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**Proposed Part 8 Residential Development
Coolaghknock Glebe, Co. Kildare**

**Resource Waste Management Plan
(RWMP)**

Kildare County Council

**Coolaghknock Glebe, Co. Kildare.
Resource Waste Management Plan (RWMP)**

Document Control Sheet

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1 Introduction

This report is prepared on behalf of the National Development Finance Agency (NDFA) and Kildare County Council to accompany a Part 8 proposal for the development of 131 no. residential units in the townland of Coolaghknock Glebe, Kildare, Co. Kildare.

The proposed development includes:

- i. 131 no. social and affordable residential units including 91 no. houses and 40 no. own door apartment / duplex units to be delivered on a phased basis, comprising 40 no. one bed units; 38 no. two bed units; 43 no. three bed units; 6 no. four bed units; and 4 no. group houses, with renewable energy design measures (which may be provided externally) for each housing unit.
- ii. 1 no. crèche facility of 270m² with potential for community use until such time as crèche becomes viable;
- iii. Landscaping works including provision of (a) open space and kick about areas; (b) natural play features; (c) new pedestrian and cycle connections; and (d) attenuation pond;
- iv. Associated site and infrastructural works including provision for (a) 2 no. ESB substations and switchrooms; (b) car and bicycle parking; (d) public lighting; (e) temporary construction signage; (f) estate signage; and (g) varied site boundary treatment comprising walls and fencing; and
- v. All associated site development works.

1.1 Background and Purpose

Waste created during Construction and Demolition (C&D) work is the largest waste stream in the EU, accounting for one third of all waste generated. It is therefore pertinent to outline proper management procedures for construction and demolition (C&D) waste and resources that are in line with policies that fit a circular economic model. Several steps can be taken regarding material and waste management to adhere to the circular economic model, such as:

- Reducing the use of virgin resources.
- Keeping materials in the economy as long as possible.
- Maintaining intrinsic value/quality as high as possible.
- Reducing hazardous substances in products and waste.

This Resource & Waste Management Plan (RWMP) for the proposed development will address the following points:

- Analysis of waste arisings / material surpluses, to be recorded in the Waste Register (**see Appendix A**)
- Methods proposed for prevention, reuse and recycling of waste materials
- Waste handling procedures
- Waste storage procedures
- Waste disposal procedures

- Waste auditing
- Record keeping

1.2 Supporting Documentation, Policies, and Legislation

The principles and objectives to deliver sustainable waste management for this project have been incorporated in the preparation of this report and are based on the following strategic objectives:

- Environmental Protection Agency Act 1992
- Waste Management Acts 1996 to 2005
- Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)
- Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008), as amended.
- The Waste Framework Directive (Directive 2008/98/EC)
- 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
- A Waste Action Plan for a Circular Economy 2020-2025
- Environmental Protection Agency Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects 2021
- Construction Environmental Management Plan (CEMP)
- Relevant Planning Conditions

In reference to the above legislation, the below hierarchy has been adapted for this site:

- Reduction of the amount of waste generated by the construction process.
- Segregation of waste will be implemented during the construction phase of the development to enable easy re-use and recycling, wherever possible.
- Recycle waste material where feasible, including the use of excess excavations as fill material, recycling of various waste fractions such as metals, packaging, etc.

1.3 Kildare County Development Management Standard

The development management standards for County Kildare are outlined in the Kildare County Development Plan (CDP) 2023-2029. Of relevance to this report is **Chapter 6 – Infrastructure & Environmental Services** which outlines policies in line with Kildare County Council waste management objectives. The policies relevant to the proposed development include:

- **IN P6:** Implement European Union, National and Regional waste-related environmental policy, legislation, guidance, and codes of practice, in order to support the transition from a waste management economy towards a circular economy.
- **IN O39:** Encourage a transition from a waste economy to a green circular economy in accordance with 'A Waste Action Plan for a Circular Economy 2020-2025' and the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'.
- **IN O44:** Encourage waste prevention, minimisation, re-use, recycling, and recovery as methods for managing waste.

Additionally, **Section 15.10.2 – Construction and Demolition Waste** outlines the overall approach of Kildare County Council with regards to waste generated during development. It states:

“Construction & Demolition waste management is now a priority objective under the new National Waste Management Plan for a Circular Economy. Detailed waste management plans will be required to be produced and delivered on for all new development regardless of their size in accordance with the latest EPA Guidelines, where the emphasis will be on waste minimisation and reuse, followed by sustainable and environmentally friendly disposal to suitably licensed facilities.”

1.4 RWMP Review

This RWMP report serves as a live document and will be reviewed regularly to assess whether waste management practices are being adhered to. Likewise, it will be continuously updated as appropriate. Following completion of the project the RWMP will be updated with the final waste levels generated by the project. It is proposed that a review of waste management practices will form part of regular site inspection audits to be carried out by the construction contractor. This information should be forwarded to the RWM to assist in determining the best methods for waste minimisation, reduction, re-use, recycling, and disposal as the works progress.

2 Project Description

2.1 Site Location

The proposed development will be located off Connagh Road, south of Melitta Road in the townland of Coolaghkock Glebe, Kildare, Co. Kildare.

The site access point is proposed to be located along the Connagh Road located at the northwest of the proposed development.

The site is bounded by the Connagh Green housing estate to the northwest and the Curragh Plains and the Coolaghknock Drive estates to the west. Adjacent to the southern, eastern and northern boundaries of the site are undeveloped greenfield spaces with residential units at sparse intervals. Some of these lands are used for agriculture and as stables.

An approximate outline of the subject site and its environs is provided in **Figure 2.1** below.



