CAIRN HOMES

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

Tile 1 - Clonburris, Clondalkin, Co. Dublin

October 22

Contents

Document Review

Date	Revision Number	Detail of Revision	Completed by
20/01/21	01	Creation of Document	JB/FK
06/09/22	02	Creation of Clonburris CEMP	JB/DK
09/11/22	03	Review of CEMP	DK/FK

1. Introduction

1.1 Overview

This Construction Environmental Management Plan (CEMP) has been prepared by Cairn Homes to support the development of Clonburris Tile 1, Clondalkin, Co. Dublin. The Proposed development comprises of the construction of 569 dwellings, a creche, innovation hub and open space in the Clonburris Southwest Development Area of the Clonburris

The proposed 569 dwellings are as follows.

- 173 no. 1 houses comprising 8 no. 2 bedroom houses, 153 no. 3 bedroom houses and 12 no. 4 bedroom houses (147 no.1 dwellings in CSW-S4 consisting of 8 no. 2 bedroom houses, 127 no. 3 bedroom houses & 12 no. 4 bedroom houses & 26 no. 3 bedroom dwellings in CSW-S3); all 2-no. storey comprising semi- all 2-no. storey comprising semi-detached, terraced, end terrace units (with parking and private open space)
- 148 no. duplex apartments/apartments (88 no. in CSW-S4 & 60 no. in CSW-S3) comprising 74 no. 2 bedroom units and 74 no. 3 bedroom units, in 16 no. 3 no. storey buildings. In CSW-S4 Duplex Blocks A,B,C,D,E,F,G,J,K, comprise 8 no. units (4 no. 2 bed & 4 no. 3 bed units), Duplex Block H comprises 16 no. units (8 no. 2 bed & 8 no. 3 bed units); In CSW-S3 Blocks L, N & O comprise 8 no. units (4 no. 2 bed & 4 no. 3 bed units), Block M comprises 14 no. units (7 no. 2 bed & 7 no. 3 bed units), Block P comprises 10 no. units (5 no. 2 bed & 5 no. 3 bed units), Block Q comprises 12 no. units (6 no. 2 bed & 6 no. 3 bed units), all to have terraces/pitched roof;
- 248 no. apartments as follows: within CSW-S4, Block 1 consists of 172 no. apartments (76 no. 1 bedroom, 91 no. 2 bedroom and 5 no. 3 bedroom apartments), in a 2-building arrangement both 6 no. storeys in height. Within CSW-S3, Block 2 (4 storeys) comprises 16 no. 1 bedroom apartments and 22 no. 2 bedroom apartments, Block 3 (4 storeys) comprises 16 no. 1 bedroom apartments and 22 no. 2 bedroom apartments (all apartments to have terrace or balcony).

	1 Bed	2 Bed	3 Bed	4 Bed	Overall
Houses		8	153	12	173
Apartments	108	135	5	0	248
Duplex Apartments		74	74	0	148
Total	108	217	232	12	569
Overall Mix %	18.9%	38.1%	40.7%	2.1%	100%

The proposed innovation hub and open space consists of.

- Provision of an innovation hub (626 sq. m) and creche (c. 547 sq. m) in a part 3/4 storey 'local node' building in CSW-S4.
- Vehicular access will be from the permitted Clonburris Southern Link Street and R113 to the east (along with provision of internal haul routes (for construction) to connect to the R136 to the west)
- Public Open Space/landscaping of c. 4.1 hectares (to include Local Park and MUGA in CSW-S3, Grand Canal Park, along the southern and eastern boundaries of the site to connect to existing

Grand Canal towpath) as well as a series of communal open spaces to serve apartments and duplex units (c. 0.39 ha).

- All ancillary development works including footpaths, landscaping boundary treatments, public, private open space areas, car parking (656 no. spaces) and bicycle parking (672 no. spaces), single storey ESB substations/bike/bin stores, 'Gateway' entrance signage (2 no.), solar panels at roof level of apartments, and all ancillary site development/construction works.
- Permission is also sought for revisions to attenuation permitted under SDZ20A/0021 as well as connection to water supply, and provision of foul drainage infrastructure.

1.2 Purpose

The purpose of this CEMP is to provide an environmental framework to aid and allow site management during all phases of the construction, implementing best practise environmental management on site. Cairn homes will manage and ensure mitigation to all levels of environmental risk onsite which will minimise negative environmental impact during the construction phase of the proposed development. The construction phase will include all site preparation enabling works, material delivery, waste management, engineering works and all construction activities.

This CEMP will outline all requirements with regard to environmental management on site. This will include appropriate mitigation, monitoring, inspecting and reporting of all environmental impact the development has the potential to cause. Compliance with the CEMP will ensure the smooth running of the site and will enable all works to proceed in line with all legislation and bylaws relating to construction activities.

The CEMP has been produced as part of the planning application to ensure compliance with legislative requirements and to implement mitigation measures outlined in the Environmental Impact Assessment Report (EIAR) that has been identified for the proposed development. This document is a live document and will be updated as required if processes and risk associated with the development change during the works. A copy of the most recent version will be available on 'ZUTEC'.

1.3 Approach

This CEPM provides a framework to:

- Outlines the best practise environmental management for this development during the construction phase.
- Identify and Implementation of the mitigation measures identified in the EIAR.
- Identify the relevant roles and responsibilities for all involved in the environmental management of the site for the duration of the construction phase; and
- Outline the procedures for all environmental aspects in relation to communication and reporting throughout the construction phase.

1.4 Structure

This CEMP has been structured as the following:

- Section 1: Introduces the proposed development and outlines the purpose of the CEMP.
- Section 2: Describe in detail the proposed development.
- Section 3: Overview of the main responsibilities and communication procedures through which successful environmental management will be achieved.
- Section 4: Outline the procedures to be employed during the construction phase to manage all environmental impacts; and
- Section 5: Review of environmental impact outlined in the developments EIAR and how all mitigation measures will be implemented throughout the site.

2. Project Description

2.1 Characteristics of the Site

The proposal will comprise of a residential development comprising of 569 dwellings in a mix of houses, apartments and duplex apartments. Along with a 547-sp. meter creche and 646 sq. meter innovation hub as part of a 3 or 4 story 'local node' building. Vehicular access will be from the permitted Clonburris Southern Link Street and R113 to the east, along with provision of internal haul routes for construction use to connect with the R136 to the west, including the provision of internal haul routes (for construction) to connect to the R136 to the west. Across the 2 no. Development Areas, it is proposed to provide some 4.12 hectares of public open space in a series of well-distributed large-scale parks. It is also proposed to provide communal open spaces of some 0.39 hectares.

Figure 2.1 – Main layout development areas.

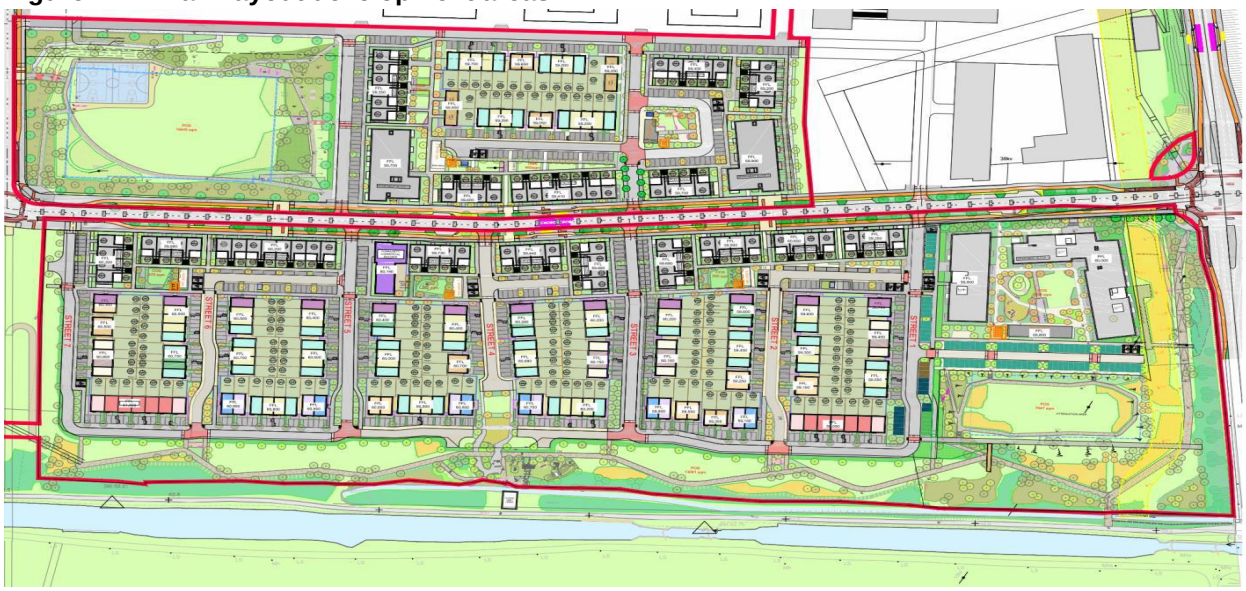


Figure 2.2 – Overall Layout (including Haul Routes)

The existing site is predominately greenfield. Overall, the topography of the subject site is relatively flat. A number of drainage ditches are located throughout the subject site. There are 2 high points on the subject site. One located to the southwest and another to the northeast of the proposed link road.

