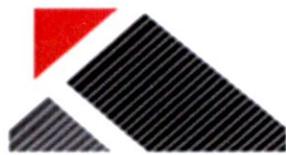




Clifton Scannell Emerson
Associates

Outline Construction Environmental Management Plan

Proposed K2 Data Centre Development



K2 DATA CENTRES

Client: K2 Strategic Infrastructure
Ireland Ltd.

Date: 10th June 2022

Job Number: 22_043

Civil
Engineering

Structural
Engineering

Transport
Engineering

Environmental
Engineering

Project
Management

Health
and Safety

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Table of Contents

1	INTRODUCTION	4
1.1	Background	4
1.2	Overview.....	4
1.3	Development Description	4
2	DESCRIPTION OF THE PROJECT	6
3	CONSTRUCTION PROGRAMME AND PHASING	7
4	EXCAVATION	9
4.1	Archaeological and Architectural Heritage	9
4.2	Ground Conditions.....	9
5	SITE LOGISTICS	10
5.1	Site Establishment and Security.....	10
5.2	Consents and Licences	10
5.3	Service and Utilities	11
5.4	Material Handling and Storage.....	11
5.5	Visitor Management.....	11
5.6	Site Working Hours.....	11
5.7	Employment and Management Workforce.....	12
6	CONSTRUCTION TRAFFIC AND SITE ACCESS	13
	Traffic Queueing.....	13
	Site Hoarding and Security Fencing.....	13
7	SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS	14
7.1	Air Quality	14
7.2	Ecology	17
7.3	Noise and Vibration	18
7.4	Waste Management	19
7.5	Surface Water Management	20
8	SUMMARY	22
9	REFERENCES	23

1 INTRODUCTION

1.1 Background

This Outline Construction Environmental Management Plan (CEMP) has been prepared by Clifton Scannell Emerson Associates (CSEA) on behalf of K2 Strategic Infrastructure Ireland Ltd. in support of a planning application to South Dublin County Council for planning permission for the proposed K2 data centre development on a site at Kingswood Drive and Kingswood Road, within the Citywest Business Campus, Naas Road, Dublin 24 which lies approximately 11km southwest of Dublin's city centre and is accessed from the N7, Old Naas Road and Kingswood Drive. The site is bound to the north by Kingswood Drive, to the west by Kingswood Road, to the east by greenfield lands, and to the south by existing commercial development. The proposed development of a brownfield site with a total area of approximately 1.9 Hectares.

1.2 Overview

This Outline CEMP defines the approach to environmental management at the site during the construction phase. It provides a basis for achieving and implementing the construction related mitigation measures identified in the environmental reports provided in support of the planning application and promotes best environmental on-site practices for the duration of the construction phase.

The outline CEMP provides a framework from which a final CEMP will be developed to avoid, minimise or mitigate any construction effects on the environment prior to commencement on site.

The contractor will prepare specific method statements which should identify perceived risks to the environment and detail mitigation measures to be employed which will negate the risk to the environment.

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.

Preparation of the final CEMP should comply with all mitigation measures presented in the environmental documentation submitted in support of this application, the Planning Conditions and all additional measures may be added to following consultation with relevant consultees in preparation of specific method statements prior to commencement of works.

1.3 Development Description

The proposed development permitted under Reg. Ref.: SD18A/0301 comprises of the development of a two storey data centre with two storey administration spaces and associated plant spaces with a total permitted floor area of 11,548.5m², all associated site development

works, landscaping, car parking and two vehicular entrances of Kingswood Drive and Kingswood Road.

The proposed development comprises amendments to the development permitted under Reg. Ref.: SD18A/0301. The proposed amendments comprise the following:

- Alterations to the permitted two storey data centre building including internal reconfiguration, alterations to finished floor levels, alterations to the building footprint to provide for the relocation of an internal staircore to the south of the building, and the replacement of the enclosed first floor level with an open screened roof mounted plant space (resulting in a reduction of 4,091 sq.m in the gross floor area (GFA) of the building).
- Associated alterations to the façade of the data centre building, including alterations to fenestration, cladding, step-out in the southern façade to accommodate a staircore, and a reduction in the eastern building parapet height of c. 2 metres.
- The provision of a canopy over the loading docks on the east facade.
- Alterations to the permitted generator compound, generators, and flues, including a reduction in the number of generators (5 no. now proposed), and provision of MV rooms within the generator compound.
- Provision of an ESB substation compound in the northeastern portion of the site, comprising a single storey substation building (with a GFA of c. 125 sq.m), 2 no. transformers, client control building (with a GFA of c. 47 sq.m), and associated access arrangements within a 2.6 metre high security fence. The ESB substation compound will be accessed from Kingswood Drive.
- Omission of the permitted sprinkler tank, pump room and 10kV Substation, reconfiguration of the permitted car parking, and revisions to permitted boundary treatments.
- Associated alterations to landscaping, access and internal road arrangements, services, lighting, and layout, and all associated and ancillary works.

The extent of the site layout is highlighted in Figure 1.1 below:-

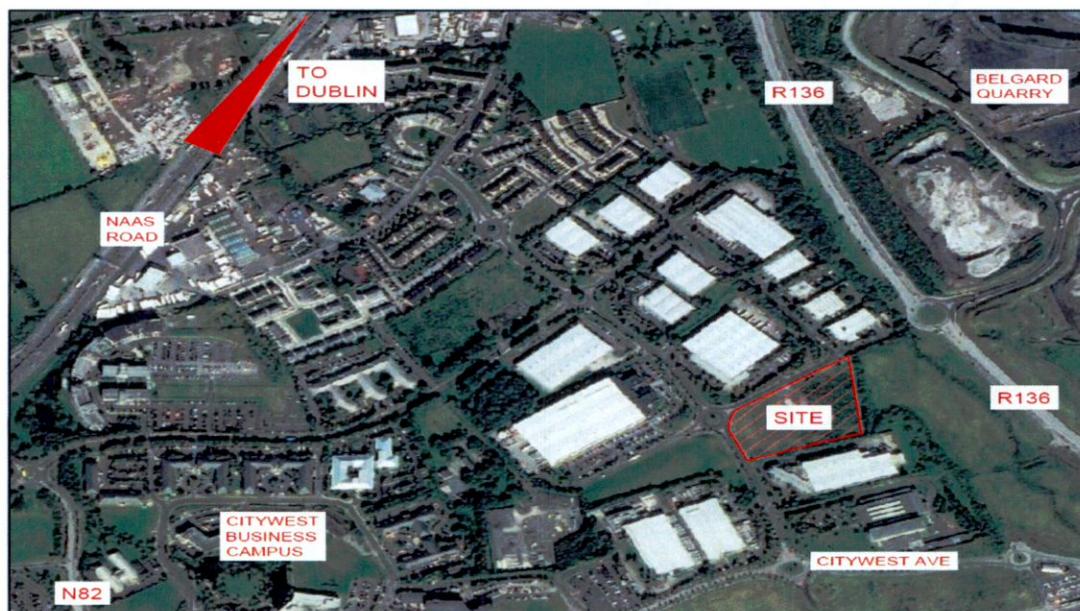


Figure 1.1 – Proposed Site Location Plan

2 DESCRIPTION OF THE PROJECT

The subject site is located within Citywest Business Campus, Naas Road, Dublin 24. The proposed development of a brownfield site of approximately 1.9 Hectares. The subject site is located at the junction of Kingswood Drive and Kingswood Road, within Citywest Business Campus, Naas Road, Dublin 24 which lies approximately 11km southwest of Dublin's city centre and is accessed from the N7, Old Naas Road and Kingswood Drive.

The site is a brownfield site located to the north of the KAL Group premises at 4078 Kingswood Road, circa 0.5 km south of the entrance to the business park at the roundabout junction of Silken Park and Kingswood Drive and circa 0.2km north of the junction of Kingswood Drive and Citywest Avenue. It is served by existing roads infrastructure implemented as part of the setting out of the business campus. The site boundary is delineated in red in Figure 2.1 below.

The site comprises of approximately 1.9 hectares of land which is currently primarily in a cleared state with the exception of a hard standing area which was previously used for storage of materials. The lands are bound to the north by Kingswood Drive, to the west by Kingswood Road, to the south by KAL Group premises and to the east by undeveloped greenfield lands.

