ENVIRONMENTAL IMPACT ASSESSMENT REPORT

VOLUME III TECHNICAL APPENDICES D-E

PROPOSED RESIDENTIAL DEVELOPMENT
AT
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July 2024

DOCUMENT CONTROL SHEET

Client:	**Marshall Yards Development Company Limited**
Project Title:	**Ladywell Phase 4 Balbriggan**
Document Title:	**Environmental Impact Assessment Report Volume III**
Document No:	**23146EIARVol3**

Rev.	Status	Author(s)	Reviewed By	Approved By	Issue Date
D01	Draft	EIAR TEAM	RK	RK	20-6-2024
F01	Final	EIAR TEAM	RK	RK	26-7-2024

LIST OF APPENDICES

Appendix A – Archaeology and Cultural Heritage

Geophysical Report

Archaeological Testing Report

Appendix B – Other Assessments

Other Assessments

Appendix C – Soil and Land take

Appendix 5.1 Ground Investigations Ireland Taylor Hill, Balbriggan Phase 3 Site Investigation Report, June 2020, Rev B

Appendix 5.2 List of Soils Generic Assessment Criteria (GAC)

Appendix 5.2 GII Site Investigations June 2024

Appendix D Construction Environmental Management Plan (CEMP)

Appendix D Paul McGrail Consulting Engineers CEMP

Appendix E Material Assets – Waste Management

Resource and Waste Management Plan (RWMP)

Operational Waste Management Plan (OWMP)

Appendix F Material Assets – Traffic and Transportation

Transport Insights LRD TTA Briefing Note

Transport Insights LRD Pre Application Consultation Feedback

Appendix G – Photomontages

Modelworks Photomontages

APPENDIX D CEMP

Appendix D Paul McGrail Consulting Engineers CEMP

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PAUL Mc GRAIL
CONSULTING ENGINEERS LIMITED

Proposed Residential Development at Ladywell, Balbriggan, Phase 4 Fingal County Council

Construction Environmental Management Plan

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PROJECT NUMBER: 2023-126				**DOCUMENT REF: 2023-126**			
01	First Issue	TS	24-07-2024	PMG	07-06-2024	PMG	24-07-2024
Revision	**Description & Rationale**	**Originated**	**Date**	**Checked**	**Date**	**Authorised**	**Date**
PMG Consulting Engineers							

TABLE OF CONTENTS

1 INTRODUCTION

This Construction and Environmental Management Plan (CEMP) has been prepared to support the planning application at Balbriggan, Co. Fingal. The proposed development (Stage 4 of the Ladywell Masterplan) is located to the North/South-Western of the greater Ladywell Masterplan site. The proposed LRD application comprises 197 residential units and 2 non-commercial units.

The purpose of the Construction and Environmental Management Plan (CEMP) is to outline the details in relation to the environmental measures to be implemented on site to prevent any adverse impacts on the surrounding environment. Accordingly, this CEMP identifies the main objectives for the managed procedures which are required to ensure the construction related activities on the Ladywell site are executed in a safe and controlled manner and to minimise disruption and impacts on the amenities in the area.

The objective of this CEMP is therefore to identify the potential issues which are relevant to the project, to address these issues and to provide solutions which are satisfactory to all concerned.

This CEMP describes the anticipated construction programme and the nature of the activities to be undertaken. It identifies the environmental considerations associated with these activities and outlines appropriate measures that might be implemented for their mitigation.

This assessment has been made using the experience of the Applicant and their professional advisors based on the typical construction methods and strategies that can be reasonably anticipated at this stage of the process.

The subject site is located approximately 2km west of Balbriggan, Co. Fingal.

The Masterplan site is bound on the south by The R122. on the east by Boulevard Road and the committed Taylors Hill residential developments (Phase 1 and 2), on the north by the future Malincross development (presently a green field site) and on the west by rear of existing dwelling and the Clonard Road. Refer to Figure 1 – Site Location.

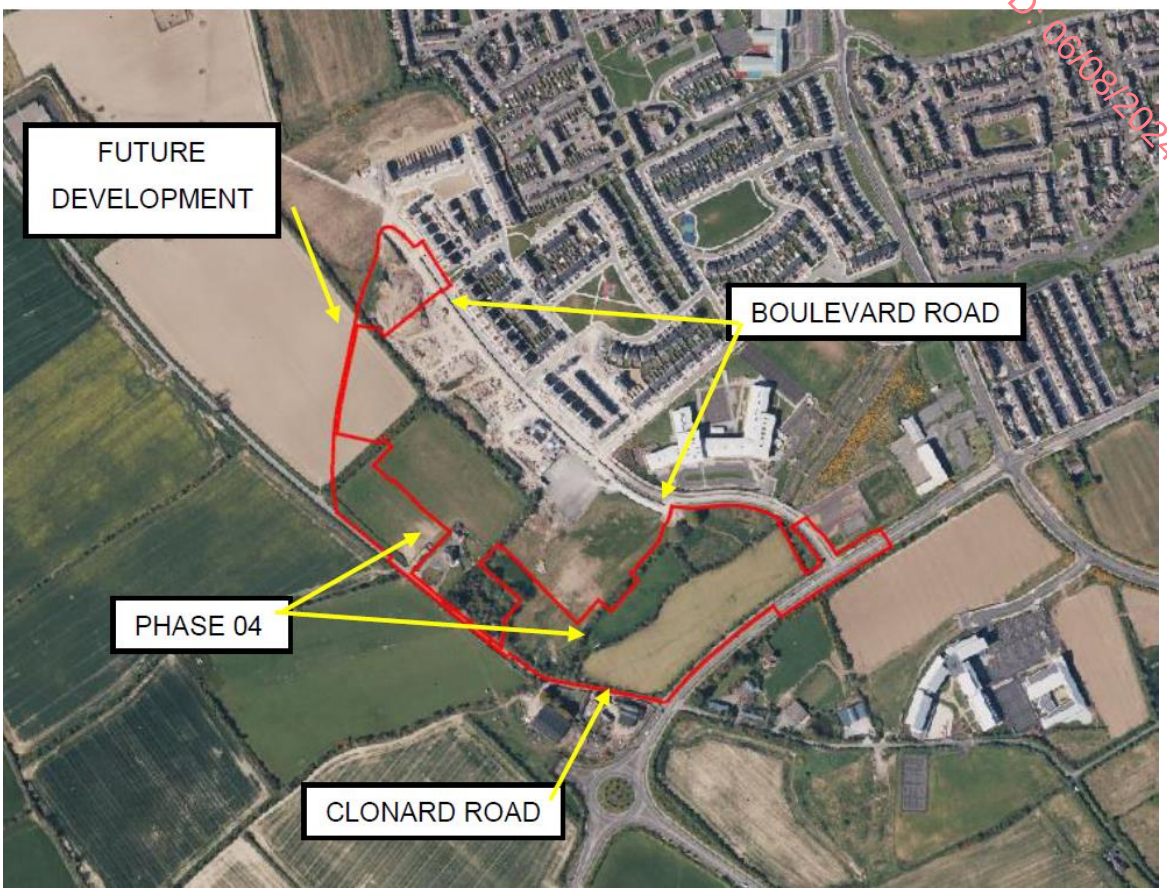


Figure 1 - Site Location (Google Earth)

The issues that have been considered in this document are as follows:

- Construction programme and phasing:
- Enabling works.
- Infrastructure works.
- Description of works.
- Site logistics.
- Indicative construction methods.
- Safety, health and environmental provision.