The subject site is located in the south-eastern section of Clonburris strategic development zone (SZD), forming a section of the Clonburris character area within the Clonburris SDZ. The Clonburris scheme comprises of 280 hectares and is located west of Dublin city centre and the M50 between Lucan, Clondalkin, and Liffey valley. The overall Clonburris SDZ is within the River Liffey Catchment.

The study area affects two primary hydrological sub catchments, the Griffeen & the Camac. The subject site for this development is located within the "Camac" sub catchment. The grand canal is located to the south of the subject area. The river Liffey is approximately 3.8km to the north of the subject site. A canal overflow channel runs alongside the canal towpath north of the canal before re-entering the canal downstream, it does not appear that local drainage connects to this overflow channel.

A small portion of the proposed development is located within the Grand Canal pNHA. Runoff during site works, re- profiling, and the construction of project elements could impact on the Grand Canal pNHA, with potential for water quality impacts.

There are no alien invasive species growing on the site. There are no habitats which are examples of those listed on Annex I of the Habitats Directive or habitats suitable for species listed on Annex I or Annex II of the Birds Directive. No species of conservation importance were noted on site based on NPSW and NBDC records as fine resolution. A data search of rare and threatened species within 10km of the proposed site (GIS shapefile) was provided by NPWS. A Bat Assessment of the proposed development was carried out by Dr Tina Aughney of Bat Eco Services. The report states that "*Five bat species were recorded in total by the array of bat surveys completed for this survey site. Three of the bat species recorded were common pipistrelle, Leisler's bat and soprano pipistrelle and these are the three most common bat species in Ireland.* As per recommendation, three bat boxes will be installed on the site.

With the successful implementation of outlined mitigation measures including a strong and biodiversity enhancing landscape strategy, no significant long-term impacts are foreseen from the construction or operation of the proposed project.

The development includes provision for secure cycle storage. The apartment/duplex blocks will have access to bike stores and the provision is outlined below:

The development will provide a range of open space areas and parks for recreational use. There are two main open spaces identified within the Phase 1 lands. The Local Park 1.56ha and the grand canal park at 2.85ha, totalling to 4.41 ha, accounts for 31% of public open space within the development.

Figure 2.3– Local Park CSWS3

Figure 2.4 – Grand Canal Park

figure 2.5 – Grand Canal Park Eastern Portion

Rural / Urban	Suburban
Area to North of site	River Liffey
Area to South of site	Grand Canal
Area to East of site	Camac / Griffeen
Area to West of site	Dublin City / M50
Rivers in the vicinity	Camac / Griffin / Grand Canal
Any SAC, SPA or NHA in vicinity	Grand Canal adjacent to the site
School, houses, business nearby	Liffey Valley / Retail Park
Known archaeological sites	N/A
Contaminated ground sites	N/A

3. Environmental Management

3.1 Overview

As part of the environmental management for Tile 1 of Clonburris, Dublin, Cairn Homes and all subcontractors will be required to comply with all relevant environmental legislation and adhere to all national guidelines and codes of practice to achieve environmental compliance throughout all phases of the construction phase of the proposed development.

This CEMP will set guidelines to achieve a good environmental performance throughout the construction phase and will outline all necessary steps to mitigate against and monitor all environmental impact highlighted in the EIAR. All Cairn Homes management and subcontractors must review this CEMP to ensure environmental compliance is achieved for all aspects associated with the site.

3.2 Responsibilities

3.2.1 Cairn Homes Leadership Team

The Cairn Homes Leadership Team is ultimately responsible for environmental management within the company and is specifically responsible for:

- Ensuring adequate resources are in place.
- Ensuring the environment is considered as important as all other business functions and that this message is communicated.
- Leading by example and promoting behaviours that support the company's positive environmental culture.
- Setting environmental objectives and targets and reviewing progress towards them.
- Ensuring the environmental management system is implemented across the business, and reviews its performance as required.
- Performing reviews of environmental performance; and
- Reviewing and approving the Environment Policy.

3.2.2 Construction Manager

The site Manager is responsible for environmental performance on all construction projects and is specifically responsible for:

- Defining roles and responsibilities within the development.
- Leading by example and promoting behaviours that support the company's positive environmental culture.
- Reviewing environmental performance of the development.
- Promoting and championing the environment.
- Ensuring adequate resources are in place.
- Taking part in performance reviews as required; and
- Identifying contractors that have a likeminded view of the environment as Cairn Homes when appointing them.

3.2.3 Environmental Project Lead

The Environmental Project Lead is the competent person providing advice on environmental management on all proposed developments and is specifically responsible for:

- Preparing and maintaining the site Construction Environmental Management Plan.
- Providing support to the Leadership Team, H&S Team, site Manager and all required departments within Cairn Homes as required for the completion of the works.
- Providing advice to Site Teams when planning and carrying out work.

- Leading by example and promoting behaviours that support the company's positive environment culture.
- Overseeing the site and works comply with Cairn Homes Environmental Procedures and all required legislation.
- Liaising with the on-site teams to ensure that environmental impacts are identified, and control measures are put in place.
- Performing proactive and reactive monitoring of control measures as required on a site-by-site basis.
- Performing regular audits in order to review compliance with the Company environmental procedures and work specific plans.
- Providing feedback to management team on environmental matters.
- Facilitate communications with the external auditors and regulatory bodies to aid the external environmental audit process.
- Environmental Communications and liaisons with the councils, Cairn Homes Teams and all interested parties.
- Maintain a detailed understanding of current environmental legal requirements applicable to Cairn Homes.
- Maintain documentation of the site/work specific Environmental Management Plans, Waste Management Plans and Environmental Emergency Response Plans; and
- Investigating non-compliance activities, recording findings and ensuring corrective and preventative actions are taken within the agreed timescales.

3.2.4 Health and Safety Officer

The Health and Safety Officer is present onsite in a full-time capacity and is present to ensure all measures outlined in the CEMP are being applied throughout the site. they will be specifically responsible for:

- Providing support to the Environmental Project Lead.
- Providing support to site management to always achieve operational requirements with consideration for environmental controls.
- Conducting site audit and inspections to ensure that site practices comply with the Cairn Homes Environmental procedures.
- Leading by example and promoting behaviours that support the company's positive environment culture.
- Promoting realistic and achievable environment compliant working practices.
- Carrying out environmental monitoring and supporting the preparation of routine reports.
- Providing advice and support in relation to environmental incidents.
- Ensuring that works are carried out in accordance with environmental best practice and current environmental legal and regulatory requirements.
- Attend site meeting "White Board Meeting" and identify any potential risk to environmental receptors.
- Review Method Statement so that all environmental risk is mitigated against.

- Identify in site induction any high-risk environmental receptors for site; and
- Report all environmental complaints to the Environmental Team in a timely manner.

3.2.5 Site Management

Site management is all the construction team that is present on a specific development. All personnel within the construction team are responsible for ensuring that project/site works are carried out in accordance with the site-specific Construction Environmental Management Plan, environmental legal and regulatory requirements and in an environmentally responsible manner. These controls include but are not limited to the following:

- Ensure the Environmental Management System is adhered to Environmental performance within their work area.
- Leading by example and promoting behaviours that support the company's positive environment culture.
- Working collaboratively with the Environmental Project Lead and Health and Safety Officer.
- Record all environmental interaction from the site on the site tracker.
- Reviewing non-compliance activities, ensuring corrective and preventative actions are taken within the agreed timescales.
- Ensuring those under their supervision are aware of their environmental responsibilities.
- Ensuring the importance of environmental compliance is communicated within their area of responsibility.
- Supporting Environmental officer on environmental matters.
- Liaising with the on-site contractors to ensure that environmental management controls are considered.
- Investigating non-compliant activities, recording findings and ensuring corrective and preventative actions are taken within the agreed timescales.
- Participate in the assessment of site-specific environmental aspects and impacts and the stipulation of the appropriate control measures required; and
- Have a clear understanding of the Cairn Homes environmental legal and regulatory requirements.

