

# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

**Residential Development  
Lahardane / Ballincolly  
Ballyvolane  
Co. Cork  
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## Document Control Sheet

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**MHL & Associates Ltd**

Carraig Mór House,  
10 High Street,  
Douglas Road,  
Cork.

Tel 021-4840214

Email: info@mhl.ie

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# 1.0 INTRODUCTION

## 1.1 Overview

The purpose of this Preliminary Construction Environmental Management Plan is to provide details on how the proposed Longview Residential Development project is intending to use a comprehensive and integrated approach to protecting the environment during construction on site.

The report details the specific requirements that need to be addressed during the project and includes the related roles and responsibilities of individuals involved in the project. It identifies the environmental considerations associated with the construction process and outlines proposed work practices, management, mitigation and monitoring strategies 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 projects Preliminary Construction and Demolition Waste Management Plan. The aim of this preliminary plan is to provide a framework for the development of the full Construction and Waste Management Plan (C&D WMP) to ensure that optimum levels of waste reduction, reuse and recycling are achieved throughout the duration of the project.

The Contractor appointed to undertake the works shall be responsible for the development of this plan and the implementation of all necessary protocols and measures to ensure regulatory compliance, including the provision of data to Cork City Council to enable fulfilment of reporting obligations.

## 1.2 Site Location

The application site is located on land adjacent to the R614 Ballyhooly Road, less than 3km north of Cork City Centre in the suburbs of Ballyvolane. The site currently comprises agricultural open land and is bound to the north by a local road (L-2976-0) linking the Ballyhooly Road to Rathcooney Village. The cross-roads known locally as 'White's Cross' is 1km north of the proposed main access to the scheme. The R635 North Ring Road is approximately 1.5km south of the development lands and facilitates wider access to the National Primary Network serving Cork City.

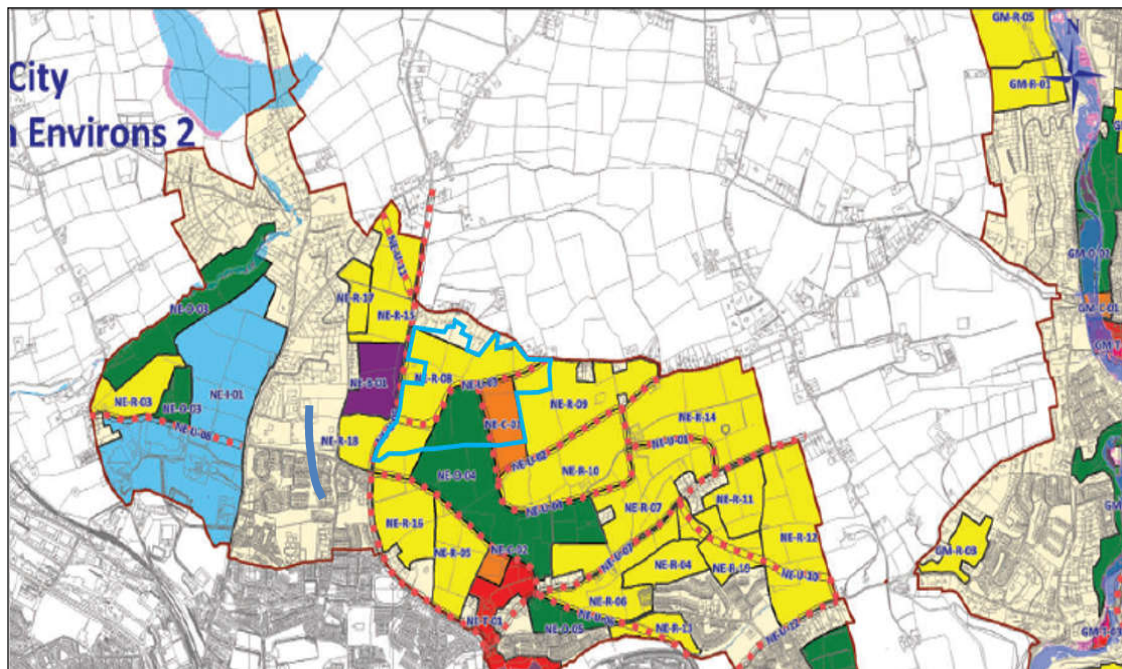


Fig 1: Site Location (Taken from LAP - outlined in blue)

### 1.3 Scope

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

- Construction of 753 residential units made up of a mixture of individual housing and apartments with associated green space and Park Land.
- On site vehicle Distributor Road and streets with associated car parking provision serving individual neighbourhoods.
- A mix of independent pedestrian and cyclist infrastructure together with shared street spaces.
- Drainage and water supply infrastructure to accommodate the residential status of the site.
- Lighting, power and communications infrastructure to accommodate the residential status of the site.
- Off-site localised road and junction improvements.
- Ancillary site development works consist of the diversion of the existing 38 kV ESB overhead electrical cables.
- The increase in capacity of the existing foul network via installation of new pumping station along Ballyhooly Road
- The extension of existing water supply services from a point to the west on Dublin Hill

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



Fig 2: Proposed Site Layout

### 1.4 Site Specific Details

The site is situated on a west-facing slope and the design involves the levelling of parts of the site via excavation to create a number of development platforms for the various neighbourhoods. Detailed cut/fill quantities have been provided for the different phases of 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.

## **1.5 Invasive Species**

There are no invasive species recorded on site. An Invasive Species management plan will nevertheless be put in place so as manage the spread of any such species and prevent them entering the site. Japanese Knotweed has been identified on lands west of the site and an extermination programme for that has been initiated by "JK Ireland". No works are proposed in areas where Japanese Knotweed is present.

## 2.0 PROJECT RESPONSIBILITIES

### 2.1 Assignment of Responsibilities

The Contractor appointed by Longview Estates Ltd. to undertake the construction works, shall be responsible for developing, and managing, the project specific Construction Environmental Management Plan (CEMP) incorporating the methodologies described in this preliminary plan. With respect to waste volumes, while this preliminary plan endeavours to provide representative quantities, it should be noted that the estimated volumes should be developed further as the project progresses. Similarly, the proposed methodologies described in this report are indicative only. Logistical issues, such as traffic restrictions and available space for storage, manoeuvres etc. may necessitate certain revisions.