Figure 2.1: Site location and environs (Source: Google Maps)

2.2 Site Characteristics

2.2.1 Topography

The proposed residential development is to be constructed on a greenfield site which is zoned as “New Residential phase 2” by Kildare County Council. At present, the site topography ranges from 100m at the southern end of the development to 103m OD at the north end of the development.

2.2.2 Site Access

The site's current access point is via the Connagh road located on the northern border of the site, accessible via a gate.

2.2.3 Historical Maps

The GeoHive Historic map viewer was consulted to assess previous land uses or developments within or in the vicinity of the proposed site boundaries. According to the First Edition 6” maps developed between 1829-1841, the location of the proposed site previously consisted of open farmland. Cleared land is visible to the northwest to make way for the Coolaghknock estates can be seen in black and white aerial survey maps generated in 1995, while the lands to the north, east, south and southwest remain as open farmland. The full-colour aerial survey maps from 1996-2000 show development progressing on the Coolaghknock estate to the west and southwest of the development site. Aerial survey maps spanning from 2006-2012 show further development progressing on the Coolaghknock estate to the west and southwest of the site and the Ruanbeg estate beyond. These estates can be seen completed in subsequent aerial survey maps completed between 2013-2018. From these maps, evidence of some development on the proposed site in the form of a gravel road can be seen.

2.3 Environmental Sensitivities

2.3.1 Geology, Hydrology & Hydrogeology

Maps generated by the Environmental Protection Agency (EPA) and featuring data from the EU Water Framework Directive (WFD) were consulted to assess the extent and quality of waterbodies present in the vicinity of the proposed development. The closest waterbody to the site consists of the Tully stream which runs from north to south and is located approximately 1.9km south of the proposed development.

Taking the scale and nature of the proposed development into consideration, only waterbodies within a 1.5km radius of the site were considered as potential receptors, and as such, only these waterbodies were included in this analysis. A summary of the nearest waterbodies can be found in **Table 2.1** below.

Table 2.1: Waterbodies in Proximity to Proposed Site

Waterbody	WFD Sub-basin Name	Code	Distance from Site	Direction from Site
Tully Stream	TULLY_STREAM_010	IE_SE_14T020200	1.9km	South
Clongownagh Stream	CLONCUMBER_STREAM_010	IE_SE_14C170200	3.4km	Northeast
Lenagorra Stream	TULLY_STREAM_030	IE_SE_14T020500	4.5km	Southwest
Grand Canal Milltown Feeder (Barrow)	CLONCUMBER_STREAM_010	IE_14_AWB_GCMF	4.5km	Northeast

The WFD runs in 6-year cycles with the most recent data being generated between 2016-2021. The Directive takes rivers, lakes, estuaries, groundwater and coastal waters into consideration and each waterbody can be awarded one of five statuses: High, Good, Moderate, Poor, and Bad. Additionally, waterbodies can be assigned a risk level (“At Risk”, “Not At Risk”, “Review”) which represents the risk of the waterbody of failing its WFD objectives by 2027.

The WFD status of the Tully Stream is considered to be ‘Poor’ and the risk level of the stream is currently ‘At risk’ of meeting WFD objectives by 2027.

The proposed site is located within WFD catchment 14, Barrow, and is located within sub-catchment “Barrow_SC_060”. The 3rd Cycle Draft Barrow Catchment Report (HA 14) published in 2021 provides a summary of the quality assessment outcomes of waterbodies within the catchment. According to this report, excess nutrients and morphological impacts remain the most prevalent issues in the Barrow catchment.

The nearest major water source consists of the River Liffey located ca. 7.2km to the east of the site where it runs through Newbridge Town from south to north and follows course in a north-easterly direction to outflow into the Irish Sea via Dublin Bay. The source of the River Liffey begins at Mt. Kippure, County Wicklow where it flows through the Poulaphouca Reservoir. It runs a total length 125 km and has a basin size of 1,256km². The Liffey is not hydrologically connected to the site.

The closest lake waterbody consists of Golden Falls Reservoir which is located ca. 19 km east of the site. This is a heavily modified water body which serves dual purposes for power generation and is located downstream of the larger Pollaphuca hydroelectric power station. The Golden Falls Reservoir is not hydrologically connected to the site.

The site was cross-referenced with the Teagasc Soil Information System (SIS) soil profile map which states that the surface soil at the site location is classed as ‘Elton’ series. These soils are derived from dominantly limestone drift with a small admixture of shale and sandstone. The soils of this series are deep, well-drained, of loam texture and high base status. The profile has a dark brown to brown loamy surface. The subsoil of the site is classed as gravels derived from limestones.

The underlying bedrock of the proposed site is classed as Dinantean carboniferous limestone. This bedrock region extends southeast to underlie the agricultural lands which extend towards Suncroft and Cut Bush.

2.3.2 Groundwater Vulnerability

According to the Geological Survey of Ireland map viewer, the site is underlain by a Regionally Important Gravel Aquifer consisting of the aforementioned bedrock. The groundwater vulnerability is classed as 'High'. The subsoil permeability is classified as 'High'. Based off the EPA groundwater vulnerability matrix obtained from the 'GSI Guidelines for Assessment and Mapping of Groundwater Vulnerability to Contamination 2003' it can be assumed that bedrock is >2m from the soil surface.

2.3.3 Flood Risk

The OPW Floodinfo.ie website was consulted for high level information on any potential flood risk on or near the site. The closest flood events occurred in Kildare town ca. 740m southwest of the proposed site on a recurring basis. A significant portion of the surface water drainage in Kildare town is piped to this location. **Table 2.2** summarises the sources of the nearest floods and their proximity to site.

