

**CONSTRUCTION  
ENVIRONMENTAL  
MANAGEMENT PLAN FOR A  
PROPOSED SHD  
RESIDENTIAL  
DEVELOPMENT**

**‘ST. JOSEPH'S HOUSE AND  
ADJOINING PROPERTIES’**

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Report Prepared For

**Homeland Silverpines Limited**

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Report Prepared By

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<b>CONTENTS</b>		<b>Page</b>
1.0	INTRODUCTION	4
2.0	DESCRIPTION OF THE PROJECT	4
3.0	CONSTRUCTION PROGRAMME AND PHASING	7
4.0	EXCAVATIONS	9
4.1	Archaeological and Architectural Heritage	9
4.2	Ground Conditions	9
4.3	Foundations	10
5.0	SITE LOGISTICS	10
5.1	Site Safety Compliance	10
5.2	Site Establishment and Security	11
5.3	Consents and Licenses	11
5.4	Services and Utilities	12
5.5	Material Handling and Storage	12
5.6	Visitor Management	12
5.7	Site Working Hours	13
5.8	Employment and Management Workforce	13
6.0	CONSTRUCTION TRAFFIC AND SITE ACCESS	13
6.1	Traffic Queueing	14
6.2	Site Hoarding and Security Fencing	14
7.0	SAFETY, HEALTH AND ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS	14
7.1	Construction Lighting	15
7.2	Air Quality	15
7.3	Ecology	18
7.4	Noise and Vibration	18
7.5	Waste Management	20
7.6	Surface Water Management	22
8.0	SUMMARY	24
9.0	REFERENCES	25

## 1.0 INTRODUCTION

This Construction Environmental Management Plan (CEMP) has been prepared by AWN Consulting (AWN) on behalf of Homeland Silverpines Limited. The proposed development relates to a site at Leopardstown Road, Dublin 18 & St Joseph's House (a Protected Structure) & adjoining lands, Brewery Road, Stillorgan, Co Dublin and will involve the demolition of the existing structures on site, with the exception of St Joseph's House which will be renovated, along with the construction of a new residential development consisting of residential unities, creche, café amenities, car and bicycle parking and all hard and soft landscaping.

The CEMP provides a framework from which a more detailed CEMP will be developed to implement the mitigation measures described below which are designed to avoid, minimise or mitigate adverse construction effects on the environment prior to commencement on site.

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

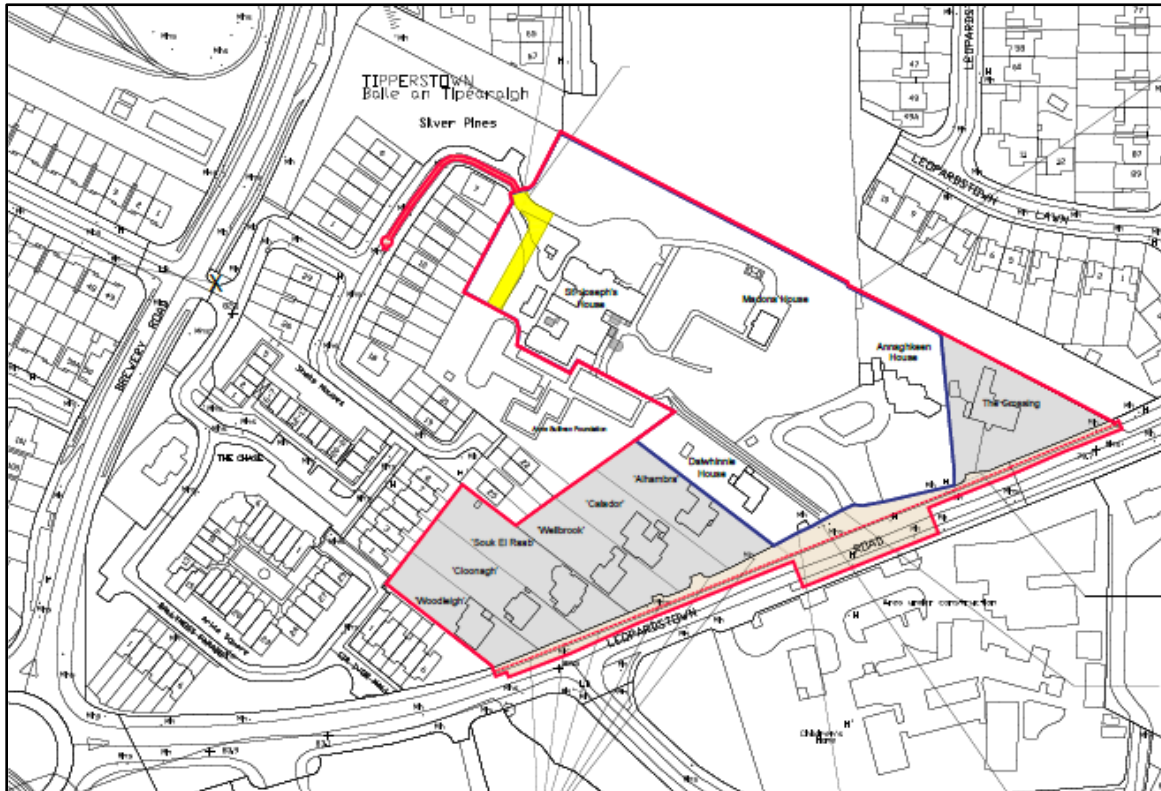
The main issues that have been considered within this document are as follows;

