PRELIMINARY CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

FOR

(a) DEMOLITION OF EXISTING SERVICES BUILDING

(b) CONSTRUCTION OF A NEW DETACHED SERVICES BUILDING

(c) CONSTRUCTION OF A NEW CARCASS CHILL EXTENSION

(d) BASES FOR NEW SOFT WATER TANK, NEW FIRE FIGHTING TANK, ASSOCIATED HYDRANTS AND GAS TANK

(e) NEW WATER SOFTENING BUILDING

(f) ALL ASSOCIATED SITE WORKS.

FOR

KEPAK KILBEGGAN UNLIMITED CO

AT

ROSTALLA, KILBEGGAN, CO. WESTMEATH

PROJECT NO. 21/02

July 2021

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Table of Contents

Contents

1 INTRODUCTION 1

2 C&D WASTE MANAGEMENT IN IRELAND 2

2.1 NATIONAL LEVEL 2
2.2 REGIONAL LEVEL 3
2.3 LEGISLATIVE REQUIREMENTS 3
2.4 REGIONAL WASTE MANAGEMENT SERVICE PROVIDERS AND FACILITIES ... 4

3 DESCRIPTION OF THE PROJECT 5

3.1 LOCATION, SIZE AND SCALE OF THE DEVELOPMENT 5
3.2 DETAILS OF THE WASTES TO BE PRODUCED 6
3.2.1 Demolition Phase 6
3.2.2 Construction Phase 6
3.3 MAIN C&D WASTE CATEGORIES 6
3.4 ANTICIPATED HAZARDOUS WASTE 7

4.0 ESTIMATED WASTE GENERATED 8

4.1 DEMOLITION WASTE GENERATION 8
4.2 CONSTRUCTION WASTE GENERATION 9
4.3 PROPOSED WASTE MANAGEMENT OPTIONS 11
4.4 TRACKING AND DOCUMENTATION PROCEDURES FOR OFF SITE WASTE ... 13

5.0 NOISE, DUST AND DEBRIS 14

5.1 NOISE 14
5.2 DUST AND DEBRIS 14

6.0 ESTIMATED COST OF WASTE MANAGEMENT 15

7.0 DEMOLITION PROCEDURES 16

7.1.1 CHECK FOR HAZARDS 16
7.2 REMOVAL OF COMPONENTS 16
7.2.1 REMOVAL OF ROOFING 16
7.3 DEMOLITION 16

8.0 TRAINING PROVISIONS FOR WASTE MANAGER AND SITE CREW 17

8.1 WASTE MANAGER TRAINING AND RESPONSIBILITIES 17
9.2 SITE CREW WASTE MANAGEMENT TRAINING 17

9.0 RECORD KEEPING 18

10.0 OUTLINE WASTE AUDIT PROCEDURE 19

10.1 RESPONSIBILITY FOR WASTE AUDIT 19
10.2 REVIEW OF RECORDS AND IDENTIFICATION OF CORRECTIVE ACTIONS 19

11.0 OUTLINE WASTE AUDIT PROCEDURE.....20

11.1 RESPONSIBILITY FOR WASTE AUDIT.....20
11.2 REVIEW OF RECORDS AND IDENTIFICATION OF CORRECTIVE ACTIONS 20

12.0 OUTLINE TRAFFIC MANAGEMENT MEASUERS.....21

14.0 REFERENCES.....25

List of Tables

Table 1 - Waste types and EWC 7

Table 2 - Demolition Waste Generated on a Typical Irish Construction Site 8

Table 3 - On and Off-Site Reuse, Recycle and Recovery Target Rates for Demolition Waste..... 9

Table 4 - Waste Materials generated on a typical Irish construction site..... 10

Table 5 - Predicted Construction Waste Amounts based on a typical construction site 10

1 INTRODUCTION

This Construction and Demolition (C&D) Waste Management Plan (WMP) has been prepared by Hallsfarm Plant Hire Ltd for the (a) demolition of existing services building, (b) construction of a new detached services building, (c) construction of a new carcass chill extension, (d) bases for new soft water tank, new firefighting tank, associated hydrants and gas tank, (e) new water softening building, (f) all associated site works

The purpose of this C&D WMP is to ensure that waste arisings during the construction and demolition phase will be managed and disposed of in a way that ensures the provisions of the *Waste Management Acts 1996 - 2008* and associated Regulations [1] and the Eastern & Midlands Region Waste Management are complied with. It will also ensure that optimum levels of waste reduction, re-use and recycling are achieved.