Flood Event Code	Location	Date	Flood Source	Distance from Site
ID-1487	Kildare Town	Annually Recurring	Low lying land	740 m SW

The proposed site itself is of sufficient distance from the projected flood risk area hence the fluvial flood risk is considered to be low. The site is not located within benefitting land associated with the Arterial Drainage and District Drainage Schemes. National Indicative Fluvial Mapping (NIFM) models the extent of land that might be flooded by rivers during a theoretical flood with an estimated probability of occurrence. The proposed site is not within the range of a Medium Probability flood event (1 in 100 years) according to NIFM mapping. Based on current data available it is not foreseen that the development will present any significant increase in flooding risk either within the site or downstream of the site.

2.3.4 Archaeology

According to the Historic Environment map viewer there are no sites of archaeological importance within the proposed site boundaries. The nearest site of importance is located ca. 140m northwest of the site and consists of a Burial site (Code: KD022-037). This site consisted of a burial found near the surface and is currently the location of a residential development. Additionally, a Barrow (KD022-049) with a diameter of 20m is located ca. 300m northeast of the proposed development.

Overall, the archaeological sensitivity of the area in immediate proximity to the proposed site is considered to be low due to the neighbouring residential estates and absence of any

archaeologically significant sites within the immediate vicinity of the development.

An Archaeological Impact Assessment was conducted by John Purcell Archaeological Consultancy to assess the cultural heritage impact of the development. It was determined that the area is of archaeological potential based on a previous find 1966 in what was then within the boundaries of the same field. As such, further archaeological testing is recommended to take place.

2.3.5 Ecological Receptors

According to the National Parks & Wildlife Service map viewer, the proposed site is located a sufficient distance (1.5km) from any designated Special Protection Areas (SPAs) or Special Areas of Conservation (SACs). The proposed development is located ca. 300m from the Curragh, a proposed Natural Heritage Area (NHA).

A Screening for Appropriate Assessment (AA) has been carried out by NM Ecology Ltd. on behalf of Kildare County Council and has determined that a Natura Impact Statement (NIS) is not required in respect of this proposed development. It was determined that through the AA Screening that is no risk of direct impacts on European sites.

As per the AA Screening assessment and given the scale and nature of the proposed development, it is unlikely that any designated sites will be impacted as a result of the works. Best practice measures will nevertheless be outlined in **Section 4** of this report which will ensure as little impact as possible to the surrounding environment.

An ecological survey of the site was conducted by NM Ecology Ltd. on behalf of Kildare County Council. The report identified important ecological features of the site which included hedgerows, foraging bats, small mammals and nesting birds. The report recommends that the hedgerows along all boundaries of the site be retained and incorporated into the development. This proposition is in line with **Chapter 12: Biodiversity and Green Infrastructure, Objective BI O26** from the Kildare County Development Plan 2023-2029 which aims to “*Prevent, in the first instance, the removal of hedgerows to facilitate development. Where their removal is unavoidable, same must be clearly and satisfactorily demonstrated to the Planning Authority*”. **Objective BI O27** is to “*Require the retention and appropriate management of hedgerows and to require infill or suitably sized transplanted planting where possible in order to ensure an uninterrupted green infrastructure network.*”

It is also recommended that site clearance works be conducted between September and February to avoid nesting season for birds and small mammals.

2.4 Phasing of the Development

This Construction Environmental Management Plan (CEMP) will outline the intended sequence of works. A construction program of 12 - 18 months serves as the agreed estimated timeline for the project. A layout plan of the development is detailed in **Figure 3.1** below.

The proposed development includes the following sequence of works:

- i. 131 no. social and affordable residential units including 91 no. houses and 40 no. own door apartment / duplex units to be delivered on a phased basis, comprising 40 no. one bed units; 38 no. two bed units; 43 no. three bed units; 6 no. four bed units; and 4 no. group houses, with renewable energy design measures (which may be provided externally) for each housing unit.
- ii. 1 no. crèche facility of 270m² with potential for community use until such time as crèche becomes viable;
- iii. Landscaping works including provision of (a) open space and kick about areas; (b) natural play features; (c) new pedestrian and cycle connections; and (d) attenuation pond;
- iv. Associated site and infrastructural works including provision for (a) 2 no. ESB substations and switchrooms; (b) car and bicycle parking; (d) public lighting; (e) temporary construction signage; (f) estate signage; and (g) varied site boundary treatment comprising walls and fencing; and
- v. all associated site development works.

Access to the development is proposed along the R413 / Melitta Road north of the development site which adjoins the Connagh Road. A local road will extend south-easterly through the proposed estate. **Figure 3.1** shows the proposed site plan.



Figure 3.1: Site Plan (Cropped) (A refinement of this site layout may be circulated by the architect)

The project is to be divided into several distinct phases as follows:

Pre-Construction Phase – Site clearance and preliminary works

- Removal of any existing debris to a suitably licenced facility to facilitate the works.
- Site set-up, temporary services, site hoarding / fencing, staff welfare facilities.
- Ground works and landscaping.

Phase 1 – Construction

- 99 no. residential units in houses and apartment / duplex style buildings.
- 1 no. crèche facility

Phase 2 – Construction

- 32 no. residential units in houses and apartment / duplex style buildings.

Ancillary works – which will consist of:

- Sustainable Drainage System (SuDS)
- Surface water and foul sewer network and associated attenuation
- Car and bicycle parking spaces
- Electrical and telecom services
- Mains water supply connections
- Wastewater drainage connections
- Pedestrian access routes
- Asphalt installation and road markings
- Landscaping of public open areas

The construction phasing is shown in **Figure 3.2** below.



Figure 3.2: Phasing of the development depicting Phase 1 (green) and Phase 2 (blue).

