CHAPTER NINETEEN MATERIAL ASSETS WASTE MANAGEMENT

19.1. INTRODUCTION

This chapter focuses specifically on Waste Management in relation to the material assets serving the proposed development, as described in detail in Chapter 2.0 of this EIAR. The assessment covers the demolition, construction, and operational phases, evaluating how waste will be managed throughout the lifecycle of the proposed development In line with the Environmental Protection Agency's Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EIAR) (EPA, 2022), the topic of Material Assets encompasses three key areas:

- Built Services/Utilities
- Roads and Traffic
- Waste Management

The Roads and Traffic and Built Services/Utilities chapters have been assessed separately in Chapter 18.0: Traffic, and Chapter 20: Material Assets – Utilities respectively, in this EIAR.

19.2. METHODOLOGY

19.2.1. Study Area

In accordance with the EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022) and the Best Practice Guidelines for Resource & Waste Management Plans for Construction & Demolition Projects (EPA, 2021), the study area comprises all areas within the Proposed development boundary, the masterplan site boundary, and a wider regional study area comprising relevant infrastructure and waste management facilities that may support or be impacted by the development, as presented in further detail within the relevant sections of this assessment.

19.2.2. Legislation and Guidance

Waste management in Ireland is governed by a comprehensive framework of EU, national, regional, and local legislation and policy, which defines how waste materials must be managed, transported, and treated. At the EU level, the Waste Framework Directive (2008/98/EC) (as amended) provides the overarching legislative basis for waste management. This directive is transposed into Irish law through, amongst other regulations, the European Waste Management Act 1996 as amended and SI 126/2011 and the European Communities (Waste Directive) regulations 2011, as amended.

The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended), which establishes the legal obligations for waste producers, collectors, and treatment facilities. Central to both EU and Irish waste policy is the waste hierarchy, which sets out a preferred order for managing waste to include prevention, reuse, recycling, recovery and disposal. This hierarchy promotes sustainable resource use and minimization of environmental impacts.

The proposed development will be subject to the following key legislative instruments and best practice documents:

- Circular Economy and Miscellaneous Provisions Act (2022) as amended
- Waste Management (Facility Permit and Registration) Regulations 2008 (S.I. No. 86/2008) (as amended)
- Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820/2007) (as amended)
- Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419/2007) (as amended)
- Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous as amended (EPA, 2019)

In addition to legislative requirements, several policy documents have been reviewed to inform the waste management approach for the project:

- Waste Action Plan for a circular economy (2020- 2025)
- National hazardous Waste Management Plan (2021-2027)
- National Waste Management Plan for Circular Economy (2024 – 2030)
- EU Construction & Demolition Waste Management Protocol (EC, 2016)
- A Resource Opportunity – Waste Management Policy in Ireland (DoCELG, 2012)
- Southern Region Waste Management Plan 2015-2021; and
- Limerick City and County Development Plan 2022 - 2028

These instruments, policies and guidance documents collectively ensure that waste arising from the proposed development will be managed in a manner that is legally compliant, environmentally responsible, and aligned with national and EU sustainability goals.

Overview of key Policies

Southern Region Waste Management Plan

The relevant regional waste policy for Limerick City and County Council (LCCC) was previously the Southern Region Waste Management Plan 2015–2021. This plan has now been superseded by the National Waste Management Plan for a Circular Economy 2024–2030, which establishes a national framework for sustainable waste management and supports Ireland's transition to a circular economy.

The Southern Region Waste Management Plan sought to reframe waste management practices by viewing waste streams as valuable material resources. This approach aimed to enhance environmental health and unlock sustainable economic opportunities. The plan provided a structured framework for the safe and sustainable prevention and management of waste, emphasizing resource efficiency and embedding the circular economy as a core strategic objective.

Although the National Plan had not yet been formally adopted during the early stages of this development, the overarching principles of the Southern Region Waste Management Plan 2015–2021 have been incorporated into the Limerick Development Plan 2022–2028, which serves as framework for this project.

Waste Action Plan for Circular Economy

A Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020 – 2025 (DCCAE, 2020) (hereafter referred to as the National Waste Action Plan) was issued by the Department of Communications, Climate Action and Environment (DCCAE).The policy is intended to move Ireland toward a circular economy shifting away from waste disposal, favouring circularity and sustainability by identifying and

maximising the value of materials through improved design, durability, repair and recycling. The plan sets out the following:

- Project Ireland 2040 sets out the State's development goals over the next 20 years, and which allows for the opportunity to forecast large, specific waste streams with a focus on preventing or efficiently managing the waste from these areas;
- Prevention of soil arisings which are a significant financial burden on the sector are to progress by placing value on the used material where possible. There is a strong focus on Article 27 and the end of waste decision making process. These processes are to be streamlined and detailed guidance will be developed for specific problematic materials;
- Use of recycled construction materials will be incentivised (potentially by introducing a levy on virgin aggregates); To make national end-of-waste decisions for specific construction and demolition waste streams at the earliest possible stage; and
- Best Practice Guidelines for construction and demolition waste revised to improve the Preparation of Waste Management Plans for Construction and Demolition Waste Projects (EPA, 2021).