The lands are relatively flat with the exception of a circa 1m high mound along the southern boundary, of approximately 150m in long and 5m wide. The remainder of the site slopes from a high point in the south west of the site of 107.5m OD to a low point in the north east corner of 102.35m OD. The approximate gradient across the site is circa 2%.

The main estate access road will be unaltered by the proposed development, with the exception of providing underground services.



Figure 2.1: Aerial view of the site from Google Maps showing the application site outlined in red

3 CONSTRUCTION PROGRAMME AND PHASING

The proposed development will be built on a phased basis to meet customer demand. The following timeline has been estimated:

- Construction Start – Q4 2022
- Commence Operation of Data Centre– Q1 2024

It is assumed, based on the above, that peak construction for the proposed development will occur in Q2/Q3 2023.

Site Preparation – Phase 1

As noted in Section 1 of this report planning permission was previously granted for a Data Centre development on the site in 2018 (Reg Ref SD18A-0301). It is proposed to carry out some of the initial site preparation under an Enabling Works Contract in accordance with this Grant of Planning. The works being carried out under this Planning Permission include the following:-

- Site Hoarding;
- Internal Temporary Fencing;
- Provision of temporary access roads;
- Provision of temporary hardstanding areas for car parking;
- Provision of temporary hardstanding areas for material storage;
- Wheel wash facilities;
- Security cabins.

It is proposed that the accesses and haul roads for vehicles, the contractors' compound and fencing will be established for the proposed development utilising the existing entrance from Kingswood Drive which will act as a primary construction entrance for this development.

The construction compound will facilitate office, portable sanitary facilities, equipment storage, etc. for contractors. The construction compound will be used for the duration of the works however there may be some local relocation of parking facilities and cabins as the site works near completion and the permanent fencing, gates and berming are constructed.

Site Preparation – Phase 2

Phase 2 of the site preparation will be carried out upon completion of Geotechnical Site Investigation. The primary activities that will be required during phase 2 of the site preparation for the development will be site clearance, excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures and any rerouting of services/connections to services.

A combination of excavators, trucks and other soil shifting plant will commence the main site clearance and levelling aspects.

Building Construction Works

Foundations and Structure

Following the completion of site clearance and levelling, all structures will require foundations to structural engineer specifications. Building structures will comprise standard structural steel frames.

It is anticipated that foundations will require moderate scale excavations. Local minor dewatering may be required during excavation works and groundworks (depending on the time of year development works are carried out).

Levelling/Cut and Fill

It is predicted that the majority of the spoil generated during site preparation/levelling will be removed from site with some top soil and spoil used in landscaped areas.

The importation of fill will be required to facilitate construction of the proposed roads, car parks and buildings.

Contractors will be required to submit and adhere to a method statement (including the necessary risk assessments) and indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

Any temporary storage of spoil required will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

Building Envelopes and Finishes

The outer finishing of the building envelopes are intended to be of a high quality and appearance as per the architects drawings.

Roads, Services and Landscaping

Sections of the internal road system will be completed as part of the Data Centre Building permitted development as detailed on the architects' phasing drawings.

Landscaping will be undertaken in accordance with the landscape masterplan for the proposed development.

4 EXCAVATION

4.1 *Archaeological and Architectural Heritage*

As the site has been significantly disturbed in the past, there will be no predicted impacts on the archaeological, architectural or cultural heritage relating to the proposed development, and therefore no mitigation measures are required.

Therefore, no mitigation measures relating to archaeological, architectural or cultural heritage are required.

4.2 *Ground Conditions*

Ground works will be required to clear the site and to facilitate construction of building foundations, access roads, the installation of utilities and landscaping. A Geotechnical Site Investigation report has been commissioned which will report findings in relation to existing ground conditions including Allowable Bearing Pressure of sub-formation, geotechnical properties of soil strata, suitability of soil for reuse, waste acceptance criteria of the soil and sub-soil on site and identification and measurement of the water table on site.

Existing preliminary site investigation information indicates that the site is underlain by shallow bedrock along the northern portion of the site while the southern section of the site is covered with Glacial till overlying shallow bedrock. Topsoil was encountered across the site ranging in depth from 0.1m to 0.5m with made ground typically extending to depth of 1.4m to 2.2m.