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

Preparation of the updated CEMP should comply with the mitigation measures presented by submitted expert reports, relevant legislation, guidelines, along with best practice. Additional mitigation measures may be added following consultation with relevant consultees in preparation of specific method statements prior to commencement of works.

## 2.0 DESCRIPTION OF THE PROJECT

Figure 2.1 presents a site location plan showing the location of the site at Leopardstown Road, Dublin 18 & St Joseph's House (a Protected Structure) & adjoining lands, Brewery Road, Stillorgan, Co Dublin. The site is a large previously developed site, accommodating several buildings that were previously used for residential accommodation. The site (s) are currently accessed via the existing entrances located on Leopardstown Road and Silver Pines. The surrounding land use is almost entirely residential.



**Figure 2.1** Proposed location of site ((illustrated by red line boundary)

A detailed description is now set out as follows:

The proposal provides for the demolition of 10 no. properties and associated outbuildings at 'Madona House' (single storey), 'Woodleigh' (2 storeys), 'Cloonagh' (2 storeys), 'Souk El Raab' (2 storeys), 'Welbrook' (2 storeys), 'Calador' (2 storeys), 'Alhambra' (2 storeys), 'Dalwhinnie' (2 storeys), 'Annaghkeen' (2 storeys) and 'The Crossing' (single storey) (combined demolition approx. 2,291.3 sq m GFA).

The new development will provide for (a) the refurbishment, separation, and material change of use of Saint Joseph's House (a Protected Structure) from residential care facility to residential use and a childcare facility; and (b) the construction of a new build element to provide for an overall total of 463 no. residential units, residential amenity space and a café.

The overall development proposal provides for the following:

- Block A ( 5 storeys) comprising 49 no. apartments (13 no. 1 bed units, 33 no. 2 bed units and 3 no. 3 bed units);
- Block B (4 - 7 storeys) comprising 88 no. apartments (28 no. 1 bed units, 57 no. 2 bed units and 3 no. 3 bed units);
- Block C (5 - 7 storeys) comprising 115 no. apartments (26 no. studio units, 26 no. 1 bed units and 57 no. 2 bed units and 6 no. 3 bed units);
- Block D (5 - 10 storeys) comprising 157 no. apartments (36 no. studio unit, 40 no. 1 bed units and 81 no. 2 bed units), residential amenity areas of approx. 636 sq m and a café of approx. 49 sq sq m;
- Block E (St. Joseph's House) (2 storeys) comprising 9 no. apartments (8 no. 2 bed units and 1 no. 3 bed units) and a childcare facility of 282 sq m and associated outdoor play areas of approx. 130 sq m;
- Block F (3 - 6 storeys) comprising 45 no. apartments (23 no. studio units, 10 no. 1 bed units; and 12 no. 2 bed units);

Each new build residential unit (Blocks A, B, C, D and F) has associated private open space in the form of a terrace/balcony. Open Space proposals for St. Joseph's House (Block E) include a mixture of private terrace/balcony areas and communal open space areas.