National Waste Management Plan for Circular Economy

The National Waste Management Plan for a Circular Economy 2024 – 2030 (RWPO, 2024) is Ireland's new roadmap for waste planning and management. The Plan focuses more on preserving resources by creating a circular economy and shifts away from waste disposal. The applicable objectives of this action plan to the proposed Scheme are to:

- Shift the focus away from waste disposal and treatment to ensure that materials and products remain in productive use for longer thereby preventing waste and supporting reuse through a policy framework that discourages the wasting of resources and rewards circularity;
- Make producers who manufacture and sell disposable goods for profit environmentally accountable for the products they place on the market; and
- Ensure that measures support sustainable economic models (for example by supporting the use of recycled over virgin materials).

The plan has also been prepared to support and supplement the wider policy base and includes specific targets, policies and actions to enable the waste and resource sector to meet the circularity challenge and accelerate the transition to a circular economy and promotes the use Article 27 by-product notifications and Article 28 end-of-waste processes for end waste materials. The targets set include but are not limited to:

- 0% growth in waste generation by 2030;
- 12% reduction in C&D waste by 2030; and
- 70% Recycling of construction and demolition non-hazardous waste.

National Hazardous Waste Management Plan

The Environmental Protection Agency has prepared a revised National Hazardous Waste Management Plan for the Republic of Ireland covering a six-year period from the date of publication (2021-2027). It sets out the priorities to be pursued to improve the management of hazardous waste, taking into account progress made since the previous plan and the waste policy and legislative changes that have occurred since the previous plan was published.

The objectives of the National Hazardous Waste Management Plan are to:

- Support and drive priority prevention actions by industry and the public to reduce the generation of hazardous waste;
- Support the identification of adequate and appropriate collection infrastructure for all hazardous wastes with a view to mitigating environmental and health impacts;
- Endorse the proximity principle such that hazardous wastes are treated as close to the point of production as possible – including within Ireland, where feasible;
- Support effective regulation of the movement and disposal of hazardous wastes in line with national policy priorities; and
- Promotion of safe reuse and recycling pathways in support of the circular economy. The revised National Hazardous Waste Management Plan makes 27 recommendations around prevention, collection, self-sufficiency, regulations, legacy issues, guidance and awareness and implementation.

Limerick City and County Development Plan 2022 - 2028

The Limerick City and County Development Plan 2022–2028 includes Objective IN O17, which specifically addresses Waste Management and the Circular Economy. This objective supports the transition to more sustainable waste practices and aligns with national and EU policy frameworks promoting resource efficiency and circularity. The applicable objectives include

IN017: Waste Management and Circular Economy - It is the objective of the Council to:

a) Support innovative, smart solutions and processes, based on the principles of the circular economy to implement the Regional Waste Management Plan for the Southern Region 2015 – 2021 and any subsequent plan, including any targets contained therein
b) Collaborate with the Regional Waste Management Office and other agencies to implement the EU Action Plan for the Circular Economy – Closing the Loop, 2015, its successor the Circular Economy Action Plan: A New Circular Economy Action Plan for a Cleaner More Competitive Europe, 2020 and the Resource Opportunity Waste Management Policy, DECLG, 2012 and any subsequent plans
c) Promote sustainable patterns of consumption and production in the areas of product design, production processes and waste management
d) Implement the provisions of the Waste Action Plan for a Circular Economy – Ireland's National Waste Policy 2020 - 2025, DECC, 2020 in the assessment of planning applications
e) Protect existing civic amenity sites and bring sites throughout Limerick and support the development of additional sites in accordance with the Southern Regional Waste Management Plan 2015 – 2021 and any subsequent plans

IN018:Waste Infrastructure - It is the objective of the Council to:

a) Direct waste management facilities to appropriately zoned lands, subject to normal planning and environmental criteria and the relevant Development Management Standards
b) Maintain recycling facilities and require the provision of bring banks or other appropriate recycling facilities as part of the overall development in the case of new or extended retail centre development and commercial local/ neighbourhood centres, educational, sports and recreational facilities. These facilities will be provided and maintained by the developers, operational management companies and occupiers.
c) Use the regulatory enforcement powers available to the Council under the Planning and Development Act 2000 (as amended) and under the Waste Management Act 1996 (as amended), to address unauthorized waste facilities and the illegal disposal of waste in Limerick

The proposed development aligns with this objective in particular as it aims to incorporate sustainable waste

management practices throughout the project implementation.