The subject lands form part of a larger residential development known as ‘Ladywell’, which measures approximately 5.26ha.

2 CONSTRUCTION PROGRAMMING & PHASING

The assumed programme presented below is indicative of how the project will be constructed, at each stage of the Development some or all of the following activities will be required.

- Archaeological watching brief.
- Geotechnical Investigation.
- Ecology Prep e.g. for Bats.
- Site clearance and enabling works.
- Service infrastructure works.
- Sub-Structure works.
- Super-Structure works.
- External works and finishes.

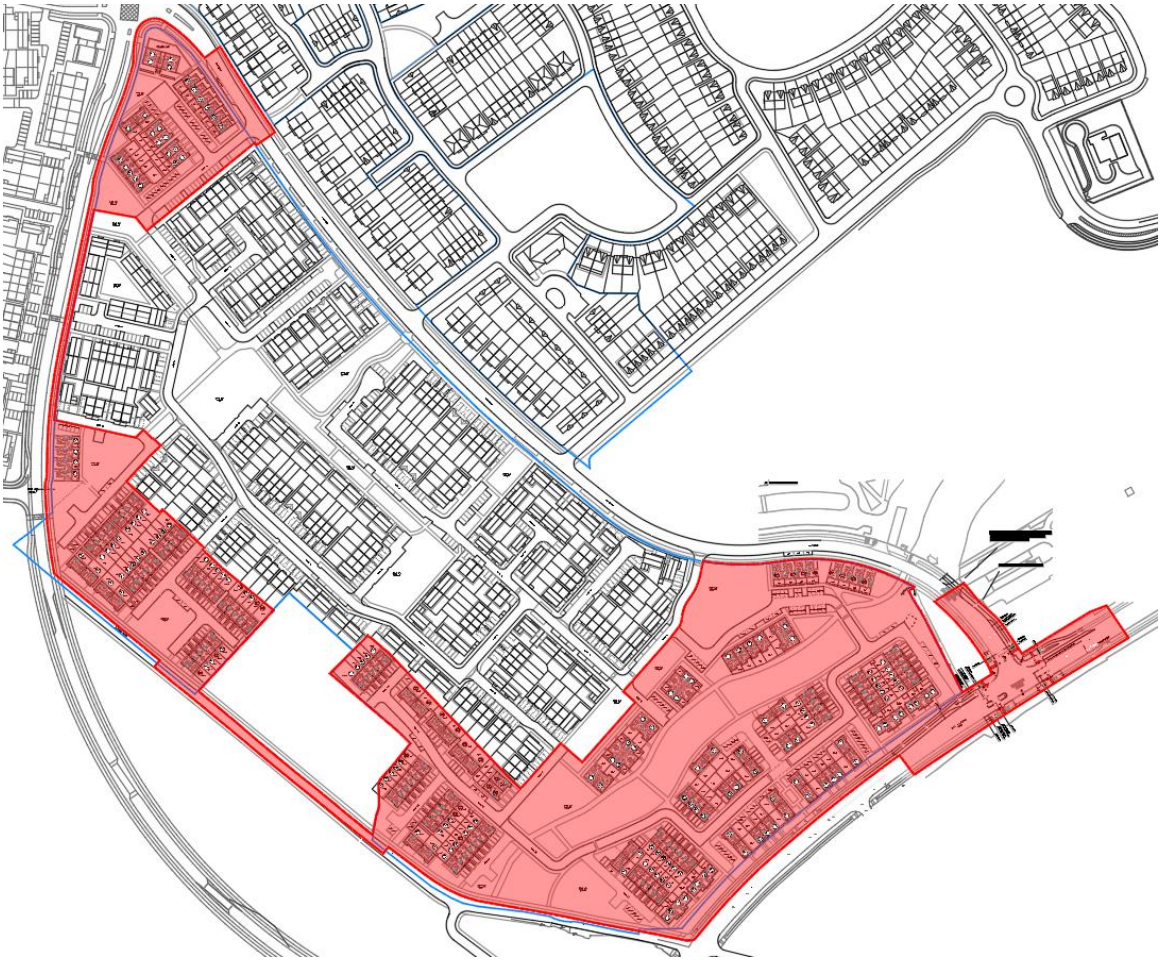


Figure 2 - Layout Ladywell

3 SITE ENABLING WORKS

Site enabling works will include but will not be confined to the following:

- Securing of site boundary and erecting of fencing or hoarding as required.
- Service terminations and positive identification of any services on the site by the utility providers.
- Provision of temporary power, lighting and water services.
- Set up of site accommodation and welfare facilities.
- Identification of the trees that are required to be removed and the removal of these along with scrub and vegetation, in consultation with the appointed Arborist.

3.1 INDICATIVE WORKS METHODOLOGY

The methodology for the completion of the enabling works will be finalised during the tender and appointment stage. The outline of methodology is as follows:

Live services will be terminated and where possible will be removed off site, with the cooperation of the utility providers.

Temporary power and water services will be arranged for the site accommodation and welfare facilities. The site accommodation and welfare facilities will be set up in a location as not to be in the way of the construction, and at a point close to the site entrance.

Any protected trees will be secured, and the subsequent hard fencing will be placed to protect the trees and the root zone below the tree. This will be carried out in consultation with the appointed Arborist and Bat specialist. Following the fencing of any protected trees and the Ecological Mitigation, the remaining trees that are required to be removed will have to be identified and removed along with the scrub on site.

Noise levels will be controlled and works undertaken in such a way as to minimise the detrimental impact on adjoining property and local residents.

3.2 INFRASTRUCTURE WORKS

The site infrastructure works include the provision of a new entrance along the existing Clonard Road, See Figure 3. Sections of the development will be connected to the existing infrastructure currently under construction.

Utility Infrastructure

Provision of the permanent infrastructure to the site will be carried out as early as possible in the programmed works as to possibly incorporate the temporary site requirements with the permanent requirements.

Engagement with the service and utility providers will be entered into early in the design stage to allow for adequate planning of utility infrastructure.

It is the aspiration of the applicant to minimise disruption of existing services and public roads and pathways in the providing of services to the site, this will be done in consultation with the service providers and the Local Authority.

Prior to any works on site or on the boundaries to connect services a desktop study followed by a physical survey will be carried out to identify all existing services. As part of the physical survey, trial holes, slit trenching and CAT scans may be required.

Utilisation of single trenches for multiple services where possible will be encouraged.

Where possible services will be provided to ‘future-proof’ the development.

4 CONSTRUCTION TRAFFIC AND SITE ACCESS

4.1 CONSTRUCTION ROUTE & SITE ACCESS

Access and egress to the site will be controlled by the developer. All construction traffic for phase 4 will access the site from Clonard Road (R122), as shown in Figure 3.

