ecological Receptors

4.5.1 Screening for Appropriate Assessment

An Appropriate Assessment Screening Report was published by NM Ecology Ltd. in relation to the proposed development which assessed the proximity of the site to nearby sensitive ecological receptors (SPAs, SACs, NHAs) and outlined potential pathways to such receptors during development. The main findings of the report were as follows:

- The Site is not within or adjacent to any European sites and as such, poses no risk of direct impact to any European sites.
- Surface Water Pathways: There are no rivers or streams within or adjacent to the Site, so surface water can be ruled out as a pathway to any European sites.
- If any pollutants soaked to ground within the Site, they would have to pass through 3.7 km of subsoils / bedrock before reaching the Pollardstown Fen SAC. This would reduce any pollutants to negligible concentrations before reaching the SAC, in which case they would pose no risk of impacts. As such, groundwater can be ruled out as a feasible pathway.
- Land Pathways: There is no risk that any pollutants could flow 3.7km over land to reach the SAC.
- Air Pathways: The only potential airborne pollutant generated at the Site would be dust. There is no risk that any perceptible quantity of dust could be carried 3.7km to the SAC.

In summary, no feasible pathways were identified between the Site and any European sites.

The Curragh, a proposed Natural Heritage Area (pNHA) is located *ca.* 140m northeast of the site. There is no hydrological connectivity between the development site and the pNHA. Impacts on the pNHA are unlikely to occur following the implementation of the best practice environmental protection measures outlined is this CEMP.

There are no SPAs in the vicinity of the Site. The closest is the Poulaphouca Reservoir SPA, which is located approx. 21 km east of the Site. Due to this significant distance, there is no risk that any birds associated with the SPA could use the Site.

4.5.2 Ecological Appraisal

NM Ecology Ltd. has carried out an Ecological Impact Assessment of the Site to identify any important ecological features that could be affected by development. The report outlines the following recommendations to minimise ecological impacts during development:

- **Retention of hedgerow:** It is strongly recommended that the hedgerows along all site boundaries are retained and incorporated into the development. These features are of considerable age and contain a range of native trees and shrubs. They provide cover and nesting/breeding habitat for a range of birds and small mammals. In addition to the protection of these trees, shrubs and their canopies, it is necessary to ensure that their roots are not damaged during the construction of the proposed development. An arborist should be engaged to map the potential root zone of all retained trees and shrubs, and suitable root protection zones should be marked with fencing during construction works. The retention of hedgerows will also ensure compliance with the Kildare County Development Plan 2023-2029, specifically the objectives in **Chapter 12: Biodiversity and Green Infrastructure**. For example, objective **BI O26** is to "Prevent, in the first instance, the removal of hedgerows to facilitate development. Where their removal is unavoidable, same must be clearly and satisfactorily demonstrated to the Planning Authority." **Objective BI O27** is to "require the retention and appropriate management of hedgerows and to require infill or suitably sized transplanted planting where possible in order to ensure an uninterrupted green infrastructure network."

- **Protection of bird and small mammals:** Under Sections 22 and 23 of the Wildlife Act 1976 (as amended), it is an offence to kill or injure a protected bird or mammal, or to disturb their breeding / resting places. Most birds nest between March and August (inclusive), and the breeding season for most small mammals is similar. Therefore, it is strongly recommended that site clearance works are carried out between September and February (inclusive), i.e. outside the nesting season. If this is not possible, an ecologist will survey the affected areas in advance to assess whether any breeding birds or mammals are present. If any are encountered, vegetation clearance will be delayed until the breeding attempt has been completed, i.e. after chicks have fledged and a nest has been abandoned.

- **Bat-sensitive lighting:** The farmland to the north-east of the Site, including along the hedgerow on the north-eastern boundary, appears to be a feeding area of Local importance for common pipistrelle bats. This species typically avoids areas with high levels of artificial lighting, so bat-sensitive lighting techniques should be implemented in that part of the Site. Relevant guidance is provided in Bats and Lighting guidelines (BCT & ILP 2018), including the following:
  - Lights should incorporate LEDs with a 'warm' temperature of 2,200K. These have minimal UV output, and therefore least impact on bats
  - Lights should ideally be installed on low poles (i.e. 4 m or lower), and face vertically downwards. Louvres will be used to direct light onto required areas and avoid unnecessary light spill
  - No lights will be directed towards any trees or landscaped areas
  - External lights fitted to the exterior of new houses will have motion sensors to provide

light only when needed.