The extent of works proposed to Saint Joseph's House (a Protected Structure) include:

- The demolition of a single storey office, conservatory, glazed link and associated outbuildings. Also the demolition of the external store, external enclosed escape stairs with associated canopies, toilet extension and 3 no. outbuilding to the west of St Joseph's house. (demolition total approx. 173.4 sq m GFA);
- The removal of external steel gates, all external steel escape stairs, canopies, and existing disabled access ramps. Also removal of existing concrete steps to the west side of the structure and form new ones.
- Relocation of external granite steps and the provision of a new raised entrance terrace, steps and ramp areas;
- Replacement of existing rooflights, the addition of roof lights, part new roof / new zinc roof and external wall and roof to the east of the structure.
- The provision of new door and window openings;
- Modifications to internal layout including the removal of walls and partitions and the addition of new dividing walls.

The Residential Amenity Areas of approx. 636 sq m proposed in Block D comprise a residential club house/multi-purpose room, library/reading room, lounge area, concierge area, office area, post room, fitness club, all at ground floor level of Block D. A terrace lounge area is proposed at fifth floor level of Block D. 2 no. roof garden areas are also proposed at fifth floor level of Blocks C and D (approx. 400 sq m and 408 sq m respectively).

Open Space (approx. 9,885 sq m) is proposed in the form of (a) public open space areas (approx. 6,680 sq m) which include a public plaza/court area, a main area of public open space (including a play area and outdoor gym area) and woodland trail; and (b) all communal open space areas (approx. 3,205 sq m) which include areas adjacent to St. Joseph's House (Block E), Block D and Block F, a courtyard and play area located between Blocks A and B and roof terraces at fifth floor level of Blocks C and D. Visual amenity open space areas (approx. 1,000 sq m) are also proposed at various locations throughout the development.

Basement Level (approx. 9,445 sq m) is proposed with residential access from Blocks A, B, C, D and F. Bin Storage areas, water storage areas, and part attenuation are located at this level. 2 no. ESB Substations, 1 no. ESB Kiosk, 2 no. Switch Rooms, waste storage areas for Block E (St. Joseph's House, A Protected Structure) and bicycle storage areas proposed at surface level.

A total of 259 no. car parking spaces (232 no. at basement level and 27 no. at surface level) are proposed. At basement level a total of 30 no. electric vehicles and 202 no. standard parking spaces are provided for. A total of 968 no. bicycle spaces (816 no. at basement level and 152 no. at surface level) dedicated cycle lift and 10 no. motorcycle spaces (all at basement level) are also proposed.

Proposals for vehicular access comprise 1 no. existing vehicular access point via Silver Pines (an existing all movement junction onto Brewery Road) and 1 no. new vehicular access point at the general location of 'Annaghkeen' at Leopardstown Road (a new Left In / Left Out junction arrangement). The new access point along Leopardstown Road will replace 9 no. existing access points at 'Woodleigh', 'Cloonagh', 'Souk El Raab', 'Welbrook', 'Calador', 'Alhambra', 'Dalwhinnie', 'Annaghkeen' and 'The

Crossing'. The internal permeability proposed will provide linkages for pedestrians and cyclists to Leopardstown Road and adjoining Greenway. Proposals also provide for the relocation of an existing bus stop along Leopardstown Road.

The associated site and infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works including tree protection, tree removal and new tree planting; green roofs; boundary treatment; internal roads and footpaths; and electrical services.

### 3.0 CONSTRUCTION PROGRAMME AND PHASING

The construction works associated with the development will be undertaken in 3 phases as indicated in Figure 3.1. There will also be demolition and excavation phases associated with removing demolition material, excavating the basement, along with reprofiling spoil onsite.

The construction and demolition programme is intended to commence in the second half of 2022, with a 40-month programme.

Subject to detailed planning at the construction stage, it is currently envisaged that the construction compound, offices, staff parking and storage areas will be located at the locations provided in Figure 5.1.

#### 3.1 Demolition Phase

All of the existing structures on site except for St Joseph's House, will be demolished as part of initial enabling works before the construction of the proposed development.

The demolition shall be in full compliance with BS 6187 "*Demolition in Buildings*" and all "measure" necessary will be taken to protect the adjoining buildings from damage and persons from injury. Prior to the demolition works a Construction and Demolition Waste Management Plan in accordance with the "*Department of the Environment Heritage and Local Government Best Practice Guidelines on the preparation of Waste Management Plans for construction and demolition projects*" will be updated and prepared by the appointed Demolition Contractor.