Site preparation, excavations and levelling works required to facilitate construction of foundations, access roads will generate c. 35,000m³ of excavated material (excluding excavation for utilities). It is currently proposed to dispose of all excavated material off-site. The maximum depth of excavation 4.8m at the proposed surface water attenuation tank.

Any surplus material that requires removal from site for offsite reuse, recovery and/or disposal and any potentially contaminated material (in the unlikely event that it is encountered), should be segregated, 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*' using the *HazWasteOnline* application (or similar approved classification method). If the material is to be disposed of to landfill, it will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* and landfill specific criteria. This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste including potential pollutant concentrations and leachability.

The surplus soils and stones may be suitable for acceptance at either inert or non-hazardous soil recovery facilities/landfills in Ireland or, in the event of hazardous material being encountered, be transported for treatment/recovery or exported abroad for disposal in suitable facilities.

5 SITE LOGISTICS

5.1 Site Establishment and Security

The site office and welfare facilities will be situated on site at an agreed location within the site boundary.

All of the sub-contractors as well as the main contractor and project managers will occupy offices in the same area. The site parking for all staff, contractors and visitors will be provided at the locations identified in Figure 5.1 below.

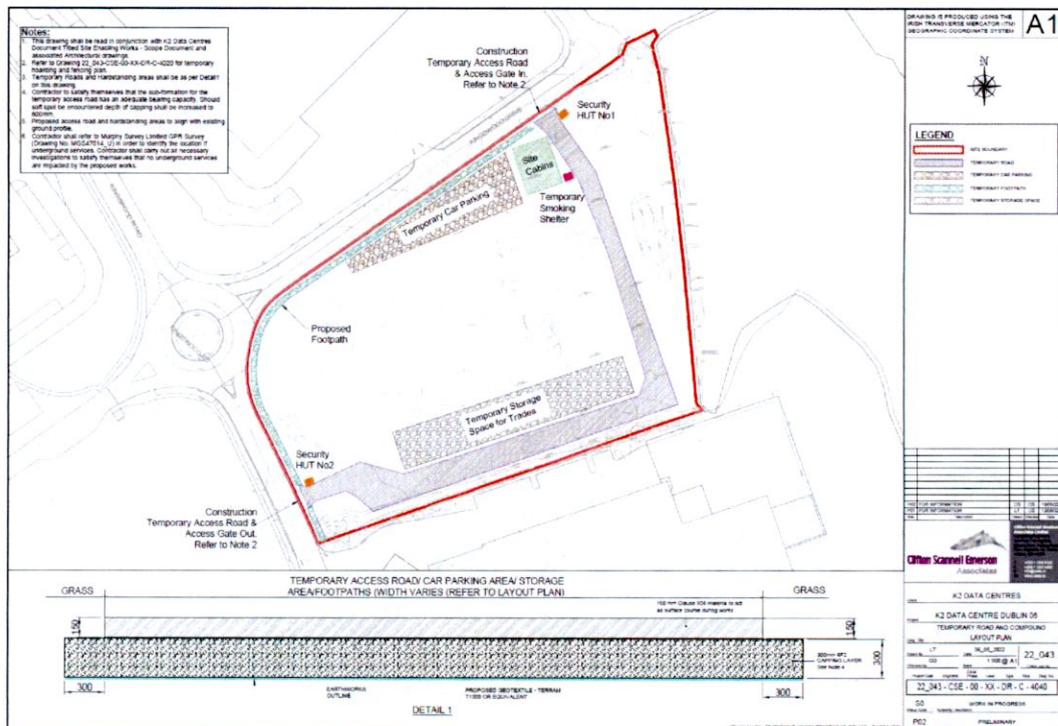


Figure 5.1 Location for the Site Offices and Materials Compound

It is proposed to provide a one-way system for vehicles which the site entrance being provided off Kingswood Drive in the north east corner of the site and the site exit being provided on to Kingswood Road

5.2 Consents and Licences

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.
- Road opening licences.

5.3 Service and Utilities

Welfare facilities (canteens, toilets etc.) will be available within the construction compound on site. Temporary connections to the existing estate services in the existing estate road will be utilised to provide service and utilities subject to relevant applications and approvals.

5.4 Material Handling and Storage

Key materials will include, steel structure, concrete, cladding, ducting and piping. 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 surrounding area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound on 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) 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 material along the public roadway.

