

Cloghroe Strategic Housing Development, County Cork



Construction Environmental Management Plan

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Consulting Engineers

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1.0 INTRODUCTION

1.1 Overview

The purpose of this Construction Environmental Management Plan is to provide details on the manner in which the proposed Cloghroe Strategic Housing Development (SHD) will implement measures, in a comprehensive and integrated approach to ensure protection of the environment during construction on site.

The report details the specific requirements that shall be addressed during construction phase of the project and includes the roles and responsibilities of individuals involved in the project. It identifies the environmental considerations associated with the construction process and outlines the work practices, management, mitigation and monitoring strategies which shall be implemented, as required to ensure the project is carried out in accordance with best practice, minimum impact on the surrounding environment and maximum safety throughout the duration of the scheme.

This plan includes the project's Construction and Demolition Waste Management Plan, which will ensure that optimum levels of waste reduction, reuse and recycling are achieved throughout the duration of the project.

1.2 Site Location

The application site, which is currently greenfield, is located within the Settlement Boundary of Tower as identified in the Blarney/Macroom Municipal District Local Area Plan adopted in 2017. Per the Cork City Council Boundary Extension 2019, the site location is now included within the Cork City Boundary. The site is located on the R617 Blarney Road in the village of Cloghroe. The site is bounded to the east by the R617 and to the south by the residential estate of Senandale.

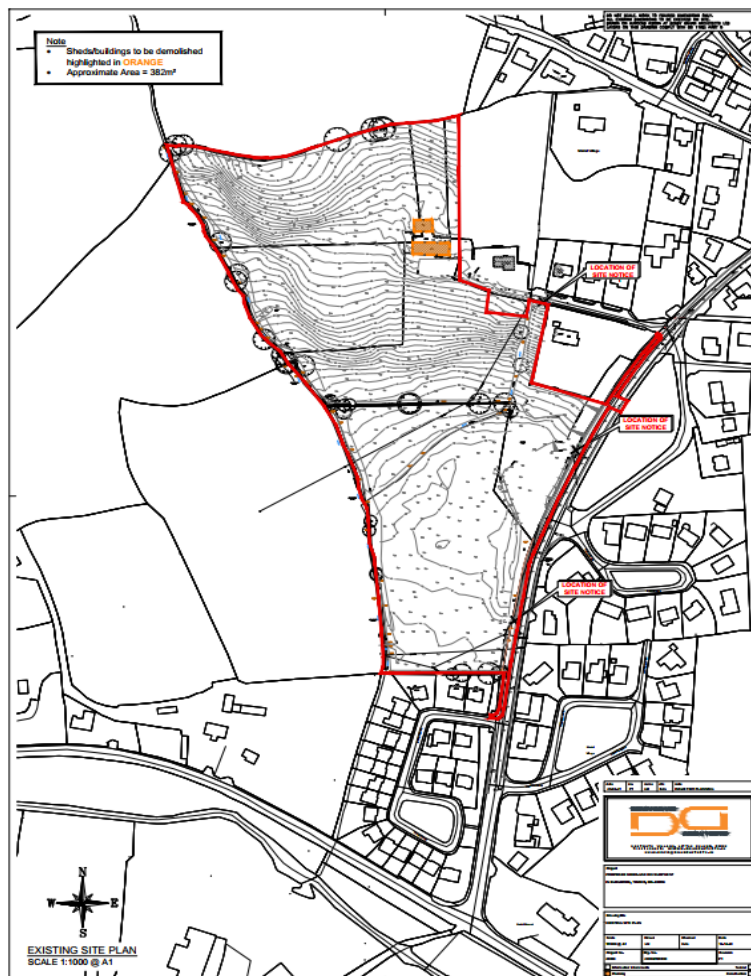


Figure 1.1: Site Location (boundary in red)

1.3 Scope

The subject development seeks planning permission for the following principal components:

- Construction of 198 residential units, a 42-child creche, a retail food store, a café, and associated green space.
- Demolition of 2 agricultural structures to the north of site (382 m²).
- On site vehicle streets with associated car parking provision.
- On site dedicated car park for retail unit.
- A mix of independent pedestrian and cyclist infrastructure together with shared street spaces
- Drainage and water supply infrastructure to accommodate the residential and commercial aspects of the site.
- Lighting, power and communications infrastructure to accommodate the residential and commercial aspects of the site.
- Public realm upgrades on R617 Blarney Road including footpath, cycle lane, signalised crossing, and relocation of existing bus stop.
- Flood defence works including flood storage provision.

The following figure presents the proposed site layout the subject of this planning application:



Figure 1.2: Proposed Site Layout

1.4 Site Specific Details

The site is situated on a north to south slope which slopes more steeply to the north of the site and more gently to the south. A stream flows in a southerly direction along the western boundary of the site with a land drain extending the southern boundary draining to the stream. The design involves the building up of the southern part of the site via fill to remove the flood risk from the stream impacting the development. A flood storage system is included in the proposed works to accommodate the displaced flood storage allowance. A balanced cut/fill approach was taken for the northern part of the site to minimise the need for any excavated material to be taken offsite during the works. Detailed cut/fill quantities have been provided for the scheme and are included in the accompanying Engineering Design Report. Preliminary Site investigation has been carried out to determine the reusability of excavated earthworks materials, groundwater profiles and seepage from cut areas on the site. This information has been used to inform an earthworks management plan details of which are included in this report.

This CEMP has been developed in response to recommendations made by the project ecologist.

In relation to health and safety issue, this CEMP has also been developed in accordance with health and safety provisions contained in the Safety Health and Welfare at Work (Construction) Regulations 2013, as amended, which transpose into Irish law obligations under Directive /-92/57/-EEC.

2.0 PROJECT RESPONSIBILITIES

2.1 Assignment of Responsibilities

The Contractor appointed by Cloghroe Development Ltd. to undertake the construction works, shall be responsible for implementing the project-specific Construction Environmental Management Plan (CEMP) incorporating the methodologies and measures described in this plan. To ensure the CEMP remains 'fit for purpose' for the duration of the project, the CEMP shall be reviewed and updated by the Project Manager during the life of the project.

The anticipated roles and responsibilities of the key parties involved in the implementing the CEMP are set out below.

Personnel	Role	Duties/Responsibilities
PROJECT MANAGER	Liases with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor's project team.	<ul style="list-style-type: none"> • Implementing of the CEMP and • Implementing the Health and Safety Plan • Management of the construction project • Liaison with the client/developer • Liaison with the Project Team • Assigning duties and responsibilities in relation to the CEMP • Production of construction schedule • Materials procurement • Maintaining a site project diary
CONSTRUCTION MANAGER	Liases with the Environmental Manager when preparing site works where there is a risk of environmental damage and manages the construction personnel and general works.	<ul style="list-style-type: none"> • Implementing the Construction Environmental Management Plan. • Assigned Project Management Duties. • Implementing the Health and Safety Plan under the direction of the PSCS • Liaison with the Process Contractors. • Monitoring the Construction Schedule. • Maintaining a Site Project Diary. • Assisting in maintaining the Site Queries and Complaints Register.
ENVIRONMENTAL MANAGER	Ensures that the CEMP is effectively implemented.	<ul style="list-style-type: none"> • Implementing the Environmental Procedures of the CEMP and updating it as necessary. • Management of all Environmental aspects of the Construction Works and Audit of Controls. • Review and Approval of Method Statements relating to Environmental aspects. • Ensuring Implementation of Mitigation Measures. • Training of Staff in all Environmental issues. • Liaison with Construction Manager.
PROJECT ECOLOGIST	The Project Ecologist will report to the Environmental Officer and is responsible for advising on all ecological monitoring activities	<p>The responsibilities and duties of the Project Ecologist will include the following:</p> <ul style="list-style-type: none"> • Ensure effective monitoring • Ensure effective implementation of any measures required as set out in the CEMP

<p>ALL SITE PERSONNEL</p>		<p>The site personnel appointed by the Contractor are responsible for:</p> <ul style="list-style-type: none"> • adhering to the relevant Environmental Control Measures and relevant site-specific Method Statements • adhering to the Health and Safety Plan • reporting immediately to the Environmental Manager and Construction Manager any incidents where there has been a breach of agreed procedures
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The Contractor shall designate a Site Engineer/Manager/Assistant Manager as the Construction Waste Manager and who will have overall responsibility for the implementation of the Project WMP.

The Waste Manager will have the authority to instruct all site personnel to comply with the specific provisions of the Plan.

A technically competent person will also be required to assess waste arisings and determine classification in accordance with the Hazardous Waste List.

At operational level, a foreman from the Contractor and appropriate personnel from each sub-contractor on the site shall be assigned the direct responsibility to ensure that the discrete operations stated in the Project WMP are performed on an on-going basis.