The Contractor’s Project Manager will be responsible for the overall implementation of the plan and associated procedures. The Project Manager will ensure that reporting and recording requirements are met and all necessary resources are in place to support the implementation of the plan.

To ensure the CEMP remains ‘fit for purpose’ for the duration of the project it should be reviewed and updated by the Project Manager during the life of the project to ensure that it remains suitable to facilitate efficient and effective delivery of the project environmental commitments. The environmental review would, consider past performance from inspections, audit report and monitoring data, plan actions required to mitigate forthcoming risks and disseminate best practice.

The anticipated roles and responsibilities of the key parties involved in the implementing the CEMP are set out below. The roles and responsibilities outlined below are indicative at this stage.

Personnel	Role	Duties/Responsibilities
<b>PROJECT MANAGER</b>	Liaises 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"> <li>• Implementing of the Construction and Environmental Management Plan</li> <li>• Implementing the Health and Safety Plan</li> <li>• Management of the construction project</li> <li>• Liaison with the client/developer</li> <li>• Liaison with the Project Team</li> <li>• Assigning duties and responsibilities in relation to the CEMP</li> <li>• Production of construction schedule</li> <li>• Materials procurement</li> <li>• Maintaining a site project diary</li> </ul>
<b>CONSTRUCTION MANAGER</b>	Liaises 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"> <li>• Implementing the Construction Environmental Management Plan.</li> <li>• Assigned Project Management Duties.</li> <li>• Implementing the Health and Safety Plan under the direction of the PSCS</li> <li>• Liaison with the Process Contractors.</li> <li>• Monitoring the Construction Schedule.</li> <li>• Maintaining a Site Project Diary.</li> <li>• Assisting in maintaining the Site Queries and Complaints Register.</li> </ul>

<b>ENVIRONMENTAL MANAGER</b>	Ensures that the CEMP is developed, implemented and maintained.	<ul style="list-style-type: none"> <li>• Implementing the Environmental Procedures of the CEMP and updating it as necessary.</li> <li>• Management of all Environmental aspects of the Construction Works and Audit of Controls.</li> <li>• Review and Approval of Method Statements relating to Environmental aspects.</li> <li>• Ensuring Implementation of Mitigation Measures.</li> <li>• Training of Staff in all Environmental issues.</li> <li>• Liaison with Construction Manager.</li> </ul>
<b>PROJECT ECOLOGIST</b>	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"> <li>• Pre –commences works surveys, where relevant</li> <li>• Ensure the appropriate course of action is taken in the event that sensitive flora or fauna species are identified</li> </ul>
<b>ALL SITE PERSONNEL</b>		<p>The site personnel appointed by the Contractor are responsible for:</p> <ul style="list-style-type: none"> <li>• Adhering to the relevant Environmental Control Measures and relevant site-specific Method Statements</li> <li>• Adhering to the Health and Safety Plan</li> <li>• Reporting immediately to the Environmental Manager and Construction Manager any incidents where there has been a breach of agreed procedures</li> </ul>

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 Waste Management Plan (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 is to be prepared by the Contractor, in consultation with their approved Waste Management Specialist Sub-Contractor, for the safe removal and disposal of the identified hazardous materials.

This must be agreed with the Employers Representative prior to commencement of any excavation activities.



## 2.2 Reporting

The Site Manager / Project Manager is responsible for collating and maintaining all reporting. This would include all environmental and compliance documentation. The following tables will need to be populated as part of the Project CEMP and placed in a prominent location, accessible to the general public and site staff.

### Contractor Contacts

Position Title:	Name:	Phone:	Email:
Project Manager			
Construction Manager*			
Environmental Manager*			
Safety (PSCS)*			
Safety Officer*			
Site Emergency Number*			

\*24 hour contact details required

### Employer Contacts

Organisation:	Position:	Name:	Phone:	Email:
Safety (PSDP)	Overall Project PSDP			
Employers Public Liaison Officer	Project Liaison Officer			
Employers Ecologist	Project Ecologist			
Employers Archaeologist	Project Archaeologist			

### Third Party Contacts

Organisation:	Position:	Name:	Phone:	Email Address:
Inland Fisheries Ireland				
National Parks and Wildlife Service				
Environmental Protection Agency				
Local authority				
Department of the Environment, Heritage and Local Government				
Health and Safety Authority				
Emergency Services				
Other, as appropriate.				

### 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 following outlines some of the information which must be communicated to Site Staff:

- 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 outline the key performance indicators for the site in gauging successful site management in the 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.

The performance indicators will be finalized by the Contractor and communicated to all relevant personnel and sub-contractors. The review periods for analyzing site performance indicators must also be specified.

### 2.5 Environmental Incidents / Complaints Procedure

In the event of an environmental incident, or breach of procedure, or where a complaint is received, the contributing factors are to 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 is to conduct/co-ordinate an investigation to determine the potential influence that could have led to the non-compliance.
- The Project Manager is to 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 advise 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 as required
- Fuel spill kit to be present on each site at all times
- Maintain all waste licences and waste transfer notes for all waste movements including contractors

### *Reporting Specific Objectives*

- Environmental incidences to be reported to Site Manager without delay
- The following documentation will be reported to Cork City Council 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 by others;
  - Significant environmental incidents;
  - Complaints and the current status of those complaints;
  - Actions or interventions undertaken by enforcement organisations;

### *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 in the contract;
- Seek ways to incorporate environmental opportunities within the design (Preliminary Site Investigation);
- Seek ways to reduce the carbon footprint of the contract;
- 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 dockets, permits etc.) is available for inspection at the site office / in head office.