3.2.6 Sub-Contractors (including Consultants and Specialists)

All Contractors employed by Cairn Homes will be responsible for following all environmental requirements outlined during the Company induction and in the work/site specific Environmental Plans. In addition, all Sub Contractors have a specific duty to:

- Take a proactive role in assessing the Company's Environmental performance and suggesting ways via their manager through which improvements can be made.
- Carry out all works in accordance with the site/work specific Environmental Plans and in an environmentally responsible manner.
- Report all defects in plant, equipment and tools as soon as possible to their immediate supervisor.
- Report any non-compliant environmental acts to their immediate supervisor as soon as possible.

- Report all non-compliant environmental activities to site management; and
- Be aware of actions to be taken in the event of an environmental emergency.

3.3 Communication Procedures

Cairn Homes will take all necessary steps to engage with stakeholders and the surrounding community who may be potentially affected by the construction phase of Tile 1 of Clonburris. Communication with the local community and South Dublin County council must be frequent prior to the commencement of construction works and an appropriate communication level must be maintained throughout the construction phase. Where communications are related to environmental issues, the Environmental Officer will be notified and engaged with.

Cairn Homes will ensure that residents, businesses, general users of the area and relevant stakeholders are notified in advance of construction activities that may affect them.

All notifications will detail the nature, estimate duration and working hours. All notifications will include a project specific contact number to which any enquiries can be directed to and dealt with. Cairn Homes will be responsible for preparing and issuing the notifications.

An emergency contacts list will be established and circulated around all personnel working on site. The contacts list must be placed prominently on site as well as suitable locations where construction activities are ongoing. This contacts list must include key environmental representatives that may need to be contacted in the case of an environmental incident.

Site Contact Details	
Site Manager	Gerry O'Reilly – Houses (086 - 1742760) Mark Curran – Apartments (086 - 0608423)
Contracts Manager	Sean Ferguson (086 - 4410361)
Site Foreman	TBA
Environmental Officer	Dawn Keegan (086 - 0119846)
Environmental Manager	Francis Kelly (086 - 6080594)
Health and Safety Manager	Derek Roche (087 - 7370267)
Health and Safety Officer	David Allen (086 - 8891072)

3.3.1 Enquiries & Complaints

Cairn Homes will need to establish a process for handling all enquiries and complaints. All enquiries must be recorded and logged and include a detailed response and action taken. This log will be available upon request for South Dublin County Council and relevant stakeholders and Cairn Homes personnel. All complaints and enquiries must be dealt with in a swift manner.

All Cairn Homes environmental personnel must be notified of any complaints and queries that have been raised. Where necessary, Cairn Homes environmental representatives will be responsible for notifying South Dublin County Council and relevant stakeholders if a complaint is made.

3.3.2 Site Specific Controls

- Project specific significant environmental aspects and impacts and associated control measures shall be communicated to Sub-Contractors and the Site Manager during induction and site-specific training prior to commencement of works.
- Details relating to significant project environmental aspects and impacts associated control measures may be communicated to current or potential clients. All information provided to clients must be reviewed by the Environmental Coordinator, prior to despatch to ensure accuracy.
- Other environmental information may be submitted to clients as required.
- An Environmental Alert may be initiated as a result of one of the following:
    - A change in the Environmental policy.
    - A change in Environmental legislation.
    - Following an environmental incident.
- All persons working for or on behalf of Cairn Homes shall be trained in relation to actions to be taken in the event of an environmental emergency as per Emergency Procedure identified below in Section 6.1
- Prior to commencement of subcontract work for Cairn Homes, the sub-contractors are requested to agree to all contract requirements as detailed In Pre-Start meetings and correspondence.
- Sub-Contractors are made aware of the Environmental Policy, Procedures and associated environmental control measures at site prestart meeting and site inductions; and
- Additional Environmental awareness information in relation to persons working for and on behalf of Cairn Homes shall be addressed during regular Toolbox Talks and Environmental Alerts.

4. Environmental Management Procedures

4.1 Training, Awareness and Competence

Cairn Homes will be required to employ personnel with appropriate qualifications, skills and experience necessary to carry out all necessary works during the construction phase. A baseline level of environmental awareness must be established amongst Cairn Homes staff and with all subcontractors before the commencement of any works. The Cairn Homes induction will identify high

level waste management for the site works. Key site-specific environmental considerations will be identified in the site-specific induction for site and will be incorporated into all aspects of construction works if they have the potential to negatively affect the surrounding environment.

Site briefings and talks will be carried out on a regular basis to ensure that construction staff are aware of site progress and if there are any potential environmental issues associated with such progress.

4.2 Environmental Monitoring

Environmental mitigation and monitoring will be carried out in accordance with legislative requirements, best practice and in line with the site EIAR so that construction activities are carried out in a manner that does not have a negative environmental impact. Suitable monitoring will need to be carried out in accordance with planning requirements and the advice from a hired external specialist consultant (where required for works) and in accordance with the specifications outlined in the site CEMP.

The results of all environmental monitoring will be reviewed by the Environmental Officer and saved in the correct site-specific folder on *'ZUTEC'.* This will enable the Environmental Officer to monitor site performance, foresee trends of exceedances and enable corrective actions as necessary. Reports will be issued as required for compliance with site requirements, external bodies or senior management.

4.3 Environmental Inspections

Environmental Inspections will be carried out onsite as required for the works and will be monitored daily by all Cairn Homes site teams. This will be incorporated in their daily site walks and review with all issues identified to be closed out. External audits are carried out on Cairn Homes sites on a monthly basis, and this is incorporated into the environmental review of the site. Depending on the site, a specific number of environmental inspections may be required to ensure all mitigation measures on site are being effectively implemented and maintained. The routine inspections will be appropriately documented by the personnel appointed to carry out the environmental inspection. All records will be stored on '*ZUTEC*' and be easily accessible to Cairn Homes management and stakeholders.

Depending on the potential risk and nature of the monitoring required on site, a site environmental audit may be carried out by an external specialist consultant on a monthly basis to review the implementation of all mitigation measures present on site. The consultant will be required to provide a list of areas to improve upon which the Environmental Officer will be responsible to manage and oversee.

The requirements for an Environmental Consultant will be identified by Cairn Homes, and where required, employed for such works.

4.4 Incident Response

Corrective actions are measures that must be implemented if there is a non-conformance/exceedance on environmental criteria. If this is the case on site, an investigation must be carried out by the Environmental Project Lead to identify the cause of any non-conformances. Appropriate actions must be taken to enable compliance with environmental criteria to limit further exceedances. Where new measures are implemented, the CEMP will be updated accordingly.

4.5 Environmental Incidents

Environmental incidents are an occurrence of an incident that gives rise to potential significant negative environmental effects on site. All environmental incidents no matter how small must be reported to Cairn Homes site management as soon as is reasonably practicable. Examples of environmental incident include but are not limited to:

- Circumstance with the potential for environmental pollution/runoff.
- Emergencies that give rise to environmental effects such as spillages.
- Malfunction of site environmental mitigation measures/protection systems; and
- Fuel / Oil or chemical spillage.

4.6 Spill Control

Every effort will be made by Cairn Homes and subcontractors to limit spill incidents on site associated with fuel/oil or chemicals. The following steps will provide an outline on how to respond to an oil/fuel spillage on site:

- Identify and stop the source of the spill and alert all personnel working in the vicinity.
- The Environmental Officer must be informed about the spillage so appropriate action can be taken.
- Eliminate any source of ignition if applicable to the spill.
- Contain the spill using the correct spill control measures.
- Cover/bund off any vulnerable areas that are in the vicinity.
- Clean up as much as possible using the correct spill control measures; and
- Appropriate stakeholders must be informed (Local Authority, EPA, Department of Communications, Climate Action and Environment and National Parks and Wildlife Services).

All environmental incidents must be appropriately investigated, recorded and reported by the Environmental Officer and all necessary site-specific Cairn Homes personnel must be notified.

4.7 Environmental Records

Cairn Homes is responsible for maintaining easily accessible environmental records which includes monitoring, test results and environmental plans. All records must be kept up to date on *'ZUTEC'* and made available for routine audits and inspections. Cairn Homes will maintain the following environmental records which will be made available to relevant stake holders and relevant Local Authorities:

- Construction Management Plan.
- Monthly environmental reports.
- Record of environmental incidents.
- Register of environmental complaints.
- Environmental inspection checklist/reports.
- Easily accessible monitoring figures.
- Waste trackers/figures.
- Excavated material trackers; and
- Health and safety records.