Where the need arises, the Contractor, shall employ the services of an approved Specialist Waste Management Sub-Contractor to assist with the safe management and disposal of contaminated waste materials. They shall specialize in the investigation of such material, the carrying out of sampling and testing of hazardous material and the preparation of treatment and disposal methodologies.

A report and method statement shall be finalised for the safe removal and disposal of the identified hazardous materials.

2.2 Reporting

The Site Manager / Project Manager is responsible for collating and maintaining all reporting, including all environmental and compliance documentation.

2.3 Training and Awareness

An initial Site Environmental Induction and ongoing Training will be provided to communicate the main provisions of the Environmental Plan to all Site Personnel.

Two-way communication will be encouraged to promote a culture of Environmental Protection. The the information which must be communicated to Site Staff includes:

- Environmental Procedures of the C.E.M.P.
- Environmental Buffers and Exclusion Zones
- Housekeeping of Materials and Waste Storage Areas
- Environmental Emergency Response Plan
- Reporting Procedures

2.4 Environmental Performance Indicators

The Project Contractor will record the key performance indicators for the site in gauging successful site management in the effective prevention of pollution and the protection of the environment. Environmental performance indicators will at a minimum include:

- Number of environmental accidents/incidents logged;
- Breach of procedure and corrective actions;
- Number of environmental complaints received;
- Results of dust monitoring;
- Results of noise and vibration monitoring, and
- Results of site audits.

2.5 Environmental Incidents / Complaints Procedure

In the unlikely event of an environmental incident, or breach of procedure, or where a complaint is received, the contributing factors shall be investigated, and remedial action taken as necessary. The Main Contractor will ensure that the following response actions will take place:

- The Project Manager must be informed of any incident, breach of procedure and/or complaint received, and details must be recorded in the incident/complaint register
- The Project Manager shall conduct/co-ordinate an investigation to determine the potential influence that could have led to the non-compliance.
- The Project Manager shall notify and liaise with the appropriate site personnel where required, e.g. Site Environmental Manager, Project Ecologist Project Archaeologist
- If necessary, the Project Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
- The details of the incident will be recorded on an Incident / Complaints Form which is to record information such as the cause, extent, actions and remedial measures used following the incident/complaint. The form will also include any recommendations made to avoid re-occurrence of the incident.
- The Project Manager will be responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will instruct the Main Contractor as appropriate.
- The Site Project Manager is to ensure that the relevant environmental management plans/procedures are revised and updated as necessary.

2.6 Environmental Targets and Objectives

Targets

- Zero pollution incidents
- Segregation of site waste to include timber, general waste and other materials
- Completion of environmental checklists
- Fuel spill kits to be present on each site at all times
- Maintain all waste documentation including waste transfer notes, for all waste movements including contractors

Reporting Specific Objectives

- Environmental incidences to be reported to Site Manager without delay
- Documentation will be reported to the planning authority on a 4-weekly basis:
- Environmental incidents and nonconformities raised, including nature, status, corrective and
- preventive actions and potential for statutory intervention;

- Key environmental issues raised;
- Significant environmental incidents;
- Complaints and the current status of those complaints;
- Actions or interventions undertaken by enforcement bodies;

Site Specific Objectives

- Reduce waste, water and energy use on the project including within all of the site offices;
- Ensure that everyone complies with the environmental requirements;
- Reduce the carbon footprint of the development;
- Reduce the amount of construction waste and excavated material generated which goes to landfill;
- Zero pollution incidents onsite;
- Recycle construction waste where possible;
- Maximise beneficial reuse of the materials: and
- Ensure that all waste documentation (waste transfer docket, permits etc.) is available for inspection at the site office / in head office.

3.0 CONSTRUCTION MANAGEMENT

3.1 Introduction

3.1.1 Phasing of Works

The proposed application is for the delivery of 198 residential units, a 42-child creche, a retail food store, and café with apartments. A scheme plan showing the three proposed phases as well as the location of the proposed compound and the main construction access from R617 Blarney Road is shown in **Figure 3.1**. The expected duration of the proposed works will be approximately 4 years.

It is proposed to develop the site in three phases:

- Phase 1: Bulk excavation incl. demolition across the entire site extents, to take approximately 6 months to complete (site boundary noted in red in **Figure 3.1**).
- Phase 2: 82 Units including the proposed creche, retail food store and café in the South of the site, to take approximately 18 months to complete (noted in pink in **Figure 3.1**).
- Phase 3: 109 Units in the North of the site, to take approximately 24 months to complete (noted in green in **Figure 3.1**).

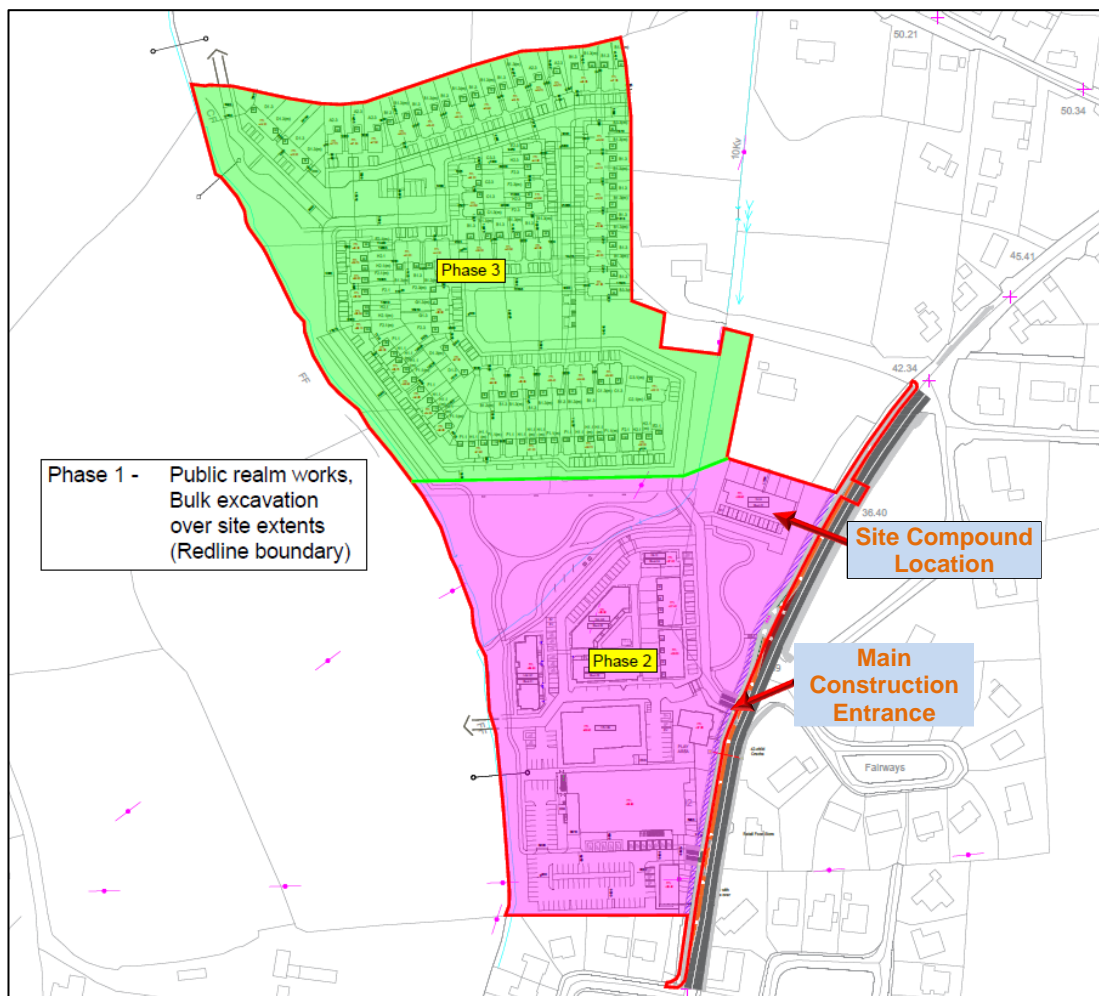


Figure 3.1: Phasing Diagram

3.1.2 Construction Stage Methodology

Having regard to the scope of the site works and processes, a detailed scheme of works is described in the following sub-sections.

3.1.2.1 Pre-commencement Activities

Before works commences a number of preparatory activities will be carried out. The following key works will be undertaken as part of the site preparation and pre-development activities:

- Prior to undertaking groundworks, a professional land surveyor shall be appointed to confirm existing ground levels. Existing ground levels on site range between 24.2m and 49.7m at the southern and north-eastern areas respectively.
- All onsite monitoring wells will be fully decommissioned by an experienced borehole specialist in accordance with relevant guidelines, 'Good practice for decommissioning redundant boreholes and wells' (UK Environment Agency, 2012).
- A programme of confirmatory archaeological investigations will be carried out by a suitably qualified archaeologist under a license issued by the National Monument Service. In the event that any sub-surface archaeological deposits, features or artefacts are identified during the investigations then their surfaces will be manually cleaned, recorded and left to remain in situ while the Planning Authority and the National Monument Service are consulted to determine further appropriate mitigation measures.