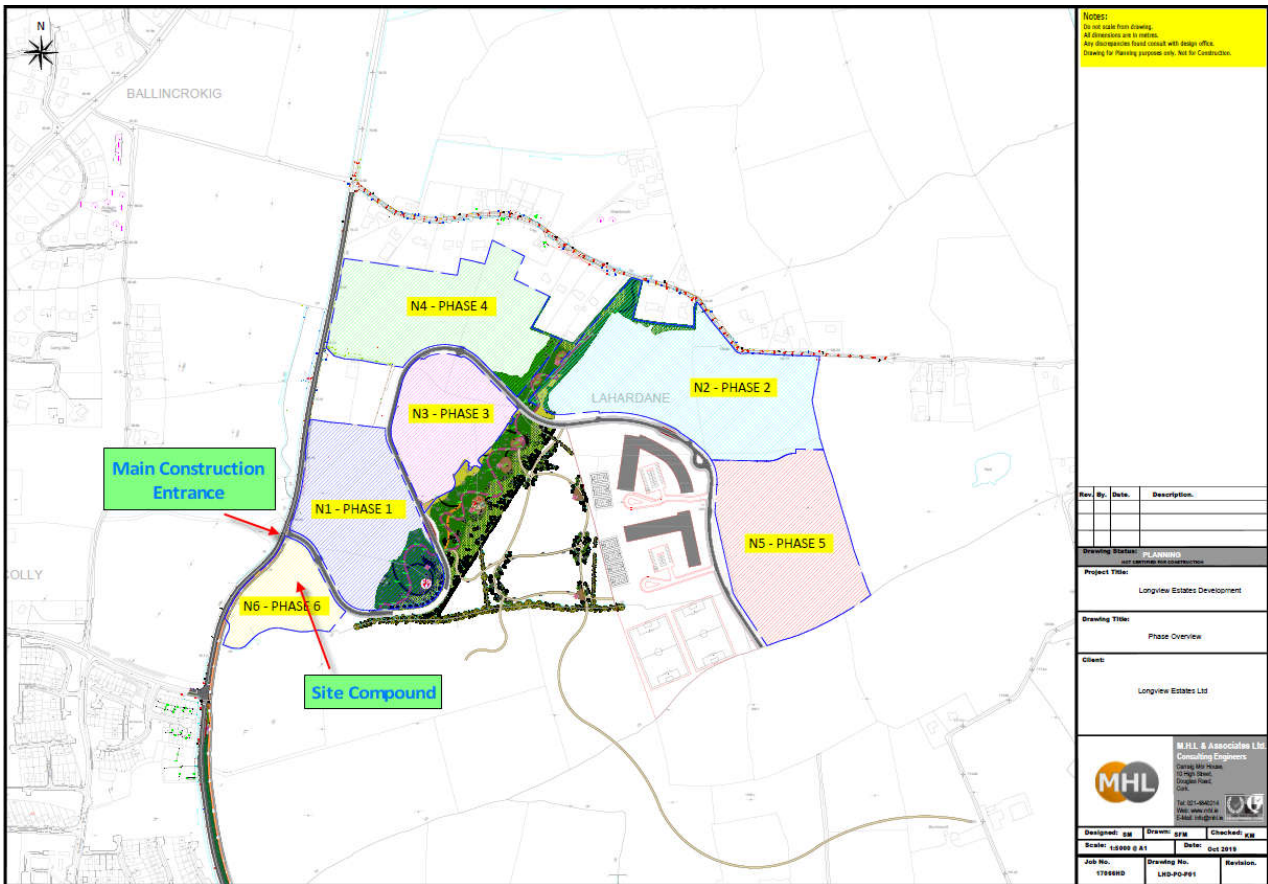
## 3.0 CONSTRUCTION MANAGEMENT

### 3.1 Introduction

#### 3.1.1 Phasing of Works

The proposed application is for a 10-year permission for the delivery of 753 residential units, 103 child creche and local retail area. The works are proposed to be carried out on a phased basis commencing with Neighbourhood 1 (N1) and finalizing with Neighbourhood 6 (N6). A scheme plan showing the various neighbourhoods and related phases is shown in the following figure as well as the location of the proposed compound and the main construction access from the Ballyhooley Road.

**Fig 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:

##### Pre-Commencement Surveys:

- Prior to any commencement of any physical works, a professional land surveyor shall be appointed to carry out demarcation works and establish bench-marks on site. Upon obtaining all the necessary survey data, a joint survey to check existing ground levels shall be carried out with the consulting

engineers.

- Any detailed ground investigations required to support the site regrading process will be carried out and finalized.
- Any pre-commencement archaeological survey.
- Pre- commencement noise survey.
- Pre- commencement dust survey.

#### **Enabling Works:**

- The initial enabling works, to be carried out in accordance with the Project specific CEMP (Traffic Management, control of surface water, storage of materials etc.), will be in developing the main access road off the R614 Ballyhooly Road to facilitate construction access to the site. These works will involve the excavation of the main distributor road facilitating access to N1 and N6.
- This will be followed by bulk excavation works in the area designated for the compound, ref **Fig 3.1: Phasing Diagram**. These works will create a level platform, accessible from the main distributor road, upon which the site compound and materials storage area will be constructed.

#### **Temporary Site Compound**

Once the main entrance is in place and the bulk excavation has reached the appropriate stage, the contractor will set up their temporary construction facilities, ref. **Fig 3.2 Site Compound**.