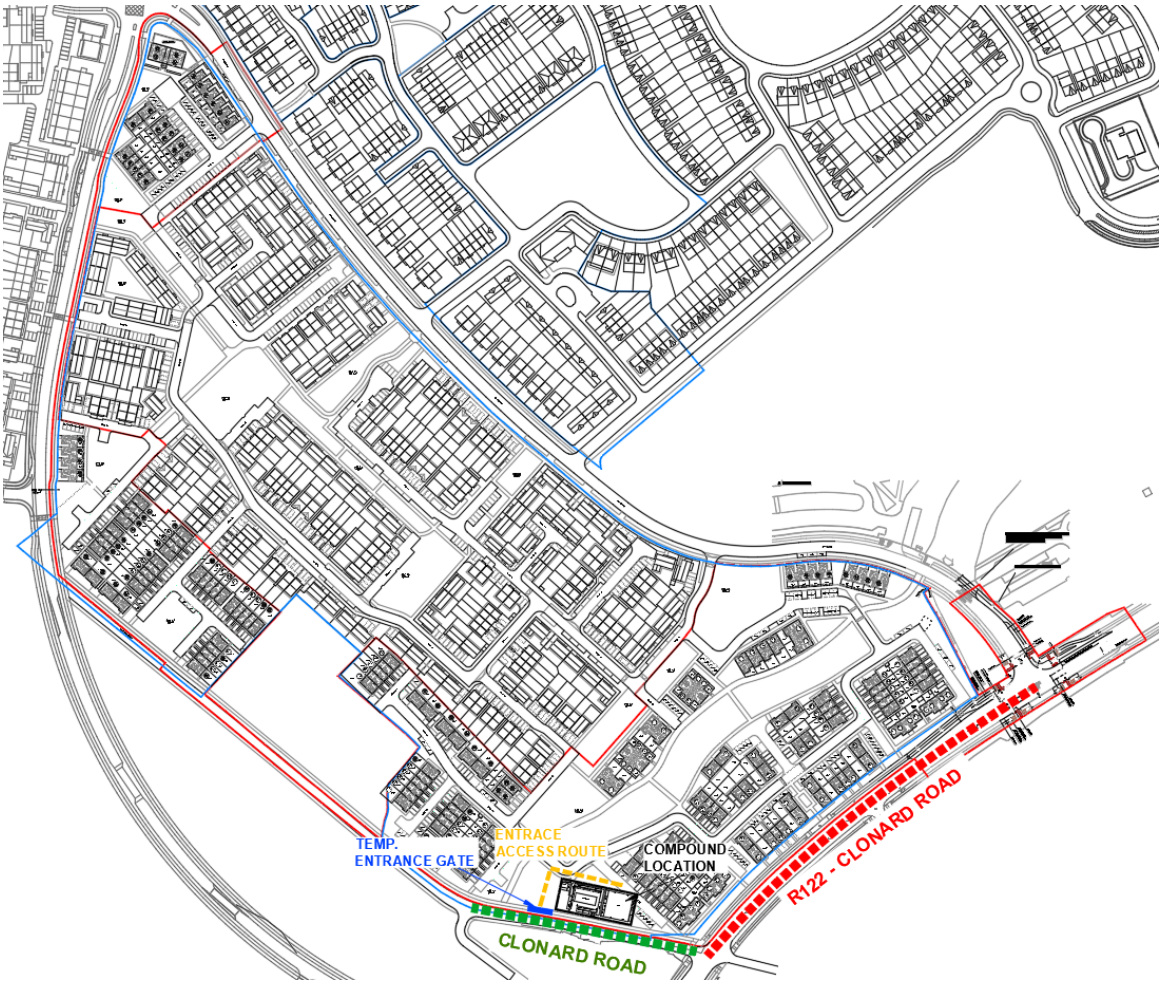


Figure 3 - Site Access (Phase 4)

The developer will provide information on the requirements of the site traffic access rules, which will include the following:

- Access routes from the entrance to the compound.

- The site working hours are expected to be 7:00AM to 7:00PM on weekdays and 7:00AM to 2:00PM on Saturday. No works will be undertaken on Sundays or Bank Holidays, without the consent of Fingal County Council.
- No allowed parking on any access road to the site.
- No construction traffic permitted via any developed/occupied phases.
- No vehicle may park on or around any footpaths in the adjoining areas.
- Caution must be exercised entering and leaving the site.
- All vehicles must stop at the security barrier.
- All instructions from the developer or development staff must be obeyed.
- Vehicles leaving the site must do so only at an appropriate break in the traffic and must not force their way into traffic.
- Only vehicles with specific business on the site can enter the site, once permission has been granted by the developer and / or his staff.
- Heavy vehicle drivers must check their tyres for lodged stones and remove them prior to returning to the public roads.

It is proposed that construction vehicle movements would be restricted to the main arterial routes and not pass through predominantly residential areas.

Refer to Construction Traffic Generation of the Construction Traffic Management Plan Report of Transport Insights Consulting Engineers (set out in section 7 of the TTA and summarised in Appendix C), which states that Vehicle movements will:

- 4 HGV arrivals and 4 HGV departures in each of the weekday peak hours during excavation and concrete pour stages,
- 5 LGV arrivals & 5 LGV departures otherwise in each of the weekday peak hours,
- 40 car arrivals in the weekday AM peak hour (NB construction traffic staff start before 8am), and
- 40 car departures in the weekday PM peak hour.

Movements of large or abnormal loads will be addressed in advance with the relevant authorities. Certain trades will require parking on site for vehicles due to transportation of specialist equipment/plant requirements.
Provision of wheel cleaning facilities will be made available on-site where it is deemed necessary or if space constraints do not permit this, the provision of power washing facilities for lorry wheels prior to egress off the site onto the public road in order to maintain the road in a clean condition. A

road sweeper will also be utilized as required on the public road at vehicular access / egress points.

4.2 OFF LOADING AND STORAGE AREA

Vehicles will be directed to the delivery points for holding/off-loading/storage, these deliveries will be controlled by a dedicated person allocated to overseeing all deliveries and controlling the entrance.

All deliveries will be notified to the site management team at least 24 hours in advance. No large deliveries will be allowed to the site during peak traffic times for the area.

4.3 PERSONNEL & VEHICLE SEGREGATION

All pedestrian routes will be adequately segregated from vehicular routes across the site. All vehicle crossing points will have appropriate signage to alert pedestrians of vehicle crossing points.

All site operatives will be given a specific site induction, giving information on the pedestrian access routes.

4.4 CONSTRUCTION PARKING

Construction personnel parking will not be permitted on Boulevard Road, Clonard Road, Naul Road or any public or private road.

Construction car parking will be fully contained within the site. Parking for construction personnel and site visitors will be provided in line with expected personnel levels in accordance with CIF recommendations on travel to and from sites.

The quantum of parking available will be kept under review by site management throughout the construction phases and adjusted as required. Further details will be provided in the final version of the CTMP

4.5 TEMPORARY ROAD CLOSURE

Road closures are not anticipated, however if they are required for the delivery of large items of plant or materials then such temporary road closures will be planned and approved by the Local Authorities and relevant authorities will be sought.

5 SITE LOGISTICS

5.1 PHASING OF DEVELOPMENT

The Phasing included in the CEMP is indicative to allow for flexibility in terms of the development. In terms of the Delivery and Phasing of Development the following will be the key stages:

- **Phase 1a – Site Set Up**

This task will take up to c.3 months to complete with approximately up to 20 staff employed and will involve consultation to Arborist, Archaeologist and Ecologist/Batman, site clearance (given the lack of existing scrub/vegetation this will not be significant) set up site offices and contractors compound (at the Southern Boundary – as illustrated in Figure 3) and secure the construction site and erection of signage for site security purposes.

