

## **15 MATERIAL ASSETS (WASTE)**

### **15.1 INTRODUCTION**

This chapter of the EIAR was prepared to assess the potential significant effects of the Proposed Development on waste management.

#### **15.1.1 Quality Assurance and Competency of Experts**

This chapter has been prepared by Lakshmi Priya Mohan, Environmental Consultant with DNV. Lakshmi has a Master of Science degree in Environmental Science degree from University College Dublin, Master of Science degree in Zoology from Ethiraj College for Women, India, and Bachelor of Science in Zoology from Madras Christian College India. Lakshmi has over 2 years of experience as an environmental consultant preparing Environmental Impact Assessment Reports of a similar scale and nature to the Proposed Development.

This chapter has been reviewed by Rachel Redmond, Environmental Consultant and Michelle Gaffney, Senior Environmental Consultant with DNV.

Rachel has a Bachelor of Science (Hons) in Environmental Science from University College Cork. Rachel has worked as an Environmental Consultant with DNV since 2023 and has over 3 years of experience as an environmental consultant preparing Environmental Impact Assessment Reports of a similar scale and nature to the Proposed Development.

Michelle holds a B.A (Hons) in Earth Science from Trinity College and is currently advancing expertise through a part-time MSc in Environmental Sustainability at University College Dublin. Michelle has been involved in the technical input into a range of Environmental Impact Assessment Report Chapters and has been involved in the project management and delivery of a range of EIARs of a similar scale and nature to the Proposed Development.

### **15.2 ASSESSMENT METHODOLOGY**

#### **15.2.1 Relevant Legislation and Guidance**

The study methodology for the assessment takes cognisance of a wide range of legislation, guidelines, codes of practice, and plans. All phases of the Proposed Development were considered in evaluating potential effects on Material Assets - Waste within the study area. The assessment of likely effects was carried out in accordance with the documents listed below, which collectively ensure compliance with statutory requirements and alignment with best practice across environmental and waste management domains.

##### **Environmental Impact Assessment and Planning**

- Directive 2011/92/EU as amended by Directive 2014/52/EU;
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018);
- Environmental Protection Agency (EPA) (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR);
- Dundalk Local Area Plan 2024 – 2030; and
- Louth County Development Plan 2021 – 2027.

##### **Waste Management and Circular Economy**

- EPA (2021) Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects;
- Waste Framework Directive (Directive 2008/98/EC) as amended by Directive (EU) 2018/851;
- European Union (Waste Directive) Regulations 2020 as amended, S.I. No. 323 of 2020;
- Waste Management Act 1996 (as amended);
- Waste Action Plan for a Circular Economy (2020–2025); and
- The National Waste Management Plan for a Circular Economy 2024-2030.

This chapter addresses the waste-related aspects of Material Assets in accordance with the EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022). It focuses on the generation, management, and disposal of waste during the construction and operational phases of the Proposed Development.

The assessment considers:

- Construction and demolition (C&D) waste;
- Municipal and commercial waste;
- Waste segregation, storage, and collection infrastructure; and
- Compliance with relevant national, regional, and local waste legislation and policy.

Effects on utilities (e.g. water, wastewater, electricity, gas, telecommunications) are addressed separately in Chapter [16] of this EIAR: Utilities. Other related topics such as traffic, population and human health, air quality, and climate are assessed in the following chapters:

- Chapter 5: Population and Human Health;
- Chapter 9: Air Quality;
- Chapter 10: Climate; and
- Chapter 14: Traffic.

The scope of work undertaken for this assessment includes a desk-based study of waste management services and infrastructure within the defined study area, specifically within the jurisdiction of Louth County Council. The study involved the collection and review of relevant published data, planning policy, and technical documentation provided by the Applicant and design team.

This chapter does not include original calculations of waste generation or infrastructure capacity. Instead, it draws upon technical assessments and calculations presented in supporting reports prepared by qualified consultants, including:

- Resource and Waste Management Plan (RWMP) (AWN Consulting, 2025a);
- Operational Waste Management Plan (OWMP) (AWN Consulting, 2025b); and
- Construction Environmental Management Plan (CEMP) (DBFL Consulting Engineers, 2025).

Each of these documents was reviewed and referenced where relevant throughout this chapter.