Enabling Works:

- The initial enabling works, to be carried out in accordance with this document, will enable the main access road off the R617 Blarney Road to facilitate construction access to the site.
- The demolition of 2 existing agricultural structures to the north of the site shall be completed with generated waste to be disposed of in accordance with Section 4 of this document.
- This will be followed by bulk excavation works to the north of the site. These works will include the creation of level platforms, accessible from the main access road, upon which the site compound and materials storage area will be constructed.
- Once the site compound is accessible, Tree Protection Fencing of at least 2.3m in height will be installed prior to other works commencing on site to avoid inadvertent felling or use of the ground under canopies for construction use. Fencing will be installed at 2m offsets from hedgerows to be retained (drawing L103) and will remain in place for the duration of construction. Fence panels shall be open mesh to ensure continued light and air circulation, with 150mm ground clearance to ensure continued small fauna movement. All trees and other vegetation to be retained shall be clearly marked on site.

Temporary Site Compound

Once the main entrance is in place and the bulk excavation has reached the appropriate stage, the temporary construction facilities will be established, ref. **Figure 3.2** and **Figure 4.1**.

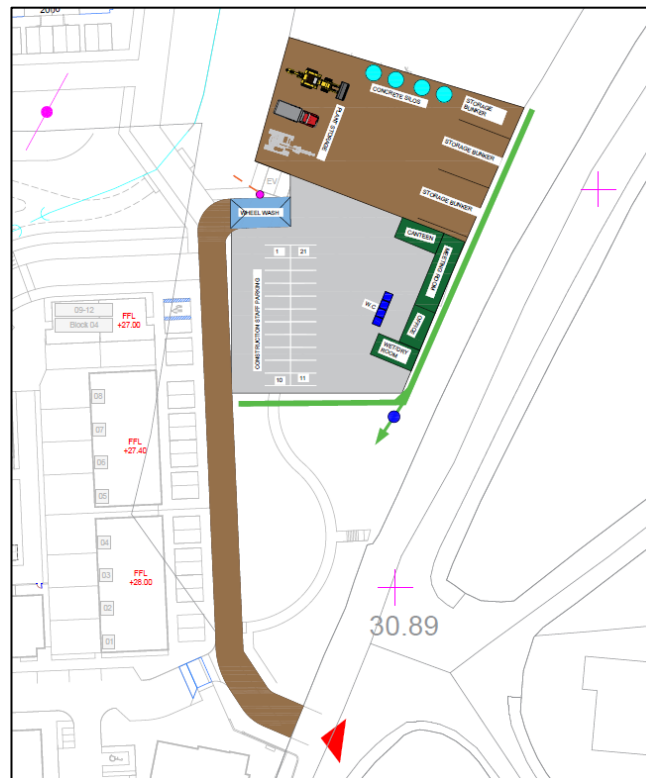


Figure 3.2: Site Compound Plan

These will include:

- Site offices, canteen and toilet / changing facilities c/w temporary water supplies and wastewater treatment unit.
- Secure compound and containers for storage of materials and plant.
- Temporary vehicle parking areas.
- Contained area for machinery refueling and construction chemical storage.
- Contained area for washing out of concrete and mortar trucks.
- Wheel-washing facilities for vehicles leaving the site.

A security/heras fencing will be provided at the main R617 Blarney Rd. entrance. All vehicles and personnel will be checked on entry to ensure no unauthorized access or fly-tipping will occur within the site. Heras fencing will also be provided on all boundaries to adjoining lands.

Water supply for the construction facilities will be taken from the mains supply which is adjacent the site. Power for the pumps and small power requirements for construction activities will be supplied from diesel generators until such time as the permanent site power supply is available.

3.1.2.2 Phased Based Construction

The following processes will be repeated for each phase of development and will be carried out in accordance with the requirements of this CEMP.

Bulk Excavation incl. Demolition Works:

- The demolition of 2 existing agricultural structures to the north of the site shall be incorporated in this phase. Waste material generated from the demolition works will be disposed of in accordance with Section 4 of this document.
- Following the demolition works, topsoil stripping will be completed. No soil will be stripped within 5m of the edge of stream. Given the history of pasture use, soil will be stripped to 350mm depth and stored as topsoil in stockpiles of no greater than 2m height, to ensure long term storage soil fertility. Soil

excavated at depths greater than 350mm will be stored separately as subsoil.

- The central attenuation basin will be constructed and planted in this phase of works to ensure adequate soil settlement and vegetation establishment prior to its use as stormwater attenuation. Following construction, fencing will be installed to protect the basin from interference during the ensuing construction works.
- Following the topsoil strip of phase 1, the main access road serving the development will be constructed to formation level. The bulk excavation work across the site will then be undertaken. Excavation undertaken to the north of the site will generate structural fill for the grading of the southern housing/commercial platforms. Any excess fill material generated will be stored locally to be used in later stages of development.
- Having established the desired site levels during the early works, the next phase of construction will involve the digging of the foundations for each of the buildings. The civil and structural design for each building will confirm the precise location and extent of foundations that are required to support each of the buildings. The foundations for each building will be excavated to the desired size and depth in preparation for the pouring of concrete..

Civil Works:

- The initial civil concrete works will involve the pouring of the foundations for each of the prepared buildings in this phase. Once the foundations are poured and have cured it will allow the building envelope to be erected.
- It is proposed that a concrete block construction process will be used which will involve the delivery of blockwork to site followed by external finishing material such as brickwork, plaster, and roof tiles.
- Construction materials will be sourced locally where practicable.
- Works on external services including water mains, foul sewers, storm sewers, roads, footpaths, electricity to include undergrounding of existing overhead lines, and public lighting will be carried out in conjunction with the completion of the units.
- All buildings will be constructed in accordance with current Building Regulations and certified by an appropriated qualified engineer during and after construction.

Landscaping:

- In tandem with the other construction activities being carried out on the buildings, elements of the sites landscaping plan will be progressed. The formation of landscape features will take place in parallel to the early works, utilising material excavated during the cut and fill exercise. As the site build progresses the landscape works will begin to focus on the soft landscaping aspects such as establishment of green zones and walkways, as well as planting of trees and shrubs in designated areas.
- Peripheral planting will be installed during the first planting season to ensure boundary interfaces are as robust as possible upon occupation.
- No herbicides will be used in the landscape preparation of the public open spaces, to minimise impact on natural drainage systems. The only use of herbicides will be in the private rear gardens prior to amenity grass installation.

3.1.2.3 Construction Impact Assessment

The potential impacts of the construction process have been considered by each separate discipline including materials and quantities associated with the re-grading works.

The following mitigation measures are proposed where potentially significant impacts have been identified:

- The moving and storage of excess material has been kept to a minimum and has informed the phased delivery of the scheme.
- Earthworks/ piling plant and delivery vehicles accessing the site will be confined to predetermined haul routes around the site for each phase of development.
- Excavated material shall be stored on-site to be re-used for later stages of the development.
- Salvaged topsoil is not to be stored more than 6 months if kept in piles more than 1m in height. To ensure healthy aerated soil, the stockpiling is to be rotated as required to meet this time restriction.
- The site investigations have identified that certain quantities of subsoil can be re-used as structural fill via soil strengthening methods. These works will be carried out on site within the designated area and measures shall be implemented within this area to control the run-off of storm water.
- Given the topography of the site control measures to protect surface waters from contamination will be put in place prior to the commencement of any site works.
- To avoid inadvertent felling, trees to be retained will be fenced off at the commencement of construction in line with British Standard 5837:2012 and National Road Authority 2006a guidelines.
- The mixed broadleaf woodland adjacent to the R617 will only be felled when the storm water attenuation tank is to be installed, to stagger the visual and environmental impact of felling. Tree lines south of the woodland will be felled first.
- All trees within 5m of the stream will be retained for habitat benefit and visual framework.

3.1.2.4 Control of Surface Water Run-off

The control measures relating to surface water run-off during the construction phase of the development shall follow best practice as recommended by CIRA 2010 and ISO 14001:2015 – Environmental Management Systems and C741 Environmental good practice on site guide (4th edition) and CIRIA (2015) Coastal and marine environmental site guide (second edition) (C744).