These measures will apply during both the construction and operational phases of the proposed development.

- **Potential biodiversity enhancements:** The majority of the Site consists of neutral grassland of Negligible ecological importance. If biodiversity enhancements can be incorporated into the landscaping proposals for the scheme, it may be possible to achieve a net gain in the biodiversity value of the Site. Suitable measures may include the following:

- Inclusion of a range of native trees and shrubs, including species that provide berries for birds (e.g. hawthorn, rowan)
- Managing grassland areas as meadows, by mowing only once per growing season and removing cuttings. Guidance is provided in the All-Ireland Pollinator Plan
- Leaving sections of landscaping for natural succession, with little or no active management
- Provision of bird boxes, including designs suitable for common garden birds (e.g. finches, tits, blackbirds), or species that nest on buildings (swifts, martins, swallows). Swift nesting boxes should be considered for tall buildings (at least 5 m in height)
- Provision of bat boxes suitable for crevice-dwelling species. These are only suitable if installed in a part of the site that will be in complete darkness, and that are directly connected to potential foraging areas (e.g. the western hedgerow)
- Provision of hedgehog boxes in areas of dense ground cover
- Consideration of wildlife dispersal corridors to connect green areas outside the site boundary. These would consist of continuous lines of dense shrubs and ground vegetation, which are not obstructed by walls / fences / roads and are not illuminated by streetlights. Gaps should be provided at the base of walls / fences to allow ground-dwelling fauna to move through the site.
- Creation of a pond or similar semi-natural wetland feature with native fringing vegetation. Ponds may also be suitable for frogs / newts. These measures may be feasible for above-ground SUDS features (e.g. attenuation ponds, swales)
- Incorporating biodiversity features on the roofs of structures including apartment roofs, cycle shelters, sheds etc. Such features should use the site's soils, and have appropriate long-term maintenance
- Artificial lighting should be avoided near retained habitat features, to ensure that they are suitable for bats and other nocturnal species. Similarly, paths and cycleways should not be located alongside biodiversity features, because the associated infrastructure, human disturbance, vegetation management, lighting, etc can substantially reduce the biodiversity value of these features.

When the landscaping proposals have been developed, the ecologist will determine whether the proposed biodiversity enhancements would achieve a negative, neutral of positive effect. It is considered possible that this development could achieve a net gain in biodiversity.

4.5.3 Arboricultural Assessment

An Arboricultural Assessment & Impact Report was published by *CMK Hort & Arb Ltd.* which assessed a total of five hedgerows / hedges and seven individual trees present at the site location. The potential development impacts to existing vegetation as well as mitigation factors are summarised as follows:

- **Impact of the Proposed Development:** Preliminary recommendations based on the tree analysis include the felling of three trees of category U (tag no. 399,398,397) and the removal of basal growth on one tree of category C1 (tag no. 393) located at the northern extent of the development site. No action is deemed necessary for two trees of category B2, whilst monitoring is recommended of one tree of category C2. No further action is deemed necessary for the hedgerow species along the site boundaries which are to be retained and integrated into the development. It is proposed to retain the hedgerow species that transverse the site from east to west as they are of mature vigour and high quality.

- **Tree Protection:** No tree protection fencing is proposed following the removal of permitted vegetation and prior to the mobilisation of plant and site infrastructure. No necessary actions are proposed in the Arboricultural Assessment & Impact Report as published by *CMK Hort & Arb Ltd.*

Figure 4.2 below was drawn by *CMK Hort & Arb Ltd.* and outlines the areas where trees / hedgerows are to be retained or removed to facilitate development (Drawing No. TCOO001 101). Drawing **TCOO001 102** supplied by *CMK Hort & Arb Ltd.* should be consulted prior to tree/vegetation removal to ensure a more accurate determination of trees to be removed.