This section is prepared in accordance with '*Guidelines on the information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022), '*Best Practice Guidelines for the preparation of resources & waste management plans for construction & demolition projects'* (EPA, 2021) and '*IEMA guide to material and waste in environmental impact assessment'* (IEMA,2020)

Project-specific reports and surveys reviewed and incorporated into this assessment where relevant include the following:

- Pre-Demolition Waste Audit Report (AtkinsRéalis, 2025), prepared in line with Building Research Establishment Environmental Assessment Methodology (BREEAM);
- Construction and Demolition Resource and Waste Management Plan (CRWMP) (Stage 2A2)' (ARUP, Jul 2025) prepared as part of the planning application;
- Operational Waste Management Plan (AtkinsRéalis, 2025). The OWMP aligns with best practice guidance and policy documents, including: *Design Out Waste: Preparation of Waste Reduction Factsheets for Design Teams and EPA National Statistics Summary Report 2020*(EPA, 2020)

Together, these documents provide a robust framework for evaluating waste-related considerations across all phases of the proposed development.

In addition, an asbestos survey was conducted by Phoenix Environmental Safety Ltd.in 2024. The Asbestos Survey Report: Refurbishment/Demolition has been included to support the planning application and has informed this assessment. The report is provided in Appendix 19.1 for reference to this Chapter and is discussed in Section 19.3.3.2 below.

19.2.3. Assessment Method

This assessment has been prepared in full compliance with the Environmental Protection Agency (EPA)'s Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (May 2022), with particular reference to the significance of effects as outlined in Table 3.4, 'Descriptions of Effects', in relation to the proposed development's impact on the receiving environment.

This section outlines the methodology used to assess potential impacts on waste management. Impact terminology is provided in Chapter 10.0: Land, Soils and Geology (Table 10.1), and has been applied consistently throughout this chapter. No limitations were encountered during the preparation of this assessment.

19.3. EXISTING RECEIVING ENVIRONMENT

19.3.1. Current land Use

The site is brownfield consisting of disused industrial buildings constructed during the 19th and 20th centuries in the central portion of the site, the Salesian's School buildings in the western portion of the site, car parking facilities to the south, and St. Michael's Rowing Club boathouse along the eastern site boundary. There is a disused, flooded quarry pit in the centre of the site. There are a number of significant heritage structures on the site such as the original early 19th century mill, the infiltration gallery, and the chimney stack.

19.3.2. Ground Investigation Findings

19.3.3.1 Contaminated land

Geo-environmental testing conducted by PGL (2025) identified a variable contamination risk across the site. Further details are provided in the Structural Report (Arup 2025) and Chapter 10 of this EIAR. While the majority of made ground material is suitable for disposal to an inert licensed landfill, hazardous materials were detected in samples from several locations. All excavated material will be subject to prior testing and classification by the Contractor(s) to ensure compliance with relevant standards and regulations. This will determine its suitability for reuse on site or its acceptance at an authorized facility for off-site recovery or disposal.

19.3.3.2 Asbestos Survey

Asbestos-containing materials (ACMs) have been identified within the proposed development through survey investigations. ACMs pose both environmental and human health hazards, hence it is a regulated hazardous material, and its presence directly influences waste classification and the mitigation measures required during redevelopment. To establish a comprehensive understanding of ACM distribution and condition across the site, two asbestos surveys were undertaken by Phoenix Environmental Safety Ltd. in 2015 and 2024. These surveys have informed the waste management strategy and health and safety planning for the proposed works. The updated 2024 survey reflects current site conditions used in the assessment. A summary of the findings is presented in Table 19-1 below.

Table 19-1: Summary of asbestos survey findings

Aspect	2015 Survey	2024 Survey
Purpose	Initial baseline prior to redevelopment	Reassessment post partial demolition/remediation
Scope	Non-intrusive inspection of derelict buildings	Refurbishment /demolition -focused survey across the full site
Buildings with ACMs	Most buildings except buildings 13, 18 and 19[1]	Most buildings except buildings 6, 13 18 and 19[2]
Common ACMs identified	Cement sheeting, insulation board, rope seals, floor tiles, CAF gaskets	Cement sheeting, insulation board, thermal insulation, felt, paper, rope seals, CAF gaskets
Extent of ACMs	Widespread across roofs, ceilings, and pipework	More detailed and extensive, including internal debris and concealed materials
New findings	Not applicable/Baseline	ACMs under floor coverings, thermal insulation residues, asbestos felt, and presumed ACMs in inaccessible areas

[1] Asbestos Survey report ,2015.Summary of findings
[2] Asbestos Survey report 2024.Summary of Findings

19.3.3.3 Invasive Species

Invasive alien species identified on the site comprise Japanese Knotweed (*Fallopia japonica*) . For further information related to invasive species and proposed biosecurity measures, refer to Biodiversity Chapter 7 of this EIAR.

19.3.3.4 Resource and Waste Management Infrastructure

This section outlines the resource and waste infrastructure available within the Southern Waste Region, with particular focus on County Limerick, where the proposed development site is located. The information presented has been sourced from the Construction and Demolition Resource Waste Management Plan (CDRWMP)(ARUP,2025), which provides a strategic overview of waste management capacity, infrastructure, and policy direction relevant to the region. The final destinations of the waste will be confirmed by the Contractor(s) and will be informed by up-to-date information on the available facilities within the region and their capacities when the project is at the Construction Phase. This assessment is based on the likely destinations taking account of currently available information and predictions, as detailed below.