Measures to be implemented will consist of:

- Surface water shall be directed to settlement ponds where topographically feasible. Where this is not practicable the surface water shall be allowed to percolate to ground and/or be removed by tanker to a designated waste-water treatment plant if excessive build-up of surface water on site occurs
- Protection of surface water gullies or drains using silt fences
- Use on-site bund structures (including incorporating existing ditches) on site to retain surface waters on site and to prevent runoff from the site. Bunds will be made up of adequately compacted material and visibly inspected during site audits to ensure they remain intact and functional.
- Minimal and short-term storage and the removal of excess materials (soil, stones, and construction wastes) off site in an efficient manner

- Daily checks of surface water regime on site and logging of same
- Works associated with excavations or earth moving not to be undertaken in periods of forecasted bad weather
- Drainage channels beside construction roadways to direct surface water to settlement areas and allow for natural percolation to ground
- Ensure good site management is maintained at all times during the construction phase including regular site clean-ups and use of appropriate bins.
- Chemicals or fuel/oils shall be stored in temporary bunded storage areas and plant is re-fuelled via delivery trucks in specific bunded re-fuelling areas, rather than the storage of large quantities of fuel on site in a designated bunded area. Bunds will be made up of adequately compacted material with impermeable membrane and visibly inspected during site audits to ensure they remain intact and functional. Straw mats shall also be implemented in the event of a spillage.
- No plant maintenance will be completed on site, any broken down plant will be removed from site to be fixed.
- Taps, nozzles or valves will be fitted with a lock system.
- The pouring of concrete, application of chemicals, painting or any other activity that has the possibility of being toxic to aquatic life shall be undertaken in a control and isolated manner, preventing the possibility of any pathway to a surface water source.

3.1.2.5 Biodiversity and Invasive Species

Biosecurity protocols shall be implemented during the proposed project to prevent the introduction of invasive species, in particular those listed on the 3rd Schedule of the EC (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011), to site and the further spread of diseases.

The following measures will be adopted:

1. All equipment intended to be used at the site shall be:
 - i. power steam washed at a suitably high temperature or at least 65 degrees, or
 - ii. disinfected with an approved disinfectant, e.g. Virkon or an iodine-based product. It is important that the manufacturer's instructions are followed and if required, the correct contact times are allowed for during the disinfection process. Items that are difficult to soak shall be sprayed or wiped down with disinfectant.
2. During the duration of the proposed project, if equipment is removed off-site to be used elsewhere, the equipment shall be cleaned and disinfected prior to being brought back to the works area of the proposed project.
3. Appropriate facilities shall be used for the containment, collection, and disposal of material and/or water resulting from washing facilities of vehicles, equipment, and personnel.
4. Importation of materials shall comply with Regulation 49 of the EC (Birds and Natural Habitats) Regulations 2011.
5. Appropriate measures will be taken to ensure that trees and hedges being retained are protected in line with British Standard 5837:2012 and National Roads Authority 2006a guidelines. Protective fencing of at least 2.3m in height will be implemented.

6. To compensate for the loss of hedgerow and partial removal of woodland, substantial native tree and hedgerow planting will be established on the site. The planting schemes shall ensure connectivity to linear/ woodland habitats of bats in the wider landscape.
7. Construction lighting shall incorporate the use of accessories such as hoods, cowls, louvres, and shields to direct lighting away from all hedgerow/ treeline habitats to be retained during the bat activity period (April to September).
8. Removal of vegetation such as grassland, woodland, and hedgerow will be carried out outside the breeding bird season (March 1st to August 31st, inclusive).

3.2 Hours of Working (Hours of Site Operation)

Works will occur within the hours:

07.00am – 07.00pm* (Monday – Friday inclusive)

07.00am – 4.00pm* (Saturday)

There will be no work on Sunday and Bank Holidays.

** It is proposed that exceptionally, and with prior agreement of the planning authority, working hours may be extended and/or works may take place on a Sunday and/or Bank Holiday at times when critical elements of work need to be advanced. Longer working days can occur when there is a planned concrete pour. If extended working hours are required, these will be agreed in advance with the planning authority. Accordingly, traffic generated by core construction personnel will be mainly during the off-peaks and will not have a significant adverse impact on the road network.*

3.3 Site Storage

Materials for inclusion as part of the works will be stored generally within the allocated compound. No products will be placed outside of this area. Materials will be brought to site periodically to suit the programme for the works.

Earthworks arising will be stored within the identified space and will be sampled, processed and placed within the works or removed off site in accordance with the Waste Management Plan (Section 4 of this report). Storage spaces will be located away from the excavations/immediate works area, in an appropriate manner at a safe and stable location. The maximum height of temporary stockpiles is 3m.

3.4 Noise and Vibration

The control of noise and vibration during the construction phase shall comply with the general recommendations set out in the Code of Practice BS 5228-1:2009 +A1:2014: "Code of practice for noise and vibration control on construction and open sites" together with the specific requirements described below.

"Best practicable means" shall be used to minimise noise and vibration from the site and compound and shall pay particular attention to the selection of the most appropriate available plant to ensure that neighbourhood noise (as defined in BS 5228 Part I, Section 3) and vibration is kept to a minimum.

All vehicles and mechanical plant used for the purpose of the Works shall be fitted with effective exhaust silencers and shall be maintained in good and efficient working order. In addition, all diesel engine powered plant shall be fitted with effective air intake silences.

The noise level limits within the Site shall be as per **Table 3.1** below.

Day	Time	Level (dbA) (measured over any 1 hour period)	L. Max (dbA)
Monday-Friday inclusive	07:30 - 18:30	65 leq	75
Monday - Friday inclusive	18:30 - 22:00	60 leq*	65*
Saturday*	08:30 - 15:30	65 leq	75
Sunday* and Bank Holidays*	08:30 - 12:00	60 leq*	65*

*** Where agreed by the Planning Authority and/or necessary for emergency works.
Measurements will be taken and recorded using a Digital Seismograph and Sound Level Meters**

Table 3.1 Noise Levels

All compressors shall be “sound reduced” models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use. All ancillary pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers, and where available, dampened tools and accessories shall be used.

Machines in intermittent use shall be shut down in the intervening periods between work.

The start up of plant and vehicles shall occur sequentially rather than all together.

All internal haul routes within the site shall be well maintained and avoid steep gradients where possible.

All ancillary plant, such as generators and pumps, shall be positioned so as to cause minimum noise disturbance. If operating outside the normal working week or where the distance between a noise source and receiver is restricted, acoustic enclosures shall be provided. Barriers installed to provide screening will be located either close to the source of the noise (as with stationary plant) or close to the receptor. The height of the barrier will be in accordance with BS 5228-1.

Activities causing significant vibration will be located away from sensitive areas and/or isolated using resilient mountings where practicable.

The drop height of materials will be minimised to keep noise disturbance to a minimum.

Activities causing significant vibration will be located away from sensitive areas and/ or isolated using resilient mountings where practicable.

Times and noise levels at noise sensitive areas resulting from any operation during the construction phase, on or off the site, shall not exceed those listed in the Table above.

The distance between noise sources and noise-sensitive areas will be increased as much as is reasonably practicable.

A baseline noise monitoring programme has been completed by an independent consultant with attended noise monitoring having been carried out at a number of locations. Procedures and results of this aspect of the baseline noise monitoring programme will be in general in accordance with ISO 1996: Part 2: 2007 2.

During the construction and demolition phases, the development shall comply with British Standard 5228 ‘Noise Control on Construction and open sites Part 1. Code of practice for basic information and procedures for noise control.’

BS 5228 includes guidance on the various aspects of construction site noise mitigation, including, but not limited to:

- Liaison with neighbours
- Noise monitoring
- Hours of works
- Selection of quiet plant
- Control of noise sources and screening

Noise control audits will be conducted at regular intervals through the construction phase of the development. In the first instance it is envisaged that such audits will take place monthly. This is subject to review and the frequency of audits may be increased as deemed necessary.

The purpose of the audits will be to ensure that all appropriate steps are being taken to control construction noise emissions. To this end, audits will encompass the following:

- Implementation of hours of operation
- Opportunities for noise control 'at source'
- Optimum siting of plant items
- Avoidance of plant items being left to run unnecessarily
- Correct use of proprietary noise control measures
- Materials handling
- Maintenance
- Correct use of screening provided and opportunities for provision of additional screening

3.5 Dust Management Plan

All necessary steps shall be implemented to control dust caused by construction traffic. This will include measures such as:

- Wetting of haul road and storage areas;
- Covering or dousing of any dry, imported or excavated material;
- Reducing the duration for stockpiling in fill materials;
- Use of a wheelwash for construction traffic.

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. The following dust control measures have been formulated by drawing on best practice guidance from Ireland, the UK and the USA.

The key features of proposed dust management are:

- the specification of a site policy on dust;
- the identification of the site management responsibilities for dust;
- the implementation of documented systems for managing site practices and implementing management controls;
- the implementation of criteria by which the performance of the dust management plan can be assessed.

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

Hoarding or screens will be erected around works areas to prevent larger particles of dust from travelling off-site and impacting sensitive receptors.