- **Phase 1b – Setting out of sites and provision of services**

Given the significant work involved in the provision of drainage services this stage will involve significant work and is estimated to take between 4-5 months and will run in tandem with phase 1d below and will involve up to 40 construction staff. This will involve the laying of sewers within the site, the installation of attenuation tanks, the provision of footpaths, lighting and roadways. As part of any works (i.e. provision of services) along the public areas/roads in the vicinity of the site, it will be ensured that the surface of the roads/areas will be re-instated to a high standard. Due to the catchment areas the site services associated with the phasing will be constructed as and when required to ensure that all surface water is attenuated prior to discharging to the existing surface water network.

- **Phases 1-5 – Construction of Residential Units**

The construction of the residential units will, to a certain degree respond to the demand/sale of the units involved, however our client has already had a significant number of enquiries from prospective purchasers, and it is anticipated that the construction progress will reflect this strong demand and will involve up to 100 no. construction staff (depending on the number of units being constructed at any one time). The Ladywell Phase 4 will be developed in one phase and it is expected to take up to four (4) years to complete (subject to planning and market demand).

Figure 4 - Site Logistics Map (Phase 4)

5.2 SITE ESTABLISHMENT & SECURITY

- At site set up stage the site will be made secure, and the general public will be separated from the site by means of fencing and hoarding.
- All site facilities will be contained within the site area.
- The main entrance gate will be controlled by site personnel (gateman) for deliveries.
- Lighting and a camera security system may be used to secure the site in out of hour times.
- Site lighting will be set up with consideration and recommendations of the Ecologist for adjoining properties.

5.3 CONSENT & LICENSES

All statutory consents and licences required to commence an onsite activity will be obtained ahead of work commencing and giving the appropriate notice periods. These will include:

- Construction notices.
- Connections to existing utilities and main sewers.
- Licence to discharge from the site to public systems.

5.4 ACCESS & EGRESS

- The vehicular access road is proposed from the existing Clonard Road
- Separate pedestrian accesses will be developed at the access points to the site in order to maintain vehicle and pedestrian segregation.
- Access will be strictly controlled via security personnel at the access points to the site.
- A wheel wash will be provided the entrance to the site for lorry wheels prior to egress off the site onto the public road in order to maintain the road in a clean condition.

5.5 MATERIAL STORAGE & HANDLING

- Marshall Yard will strive to maintain a tidy site and to operate a “just in time” policy for the delivery and the supply of materials for the works, particularly the final phase of the works when on site storage will be at a minimum.
- Materials will be stored on site as to minimise the risk of damage.
- As per the construction methodology and legislative requirements all fuels stored on site will be bunded and all chemicals will be stored in an appropriate chemical storage tank. Appropriate settlement facilities will be provided on site for refuelling areas.
- A teleporter will be used for general unloading during the structural and envelope works. Unloading over the public roadway and path will be avoided.

5.6 CRANE OPERATIONS

- A mobile crane may be used for elements of the superstructure.
- Loading areas will be used to minimise storage on site, and “just in time” deliveries for each floor level will be used to load materials before the floor for the next level is placed.
- Detailed lifting plans and RAMS (Risk Assessment / Method Statements) will be compiled for all activities involving cranes.

5.7 SITE ACCOMODATION

- It is the intention to provide a main site accommodation and welfare facility on site. The location of these facilities has been determined and marked on site logistics map.
- The principal contractor will be responsible for providing canteen and welfare facilities for the on-site operatives.
- These facilities will be maintained by the main contractor.

5.8 VISITOR MANAGEMENT

- Visitors will only be allowed to enter the site via designated vehicular / pedestrian access gates and must report to the site security office to sign-in and for obtaining any additional PPE required.
- Visitors will be expected to attend a specific site safety briefing and be always accompanied by a member of the site team.

6 DESCRIPTION OF WORKS AND INDICATIVE CONSTRUCTION METHODS

6.1 CONSTRUCTION SEQUENCE

The construction sequence is outlined below. Details may change subject to the detailed design development of the proposed construction.

6.2 ENABLING WORKS

- Secure site and set up contractor welfare facilities and site accommodation.
- Locate and terminate existing live services.
- Install tree protection and remove trees that are required to be felled.
- Excavate and remove material to the required formation. This will require a bulk excavation and removal from the site.
- Maintain existing entrances and incorporate new roads and hardstanding as required.
- Make good and install any finished boundary treatments that can be installed at this stage.

6.3 SUBSTRUCTURE

- Excavate foundations.
- Excavate, lay and test underground drainage.
- Coordinate and install all incoming services.

6.4 SUPERSTRUCTURE

- Foundations and Floor.
- Timber frame units.
- Blockwork.
- Roof work.

6.5 FIT OUT & FINISHES

- Fit out of the residential units will use traditional fit out techniques and finishing trades.
- Gardens and public open space areas will be landscaped and planted in accordance with the landscaping proposals for the scheme.

7 SAFETY, HEALTH AND ENVIRONMENT

7.1 GENERAL HEALTH SAFETY AND ENVIRONMENTAL CONSIDERATIONS

Construction works will be carried out in such a way as to limit, as far as practicable, adverse environmental impact.

Works will be carried out in accordance with the following general provisions:

- Planning approvals from the Local Authority
- Requirements of the Local Authority

In accordance with the HAS requirements a Project Supervisor Construction Stage (PSCS) will be appointed for the construction.

As part of the Construction Method Statement, the process will ensure that construction techniques and materials used are a fundamental consideration of the design and intended long-term use, the aim below is achieved:

- Design for durability and low maintenance.
- Design for flexibility and adaptability.
- Use of materials from sustainable sources.
- Use of local materials where possible.

Safety, health and environmental issues on the Development are a primary consideration in the construction methods adopted. The construction team will develop detailed health and safety plans, specific environmental, fire and accident procedures to suit the construction sequence of the Development.

Contractors involved in the Development will ensure that all non-English speaking employees are provided with relevant Health and Safety information in their national language.

All contractors will be required to adopt the relevant skills certification required for that element of the works.

A site-specific Safety Statement and a detailed Construction Stage Safety & Health Plan will be compiled prior to any works on site and will be in accordance with the Health & Safety Authority and Local Authority guidelines.

7.2 CONTROL SUBSTANCES TO HEALTH

The strategy for controlling all substances and all work processes that may generate hazardous substances will have to be addresses and control measures put in place.

Some of the control measures to be employed include the following:

- All fuel and chemicals to be stored in designated areas, with deliveries of hazardous materials supervised.
- Storage tanks and container facilities will be appropriately bunded.
- In the case of spills or discharges, remedial action will be taken as soon as possible in accordance with company procedures.
- Personal protective equipment (PPE) suitable to the pertaining conditions will be used by all site personnel.