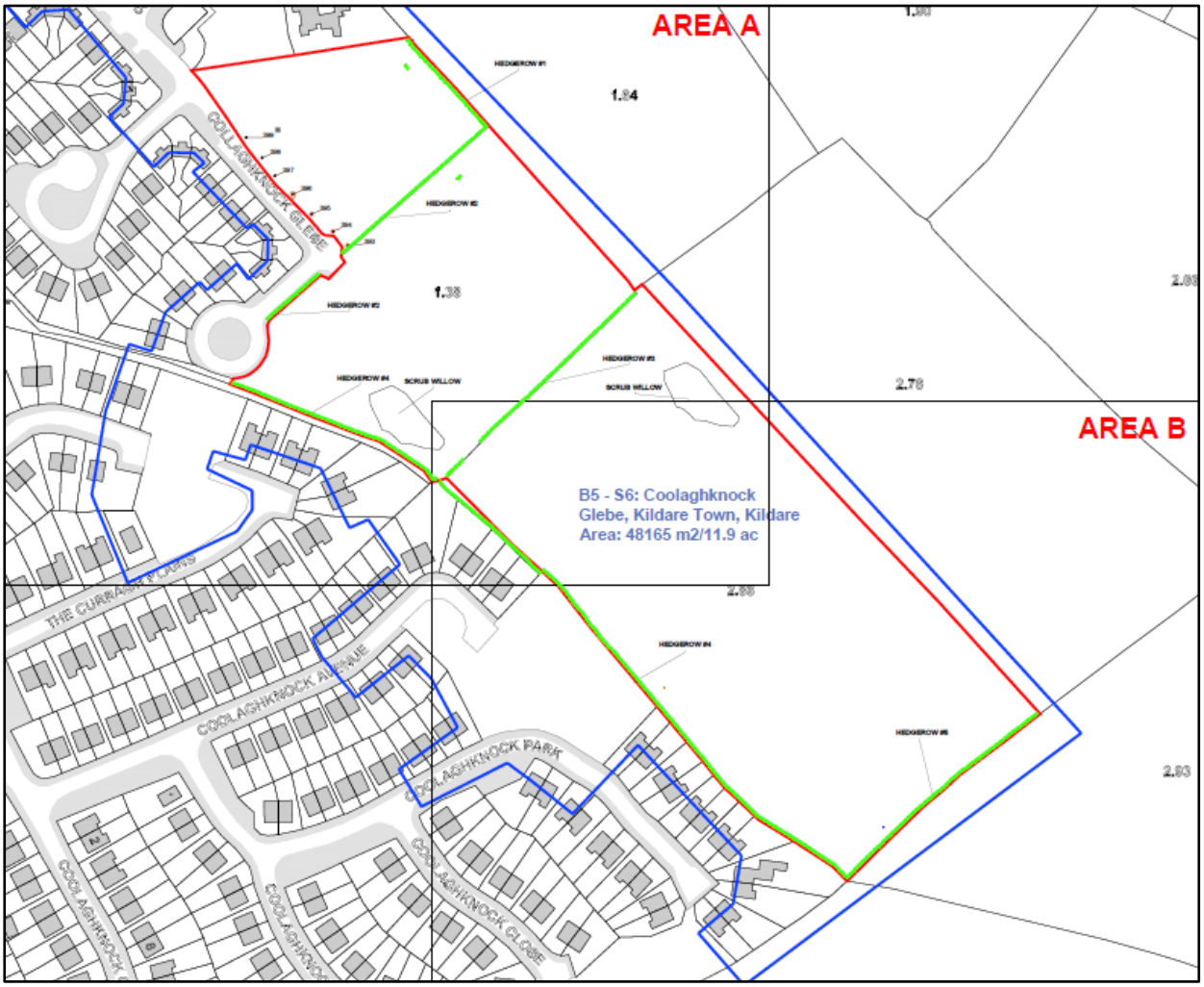

Figure 4.2: Tree survey and constraints depicting the site boundary (red), hedgerows and trees of high quality (green) and trees of low quality which are recommended for removal (red, north).

5 Outline Traffic Management Plan

5.1 Background

This Outline Traffic Management Plan (OTMP) is designed to facilitate access to the site by plant, machinery, and work vehicles during collections/ deliveries; and to minimise traffic impacts of construction to residents and amenities in the vicinity of the site. Kildare Town is a well-developed town that receives a high degree of traffic on a regular basis. As such this Outline Traffic Management Plan aims to provide options for the routing of construction traffic that will avoid built-up areas and reduce impact on sensitive receptors (schools, healthcare facilities, public amenity areas). **Section 5.5** provides an outline of alternative routes that avoid travel through Kildare Town Centre.