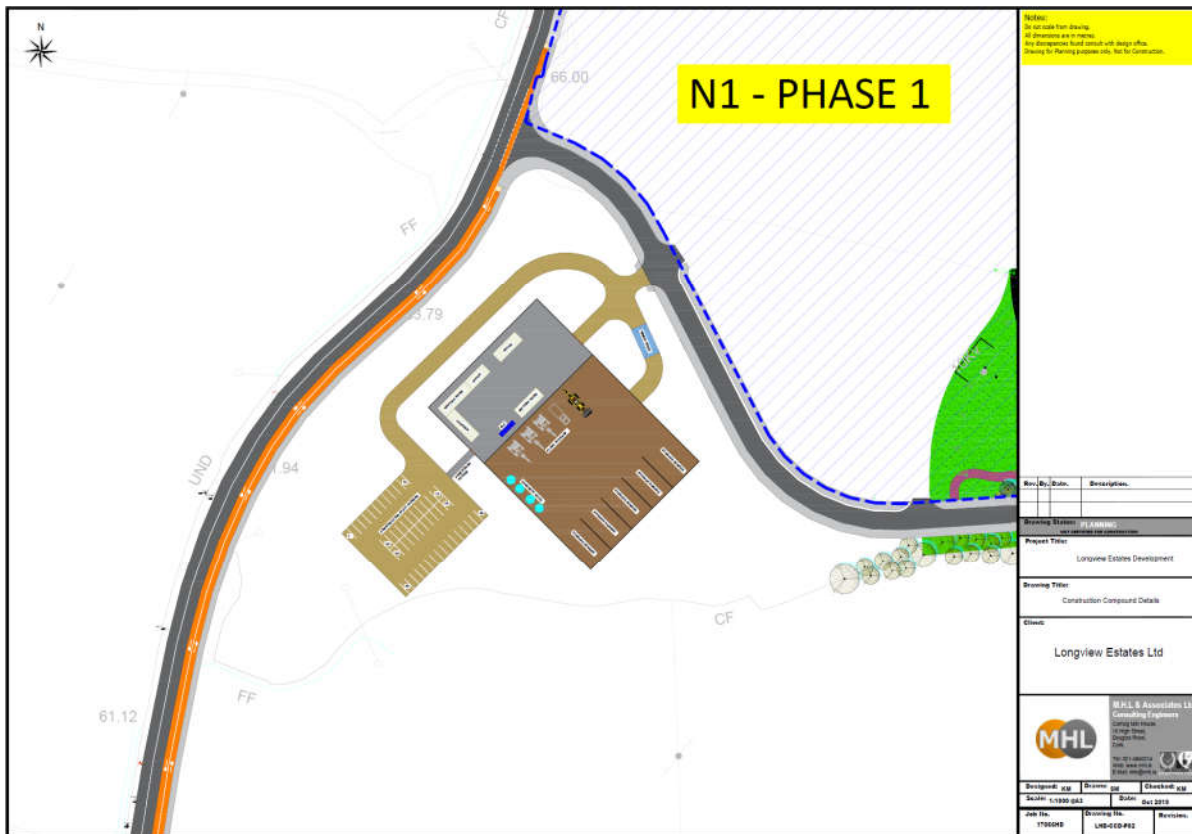
These will include:

- 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 Ballyhooly Rd road 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 to 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.

**Fig 3.2: Proposed Site Compound**



**3.1.2.2 Phased Based Construction**

The construction of N1 will commence once all regulatory notices have been issued to the relevant authorities. The following processes will be repeated for each phase of development and will be carried out in accordance with the requirements of the adopted CEMP:

**Bulk Excavation:**

- Following the topsoil strip of N1, the main access road serving this neighbourhood will be constructed to formation level followed by the excavation of the housing platforms to the right of this road. Suitable structural fill material arising from these works will be used to fill the housing platforms to the left and excess suitable fill material will be stored locally to be used in the continuation of the main distributor road.
- 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 determine the 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 envisaged that a timber frame construction process will be used which will imply the delivery of pre-formed timber walls and trusses to site followed by external finishing material such as blockwork, brickwork, plaster and roof tiles.

- Construction materials will be sourced locally where possible. This will be based on the necessary constraints of performance, durability and cost.
- External Services including water mains, foul sewers, storm sewers, roads, footpaths 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.

#### **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 negative 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, N1-N2-N3-N4-N5-N6.
- Excavated material is to be stored on-site as outlined in the following earthworks plan **Fig 3.3, Earthworks Storage**, to be re-used for later stages of the development.
- The preliminary site investigation has identified that certain quantities of subsoil will require soil strengthening methods for re-use as structural fill. These works will be carried out on site within the designated area. This area will include provisions 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.
- Where it is necessary to cross the existing watercourse with an undergrounded 38KV ESB cable specific measures such as directional drilling will be undertaken and carefully managed and monitored. These works will be undertaken by ESB Networks using their approved methods.

#### **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 considered will consist of:

- Surface water directed to settlement ponds where after it will be allowed to percolate to ground or allowed to discharge to the existing watercourse. In

rare occurrences it may be removed by tanker to a designated waste-water treatment plant if excessive build-up of surface water on site is noted.

- Protection of any surface water gullies or drains by the use of silt fences.
- Develop on-site bund structures (possibly using existing ditches) to retain any surface waters on site and to prevent direct runoff from the site.
- Minimal and short-term storage and the removal of excess materials (soil, stones and construction wastes) off site in an efficient manner if they arise.
- 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 housekeeping is maintained at all times during the construction phase including regular site clean-ups and use of appropriate bins.
- The storage of any chemical or fuel/oils are maintained in temporary bunded storage areas and plant is re-fueled via delivery trucks rather than the storage of large quantities of fuel on site in a designated bunded area.
- The pouring of concrete, application of chemicals, painting or any other activity that has the possibility of being toxic to aquatic life should be undertaken in a control and isolated manner, preventing the possibility of any pathway to a surface water source.

### 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.

*\* The working day may extend 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 discussed and agreed with Cork City Council. 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 agreed space and will be sampled, processed and placed within the works or removed off site in accordance with the Preliminary Waste Management Plan (Section 4 of this report).

### 3.4 Noise

The Contractor shall comply with the general recommendations set out in the Code of Practice BS 5228: "Noise Control on Construction and Open Sites" together with the specific requirements described below.

The Contractor shall employ the "best practicable means" 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) 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 below.

**Table 3-1 Noise Levels**

Assessment Category & Threshold Value Period (L <sub>Aeq</sub> )	Threshold Value, Decibels (dB)		
	Category A <sub>A</sub>	Category B <sub>B</sub>	Category C <sub>C</sub>
Night-Time (23:00 to 07:00hrs)	45	50	55
Evenings & Weekends <sup>D</sup>	55	60	65
Daytime (07:00 - 19:00) & Saturdays (07:00 - 13:00)	65	70	75

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

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 commercially available, dampened tools and accessories shall be used.