7.3 ENVIRONMENTAL, EMERGENCY, FIRE AND ACCIDENT PROCEDURE

Measures will be carried out to avoid environmental incidents, however if these occur then the following types must be reported to the responsible person in the construction team as per the Marshall Yard Accident and Emergency Procedure (HSE_P-02-002).
The overall strategy in the event of a spillage will be to “Stop-Contain-Notify” in the event of:

- Spills or discharge to the atmosphere, water supplies, sewage systems, rivers and other watercourses, or to the ground:
    - Any chemical products
    - Oils or fuels
    - Effluent/fumes and gases
    - Waste or contaminated materials

- Damage to existing:
    - Trees and wildlife
    - Flora and existing local habitats

- Any environmental incidents that could lead to:
    - Local Authority or regulatory enforcement
    - Public complaint

Emergency routes and procedures will be continuously adapted to suit the construction sequence and stage of the Development. An Emergency and Evacuation Plan will be prepared following the guidelines detailed below and updated on a regular basis during construction.

- Definition of the management organisation and responsibility for safety
- Definition of appropriate fire prevention measures, including good housekeeping of site, welfare facilities and offices.
- Adequate provision of fire extinguishers across the site.
- Use of non-flammable/fire retardant materials for protection of finished works.
- Safe use and safe storage of flammable materials of all categories, whether solid, liquid or gas.
- Appropriate waste management procedures.
- Monitoring the type and frequency of fire inspections/audits.
- Development of evacuation plans, to include escape routes, muster stations, means of sounding alarms and general emergency procedures.
- Site safety inductions and fire drills.
- The application of permit systems for Hot works, Confined Space Entry and Electrical Access Control.
- The provision of first aiders. Checking of emergency routes are available and unobstructed at all times.
- Liaison with the emergency services and occupants of the adjacent buildings.

First aid facilities will be established and at least one trained first aider will be present on-site at all times. In addition, trained Fire Wardens / Fire Marshalls will be in place on-site to address fire safety.

7.4 PARTICULAR HEALTH, SAFETY & ENVIRONMENTAL CONSIDERATIONS

Work in Proximity to Trees

Contractors appointed for works in close proximity to trees and in consultation with the arboriculture and landscape consultants undertake specific tree protection measures and procedures for the execution of their works to protect the trees.

Where trees are identified for retention construction will be undertaken in accordance with the relevant guidelines.

Retained trees will be adequately protected from damage throughout the demolition and construction works, tree protection measures will include some of the following:

- Assessment of location of the roots;
- The Root Protection Area (RPA) will be designated as a construction exclusion zone (CEZ) within which trees will be protected from activities that have a potential to cause damage. CEZ's will be appropriately protected e.g. fencing;
- Prepare detailed Arboriculture Method Statement for specific operations near trees;
- "No-dig design" around the Oak trees;
- Training (e.g. toolbox talks) in how to avoid tree damage;
- Facilitation pruning;
- Supervision of sensitive operations;
- Appropriate tree protection fencing and barriers;
- Appropriate Ground Protection measures;
- Contingency planning;

7.5 AIR QUALITY

General Provisions

Construction works will be carried out in such a way as to limit the emission to air of pollutants, employing best practices.

- The site will be managed in accordance with the CEMP to minimise potential effects on air quality from construction.
- Air monitoring will be undertaken throughout the construction period as may be deemed necessary.
- The storage and handling of construction materials can be significant dust emission source. The appropriate dust control measures will greatly reduce dust emissions from these sources and ensure that the adverse effect will be reduced or eliminated. These include covering waste sips, scaffold netting, use of water to suppress dust, provision of hard stand access for truck and vehicles.
- Handling and storage areas will be sited as far away as is reasonably and practically possible from public/residential areas. Prolonged storage of materials will be avoided where possible. Transportation of materials that may be dusty will be sheeted down to prevent any escape of materials.
- The burning of materials is prohibited on all Marshall Yard' project sites.

7.6 CONSTRUCTION PLANT

Construction plant can be a significant source of emission although control measures can be implemented to minimise any adverse impacts. The following measures will be employed:

- Site plant and equipment will be serviced regularly and maintained in good condition and in accordance with the manufacture's specifications. Allowing for economic constraints, the plant will be selected on the basis of which has the least potential for dust and emissions.
- Plant will not be left running when not in use.
- Plant with dust suppression equipment will be used where practicable.

7.7 VEHICLE MOVEMENTS

Vehicle movement may result in dust emissions and exhaust emissions. However, a number of control measures can be adopted to eliminate or minimise such emissions:

- Damping down the site haul roads during prolonged dry periods.
- Regular cleaning of hard surfaces at the site entrance.

- Ensuring that materials are transported appropriately (sheeting used over dusty materials)
- Confinement of plant and machinery to designated haul routes on site. Haul routes will be outside areas of high groundwater vulnerability.
- Speed restrictions on site will be enforced (15 km/h).
- Hoarding to site boundaries where practical which will aid in the reduction of windblown dust-off site.

7.8 DUST

Dust control will be best achieved at sources, and if possible, activities will be carried out in a manner as to preclude dust generation.

If dust is generated, steps will be taken to protect workers in the vicinity who shall, as a minimum, be issued with appropriate dust masks. Dust will, as far as is reasonably practicable, be contained in the area where it was generated. Dust suppression will be carried out to ensure that dust nuisance affecting neighbouring properties is minimised.

Dust emissions from construction will be controlled through careful pre-project planning and effective site management. The following control measure and good practices, will be employed:

- Burning of materials is prohibited on all Marshall Yard' Project sites.
- Loading and unloading will only be permitted in designated areas.
- Provision of water sprays in dust sensitive locations will be introduced, e.g. concrete cutting.

7.9 ECOLOGY

All construction works will be carefully controlled in terms of potential environmental effects through implementation of this CMP and consultation with the relent bodies. As part of the construction process, protective fencing will be provided to protected trees, which in turn will provide protection to the ecology.

Procedures to minimise risk of pollution potential incidents will be put in place.

7.10 MEASURES TO REDUCE IMPACTS OF HABITAT LOSS

Care will be taken to ensure that trees and hedges being retained are incorporated into the development without being impacted upon. Protective fencing will be provided around trees and hedge vegetation being retained and this will enclose their Root Protection areas (RPAs). The fencing will be at least 2.3m high and constructed in accordance with figure 1 of BS 5837 2012 see fencing detail in Tree Protection Strategy Report' of the Arboriculture Assessment report. The fencing will be made up of Herras fencing panels.

Substantial native tree and hedgerow planting will be planted on the site. Three large areas of open space will be maintained on the site, and existing hedges which are to be retained will be reinforced with native planting. This will reduce the impact of the proposed development upon habitats in the area and there will be no significant operational impact upon habitats due to the provision of substantial native and pollinator friendly habitats proposed for the site.

7.11 MEASURES TO REDUCE IMPACTS ON BATS

For measures to reduce impacts on bats, refer to the Bat Assessment, prepared by Brian Keeley, included with the LRD application..

Lighting proposals for the construction phase will adhere to the advice provided in *Bats and lighting – Guidance for Planners, Engineers, Architects and Developers* (Bat Conservation Ireland 2010), *Guidance Notes for the Reduction of Obtrusive Light GN01* (Institute of Lighting Professionals, 2011) and *Bats and Lighting in the UK – Bats and the Built Environment Series* (Bat Conservation Trust UK, January 2008). Construction stage lighting shall be reviewed by a qualified bat ecologist. If necessary, the bat ecologist shall recommend adjustments to directional lighting (e.g. through cowls, shields or louvres) to ensure minimum light spill onto vegetated areas, and above lighting columns (reducing light spill to vegetated areas to below 3 lux where possible).