5.2 Outline Traffic Management Plan

The construction phase OTMP has been prepared in accordance with the following best practices publications and demonstrates compliance with the requirements of the Health and Safety Authority:

1. Chapter 8 of the Traffic Signs Manual and the Safety, Health & Welfare at Work (Construction) Regulations – Department of Transport
2. Temporary Traffic Management Design Guidance – Department of transport, Tourism and Spot.

The main contractor will be required to implement monitoring measures to confirm the effectiveness of the mitigation measures outlined in the OTMP. The OTMP shall address the following issues:

- Site Access & Egress
- Traffic Management Signage
- Routing of Construction Traffic/ Road Closures
- Timings of Material Deliveries to Site
- Traffic Management Speed Limits
- Road Cleaning
- Road Condition
- Road Closures
- Enforcement of Construction Traffic Management Plan
- Details of Working Hours and Days
- Details of Emergency plan
- Communication
- Construction Methodologies
- Particular Construction Impacts.

5.3 Construction Entrance and Construction Traffic Control

5.3.1 Access in

The proposed construction entrance shall be located at the existing site gate located along Connagh Road located within the Connagh Green housing estate. At present the gate provides access and egress directly onto the Connagh Road and the R413 further to the north.

Construction traffic will approach the site entrance from the northwest utilising Connagh Road which connects to the R413 Road approximately 190m to the northwest. The entrance will be manned by a banksman at all times who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles as required. The site entry/ exit point is detailed in **Figure 5.1**.

Figure 5.1: Site access point (Source: Google Maps).

The entrance gate will be within the boundaries of the site and will prevent incoming vehicles from causing obstruction to local traffic on Connagh Road or the R413. Since only one access gate is available, at most one HGV may enter/ exit the site at a time. Strong lines of communication with hauliers, strict delivery schedules and just-in-time delivery methods will be in operation to ensure no more than two trucks will visit the site at any one time. It is envisaged that strict adherence to these protocols will ensure that no queuing will occur on Connagh Road or the R413 road.

5.3.2 Access Out

When vehicles are due to depart from the site the banksman will ensure the roadway is safe to proceed and will communicate with the driver in the cab. The proposed construction exit from the site will be the same as that used for entrance to the site, see **Figure 5.1**.

The main contractor is required to ensure the provision of adequate guarding and lighting appropriate to the circumstances. Traffic signs should be placed in advance of the works area on both sides to ensure adequate warning to the general public and maintained, when necessary, they should be operated as reasonably required for the safe guidance or direction of the public with regard to the needs of people with disabilities. The main contractor will comply with Regulation 97 of the Safety, Health, and Welfare at Work (Construction) Regulations 2013.

Access to the construction site will only be to authorised persons. During afterhours, security will be employed by the main contractors to ensure no unauthorised access.

5.4 Deliveries to Site / Site Access

The site entrance will be gated and manned at all times with access only permitted for site vehicles and plant movements when necessary.

Deliveries of materials to site will be planned and programmed to ensure that the materials are only delivered when required by adopting a 'just in time', lean construction management approach. There will be periods where multiple vehicle deliveries will be required, e.g., site fill material under roads, houses and landscape areas, pre-cast concrete and large concrete pours. These will be planned well in advance and no queuing of vehicles will be allowed on the public road at the entrance to the site. Supply chain to be directed as not to travel in convoys greater than three at any time.

All off-loading of material will take place within the site, remote from the public road and access via the agreed access construction point only. Bulk deliveries to take place outside of peak traffic hours within a six-day week as to minimise impact on the existing road network.

Access control: The site entrance will always be controlled by a banksman. The contractor will carry out a visitor induction briefing for all visitors or other persons who need access to the construction area. All visitors to the site will be required to have current 'Safe Pass' cards.

Material delivery: Material deliveries to the site will be coordinated as to avoid peak traffic hours associated with the neighbouring estates which could be expected around regular commuting times in the morning and evening.

Sign management: Signs are to comply with statutory requirements on public roads. Other construction sites may be carrying out construction activity at the same time as the subject site. It is therefore imperative that directions to each site are distinctly identifiable.

5.5 Routing of Construction Traffic

All traffic associated with the development must turn left off the R413 / Melitta Road to reach the access point of the site. Provision of suitably large national roads in the vicinity of the site are limited and as such, construction traffic must travel through local roads associated with the residential estates surrounding the site. The presence of sensitive receptors near the site, namely the Kildare Town centre to the west, mean that travel from the west should be avoided where possible.