The demolition will commence with the removal of any hazardous materials by an appropriately qualified contractor for disposal at an appropriate licensed waste collection facility. All non-structural items will then be removed segregated for re-use or re-cycling where possible. The remainder of the building structure will be removed in an approved sequence outlined in a Method Statement prepared by the yet to be selected Demolition Contractor's Structural Engineer.

#### 3.2 Excavation & Construction Phase

The project excavations will involve excavations for new foundations, site levelling, basement level and excavations for roads and services. The Construction and Demolition Waste Plan prepared by AWN Consulting (ref CB\_20\_11580WMMR01), for the development will be updated by the main contractor and will be in compliance with the requirements of the "*Best Practice Guidelines for the Preparation of Waste Management for the Construction and Demolition Projects*" published by the Department of the Environment Heritage and Local Government will identify and categorise any waste arising from the development.

The plan will also contain the proposals for the minimisation, re-use and re-cycling of site generated waste. As part of this plan separate storage areas will be designated on

the site for various types of material in order to maximise the re-use and re-cycling potential. Procedure will also be put in place to ensure that all sub-contractors fulfil the requirements of the Waste Management Plan.

The project involves the construction 463 no. residential apartments and creche, along with all associated site works.

The scheme is split into 3 phases covering 6 blocks in total:

#### Phase 1

- Block A ( 5 storeys) comprising 49 no. apartments (13 no. 1 bed units, 33 no. 2 bed units and 3 no. 3 bed units);
- Block B (4 - 7 storeys) comprising 88 no. apartments (28 no. 1 bed units, 57 no. 2 bed units and 3 no. 3 bed units);

#### Phase 2

- Block C (5 - 7 storeys) comprising 115 no. apartments (26 no. studio units, 26 no. 1 bed units and 57 no. 2 bed units and 6 no. 3 bed units);

#### Phase 3

- Block D (5 - 10 storeys) comprising 157 no. apartments (36 no. studio unit, 38 no. 1 bed units and 83 no. 2 bed units) and residential amenity areas of approx. 743 sq m.
- Block E (St. Joseph's House) (2 storeys) comprising 9 no. apartments (8 no. 2 bed units and 1 no. 3 bed units) and a creche facility of 282 sq m and associated outdoor play areas of approx. 130 sq m;
- Block F (3 - 6 storeys) comprising 45 no. apartments (23 no. studio units, 10 no. 1 bed units; and 12 no. 2 bed units);

The works will include:

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





**Figure 3.1** Site construction phasing strategy

## 4.0 EXCAVATIONS

### 4.1 Archaeological and Architectural Heritage

The proposed development site has been previously disturbed by historic construction and it is likely during this project that sub – surface masonry associated with the Children’s Sunshine Home will be encountered, along with the potential to disturb the original townland boundary between Tipperstown and Galloping Green South.

A programme of archaeological monitoring of the ground reduction associated with the proposed development will be carried out. This will be carried out by a suitably qualified archaeologist under license and in accordance with the provisions of the National Monuments Acts 1930-2004

Should archaeological features or material be uncovered during archaeological testing or any phase of construction, ground works will cease immediately and the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht will be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the National Monuments Service may require that further archaeological mitigation be undertaken. A written report will be prepared detailing the results of all archaeological works.

### 4.2 Ground Conditions

Site investigations and environmental soil testing were undertaken between August and September 2016, by Ground Investigations Ireland (GII) and further site investigations and environmental soil testing were undertaken in 2020, by IGSL. The purpose of the site investigations was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification.

Ten samples of soil/fill were submitted for detailed environmental analysis to the RILTA Suite, which includes the Waste Acceptance Criteria (WAC) parameters. This testing is used to determine the suitability of the soil for disposal to landfill and includes Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAH), TPH-CWG, BTEX and Total Organic Carbon (TOC) all carried out on dry soil samples.

The results from nine of the samples confirm that no elevated levels of contaminants were found and that the material can be classified as INERT.

In one sample of FILL however (TP01 at 1.00 metre) elevated levels of Total Organic Carbon (TOC) and Loss on Ignition (LOI) were recorded. If any potentially contaminated material is encountered, it will need to be segregated from clean/inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous*' using the *HazWasteOnline* application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC*, which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos containing materials (ACMs) are found, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010*. All asbestos will be taken to a suitably licensed or permitted facility.