2.5 Pre-Construction Activities

The main contractor will conduct enabling works to establish site setup, for appropriate signing, hoarding, security fencing and welfare facilities.

2.5.1 Site Set-Up and Hoarding

Perimeter hoarding will be provided around the site to provide a barrier against unauthorized access from the public areas. Controlled access points to the site, in the form of gates or doors, will be kept locked at any time that these areas are not monitored (e.g., outside working hours).

The hoarding will be well-maintained and may be painted. Any hoardings may contain graphics portraying project information. The site hoarding may be branded using the appointed Contractors logos, etc. Some marketing images or information boards may also be placed on the hoarding. Access to site will be controlled and monitored outside of site working hours. All personnel working on site must have a valid Safe Pass card and the relevant CSCS cards.

A suitably secure site compound will be set up, wherever the restricted confines of the site will allow and will facilitate the efficient delivery of materials and personnel to the site. This compound is to include material storage, site office and meeting room, and staff welfare facilities.

Generators or connection to electricity and water services will be set up to facilitate site works.

2.6 Construction Sequence of New Structures

The exact construction specifications of the proposed residential units and associated infrastructure are yet to be finalised. This section of the CEMP will be updated once a main contractor is appointed and a definitive construction program is established, in advance of the commencement of the project.

A summary of operations for the construction phase is listed in **Table 3.1** below.

Table 3.1: Summary of Operations Expected

External envelope will or may require the following operations:	Internal work will or may require the following operations:
<ul style="list-style-type: none"> • Blockwork/Brickwork • Sand & cement rendering • Windows & doors • Roof Coverings – Slate and Tile • Flashing, Aprons and Tray – Leadwork/Powder coated metal 	<ul style="list-style-type: none"> • Electrical installation • Mechanical installation • Fireproofing • Partitions and ceilings – use of gypsum based products • Painting • Plastering • Stairs • Joinery • Tiling • Air Tightness sealing and testing • Metal Work • Sanitary-ware installation • Vanity units • Reinforcement works • Insulation • Plumbing • Concreting/ floor slab • Carpet installation • Timber floors • Roofing
Above ground external operations:	
<ul style="list-style-type: none"> • Landscaping • Installation of manholes • Lamp posts • Tarmac/ surfacing • Signs • Car parking and mobility compliant car parking 	
Below ground operations:	
<ul style="list-style-type: none"> • Foul sewer, surface water, rainwater, and potable water networks • Electrical ducting 	

2.7 Asbestos-Containing Materials

The proposed development is located on a greenfield site and no demolition works are required prior to the commencement of construction. Risk of exposure to ACMs is considered low for these reasons.

2.8 Design Changes

This section shall be updated during the construction phase to reflect any changes in design or practice that have an impact on resource and waste management.

3 Roles and Responsibilities

The EPA Best Practice Guidelines for RWMP outline typical responsibilities involved in projects such as the one proposed at Oldtown Mill. This section outlines the responsibilities for stakeholders to ensure an effective RWMP is implemented over the course of development.

3.1 Contractor (TBC)

The Main Contractor, once employed, will undertake construction operations and is responsible for the following:

- Implementing and reviewing the RWMP throughout the construction phase.
- Designating a suitably qualified Resource and Waste Manager (RWM) who will be responsible for implementing the RWMP.
- Identifying and coordinating with waste removal contractors responsible for removing resources and waste off site. Hauliers should be in possession of valid Waste Collection Permits.
- Identifying suitably licensed waste facilities capable of receiving waste from the proposed site.
- Compile full records of resources and wastes accrued over the course of development.

3.2 Communication

Information regarding resource and waste management will be communicated by the Main Contractor and RWM who will ensure that staff and subcontractors are operating with best practice waste management procedures in place.

4 Design Approach

4.1 Reuse and Recycling

The national waste policy of Ireland, titled 'A Waste Action Plan for A Circular Economy – Ireland’s National Waste Policy 2020 – 2025,' aims to transition the country towards a circular economy model. This model emphasizes reducing waste disposal by promoting circularity and sustainability. The policy focuses on enhancing material value through improved design, durability, repair, and recycling practices. By prolonging the circulation of resources within the local economy, the policy anticipates both environmental and economic benefits. The implementation of the policy involves several strategies, including reusing excavated soils and stones on-site, purchasing construction materials as needed to prevent oversupply and potential damage, segregating construction waste streams for maximum reusability, minimizing waste volume through design and adopting take-back schemes for items like pallets and packaging.