7.12 MEASURES TO REDUCE IMPACTS ON BIRDS

To limit the potential impact of construction on breeding birds, vegetation removal will be restricted to the non-breeding season (September to February, inclusive). Where the construction program does not allow this, an ecologist will undertake a breeding bird check immediately prior to vegetation clearance. Where no breeding birds are present clearance may proceed without requiring a license. However given that breeding birds and their nests of all bird species are protected under the Wildlife Acts, a license would be required from the NPWS to permit the destruction of nest sites and disturbance to breeding birds during the bird breeding season (1st March to the 31st August). Depending on the species in question licenses may or may not be granted and therefore avoidance of the breeding bird season is by far the best option in order to avoid delays during vegetation clearance.

7.13 NOISE MANAGEMENT

Noise arising from the construction phase will be limited principally to plant operations and traffic movements to and from the site. Worst-case construction noise levels will be within the required threshold limits included in British Standard 5228:2009 and the National Roads Authority Guidelines for the Treatment of Noise and Vibration (2004).

British Standard BS5228:2009 – Noise and vibration control on construction and open sites: Part 1 – Noise outlines a range of measures that can be used to reduce the impact of construction phase noise on the nearest noise sensitive receptors. These measures will be applied by the contractor where appropriate during the construction phase of the proposed development.

- Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order.
- Careful selection of quiet plant and machinery to undertake the required work where available.
- Machines in intermittent use will be shut down in the intervening periods between work.
- Ancillary plant such as generators, compressors and pumps will be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines will be placed away from sensitive locations, in order to cause minimum noise disturbance.
- Handling of all materials will take place in a manner which minimises noise emissions.

- A complaints procedure will continue to be operated by the contractor throughout the construction phase and all efforts should be made to address any noise issues at the nearest noise sensitive properties.
- Where construction activity takes place in the vicinity of residential properties, it will be restricted to the stipulated hours of operation identified above.

7.14 SOILS & CONTAMINATIONS

Existing Conditions

A number of trial pits were carried out on the site and these trial pits indicated top soil on brown sandy slightly gravelly CLAY on weathered rock siltstone. The bedrock depth varied from 0.6m to 2.4m below ground.

Strategy

The strategy for controlling and mitigating potential adverse environmental or health and safety effects during construction will be to adopt the procedures and methods set out within this CMP.

Operation Control

The strategy for controlling and mitigating potential adverse environmental or health and safety effects during construction will include the following, as appropriate:

- Identification and assessment of the potential for residual ground contamination to be presented prior to the start of any excavation works.
- Minimisation of potential risks to site workers as required by the Safety, Health and Welfare (Construction Regulations) 2013.
- Testing and sampling of excavated soils in order to assess the suitability of materials for re-use on site.
- Dust suppression from any contaminated soils by the regular use of water spray during any dry conditions, sheeting of haulage vehicle loads.
- Stockpiling of contaminated materials will be avoided where possible.
- Stockpiles will be treated to prevent windblown dust.
- Adequate drainage will be designed and installed during construction work to manage surface water runoff.
- The handling and storage of any potentially hazardous liquids on site, e.g. fuels and chemicals, will be controlled and best practice guidelines. Storage tanks/container facilities will have appropriate bunding within the designated area.

- If hazardous liquids escape, remedial action will be taken as soon as possible.
- Where unforeseen contamination is identified during the course of the work, specific investigations will be carried out in the areas in question and appropriate health and safety procedures will be implemented during the removal of the material.

A strategy will be prepared to identify, analyse, segregate and control existing contaminated materials on site.

Procedures will be drawn up to control all potentially contaminated materials brought to site.

7.15 TRANSPORT

General Provisions

Refer to Construction Traffic Generation of the Construction Traffic Management Plan Report s for the estimates of construction traffic generations for the construction phase.

The works will be carried out in such a way that inconvenience to the public arising from increase in traffic flows and disruptive effects of construction traffic on local and main roads is limited wherever practical.

The key principle of the traffic management plan is to ensure the safety of all personnel (drivers & pedestrians). This means a separate entrance for vehicles and pedestrians. The onsite traffic flow will change through the course of the Development. All site traffic will be subject to speed restrictions.

Vehicles and pedestrians will be segregated at the site entrance. Site operatives will be required to wear high-vis clothing on site. Plant and truck operators will be required to have valid qualifications for the plant/trucks that they are operating.

Specific material storage will be identified and will be managed for on-site movement by the mobile crane or the forklift.

For large, wide or abnormal loads, guidelines will be followed.

A Construction Traffic Management Plan Report has been developed for the project. It will be reviewed and updated in line with the construction programme and will typically include details of the following:

- Temporary Traffic Operations Supervisor (TTOS)
- Temporary traffic control measures.
- Temporary and permanent access to the works – vehicle and pedestrian.
- Off-loading and storage areas.
- Traffic management procedures for waste disposal vehicles.
- Personnel and vehicle segregation.
- Equipment e.g. road cones, temporary fencing and signage etc.
- Ensuring all work is planned and method statements prepared and detailing safe systems of work.
- Ensuring that all sub-contractors make adequate provision for vehicle selection and supervision of drivers.
- Making vehicle safety an integral part of the development safety & health plan.
- Defining standards for driver competence, vehicle safety and maintenance.
- Ensuring the coordination and cooperation between contractors.
- Ensuring that all workers receive site induction training, detailing safe traffic routes and site rules for operating vehicles. Establish safety monitoring procedures for the use of vehicles on site.

7.16 WASTE MANAGEMENT PLAN

A Resource Waste Management Plan, prepared by AWN is submitted as part of this application.

General Provision

All works carried out as part of these works will comply with all Statutory Legislation including the Waste Management Act & Local Government (Water Pollution) Acts, and the contractor will co-operate in full with the Environmental Section of the Local Authority.

The disposal of waste generated during construction, including bulk excavation, will be managed to maximise the environmental and development benefits from the use of surplus materials and to reduce any adverse effects of disposal. In general, the principle of waste management hierarchy, which favours waste minimisation, re-use material and recycle over disposal to landfill will be favoured.

Construction Waste

Methods for waste reduction will form the basic strategy for construction waste management from the start. Where possible materials will be re-used. Careful extraction of materials will be undertaken to ensure that the highest proportion of the materials can be re-used. This will reduce the level of new materials required for the proposed site. This in turn reduces the impact on new resources and carbon emissions associated with the extraction, manufacture and transportation of materials to the site. Undertaking the enabling works upfront ensures that more time can be spent on the careful recovery of materials on site. Where appropriate, excavated material from development sites should be reused on the subject site.

Control during Construction

The contractor will ensure minimisation of waste arising on site and reuse where possible, either directly or by recycling, waste monitoring and setting of targets. Recyclable materials such as metal, timber, cardboard and office paper will be put in colour coded bins, ready for collection by the appropriate contactor.

Initiatives to reduce other waste streams include as far as practically possible:

- Minimising raw material waste through analysing design and construction techniques where possible.
- Liaison with suppliers to enable packaging materials to be sent back for reuse, the use of off-cuts where possible and the recycling of off-cut materials by suppliers.
- Engaging contractors in the process of maximising the use of recycled aggregates for hardcore.
- The entrance to the site will be kept clean as to minimise dust and pollution to the water course.