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

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, acoustic enclosures shall be provided.

As outlined in the preliminary site investigation report rock encountered on-site is ‘rip-able’. This will ensure that rock breaking will be kept to a minimal. Blasting of rock is not anticipated.

Times and noise levels at noise sensitive areas resulting from any operation by the Contractor or any Sub-Contractor, on or off the site and concerned in any with the Contractor, shall not exceed those listed in the Table above.

A Construction Noise Management Plan will be put in place for the construction process, a third-party consultant will be engaged to prepare this report and monitor activity and noise levels generated. The Noise Management Plan will address the following areas;

A baseline noise monitoring program will be completed prior to construction works commencing. Attended noise monitoring will be carried out at a number of locations yet to be determined. Survey details, procedures and results of this aspect of the baseline noise monitoring program will be in general in accordance with ISO 1996: Part 2: 2007 2.

Consideration will also be given to advise in relation to establishing significant construction noise effects as set out in BS5228. During the construction phase, 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 include 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 if 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, consideration will be given to issues such as the following:

- Hours of operation being correctly observed
- Opportunities for noise control 'at source'
- Optimum siting of plant items
- Plant items being left to run unnecessarily
- Correct use of proprietary noise control measures
- Materials handling
- Poor maintenance
- Correct use of screening provided and opportunities for provision of additional screening

### 3.4 Dust Management Plan

The Contractor shall take all necessary steps 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 wheel-wash for construction traffic.

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. To develop a workable and transparent dust control strategy, the following framework plan has been formulated by drawing on best practice guidance from Ireland, the UK and the USA. Effective site management regarding dust emissions will be ensured by the formulation of a dust management plan (DMP) for the site.

The key features of the DMP are:

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

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

At the planning stage, 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 as appropriate;
- 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;
- It is the responsibility of the contractor always to demonstrate full compliance with the dust control conditions herein;
- 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 satisfactory 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 can easily be enforced. 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.
- If practicable, a wheel wash facility will be employed at the exit of the site so that traffic leaving the site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain (refer **Site Compound Plan**).

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 achievement of no dust nuisance occurring during the construction phase. The key features with respect to the control of dust will be:

- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues;
- The development of a documented system for managing site practices with regard to dust control;
- The development of a means by which the performance of the dust minimisation plan can be monitored and assessed;
- The specification of the measures to be taken to control dust emissions before it occurs and effective measures to deal with any complaints received.

### 3.5 Construction Access

Construction Access to the site will be from the R614 Ballyhooly Road via the proposed main Distributor Road serving the site.

The Main Distributor 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.

A secondary access serving Neighbourhood 4 (Phase 4) will be constructed from the R614 Ballyhooly Road at the location of the proposed permanent entrance to this section of the site. It is envisioned that the major earthworks element of Phase 4 will be carried out through internal haul routes prior to this access being in place.

### 3.6 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 Construction Manager as 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, organised site visits are all methods by which the successful contractor will communicate how they intend to carry out the works and keep people informed.

### 3.7 Site Specific Traffic Management Plans (TMP's)

The successful Contractor will develop a Construction Stage Temporary Traffic Management Plan in compliance with the Preliminary Temporary Traffic Management Plan developed in consultation 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 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.

The Contractor will allow for the installation and maintenance of an automatic wheel-washing unit on 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 Contractor must ensure that the required equipment for supplying water and power to the wheel washing facility are available and in good working order. At the end of the Contract, the Contractor must remove the wheel washing facilities in total from site.

### 3.8 Complaints

The Complaints that may be received will be logged, assessed and appropriate action taken as soon as practical. The successful Contractor will be actively seeking liaison with all parties throughout the construction periods. It will be critical to the success of the project 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.

### 3.9 Vehicle Movement & Deliveries

Deliveries will be co-ordinated to prevent queuing of vehicles adversely affecting traffic flow and to minimise disruption to local traffic. They will be timed and coordinated to avoid conflict with

collection of waste, other deliveries (particularly adjoining land-owners) 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 but will require the approval of the Employer's Representative.

The Contractor will consider out of hours deliveries and collections to facilitate the smooth continuation of works and minimise disruption.

### 3.10 Site Security and Hoarding?

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.

### 3.11 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 - The Main Contractor will provide separate entry and exit gateways for pedestrians and vehicles 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, The Contractor will provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;
- Visibility - The Main Contractor will make sure drivers driving out onto public roads can see both ways along the footway before they move on to it;
- Obstructions - The Main Contractor will not block walkways so that pedestrians must step onto the roadway
- The Main Contractor will take steps to make sure that all workers are fit and competent to operate the vehicles, machines and attachments they use on site.
- People who direct vehicle movements will be trained and authorized to do so.
- Aids for drivers - Mirrors, CCTV cameras or reversing alarms will be provided that can help drivers see movement all-round the vehicle;
- Banksmen will be appointed to control maneuvers 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
- The Contractor will make sure that all drivers and pedestrians know and understand the routes and traffic rules on site. Use standard road signs where appropriate.
- The Contractor will provide induction training for drivers, workers and visitors and send instructions out to visitors before their visit.
- The Contractor will make sure that all the drivers and their supply chain personnel are competent and have relevant training and certification appropriate for their job.

### 3.12 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 WASTE ARISING'S & MANAGEMENT

### 4.1 Analysis of Waste Arising from the Construction Stage

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

**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. The initial site investigation report carried out by Priority Geotech, has identified soil strengthening methods that are to be utilised to ensure excavated granular material will be used as aggregate construction material. Top-soil excavated will be stored for re-use on the site and in the area designated Parks.

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.
- Pre-cast timber frame units.