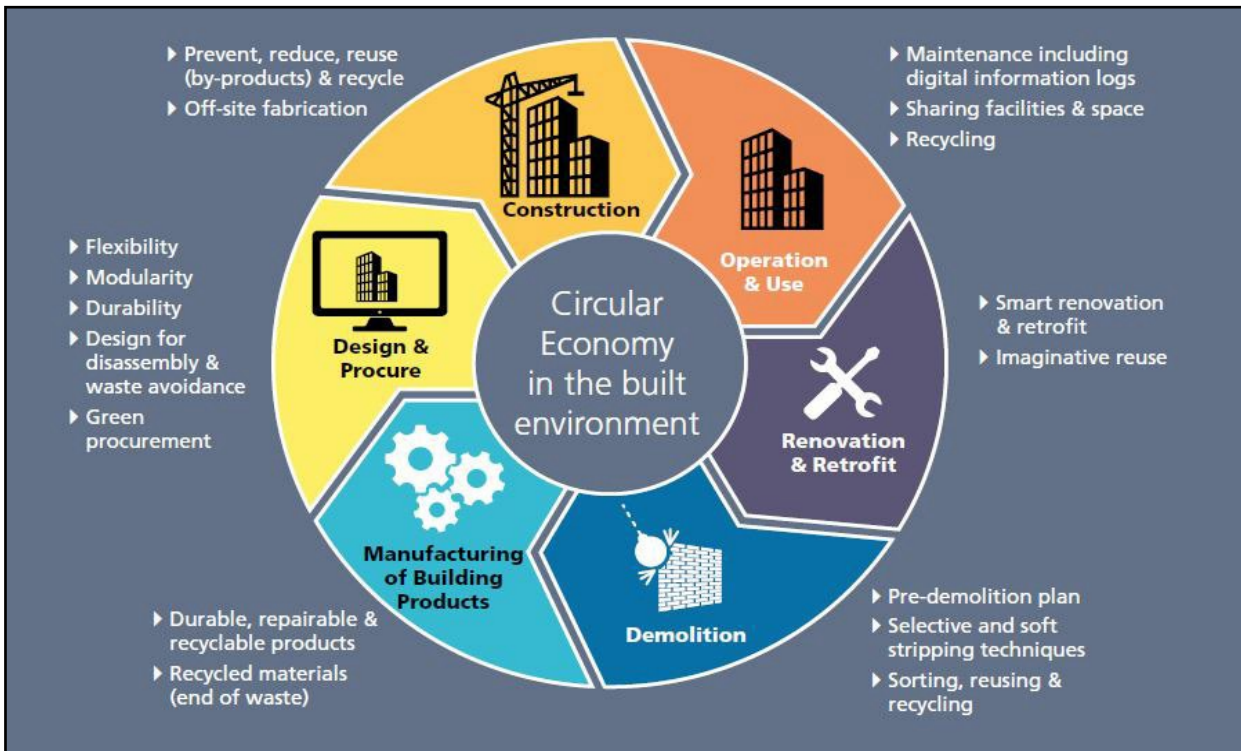


Figure 4.1: Circular Economic Model (Source: EPA Best Practice Guidelines)

4.2 Green Procurement

- The sourcing of goods and services should be conducted on an “as-needed” basis where possible which can reduce the need for packaging.
- Methods of waste prevention and minimisation shall be discussed with staff and subcontractors at an early stage of development, prior to procurement. Design solutions are

to be agreed with an emphasis on sustainable practices.

- Project material specifications should consider allowing the use of reclaimed materials.
- Ordering procedures should be conducted with waste minimisation in mind, i.e., avoid over-ordering, identify take-back schemes for material surpluses and offcuts.

4.3 Off-Site Construction

The use of precast materials (walls, concrete slabs, stairs, etc.) should be implemented where possible. The use of precast materials can have the following benefits:

- Material quality and accuracy can be superior as factory fabrication is standardised and negative impacts from weather and site conditions are negated.
- Over-ordering can be avoided as materials can be ordered from the factory and do not need to be produced on site.
- The use of precast materials can lead to quicker construction times as floor levels can be established in short periods of time and facades can be closed in quickly, meaning internal works can be conducted earlier.
- Precast materials reduce the production of waste.
- Quality of precast materials is often better as fabrication occurs in a sheltered environment mitigating any potential environmental effects that may occur onsite.
- Environmental contamination is reduced, particularly when precast concrete is used, as the chance of spillages is eliminated.

4.4 Materials Optimisation

- The optimisation of material use during construction will be established during the design phase. A rigorous project design will ensure that reworking and waste generation is reduced during construction.
- Effective communication between the Contractor, staff, and subcontractors will ensure that works are carried out efficiently and the use of material is optimised.
- The design of the proposed residential units is somewhat standardised, meaning the need for virgin resources is minimise.

4.5 Flexibility and Deconstruction

As the proposed development incorporates residential units, plans for deconstruction are not envisaged for the foreseeable future. As such, the flexibility of the proposed development is seen as sustainable as it will service long-to-medium term residents for years to come.

5 Key Materials and Quantities

Typical waste materials anticipated to be generated throughout the course of the project are classified under Section 17 – Construction and Demolition Wastes – of the List of Waste (LoW) as detailed in **Table 5.1** below.

Table 5.1: Description of Waste

Description of Waste	EWC Code
Concrete, Bricks, Tiles and Ceramics	17 01
Concrete	17 01 01
Bricks	17 01 02
Tiles and Ceramics	17 01 03
Mixture of concrete, bricks tiles & ceramics	17 01 07
Wood, Glass and Plastic	17 02
Wood	17 02 01
Glass	17 02 02
Plastic	17 02 03
Bituminous mixtures, coal tar and products	17 03
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02
Metals (including their alloys)	17 04
Copper, Bronze, Brass	17 04 01
Aluminium	17 04 02
Lead	17 04 03
Zinc	17 04 04
Iron and Steel	17 04 05
Tin	17 04 06
Mixed Metals	17 04 07
Cables containing oil, coal tar and other hazardous substances	17 04 10
Cables other than those mentioned in 17 04 10	17 04 11
Gypsum based construction Materials	17 08
Other Construction and Demolition Materials	17 09
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	17 09 04
Sewage Screenings	19 08 01
Paper and Cardboard	20 01 01
Wood containing hazardous substances	20 01 37
Wood other than that mentioned in 20 01 37	20.01 38
Soil and Stones	17 05 04
Mixed Municipal Waste	20 03 01
Paint, inks, adhesives and resins containing hazardous substances	20 01 27
WEEE	16 02
Batteries	16 06
Liquid Fuels	13 07

5.1 Waste Register

A Template has been developed for summarising the names and permit numbers of the waste collectors and waste facilities which will be utilised for off-site disposal of the various waste-streams arising from the development. This document will also outline the projected weight of any waste that has to be transported off-site as well as any wight destined for reuse or recycling. This templated is included in **Appendix A** and a digital copy has been sent in addition to this report.