5. Environmental Management (Clonburris Tile 1, Co. Dublin)

5.2 Overview

Cairn Homes is aware of its responsibilities to prevent, reduce and mitigate any potential environmental impact that may arise during the construction phase of future developments. Cairn Homes is liable to carry out best practise environmental management across all sites ensuring all environmental legal and regulatory requirements are adhered to from day one of construction. This CEMP will set guidelines to achieve a good environmental performance throughout the construction phase and will outline all necessary steps to mitigate against and monitor all environmental impacts highlighted in the site specific EIAR.

This section will outline the main environmental requirements identified in the EIAR for Tile 1 of , Clonburris Co. Dublin, and the Ecological Impact Assessment Report, Natura Impact Statement, Bat Survey Report, Bird report, Noise & Vibration Report & Air Quality and Climate Report for Tile 1 of the Clonburris Co. Dublin site.

It must be noted that the contents of this section provide a summary of the minimum requirements that should be implemented throughout the site during the duration of the construction phase. All measures highlighted must be discussed with relevant Cairn Homes personnel in order to support the identification of environmental issues associated with the site.

A summary of all environmental plans (Waste Management, Dust Minimisation/Noise Vibration Management Plan etc.) will be included in this section to provide a baseline understanding of the mitigation measures required on site.

5.3 Population and Human Health

Population and Human Health refers to the surrounding community who may be adversely affected by the construction phase of Tile 1 - Clonburris Co. Dublin Cairn Homes will take all the necessary steps to engage with stakeholders prior to commencement to construction works and create an appropriate communication level throughout the construction phase.

*Cairn Homes is responsible for implementing the following mitigation measures in relation to the impact on population and human health caused by **Dust** nuisance during construction phase of this development.*

- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and / or windy conditions.
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph, and on hard surfaced roads as site management dictates.
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- During movement of materials both on and off-site, trucks will be stringently always covered with tarpaulin. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

*Cairn Homes is responsible for implementing the following mitigation measures in relation to the impact on population and human health caused by **Noise & Vibration** nuisance during construction phase of this development.*

- Site compound will be in excess of 30m away from sensitive receptors within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Selection of quiet plant/location of plant; plant which will have the least impact in terms of noise will be selected.
- Plant will only be left running during works and will be switched off at all other times. Plant will not be left idling.
- Hours of work - all construction related works, other than emergency works and security will be carried out during normal construction working hours.

- Works will not be undertaken outside of normal working hours without the written permission of the local authority; and
- Provision of a 2m hoarding around the site.

*Cairn Homes is responsible for implementing the following mitigation measures in relation to the impact on population and human health caused by **Construction Traffic** during construction phase of this development.*

- Signage will be displayed in the adjoining areas directing the heavy plant and deliveries to the site entrance.
- Signage will be erected on the outside of the site entrance gates and on the public road approaching the site entrance.
- Signage will be displayed in accordance with section 7 – Safety at Roadworks and in accordance with the traffic management plans prepared in advance of any road works outside the site boundary.
- The site access points will be clearly highlighted for public vehicular and pedestrian traffic.

5.4 Biodiversity

This section refers to the proposed developments in Tile 1 - Clonburris Co. Dublin potential impact on the surrounding environment with a focus on biodiversity. This section gives an insight into the baseline receiving environment and focusses on the flora and fauna found near the site or are found on site at present. Here the predicted impacts will be scoped out with mitigation measures recommended before works commence on site and throughout the construction phase.

Cairn Homes is responsible for implementing the following mitigation measures in relation to biodiversity during construction.

- *Habitat Loss – Mitigate by replacement.*
    - The new development will include landscape planting with a range of native and non-native species. Although a high value, category A tree is not directly replaceable in the short or medium-term, the site will retain its biodiversity value due to this compensation planting.
- *Mortality to animals during construction – Mitigate by avoidance.*
    - The removal of treeline and scrub vegetation must not take place between March to August

The following measures must be taken from the bat survey report:

- A Phase 2 PBR assessment is recommended prior to felling and a felling plan should be undertaken in consultation with the tree surgeon.
- Pollution during construction – mitigation by reduction
- Bat boxes to be implemented as per recommendation.
- Pre – construction survey.

There is a 30m buffer zone. The buffer zone lies between the southern carriageway within the development, extending to the grand canal. This ensures the risk of adverse health impacts on the biological communities on the site are of low risk.

5.5 Land and Soils

This section refers to the geological and hydrological impacts associated with the proposed development during the construction and operational stages. A detailed description of the existing geological and hydrological environment will be provided in the EIAR, and details of the potential impacts associated with the construction and operational stage will be assessed. Cairn Homes has developed an in-depth Excavated Material Management Procedure that will be used for guidance across all sites. This plan will provide a basis to track and trace all excavated materials leaving Cairn Homes sites. The plan will help prevent waste by planning for excess soil and stone material to be used onsite or as a by-product and not discarded as waste unless it is necessary to do so.

In order to prevent/minimise potential significant impacts to soils, surface water and groundwater, a number of mitigation measures will be adopted as part of the construction works on site. The main areas of potential impact and mitigation measures are set out below:

- Control of soil excavation and fill placement works.
- Fuel and chemical handling, transport and storage.
- The use of lime, concrete and cement during foundation construction.
- Surface water runoff during the construction phase.
- Sources of fill and aggregates for the project.
- Temporary storage of soil will be carefully managed in such a way as to prevent potential negative impact on the receiving environment.
- Spoil and temporary stockpiles including stone stockpile areas will be positioned in locations which are distant from drainage systems and retained drainage channels, away from areas subject to flooding so as not to cause potential run off to soil and groundwater.
- Minimise movements of materials within the stockpiles in order to reduce the degradation of the soil structure.
- Designating a bunded storage area at the contractor's compound for all oils, solvents and paints used during construction. All containers within the storage area will be clearly labelled so that appropriate remedial action can be taken in the event of a spillage. When moving drums from the bunded storage area to locations within the Proposed Development a suitably sized spill pallet will be used for containing any spillages during transit.
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area which will be away from surface water gullies or drains. Spill kit facilities will be provided at the fuelling area in order to provide for accidental releases or spillages in and around the area. Any used spill kit materials will be disposed of as hazardous waste using a hazardous waste contractor.
- Ready-mixed concrete will be brought to the Clonburris Co. Dublin site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will

include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil; and
- The pouring of concrete will take place within a designated area to prevent concrete runoff into the soil/groundwater.
- Stripping of topsoil will be backfilled in a timely manner in order to reduce rock exposure.

5.6 Water

This section refers to the hydrological impacts associated with the proposed development. A detailed assessment of the existing hydrological environment will be included in the EIAR, and details of the potential impacts associated with the construction phase and operational phase will be included.

During the construction phase, the mitigation measures will ensure that no sediment contamination, contaminated runoff or untreated wastewater will enter watercourses on or near the site. Drains carrying high sediment load will be diverted through settlement ponds. Surface water runoff from working areas will not be allowed to discharge directly to the local watercourses. To achieve this, the drainage system and settlement ponds should be constructed prior to the commencement of major site works.

- Excavations will only remain open for the shortest possible time to reduce groundwater ingress silt traps will be placed around the site to reduce silt loss and these will be inspected and cleaned or replaced regularly.
- Runoff from spoil heaps will be prevented from entering watercourses by diverting it through the on-site settlement ponds and removing material off-site as soon as possible to designated storage areas.
- Stockpiles of earth are sealed and bermed onsite.
- There is to be no storage of any fuel types within 10m of river or drain.
- All fuel is to be bunded and drip trays used during re-fuelling; and
- Spill kits to be present in machines onsite.
- Bunds and drains kept clean.
- Ground level water monitoring.
- Wash out area for bins and concrete mixers >50m away from a watercourse.
- 30 m buffer installed on site running adjacent to drain on site.

5.7 Air Quality and Climate

This section provides the measures that shall be implemented during the construction and operational phase and into the design of the development to minimise the impacts on the receiving environment, local population and human health, livestock and agricultural lands, local flora and fauna, local businesses and on climate.

"*Cairn Homes is responsible for implementing the following mitigation measures in relation to Air Quality and Climate during construction.*

- Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.
- Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and / or windy conditions.
- Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.
- Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph, and on hard surfaced roads as site management dictates.
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- During movement of materials both on and off-site, trucks will be stringently always covered with tarpaulin. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.

5.8 \Noise and Vibration

This section provides an understanding of the control of noise levels within with the site before works commence. Site wide mitigation measures may be required with regular monitoring during the construction phase also.

Cairn Homes is responsible for implementing the following mitigation measures in relation to noise and vibration during construction.