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

5.5 Visitor Management

Visitors will only be allowed to enter the main site compound at the northern boundary of the site from the Kingswood Drive or via designated pedestrian access gates. A dedicated, secured footpath to the security 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 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.

5.6 Site Working Hours

Construction of the proposed development would take place over a period of approximately 16 months from the commencement of construction for site development works.

Majority of works are to be done off-road within the site boundary, with the exception of service connections which will be done under licence from the Local Authority and Utility providers.

During the off-road section of works, no construction vehicles will access the site (or commence work) and the use of machinery, plant or equipment (which includes pneumatic drills, generators etc) will not be permitted outside the following hours:-

- Before 7.00 a.m. on weekdays, Monday to Friday;
- Before 9.00 am on Saturday;
- After 7.00 p.m. on weekdays, Monday to Friday;
- After 1.00 pm on Saturday;
- No works permitted at any time on Sundays, Bank Holidays or Public Holidays,

The above will be subject to any planning conditions restrictions imposed as part of the grant of permission.

5.7 Employment and Management Workforce

Construction traffic would consist of the following:

- Private vehicles belonging to site construction staff;
- Private vehicles belonging to site security staff;
- Occasional Private vehicles belonging to professional staff (i.e. design team, utility companies); and
- Excavation plant and dumper trucks used for site development works.

It is anticipated that the worst case construction traffic impact for the proposed development would occur in Q2/Q3 2023 at peak construction.

Construction traffic has been estimated using data obtained from a similar data storage facility development that used a similar construction methodology to the current development. The following construction data has been used to estimate peak daily construction traffic:

- Average construction staff for data storage facility: 100;
- Peak construction staff for data storage facility: 150;
- Average cars/ day for data storage facility: 100;
- Peak cars/day for data storage facility: 150
- Peak HGVs/day for data storage facility: 20; and
- Peak LGVs/ day for one data storage facility: 20.

All employees working on the site will be required to have a Safe Pass 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

During construction of the proposed development, construction traffic will travel to and from the site via the construction site access located on the northern section of the site. It is expected that the origins and destinations of construction traffic will continue to match the distribution of traffic currently using the surrounding road network with the majority of construction traffic via the Kingswood Road and Kingswood Drive.

The following measures will be put in place during the construction works:

- The contractor will be required to provide wheel cleaning facilities, and regular cleaning of the main access road;
- Temporary car parking facilities for the construction workforce (c. 100 - 150 no. spaces) will be provided.
- Monitoring and control of construction traffic will be ongoing during construction works. Construction Traffic Management will minimise movements during peak hours.
- Construction Traffic routes minimising traffic impact on surrounding residential development will be used by construction vehicles.

Traffic Queueing

Material deliveries and collections from site will be planned, scheduled and staggered to avoid any unnecessary build-up of construction works related traffic.

Site Hoarding and Security Fencing

Security fencing will be established around the site compound. As noted in Section 3 this will be carried out as part of an Enabling Works Contract under the current Grant of Planning (Reg Ref SD18A-0301).

Site access will be restricted by dedicated security personnel who will check all incoming and outgoing vehicles and workers.

7 SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS

The appointed main contractor will be required to prepare a Construction Health & Safety Plan which will be put in place prior to commencement of the works. At a minimum, this plan will include:

- *Construction Health & Safety training requirements;*
- *Induction procedures;*
- *Emergency protocols; and*
- *Details of welfare facilities.*

7.1 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 following measures 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) ¹;
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) ²;
- 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) ³; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) ⁴.

Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as watercourses, 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:

- Complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- Equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive; and
- Pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional.

Dust Control Measures

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control

strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs. The following measures shall be taken in order to avoid dust nuisance occurring under unfavourable meteorological conditions:

- The Principal Contractor or equivalent will monitor the contractors' performance to ensure that the proposed mitigation measures are implemented, and that dust impacts and nuisance are minimised;
- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions;
- 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 will also include head/regional office contact details;
- Community engagement shall be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;
- A complaints register will be kept on site by the Principal Contractor detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;
- It is the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions herein; and
- The procedures put in place will be reviewed at regular intervals and monitoring conducted and recorded by the principal contractor. It is recommended that reviews are conducted on a monthly basis as a minimum.