5.2 Waste Removal Contractors

Appendix B includes a list of licenced waste facilities in the Kildare region which are capable of hauling the primary C&D waste streams associated with the development. Coordinating with the licenced waste facilities will be the responsibility of the Main Contractor. Waste facilities shall confirm he acceptance of waste prior to the removal from site, ensuring that the facility is suitable and that it has sufficient capacity. This is not an exhaustive list, and liaison with other suitable waste facilities will be conducted by the Contractor as the need arises.

5.3 Estimated Construction Waste Generated

Table 5.2 below includes a breakdown of the estimated percentages of construction and demolition waste expected to be generated from a typical site such as this.

It should be noted final quantities of materials and construction methodologies have yet to be confirmed so it is therefore difficult to estimate the exact materials and quantities generated with a high degree of accuracy. These materials and quantities will most likely be subject to change during the construction process.

Waste Type	%
Soil & Stones	83
Concrete, Bricks, Tiles, Plastics, etc	13
Asphalt, Tar/Tar products	1
Metals	1
Other	2
Total Waste	100

Taking the above estimation into account, **Table 5.3** below outlines target values for waste management at the site. The tonnage values for each waste type should be inputted by the contractor prior to starting on site once quantities are accurately measured.

Table 5.3: Estimated construction waste targets for the development

Waste Types	Waste	Reuse/Recover		Recycle		Disposal	
	m ³	%	m ³	%	m ³	%	m ³
Soil & Stones	260	20	52	0	0	80	208
Concrete, Bricks, Tiles, Plastics, etc	41.5	0	0	80	33.2	20	8.3
Asphalt, Tar/Tar Products	3	0	0	20	0.6	80	2.4
Metals	3	5	0.15	90	2.7	5	0.15
Other	6	10	0.6	40	2.4	50	3
Total	313.5	-	52.75	-	38.9	-	221.85

5.4 Onsite Waste Reuse and Recycling Management

The national target for preparing for reuse, recovery, and recycling of C&D waste (excluding soil and stone) is 70%, and the waste industry in Ireland as of 2019 was achieving 84%. The proposed development should aim to exceed the national target of 70% regarding the reuse, recovery, and recycling of C&D waste (excluding soil and stone). The main contractor will be made aware of this target and will liaise with suitably permitted / licensed waste contractors that are able to commit to achieving, or exceeding, this target.

6 Site Management

6.1 Resource and Waste Manager

The Construction Project Manager will take on the role of RWM and shall take primary responsibility for the minimisation and prevention of waste generation. The following initiatives should be considered to assist in this task:

- Materials to be ordered on an “as needed” basis to prevent oversupply and material build up on site.
- Appropriate storage facilities should be provided to ensure materials are correctly handled and stored thus reducing damage to materials.
- Material ordering shall coincide with the program of works to reduce the need to store materials on site. However, given current industry issues with regards to labour and material shortages there may be incidents of materials needing to be stored on site to ensure continuity of materials and to streamline labour productivity.
- Sub-contractors will be responsible for the management of their wastes.
- Assess existing materials that will be recycled for use on site and estimate quantities, e.g., the use of roof tile and/or brick offcuts as a crushed rock sub-base under driveways.
- Specify materials with a lower environmental impact and specify new materials that contain a recommended percentage of recycled content, provided they meet functional, performance and regulatory requirements.
- Utilise the existing topography to minimise excavation and reuse any excavated materials on site where possible, e.g., rock for drainage layers, landscape fill, planting features or levelling spoil.
- Standardise design details and specified materials and reduce the number of materials specified where appropriate to facilitate process repeatability and minimise the number of variables and bespoke elements to enable manufacturing and installation efficiencies.
- Deliver training in relation to resource management, i.e., inductions and toolbox talks.
- Update the RWMP as required to reflect new resource streams, work practices, suppliers or resource management options.

Waste Auditing should be carried out at regular intervals by the Project Manager or Resident Engineer. This process will involve monitoring waste management practices and highlighting and correcting any instances of non-compliance.

6.2 Site Induction and Toolbox Talks

The Contractor will communicate with relevant stakeholders throughout the construction phase, as required. This may include:

- Communicating waste statistics to the Client, management team, and subcontractors to monitor targets and objectives.
- Engaging with the local authority on any site inspection or audits required on site. Reports of any corrective actions, if necessary, will be provided to the local authority.

- Engagement with other stakeholders (public, EPA, etc.) where appropriate on matters relating to resource and waste management.
- A post-project RWMP will be compiled at project completion summarising the resource management procedures adopted, reuse and recovery figures and final destination of resources taken off site.

6.3 Identifying Waste Collectors and Licensed Facilities

- As mentioned previously, the Main contractor is responsible for coordinating waste removal with suitable waste collectors and licensed waste facilities.
- Waste facilities must issue a letter of acceptance to the contractor indicating acceptance and sufficient capacity for waste arising.
- A list of authorised waste collectors can be found on the following website: <https://www.nwcpo.ie/permitsearch.aspx>
- Waste facility permits and Certificate of Registrations can be found on the following website: <https://facilityregister.nwcpo.ie>

6.4 Resource-Efficient Supply Chains

The Contractor will ensure that supply chain is organised in line with resource and waste best management practices. This will involve:

- Ensuring that contractors have sufficient resources to ensure supply chain competence (i.e., environmental policies and procedures, supervision, access to advice).
- Early collaboration with supply chain to avoid waste generation i.e., no over-ordering, implementing take-back schemes for pallets, packaging, etc.
- Implementing a 'continuous improvement' strategy on site by maintaining good communication with contractors in relation resource and waste management.