Waste and IE License facilities overview

In Ireland, the collection of construction and demolition (C&D) waste is carried out by permitted private waste collectors. This typically involves a combination of material haulage vehicles for bulkier waste streams such as soil and stone, and skip collection services for less voluminous materials including metals, wood, glass, and plastics. Facilities within the Southern Waste Region that are authorized to accept C&D waste licensed by the EPA under Waste and Industrial Emissions (IE) Licensing are summarized in Table 19-2 below.

Table 19-2: Facilities authorized to accept C&D waste within the region (CDRWMP, ARUP 2025)

Facility Type	No.	Authorized Annual capacity all streams(tonnes)	Authorized Annual capacity all C&D waste (tonnes)
Composting /anaerobic digesting	3	115,800.00	Not specified
Hazardous waste[3]	2	106,000.00	3,000.00
Materials Recovery facility	5	430,100.00	75,150.00
Soil recovery Facility	4	1,151,000.00	1,151,000.00
Total capacity		**1,802,900.00**	**1,229,150.00**

Landfills

Ireland currently operates three active waste landfills located in Counties Dublin, Kildare, and Wicklow, with a combined annual capacity of approximately 458,000 tonnes. These facilities form a critical part of the national infrastructure for the disposal of inert and non-hazardous waste (CDRWMP, ARUP 2025)

[3] Hazardous waste identified to date onsite consists of ACMs, asbestos and contaminated soil, which will be excavated, managed, transported and disposed of to a suitably licensed facility abroad, in accordance with all relevant statutory requirements, as detailed within the CDRWMP (ARUP,2025).

19.3.3.5 Recovery of Soil and Stone

In Ireland, most of the Construction and Demolition (C&D) waste generated is managed through backfilling operations. This recovery method involves using suitable non-hazardous waste materials to reclaim excavated areas for engineering purposes, such as landscaping and site restoration.

There are approximately 474 recovery facilities nationally, most of which are former quarries who undertake backfilling operations. These facilities primarily accept inert soil and stone, along with smaller quantities of other C&D materials such as concrete, brick, tile, and bituminous mixtures. Contaminated or hazardous soil and stone cannot be disposed off via backfilling and is generally exported overseas for treatment The capacity of the sites are limited by the size of the former quarry void.

There are currently four active soil recovery facilities operating under EPA Waste Licences in the Southern Waste Region as shown in Table 19-3.The closest facilities to the proposed development are Tulligmore Quarry Solutions Limited (W0255-02) and Garryhesta Pit-(Roadstone Limited)(W0299-01) in Co. Cork located approximately 100km away by road. In addition to Waste Licence sites, there are approximately 136 Waste facility Permit (WFP) authorised sites accepting inert soil and stone from C&D projects in the Southern Waste Region. As demonstrated below, there is sufficient capacity within the region to facilitate the recovery / disposal of waste material generated during the demolition and construction phase.

Table 19-3: Recovery Facilities (CDRWMP,ARUP 2025)

Facility Name	Location	Waste Licence No.	Annual capacity (Tonnes)	2024 Accepted Volume (tonnes)	Additional activities
Tulligmore Quarry Solutions Limited	Tulligmore, Dripsey, Co. Cork	W0255-02	280,000	276,000	Back filling with inert soil and stone , Processing of C&D waste to produce recycled aggregate
Garryhesta Pit (Roadstone Limited)	Knockanemore, Ovens, Co. Cork	W0299-01	300,000	300,000	Backfilling with inert soil,
CHI Environmental Limited	Grannagh, Kilmacow, Co. Kilkenny	W0260-01	170,000	35,000	Processing of C&D waste to produce recycled aggregate
Brownswood Inert Waste Recovery Facility	Enniscorthy, Co. Wexford	W0280-01	401,000	83,000	Backfilling with inert soil and stone

19.3.3.6 Recycling

There are five active Materials Recovery Facilities (MRFs) operating in the Southern Waste Region under EPA Waste or Industrial Emissions (IE) Licenses that accept C&D waste, as listed in in Table 19-4. The nearest MRF to the proposed development site is Clean (Irl) Refuse & Recycling Co (License No. W0253-01), located in County Clare, approximately 75 km away by road (CDRWMP,2025).

Table 19-4: Material Recovery Sites(CDRWMP, ARUP 2025)

Facility Name	Location	Waste Licence No.	Annual Capacity	Activities
Waste Recovery Services (Fermoy) Ltd	Cullenagh, Fermoy, Co. Cork	W0107-01	1,800 (non-hazardous C&D waste	MRF/waste transfer station. Sorting and segregation of timber, metals, and other waste streams; sent off-site for recycling, recovery, or disposal
Greenstar Recycling (Munster) Ltd	Sarsfield court Industrial Estate, Glanmire, Co. Cork	W0136-03	35,000 (C&D waste)	Acceptance and recovery of various C&D waste streams
Killarney Waste Disposal Unlimited Co.	Aughacurreen, Killarney, Co. Kerry	W0217-02	17,500 (non-hazardous) + 350 (hazardous	Acceptance and recovery of hazardous and non-hazardous C&D waste
Clean (Irl) Refuse & Recycling Co.	Ballinagun West, Cree, Co. Clare	W0253-01 (IE)	7,500 (C&D waste)	Segregation and temporary storage before off-site processing, recycling, or recovery
Country Clean Recycling Unlimited Co.	Churchfield Industrial Estate, John F. Connolly Rd, Cork	W0257-01 (IE)	13,000(non-hazardous C&D waste)	MRF/waste transfer station.