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

### **4.3 Foundations**

The construction methodology and programme for foundation activities will be dictated by the Contractor and the ground conditions. The construction of the various structures will involve complex sequencing of activities and various construction methodologies could be adopted to deliver the Contract.

The geotechnical design of any pile walls will be carried out in accordance with IS EN 1997-1:2005 Eurocode 7: Geotechnical Design – Part 1: General Rules and with respect to the Irish National Annex to the report prepared by Engineers Byrne Looby (INA-EC7), which was published in 2007 to determine the likely pile toe levels. These would be subject to detailed design. The recommendations of CIRIA C760 are also considered.

## **5.0 SITE LOGISTICS**

### **5.1 Site Safety Compliance**

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

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

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

## 5.2 Site Establishment and Security

The first activity to be carried out at the site will be the establishment of site facilities and security. It is anticipated that site establishment works will take approximately four weeks. The site office and welfare facilities will be confirmed in advance of the commencement of site works and agreed with Dun Laoghaire Rathdown County Council. Figure 5.1 point shows the proposed locations of the site compound and staff parking. The location of the site compound, welfare facilities and staff parking will be confirmed by construction compactor prior to site works beginning and an updated CEMP will be submitted to DLRCC for approval.



**Figure 5.1** Proposed Site Compounds & Staff parking Locations Options

All of the sub-contractors as well as the main contractor and project managers will occupy offices within the construction compounds. The site parking for all staff, contractors and visitors will also be located in this area.

## 5.3 Consents and Licenses

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

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

## **5.4 Services and Utilities**

Welfare facilities (canteens, toilets etc.) will be available within the construction compound and this will remain in place for the construction of the proposed development. The offices and site amenities will initially need to have their own power supply (generator), water deliveries and foul water collection until connections are made to the mains networks.

Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required.

The current electricity facilities on the site of the proposed development are supplied by the ESB through a ring network. All electrical works, including connection to the ESB network will be carried out by a suitably qualified contractor.

Water supply required for welfare facilities, dust suppression and general construction activities will be sourced from the existing public piped supplies running into the site.

However, before connections are established to the water supply it may need to be trucked onto site. As with electrical works, this will be carried out by a suitably qualified contractor. It will be necessary to service the site with a reliable and safe water supply.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

## **5.5 Material Handling and Storage**

When key materials are ordered, 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 Dublin area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in the compound area within the site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) 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. Material will be removed from site regularly to ensure there is minimal need for stockpiling.

## **5.6 Visitor Management**

Visitors will only be allowed to enter the main site compound via the designated pedestrian access gate. A dedicated, secured footpath to the site office is established at the gate for registration and obtaining PPE prior to entering the site. A log will be

maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the compound and/or construction site unless being accompanied by an inducted member of the site team.

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

## **5.7 Site Working Hours**

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

## **5.8 Employment and Management Workforce**

It is estimated that there will initially be 40-60 staff on site on a typical day, however during peak construction periods this is expected to fluctuate up to 150 staff and contractors on site per day.

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

All employees working on the site will be required to have a SafePass Card (or similar approved Construction Health & Safety card), manual handling training, CIF COVID 19 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).

## **6.0 CONSTRUCTION TRAFFIC AND SITE ACCESS**

The proposed construction vehicle routes for the site will require a traffic management plan to be agreed upon with DLRCC and TII prior to site workings beginning.

Various route proposals were assessed for accessing the construction site, however, it was decided that the route with the least impact on the adjoining road network would be the most prudent, as it would reduce conflict with other vehicles.

Construction traffic will access the site from Leopardstown Road with no construction traffic allowed to use the Silverpines Residential Estate. This volume of construction traffic estimated to be generated during peak traffic hours is lower than the peak volumes projected for the operational phase of the development.

Traffic Management Plan (TMP) will be prepared for the site works in accordance with the principles outlined below and shall comply at all times with the requirements of:

- Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks
- Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
- Any additional requirements detailed in the Design Manual for Roads and Bridges (DMRB) & Design Manual for Urban Roads & Streets (DMURS)

The contractor shall prepare a detailed traffic management plan for works at that interface with the existing road network and obtain all required road opening licenses from Dun Laoghaire Rathdown County Council.

Construction traffic operation would be limited to 0700 to 1900 from Monday to Friday and 0800 to 1400 on Saturday for the off-road construction. These times may vary to facilitate specific site requirements and/or construction activities associated with the site. Any variation will be discussed and agreed in advance with DLRCC.