To ensure compliance with legislative requirements, only local authority licenced waste hauliers, waste contractors are permitted to collect and remove waste from site. All waste removed from site will be deposited at a licensed waste facility.
Waste delivery dockets must be completed and given to site management for recording purposes. Suitable protection measures will be incorporated in the design of the waste management area to prevent pollution, and regular inspections carried out to ensure that stored waste is covered by present accidental spillage and from being blown away.

7.17 SITE WASTE MANAGEMENT PLAN

At the outset a site waste management plan accompanies this planning application. This includes a waste forecast identifying options for reuse, recycling and avoidance of landfill and to record actual waste.

8 WORK FORCE

8.1 EMPLOYMENT AND MANAGEMENT OF WORKFORCE

Working Hours

For the duration of the proposed infrastructure works the expected working hours shall be 7:00AM to 7:00PM on weekdays and 7:00AM to 2:00PM on Saturday. No works will be undertaken on Sundays or Bank Holidays, without the consent of Fingal County Council.

Subject to the agreement of the local authority, out of hours working may be required for water main connections, foul drainage connections, etc.

8.2 TEMPORARY SITE ACCOMODATION

Site accommodation will be contained within the site boundary. The principle welfare accommodation will comprise of site offices, toilets, canteen and drying rooms. These will be prefabricated where possible.

Preventative pest control measures will be put in place, and regular inspections will take place to ensure good housekeeping.

8.3 SITE SECURITY

Designated vehicular and pedestrian access will be established and all other potential access points to the site secure so far as is reasonably practicable.
It is proposed to use a “Monitored Security Camera” system on site.

9 ENVIRONMENTAL MANAGEMENT

9.1 CONSTRUCTION PHASE MEASURES – POLLUTION PREVENTION

Works will follow best practice guidance as outlined in *Guidelines on the Protection of Fisheries during Construction Works in and Adjacent to Waters* (IFI, 2016), *CIRIA 2010 Environmental Good Practice on Site & CIRIA 2001 Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors.* Although the risk of any significant impact on water quality in any receiving water bodies is considered to be extremely low given the lack of running water features on the site. Best practice will be implemented at all times in relation to all construction activities to avoid any accidental pollution events occurring to the wet ditches in the area or polluting the ground water table.

This will include the following actions:

- SuDS will be constructed in line with manufacturer's guidelines / best practice methods.
- At this development consist attenuation system stormtech underground to cater for the 100-year return period and a detention basin to cater for the 1-100 year were designed for this site. The design of the attenuation is in accordance with CIRIA SuDS Manual C753 2015. Please refer to the accompanying drawings for further information.
- During construction, any surfaces which are intended to enable infiltration must be protected from compaction. This includes protecting from heavy traffic or storage materials.
- Water contaminated with silt will not be allowed to enter a watercourse or drain as it can cause pollution. All parts of the drainage system will be protected from construction runoff to prevent silt clogging the system and causing pollution downstream. Measures to prevent this include, early construction of sediment management basins, channelling run-off away from watercourses and surface water drains and erosion prevention measures. Following construction, subsoil that has been compacted during construction should be broken up prior to the re-application of topsoil to reinstate the natural infiltration performance of the ground.
- Pipe systems and orifices will be checked for blockages or partial blockages.
- Silt deposited during construction will be removed.
- Soils will be stabilised and protected from erosion whilst planting becomes established.

- Hydrocarbons or any hazardous chemicals will be stored in specific bunded areas. Refuelling of plant and machinery will also be carried out in bunded areas to minimise risk of any potential pollutants being discharged from the site.
- Pollution control measures will be implemented to control run-off from the site and prevent run-off which is potentially contaminated with sediments or hazardous chemicals entering the drainage network.
- Pouring of cement-based materials for works will only be carried out in dry conditions. Pumped concrete will be monitored to ensure there is no accidental discharge. Mixer washings and excess concrete will not be discharged directly into the drainage network. Concrete washout areas will be created to avoid any accidental discharge from the proposed development site.
- Foul drainage from site offices and compound, where not directed to the existing wastewater network, will be contained and disposed of off-site in an appropriate manner and in accordance with the relevant statutory regulations to prevent the pollution of watercourses.
- A response procedure will be put in place to deal with any accidental pollution events and spillage kits will be available on site. Construction staff will be familiar with the emergency procedures and use of the equipment.

Report By
Tales Ayub Smargiassi

Paul Mc Grail
Chartered Engineer
BSc.Eng, Dip.Eng, C.Eng, MIEI, Dip Proj Mang., Dip Conservation,

Appendix A. Schedule of Environmental Commitments (Mitigation and Monitoring)

The Final Schedule of Environmental Commitments (Chapter 16 of the EIAR) will be inserted into the final CEMP once statutory planning approval is received and will be carried forward into the Contractors CEMP.

Appendix B. Statutory Planning Consent Including Any Additional Environmental Commitments

The Statutory Planning consent will be inserted into the final CEMP once statutory planning approval is received and will be carried forward into the Contractors CEMP.

Appendix C – Construction Traffic Management Plan

The Contractor's CTMP will include mitigation measures contained in Chapter 16 of the EIAR and the Outline CTMP contained in section 7 of the TTA prepared by Traffic Insights and set out below.

1.0 INTRODUCTION

This Plan should serve as the basis for the final CTMP, with Glenveagh Homes as the Main Contractor, required to prepare the final version once all programme, material quantity and material source information is known.

2.0 KEY CONSTRUCTION STAGE TRAFFIC ATTRIBUTES

Key traffic related development attributes can be summarised as follows:

• construction programme: up to 48 months (for the overall Phase 3 and Phase 4 development).
• normal construction working hours:
➢ Monday to Friday 07:00hrs to 19:00hrs; and
➢ Saturday 07:00hrs to 14:00hrs.
• estimated staff numbers:
➢ up to ca. 20 no. staff during the site set up phase;
➢ up to ca. 40 no. staff during the setting out of sites and provision of services phase; and
➢ up to ca. 150 no. staff during construction phase.
• estimated construction-related traffic generation:
➢ 4 Heavy Goods Vehicle (HGV) arrivals and 4 HGV departures in each of the weekday peak activity hours during the excavation and concrete pour stages only;
➢ 5 Light Goods Vehicle (LGV) arrivals and 5 LGV departures otherwise in each of the weekday peak activity hours,
➢ 40 car arrivals in the weekday AM peak hour, and ➢ 40 car departures in the weekday PM peak hour.

3.0 CTMP OBJECTIVES

Taking into consideration the site's location and key construction phase characteristics as set out earlier in this section of the Report, the CTMP's overarching objectives are to

• limit construction traffic impacts on nearby local roads by routing construction traffic along the regional and national road network, where possible;

• avoid conflict between construction traffic activities and general traffic/ pedestrians/ cyclists in the general vicinity of the site; and

• set out appropriate construction staff car parking arrangements so as to avoid overspill car parking on the local road network and resulting potential for traffic hazards.