### 15.2.2 Description and Assessment of Potential Effects

Effects will vary in quality from negative, to neutral or positive. The effects of impacts will vary in significance on the receiving environment. Effects will also vary in duration. The terminology and

methodology which will be used for assessing the 'impact' significance and the corresponding 'effect' throughout the chapter is described in Table 15 -1.

| Quality of Effects/Impacts      | Definition                                                                                                                        |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Negative                        | A change which reduces the quality of the environment.                                                                            |
| Neutral                         | No effects or effects that are imperceptible, within the normal bounds of variation or within the margin of forecasting error.    |
| Positive                        | A change that improves the quality of the environment.                                                                            |
| Significance of Effects/Impacts | Definition                                                                                                                        |
| Imperceptible                   | An effect capable of measurement but without significant consequences.                                                            |
| Not significant                 | An effect which causes noticeable changes in the character of the environment but without significant consequences.               |
| Slight                          | An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.                |
| Moderate                        | An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. |
| Significant                     | An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.                 |
| Very Significant                | An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.   |
| Profound                        | An effect which obliterates sensitive characteristics.                                                                            |
| Duration of Effects/Impacts     | Definition                                                                                                                        |
| Momentary                       | Effects lasting from seconds to minutes.                                                                                          |
| Brief                           | Effects lasting less than a day.                                                                                                  |
| Temporary                       | Effects lasting one year or less.                                                                                                 |
| Short-term                      | Effects lasting one to seven years.                                                                                               |

**Table 15-1:** Terminology used to assess the quality of potential effects (Source EPA Guidance, 2022)

### 15.2.3 National and Regional Policy

The National Waste Management Plan for a Circular Economy (NWMPCE) 2024 -2030, sets out the framework for the prevention and management of waste across Ireland. This document is a statutory document underpinned by national and EU waste legislation, and reflects the targets set out for construction and demolition waste in the Waste Framework Directive (WFD). This Plan replaces the previous Regional Waste Management Plans, including the Eastern-Midlands Region Waste Management Plan 2015-2021, which covered County Louth.

The strategic vision of the NWMPCE is to rethink the approach to managing waste, and to move towards a 'circular economy' approach where resources are reused or recycled as much as possible, and the overall generation of waste is minimised.

In order to achieve this vision, the NWMPCE has set out a number of specific and measurable performance targets in relation to construction and demolition waste:

- Achieve a 2% reduction per annum is proposed for total construction and demolition waste to achieve a cumulative 12% reduction by 2030 (baseline is 9 million tonnes); and
- Achieve 70% construction and demolition waste sent for reuse, recycling and other recovery of construction and demolition waste (excluding natural soils and stones, and hazardous wastes).

The NWMPCE aims to “*prioritise waste prevention and circularity in the construction and demolition sector to reduce the resources that need to be captured as waste*”. In order to achieve the objectives, set out in NWMPCE, it is imperative that robust resource and waste management plans are developed for and designed into the pre-construction, construction and operational phases of the Proposed Development.

For the purposes of this development, the objectives and targets set out in the NWMPCE are addressed through the Resource and Waste Management Plan (RWMP) (AWN Consulting, 2025a) and Operational Waste Management Plan (OWMP) ((AWN Consulting, 2025b), which outline measures to minimise waste generation and maximise reuse and recovery across all phases of the Proposed Development.

The RWMP (AWN Consulting, 2025a) and OWMP (AWN Consulting, 2025b) which support alignment with the NWMPCE, are submitted under separate cover as part of the planning application. These documents have been reviewed as part of this assessment and are referenced throughout this chapter where relevant.

### 15.2.4 Article 27 of the European Communities (Waste Directive) Regulations 2011

Under Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended (referred to hereafter as Article 27), uncontaminated soil and stone free from anthropogenic contamination which is excavated during the construction phase of a development can be considered a by-product and not a waste, if (a) further beneficial use of the material is certain, (b) it can be used directly without any further processing, (c) it is produced as an integral part of the development works and (d) the use is lawful and will not have any adverse environmental or human health impacts (EPA, 2019).

For Article 27 to apply, the beneficial use mentioned in point (a) above must be identified for the entirety of the excavated soil from the Proposed Development prior to its production, with that use taking place within a definite timeframe, for it to be regarded as certain.

### 15.3 THE EXISTING AND RECEIVING ENVIRONMENT

The Proposed Development is located approximately 2.8 km northwest of Dundalk town centre in County Louth. The site is bordered by existing agricultural land to the south and west, and by the N53 to the north and Mount Avenue to the east with individual residential properties along it. The site also borders the remains of Cú Chulainn's Castle along Mount Avenue. The site is approximately 2km from Dundalk Town Centre.

Louth County Council (LCC) is the local authority responsible for waste management activities in the area of the Proposed Development. Waste management policy in Louth is guided by the NWMPCE 2024-2030, which supersedes the Eastern-Midlands Region Waste Management Plan 2015-2021. LCC supports sustainable waste practices through its development plan policies, which promote waste prevention, improved segregation, and the transition to a circular economy. These policies aim to reduce environmental effects, safeguard public health, and support climate action objectives.