The siting of construction activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions 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 shall be on site and available to monitor dust control methods;

- Complaint registers will be kept on site detailing any telephone calls and letters of complaint received about construction activities, together with details of any remedial actions carried out;
- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures shall 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 using best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are highlighted below.

Site roads (particularly unpaved) can be a significant source of fugitive dust from construction sites if control measures are not in place. However, effective control measures shall be implemented. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions.

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles;
- Bowers will be available during periods of dry weather throughout the construction period. 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;
- 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 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, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

The location and moisture content of storage piles are important factors which determine their potential for dust emissions:

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site;
- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.

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

- Vehicles delivering material with potential for dust emissions to an off-site location shall be enclosed or covered with tarpaulin always to restrict the escape of dust;
- Public roads outside the site shall be regularly inspected for cleanliness, as a minimum daily, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.

- A wheel wash facility will be employed within the site so that traffic exiting the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain (refer **Figure 4.1 Site Storage Location**).

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, will contribute towards the achievement of no dust nuisance occurring during the construction phase.

3.6 Construction Access

Construction Access to the site will be from the R617 Blarney Road via the proposed main access road serving the site.

The main access road will be excavated to formation level and constructed to basecourse level which will be temporarily surface dressed subject to the completion of overall development. The main surface water drainage in this area will also be provided as part of the initial enabling works.

3.7 Liaison

The Project Manager, will be responsible for project strategic liaison whilst the Construction Manager will be responsible for day-to-day liaison and logistics for all the construction related activities. Both will be permanently based on site with the Project Manager the first point of contact for the project team and client/developer and the Construction Manager shall be the first point of contact for all concerns, issues and complaints. A display board will be erected outside the site, which as minimum will identify key personnel contact addresses and telephone numbers.

Newsletters, liaison meetings, progress photos, and organised site visits will be communication methods which shall be used to provide information to the public.

3.8 Site Specific Traffic Management Plans (TMP's)

A Construction Traffic Management Plan has been developed, is submitted with this planning application, and shall be agreed with Cork City Council Roads & Transportation Department.

All public roads, accesses, drains, ditches and grips will be kept clear of all dirt, mud and material arising from the execution and completion of the Works and suitable clearing equipment and labour will be provided by the Contractor for this purpose. Attention will also be given to the loading of lorries carrying bulk materials into the Site and spoil from the Site to ensure that these will not be overloaded or loaded in such a way that spillage is avoided. Any dirt or mud adhering to the tyres or chassis of any vehicles will be thoroughly cleaned off before the vehicle is permitted to leave the Site. In the case of delivery to the Site, vehicles will be thoroughly cleaned before they leave the point of collection. The Contractor will be equally responsible for the vehicles of his sub-contractors and suppliers and the like.

An automatic wheel-washing unit shall be installed and maintained at the entrance to the site (Refer to Site Compound Layout). This will be available for use at all times. Maintenance will include for cleaning out of the equipment and disposal of any material gathered within. The required equipment for supplying water and power to the wheel washing facility shall be made available and maintained in good working order. At the end of the construction phase, the wheel washing facilities shall be removed from site.

3.9 Complaints

The Complaints that may be received will be logged, assessed and appropriate action taken as soon as practicable. It will be critical to ensure that key issues are properly addressed from the outset to create a good working relationship and an integrated team approach to resolving potential issues before they arise.

3.10 Vehicle Movement & Deliveries

Deliveries will be co-ordinated to prevent queuing of vehicles which could adversely affect traffic

flow and to minimise disruption to local traffic. Deliveries will be timed and coordinated to avoid conflict with collection of waste, other deliveries (particularly adjoining landowners) and rush hour traffic (AM & PM peak hours as identified in the Traffic & Transportation report). Large deliveries will be scheduled outside peak hours to minimise disruption.

On occasion, with the agreement of the planning authority, out of hours deliveries and collections shall be implemented, for example, in relation to out-sized loads to facilitate the smooth continuation of works and minimise disruption.

Special consideration will be given to the busy drop off and collection times at St. Senan's Cloghroe National School. The school day begins at 8:50am, ending at 1:30pm for Junior/Senior infants and 2:30pm for classes I to VI.

Site staff will be encouraged to car-pool and to use public transport to reduce the number of vehicle movements entering and existing the site.

3.11 Site Security

As identified in the Site Compound Layout drawing access to the site will be strictly controlled with an on-site security person logging entry and exits. This will include all on-site personnel. These measures will be developed in conjunction with the Project Supervisor Construction Stage.

3.12 Road Safety

Measures to keep pedestrians and vehicles adequately separated will be implemented on-site. This is of particular importance for the proposed development, as it is proposed for the public to occupy the site as individual phases are complete.

The following actions will help be taken to keep pedestrians and vehicles apart:

- Entrances and exits - separate entry and exit gateways for pedestrians and vehicles shall be provided with a gate man in attendance to interface with the traffic and public to facilitate safe access and egress of vehicles.
- Walkways - firm, level, well-drained pedestrian walkways will be provided.
- Crossings - where walkways cross roadways, a clearly signed and lit crossing point shall be provided where drivers and pedestrians can see each other clearly;
- Visibility - drivers driving out onto public roads will be required to be able to see both ways along the footway before they move on to it;
- Obstructions - walkways shall be kept free of construction vehicles
- All workers shall be competent to operate the vehicles, machines and attachments they use on site.
- Personnel directing vehicle movements will be trained and authorized to do so. Access to vehicles will be managed and people alerted to the risk.

The following shall be provided on site during the construction phase:

- Aids for drivers - Mirrors, CCTV cameras or reversing alarms will be provided that can help drivers see movement all-round the vehicle;
- Banksman will be appointed to control manoeuvres and who are trained in the task;
- Lighting – The site will be properly lit so that drivers and pedestrians on shared routes can see each other easily. Lighting may be needed after

- sunset or in bad weather;
- Clothing - Pedestrians on site will wear high visibility clothing.
- Signs and instructions
- All construction personnel, drivers and pedestrians shall be informed of the routes and traffic rules on site. Use standard road signs where appropriate.
- Induction training shall be provided for drivers, workers and visitors and send instructions out to visitors before their visit.
- All the construction vehicle drivers and supply chain personnel shall be competent and have relevant training and certification appropriate for their job.

3.13 Plant & Equipment

The typical Plant and Equipment to be employed during the construction works are listed in **Table 3.2** below.

Plant Item	Purpose
Hydraulic excavators – various	Excavation, substructures, drainage
Mobile cranes- various	Erection of buildings, movement of large materials and plant
Dumpers	Excavations, drainage, landscaping, movement of materials
Concrete saw cutting	Used for cutting concrete slabs in yard areas, building substructure and superstructures.
Volvo dump trucks	Removal of demolition materials off site
Ready-mix concrete trucks	Delivery of concrete to site for new structures, slabs, etc.
Pump unit for ready-mix concrete	For placement of concrete.
Vibrating rollers	Used for compacting stone in roads, yard areas, substructures etc
HGV – 20 foot trailers	Delivery of materials, steel, cladding, concrete blocks,
HGV – 40 foot trailers	Delivery of structural steel, cladding, large elements of new plant and equipment
Telescopic site handlers	Handling and moving materials on site
Road sweeping equipment	Management of dust and excavation residues on site and off site on road approaches.
Welding gear	Demolitions, erection of structural steel and in mechanical installations
Elevation platforms	For use by employees erecting steel, cladding and general construction at height.
Small tools – grinders, saws, drills, kango hammers, powerfloats, temporary lights, water pumps, concrete vibrators	For use during all stages of construction

Table 3.2 List of typical plant required for this Project

4.0 CONSTRUCTION & DEMOLITION WASTE ARISING & MANAGEMENT

4.1 Analysis of Waste Arising from the Construction Stage (including Demolition)

It is anticipated that a significant amount of material arising from the works will be classified for re-use as fill material under roads and pavements. The objective is to ensure the absolute minimum amount of material leaves the site as waste.

The following main waste arisings, including surplus materials, which are likely to be generated during the project are presented in **Table 4.1** hereunder.