Commercial skip hire and collection services for C&D waste within the Limerick City Area are provided by several operators including Mr Binman, Clean Ireland recycling, Clonmel Waste, AES/Bord na Mona and Panda. Segregated skips containing materials such as metals, wood, paper, glass, plastic, concrete, brick, tile, gypsum and bituminous mixtures may be transported to suitably licensed or permitted recycling facilities for recovery or disposal in accordance with regulatory requirements

19.4. CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

A comprehensive overview of the proposed development is provided in Chapter 2.0 – Project Description. The project will follow a circular economy approach, prioritizing resource efficiency by reducing the consumption of materials, energy, and other inputs. Refer also to the Circular Economy Statement (ARUP 2025) submitted as part of this planning application. This strategy aims to lower environmental impacts and associated costs. Unlike the traditional linear model of make, use, dispose, the circular economy keeps resources in use for as long as possible maximizing value through reuse and recovery, and promotes the regeneration of products, components, and materials at the end of their service life.

Waste generated during the demolition and construction phases will be managed in line with the Demolition and Construction & Demolition Resource and Waste Management Plan (CDRWMP) (ARUP, 2025). Estimated waste volumes informed by both the CDRWMP and the Pre -Demolition Waste Audit Report (AtkinsRealis 2025) have guided the assessment and planning of appropriate management measures to

ensure compliance with relevant waste legislation and best practice standards.

During the operational phase, waste materials will be segregated onsite into designated waste streams using dedicated bins and storage areas, facilitating appropriate onward disposal. Refer to the Operational Waste Management Plan (AtkinsRealis, 2025) submitted as part of this planning application. Definitions and terminology used in this assessment are provided in Chapter 10.0 – Land, Soils and Geology (Table 10.1).

19.4.1 Vegetation Clearance

To facilitate the earthworks operation, site clearance will have to be carried out to remove vegetation. Removal of woody vegetation will only take place outside the bird breeding season (1st March to 31st August). No removal of habitats will occur outside of the proposed development area during the construction phase. Temporary surface water management measures will be put in place prior to site clearance and stripping will remain in place until the completion of the development , or until the completion of each stage /phase.

Prior to vegetation clearance , the site will be re-inspected and re-surveyed for Invasive species. The stand of Japanese Knotweed within the reservoir area will be surveyed and any mitigation measures necessary will be undertaken in accordance with the Invasive Species Management Plan. There is a responsibility on the Environmental Manager or Ecological Clerk of Works (EcoW) to regularly inspect and supervise maintenance of the environmental control throughout the process. Invasive Species will be managed in accordance with the requirements in the Invasive Species Management Plan, during all phases of the proposed development, and therefore is not addressed further within this Chapter. Refer to Chapter 7 – Biodiversity and the Invasive Species Management Plan submitted as part of this planning application.

19.4.2 Demolition Phase

Demolitions works will be carried out as part of the proposed development to facilitate site clearance and construction activities. The works planned include a reuse and redevelopment strategy which will retain and reuse structures with historical significance, namely the Flax Mill Factory (PS Ref no.264 & NIAH No. 21512053)and the octagonal brick chimney (PS Ref no.265 & NIAH No. 21512059), while other structures are marked for removal or complete redevelopment. The works will involve the removal of selected components of existing structures across the site. The partial demolition or redevelopment will affect the following structures:

- Salesians Secondary School and Fernbank House;
- 2 no. houses on North Circular Road;
- Residual piers from the basin of the reservoir
- Upper Reservoir on Stonetown Terrace comprising 2 no. structures;
- Mid and late 20th century building structures adjoining the Cold Store (former Weaving Mill);
- Linen Store and later 20th Century store next to Linen Store on Stonetown Terrace/O'Callaghan Strand;
- 20th century extension at rear of the Flaxmill Building;
- Office and Laboratory Building on O'Callaghan Strand
- Packaging Offices on North Circular Road
- Warehouse on the Shipyard site
- Stone boundary wall adjoining O'Callaghan Strand (partial removal); and

The estimated types and volumes of waste materials are detailed in Table 19-5, as outlined in the Pre-Demolition Waste Audit Report (AtkinsRéalis, 2025). It is estimated that about 9605 tonnes of material will be generated with the largest material streams being steel, brickwork and concrete, consistent with the composition of the existing building fabric.