Key waste-related objectives include:

- Supporting the provision of adequate waste infrastructure to meet current and future needs;
- Promoting recycling and reuse across residential and commercial developments;
- Reducing illegal dumping and improving enforcement of waste regulations;
- Encouraging public awareness and education around sustainable waste practices.

Waste management in the county is governed by the Waste Management Act 1996 (as amended) and relevant EU legislation. All waste generated by the Proposed Development will be managed in accordance with these frameworks and the guidance set out in the EPA Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects (2021).

The site is a brownfield site with no existing waste infrastructure or current waste management requirements.

### 15.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

A comprehensive description of the Proposed Development is presented in Chapter 3 of this EIAR.

A review of other off-site developments was completed as part of this assessment. Chapter 3 of this EIAR details the existing, proposed and granted planning permissions on record in the area, a review of these planning permissions has been completed as part of this assessment.

#### 15.4.1 Aspects Relevant to this Chapter

The waste management objectives for the Proposed Development are as follows, and will facilitate material reuse and recycling, where possible, and seek to divert waste from landfill:

- Prevention (construction phase): The Main Contractor will prevent and minimise waste generation where possible by ensuring large surpluses of construction materials are not delivered to the site, through coordination with the suppliers, operating a 'just-in-time' delivery

scheme and ensuring sub-contractors conform to the Contractor's Construction and Environmental Management Plan (CEMP). The CEMP submitted with this application (under separate cover) outlines the overarching principles, and a more detailed, site-specific version will be prepared by the Main Contractor prior to the commencement of the works;

- Reuse (construction and operational phases): Reuse of waste and surplus materials will be prioritised during construction, with efforts made to repurpose materials in high value applications. During the operational phase, reuse will be encouraged through appropriate waste segregation and management practices within the Proposed Development;
- Recycle (construction and operational phases): Recycling wastes where possible will be emphasised onsite. Recycling will be implemented during construction, including the potential use of onsite crushers to produce waste-derived aggregates, which may be re-used in the construction, subject to testing and approvals. During the operation, recycling facilities will be provided to support resident and commercial waste segregation in line with LCC requirements and national waste policy; and
- Disposal (construction and operational phases): Where disposal of waste is unavoidable, this will be undertaken in accordance with the Waste Management Act 1996, as amended, and relevant guidance. This applies to both construction waste and operational waste streams, with licensed waste contractors used for all disposal activities.

## **15.5 POTENTIAL EFFECT OF THE PROPOSED DEVELOPMENT**

### **15.5.1 Construction Stage**

The construction phase of the Proposed Development will generate a variety of waste streams, including excavated soil and stone, mixed construction and demolition (C&D) waste, packaging materials, and general waste from site offices and welfare facilities. Occasional hazardous waste may also arise, such as contaminated soil, asbestos (if encountered), and chemical residues.

In the absence of appropriate management, these waste streams have the potential to result in environmental effects such as:

- Littering and visual effects within and around the site;
- Odour and attraction of pests from organic waste;
- Contamination of soil and water resources due to improper handling or storage of hazardous materials;
- Increased greenhouse gas emissions associated with landfill disposal;
- Traffic and noise effects from the transport of waste materials off-site.

The RWMP (AWN, 2025a), identifies the types and quantities of waste likely to arise and outlines the legal and policy framework under which construction waste will be managed.

There will be no demolition associated with the Proposed Development, as such there will be no demolition waste generated at this site.

The main non-hazardous and hazardous waste streams that could be generated by the construction activities at a typical site are shown in Table 15-2. The List of Waste (LoW) code (2018) for each waste stream is also shown.

| Waste Material                                                       | LoW Code            |
|----------------------------------------------------------------------|---------------------|
| Concrete, bricks, tiles, ceramics                                    | 17 01 01-03 & 07    |
| Wood, glass and plastic                                              | 17 02 01-03         |
| Treated wood, glass, plastic, containing hazardous substances        | 17-02-04*           |
| Bituminous mixtures, coal tar and tarred products                    | 17 03 01*, 02 & 03* |
| Metals (including their alloys) and cable                            | 17 04 01-11         |
| Soil and stones                                                      | 17 05 03* & 04      |
| Gypsum-based construction material                                   | 17 08 01* & 02      |
| Paper and cardboard                                                  | 20 01 01            |
| Mixed C&D waste                                                      | 17 09 04            |
| Green waste                                                          | 20 02 01            |
| Electrical and electronic components                                 | 20 01 35 & 36       |
| Batteries and accumulators                                           | 20 01 33 & 34       |
| Liquid fuels                                                         | 13 07 01-10         |
| Chemicals (solvents, pesticides, paints, adhesives, detergents etc.) | 20 01 13, 19, 27-30 |
| Insulation materials                                                 | 17 06 04            |
| Organic (food) waste                                                 | 20 01 08            |
| Mixed Municipal Waste                                                | 20 03 01            |