Waste Type	European Waste Classification Code	Waste Classification
Concrete Kerbs	17 01 01	Non-hazardous
Concrete (ex. Roads)	17 01 01	Non-hazardous
Concrete (ex. Footpaths)	17 01 01	Non-hazardous
Soil and Stones	17 05 04	Non-hazardous
Scrap Metal	17 04 05	Non-hazardous
Bitumen/Tarmacadam	17 03 02	Non-hazardous
Surplus Cabling	17 04 11	Non-hazardous
Plastic Pipe Cut-offs	17 02 03	Non-hazardous
Biodegradable Garden and Parks Waste	20 02 01	Non-hazardous
Plastic Packaging	15 01 02	Non-hazardous
Paper and Cardboard Packaging	15 01 01	Non-hazardous
Mixed Municipal Waste	20 03 01	Non-hazardous
Waste construction material containing asbestos	17 06 05	Hazardous

Table 4.1 Main Waste Types & EWC Codes

For the purposes of this plan, it is assumed that all of the soil and stone waste arising from the project will be categorised as non-hazardous and will be kept on-site. Based on the site investigation report carried out by OCB Geotechnical, the movement of any excess material off site is not anticipated. Fill material generated on site will be strengthened to ensure it can be used as aggregate construction material on the development. Full laboratory analysis will be completed prior to the start of works to confirm exact soil strengthening requirements.

Topsoil excavated will be stored for re-use on the site.

The demolition of 2 existing agricultural structures (corrugated metal sheds with steel frame on concrete foundations) to the north of the site is included within the project scope. Where asbestos is uncovered on site (waste classification code 17 06 05), the asbestos containing materials (ACM) will be double-bagged and removed from the site by a competent contractor and disposed of in accordance with the relevant policies and legislation.

During the construction phase, typical wastes arising include:

- Excavation wastes
- Construction waste from building materials such as Off Cuts of Metal and Insulation
- Pipe Off Cuts, Wrapping, Insulation, Weld Rods
- Materials Wrapping
- Oils, Filters and Cleaning Materials
- Food Waste, Packaging Materials, Dry Recyclables
- Metal, Wire
- Wash Out from Trucks

All wastes will be managed, collected, stored, and segregated in separate areas and removed off site by a licensed waste management contractor at regular intervals during the works. All concrete trucks will have to return to their respective yards for washout.

4.2 Types of Materials

As with most construction projects, the materials required for this development will include imported stone, masonry and concrete. The principal construction materials will be:

- Concrete, sub-structures, Ground Floor, Timber Floors.
- Steel reinforcement used in concrete.
- Structural steelwork used for equipment support, roof structure, hand railings.
- Partitions incorporating studwork and panelled walls.
- Secondary steel work.
- Masonry concrete block work.
- Stone fill.

4.3 Opportunities for Re-use/Recycling

Material arising from site clearance works will be stored at different locations according to material identification: (The following figure presents the proposed location of stockpiles generated from the different phases based on excess material being generated. **Table 4.2** presents the estimated quantities of materials to be generated within of development.):

- Stockpile 1 - excavated top-soils
- Stockpile 2 - excavated sub-soils suitable for reuse as structural fill
- Stockpile 3 - excavated materials unsuitable for reuse as structural fill

Removed topsoil will be kept separate from the general spoil. All turfs and topsoil will be stored on geotextile matting. Once deposited, the topsoil will be trafficked to the minimum possible extent to prevent damage and dusting.

Stockpiled sub-soils will be located in an area away from drainage ditches and will be bunded on the down gradient edges with a silt curtain or other suitable materials to reduce risk of silt run-off.

All excavated material is being proposed for the purposes of filling or general landscaping on site. However, should any surplus or rejected excavated material be generated, it is to be transported off the site to an approved waste facility. It will be tested in advance of disposal to verify the acceptability of the constituents.

Summary		
Description	Cut (m ³)	Fill (m ³)
Site extents	13199.43	34333.88

Cut Breakdown (m ³)		
Topsoil	Subsoil	Rock
3470.51	9728.92	0.00

Table 4.2 Breakdown of Materials to be generated

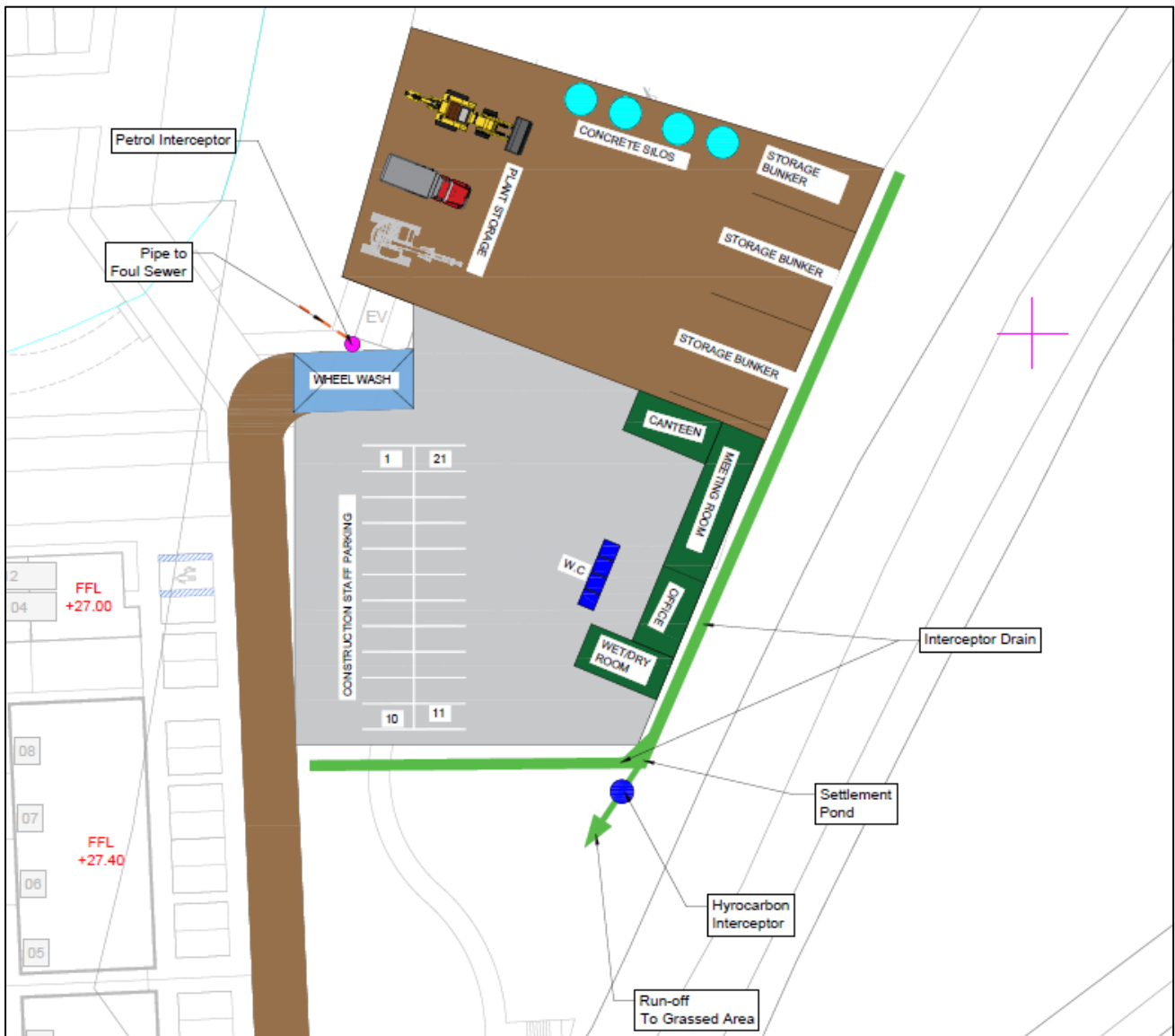


Figure 4.1: Site Storage Location

Based on the calculated quantities of cut and the fill requirements on the site approximately 30,000 cu.m of suitable structural fill material will be required at construction stage. This equates to approximately 1,500 HGV movements to the site during this phase of the works. Other construction stage deliveries include concrete, concrete blocks, timber, structural steel, reinforcing steel, road construction materials, finishing materials, subsurface drainage works (including attenuation and storage systems), public lighting columns, windows & doors which will be delivered to site at different phases of the scheme.

5.0 Environmental Issues & Management Requirements

An environmental review of the proposed scheme has been undertaken and Environmental Management procedures (EMPs) will be implemented for managing the environmental impacts of Activities associated with the development Project. (Refer to **Table 5.1 below and Appendix 1**). The environmental management procedures (EMPs) set out the principles to be adhered to and outline commitments and measures that are to be implemented during the works, so as to ensure that potential environmental impacts and disturbance to local residents will be minimized or eliminated.

The control measures will only be amended by improvement with regards to environmental protection and will take cognizance of any additional Environmental Commitments arising from planning conditions. The Contractor will ensure that plans/procedures are communicated to all site staff, including sub- contractors, through induction, training and at relevant meetings.