Using the M7 motorway as a primary source of construction traffic, it is proposed that vehicles utilise Exit 12 and at the roundabout, take the 4th onto Curragh Chase / R413. At the roundabout take the 1st exit onto R413 / R445 for *ca*. 200m. Traffic should turn left onto R445 for *ca*. 3.9km and turn right for *ca*. 1.1km. Traffic should turn left onto Melitta Road / R413 for 850m and turn left onto Connagh Road where the site entrance shall be *ca*. 180m south. In due consideration of the potential additional travel time caused by disrupted traffic flow within Kildare Town when travelling from the west, it is not expected that the proposed transport route will cause any undue additional travel time to the site. See **Figure 5.2** for the suggested construction traffic route.

Figure 5.2: Traffic routes to proposed site (Source: Google Maps).

5.6 Traffic Management Speed Limits

Adherence to posted/ legal speed limits will be emphasised to all contractors and sub-contractors during induction training.

Drivers of construction vehicles/ HGVs will be advised that vehicular movements in locations, such as local community areas, shall be restricted to 50 km/h. Special speed limits of 30 km/h shall be implemented for construction traffic in sensitive areas such as residential. Such recommended speed limits will only apply to construction traffic and shall not apply to general traffic.

5.7 Road Cleaning

A wheel wash facility will be provided prior to exit of the site when required throughout the various stages of construction on-site. This is to ensure that minimal suspended solids reach nearby waterbodies or surface water drainage systems, and that minimal road sweeping will be required on the public roads. Although a requirement for road sweeping cannot be eliminated entirely, control measures within site are aimed at limiting the need for road sweepers. If conditions require it, then a manned power washer shall be put in place to assist the wheel wash system.

Road sweeping operations to remove any project related dirt and material deposited on the road network by construction/ delivery vehicles will be utilised as required. It is recommended that road sweepers used have a vacuum function that can remove fine silt and dust from nearby surfaces effectively and prevent them from entering nearby waterbodies and drainage systems. All material collected will be disposed of to a licensed waste facility.

The following additional measures will be taken to ensure that the site, public roads and

surroundings are kept clean and tidy:

- A regular program of site tidying will be established to ensure a safe and orderly site.
- Food waste will be strictly controlled on all parts of the site.
- Mud spillages on roads and footpaths outside the site will be cleaned regularly and will not be allowed to accumulate. This process is pertinent in cases of heavy rainfall where sediments can more easily reach nearby waterbodies and drainage systems.

5.8 Road Condition

The higher volume of heavy vehicle traffic movements and the nature of the payload may create problems to the local road network in terms of:

- Fugitive losses from wheels, trailers, or tailgates.
- Localised areas of subgrade and wearing surface failure.

The main contractors shall ensure that:

- Loads of materials leaving each site will be evaluated and covered if considered necessary to minimise potential dust impacts during transportation.
- The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to:
- Covering of all waste or material with suitably secured tarpaulin/ covers to prevent loss.
- Utilisation of enclosed units to prevent loss.
- Roads forming part of the haul routes will be monitored visually throughout the construction period and a truck mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.

5.9 Enforcement of TMP

The traffic management plan will be enforced by both the Construction Project Manager and the Resident Engineer.

All project staff and material suppliers will be informed of the measures proposed by the TMP during site induction and will be required to adhere to the final TMP. As outlined above, the contractor shall agree and implement monitoring measures to confirm the effectiveness of the TMP.

5.10 Working Hours

Deliveries of materials to site will generally be between the hours of 08:00 and 19:00 Monday to Friday, and 08:00 to 14:00 on Saturdays. No deliveries will be scheduled for Sundays or Bank Holidays.

5.11 Emergency Procedures

The main contractor shall ensure that unobstructed access is provided to all emergency vehicles along all routes and site accesses. The contractor shall provide to the local authorities and emergency services, contact details of the contractor's personnel responsible for construction traffic management. In the case of an emergency the following procedure shall be

followed:

- Emergency Services will be contacted immediately by dialling 112.
- Exact details of the emergency/ incident will be given by the caller to the emergency line operator to allow them to assess the situation and respond in an adequate manner.
- The emergency will then be reported to the Site Team Supervisors and the Safety Officer.
- All construction traffic shall be notified of the incident (where such occurs off site).
- Where required, appointed site first aiders will attend the emergency immediately.
- The Safety Officer will ensure that the emergency services are on their way.