Table 19-5: Estimated volumes of demolition materials (PDA, AtkinsRealis 2025)

Waste Stream	Estimated waste generation (tonnes)
Steel	316
Metal corrugated Cladding	78
Brickwork	2260
Concrete (including Pre-Cast Panels)[4]	6850
PVC Window frames	2
Fluorescent Lighting	7
Glass	6
Timber	38
Gypsum	16
Natural Stone	32
Bitumen	10
Total	**9,605**

19.4.3 Excavation (Made ground & Non-contaminated soils)

Excavation works during the construction phase is necessary to establish appropriate formation levels for building foundations, substructures, internal roads, parking zones, and the installation or rerouting of utilities and site services. There is potential to reuse part of the excavated material within the site boundary subject to suitability and compliance with relevant standards and regulations.

It is provisionally estimated that approximately 46,100 m³ (or 98,120 tonnes) of excavated material will be generated. The made ground is considered unlikely to be suitable for reuse due to its composition and potential contamination, therefore, approximately 26,800 m³ (or 50,920 tonnes) is expected to require off-site disposal to licensed facilities.

The remaining 19,300 m³ (or 47,200 tonnes) of excavated subsoils and rock are likely to be suitable for reuse on site to in line with circular economy principles. Excavated rock will also be crushed on site using a mobile crusher, to facilitate reuse within the development.

19.4.4 Construction

Waste generation estimates for the proposed development are based on benchmarks provided by the Building Research Establishment (BRE) and the net internal areas (NIA) of the proposed building typologies. These benchmarks informed the calculation of anticipated construction waste arisings. A summary of predicted waste generation by waste stream is presented in Table 19-6. Construction activities are expected to generate approximately 3,380 tonnes of waste. This estimate excludes waste arising from the construction of public realm areas and should be considered indicative (CDRWMP, ARUP, 2025)

[4] Concrete from underwater piers in reservoir is estimated due to lack of records showing dimensions

Table 19-6: Estimated waste quantities (CDRWMP, ARUP 2025)

Waste Stream	Estimated waste generation (tonnes)
Bricks	248.40
Tiles and Ceramics	17.70
Concrete	344.27
Inert	982.54
Insulation material	17.22
Metals	48.14
Packaging material	93.69
Plasterboard/gypsum	118.38
Binders	4.24
Plastic (excl ,packaging waste)	62.90
Timber	287.30
Floor Coverings	1.81
Electrical and Electronic equipment	1.36
Furniture	0.68
Canteen /Office/Ad-hoc Waste	35.72
Liquids	1.99
Oils	0.44
Bituminous mixtures	20.77
Hazardous waste	20.66
Other waste	93.82
Mixed Construction and/or demolition waste	977.84
Total	**3,379.68**

All waste materials will be removed offsite to an appropriately permitted or licensed waste disposal/recovery facility. Waste will be transported and disposed of in accordance with relevant waste management legislation (including but not limited to the Waste Management Act of 1996 (as amended) and all subsequent waste management regulations as amended).

19.4.5 Operational Waste

Operational waste impacts primarily relate to the transportation, disposal, and recovery of materials at appropriately licensed facilities. Additionally, there is a potential risk of littering within the proposed development and its surrounding areas. It is anticipated that approximately 348,824 kg of waste per annum will be generated during the operational phase of the development. Waste management measures are outlined in the Operational Waste Management Plan (OWMP) prepared by AtkinsRealis (2025) which provides a framework to ensure that waste is managed in accordance with relevant legislation, regional waste policies and best practice guidance.

All waste generated during the operational phase will be handled in full compliance with statutory waste management and environmental regulations. As is typical for residential developments, littering may occur; however, this will be mitigated through appropriate design considerations and management measures, as described under the Mitigation Measures section of this assessment. Further details are provided in the Operational Waste Management Plan, prepared by AtkinsRéalis (2025) and submitted as part of this planning application. Estimated waste quantities are summarized in Table 19-7 below.

Table 19-7: Annual Waste Quantities for the operational phase (OWMP, AtkinsRealis 2025)

Waste Type	Salesians Zone	Quarry Zone	Stonetown Terrace Zone	O'Callaghan Strand Zone	Townhouses/ Triplexe units	Total (Kg/annum per waste type)
Total (Kg/annum)	157,464	88,452	34,344	21,584	46,980	348,824

19.5 LIKELIHOOD OF SIGNIFICANT IMPACTS

19.5.1 Do nothing scenario

To provide a comprehensive assessment of the proposed development, this section considers the likely impacts on the receiving environment in the event that the development does not proceed.

If the proposed development does not take place, there would be no additional demand or pressure on material assets whether of natural or of human origin. In this scenario, the site would remain in its current state, and no construction or operational activities would occur. As a result, the environmental effect of the do-nothing scenario is considered to be neutral and imperceptible.

19.5.2 Vegetation Clearance

Vegetation clearance is a necessary preparatory activity for site development, enabling access, construction, and remediation works. Potential impacts include habitat loss, disturbance to fauna, soil and water impacts as well as landscape and visual effects. Taking into account the short duration, the temporary nature of the works, the effects on the environment are adverse, short term and slight adverse.