- Site compound will be in excess of 30m away from sensitive receptors within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- Selection of quiet plant/location of plant; plant which will have the least impact in terms of noise will be selected.
- Plant will only be left running during works and will be switched off at all other times. Plant will not be left idling.
- Hours of work - all construction related works, other than emergency works and security will be carried out during normal construction working hours.
- Works will not be undertaken outside of normal working hours without the written permission of the local authority; and
- Provision of a 2m hoarding around the site.
- Noise and Vibration monitors near pre-existing residential units.

Or *"No mitigation measures are required during the construction of the proposed development with regard to noise and vibration".*

5.9 Landscape and Visual

The measures proposed revolve around the implementation of appropriate site management procedures – such as the control of site lighting, storage of materials, placement of compounds, delivery of materials, car parking, etc. Visual impact during the construction phase will be mitigated somewhat through appropriate site management measures and work practices to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish.

The primary proposed mitigation measures in relation to landscape are as follows:

- Site hoarding will be erected around the site boundary creating a boundary between the site and public view.
- To ensure the successful retention of trees and hedgerows, an Arborist is recommended to be retained by the contractor or developer to monitor and advise any works within the Root Protection Zones of retained trees.

5.10 Traffic and Transportation

Cairn Homes is responsible for implementing the following mitigation measures in relation to traffic and transportation during construction.

- Signage will be displayed in the adjoining areas directing the heavy plant and deliveries to the site entrance.
- Signage will be erected on the outside of the site entrance gates and on the public road approaching the site entrance.
- Signage will be displayed in accordance with section 7 – Safety at Roadworks and in accordance with the traffic management plans prepared in advance of any road works outside the site boundary.
- The site access points will be clearly highlighted for public vehicular and pedestrian traffic.

5.11 Waste Management

Cairn Homes is required to implement the following in relation to waste management on site during construction. All waste generated on site must be tracked and traced on a monthly basis and uploaded onto the site-specific folder on *'ZUTEC'*. All measures in relation to waste management can be found in the Waste Management Plan (Appendix 6.2).

- Waste materials generated will be segregated on site, where it is practical. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source.
- All waste receptacles leaving site will be covered or enclosed.
- Panda Waste Ltd. Will be responsible for removing all waste generated by Cairn Homes.
- All soil will be screened and segregated as per composition. Tests will be carried out to indicate soil composition for the site. It is proposed to re-use as much of the excavated material as if scientifically and structurally possible.
- When material is to be removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Article 27 of the *European Communities (Waste Directive) Regulations 2011.*
- Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27.
- If the material is deemed to be a waste, then removal and reuse/recycling/ recovery/disposal of the material will be carried out in accordance with the *Waste Management Acts 1996 – 2011* as amended, the *Waste Management (Collection Permit) Regulations 2007* as amended and the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended.
- Where silt and petrochemical interception are required, silt and sludge waste arisings will be collected by a suitably permitted contractor and removed offsite to a suitably authorised facility.
- Most concrete blocks, bricks, tiles and ceramics generated as part of the construction works are expected to be clean, inert material and should be recycled, where possible.
- As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. All recyclable plastic will be segregated and recycled, where possible.
- Timber that is uncontaminated, i.e., free from paints, preservatives, glues etc., will be disposed of in a separate skip and recycled off-site.
- Metals will be segregated, stored in skips and recycled where possible.
- Plasterboard from the construction phase will be stored in a separate skip, pending collection for recycling.
- Glass materials will be segregated for recycling, where possible.
- Any Waste Electrical & Electronic Equipment will be stored in dedicated covered cages/receptacles/pallets pending collection for recycling.
- Where any other recyclable wastes such as cardboard and soft plastic are generated, these will be segregated at source into dedicated skips and removed off-site.
- C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, a member of the waste team will inspect the skip to determine if recyclable materials were accidentally placed in there by mistake.
- On-site storage of any hazardous wastes produced (i.e., contaminated material if encountered and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis; and

- All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project Waste Manager.

5.12 Other

5.12.1 Archaeology

All topsoil stripping onsite is to be monitored by an archaeologist. The following is to be adhered to for the completion of the works:

- Preliminary digging is to be carried out in a controlled manner and requires monitoring.
- Any archaeological evidence must be conveyed to the national museum of Ireland; and
- No archaeological artefacts etc. to be removed from site.

5.12.2 Storage of Fuels and Materials

The following rules apply to site for storage of fuel and chemicals:

- All Jerri cans, water containers & hazardous liquid containers to be labelled.
- Jerri cans to be stored in an upright secure position.
- Jerri cans / hazardous liquids to be stored on drip trays or bunds when not in use.
- Ensure all materials are stored to prevent damage, deterioration & loss.
- Ensure the area is always tidy and free from litter.
- Ensure plant is in good working condition. No evidence of leaks / spills.
- Drip trays to be used when refuelling all plant / machinery.
- Always use a spout or funnel when refuelling with a Jerri can.
    - Fuel Bowsers:
        - All fuel bowser to be double skinned and have bunds attached.
        - Care will be taken when refuelling with the bowser.
        - The drip tray provided will be used when refuelling.
        - The hose will be replaced back into the bund after use; and
        - Please note the spill kit for the bowser is in the stores nearby.

6. Appendix

6.1 Environmental Emergency Response

Project Name:	Clonburris Tile 1		
Contract/Project Manager	Brian Heverin (086 0458259)	**Site Manager:**	Gerry O Reilly
Date and version of plan:	November 2022	**Person responsible for plan:**	Dawn Keegan (086 0119846)

Summary of Activities

The works involved the construction of 569 residential units to incorporate both high- and low-density build.

DEFINITIONS	
Incident	An unplanned event which includes loss, damage or pollution.
Near Miss/Hazard	An unplanned event which does not cause environmental pollution or damage but could have or has the potential of doing so.

Site Specific Instructions:

1. The CWMP includes controls for potential environmental receptors on site.
2. All potential environmental receptors will be identified to site team and contractors at site induction
3. All incidents to be reported to Cairn Homes site Management immediately on happening
4. All fuel storage area to be double bunded and have crash protection in place
5. Concrete wash areas are sealed, and all water is pumped to sediment tank before been discharged off site.
6. All water must pass through the sediment tank before being discharged off site.
7. Stockpiles of earth are to be sealed and have berms erected on the boundaries to prevent excess runoff and deterioration of soil
8. There is to be no storage of **any** fuel types within 10M of any drains.

Incident Management

As soon as the incident occurs/ has been dealt with and all measures have been put into place to protect the team, the public and the surrounding environment, the Cairn Homes Environmental Project Lead must be contacted to report the incident that has occurred.

Reporting of Incident

NOTE: If any advice or assistance is needed call the Environmental Project Lead Dawn Keegan on 086 011 9846 or Environmental Manager Francis Kelly on 086 608 0594.

	Identify the Incident that has occurred
	identify the measures that have been taken to control the incident
	Even where the incident has been fully and successfully dealt with, the Project /Contract Manager must notify the Environmental project lead as soon as practicable possible.
	In the event of a significant Emergency Cairn Homes Environmental project lead will notify the Environmental Health and Safety Manager immediately. The notification will be by phone call or text message as soon as possible.

	The Environmental Health and Safety Manager shall also notify the appropriate Regulatory Authorities.
	This Emergency Response Plan must be relayed to all site staff and must be posted on the main site office / yard notice board.

EMERGENCY ASSISTANCE	
The Project /Contracts Manager will contact the following (as required) in the event of an emergency:	
Emergency Contact	**Contact Number**
Fire Brigade/Gardaí/Ambulance	**999 or 112**
ESB Emergency Service	**1850 372 999**
Gas Networks Ireland Emergency Service	**1850 205 050**
Health and Safety Authority	**01 614 7000**
Health and Safety Manager	
Environmental Project Lead	
Site Health and Safety Officer	
Spill Response and Pollution Control - Rilta	**01 4018 000**
EXAMPLE: ENVIRONMENTAL INCIDENT (loss, damage or pollution)	
Fuel /hazardous liquid material spill to ground / water	
Contaminating general waste with hazardous waste (egg aerosols / oily rags)	
Excessive dust from road cutting (not using water suppression)	
Excessive noise causing disturbance / complaints	
Black smoke emitting from plant / machinery	
Damage to trees / tree roots	
EXAMPLE: NEAR MISS/HAZARD (event which does not cause pollution or damage, but could have done)	
Fuel container tipping over but not spilling its contents	
A missing sign from a skip / bin	
Not having a tree fenced off when carrying out works in close proximity	
Excessive mud on a roadway	
Pumping water from site with no control measures in place	
Fuel containers not stored on a drip tray	
Not having a spill kit onsite / in the team van	
Over hanging branches in the vicinity of works	
Fuel / water containers without labels	
Discovering unidentified contaminated land	
Discovering an invasive plant species e.g. Japanese Knotweed	

6.2 Waste Management Plan

PROJECT OVERVIEW

1. LOCATION:

This Waste Management Plan (WMP) has been prepared by Cairn Homes to support the development of housing located at Tile 1 - Clonburris Co. Dublin. The subject site is located in the south-eastern section of Clonburris strategic development zone (SZD), forming a section of the Clonburris character area within the Clonburris SDZ. The Clonburris scheme comprises of 280 hectares and is located west of Dublin city centre and the M50 between Lucan, Clondalkin, and Liffey valley. The overall Clonburris SDZ is within the River Liffey Catchment.