5.12 Communication

The main contractor shall ensure that close communication with Kildare County Council and emergency services is maintained throughout the construction phase. Such communications shall include:

- Submissions of proposed traffic management measures/ closures for comment and approval.
- Ongoing reporting relating to the condition of the road network and updates to construction programming.
- Information relating to local and community events that could conflict with proposed traffic management measures and construction traffic aimed towards implementing alternative measures to avoid such conflicts.
- The contractor shall also ensure that the local community is informed of any proposed traffic management measures in advance of their implementation. Such information shall be disseminated by posting advertisements in local newspapers and delivering leaflets to houses in the affected areas. Such information shall contain contact information for members of the public to obtain additional information and to provide additional knowledge such as local events, sports fixtures, etc., which may conflict with proposed traffic management measures.
- Effective communication is particularly important during the pre-construction. A continuous flow of construction traffic is expected during this phase and it is therefore pertinent that local authorities and nearby residents are suitably informed of the potential disruptions posed by this procedure.

6 Implementation

6.1 Role and Responsibilities

Due to the scale and nature of this development, the appointment of a full-time environmental manager is deemed surplus to requirements for the duration of the project. The Construction Project Manager will be responsible for the day-to-day implementation of the measures outlined in the Project CEMP. The Construction Project Manager will be supported by an Environmental Consultant who will be involved in the project on an ad-hoc basis should unforeseen or significant environmental incidents arise.

6.1.1 Construction Project Manager

The Construction Project Manager will have the overall responsibility of ensuring the measures outlined in the Project CEMP are adhered to for the duration of the construction phase. The primary responsibilities of the Construction Project Manager are as follows:

- Promotion of awareness of environmental issues associated with each project phase.
- Ensure adherence with all environmental and traffic management standards listed in the Project CEMP.
- Facilitate environmental audits and site visits.
- Monitor the impact of construction traffic on local traffic conditions.
- Awareness and implementation of relevant legislation, codes of practice, guidance notes as stated in the CEMP.
- Conduct regular site inspections to facilitate the timely identification of environmental risks or incidents.
- Ensure all construction activities are carried out with minimal risk to the environment.
- Report environmental incidents in a timely manner to the project Environmental Consultant and the relevant authorities.

6.1.2 Construction Project Manager Contact Details

Contact details of the project manager are pending until a project manager has been appointed.

- Name: Pending
- Telephone: Pending
- Email: Pending

6.1.3 Project Environmental Consultant

As mentioned above the Construction Project Manager will assume the role of Project Environmental Consultant. Should any issues or impacts arise throughout the project then a suitable Environmental Contractor will be contacted. The primary responsibilities of the Project Environmental Consultant are as follows:

- Quality assurance of the Project CEMP.
- Update of the Project CEMP as required paying particular attention to site-specific environmental hazards or changes in legislation.
- Ensuring compliance of Project CEMP with the conditions of the Planning Permission.

- Provide expertise to the Construction Project Manager on environmental concerns.
- Conduct the various specialist environmental monitoring tasks outlined within the Project CEMP (noise, dust, surface water monitoring etc.).
- Prompt response to environmental issues if they arise.

6.1.4 Resident Engineer

Typically, the Resident Engineer's primary role involves assurance that the construction work of a project is carried out according to the quality, time and cost requirements of the contract. A significant degree of cross-over can usually be anticipated between the roles of a Resident Engineer, a Construction Project Manager and an Environmental Consultant. With respect to the Project CEMP, the Resident Engineer is expected to play a crucial role in the Traffic Management Plan (TMP) along with the following responsibilities:

- Performing or coordinating site inductions.
- Monitoring the performance of subcontractors.
- Monitoring the performance of the traffic management plan.
- Managing and supervising less experienced site engineers and operatives.
- Ensuring that work activities have been carried out in accordance with the plans, specifications, and industry standards.
- Ensuring that tests and inspections are performed.
- Liaising with construction management to remove any hazards associated with work activities.
- Ensuring that delivered materials meet specifications and established quality standards.
- Initiating and maintaining records, back-charge procedures, progress reports etc.