2 C&D WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Government issued a Roadmap in September 2020, known as " *A Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020-2025"* (Department of the Environment, Climate and Communications). The Waste Action Plan for a Circular Economy sets out a range of aims and targets for the State and the measures by which these will be achieved, including increased regulation and measures across various waste areas such as Circular Economy, Municipal Waste, Consumer Protection and Citizen Engagement, Plastics and Packaging, Construction and Demolition, Textiles, Green Public Procurement and Waste Enforcement. The key targets of this document are:

- Revision of the 2006 Best Practice Guidelines for C&D waste
- Streamline by-product notification and end-of-waste decision making processes
- Working group to develop national end-of-waste applications for priority waste streams

The EPA published in 2021 " Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects "

The EU Waste Framework Directive (Directive 2008/98/EC) set the basic concepts and definitions related to waste management, such as definitions of waste, recycling and recovery. It also included definitions for when waste ceases to be waste and becomes a secondary raw material (end-of-waste criteria) and how to distinguish between waste and by-product. The Directive, enacted in Ireland under the Waste Directive Regulations 2011 (S.I. No. 126 of 2011).

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, as one of the recommendations of the Forum for the Construction Industry, in the Task Force B4 final report. The NCDWC subsequently produced *Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects* in July 2006 in conjunction with the Department of the Environment, Heritage and Local Government [5]. There are threshold criteria set out in the Guidelines to determine whether a C&D WMP is required. The development requires a C&D WMP under the following criterion:

- New developments with an aggregate floor area more than 1,250 m^2.
- Demolition/renovation/refurbishment projects generating more than 100m3 in volume, of C&D waste

The Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. These Guidelines have been followed in the preparation of this document and include the following elements:

- Predicted demolition & construction wastes and procedures to prevent, minimise,
  recycle and reuse wastes
- Waste disposal/recycling of C&D wastes at the site
- Provision of training for waste manager and site crew
- Details of proposed record keeping system
- Details of waste audit procedures and plan
- Details of consultation with relevant bodies, i.e. waste recycling companies, Westmeath County Council where appropriate

Other guidelines followed in the preparation of this report include the "*Construction and Demolition Waste Management - a handbook for Contractors and Site Managers"* published by FÁS and the Construction Industry Federation (2002) [6].

Comprehensive reports regarding the quantities of C&D waste produced in Ireland have been compiled by the Environmental Protection Agency (EPA). *National Waste (Database) Reports* detailing, among other things, C&D generation and the level of recycling, recovery and disposal of this material, provide estimates based on information from waste companies and contractors.

2.2 Regional Level

The proposed development is in the Eastern & Midlands Waste Region which covers the following councils:
Dun Laoghaire-Rathdown County Council
Fingal County Council
Longford County Council
Westmeath County Council
Kildare County Council
Offaly County Council
Louth County Council,
Laois County Council,
Meath County Council,
Wicklow County Council
South Dublin County Council
Dublin City Council
The Eastern & Midlands Region Waste Management plan was published in 2015 and covers the period 2015-2021.

2.3 Legislative Requirements

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996* and subsequent Irish legislation, is the principle of "duty of care". This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal).

Following on from this is the concept of "polluter pays" whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (e.g. for collection and transport of waste).

It is therefore imperative that the owners/managers of the site and any contractors engaged, undertake on and off-site management of waste in accordance with all legal requirements.