#### 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 per phase of development. The precise location of stockpiles will be identified at construction phase):

- 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			Cut Breakdown		
Description	Cut (m3)	Fill (m3)	Topsoil	Subsoil	Rock
Main Distributor Road	33025.15	28830.26	6758.158	17621.66	8645.337
Neighbourhood 1	58223.55	12171.37	7448.902	30180.86	20593.79
Neighbourhood 2	12923.79	33821.76	5843.401	6305.963	774.425
Neighbourhood 3	17088.67	38556.4	4220.603	8655.356	4212.708
Neighbourhood 4	31270.01	22554.65	7708.464	15569.45	7992.096
Neighbourhood 5	16701	11741.69	10940.72	5755.966	4.312
Neighbourhood 6	17600.46	4760.655	2695.258	6229.607	8675.59
<b>Subtotal</b>	<b>186832.6</b>	<b>152436.8</b>	45615.51	90318.86	50898.26

**Table 4.2 Breakdown of Materials to be generated per Neighbourhood**

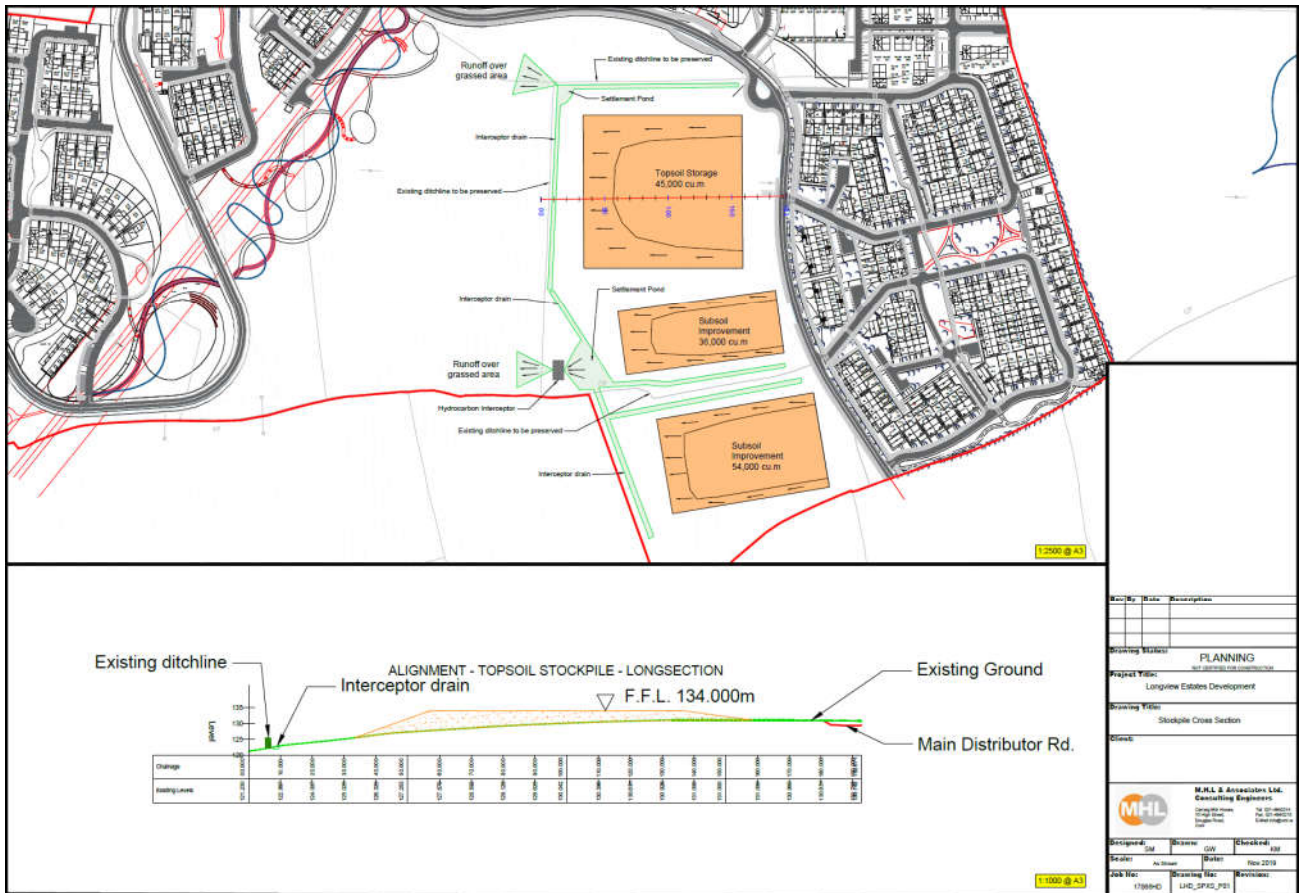


Fig 4.1: Proposed Stockpile Locations

## 5.0 Environmental Issues & Management Requirements

An environmental review of the proposed scheme will be 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) will set out the principles to be adhered to and outline commitments and measures that are to be implemented during the works to ensure that potential environmental impacts and disturbance to local residents will be minimized or eliminated.

Once appointed, it is the Contractor's responsibility, to update and add (where required) the project specific control measures relevant to the environmental management procedures. 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 or technical investigations carried out as part of the pre-commencement stage. 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**

<b>EMP-1</b>	Fuel and Oil Management
<b>EMP-2</b>	Construction Traffic Management
<b>EMP-3</b>	Waste Management
<b>EMP-4</b>	Noise Management
<b>EMP-5</b>	Dust Management
<b>EMP-6</b>	Site Environmental Training and Awareness
<b>EMP-7</b>	Environmental Emergency Response
<b>EMP-8</b>	Monitoring and Auditing Procedure
<b>EMP-9</b>	Environmental Accidents, Incidents and Corrective Actions Procedure
<b>EMP-10</b>	Environmental Complaints Procedure
<b>EMP-11</b>	Odour Control Procedure
<b>EMP-12</b>	Light Pollution Control Measures
<b>EMP-13</b>	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"> <li>● 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.</li> <li>● Plant nappies or absorbent mats to be place under refueling point during all refueling to absorb drips.</li> <li>● Mobile bowzers, tanks and drums should be stored in secure, impermeable storage area, away from drains and open water;</li> <li>● 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.</li> <li>● Potential leaks from delivery vehicles will be reduced by visually inspecting all vehicles for major leaks.</li> <li>● Should there be 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.</li> <li>● 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. They will inspect nearby drains for the presence of oil, and initiate the clean-up if necessary.</li> <li>● 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.</li> <li>● 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.</li> <li>● In the 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.</li> </ul> <p><u>Oil storage</u></p> <ul style="list-style-type: none"> <li>● Fuel containers must be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores;</li> <li>● 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.</li> <li>● 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.</li> </ul>