6.2 Awareness and Training

6.2.1 Environmental Induction

The key environmental topics outlined in the Project CEMP will be summarised and integrated into the general site induction. Site-specific concerns and best work practices will be outlined to all contractors and sub-contractors due to carry out work at the site. As a minimum this will include:

- The roles and responsibilities of the Construction Project Manager the Environmental Consultant and the Resident Engineer along with the responsibilities of contractors/sub-contractors themselves.
- Incident and complaints procedure.
- Outline of the CEMP structure.
- Site-specific environmental concerns.
- Best work practices

6.2.2 Toolbox Talks

Daily toolbox talks will be conducted by the Construction Project Manager as standard practice. It is the duty of the Construction Project Manager to liaise with the Project Environmental Consultant and Resident Engineer to assess site operations for environmental concerns particularly as the project advances and new activities commence. Appropriate mitigation measures will be devised and communicated to the relevant personnel prior to the

commencement of any such activities.

6.3 Environmental Incidents and Complaints Procedure

The Construction Project Manager will maintain a register of environmental incidents which will document the nature, scale and severity of any environmental incident or complaint which arises due to site activities. In the event of an environmental incident the following steps must be followed:

- The Project Environmental Consultant is notified immediately.
- The Project Environmental Consultant will liaise with the competent authority if necessary.
- The details of the incident will be recorded on an Environmental Incident Form which will record the following details:
  1. Cause of the incident
  2. Extent of the incident
  3. Immediate actions
  4. Remedial measures
  5. Recommendations made to avoid reoccurrence
- If the incident has impacted on an ecologically sensitive receptor (SPA, SAC, NHA) an ecological specialist will be consulted.
- The Project Environmental Consultant and Construction Project Manager will fully cooperate with any investigations conducted by the competent authority.

7 Conclusion

This Construction Environmental Management Plan (CEMP) will form part of the construction contract and is designed to reduce possible impacts which may occur during the construction of the proposed development.

The proposed development shall be constructed and developed to minimise the generation of construction and demolition waste. During the construction phase, construction waste shall be stored and segregated in dedicated waste storage areas which shall optimise the potential for off-site reuse and recycling. All construction waste materials shall be exported off-site by an appropriately permitted waste contractor. Measures and policies for proper waste management during this project are outlined in the site Resource Waste Management Plan (RWMP).

Extensive measures shall be taken to prevent uncontrolled emissions to drains and gullies leading off the site. Noise mitigation measures will be utilised as required. Several measures have been outlined to ensure adequate dust suppression throughout the project. Noise and dust monitoring shall be carried out at various stages throughout the project to ensure compliance with the relevant standards.

Suitably qualified personnel including a Construction Project Manager, Project Environmental Consultant and Resident Engineer will be appointed to implement the procedures and protocols relevant to their profession as outlined in this CEMP.

The Client shall be responsible for ensuring that The Contractor manages the construction activities in accordance with this Construction Project Management Plan and shall ensure that any conditions of planning are incorporated into the final Construction Project Management Plan prepared by the appointed works contractor.

Appendix A: Risk Assessment as per Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition

Risk Assessment A – Locality/Site Information

	Low	Medium	High
Expected duration of work			
Less than 6 months			
6 months to 12 months			
Over 12 months			x
Proximity of nearest sensitive receptors			
Greater than 50 metres from site			
Between 25m and 50m		x	
Less than 25 metres			
Hospital or school within 100 metres			
Day time ambient noise levels			
High ambient noise levels (>65dB(A))			
Medium ambient noise levels (55-65dB(A)		x	
Low ambient noise levels (<55dB(A)			
Working Hours			
8am – 7pm Mon-Fri; 9am-2pm Sat	x		
Some extended evening or weekend work			
Some night-time working, including likelihood of concrete power floating at night			
SUBTOTAL A	**1**	**2**	**1**

Risk Assessment B – Works Information

	Low	Medium	High
Location of works			
Majority within existing building			
Majority External			x
External Demolition			
Limited to two weeks			
Between 2 weeks and 3 months			
Over three months			
Ground Works			
Basement level planned			
Non-percussive methods only			
Percussive methods for less than 3 months		x	
Percussive methods for more than 3 months			
Piling			
Limited to one week			
Bored Piling Only			
Impact or vibratory piling			
Vibration generating activities			
Limited to less than 1 week			
Between 1 week and 1 month		x	
Greater than 1 month			
SUBTOTAL B	**0**	**2**	**1**

Total Risk Assessment

	Low	Medium	High
Risk Assessment A	**1**	**2**	**1**
Risk Assessment B	**0**	**2**	**1**
Total	**1**	**4**	**2**

The site is assessed as a moderate overall.