Waste contractors are typically engaged to transport waste off-site. Each contractor must comply with the provisions of the *Waste Management Act 1996 (amended 2001)* and associated Regulations. This includes the requirement that a contractor handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur because of any of these activities. A collection permit to transport waste must be held by the relevant contractor, which is typically issued by the local authority where the majority of the contractors business takes place.

Waste receiving facilities must also be appropriately licensed/permitted. Operators of such facilities cannot legally receive any waste, unless in possession of a waste permit granted by the relevant local authority under the *Waste Management (Facility Permit & Registration) Regulations 2007* or a waste licence granted by the EPA. The permit/licence held will specify the type and quantity of waste that can be received, stored, sorted, recycled and/or disposed of at the specified site.

2.4 Regional Waste Management Service Providers and Facilities

Various private waste contractors offer waste collection services across the Southern Waste Region. Details of waste collection permits (granted, pending and withdrawn) for the Region are contained within the Eastern & Midlands Region Waste Management Plan

The Eastern & Midlands Region Waste Management Plan also sets out licensed waste management facilities and landfill sites across the region.

3 DESCRIPTION OF THE PROJECT

3.1 Location, Size and Scale of the Development

The development comprises the following:

- Demolition of existing services building,
- Construction of a new detached services building
- Construction of a new carcass chill extension
- Bases for new soft water tank, new fire fighting tank, associated hydrants and gas tank
- New water softening building,
- All associated site works.

Demolition of Existing Services Building = 95m²

Total area to be demolished: 95m²

3.2 Details of the Wastes to be Produced

An inspection of the site has been undertaken by Hallsfarm Plant Hire Ltd in July 2021. Detailed waste classification will be undertaken on material being exported from the site as part of the site redevelopment and material will be directed to suitably registered waste facilities.

3.2.1 Demolition Phase

The proposed demolition has a floor area of approx. 95m2, and the waste produced will be mostly masonry, stone, mass concrete. The existing steel cladding will be removed and placed in on site metal recycling skips supplied by the client. The masonry, stone, mass concrete waste will be segregated using a riffle bucket & the resultant material used on site to build up levels for the proposed yard area and surfaced with crushed stone.

3.2.2 Construction Phase

During the construction phase there will be some materials excavated/generated to accommodate foundations, paved areas, drainage, services etc., such as soil, stones, clay etc. These materials will be segregated & utilised to raise existing ground/formation to new proposed levels or selected areas of the site can receive these materials & the existing grassed areas landscaped appropriately. It is not planned to remove excavated materials off site. Foreign bodies/materials within soil, stones, clay e.g. wood, plastic, pipes etc will be picked and put in on site skips provided by client.

Broken concrete blocks, mass concrete generated etc will be segregated, crushed on site using a crusher bucket on a large excavator & used as approved selected granular backfill to trenches, low lying areas

Waste from packaging, off cuts will also be generated & these will be segregated and placed in on site skips provided by the client.

3.3 Main C&D Waste Categories

The main non-hazardous and hazardous waste streams that will be generated by the construction and demolition activities at a typical site are shown in Table 3.1. The European Waste Code (EWC) Classification for each waste stream is also shown

Table 1 - Waste types and EWC

Waste Material	EWC
Non-Hazardous	
Concrete, bricks, tiles, ceramics	17 01
Wood, glass and plastic	17 02
Bituminous mixtures, coal tar and tarred products	17 03
Metals (including their alloys)	17 04
Soil, stones and dredged spoil	17 05
Gypsum-based construction material	17 08
Hazardous	
Electrical and Electronic Components	16 02
Batteries	16 06
Wood Preservatives	03 02
Liquid Fuels	13 07
Other construction and demolition wastes containing dangerous substances	17 09 03
Construction Materials containing Asbestos	17 06 05

3.4 Anticipated Hazardous Waste

Presently there have been no hazardous waste materials identified on site. Waste mixtures on C&D sites can sometimes contain dangerous substances classifying the material as hazardous waste. This material cannot be used as fill on sites even if a waste license is held. Disposal can only be undertaken at a licensed hazardous waste facility

4.0 ESTIMATED WASTE GENERATED

4.1 Demolition Waste Generation

Table 2 shows the breakdown of demolition waste produced on a typical construction site.