All construction vehicles / delivery vehicles shall access & egress the site via the designated entrance point on Leopardstown Road. Access & egress for deliveries and removal of materials will be planned, scheduled and co-ordinated by site management. All vehicle movements both on and around the site will be controlled by a competent and certified banksman.

In general, the impact of the construction period will be temporary in nature. HGV vehicle movements are not expected to exceed 10 vehicles per hour during the busiest period of construction works.

Excavated material will be reused as part of the site development works where possible to minimise truck movements to and from the site (e.g. use as non-structural fill under green areas).

Approved traffic management plans will be submitted with the updated CEMP, prior to the commencement of works.

## **6.1 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.

Deliveries to site shall be booked in advance using a delivery schedule, so as to prevent lorry congestion on the road networks surrounding the site. Alternative safe routeways shall be established for traffic and pedestrians where existing routeways have to be altered, removed or worked on during the project.

## **6.2 Site Hoarding and Security Fencing**

All areas of construction will be fenced / hoarded off to prevent unauthorized access. This fencing shall remain closed at all times during construction works and closed and locked after construction work hours / break times.

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

Access/Egress to site for site operatives and visitors shall be via biometric gates. Site security fencing/ Hoarding up to a height of 2.4 M will be erected in line with the Construction Regulations 2013 that will clearly separate the work site from the surrounding public. It is not envisaged that the fencing will impinge upon the safe passage of pedestrians during the construction phase

## **7.0 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;
- Covid 19 guidelines;
- Induction procedures;
- Emergency protocols; and
- Details of welfare facilities.

## 7.1 Construction Lighting

Construction work will generally be confined to daylight hours and lighting will generally not be required for the construction phase. There will however be occasions where the provision of portable lighting will be required (works on roadways and power floating floors as examples). Where possible and without jeopardising site safety, lights will be pointed down at a 45-degree angle and away from sensitive receptors. The site compound will have external lights for safety and security. These lights will be pointed down at a 45-degree angle and away from sensitive receptors where possible.

## 7.2 Air Quality

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

- Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004) <sup>1</sup>;
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) <sup>2</sup>;
- 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) <sup>3</sup>; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) <sup>4</sup>.

### 7.2.1 Site Management

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

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

- The dust deposition rate will be measured by positioning Bergerhoff Dust Deposit Gauges at strategic locations near the boundaries of the site for a period of 30 (+/- 2) days if required. Monitoring should be conducted as required during periods when the highest levels of dust are expected to be generated i.e., during site preparation works and soil stripping activities.
- The exact locations will be determined after consideration of the requirements of Method VDI 2119 with respect to the location of the samplers relative to obstructions, height above ground and sample collection and analysis procedures.
- After each 30 (+/- 2 days) exposure period, the gauges will be removed from the sampling location, sealed and the dust deposits in each gauge will be determined gravimetrically by an accredited laboratory and expressed as a dust deposition rate in mg/m<sup>2</sup>/day in accordance with the relevant standards.
- Technical monitoring reports detailing all measurement results, methodologies and assessment of results shall be subsequently prepared and maintained by the Site Manager.

A limit value of 350 mg/m<sup>2</sup>/day will be used in comparison with recorded values.

### 7.2.2 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.

- During working hours, technical staff will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures should be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities should be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.

#### **Site Routes**

Site access routes (particularly unpaved areas) 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%<sup>5</sup>.

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles or delivery vehicles within the vicinity of the site;
- 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%<sup>6</sup>. The bower 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; and

- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced areas shall be restricted to essential site traffic only.

### ***Demolition/Excavation***

Demolition and excavation 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.

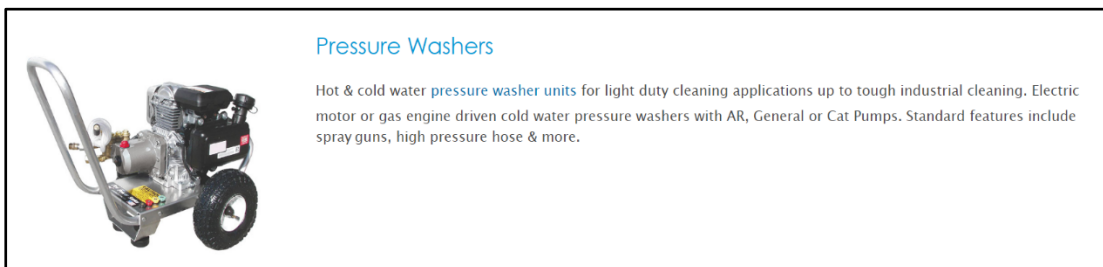
### ***Stockpiling***

The location and moisture content of 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;

### ***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:



***Insert 7.1*** Example of Proposed wheel cleaning equipment example

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust;
- Any hard surface site 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.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate, and an example of the washing equipment can be seen in insert 7.1 ; and
- Road sweepers will be employed to clean the site access route as required.