19.5.3 Demolition and Construction Phase

The demolition and construction phase of the proposed development will generate a variety of waste materials during the site excavation and construction phases. These include both non-hazardous wastes (e.g., soil, concrete, packaging, timber, and general construction debris) and hazardous wastes(e.g., contaminated soils, asbestos-containing materials, oils, and paints), where applicable. In addition, municipal-type wastes such as food waste, paper, and plastics will be produced by construction personnel.

All waste materials will be temporarily stored on-site in designated, secure areas pending collection by a licensed waste contractor. If not properly managed, stored, or contained, waste materials may lead to littering, pollution, and visual impacts on the development site and adjacent areas. A secondary effect of poor waste management is the potential attraction of vermin, particularly in areas affected by food waste or organic materials.

To mitigate these risks, a carefully planned approach to waste management will be implemented in accordance with the site-specific Resource and Waste Management Plan (RWMP). The predicted environmental effects associated with waste generation and management during construction are expected to be short term and slight moderate. The predicted environmental effects associated with waste generation and management during the demolition and construction phase are expected to be short term and of slight to moderate significance.

19.5.4 Operational Phase

During the operational phase of the proposed development, a range of waste materials will be generated as part of routine activities. This includes municipal solid waste, recyclables, and occasional hazardous waste such as oils and cleaning agents from maintenance operations. Based on the estimated quantities of waste to be generated ,the region is well-served by established facilities for waste collection, treatment, recovery, and disposal to efficiently manage waste from developments of this scale and type. Waste unsuitable for recycling is typically directed to recovery facilities, the environmental impact of operational phase is expected to be long term and imperceptible.

19.6 CUMULATIVE DEVELOPMENT & IMPACTS

As part of this assessment, a comprehensive review of other permitted developments within a 1 km radius of the proposed site was undertaken, focusing on those submitted and approved within the last five years. This review was conducted using the Limerick City and County Council's online planning application portal. The relevant projects are listed in Appendix 1.1 of the EIAR and have been considered in evaluating the cumulative environmental effects of the proposed development.

All relevant developments in the immediate environs of the proposed development, which have been approved but are not yet fully constructed or operational have been reviewed as part of this assessment. Based on the location, nature and scale of these developments, and taking account of the results of the impact assessment for the proposed development (i.e. subject of this application), no significant cumulative effects will arise.

The masterplan development for Phase I has been assessed with respect to potential cumulative effects, based on available information. The masterplan development for Phase III and IV has been assessed with respect to potential cumulative effects, based on available information. It is noted that the proposed development has been designed to ensure future proofing where required of the overall masterplan development strategy, including Phase II demolition, and ground improvement works (via. removal of contaminated materials / made ground).

Cumulative effects with respect to waste management during the construction and demolition, and operational phases are considered likely to have a imperceptible impact and are therefore not significant.

19.7 PROPOSED MITIGATION MEASURES

Mitigation measures aim to minimize the impact on the environment of the proposed development through good material resource efficiency practices. All materials consumed and waste generated by the proposed development will be managed in accordance with circular economy principles and the waste hierarchy, with prevention, reuse, recycling, and other recovery methods favored over disposal.

19.7.1 Demolition and Construction Phase

Effective waste management during the demolition and construction phase is essential to minimize environmental impacts, ensure regulatory compliance, and promote sustainable construction practices. The proposed development will generate various waste streams, including surplus materials, packaging, and

general construction debris. To address these, a range of mitigation measures will be implemented to reduce, reuse, and responsibly dispose of waste throughout the construction period, as outlined in the Construction and Demolition Resource and Waste Management Plan (CDRWMP) prepared by ARUP (2025) and the Pre-demolition Audit Report (AtkinsRealis 2025).

These measures will be guided by relevant legislation, regional waste policies, and best practice standards, and will be integrated into the overall Construction Environmental Management Plan (CEMP).

The mitigation measures to be implemented during the demolition and construction phase will consist of the following:

- Waste generated will be considered or reuse on site or off -site in accordance with circular economy principles
  - Re-using blockwork on site or off site. If this is deemed not feasible , inert waste (concrete and blockwork) will be crushed and graded into recycled aggregate that can be re-used for back fill on site or elsewhere
  - Metal components will be considered for recycling to produce high-quality metal products
  - uPVC downpipes in good condition will be re-used off site
  - Timber components in acceptable condition, i.e. internal doors will be first considered for reuse either on or off site
  - A Resource Recovery Plan mapping out the materials streams proposed to be re-used and recycled along with the proposed outlets / end uses shall be developed for material arisings in specific buildings or structures which have been identified as having medium / high reuse or recycling potential
- Demolition material that is not suitable for reuse on site or which is surplus to requirements, will be stockpiled, tested and classified. Where feasible classification for reuse on other construction site(s) will be considered. Where the material is not suitable for reuse, it will be categorised in accordance with the EPA waste classification guidelines.
- Demolition material that is deemed hazardous will be treated at an authorised facility either in Ireland or abroad. Export of hazardous waste from the proposed development outside of the State is subject to the Waste Shipment Regulation, as described above. Export of hazardous waste from site outside the state will comply with the procedures set out in this legislation
- All waste arising from the proposed development will be managed in line with the principles and objectives set out in the CDRWMP (ARUP 2025) ensuring compliance with best practice in prevention, segregation, recovery and disposal and align with regional waste infrastructure principles and policy .
- Licensed local waste management facilities will be contracted to manage waste arising from demolition works
- As part of the asbestos management strategy, specific mitigation measures have been proposed by Phoenix Environmental Safety Ltd in the 2024 Asbestos Survey Report and consist of the following:
  - Asbestos containing materials should be removed prior to the commencement of any works
  - A licensed asbestos removal contractor should be contracted for removal and disposal of asbestos waste; and
  - All asbestos removal works will be undertaken in full compliance with the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006–2010 (S.I. No. 386 of 2006).
  - The appointed contractor will adhere to all regulatory requirements and follow the recommendations outlined in the survey report, including the implementation of robust control measures to prevent exposure to asbestos material.