The main points of contact relating to waste management on site are:

- Brian Heverin (Site manager) +353 86 0458259 Brian.heverin@cairnhomes.com
- Dawn Keegan (Environmental Officer): +353 86 0119864 / dawn.keegan@cairnhomes.com
- Francis Kelly (Environmental Manager): +353 86 6080594 / francis.kelly@cairnhomes.com

Panda Waste will be responsible for the removal of all waste types produced during the construction phase of the project. Panda's Waste Collection Permit number is NWCPO-13-11193-06. There will be no waste processing on site throughout the construction phase of this project. See Appendix 8.1 for the Waste Acceptance Letter issued by Panda Waste Ltd.

Facility Name	EPA License Number
Ballymount	W0039-02
Beauparc	W0140-05
Cappagh	W0261-02
DCC MRF	W0238-01
Fassaroe	W0053-03
Gorey	W0220-01
Greenogue	W0188-01
IPR	W0263-01
Limerick	W0082-03
Littleton	W0249-01
Millennium Park	W0183-01
Sarsfield Court	W0136-03
SDCC Baling Station	W0003-03
Sligo	W0058-01
Waterford GES	W0177-03
Waterford WUS	W0116-02

Table 1 Panda Waste Facility License Numbers

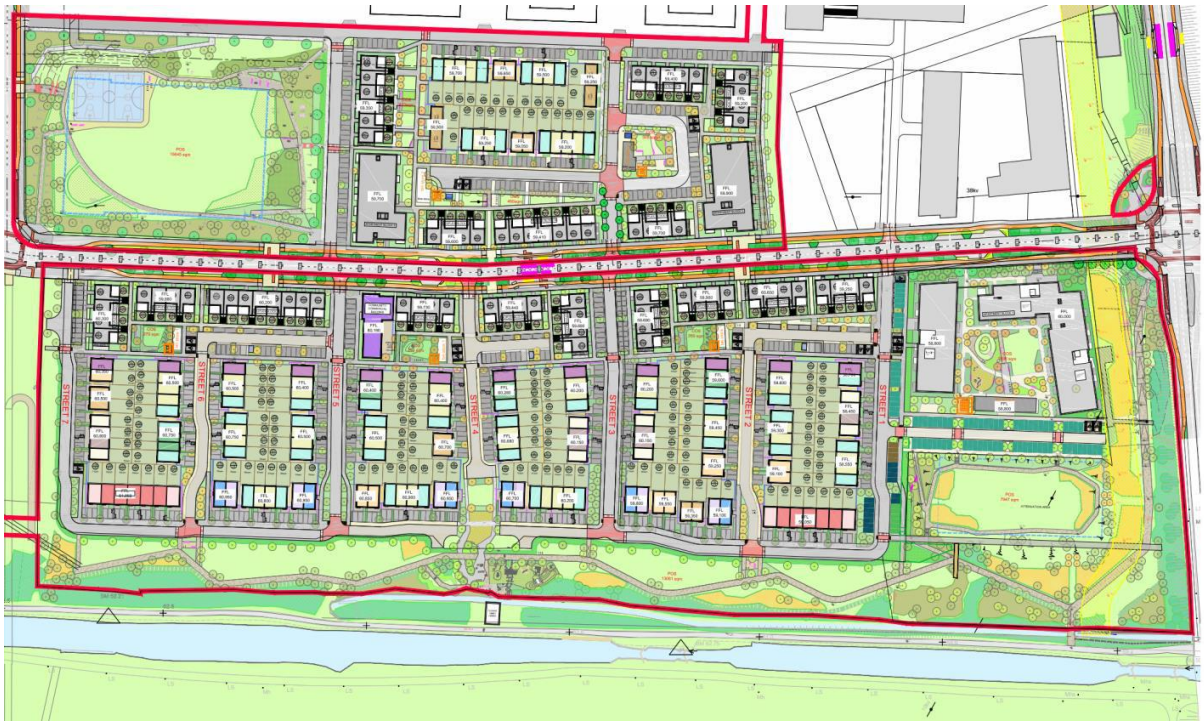


Figure 1- Tile 1 - Clonburris site, Dublin.

2. NATURE OF PROJECT:

The Proposed development comprises of the 569 no. dwellings in a mix of houses, apartments and duplex apartments, along with a creche, innovation hub and open space in the Southwest Development Area of the Clonburris

The proposed 569 no. dwellings are as follows:

- 173 no. 1 houses comprising 8 no. 2 bedroom houses, 153 no. 3 bedroom houses and 12 no. 4 bedroom houses (147 no.1 dwellings in CSW-S4 consisting of 8 no. 2 bedroom houses, 127 no. 3 bedroom houses & 12 no. 4 bedroom houses & 26 no. 3 bedroom dwellings in CSW-S3).
- 148 no. duplex apartments/apartments (88 no. in CSW-S4 & 60 no. in CSW-S3) comprising 74 no. 2 bedroom units and 74 no. 3 bedroom units, in 16 no. 3 no. storey buildings. In CSW-S4 Duplex Blocks A,B,C,D,E,F,G,J,K, comprise 8 no. units (4 no. 2 bed & 4 no. 3 bed units), Duplex Block H comprises 16 no. units (8 no. 2 bed & 8 no. 3 bed units); In CSW-S3 Blocks L, N & O comprise 8 no. units (4 no. 2 bed & 4 no. 3 bed units), Block M comprises 14 no. units (7 no. 2 bed & 7 no. 3 bed units), Block P comprises 10 no. units (5 no. 2 bed & 5 no. 3 bed units), Block Q comprises 12 no. units (6 no. 2 bed & 6 no. 3 bed units), all to have terraces/pitched roof;248 no. apartments as follows: within CSW-S4, Block 1 consists of 172 no. apartments (76 no. 1 bedroom, 91 no. 2 bedroom and 5 no. 3 bedroom apartments), in a 2-building arrangement both 6 no. storeys in height. Within CSW-S3, Block 2 (4 storeys)

comprises 16 no. 1 bedroom apartments and 22 no. 2 bedroom apartments, Block 3 (4 storeys) comprises 16 no. 1 bedroom apartments and 22 no. 2 bedroom apartments (all apartments to have terrace or balcony).

3. PROJECT AIM

At Cairn Homes, we are committed to implement the Cairn Homes Environmental Plan and the Site Waste Management Plan (SWMP) so that it is effective, accurate and economical and ensure that the procedures put into place are working and are maintained. All waste generated from the project will be produced and disposed of in line with ENV-CH-001 Waste Management Procedure.

4. MANAGEMENT

The Site Manager is the SWMP co-ordinator of the project and as such is responsible for overseeing the SWMP and instructing the workers on following the SWMP. They will monitor the effectiveness and accuracy during the routine site visits. All queries in relation to the management of waste re to be co-ordinated with the Cairn Homes Environmental department.

5. DISTRIBUTION

The Site Manager shall distribute copies of this plan to interested parties where relevant/applicable/required. This will be undertaken every time the plan is updated.

6. INSTRUCTION and TRAINING

The Site Manager will provide on-site briefing via instruction of appropriate separation, handling, recycling, reuse and return methods to be used by all parties and at appropriate stages of the Project where applicable. Toolbox talks will be carried out regularly on waste issues and all subcontractors will be expected to attend. This will ensure that everyone feels they are included and that their participation is meaningful.

7. WASTE MANAGEMENT ON SITE

Surplus or waste materials arise from either the materials imported to site or from those generated on site and must be managed as per ENV-CH-001 Waste Management Procedure. Imported materials are those, which are brought to the project for inclusion into the permanent works.

Generated materials are those, which exist on the project site such as topsoil, sub-soil, materials from demolition works etc. that are present on site prior to construction works commencing.

However, there are other considerations to waste management such as waste reduction, segregation of waste, disposal of waste, financial impacts of waste disposal and recording, monitoring, education and reviewing. This plan outlines the processes that have to be implemented on site and are used to demonstrate how they benefit the environment, how we can measure the effects and how these procedures and practices are sustainable.