Table 2 - Demolition Waste Generated on a Typical Irish Construction Site

Waste Types	%
Segregated wood, glass, and plastic	0.3
Concrete, Bricks, Tiles, Gypsum	6.9
Asphalt, Tar and Tar products	1.3
Metals	2.2
Mixed C and D waste	4.5
Soils, Stones and Spoil	84.8
Total Waste	**100**

Based on the demolition area 95m^2 and the above industry standards (Table 2), the amount of demolition waste predicted to be generated for the proposed development was calculated. Table 3 shows the predicted demolition waste that will be generated and indicative targets for the management of this waste on the site.

Table 3 - On and Off-Site Reuse, Recycle and Recovery Target Rates for Demolition Waste

	Total Waste	**Reuse/ Recover**		**Recycle**		**Disposal**	
Waste Types	**tonnes**	**%**	**tonnes**	**%**	**tonnes**	**%**	**tonnes**
Segregated wood	7	0	0	100	7	0	0
Concrete, Bricks,	16	100	16	0	0	0	0
Metals	5	0	0	100	5	0	0
Mixed C and D waste	11	0	0	0	0	100	11
Soils, Stones and Spoil	211	100	211	0	0	0	0
Total	**250**		**227**		**12**		**11**

Actual demolition waste production figures will be calculated prior to work commencing based on survey information for the site, including material types, wall thickness, building heights and depth of foundations.

4.2 Construction Waste Generation

The EPA has produced figures for the C&D waste recorded in the *National Waste Database* [7]. This included a percentage breakdown of waste showing the percentage of each waste type in the C&D stream.

The US EPA has also produced figures for the characterisation of building-related C&D waste [9]. Figures for the C&D waste generated per m^2 in the building industry, for mixed use developments from this study have been used as a waste range per m^2 for this site.

Table 4 shows the breakdown of the C&D waste types (from Irish EPA figures) produced on a typical site.

Table 4 - Waste Materials generated on a typical Irish construction site

Waste Types	%
Soil & Stones	83
Concrete, Bricks, Tiles, Ceramics, Plasterboard	13
Asphalt, Tar and Tar products	1
Metals	1
Other	2
Total Waste	100

Table 5 shows the predicted construction waste generation for the proposed development based on an average large scale development waste generation rate per m^2, using the percentage breakdown of materials as per Table 4.

Table 5 - Predicted Construction Waste Amounts based on a typical construction site.

Waste Types	Waste Tonnes
Soil & Stones	1700
Concrete, Bricks, Tiles, Ceramics, Plasterboard	260
Metals	20
Other	40
Total	**2020**

(Note that until final materials and methods of construction have been decided it is not possible to predict with a high level of accuracy the construction waste that will be generated)

4.3 Proposed Waste Management Options

Waste will be segregated on site. The C&D WSA will have skips and receptacles for all recyclable wastes. The appointed waste contractor will collect and transfer the recyclable wastes as receptacles are filled. The non-recyclable waste will be transferred to landfill. Numerous waste contractors in the Midlands region carry out this operation.

All waste will be stored on site in suitable areas and receptacles.

Bedrock, Blocks and Concrete

Most of the waste C&D material will be clean, inert material and it is proposed to reuse it for construction purposes where possible.

Bedrock was not encountered in any of the boreholes across the site and it is unlikely that bedrock will be encountered during excavations.

Topsoil/ Subsoil

Topsoil and subsoil will be excavated to facilitate construction of the foundations and installation of underground services. Excess inert soils and subsoils excavated that are not required for use as fill on site will be re-used on site.

It is planned that no soil will be removed from the site but if soil is to be removed from the site the soil will be removed and disposed of by contractors licensed under the *Waste Management Act of 1996 (as amended 2001), the Waste Management (Facility Permit & Registration) Regulations of 2007* and the *Waste Management (Collection Permit) Regulations of 2007*. The issuing of such a permit to contractors allows the contractor to use such fill material for landscaping and land reclamation, subject to conditions defined in the Permit.