	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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 re-cycling by an approved service provider.</li> </ul>
<p>Environmental Controls</p>	<ul style="list-style-type: none"> <li>• Mobile bowsers, tanks and drums will be stored in secure, impermeable storage area, away from drains and open water.</li> <li>• Fuel containers must be stored within a Secondary Containment System, e.g. bund for static tanks or a drip tray for mobile stores.</li> <li>• Ancillary equipment such as hoses, pipes must be contained within the bund.</li> <li>• Taps, nozzles or valves must be fitted with a Lock System.</li> <li>• Fuel and Oil Stores including tanks and drums must be regularly inspected for leaks and signs of damage.</li> <li>• Only designated Trained Operators are authorized to refuel plant on site and emergency spill kits will be present at equipment for all refueling events.</li> <li>• Procedures and contingency plans will be set up to deal with emergency accidents or spills</li> <li>• Suitable spill response materials and emergency instruction shall be available on site and staff shall have been adequately trained</li> </ul>
<p>Monitoring</p>	<p>Daily visual inspection of storage areas for</p> <ul style="list-style-type: none"> <li>• Damage to containers or ancillary equipment</li> <li>• Leakages</li> <li>• Unlocked storage container</li> </ul>

Details of fuel and oil management plan to be finalised by Contractor

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	<p>The Contractor will prepare a detailed Traffic Management Plan in response to the Traffic Management requirements set out in this Plan and prior to the Works commencing.</p> <ul style="list-style-type: none"> <li>• Details on haulage routes to the site</li> <li>• Site access and any site traffic rules must be included, including security, parking, loading and unloading, required speed or other relevant details.</li> <li>• Details of equipment delivery must be provided.</li> <li>• Site operating hours (including delivery) to be outlined.</li> <li>• The Plan must include provision for communicating with the community, and the Local Authority the Gardaí where required.</li> </ul>
Environmental Controls	<p><b>Public Road</b></p> <ul style="list-style-type: none"> <li>• 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 (8:00-09:00) and finish work before or after the evening peak traffic hours (17:00-18:00).</li> <li>• 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.</li> </ul> <p><b>Site Entrance</b></p> <ul style="list-style-type: none"> <li>• There will be no parking of any vehicles on the public road near the site entrance.</li> <li>• Adequate parking will be provided on site for both employees and visitors.</li> <li>• 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.</li> </ul>
Monitoring	Daily checks

Traffic Management Plan to be finalised by Contractor

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"> <li>• Surplus excavated soils</li> <li>• Waste Fuels; Oil / Diesel</li> <li>• Paper / Cardboard</li> <li>• Non-Hazardous Office and Canteen Waste</li> <li>• Wastewater from Office and Welfare Facilities</li> </ul> <p>Wastes must be segregated and stored in the allocated tanks, bins, skips or areas.</p> <p>The Appointed Contractor must finalize all Storage Areas and organize the relevant Licensed Contractors for the appropriate waste collections.</p> <p>The Appointed Contractor must 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"> <li>• Damage</li> <li>• Untidiness</li> <li>• Full skips</li> </ul>

Details of Waste Management Plan to be finalized by Contractor



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>The Appointed Contractor must prepare a Management Plan 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"> <li>• All Plant and Machinery will be maintained to ensure noise and air emissions are minimized.</li> <li>• Only use required power and size of equipment</li> <li>• Fit engine exhausts with silencers</li> <li>• Operate equipment in a quiet and efficient manner</li> <li>• Do not leave equipment idling unnecessarily</li> <li>• Regularly inspect and maintain equipment</li> <li>• Use quiet reversing alarms/methods</li> <li>• Use designated routes and access points for deliveries</li> </ul>
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 those agreed with the Local Authority.</p>
Monitoring	<p>Noise Monitoring at nearest sensitive receptors</p>

Details of Noise Management to be finalized by Contractor

<b>EMP 5</b>	<b>DUST MANAGEMENT</b>
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"> <li>• All Plant and Machinery will be maintained to reduce dust and airemissions.</li> <li>• Construction personnel must not leave any Plant and Machinery running unnecessarily.</li> <li>• To reduce dust and particular blown around site, dust suppression measures may be implemented in prolonged, dry and windy spell including standard dust suppression (spraying) if relevant.</li> <li>• Stockpiles should be located at suitably sheltered areas to prevent erosion or weathering and shall be located away from drainage ditches.</li> <li>• Public roads in the vicinity of the site will be regularly inspected for cleanliness, and cleaned as necessary.</li> <li>• A temporary vehicle wheel wash facility will be installed in proximity to the site entrance.</li> <li>• The dust minimization plan will 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.</li> </ul>
Environmental Controls	Adherence to dust management measures
Monitoring	Monthly dust deposition monitoring program to be undertaken

*Details of Dust Management to be finalized by Contractor*

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"> <li>▪ Environmental awareness and training shall be achieved by:                             <ul style="list-style-type: none"> <li>– Site induction, including relevant environmental issues.</li> <li>– Environmental posters and site notices.</li> <li>– Method statement and risk assessment briefings.</li> <li>– Toolbox talks, including instruction on incident response procedures.</li> <li>– Key project specific environmental issues briefings.</li> </ul> </li>   <li>▪ All managers and supervisors will be briefed on the CEMP.</li>   <li>▪ Method Statements will be prepared for specific activities prior to the works commencing and will include environmental protection and mitigation measures and emergency preparedness appropriate to the activity covered. The Construction Environmental Manager will review key Method Statements prior to their issue.</li>   <li>▪ Method Statement briefings will be given before personnel carry out key activities for the first time.</li>   <li>▪ Environmental Training Records are to be retained in the Site Office.</li> </ul>
Environmental Controls	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>
Monitoring	N/A

Details of Induction and Training to be Finalised by Contractors.