WASTE MANAGEMENT PLAN

1.0 GENERAL

his Waste Management Plan specifies the procedure for the management, control and disposal of items designated as waste material for the Project. The following is a list of the different categories of materials that will be generated during the project:

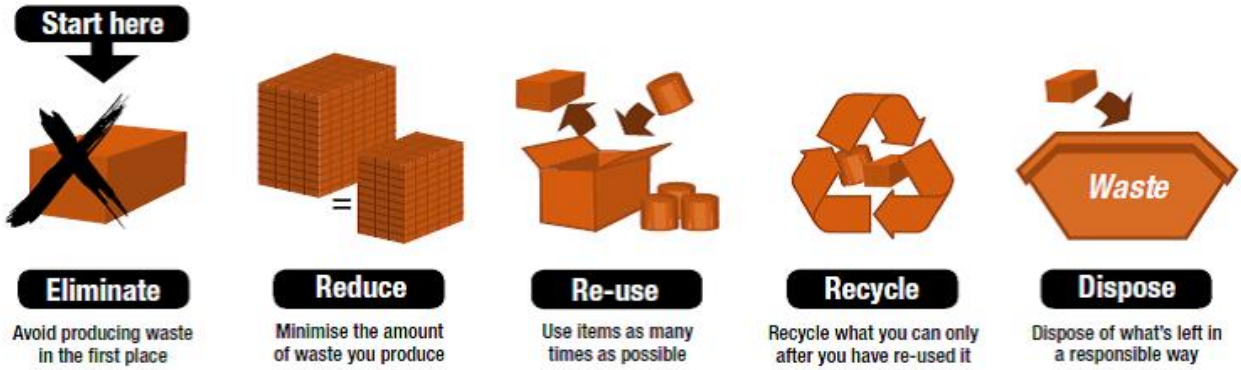
A. Recyclable Materials

B. Waste/Refuse Materials

C. Reusable Materials

The procedures for the management, control and disposal of these items are described in subsequent sections of this plan. All Cairn Homes subcontractors are required to identify, maintain proper control, and provide documentation for the disposal of materials described in this plan. The intention of this plan is to minimize the amount of waste generated on this project to the extents practicable.

The goal for this project is to ensure that maximum volumes of all waste material generated will be recycled, re-used, or otherwise diverted from direct landfill disposal. To accomplish this goal Cairn Homes intends to recycle and reuse as many types of construction material as possible as shown in picture below.



Each subcontractor is required to follow this plan for the disposal of the waste generated by the subcontractor's activity. Waste Management will be on the agenda at construction meeting that Cairn Homes conducts. The waste management activities described in this plan will be maintained until substantial completion has been agreed upon with the Client.

2.0 WASTE MINIMISATION

Cairn Homes is dedicated to maintaining a stringent set of guidelines to control the amount of construction waste and debris disposed in a landfill. Cairn Homes will be responsible for communication between field personnel and subcontractors regarding minimization requirements during internal construction meetings.

An example of waste minimization will be the reuse of topsoil stripped and stockpiled on the site. This significantly reduces the volume of heavy traffic into and out from the site and ensures the materials are reused on site.

2.1 Packaging

All vendors and their suppliers are encouraged to minimize the packaging for materials and equipment. Packing materials should be selected based on whether they can be recycled on this project. This request will be communicated through project meetings.

2.2 Housekeeping

Housekeeping activities must minimize the amount of waste and maximize the amount of recyclable material that can be efficiently gathered at the local collection points and minimise the amount of refuse materials. Cairn Homes will assign housekeeping responsibility to an on-site employee who will oversee and manage the field operations with regards to housekeeping and waste management. Any issues identified by this person will be discussed during internal construction meetings.

No burning of waste permitted. Waste shall not be wind- blown around the site.

All materials stored in secure fashion with containers capped and marked, with spillages controlled immediately using soakage materials.

2.3 Maximizing Product Use

Layout and cutting procedures should be used to minimize the amount of waste materials. Cut-offs and other scrap materials should be reduced on this project to the fullest extent practicable and reused on site where possible. This procedure will be emphasized to all subcontractors during onboarding meeting and contract issuing.

2.4 Materials Management

All material should be stored in weatherproof containers or otherwise protected from contamination and deterioration prior to use. Containers should be opened as needed and work should be sequenced to use materials efficiently and in a timely fashion. This ensures that the material meets the specified requirements and that unused or off-spec product will not become a waste. This procedure will be emphasized to all subcontractors during internal weekly construction meetings.

3.0 LICENSES, PERMITS, FEES, AND TAXES

3.1 All subcontractors working on the Project will be required to maintain and be responsible for all fees, licenses, permits, to comply with Local Regulations and requirements.

3.2 Each subcontractor will identify the hauliers or trucking firms they will be using on this project.

4.0 RECYCLABLE MATERIAL

all material for recycling will be placed in designated containers or Laydown area furnished by Cairn Homes. These containers / areas will be labelled clearly and according to types of material. Material must be stored and handled so it is acceptable to the recycler.

It is proposed that an area shall be designated for all materials to be stored correctly and to reduce environmental impact. General waste skip shall be provided also, for materials designated as not recyclable.

4.1.1 Cairn Homes Skips / Segregated Areas

The location of the containers and pickup/delivery will be coordinated by Cairn Homes site management. Cairn Homes will provide a waste collection point for the development of each housing block.

4.1.2 Pick-up Frequency

All material containers will be hauled on an as needed basis, with coordination required between Cairn Homes and service provider.

4.2 Empty Containers

A container that held any chemical or hazardous material, except a substance identified as an acute hazardous waste, is defined as an empty container if both of following criteria are met:

1. All material has been removed that can be removed using the practices commonly employed to remove material from that type of container, such as pumping, pouring, or aspirating, and

2. No more than 3% by weight of the total capacity of the container remains in the container.

Containers with capacity of 25 litres or less that meet above criteria may be placed in the appropriate recycling container. Empty containers with capacity of greater than 25 litres shall be managed separate from the recycle material collection containers. Those containers shall be marked with words “Empty Container” and staged separate from the recycling collection containers.

Any containers that hold an acutely hazardous substance shall be regarded as and managed as a hazardous waste

4.3 Non- Recyclable or Refuse Materials

All materials designated as not recyclable, or reusable will be considered refuse material. It will be the responsibility of Cairn Homes to load and transport all material identified as refuse to a landfill through a designated Disposal company who shall issue a receipt / certificate of disposal. This material may either be demolition debris or construction waste. Any permits required by the designated landfill site, will be the responsibility of each subcontractor. Cairn Homes will ensure that all procedures are followed.

Personal waste such as papers, food containers, beverage cups, etc. shall be bagged, removed from the site, and properly disposed of by each subcontractor. Alternatively, wheelie bins are provided in the site compound by a licenced waste company these are removed by the licenced contractor as required.

4.4 Measurement of Waste Material

Since the beginning of 2020 Cairn Homes have employed a single contractor for the removal of all site waste going forward. Hauliers of refuse and recyclable/reusable materials must provide weight or volume documentation for all shipments from the project site. If methods other than weighing are used, the proposed method of generating the weight must be approved (for example: density, volume estimation). The register below will be used on site as a tracker to record the movement of waste from the site, in accordance with Cairn Homes Waste Management Procedures. The contractor will provide monthly returns of site waste been removed.

Date of Collection	Haulier	Collection Permit No.	Vehicle Reg.	Source Site	Destination Site	Docket No.	Waste Type	EWC	Quantity (tons)

5. WASTE ARISINGS AND PROPOSALS FOR MANAGING WASTE

5.1 Analysis of Waste Arisings

The main waste stream arisings, including surplus material, which are likely to be generated during the project are presented in Table 1 hereunder:

Waste Type	European Waste Classification Code (EWC)	Waste Classification
Concrete	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 Bitumen / Tarmacadam	17 04 11	Non - hazardous
Surplus Cabling	17 03 02	Non - hazardous
Plastic Pipe Cut-Offs	17 03 02	Non - hazardous
Timber	17 02 01	Non - hazardous
Biodegradable Garden and Park Waste	20 02 01	Non - hazardous
Plastic Packaging	15 01 02	Non - hazardous
Paper and Cardboard Packaging	15 01 02	Non - hazardous
Mixed Municipal Waste	20 03 01	Non - hazardous
Fuel oil and diesel	13 07 01	Hazardous
Asbestos containing material	17 06 05	Hazardous
Waste Adhesives and sealants	08 04 09	Hazardous

Table 2 Main Waste Types and Associated EWC codes

Note:

The selected European Waste Classification (EWC) codes provided are provisional only. In a number of instances more than one EWC may be considered appropriate. Care should be taken to ensure that the waste collectors permit includes all EWC codes specified in the appropriate documentation. In addition, there will be a requirement for a technically competent person to assess waste as it arises and to decide as to the classification of the material in accordance with the Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'. For the purpose of this plan it is assumed that all of the waste arising from the project will be categorised as non-hazardous.