The site manager will investigate whether nearby construction sites may require fill material, to both minimise the costs of transport and to reuse as much material as possible. During the construction phase any discovered contaminated soil/subsoil (i.e. non-hazardous or hazardous) will be stored separately to the inert soil/subsoil, sampled and tested. The material will be appropriately classified as non-hazardous or hazardous in accordance with Council Decision 2003/33/EC, which establishes the criteria for the acceptance of waste at landfills, prior to being transported to an appropriately licensed facility by permitted contractors.

Plastic

As plastic is now considered a highly recyclable material, much of the plastic generated during construction, primarily from packaging and material off-cuts, will be diverted from landfill and recycled. All recyclable plastic will be segregated at source and stored in a dedicated skip.

Cardboard

Cardboard packaging can also be recycled. Cardboard will be flattened and placed in a covered skip, to prevent it getting wet.

Timber

It is expected there will be timber waste generated from demolition activities, material off-cuts, damaged pieces and wooden pallets used for deliveries to site. Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc, will be stored on site in a designated area for collection and recycling by a nominated waste contractor.

Metal

Steel is highly recyclable; there are numerous companies that will accept these materials. A segregated skip will be available for storage of metals on site pending recycling.

Plasterboard

There are currently several recycling services for plasterboard in Ireland. The Waste Manager will ensure that oversupply of plasterboard in the material deliveries is kept to a minimum. Excess plasterboard will be stored in a separate skip, pending collection for recycling.

Glass

A designated skip will be provided for any broken or other waste glass, which can then be recycled. The Waste Manager will liaise with the nominated waste contractor to establish any specific segregation requirements for waste glass (e.g. by colour or type).

Hazardous Materials

During actual construction activities, on-site storage of any hazardous wastes produced will be minimised, with off-site removal organised on a regular basis. Storage of all hazardous wastes on site will be undertaken 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. Store fuel, oils and chemicals on an impervious base within a bund able to contain at least 110% of the volume stored.

Non-Recyclable Waste

There will be a general skip or other receptacle provided for non-hazardous C&D waste not suitable for reuse or recycling. This skip will include general wet waste (mixed food waste and food packaging), polystyrene, contaminated cardboard, contaminated plastic etc. Prior to removal, the receptacle will be examined by the Waste Manager (or delegate) to determine that recyclable materials have not been placed in there. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly.

4.4 Tracking and Documentation Procedures for Off Site Waste

All waste will be weighed and documented. Waste will be weighed on a site weighbridge if available and independently by the contractor (either by weighing mechanism on the truck or at the receiving facility). These records will be kept on site (both hard and soft copies).

All movement of waste and the use of waste contractors will be undertaken in accordance with the Waste Management Act 1996, Waste Management (Facility Permit & Registration) Regulations 2007, and the Waste Management (Collection Permit) Regulations 2007. This includes the requirement for all waste contractors to have a waste collection permit issued by local authority where most of the contractors business takes place. The Waste Manager (see Section 7.0) will maintain a copy of all waste collection permits.

If the waste is being transported to another site, a copy of the waste permit or EPA Waste Licence for that site must be provided to the waste manager. If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) document must 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 destination (permits, licences etc). A receipt from the 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 system to be maintained on site

5.0 NOISE, DUST AND DEBRIS

5.1 Noise:

Some impact on noise levels is likely to occur because of the construction activity. It is important to note that construction works are temporary in nature and that the resulting higher noise levels are generally acceptable, subject to typical hours or works, which are common to most urban-based projects. The area is commercial and residential in nature, meaning there are receptors in the vicinity that would be significantly affected by the increased noise levels.

It is acknowledged that in the interests of minimising noise and to ensure a satisfactory standard of development, construction works associated with the proposed development will be in compliance with British Standard 5227 “Noise Control on Construction and Open Sites Part 1, Code of Practice for basic information and procedures for noise control.