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 event of an Environmental Emergency, all Personnel will react quickly and adhere to this Procedure <i>(to be finalized by Contractor)</i>. 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"> <li>• Release of Hazardous Substance – Fuel or Oil Spill</li> <li>• Flood Event – Extreme Rainfall Event</li> <li>• Environmental Buffers and Exclusion Zones Breach</li> <li>• Housekeeping of Materials and Waste Storage Areas Breach</li> <li>• Stop Work Orders due to Environmental Issue or Concern (threat to Archaeological or Ecological Feature)</li> </ul> <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"> <li>• Nature of the Situation – Brief Description of What Has Happened</li> <li>• Location of the Incident</li> <li>• Whether any Spill has been Released</li> <li>• Whether the Situation is under Control</li> </ul>
Environmental Controls	<p>All Personnel are to be inducted in the provisions of the Environmental Emergency Response Plan.</p> <p><u><i>Details of Environmental Emergency Response Plan to be finalised by Appointed Contractor. Full Details of the Actual Procedure to include the chain of responsibility, the location of controls (Spills, Kits. Etc. and the Response required to each Situation above and any additional scenarios.</i></u></p>
Monitoring	n/a

*Details of Environmental Emergency Response Plan to be finalized by Contractor*

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"> <li>• Fuel and Oil Management Plan</li> <li>• Waste Management plan</li> <li>• Dust Management Plan</li> <li>• Construction Noise Monitoring</li> </ul> <p>Checklists for weekly or monthly Site Audits must be finalised by the Appointed Contractor 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. Checklists should be finalised with the Contractor's C.E.M.P.</p>
Environmental Controls	Compliance with site management rules
Monitoring	All Environmental Records, including completed Checklists, will be retained at the Site Office.

*Details of Monitoring Procedure and Checklists to be Finalised by Contractor in Consultation with the Project Environmental Manager*

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"> <li>• Accidents involving large spill of fuel (Emergency Response required).</li> <li>• Spills of fuel and oil (Minor)</li> <li>• Waste or rubbish left around the site (not in dedicated waste areas)</li> <li>• Failure of any control measures</li> <li>• Unplanned vehicle movement within a buffer zone.</li> </ul> <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

Details of Environmental Accidents, Incidents and Corrective Actions Procedure, including a chain of responsibility, to be finalised by Contractor and communicated to all Personnel and Sub- Contractors.

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"> <li>• Recording of any complaints to the Site Register incorporating communication from the Public.</li> <li>• Follow up by the relevant Site Representative – Environmental Officer.</li> <li>• Remedial Measures where required.</li> <li>• Ongoing communication with complainant to confirm resolution.</li> <li>• Any required Training or communication with Site Personnel and Sub-Contractors as a result.</li> </ul>
Environmental Controls	Compliance with site management rules
Monitoring	n/a

<b>EMP 11</b>	<b>ODOUR CONTROL PROCEDURE</b>
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"> <li>• Control potential odours during excavation by minimising the working surface area and covering with a clean fill as soon as practical</li> <li>• Should putrescent wastes/soils or materials be unearthed during excavation, a deodoriser might be needed to minimise emissions of malodorous gases to the atmosphere</li> <li>• Transport any odourous wastes in covered vehicles.</li> <li>• Ensure sedimentation ponds and drainage systems are functioning correctly to above becoming stagnant</li> <li>• Ensure sanitary facilities are appropriately maintained and Wastewater from holding tanks routinely collected and removed by an appropriate Licensed Contractor.</li> <li>• Ensure wastes are stored correctly in appropriate waste receptacles</li> <li>• Ensure all wastes, in particular food wastes, are removed from site at regular intervals</li> <li>• Ensure all plant is in good working order.</li> </ul>
Environmental Controls	Adherence to odour management measures and site management rules
Monitoring	n/a

Details of Odour Control Procedure to be finalized by Contractor



<b>EMP 12</b>	<b>LIGHT POLLUTION CONTROL MEASURES</b>
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>Where appropriate the following measures will be considered for implementation:</p> <ul style="list-style-type: none"> <li>• Dim or switch off lights where it is safe to do so</li> <li>• Use low lighting equipment where feasible</li> <li>• Use of timers and sensors for switching off lights/ floodlights</li> <li>• Avoid flood lighting in areas adjacent to sensitive nearby receptors</li> <li>• Light shielding will be considered where light glare is a nuisance</li> <li>• Outdoor artificial lighting for site security should 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.</li> </ul>
Environmental Controls	Adherence to light pollution controls and site management rules
Monitoring	n/a

<b>EMP 13</b>	<b>SURFACE WATER MANAGEMENT AND RUN-OFF CONTROL MEASURES</b>
Purpose	Measurements for the control and management of all surface waters associated with the site during construction
Responsibility of Control	Project Contractor
Procedures	<p>Where appropriate the following measures will be considered for implementation:</p> <ul style="list-style-type: none"> <li>• Implement erosion control to prevent runoff flowing across exposed ground and become polluted by sediments;</li> <li>• Intercept and divert clean water runoff away from construction site runoff to avoid cross-contamination of clean water with soiled water;</li> <li>• Implement the erosion and sediment controls before starting site clearance/construction works;</li> <li>• 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;</li> <li>• 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;</li> <li>• 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;</li> <li>• Install appropriate silt control measures such as silt-traps, check dams and sedimentation ponds;</li> <li>• Washout from concrete trucks and plant will not be permitted on site.</li> <li>• Provide recommendations for public road cleaning where needed particularly in the vicinity of drains;</li> <li>• 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;</li> <li>• Develop checklists for weekly Site Audits, which must be finalised by the Appointed Contractor and the relevant Personnel informed of their duties;</li> </ul>
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