Projected Waste Arising

At this stage of the development the figures provided should be considered as provisional only. However, they do provide an indication as to achievable recycling rates. In the course of the Project, it is estimated that the quantities of Construction waste / materials surpluses will arise as in Table 5.2. The tonnage figures provided are indicative and based on conversion factors (subject to revision).

CONTRACTOR WASTE

Based on the number and sizes of the skips used for each material type and the frequency of the skip removal from the site the following table shows the anticipated waste removal from the site. This is based on the following skips being available on site.

- General waste skip. – 35 cubic yards removed once per week from site.
- Construction material (Silica based) waste skip – 35 cubic yards removed once every 2 weeks.
- Timber waste skip – 35 cubic yards, removed once every 2 weeks from site.
- Plasterboard waste skip – 12 cubic yards removed once per month from site.

Waste Type	Tonnes
Concrete, Bricks, Tiles, Ceramics	920
Plasterboard	215
Timber	215
General Waste – packaging, plastics, etc.	215
Demolition Waste – owing to the removal of building onsite we are unable to quantify this at present	N/A
Total	1670

Table 3 Estimated Waste Arising for disposal after all recycling and reuse of materials has been implemented on site

EXCAVATIONS

Further examination will be carried out to assess whether this material can be reused on site or another site. Excavated material including surplus soils/stones not required for reuse on site will be removed from site by a permitted contractor as appropriate. The material removed from site will be tracked in accordance with the Cairn Homes Waste Management Procedure. All excavated material that is to be removed from site must be carried out in line with ENV-CH-002 Excavated Material Management Procedure.

Proposed Waste Management Options

Waste materials generated will be segregated on site, where practical. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out in line with process outlined in WNV-CH-001 Waste Management Procedure. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. Since 2020 Cairn Homes have a contract with a single waste contractor. All waste being removed from site will be tracked and traced with monthly reports issued indicating the waste removed from sites.

All waste arisings will be handled by an approved waste contractor holding a current waste collection permit. All waste arisings requiring removal off-site will be reused, recycled, recovered or disposed of at a facility holding the appropriate registration, permit or licence, as required.

Some of the sub-contractors on site will generate waste in relatively low quantities. The transportation of non-hazardous waste by persons who are not directly involved with the waste business, at weights less than or equal to 2 tonnes, and in vehicles not designed for the carriage of waste, are exempt from the requirement to have a waste collection permit (Ref. Article 30 (1) (b) of the Waste Collection Permit Regulations 2007 as amended). Any sub-contractors engaged that do not generate more than 2 tonnes of waste at any one time can transport this waste offsite in their work vehicles (which are not designed for the carriage of waste). However, they are required to ensure that the receiving facility has the appropriate COR / permit / licence.

Written records will be maintained by the contractor(s) detailing the waste arising throughout the construction phases, the classification of each waste type, waste collection permits for all waste contractors who collect waste from the site and COR/permit or licence for the receiving waste facility for all waste removed and disposed off-site.

Dedicated bunded storage containers must be provided for hazardous wastes which may arise such as batteries, paints, oils, chemicals etc., if required.

Soils, Sub Soils and Stone

The Waste Management Hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling/recovery, energy recovery (i.e. incineration) and least favoured of all disposals. The excavations are required to facilitate construction works so the preferred option (prevention and minimisation) cannot be accommodated for the excavation phase.

All soil will be screened and segregated as per composition. Tests will be carried out to indicate soil composition for the site as required. It is proposed to re-use as much of the excavated material as is scientifically and structurally possible. All non-reusable soil will be controlled, segregated and disposed of as per legislative requirements.

When material is to be removed off-site there is potential to be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Article 27 of the *European Communities (Waste Directive) Regulations 2011*. Article 27 requires that certain conditions are met and that by-product decisions are made to the EPA via their online notification form. No soil will be moved offsite under an Article 27 until an application has been lodged with the EPA.

The next option (beneficial reuse) may be appropriate for the excavated material pending environmental testing to classify the material as hazardous or non-hazardous in accordance with the EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* publication 13. Clean material may be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use.

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27. Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27.

If the material is deemed to be a waste, then removal and reuse/recycling/ recovery/disposal of the material will be carried out in accordance with the *Waste Management Acts 1996 – 2011* as amended, the *Waste Management (Collection Permit) Regulations 2007* as amended and the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended.

The volume of waste removed will dictate whether a COR, permit or licence is required by the receiving facility. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS). All excavated material that requires further treatment or if the chemical composition of the product is not known must undergo a Waste Acceptance Criteria (WAC) test prior to be removed off site.

Bedrock

The rock stratum occurs at 1800-2000mm depths and will therefore be penetrated in numerous locations for foundations and installation of services. The exposed limestone bedrock surface will be back filled promptly.

Silt & Sludge

Where silt and petrochemical interception are required, silt and sludge waste arisings will be collected by a suitably permitted contractor and removed offsite to a suitably authorised facility.

Concrete Blocks, Bricks, Tiles & Ceramics

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the construction works are expected to be clean, inert material and should be recycled, where possible. If the crushing of concrete is to take place onsite, the appropriate waste permit or certificate of registration will be obtained.

Hard Plastic

As hard plastic is a highly recyclable material, much of the plastic generated will be primarily from material off-cuts. All recyclable plastic will be segregated and recycled, where possible.

Timber

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc., will be disposed of in a separate skip and recycled off-site.

Metal

Metals will be segregated and stored as required. Metal is highly recyclable and there are numerous companies that will accept these materials.

Plasterboard

There are currently a number of recycling services for plasterboard in Ireland. Plasterboard from the construction phase will be stored in a separate skip, pending collection for recycling. The Site Manager will ensure that oversupply of new plasterboard is carefully monitored to minimise waste.

Glass

Glass materials will be segregated for recycling, where possible.

Waste Electrical and Electronic Equipment (WEEE)

Any WEEE will be stored in dedicated covered cages/receptacles/pallets pending collection for recycling.

Other Recyclables

Where any other recyclable wastes such as cardboard and soft plastic are generated, these will be segregated at source into dedicated skips and removed off-site.

Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip/receptacle will be monitored by a member of the site team to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e. contaminated material if encountered and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered, wherever possible, and failing this, disposed of appropriately.

It should be noted that until a construction contractor is appointed it is not possible to provide information on the specific destinations of each waste stream. Prior to commencement of development and removal of any waste offsite, details of the proposed destination of each waste stream will be provided to planning authority as required.

Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project Waste Manager (see Section 6.0).

All movement of waste and the use of waste contractors will be undertaken in accordance with the *Waste Management Acts 1996 - 2011*, *Waste Management (Collection Permit) Regulations 2007* and

Amendments and *Waste Management (Facility Permit & Registration) Regulations 2007* and Amendments. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project waste manager will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR/permit or EPA Waste/IED Licence for that site will be provided to the nominated project waste manager (see Section 7.0). If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and kept on-site along with details of the final destination (COR, permits, licences etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered in a waste management recording system to be maintained on site.

6.0 TRAINING PROVISIONS

The Environmental officer will be appointed as the project waste manager to ensure commitment, operational efficiency and accountability during the construction phase of the project.

6.1 Waste Manager Training and Responsibilities

The Environmental manger will be given responsibility and authority to select a waste team if required, i.e. members of the site team that will aid him/her in the organisation, operation and recording of the waste management system implemented on site. The Environmental Officer will have overall responsibility to oversee, record and provide feedback on everyday waste management at the site. Authority will be given to the waste manager to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

The project Environmental manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site. The waste manager will also be trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site and be knowledgeable in how to implement this C&D WMP.

6.2 Site Team Training

Training of site tram is the responsibility of the waste manager. A basic awareness course will be held for site management to outline the C&D WMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

This basic course will be describing the materials to be segregated, the storage methods and the location of the Waste Storage Areas (WSAs). A sub-section on hazardous wastes will be incorporated into the training program and the particular dangers of each hazardous waste will be explained.

7.0 RECORD KEEPING

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be maintained. A recording system will be put in place to record the construction waste arisings on site. The Project Waste Manager or delegate will record the following:

1. Retain and reconcile full records (both Cairn and contractor) of all movements of project-related waste generated during the construction stage of a project.
2. Document all movements (i.e. haulier, quantity, waste type and final destination) to ensure full traceability and compliance with the required legislation of all material to its final destination.
3. Retain all documentation (electronically), including dockets relating to waste disposal for a minimum period of three years post completion of the project.