Ref:	Procedure:-
EMP-1	Fuel and Oil Management
EMP-2	Construction Traffic Management
EMP-3	Waste Management
EMP-4	Noise Management
EMP-5	Dust Management
EMP-6	Site Environmental Training and Awareness
EMP-7	Environmental Emergency Response
EMP-8	Monitoring and Auditing Procedure
EMP-9	Environmental Accidents, Incidents and Corrective Actions Procedure
EMP-10	Environmental Complaints Procedure
EMP-11	Odour Control Procedure
EMP-12	Light Pollution Control Measures
EMP-13	Surface Water Management and Run-off Control Measures

Table 5.1 Environmental Management Procedures (Refer Appendix 1)

Appendix 1- Environmental Management Procedures

EMP-1	Fuel and Oil Management
EMP-2	Construction Traffic Management
EMP-3	Waste Management
EMP-4	Noise Management
EMP-5	Dust Management
EMP-6	Site Environmental Training and Awareness
EMP-7	Environmental Emergency Response
EMP-8	Monitoring and Auditing Procedure
EMP-9	Environmental Accidents, Incidents and Corrective Actions Procedure
EMP-10	Environmental Complaints Procedure
EMP-11	Odour Control Procedure
EMP-12	Light Pollution Control Measures
EMP-13	Surface Water Management and Run-off Control Measures

EMP 1	FUEL AND OIL MANAGEMENT PROCEDURE
Purpose	Measures for the management of all fuels on site for the protection of ground and watercourses from any spills.
Responsibility of Control	Environmental Manager Construction Project Manager
Procedure	<p><u>Refueling</u></p> <ul style="list-style-type: none"> • Refueling will be carried out using 110% capacity double banded mobile bowzers. The refueling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using. • Plant nappies or absorbent mats to be place under refuelling point during all refueling to absorb drips. • Mobile bowzers, tanks and drums shall be stored in secure, impermeable storage area, away from drains and open water; • To reduce the potential for oil leaks, only vehicles and machinery will be allowed onto the site that are mechanically sound. An up to date service record will be required from the main contractor. • Potential leaks from delivery vehicles will be reduced by visually inspecting all vehicles for major leaks. • In the unlikely event of an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility. • The Environmental Manager will be immediately informed of the oil leak/spill, and will assess the cause and the management of the clean-up of the leak or spill. The Environmental Manager will inspect nearby drains for the presence of oil, and initiate the clean-up if necessary. • Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery. • Correct action in the event of a leak or spill will be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment and cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction. • In the extremely unlikely event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery. <p><u>Oil storage</u></p> <ul style="list-style-type: none"> • Fuel containers must be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores; • Collision with oil stores will be prevented by locating oils within a steel container in a designated area of the site compound away from vehicle movements. • Leakages of oil from oil stores will be prevented by storing these oils in banded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the banded storage container. Taps, nozzles or valves will be fitted with a lock system.

	<ul style="list-style-type: none"> • The volume of leakages will be prevented through monitoring oil storage tanks/drums for leaks and signs of damage. This will be carried out daily by the Environmental Manager. • Long term storage of waste oils will not be allowed on site. These waste oils will be collected in leak-proof containers and removed from the site for disposal or recycling by an approved service provider.
<p>Environmental Controls</p>	<ul style="list-style-type: none"> • Mobile bowsers, tanks and drums will be stored in secure, impermeable storage area, away from drains and open water. • Fuel containers must be stored within a Secondary Containment System, e.g. bund for static tanks or a drip tray for mobile stores. • Ancillary equipment such as hoses, pipes must be contained within the bund. • Taps, nozzles or valves must be fitted with a Lock System. • Fuel and Oil Stores including tanks and drums must be regularly inspected for leaks and signs of damage. • Only designated Trained Operators are authorized to refuel plant on site and emergency spill kits will be present at equipment for all refueling events. • Procedures and contingency plans will be set up to deal with emergency accidents or spills • Suitable spill response materials and emergency instruction shall be available on site and staff shall have been adequately trained
<p>Monitoring</p>	<p>Daily visual inspection of storage areas for</p> <ul style="list-style-type: none"> • Damage to containers or ancillary equipment • Leakages • Unlocked storage container

EMP 2	TRAFFIC MANAGEMENT
Purpose	Measures for the management of all traffic, including construction traffic and oversized loads, for the minimization of disturbance and nuisance to the local community.
Responsibility of Control	Construction Project Manager Construction Personnel
Procedures	<ul style="list-style-type: none"> • Details of site access and any site traffic rules, including security, parking, loading and unloading, required speed or other relevant details. • Details of equipment delivery. • Site operating hours (including delivery). • Communicating with the community, and the Local Authority the Gardaí where required.
Environmental Controls	<p>Public Road</p> <ul style="list-style-type: none"> • In order to mitigate from a significant impact during peak traffic hours, the majority of staff will either arrive on-site before or after the peak morning traffic (08:00-09:00) and finish work before or after the evening peak traffic hours (17:00-18:00). • The condition of the public road will be monitored on an on-going basis and a road sweeper provided to clean the public road if required. <p>Site Entrance</p> <ul style="list-style-type: none"> • There will be no parking of any vehicles on the public road near the site entrance. • Adequate parking will be provided on site for both employees and visitors. • The condition of the site entrances will be monitored on an on-going basis and a road sweeper provided to clean the public road if required.
Monitoring	Daily checks

EMP 3	WASTE MANAGEMENT PROCEDURE
Purpose	Measures for the management of all wastes associated with the Project including all welfare facilities.
Responsibility of Control	Construction Project Manager Environmental Manager
Procedures	<p>The following wastes may be generated during the construction of the project:-</p> <ul style="list-style-type: none"> • Surplus excavated soils • Waste Fuels; Oil / Diesel • Paper / Cardboard • Non-Hazardous Office and Canteen Waste • Wastewater from Office and Welfare Facilities <p>Wastes must be segregated and stored in the allocated tanks, bins, skips or areas.</p> <p>Implement Storage Areas and organize the relevant Licensed Contractors for the appropriate waste collections.</p> <p>Ensure all Permits and Licenses are in place and maintain relevant copies in the Site Office.</p> <p>Wastewater from holding tanks must be collected by an appropriate Licensed Contractor.</p> <p>Construction materials must be stored and managed in a way which promotes waste minimization, including segregating materials for re-use as appropriate.</p>
Environmental Controls	Appropriate waste receptacles will be provided on site.
Monitoring	<p>Daily Visual inspection for</p> <ul style="list-style-type: none"> • Damage • Untidiness • Full skips

EMP 4	NOISE MANAGEMENT
Purpose	<p>Measures for the management of impacts surrounding areas to the site, nuisance noise and construction noise impacts.</p> <p>The objective of this plan is to provide a framework for construction noise and vibration management to ensure that noise and vibration levels at neighboring buildings remain within reasonable limits throughout the works.</p>
Responsibility of Control	<p>Construction Project Manager Construction Personnel</p>
Procedures	<p>Implement control measures to ensure that noise impacts are minimized. The following measures will be communicated to all Staff on site.</p> <ul style="list-style-type: none"> • All Plant and Machinery will be maintained to ensure noise and air emissions are minimized. • Only use required power and size of equipment • Fit engine exhausts with silencers • Operate equipment in a quiet and efficient manner • Do not leave equipment idling unnecessarily • Regularly inspect and maintain equipment • Use quiet reversing alarms/methods • Use designated routes and access points for deliveries
Environmental Controls	<p>Adequate inspection of plant and equipment in operation shall be carried out to ensure that noise and vibration levels do not exceed the permitted levels.</p>
Monitoring	<p>Noise Monitoring at nearest sensitive receptors</p>

EMP 5	DUST MANAGEMENT
Purpose	Measures for the management of impacts on air quality and nuisance dust
Responsibility of Control	Construction Project Manager
Procedures	<ul style="list-style-type: none"> • All Plant and Machinery will be maintained to reduce dust and airemissions. • Construction personnel must not leave any Plant and Machinery running unnecessarily. • To reduce dust and particular blown around site, dust suppression measures shall be implemented in prolonged, dry and windy spell including standard dust suppression (spraying), as required. • Stockpiles should be located at suitably sheltered areas to prevent erosion or weathering and shall be located away from drainage ditches. • Public roads in the vicinity of the site will be regularly inspected for cleanliness, and cleaned as necessary. • A temporary vehicle wheel wash facility will be installed in proximity to the site entrance. • The dust minimization control measures shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimization of dust through the use of best practice and procedures.
Environmental Controls	Adherence to dust management measures
Monitoring	Monthly dust deposition monitoring program to be undertaken