6.5 Record Keeping

It is the responsibility of the Construction Project Manager or his/ her delegate that a written record of all quantities and natures of wastes, including reused/ recycled, during the project are maintained in a waste file at the Project office. Details to be included are as follows:

- Contractors and subcontractors on Site every day.
- All visitors (including Health and Safety procedures) and any associated reports.
- Invoices showing standard of material installed adheres to specifications.
- Date of waste removal.
- List of Wastes and associated codes.
- Waste haulage details (name, address, permit no., vehicle registration).
- Waste Treatment contractor certificate of registration.
- Confirmation of waste removal.
- Final destination of waste.
- Safety statement and safety file.
- Site programme.

Much of the information outlined above will be included in the Waste Register (**Appendix A**)

throughout development.

6.6 Communication with Local Authority/Stakeholders

The Contractor will communicate with relevant stakeholders throughout the construction phase, as required. This may include:

- Communicating waste statistics to the Client, management team, and subcontractors to monitor targets and objectives.
- Engaging with the local authority on any site inspection or audits required on site. Reports of any corrective actions, if necessary, will be provided to the local authority.
- Engagement with other stakeholders (public, EPA, etc.) where appropriate on matters relating to resource and waste management.
- A post-project RWMP will be compiled at project completion summarising the resource management procedures adopted, reuse and recovery figures and final destination of resources taken off site.

6.7 Inspections and Audits

- Daily checks shall be carried out by Contractor's management team to ensure compliance with the RWMP. This will involve checking waste storage areas, waste segregation measures, signage, subcontractor compliance, and review of waste documentation.
- Movement of waste transport vehicles will be monitored to ensure transfer note is signed and waste carrier is authorised.
- Formal EHS audits will be carried out by the Contractor on a regular basis.
- Findings from inspections and audits will be summarised in a monthly environmental report.

7 Site Infrastructure

7.1 Signage

It is the responsibility of the Contractor to ensure staff are aware of segregation by installing clear signage identifying waste collection areas and bins. Verbal instruction via training and toolbox talks will inform staff of proper housekeeping and waste management practices.

7.2 Resource Storage

A waste storage area will be established in the designated site compound (as detailed in the CEMP). The storage will provide adequate space for storage and handling of waste, with sign-posted bins/skips indicating where waste should be disposed of.

Non-Hazardous Waste

Dedicated bins/skips will be established, and potentially colour-coded, to provide storage of typical waste arising from construction including but not limited to:

- Mixed/General waste
- Bulky waste
- Metal
- Dry mixed waste
- Wood

Excavated soil material (excluding the pre-existing soil mounds on site) will be reused where possible. In the event of soil removal off site, the material shall be classified as inert, non-hazardous, or hazardous in accordance with the EPA's Waste Classification Guidance. It will then be transferred by an appropriately permitted waste collector and brought to a licensed waste facility for treatment or disposal. Burning or burial of waste will not be permitted on site.

Hazardous Waste

Hazardous materials may include:

- Fuel
- Oil
- WEEE
- Construction chemicals (cement, sealant, paints, etc.)
- Sewage
- Contaminated soil (resulting from fuel or oil spills)

Chemicals will be stored in bunded areas well away from surface water sources or gullies/surface water drainage leading off site. Hazardous waste will be removed from site by a permitted waste collector.

Appendix A: Waste Register

Waste Details		Resource & Waste Management								Waste Transfer Details			
Description of Waste	LoW Code	Volume Generated	Prevention (non-waste)	Reused (non waste)	Recycled (waste)	Recovered (Waste)	Disposed (Waste)	Unit Cost Rate	Total Cost	Waste Collector		Waste Facility	
		(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)	(Tonnes)	(€/Tonne)	(€)	Name	NWCP	Name	WFP/ WL No.
Concrete, Bricks, Tiles and Ceramics	17 01												
Concrete	17 01 01												
Bricks	17 01 02												
Tiles and Ceramics	17 01 03												
Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances	17 01 06*												
Mixture of concrete, bricks tiles & ceramics	17 01 07												
Wood, Glass, and Plastic	17 02												
Wood	17 02 01												
Glass	17 02 02												
Plastic	17 02 03												
Glass, plastic and wood containing or contaminated with hazardous substances	17 02 04*												
Bituminous Mixtures, Coal Tar and Products	17 03												
Bituminous mixtures containing coal tar	17 03 01												
Bituminous mixtures containing other than those mentioned in 17 03 01	17 03 02												
Metals (including their Alloys)	17 04												
Copper, Bronze, Brass	17 04 01												
Aluminium	17 04 02												
Lead	17 04 03												
Zinc	17 04 04												
Iron and Steel	17 04 05												
Tin	17 04 06												
Mixed Metals	17 04 07												
Metal waste contaminated with hazardous substances	17 04 09*												
Cables	17 04 11												
Soil (including excavated soil from contaminated sites, stones and dredging spoil)	17 05												
Soil and Stones	17 05 04	56000*	0	0	0	0	56000*	TBC	TBC	TBC	TBC	TBC	TBC
Soil and Stones containing hazardous substances	17 05 03*	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Insulation and Asbestos-Containing Construction Materials	17 06												
Insulation Material	17 06 04												
Construction Materials Containing Asbestos	17 06 05*												
Gypsum based Construction Materials	17 08												
Gypsum	17 08 02												
Other Construction and Demolition Materials	17 09												
Mixed Construction and Demolition Waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03	17 09 04												
Wastes of Liquid Fuels	13 07												
Fuel Oil & Diesel	13 07 01*												
Petrol	13 07 02*												
Other Fuels	13 07 03*												
Wastes from the Manufacture, Formulation, Supply and Use of Coatings	08 01												
Waste Paint & Varnish containing Organic Solvents or other Hazardous Materials	08 01 11*												
Waste Paint & Varnish other than those mentioned in 18 01 11	08 01 12												
Waste from waste water treatment plants	19 08												
Sewage Screenings	19 08 01												
Municipal Wastes	20 01												
Paper and Cardboard	20 01 01												
Wood other than that mentioned in 20 01 37	20 01 38												
Paint, inks, adhesives, and resins containing hazardous substances	20 01 27												
Electrical and electronic components	20 01 35-36												
Batteries and accumulators	20 01 33-34												
Chemicals (solvents, pesticides, paints, adhesives, detergents etc.)	20 01 13/19/27-30												
Other Municipal Wastes	20 03												
Mixed Municipal Waste	20 03 01												