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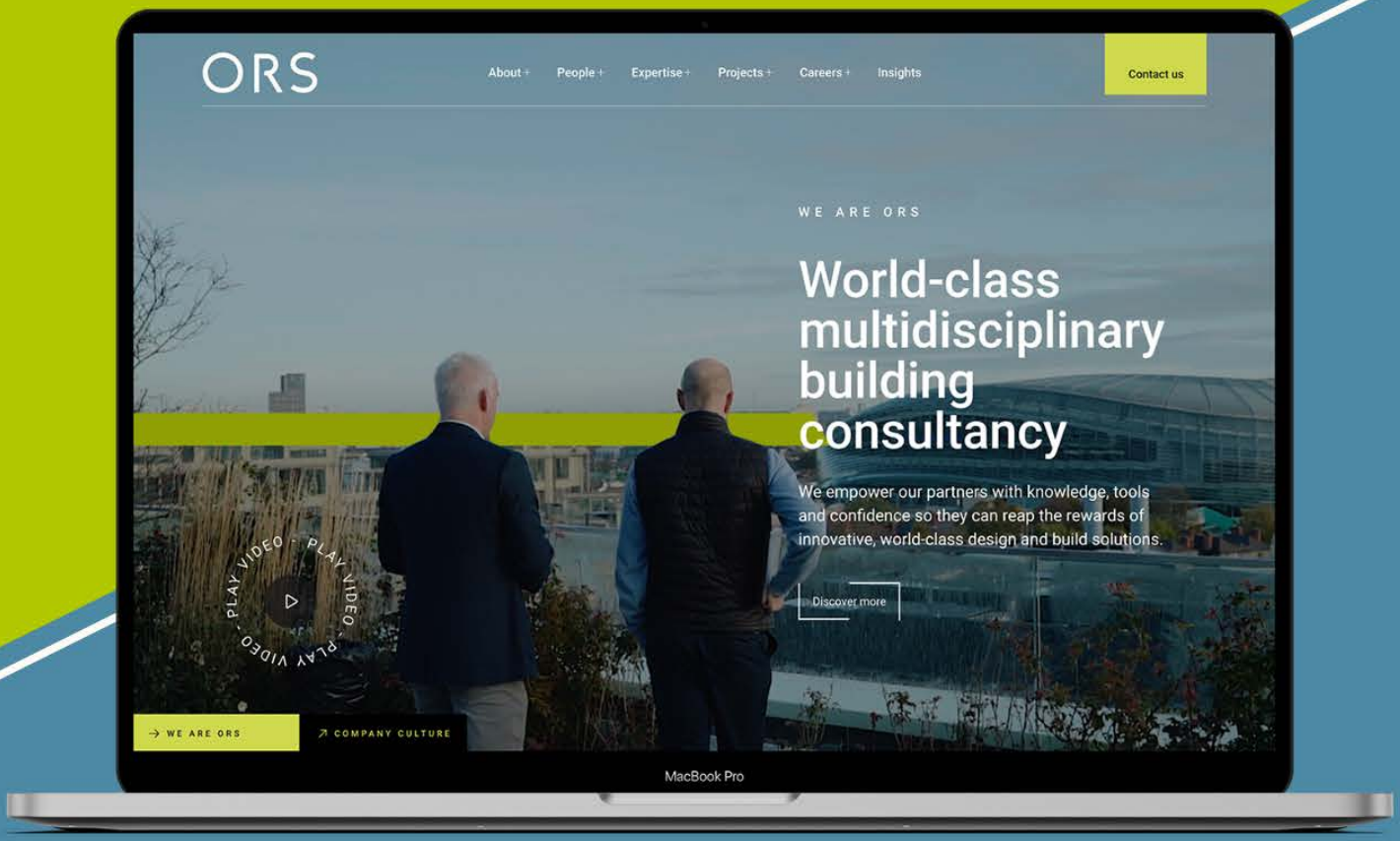

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