\* Individual waste type may contain hazardous substances

**Table 15-2:** Typical waste types generated and LoW codes (individual waste types may contain hazardous substances)

Table 15-3 shows the breakdown of C&D waste types produced on a typical site based on data from the EPA *National Waste Reports and the joint EPA & GMIT study*.

| Waste Types  | %   |
|--------------|-----|
| Mixed C&D    | 33  |
| Timber       | 28  |
| Plasterboard | 10  |
| Metals       | 8   |
| Concrete     | 6   |
| Other        | 15  |
| Total        | 100 |

**Table 15-3:** Waste materials generated on a typical Irish construction site

Table 15-4 below, shows the estimated construction waste generation for the Proposed Development based on the gross floor area of construction and other information available to date, along with indicative targets for management of the waste streams. The estimated amounts for the main waste types (with the exception of soils, stones and clay) are based on an average large-scale development waste generation rate per m<sup>2</sup>, using the waste breakdown rates shown in Table 15-3. These have been calculated from the schedule of development areas provided by the architect.

| Waste Type   | Tonnes | Reuse |        | Recycle / Recovery |        | Disposal |        |
|--------------|--------|-------|--------|--------------------|--------|----------|--------|
|              |        | %     | Tonnes | %                  | Tonnes | %        | Tonnes |
| Mixed C&D    | 2070.1 | 10    | 207.0  | 80                 | 1656.1 | 10       | 207.0  |
| Timber       | 1756.4 | 40    | 702.6  | 55                 | 966.0  | 5        | 87.8   |
| Plasterboard | 627.3  | 30    | 188.2  | 60                 | 376.4  | 10       | 62.7   |
| Metals       | 501.8  | 5     | 25.1   | 90                 | 451.7  | 5        | 25.1   |
| Concrete     | 188.2  | 30    | 56.5   | 65                 | 122.3  | 5        | 9.4    |

|              |               |    |               |    |               |    |              |
|--------------|---------------|----|---------------|----|---------------|----|--------------|
| Other        | 941.0         | 20 | 188.2         | 60 | 564.6         | 20 | 188.2        |
| <b>Total</b> | <b>6084.8</b> |    | <b>1367.5</b> |    | <b>4137.1</b> |    | <b>580.3</b> |

**Table 15-4:** Predicted on and off-site reuse, recycle and disposal rates for construction waste

In addition to the information in Table 15-4, there will be c. 206,000 m<sup>3</sup> of topsoil and subsoil excavated to facilitate site preparation, construction of the building foundations, access roads and the installation of underground services. DBFL Consulting Engineers have estimated in the CEMP submitted under a separate cover as part of this application that there will be a requirement to retain c. 195,000 m<sup>3</sup> of excavated soils and stones generated from the excavations for reuse in site levelling and landscaping. The remaining excavated material (c. 11,000 m<sup>3</sup>) will most likely be required to be removed from site. When it is to be removed from site it will be taken for appropriate offsite reuse, recovery and/or disposal.

While the majority of waste generated is expected to be non-hazardous and suitable for reuse, recycling or recovery, the potential for environmental effects remains if waste is not properly handled. Particular attention will be required in relation to the management of excavated soils, packaging waste, and any hazardous materials that may be encountered during site works.

In the event that contaminated material is encountered during excavation, its management will be undertaken in accordance with the procedures outlined in the Land and Soils chapter and the CEMP prepared by DBFL Consulting Engineers (2025) and submitted under separate cover.

Additional construction waste may include surplus building materials, such as timber off-cuts, broken concrete blocks, cladding, plastics, metals and tiles generated. There may also be excess concrete during construction which will need to be disposed of. Plastic and cardboard waste from packaging and supply of materials will also be generated. The contractor will be required to ensure that oversupply of materials is kept to a minimum and opportunities for reuse of suitable materials is maximised.

Waste will also be generated from construction workers e.g. organic / food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided on site during the construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated infrequently from site offices. Office and canteen waste, including food waste, will be stored in wheelie bins on site and it will be collected by an appropriately authorised waste collector.

The potential effect from the construction phase on waste recovery and disposal will be negative, slight and short-term and is considered non-significant in the context of the EIA Directive.

### 15.5.2 Operational Stage

An Operation Waste Management Plan (OWMP) has been prepared for the Proposed Development by AWN Consulting (2025b) and is submitted with the planning application. The OWMP has been prepared to ensure that the management of waste during the operational phase of the Proposed Development is undertaken in accordance with the current legal and industry standards including, the Waste Management Act 1996 as amended and associated Regulations, Environmental Protection Agency Act 1992 as amended, Litter Pollution Act 1997 as amended, the NWMPCE 2024 – 2030.