EMP 6	SITE ENVIRONMENTAL TRAINING AND AWARENESS PROCEDURE
Purpose	To describe measures for the training of all Site Personnel in the protection of the Environment and the relevant controls.
Responsibility of Control	Construction Project Manager
Procedures	<ul style="list-style-type: none"> ▪ Environmental awareness and training shall be achieved by: <ul style="list-style-type: none"> – Site induction, including relevant environmental issues. – Environmental posters and site notices. – Method statement and risk assessment briefings. – Toolbox talks, including instruction on incident response procedures. – Key project specific environmental issues briefings. ▪ All managers and supervisors will be briefed on the CEMP. ▪ Method Statements will be finalised for specific activities and will include all environmental protection and mitigation measures identified in this CEMP and emergency preparedness appropriate to the activity covered. ▪ Method Statement briefings will be given before personnel carry out key activities for the first time. ▪ Environmental Training Records are to be retained in the Site Office.
Environmental Controls	<ul style="list-style-type: none"> ▪ Site staff shall be competent to perform tasks that have the potential to cause a significant environmental impact. Competence is defined in terms of appropriate education, training and experience.
Monitoring	N/A

EMP 7	ENVIRONMENTAL EMERGENCY RESPONSE PLAN
Purpose	To describe Measures for the prevention of an Environmental Accident or Incident and the response required to minimize such an event.
Responsibility of Control	Construction Project Manager
Procedures	<p>In the unlikely event of an Environmental Emergency, all Personnel will react quickly and adhere to this Procedure. The following outlines some of the information, on the types of emergency, which must be communicated to Site Staff:-</p> <ul style="list-style-type: none"> • Release of Hazardous Substance – Fuel or Oil Spill • Flood Event – Extreme Rainfall Event • Environmental Buffers and Exclusion Zones Breach • Housekeeping of Materials and Waste Storage Areas Breach • Stop Work Orders due to Environmental Issue or Concern (threat to Archaeological or Ecological Feature) <p>If any of the above situations occur; the Plan is activated. The Construction Project Manager must be immediately informed and report to the scene. The Construction Project Manager must be aware of the:-</p> <ul style="list-style-type: none"> • Nature of the Situation – Brief Description of What Has Happened • Location of the Incident • Whether any Spill has been Released • Whether the Situation is under Control
Environmental Controls	All Personnel are to be inducted in the provisions of the Environmental Emergency Response Plan.
Monitoring	n/a

EMP 8	MONITORING AND AUDITING PROCEDURE
Purpose	To describe measures for Environmental Monitoring during the Construction Works and audit of control measures to ensure Environmental Protection.
Responsibility of Control	Construction Project Manager Construction Environmental Manager
Procedures	<p>All mitigation measures, any Planning Conditions and relevant Construction Methods will be monitored on site. The Appointed Contractor will provide Audit Checklists to ensure regular checks of the site's Control Measures for the ongoing protection of the environment.</p> <p>Monitoring is to be carried out in adherence with the following:-</p> <ul style="list-style-type: none"> • Fuel and Oil Management Plan • Waste Management plan • Dust Management Plan • Construction Noise Monitoring <p>Checklists for weekly or monthly Site Audits shall be finalised and the relevant Personnel informed of their duties. Checklists should include (but are not limited to) confirmation that fuel is stored appropriately, that management rules are adhered to, all environmental buffers are maintained, sediment control measures are in place and functioning.</p>
Environmental Controls	Compliance with site management rules
Monitoring	All Environmental Records, including completed Checklists, will be retained at the Site Office.

EMP 9	ENVIRONMENTAL ACCIDENTS, INCIDENTS AND CORRECTIVE ACTIONS PROCEDURE
Purpose	To describe measures for the recording, investigation and close-out of any Environmental Accidents or Incidents on the Site
Responsibility of Control	Project Manager Project Environmental Manager
Procedures	<p>Any Environmental Accidents and Incidents occurring on site during the Works must be reported, recorded and investigated. Any corrective actions must be put in place and closed out after an Accident or Incident occurs.</p> <p>Environmental Accidents and Incidents may include but are not limited to:-</p> <ul style="list-style-type: none"> • Accidents involving large spill of fuel (Emergency Response required). • Spills of fuel and oil (Minor) • Waste or rubbish left around the site (not in dedicated waste areas) • Failure of any control measures • Unplanned vehicle movement within a buffer zone. <p>If an Environmental Accident or Incident occurs, personnel must inform <u>Project Manager / Environmental Officer / Nominated Person</u> immediately.</p> <p>Once the situation is under control, the Environmental Accident or Incident must be recorded and the cause investigated. Any remedial action required must be taken to mitigate any damage and prevent a reoccurrence.</p> <p>Corrective actions must be communicated to Personnel and Sub-Contractors where relevant – particularly where it results in a change in procedure</p>
Environmental Controls	Compliance with site management rules
Monitoring	As required

EMP 10	ENVIRONMENTAL COMPLAINTS PROCEDURE
Purpose	To describe measures for the recording and resolving of complaints by Third Parties, including Local Residents or Members of the Public.
Responsibility of Control	Project Manager Project Environmental Manager
Procedures	<p>Any Environmental complaints received, whether internal or external, must be recorded and investigated. Immediate action must be taken as relevant to resolve Environmental complaints to avoid any nuisance to the Local Community or Environmental Damage.</p> <p>This Procedure includes;-</p> <ul style="list-style-type: none"> • Recording of any complaints to the Site Register incorporating communication from the Public. • Follow up by the relevant Site Representative – Environmental Officer. • Remedial Measures where required. • Ongoing communication with complainant to confirm resolution. • Any required Training or communication with Site Personnel and Sub-Contractors as a result.
Environmental Controls	Compliance with site management rules
Monitoring	n/a

EMP 11	ODOUR CONTROL PROCEDURE
Purpose	To describe measures to minimise potential for malodours emissions associated with the works
Responsibility of Control	Project Contractor Project Environmental Manager
Procedures	<ul style="list-style-type: none"> • Control potential odours during excavation by minimising the working surface area and covering with a clean fill as soon as practical • In the unlikely event that putrescent wastes/soils or materials be unearthed during excavation, a deodoriser might be needed to minimise emissions of malodorous gases to the atmosphere • Transport any odourous wastes in covered vehicles. • Ensure sedimentation ponds and drainage systems are functioning correctly to above becoming stagnant • Ensure sanitary facilities are appropriately maintained and Wastewater from holding tanks routinely collected and removed by an appropriate Licenced Contractor. • Ensure wastes are stored correctly in appropriate waste receptacles • Ensure all wastes, in particular food wastes, are removed from site at regular internal • Ensure all plant is in good working order.
Environmental Controls	Adherence to odour management measures and site management rules
Monitoring	n/a

EMP 12	LIGHT POLLUTION CONTROL MEASURES
Purpose	To describe measures to minimise obtrusive light associated with the works on local residents and other sensitive receptors
Responsibility of Control	Project Contractor
Procedures	<p>The following measures will be implemented, as required::</p> <ul style="list-style-type: none"> • Dim or switch off lights where it is safe to do so • Use low lighting equipment where feasible • Use of timers and sensors for switching off lights/ flood lights • Avoid flood lighting in areas adjacent to sensitive nearby receptors • Light shielding will be implemented where light glare is a nuisance • Outdoor artificial lighting for site security shall be designed to face downwards and inward to the site and oriented to avoid significant light spill by means of selection of appropriate fitting with filters/screens and with suitable Lux levels.
Environmental Controls	Adherence to light pollution controls and site management rules
Monitoring	n/a

EMP 13	SURFACE WATER MANAGEMENT AND RUN-OFF CONTROL MEASURES
Purpose	Measurements for the control and management of all surface waters associated with the site during construction
Responsibility of Control	Project Contractor
Procedures	<p>The following measures will be implemented:</p> <ul style="list-style-type: none"> • Implement erosion control to prevent runoff flowing across exposed ground and become polluted by sediments; • Intercept and divert clean water runoff away from construction site runoff to avoid cross-contamination of clean water with soiled water; • Implement the erosion and sediment controls before starting site clearance/construction works; • Minimise area of exposed ground by maintaining existing vegetation that would otherwise be subject to erosion in the vicinity of the development and keeping excavated areas to a minimum; • Install a series of silt fences or other appropriate silt retention measure where there is a risk of erosion runoff to watercourses from construction related activity particularly if working during prolonged wet weather period or if working during intense rainfall event; • Implement sediment control measures that includes for the prevention of runoff from adjacent intact ground that is for the separation of clean and 'dirty' water; • Install appropriate silt control measures such as silt-traps, check dams and sedimentation ponds; • Washout from concrete trucks and plant will not be permitted on site. • Provide recommendations for public road cleaning where needed particularly in the vicinity of drains; • Controls need to be regularly inspected and maintained otherwise a failure may result, such as a build-up of silt or tear in a fence, which will lead to water pollution so controls must work well until the vegetation has re-established; inspection and maintenance is critical after prolonged or intense rainfall; • Develop checklists for weekly Site Audits, which must be finalised by the Appointed Contractor and the relevant Personnel informed of their duties;
Environmental Controls	Adherence to surface water management and run-off control plan and site management rules
Monitoring	Daily visual inspection of controls to ensure appropriately operating