## **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.

### **7.3 Ecology**

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

- All mitigation measures stated within the Biodiversity chapter of the EIAR will be implemented;
- All site clearance works will comply with current legislative requirements and best practice;
- Taking measures to limit the working area during the construction phase will reduce the impacts of the development on adjacent areas. The construction area will be clearly delimited by the site boundary and machinery should operate only within this allocated site area;
- All re-fuelling of plant, equipment and vehicles will be carried out at the construction site boundary. All fuels, chemicals, liquid and solid waste will be stored in areas bunded in accordance with established best practice guidelines at the construction compound also; and Provision of spill kits;
- Provision of a water and sediment management plan, providing for means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local water courses or drains; and
- The measures outlined in Section 7.6 will ensure that silt run-off and potential flooding risks are minimised which will protect any ecological receptors associated with the site.
- All trees shall be felled outside of the nesting season (March 1<sup>st</sup> to August 31<sup>st</sup>) unless it has been satisfied beyond question that there are no birds nesting within them by a suitably qualified ecologist.
- All equipment will be checked and washed before introduction to the site;
- All buildings and trees shall be surveyed for Bats prior to demolition or felling;
- Construction lighting will be designed so as to be sensitive to the potential presence of bats and should adhere to the following guidance:
  - Bats & Lighting: Guidance Notes for Planners, engineers, architects and developers (Bat Conservation Trust, 2010);
  - Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011);
  - Bats and Lighting in the UK – Bats and the Built Environment Series (Bat Conservation Trust UK, January 2008).

### **7.4 Noise and Vibration**

Noise impacts arising from demolition, earthworks and construction activities have the potential to cause annoyance or nuisance to local residents and businesses 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, excavators, lifting equipment, dumper trucks, compressors and generators.

The noise limits to be applied for the duration of the infrastructure works are those specified in the B Category of BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

- Night (23:00-07:00) = 55dB
- Evening (19:00-23:00) = 65dB
- Day (07:00-19:00) = 70dB

The total noise (LAeq) which should not be exceeded during daytime is therefore 70dB.

Vibration limits to be applied for the infrastructure works are those specified in the TII document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII, Revision 1, 2004). These limits are outlined below:

Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of;

- Less than 11Hz - 3mm/s
- 11 to 50 Hz - 3 to 8mm/s
- 50 to 110 Hz (and above) - 8 to 11mm/s

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 officer 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.

External noise and vibration monitoring will be undertaken at locations on the site boundary closest to sensitive locations. It is considered that it will be appropriate to amend the monitoring program as the works progress. Accordingly, monitors may be added, removed or relocated as necessary.

The noise monitoring terminals should provide the following at minimum:

- Logging at hourly intervals; and
- Daily CIC automated calibrations.

Vibration monitoring terminals should continually log vibration levels using the Peak Particle Velocity parameter (PPV, mm/s) in the X, Y and Z directions, in accordance with BS ISO 4866: 2010: *Mechanical vibration and shock – Vibration of fixed structures – Guidelines for the measurement of vibrations and evaluation of their effects on structures*.

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

- The transducer and its mountings should be as rigid as possible;
- The mounting surfaces should be as clean and flat as possible;
- Simple symmetric mountings are best, and;
- The mass of the mounting should be small in comparison to that of the structure under test.

#### Rock breaking and Piling

Quantities of rock are required to be excavated and removed from site to provide for the basement and to construct the building in accordance with the proposed design. Further site investigations are required once the existing buildings on site are demolished.

During this phase additional noise reductions / mitigation measures will be implemented to limit the impact on the surrounding environment and population.

- Solid boundary hoarding providing acoustic barrier.
- Acoustic screen to the rock breaking area if required to meet the noise limit requirements.
- Noise and vibration will also be attenuated by the depth of the rock excavation at more than 3m below surrounding ground.