The dust minimisation measures shall be reviewed at regular intervals during the works to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are described below.

Site Roads

Site access routes (particularly unpaved routes) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25% to 80%⁵.

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles;
- Bowsers will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering

- is to reduce dust emissions by 50% ⁶. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use;
- Access gates to the site shall be located at least 10m from sensitive receptors where possible; and
 - Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

Land Clearing/Earth Moving

Land clearing/earth-moving works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust;
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

The movement of truck containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

Stockpiling

The location and moisture content of rubble stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;
- Regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust;
- There will be no storage of soil along the cable route; and
- Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.

Site Traffic on Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:

- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- At the main site traffic exits, a wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash; and
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.

General

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory management of dust by the construction contractor.

7.2 Ecology

There is no connectivity to any European sites within or outside the potential Zone of Influence. There are no notable surface water features onsite and no direct hydrological pathways to offsite surface water bodies.

The Contractor shall put in place measures that ensure that there will be no direct or indirect impacts on the Kingswood Stream and Camac River.

The key strategies to be undertaken to minimise impact on the local flora and fauna during site clearing and construction are as follows:

- Cutting vegetation should be carried out outside the bird nesting season March 1st to August 31st to avoid potential impacts on birds. Where cutting vegetation within that season is required, it will be undertaken under the supervision of a suitable qualified ecologist to ensure any birds nests are identified and avoided, and;
- If any new lighting is directed towards the boundaries of the site, there is a risk of indirect impacts on foraging bats, and on potential roost features in the surrounding area. However, 'bat-sensitive' lighting techniques will be incorporated into the lighting plan, which will avoid or minimise any potential impacts of lighting on bats. 'Bat-sensitive lighting' for this development would have the following design principles (as required by Condition 2 of the Permitted Development):
 - All luminaires shall lack UV elements when manufactured. Metal halide, fluorescent sources shall not be used.
 - LED luminaires shall be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
 - A warm white spectrum (ideally <2700Kelvin) shall be adopted to reduce blue light component.
 - Luminaires shall feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
 - Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill. (See figure overleaf.)
 - The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use shall only be as directed by the lighting professional.
 - Column heights shall be carefully considered to minimise light spill.
 - Only luminaires with an upward light ratio of 0% and with good optical control shall be used
 - See ILP Guidance for the Reduction of Obtrusive Light.
 - Luminaires shall always be mounted on the horizontal, ie no upward tilt.
 - Any external security lighting shall be set on motion-sensors and short ([min) timers.
 - As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

7.3 Noise and Vibration

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

The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (where required), excavators, lifting equipment, dumper trucks, compressors and generators.

As stated in the Noise Impact Assessment report prepared by AWN Consulting, the following Construction Noise Threshold (CNT) levels are proposed for the construction stage of this development:

- For residential NSLs it is considered appropriate to adopt 65 - 75 dB(A) CNT depending on existing noise level. Given the baseline monitoring carried out, it would indicate that Category A and C values are appropriate using the ABC method.
- For non-residential NSLs it is considered appropriate to adopt the 70 dB(A) CNT, given the urban environment in which the community centre resides, in line with BS 5228-1:2009+A1:2014 Annex E2.

There is no published statutory Irish guidance relating to the maximum permissible vibration level. The following standards are the most widely accepted in this context and are referenced here in relation to cosmetic or structural damage to buildings:

- British Standard BS 5228-2 (BSI 2014); and
- British Standard BS 7385-2 (BSI 1993)

Type of building	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
Unreinforced or light framed structures. Residential or light commercial buildings.	15 mm/s at 4 Hz 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.

Table 7 Transient Vibration Guide Values for Cosmetic Damage

Any noise complaints related to activities at the site will be logged and investigated and, where required, measures taken to ameliorate the source of the noise complaint.

A designated noise liaison should be appointed to site during construction works. Any complaints should be logged and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity, e.g. excavation close to a property, etc., the site contact should inform the nearest noise sensitive locations of the time and expected duration of the works.

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. In general, the

contractor shall implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

- In accordance with "Best Practicable Means", plant and activities to be employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Where required, improved sound reduction methods are used e.g. enclosures.
- Site equipment is located away from noise sensitive areas, as much as physically possible.
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery.
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out.
- A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site.