- All waste management procedures implemented onsite during the construction phase will be in accordance with the CDRWMP (AtkinsRéalis, 2025) submitted as part of this planning application. In advance of commencement onsite, the Contractor will prepare a project specific Detailed CRWMP which will further develop this plan, and will provide specific details in terms of proposed permitted haulage contractors, and permitted / licenced waste disposal / recovery facilities;
- Scheduling and planning the delivery of materials will be carried out on an '*as needed'* basis to limit any surplus materials;
- Materials will be ordered in sufficient dimensions so as to optimise the use of these materials onsite, and will be carefully handled and stored so as to limit the potential for any damage;
- Where feasible, sub-contractors will be responsible for the provision of any materials they require onsite in order to help reduce any surplus waste;
- Waste materials generated will be segregated at the site compound, where it is practical to do so. Where the on-site segregation of certain waste types is not practical, offsite segregation will be carried out.
- There will be skips and receptacles provided to facilitate segregation at source and
- All loaded trucks entering and exiting the Site will be appropriately secured and covered
- Excessive temporary works will be avoided. Existing facilities will be reused as appropriate.
- Paints, sealants and hazardous chemicals will be stored in secure, bunded locations and
- The contractor will ensure that only licensed waste contractors are engaged for the transport of waste, and that all waste is directed to appropriately licensed waste facilities or treatment, recovery, or disposal, as required.

19.7.2 Operational Phase

During the operational phase of the proposed development, effective waste management will be essential to ensure environmental protection, public health, and compliance with statutory obligations. The development will generate various waste streams, including municipal, recyclable, and organic waste, which must be managed in a structured and sustainable manner.

Mitigation measures will be implemented to minimize waste generation, promote segregation at source, and ensure that all waste is collected, stored, and transported to appropriately licensed facilities. These measures will align with national and regional waste policies, environmental legislation, and best practice guidance. In addition, provisions will be made to reduce the risk of littering within the development and surrounding areas through appropriate infrastructure, resident engagement, and ongoing monitoring.

Key operational waste management strategies to be adopted, as detailed in the Operational Waste Management Plan prepared by AtkinsRéalis (2025) will comprise the following;

- All waste will be managed, disposed or recovered in accordance with measures in the Operational Waste Management Plan (AtkinsRéalis, 2025)
- Waste generated will be segregated on site into the various waste streams (residual waste, dry recyclables and organic waste) via dedicated bins and storage areas.
- Bins will be colour coded to prevent cross contamination.
- During the operational phase waste will be collected fortnightly for townhouses /triples units and on a weekly basis for apartments and commercial units by licensed waste contractors.

19.8 RESIDUAL IMPACTS

The implementation of the mitigation measures outlined in Section 19.7 will ensure that targeted rates of reuse, recovery and recycling are achieved at the site of the Proposed Development during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

19.8.1 Demolition and Construction Phase

The demolition plan prepared as well as the Resource and Waste Management Plan (RWMP) prepared for the project will adhere to specific mitigation measures. Environmental effects associated with construction-phase waste are short-term and slight adverse.

19.8.3 Operation Phase

Residual effects associated with waste management during the operational phase of the proposed development are expected to be low in significance, provided that mitigation measures are effectively implemented and maintained. While there remains a potential for minor littering and occasional waste-related nuisances within the development and surrounding areas, these impacts are anticipated to be long-term and imperceptible

19.9 MONITORING REQUIREMENTS

During the construction phase, waste management activities will be monitored by the Contractor's appointed Resource Manager to ensure full compliance with the mitigation measures outlined in this report, as well as all relevant waste management legislation and local authority requirements.

The Contractor will be responsible for maintaining comprehensive waste records throughout the duration of the construction phase. All waste volumes transported off-site will be tracked and monitored, with documentation retained on-site and made available for review as required.

19.10 REFERENCES

- ARUP. 2025. 'Construction and Demolition Resource and Waste Management Plan.'
- AtkinsRéalis. 2025. Construction Environmental Management Plan
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