The methods of rock extraction, the depth, together with the proposed location of the building basement will reduce off-site noise effects from much of the surrounding area.

## **7.5 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 Construction and Demolition Waste Management Plan has been prepared by AWN Consulting. and will be employed to ensure sustainable and effective waste management throughout the demolition, excavation and construction phases of the project.

Adherence to the C&D WMP 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, associated Regulations, the *Litter Pollution Act of 1997-2009* as amended and the *Eastern-Midlands Region Waste*

*Management Plan 2015 – 2021*, and that it will achieve optimum levels of waste reduction, re-use and recycling.

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

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

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

#### 7.5.1 Waste Minimisation

Waste minimisation measures proposed are summarised as follows (and are described in more detail in the C&D WMP):

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

#### 7.5.2 Waste Storage

The main waste storage area will be located in the site compound. A dedicated and secure area containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development see figure 5.1.

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. There are numerous waste contractors in the Dublin Region that provide this service.

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.

#### 7.5.3 Responsibility

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

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

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

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

## **7.6 Surface Water Management**

Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions.

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. All run-off will be prevented from directly entering into any water courses as no construction will be undertaken directly adjacent to open water.

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 during and after heavy rainfall events to ensure that the excavation is kept relatively dry.

The following measures will be put in place during the construction phase to ensure protection of surface waterbodies. Construction works are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects:

- Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532); and
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016).
- Environmental Good Practice on Site (3rd edition) (C692).

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be installed prior to the commencement of the construction works to collect surface water runoff by the site during construction.

It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet.

### **7.6.1 Pollution Control**

#### ***Management of Suspended solids in run-off***

Any temporary storage of spoil, hardcore, crushed concrete or similar material will be stored as far as possible from any surface water drains and also stored in receptacles where possible. In order to minimise the risk of contamination, the stockpiled material will be removed off-site as soon as possible. Surface water drain gratings in areas near or close to where stockpiles are located will be covered by appropriate durable polyurethane covers or similar.

There will be no direct pumping of silty water from the works to any watercourse. Sediment entrapment facilities will be installed to reduce sediment discharges to downstream properties and receiving waters. All run-off leaving a disturbed area should pass through a sediment entrapment facility before it exits the site and flows downstream such as straw bales, silt fencing, silt barriers and diversion dams.

## Response

### **Concrete Run-off**

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Wash-outs will only be allowed to take place in designated areas with an impervious surface.

### **Accidental Spills and Leaks**

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks will be kept in the material storage area in suitable containers and will be appropriately banded as required. Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in designated areas of the site, where possible, which will be kept away from surface water drains.

Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event.

The following mitigation measures will be taken at the construction site in order to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:

- Refuelling will be undertaken off site where possible;
- Where mobile fuel bowsers are used the following measures will be taken:
  - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
  - The pump or valve will be fitted with a lock and will be secured when not in use;
  - All bowsers must carry a spill kit;
  - Operatives must have spill response training; and
  - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

### **Monitoring**

Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 10m from surface water receptors. A regular log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

## **8.0 SUMMARY**

This CEMP sets out the overall management strategy for demolition, excavation and construction works for the proposed development. The CEMP aims to ensure the management of demolition and 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 demolition and construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required. The CEMP should be viewed as a live document that will be updated as the development progress and circumstances change.

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.



## 9.0 REFERENCES

1. Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004).
2. Department of Transport Traffic Signs Manual 2010 – Chapter 8 Temporary Traffic Measures and Signs for Roadworks (2010)
3. Department of Transport Guidance for the Control and Management of Traffic at Road Works (2010)
4. Design Manual for Roads and Bridges & Design Manual for Urban Roads & Streets (2019)
5. US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition (periodically updated)* (1986).
6. 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).
7. Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014).
8. UK Office of Deputy Prime Minister, *Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance* (2002).
9. USEPA, *Fugitive Dust Technical Information Document for the Best Available Control Measures* (1997).
10. *Waste Management Acts 1996 – 2011 Litter Pollution Act 1997* (No. 12 of 1997) as amended
11. *Eastern-Midlands Region Waste Management Plan 2015 – 2021* (2015)
12. Construction Industry Research and Information Association (CIRIA) *Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532)*.
13. CIRIA, *Environmental Good Practice on Site* (3rd edition) (C692).