5.2 Dust and Debris:

During the construction phase, measures will be adopted to ensure the adjoining properties are kept in a clean and safe condition during works. The following initial measures have been identified:.

- A road sweeper will be employed to clean the internal and public roads should any residual debris be deposited.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel.

6.0 ESTIMATED COST OF WASTE MANAGEMENT

The cost of waste management is difficult to estimate at this stage of the development for several reasons:

Firstly, waste management costs have evolved significantly over the past decade, and are set to keep changing as Regional Waste Management Plans are implemented fully and the emphasis of reduce, reuse, and recycle increases.

In addition, until contractors are appointed for the development and definite choices made in terms of materials to be used, methods of construction, suppliers, etc, the budget for waste management services and operations on the site cannot be determined.

The total cost of C&D waste management will be measured and will take account of the purchase cost of materials (including imported soil), handling costs, storage costs, transportation costs, revenue from sales, disposal costs etc.

7.0 DEMOLITION PROCEDURES

The demolition stage will involve the removal of existing buildings and structures on site. A formal Demolition Plan may be prepared for the site; however in general, the following sequence of works should be followed during the demolition stage:

7.1.1 Check for Hazards

Prior to commencing works, buildings and structures to be demolished will be checked for any likely hazards including asbestos containing materials, electric power lines or cables, gas reticulation systems, telecommunications, unsafe structures, and fire and explosion hazards, e.g. combustible dust.

7.2 Removal of Components

All components from within the buildings that can be salvaged will be removed first. This will primarily include metal however may also include structural timbers, doors, windows, cabinets, appliances, hardwood flooring, galvanised piping, wiring and metal ducting, etc.

An inspection will be carried out in the buildings to be demolished to see if technical installations can be taken out for reuse in either the new development or on another site. These include technical installation for lighting, heating, telephone, computers etc. These installations will be removed and salvaged if possible.

7.2.1 Removal of Roofing

Steel roof beams, steel roof supports, beams, slates etc will be dismantled and taken away for recycling/salvage. Asbestos sheeting Removal or ACMs will be carried out by a suitably qualified contractor and ACM's will only be removed from site by a suitably permitted/licenced waste contractor in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. All material will be taken to a suitably licensed or permitted facility.

7.3 Demolition

The breakdown of walls will be carried out once all salvageable or reusable materials have been taken from the buildings. If sufficient quantities are generated, clean, uncontaminated concrete may be crushed on site using a mobile crusher.

8.0 TRAINING PROVISIONS FOR CONSTRUCTION MANAGER AND SITE CREW

A competent construction manager will be appointed to ensure commitment, operational efficiency and accountability during the C&D phase.

8.1 Waste Manager Training and Responsibilities

The waste manager will be given responsibility and authority to select a waste team if required, i.e. members of the site crew that will aid him/her in the organisation, operation and recording of the waste management system implemented on site.

The waste manager will have overall responsibility to oversee, record and provide feedback to the client 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 salvage.

The waste 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.

He/she 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 know how to implement the C&D WMP.

8.2 Site Crew Waste Management Training

Training of site crew is the responsibility of the waste manager and as such a waste training program should be organised. A basic awareness course should be held for all site crew 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 (e.g.: general site induction, safety-training, etc).

This basic course would describe the materials to be segregated, the storage methods and the location of the waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.

9.0 RECORD KEEPING

Records will be kept for each waste material which leaves the site, either for reuse on another site, recycling or disposal. A system will be put in place to record the construction waste generated on site.

The waste manager or delegate will record the following.

1. Waste taken for reuse off-site
2. Waste taken for recycling
3. Waste taken for disposal
4. Reclaimed waste materials brought on-site for reuse

For each movement of waste on- or off-site, a signed docket will be obtained by the waste manager from the contractor, detailing the weight and type of the material and the source and destination of the material.

This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of C&D waste generated for each material can be determined.

The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of C&D waste and to highlight the successes or failures against these targets.

10.0 OUTLINE WASTE AUDIT PROCEDURE

10.1 Responsibility For Waste Audit

The appointed waste manager will be responsible for conducting a waste audit at the site during the C&D phase of the development.