*To be noted that the initial figures of soil to be removed prior to construction serve as estimates only. Quantities of soil to be removed from soil mounds should be calculated by a Quantity Surveyor prior to removal, and coordinated by the Contractor.

Appendix B: Licensed Waste Facilities

Licensed Waste Facilities				
Waste Type	Waste Code	Licensed Waste Facility/Collector	Facility Code	Facility Address
Soil & Stones	17 05 04	Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
		J Ryan Haulage Ltd	COR-KE-22-0044-01	Athy Distributor Road, Athy, Co. Kildare
		Milford Quarries Ltd	WFP-KE-23-0121-01	Graney East, Castledermot, Co. Kildare
Concrete	17 01 01	Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
		J Ryan Haulage Ltd	COR-KE-23-0120-01	Hartwell Upper, Kill, Co. Kildare
		J Ryan Haulage Ltd	COR-KE-22-0044-01	Athy Distributor Road, Athy, Co. Kildare
Bricks	17 01 02	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
Tiles and Ceramics	17 01 03	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
Wood	17 02 01	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
Glass	17 02 02	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
Plastic	17 02 03	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
Bituminous mixtures	17 03 02	Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
		Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		Arkil Limited	WFP-KE-23-0119-01	Drinnanstown South, Rathangan, Co. Kildare
Mixed Metals	17 04 07	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare
Mixed Construction and Demolition Wastes	17 09 04	Wilton Scrap Metals	WFP-KE-20-0105-01	Unit M1 Osberstown Industrial Estate, Caragh Road, Naas, Co. Kildare
		G & J O'Neill Enterprises Ltd	WFP-KE-21-0106-01	Unit 74A Naas Industrial Estate, Naas, Co. Kildare
		Callan Recycling Ltd	WFP-KE-20-0097-01	Drinnanstown North, Rathangan, Co. Kildare

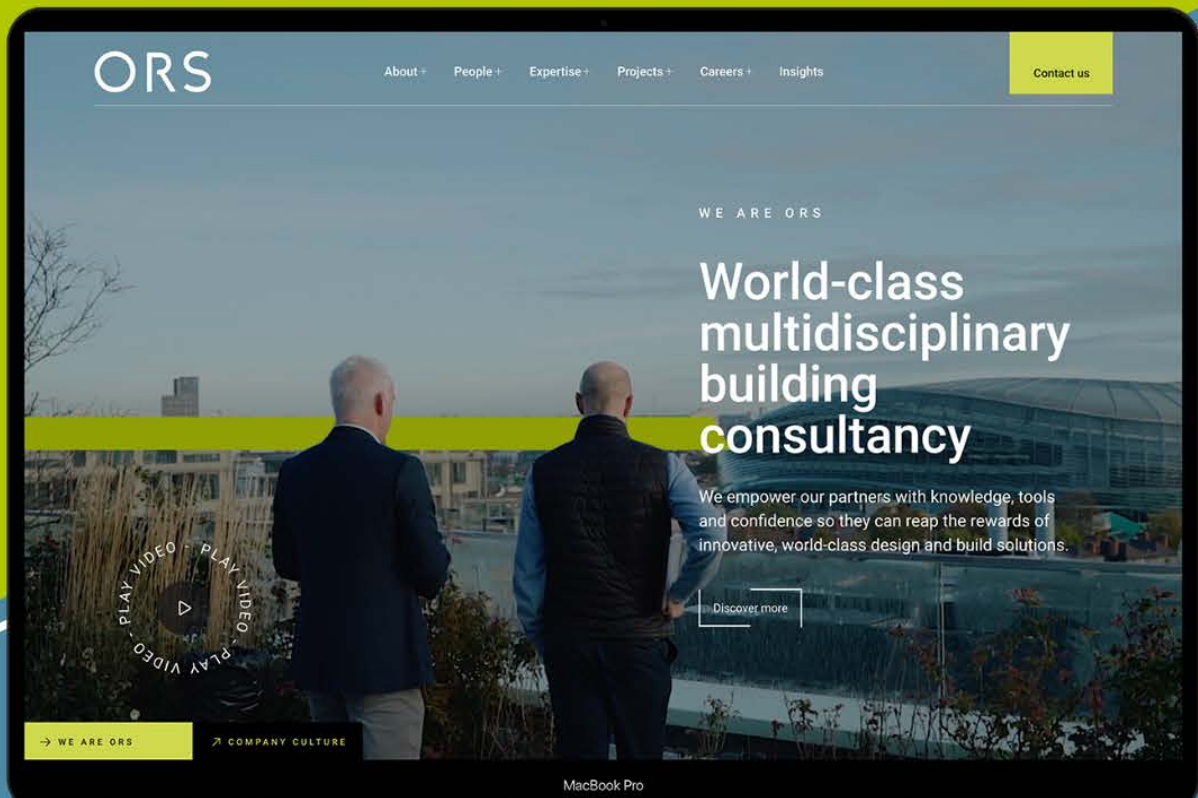
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