In particular, the OWMP aims to provide a robust strategy for the storage, handling, collection and transport of the wastes generated at site.



In addition, the following guidelines were also consulted by AWN Consulting for healthcare specific waste management practice:

- Health Service Executive (HSE), Waste Policy (2016);
- HSE, Waste Management Awareness Handbook (2011);
- HSE and Department of Health and Children (DOHC), Healthcare Risk Waste Management: Segregation, Packaging and Storage Guidelines for Healthcare Risk Waste, 4th Edition (2010); and
- Environmental Protection Agency (EPA) Green Healthcare, Best Practice Guides for the Reduction and Segregation of Hospital Waste.

The operational phase of the Proposed Development will give rise to a variety of waste streams, including municipal waste (organic, Dry Mixed Recyclables (DMR), Mixed Non-Recyclable (MNR), and glass), healthcare waste, and other occasional waste types such as WEEE, batteries, chemicals, and bulky items. If not properly managed, these waste streams have the potential to result in environmental effects such as littering, odour nuisance, pest attraction, and contamination of soil or water resources.

However, the OWMP (AWN, 2025b) sets out a robust strategy for the segregation, storage, and collection of operational waste in accordance with national legislation and best practice guidance. Waste will be segregated at source and stored in designated Waste Storage Areas (WSAs), which have been incorporated into the site layout for all residential, commercial, childcare, and medical units. Receptacles will be colour coded and clearly labelled to prevent cross-contamination, and waste will be collected on a weekly basis by appropriately permitted contractors.

The OWMP will be provided to residents and tenants from first occupation of the development and will be updated by the Facilities Management Company as required, to reflect any new waste segregation, storage, reuse, or recycling initiatives introduced over time. The Facilities Management Company will oversee the implementation of the OWMP, including frequent inspections of WSAs and maintenance of a waste register to monitor waste quantities and types. These measures will ensure that the potential environmental effects associated with operational waste are minimised.

The estimated quantum / volume of waste that will be generated from the residential units and amenity areas has been determined based on the predicted occupancy of the units. While the estimated quantum / volume of waste that will be generated from the commercial units (Community / Medical Use, Local Centre Retail / Café / Restaurant and Creche) is based upon floor area m<sup>2</sup> and its usage.

The estimated waste generation for the Proposed Development for the main waste types is presented in Tables 15-5 – 15-7.

| Waste Type    | Waste Volume (m <sup>3</sup> / week) |                                                                 |                                   |                           |
|---------------|--------------------------------------|-----------------------------------------------------------------|-----------------------------------|---------------------------|
|               | 1-Bed Duplex Apartment (Individual)  | 2-Bed House / Duplex / Duplex Apartment / Bungalow (Individual) | 3-Bed House / Duplex (Individual) | 4-Bed House (Individual ) |
| Organic Waste | 0.02                                 | 0.02                                                            | 0.02                              | 0.02                      |
| DMR           | 0.11                                 | 0.11                                                            | 0.13                              | 0.18                      |
| Glass         | <0.01                                | <0.01                                                           | <0.01                             | <0.01                     |
| MNR           | 0.07                                 | 0.07                                                            | 0.08                              | 0.09                      |
| <b>Total</b>  | 0.21                                 | 0.21                                                            | 0.24                              | 0.30                      |

**Table 15-5:** Estimated Waste Generation for the Proposed Development for the Main Waste Types.

| Waste Type    | Waste Volume (m <sup>3</sup> / week) |                              |                              |                              |
|---------------|--------------------------------------|------------------------------|------------------------------|------------------------------|
|               | Apartment Block 1 (Combined)         | Apartment Block 2 (Combined) | Apartment Block 3 (Combined) | Apartment Block 4 (Combined) |
| Organic Waste | 0.40                                 | 0.51                         | 0.63                         | 0.47                         |
| DMR           | 2.84                                 | 3.64                         | 4.44                         | 3.35                         |
| Glass         | 0.08                                 | 0.10                         | 0.12                         | 0.09                         |
| MNR           | 1.49                                 | 1.92                         | 2.34                         | 1.76                         |
| <b>Total</b>  | <b>4.81</b>                          | <b>6.17</b>                  | <b>7.52</b>                  | <b>5.67</b>                  |

**Table 15-6** Estimated Waste Generation for the Proposed Development for the Main Waste Types.

| Waste Type         | Waste Volume (m <sup>3</sup> / week) |                                         |             |
|--------------------|--------------------------------------|-----------------------------------------|-------------|
|                    | Community / Medical Use              | Local Centre Retail / Café / Restaurant | Creche      |
| Organic Waste      | 0.03                                 | 0.30                                    | 0.10        |
| DMR                | 0.59                                 | 5.95                                    | 3.54        |
| Glass              | 0.01                                 | 0.16                                    | 0.01        |
| MNR                | 0.26                                 | 2.48                                    | 1.93        |
| Confidential Paper | 0.06                                 | N/A                                     | N/A         |
| Medical            | 0.24                                 | N/A                                     | N/A         |
| <b>Total</b>       | <b>1.19</b>                          | <b>8.90</b>                             | <b>5.58</b> |

BS5906:2005 *Waste Management in Buildings – Code of Practice* has been considered in the calculations of waste estimates.