7.4 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 Resource and Waste Management Plan (RWMP) is included with the planning application documents. This RWMP will be refined and updated in advance of the works to ensure best practice is followed in the management of waste from the proposed development.

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 Acts 1996 – 2011 as amended ⁷, associated Regulations ⁷, the Litter Pollution Act of 1997 as amended ⁸ and the Eastern-Midlands Region Waste Management Plan 2015 – 2021 ⁹, and 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;
- Biodegradable/Green waste
- Bituminous mixtures, coal tar and tarred products;

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

7.4.1 Waste Minimisation

Waste minimisation measures proposed are summarised as follows:

- 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; and
- Sub-contractors will be responsible for similarly managing their wastes.

All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

7.4.2 Waste Storage

A dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities are to be stored, is to be established within permitted site compound.

Waste materials generated will be segregated on 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.

The site construction 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.

7.4.3 Responsibility

It will be the responsibility of the Contractor 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 Contractor 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 licenced or permitted waste facility in compliance with the relevant Regulations.

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 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 material will be provided to the local authority.

7.5 Surface Water Management

Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing. Correct management will ensure that there will be minimal inflow of shallow/perched groundwater into any excavation.

Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations (up to 5m) during and after heavy rainfall events to ensure that the trenches are kept relatively dry.

Any run-off water containing silt during construction will be contained on-site via settlement tanks and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing, settlement measures (silt traps, silt sacks and settlement tanks / ponds).

Movement of material will be minimised to reduce the degradation of soil structure and generation of dust. Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Soil from works will be stored away from existing drainage features to avoid any potential impact. Stockpiles of soil and construction aggregate can have the potential to cause negative impacts on air and water quality. The effects of soil stripping and stockpiling will be mitigated against through the implementation of appropriate earthworks handling protocol during construction. It is anticipated that any stockpiles will be formed within the boundary of the site and there will be no direct link or pathway from this area to any surface water body. Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible.

No construction shall take place within 30m of the Kingswood Stream and there shall no abstractions from the water course.

No silty or contaminated water from the construction works will be discharged to any stormwater network, but should any discharge of contaminated construction water be required during the construction phase, the discharge will be to foul sewer following agreement with the Local Authority / Irish Water.

These measures are in compliance with the following relevant CIRIA guidance documents:

- CIRIA, (2001), *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532)* Construction Industry Research and Information Association;
- CIRIA (2002) *Control of water pollution from construction sites: guidance for consultants and contractors (SPI56)* Construction Industry Research and Information Association;
- CIRIA (2005), *Environmental Good Practice on Site (C650)*; Construction Industry Research and Information Association;
- BPGCS005, *Oil Storage Guidelines*;
- CIRIA 697 (2007), *The SUDS Manual*; and
- *UK Pollution Prevention Guidelines, (PPG)* UK Environment Agency, 2004.

8 SUMMARY

This Outline CEMP sets out the overall management strategy for construction works for the proposed development.

The Outline 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 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. Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004).
2. US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)* (1986).
3. 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).
4. Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014).
5. UK Office of Deputy Prime Minister, *Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance* (2002).
6. USEPA, *Fugitive Dust Technical Information Document for the Best Available Control Measures* (1997).
7. Waste Management Act 1996 (No. 10 of 1996) as amended 2001 (No. 36 of 2001), 2003 (No. 27 of 2003) and 2011 (No. 20 of 2011). Sub-ordinate and associated legislation includes:
 - European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended 2011
 - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
 - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
 - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
 - Waste Management (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
 - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
 - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
 - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
 - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
 - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
 - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
 - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended
 - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007)
 - Waste Management (Movement of Hazardous Waste) Regulations 1998 (S.I. No. 147 of 1998)
 - The European Communities (Transfrontier Shipment of Hazardous Waste) Regulations 1988 (S.I. No. 248 of 1988)
 - European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
 - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended
8. Litter Pollution Act 1997 (No. 12 of 1997) as amended
9. *Eastern-Midlands Region Waste Management Plan 2015 – 2021* (2015)
10. Construction Industry Research and Information Association (CIRIA) *Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532)*.
11. CIRIA, *Environmental Good Practice on Site* (3rd edition) (C692).

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