10.2 Review of Records and Identification of Corrective Actions

A review of all the records for the waste generated and transported on- or off-site should be undertaken mid-way through the C&D phase. If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained.

The waste records will be compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

Waste management costs will also be reviewed.

Upon completion of the C&D phase, a final report will be prepared, summarising the outcomes of waste management processes adopted and the total recycling/reuse/recovery figures for the development.

11.0 OUTLINE WASTE AUDIT PROCEDURE

11.1 Local Authority

Westmeath County Council will be consulted as required throughout the C&D phase to ensure that all available waste reduction, re-use, and recycling opportunities are identified and utilised and that compliant waste management is carried out.

11.2 Recycling and Salvage Companies

Companies that specialise in C&D waste management will be contacted to determine their suitability for engagement. If used, each company will be audited to ensure that relevant and up-to-date waste collection permits and/or licences are held. In addition, information regarding individual C&D materials will be obtained, including the feasibility of recycling each material, the costs of recycling/reclamation and the means by which the wastes will be collected and transported off-site, and the recycling/reclamation process each material will undergo off site.

12.0 OUTLINE TRAFFIC MANAGEMENT MEASURES

Below is a list of the proposed traffic management measures to be adopted during the construction works (please note that this list is non exhaustive):

- Warning signs will be installed at appropriate locations in advance of the construction access locations
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; movement of construction vehicles will be restricted to these designated routes.
- Vehicle intensive operations will be time-managed to occur outside peak traffic periods where possible.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example, the use of dust covers on trucks carrying dust producing material.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds.
- Parking of site vehicles will be managed by appropriate signage, to promote low vehicular speeds.
- A road sweeper will be employed to clean the public roads of any residual debris that may be deposited on the public roads leading away from the construction works.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. All scheduled maintenance will not be carried out on the public highway.
- Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage. Pedestrian facilities will cater for vulnerable users including mobility impaired persons.
- Use of just in time approach for removal of materials from site and delivery of materials to site.
- Ensuring vehicle intensive operations occur outside of peak traffic periods.
- Providing adequate storage space on site or alternatively off site.
- Use of prefabricated elements where possible.
- Developing a strategy to minimise construction material quantities as much as possible.

13. 0 REFERENCES

1. Waste Management Act 1996 (S.I. No. 10 of 1996) as amended by the Waste Management (Amendment) Act 2001 and associated regulations:
   - Waste Management (Facility Permit and Registration) Regulations, S.I No. 821 of 2007 as amended 2008 (S.I No. 86 of 2008).
   - Waste Management (Collection Permit) Regulations S.I No. 820 of 2007 as amended 2008 (S.I No 87 of 2008).
   - Waste Management (Packaging) Regulations 2003 (S.I. No. 61 of 2003)
   - Waste Management (Licensing) Regulations 2000 (S.I 185 of 2000) as amended 2002 (S.I 336 of 2002)
   - Waste Management (Planning) Regulations 1997 (S.I. 137 of 1997)
   - Waste Management (Landfill Levy) Regulations 2002 (S.I 86 of 2002)

   - EPA "Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019 Department of the Environment, Heritage and Local Government – Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects – July 2006.

2. Eastern & Midlands Region Waste Management Plan 2015-2021.

3. Waste Management - Changing Our Ways, A Policy Statement, Department of Environment and Local Government, 1998.
4. "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects", Department of the Environment, Heritage and Local Government, 2006.

5. "Construction and Demolition Waste Management - a handbook for Contractors and Site Managers", FÁS and the Construction Industry Federation, 2002.

6. Characterisation of Building-Related Construction and Demolition Debris in the United States, US EPA, June 1998.

7. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

8. Council Directive 1999/31/EC, on the landfill of waste.

9. European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 /2011).

10. Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects (EPS 2021).

11. An Action Plan for Circular Economy – Ireland's National Waste Policy 2020-2025 (Department of the Environment, Climate and Communications)