**Table 15-7** Estimated Waste Generation for the Proposed Development for the Main Waste Types.

With the implementation of the OWMP, the Proposed Development is expected to achieve high levels of recycling, reuse, and recovery, with maximum diversion of waste from landfill. As such, the potential effects of the operational phase on waste management are expected to be minimal.

The potential effect from the operational phase on municipal waste disposal is likely to be long-term, negative, and slight in nature, and is considered non-significant in the context of the EIA Directive.

### 15.5.3 Potential Cumulative Effects

The European Commission *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions*, defines cumulative effects as “effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project”. Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects. Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor.

A review of other off-site developments was completed as part of this assessment. Chapter 3 of this EIAR details the existing, proposed and granted planning permissions on record in the area, a review of these planning permissions has been completed as part of this assessment.

With regard to the other developments under construction and proposed permitted in the vicinity of the site of the Proposed Development, there will be a greater demand on existing local waste management services and on regional waste acceptance facilities.

The capacity of waste collection companies and waste management facilities in County Louth have been designed with forward planning and expansion in mind to cater for a growing population. It is necessary that all the developments provide the infrastructure and services to assist residents to segregate domestic waste at source, in order to reduce the generation and disposal of non-recyclable mixed waste.

Existing waste collection services operate in the local area, and during the operational phase, the Proposed Development will be added to an existing collection route. The OWMP (AWN, 2025b) confirms that sufficient storage capacity and segregation infrastructure will be provided on site to support compliance with national and regional waste policy.

The likely effect will be neutral and not significant on waste management facilities in the study area in the long term.

#### **15.5.4 Do-Noting Effect**

In the 'Do Nothing' scenario, the Proposed Development does not proceed and there would be no excavation, construction or operational waste generated at the site. There would, therefore, be no additional demand or loading on waste management infrastructure locally or nationally and thus there would be a neutral effect on the environment in terms of waste.

### **15.6 MITIGATION MEASURES (AMELIORATIVE, REMEDIAL OR REDUCTIVE MEASURES)**

#### **15.6.1 Construction Stage**

The waste management objective will be to prevent waste arising in the first place, and to re-use, recycle or recover waste materials where possible. The following mitigation measures are recommended for the construction phase of the Proposed Development regarding waste management:

- Waste materials will be separated at source and will follow the Resource and Waste Management Plan (RWMP) prepared by AWN Consulting (2025a) and Contractor(s) Construction Environmental Management Plan (CEMP);
- Prior to the commencement of the construction phase detailed calculations of the quantities of topsoil, subsoil and green waste will be prepared, and soils will be tested to confirm they are clean, inert or non-hazardous;
- A policy of 'as needed' ordering and strict purchasing procedures will be implemented to minimise surplus materials and packaging waste;
- The Contractor will vet the source of aggregate, fill material and topsoil imported to the site in order to ensure that it is of a reputable origin and that it is "clean" (i.e., it will not contaminate the environment);

- The Contractor will implement procurement procedures to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems and regulatory compliance;
- The waste materials generated during the construction phase will be stored in appropriately sized receptacles and labelled receptacles and transferred offsite for appropriate processing, recycling and recovery;
- Waste materials generated from the construction phase that are unsuitable for reuse or recovery will be separately collected and managed;
- Disposal of construction generated wastes will be considered a last resort and only after recycling or recovery options have been ruled out;
- A suitably competent and fully permitted waste management company will be employed to manage waste arising for the construction phase. The appointed waste contractor must have the relevant authorisations for the collection and transport of waste materials, issued by the National Waste Collection Permit Office (NWCPO);
- All waste materials will be transported to an appropriately authorised facility, which must have the relevant authorisations for the acceptance and treatment of the specific waste streams, i.e., a Certificate of Registration (COR) or a Waste Facility Permit (WFP) as granted by a Local Authority, or a Waste/Industrial Emission Licence as granted by the Environmental Protection Agency;
- It is not envisaged that there will be any hazardous waste generated throughout the construction works however, in the event that hazardous soil, or historically deposited waste is encountered during the site bulk excavation phase, the contractor will notify LCC and provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal/treatment, in addition to information on the authorised waste collector(s). Only authorised facilities will be used and as a result of this, the potential effects at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures;
- Waste generated by construction workers will be stored in wheelie bins on site and it will be collected by an appropriately authorised waste collector. All wastes generated on site will be sent for recycling, recovery, or disposal to a suitably licensed or permitted waste facility; and
- All waste quantities and types will be recorded and quantified, and records will be retained onsite for the duration of the construction phase, in accordance with the RWMP.

These mitigation measures will ensure that the waste arising from the construction phase of the Proposed Development is dealt with in compliance with provisions of the Waste Management Act 1996, as amended, associated Regulations and Litter Pollution Act 1997, and The National Waste Management Plan for a Circular Economy 2024-2030. The mitigation measures will also ensure optimum levels of waste reduction, reuse, recycling and recover are achieved and will promote more sustainable consumption of resources.

The Contractor will have the responsibility to record resource and waste management at the site in line with the RWMP. Some of the principal duties and responsibilities of this role include:

- Report to Project Manager on the management of resources and waste at the site;
- Identify all destinations for resources taken off-site;
- Address end-of-waste and by-product notifications with the EPA, where applicable;

- Maintain full records of all resources (both wastes and other resources) for the duration of the project;
- Delegate responsibility to sub-contractors, where necessary;
- Coordinate with suppliers, service providers and sub-contractors; and
- Prioritise waste prevention and resource salvage.

#### 15.6.2 Operational Stage

The OWMP (AWN, 2025b) sets out how waste generated during the operational phase of the Proposed Development will be stored and collected in order to mitigate any potential effects. Mitigation measures for operational waste management include:

- The allocation of four shared WSAs for the apartment blocks, with individual WSAs provided for each house, duplex, and bungalow unit. One shared WSA has been allocated for the commercial units in the Southern Block, one for the crèche unit, and one for the medical unit. Receptacles for organic waste, mixed non-recyclables (MNR), glass, and dry mixed recyclables (DMR) will be provided in the shared WSAs prior to the first residential or commercial unit being occupied. Each receptacle will be colour coded and clearly labelled to prevent cross-contamination of waste streams;
- Provisions for three-bin storage systems within residential units to facilitate waste segregation at source;
- Provisions for separate small bins in commercial food preparation areas (e.g. kitchens, dish/glass-wash areas, bar areas) to manage increased waste generation and support effective segregation;
- Weekly collection of DMR, MNR, glass, and organic waste by appropriately permitted waste contractors, with all waste transported to registered, permitted, or licensed facilities only. Medical and confidential paper waste will be collected as required; and
- Oversight by the Facilities Management Company, which will be responsible for ensuring proper waste storage and segregation practices, conducting frequent inspections of WSAs, maintaining a weekly register of waste quantities and types collected, and providing waste management guidance to residents and tenants.

Implementation of the OWMP will support high levels of recycling, reuse, and recovery during the operational phase. Recyclable materials will be segregated at source to reduce waste contractor costs and maximise diversion from landfill. The waste strategy ensures that sufficient storage capacity is provided for the estimated waste volumes, and that the design of the WSAs accommodates the required receptacles in accordance with best practice and regulatory guidance.

#### 15.6.3 “Worst Case” Scenario

A worst-case scenario in relation to waste would be where a previously unclassified hazardous waste stream arose on the site during excavations, which was not identified and segregated appropriately and resulted in the contamination of a non-hazardous waste stream, such as soil and stones, resulting in a large volume of hazardous waste that would require specialist removal and treatment. Additionally, the contaminated soil and stones would no longer be fit for use for fill and landscaping and would need to be replaced with imported materials.

## 15.7 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

### 15.7.1 The Proposed Development

#### 15.7.1.1 Construction Stage

The residual effects of the Proposed Development on waste management are considered to be slight, neutral, direct and short-term, this is due to:

- The prevention and mitigation measures proposed within this chapter and other chapters of the EIAR;
- Compliance with national legislation and the allocation of adequate time and resources dedicated to efficient waste management practices; and
- Continued use of permitted/licensed waste hauliers and facilities. Waste removed from the facility will be managed appropriately and will avoid environmental effects or pollution. In addition, the correct management and storage of waste will avoid litter or pollution issues at the site.

#### 15.7.1.2 Operational Stage

During the operational phase, waste will be generated on an ongoing basis from the residential, commercial, childcare, and medical uses within the Proposed Development. These waste streams will primarily consist of municipal waste types including organic waste, DMR, MNR and glass. Additional waste types, including occasional hazardous and healthcare-related waste from the medical unit, WEEE, batteries and bulky items, may also arise occasionally.

Careful management of these, including segregation at source within residential, commercial, and medical units, will help to ensure a high level of waste recycling, reuse, and recovery at the Proposed Development. The OWMP (AWN, 2025b) sets out a comprehensive strategy for the segregation, storage and collection of operational waste. Waste will be segregated at source within individual units and transferred to a designated WSA, which have been incorporated into the site layout. Shared WSAs will be provided for the apartment blocks, commercial units, the crèche, and the medical unit, while individual WSAs will be allocated for houses and duplexes. All receptacles will be colour coded and clearly labelled to prevent cross-contamination.

Waste will be collected on a weekly basis by appropriately permitted waste contractors and transported to licensed or permitted facilities. The Facilities Management Company will oversee the implementation of the OWMP, including frequent inspections of WSAs and maintenance of a waste register to track quantities and types of waste collected.

With the implementation of the OWMP, the Proposed Development is expected to achieve high levels of recycling, reuse, and recovery, with maximum diversion of waste from landfill. The provision of adequate waste infrastructure and management practices will minimise the potential for environmental effects such as littering, odour, or contamination of soil and water.

The likely residual effect of the operational phase on waste management is considered to be neutral, direct, and slight in the long-term.

## **15.7.2 Cumulative**

### **15.7.2.1 Construction Stage**

Other consented developments currently in their construction phases within the area will be required to comply with their respective planning conditions and as such, it is assumed that the effects will be short term, not significant and neutral.

### **15.7.2.2 Operational Stage**

There will be an increase in operation waste during the operational stage of the Proposed Development. With the implementation of mitigation measures as detailed in section 15.6.2, the likely cumulative effect will be long term imperceptible and neutral.

## **15.8 MONITORING**

### **15.8.1 Construction Stage**

The site control measures to manage and minimise waste include:

- Signage on the site office/welfare bins to separate them as environmental/domestic waste bins; and
- Briefing for all sub-contractors via induction handouts.

The Resource Manager (RM) will be responsible for conducting ongoing resource audits at the site during the construction phase. The audit protocol will be risk based and focus on key issues of concern but will include as minimum:

- Adequacy of site signage and need for any repairs or upgrades;
- Adequacy of storage infrastructure and need for any repairs or upgrades;
- Compliance with resource segregation protocols and observed contamination in any resource streams;
- Assessment of observed Contractor and Sub-Contractor work practices for compliance with the RWMP;
- The RM will undertake a review of all records of wastes and resources generated on-site and transported off-site periodically through the construction phase. If waste movements are not accounted for, the reasons for this are to be established to understand why the record keeping system has not been maintained and implement corrective actions if needed;
- The resource records will be compared with established targets for the site (e.g., reuse of resource target or recycling waste target);
- Examining material management on-site to determine where the largest percentage of residual waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how project contract targets can be achieved; and
- Issue corrective actions (training, penalties, etc.) as required to site operatives where deviations of the RWMP are observed.

All monitoring activities will be documented and retained on site, and records will be made available to LCC or other relevant authorities.

### **15.8.2 Operational Stage**

The Facilities Management Company and future residents will be required to maintain the bins and storage areas in good condition. The waste strategy presented in the OWMP will provide sufficient storage capacity for the estimated quantity of segregated waste. The designated areas for waste storage will provide sufficient room for the required receptacles in accordance with the details of this strategy. Facilities Management will also maintain a waste register detailing the quantities and breakdown of waste collected and will prepare an annual waste management report to support monitoring and compliance.

## **15.9 DIFFICULTIES ENCOUNTERED**

No difficulties were encountered in the preparation of this chapter.

## **15.10 CONCLUSION**

Waste management during both the construction and operational phases of the Proposed Development will be undertaken in accordance with the relevant legislation, policy frameworks, and best practice guidance, including the Waste Management Act 1996 (as amended), the NWMPCE 2024–2030, and the EPA Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects (2021).

A bespoke RWMP has been prepared for the construction phase, detailing the expected waste types and quantities, and outlining procedures for segregation, tracking, and off-site management. A trained RM will oversee implementation and ensure compliance with waste management targets and documentation requirements.

For the operational phase, an OWMP has been prepared to ensure that domestic, commercial, and healthcare waste is appropriately segregated, stored, and collected. The OWMP provides for sufficient infrastructure and facilities to support high levels of recycling, reuse, and recovery, with maximum diversion from landfill.

With the implementation of the RWMP and OWMP, the Proposed Development is expected to achieve a high standard of waste management, minimising environmental effects and supporting circular economy principles.

It is reasonably considered that following all mitigation measures including design embedded and prescribed, adequate implementation of the CEMP, RWMP and OWMP and adherence to construction best practice that no significant effects to waste will arise from the Proposed Development during the construction or operational phases. Accordingly, the site is considered suitable for development as proposed.