4.0 CONSTRUCTION TRAFFIC MANAGEMENT STRATEGY COMPONENTS

Considering the above CTMP objectives, key components of its strategy are as follows:

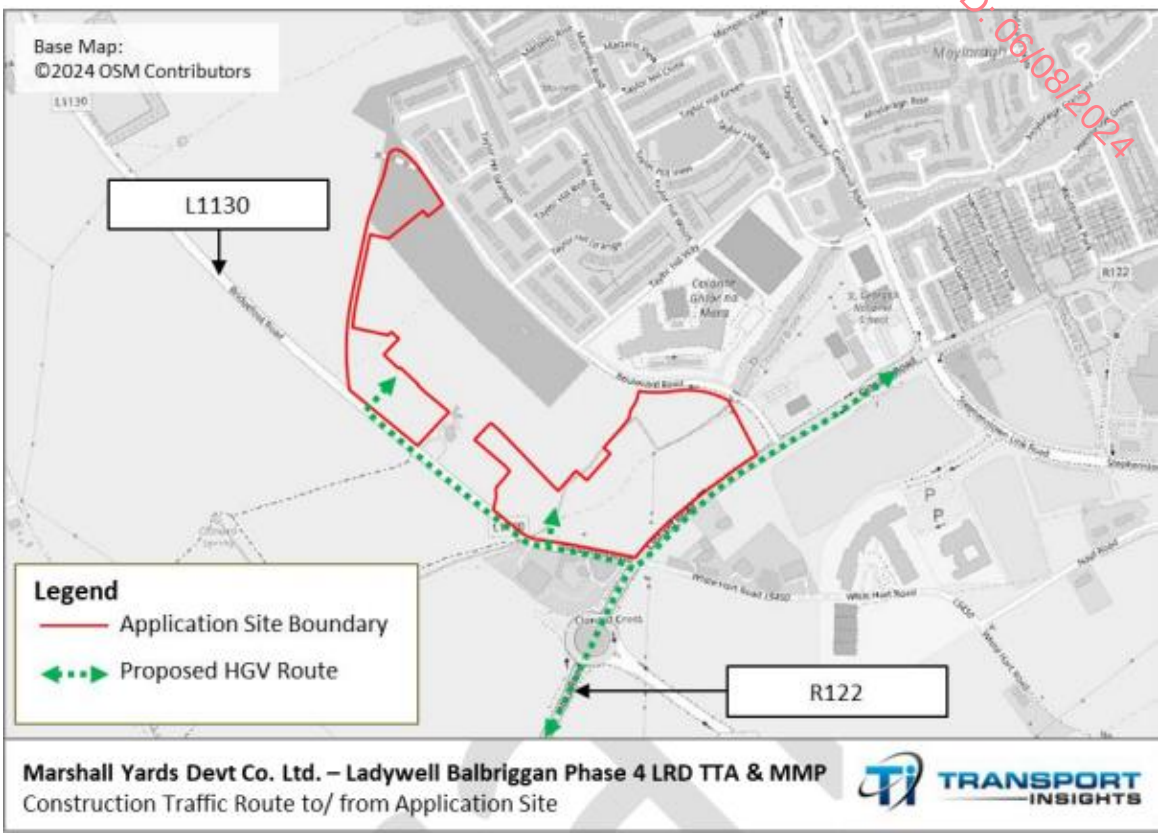
• avoiding conflict between construction activities and traffic/ pedestrian movements;
• managing on-site deliveries; and
• staff parking arrangements and mobility management.

The strategy for each of the above items is expanded upon under the following sub-headings.

Avoiding Conflict Between Construction Activities and Vulnerable Road Users

The site access arrangements have been developed to reflect site-specific considerations emerging from the site assessment (see Section 3.1 of the Traffic Insights TTA). In addition to reflecting identified routes to/ from the site, a central consideration in determining the current access proposals is vehicular, cyclist and pedestrian safety (including construction staff).

Access to and from the development site from the surrounding road network will be via the R122, with all or most of the HGV traffic expected to travel to the site from the west, without entering Balbriggan Town (subject to contractor requirements). Construction traffic will then turn into the L1130 at the priority-controlled R122/ L1130 Junction and subsequently enter the site via one of two entrances serving the northwestern and southeastern parts of the site, respectively. Egress from the site would be via the same route. The Figure below outlines the construction traffic routes to and from the site.



A signage strategy for the identified haul route from the regional road network will be developed and implemented prior to commencement of construction works.

Managing On-Site Deliveries

Vehicular access and egress to the site will be as follows:

• Construction vehicles will access the site in forward gear, manoeuvre within it, and then exit in forward gear to accommodate loading or unloading activities.
• A banksman will be positioned at the site accesses to manage pedestrian, cyclist, general traffic and construction traffic and the related risk to vulnerable road users.

The exact location of deliveries shall be determined at the construction phase of the development. Peak construction traffic movements are estimated to be between 30-35 no. two-way HGV trips per day and consist of a number of different truck movements relating to activities such as excavation, steel and concrete delivery, and other miscellaneous items. Regular HGV movements to and from the site are planned to only occur during the excavation and concrete pouring stages of the construction, with most of the fitout stage

deliveries to be accommodated by LGVs. In order to minimise disruption to the local road network, on days where large concrete pours are ongoing, other works will be limited to cap overall traffic generation. Furthermore, during all construction phases, loading and unloading of vehicles will occur within the site compound, i.e. no such activities will take place from the adjoining public road.

Construction Staff Parking and Mobility Management

Construction Staff Parking

All construction staff parking will be accommodated in temporary parking areas within the site, which will have capacity for ca. 50 no. vehicles. There will be a maximum of 150 no. staff on site at any one time (as outlined in Section 7.2), however as significant amounts of car sharing are expected as various disciplines will arrive together and also as some staff will arrive by public transport, walking and cycling, no more than 40 staff cars are expected to arrive on the site on a typical day, In additional to occasional visitor cars. As a result, no on-street construction parking and no overspill parking impacts on the adjoining local road network are envisaged for the duration of construction activities.

Construction Staff Mobility Management

A maximum of 150 no. construction staff will be based on-site during peak construction activity periods. In addition, daily visitor arrivals to the site, including architects, engineers and other Client representatives are anticipated throughout the construction programme. A Construction Staff Mobility Management Plan (CSMMP) for the site will be developed by the contractor and implemented prior to construction works commencing.

Key elements of the CSMMP include:

• provision of a storage compound on-site to accommodate tools and equipment and reduce the need to travel by car or van; and • information and promotion of available public transport services in the site's vicinity.

Outline 'Ladywell Phase 4' CTMP

Following the identification of the CTMP's strategy presented in the preceding section of this Chapter, individual plan tasks are set out below and include:

Traffic Management Coordinator (TMC)

A site-based TMC shall be appointed upon award of the contract to oversee all activities relating to the CTMP's development and implementation. The TMC will assume responsibility for all traffic movements and will coordinate closely with and as a part of the construction teams on site.

Just-In-Time Deliveries

Scheduled in advance, where feasible, with direct live contact with suppliers to intervene as needed to optimise arrival times to the site.

Sourcing of Construction Materials

Within the constraints of performance, durability and cost, construction materials will, where feasible, be sourced from local suppliers and manufactures, thus, minimising the impacts of construction traffic.

Construction Traffic Timing

Arising from the construction methodology, programme and working hours, an estimated maximum of 3-4 no. HGVs per hour is envisaged during the peak construction programme period, contributing to a very small increase in background traffic on local roads. As such, delivery timing restrictions are deemed unnecessary.

Construction Working Hours

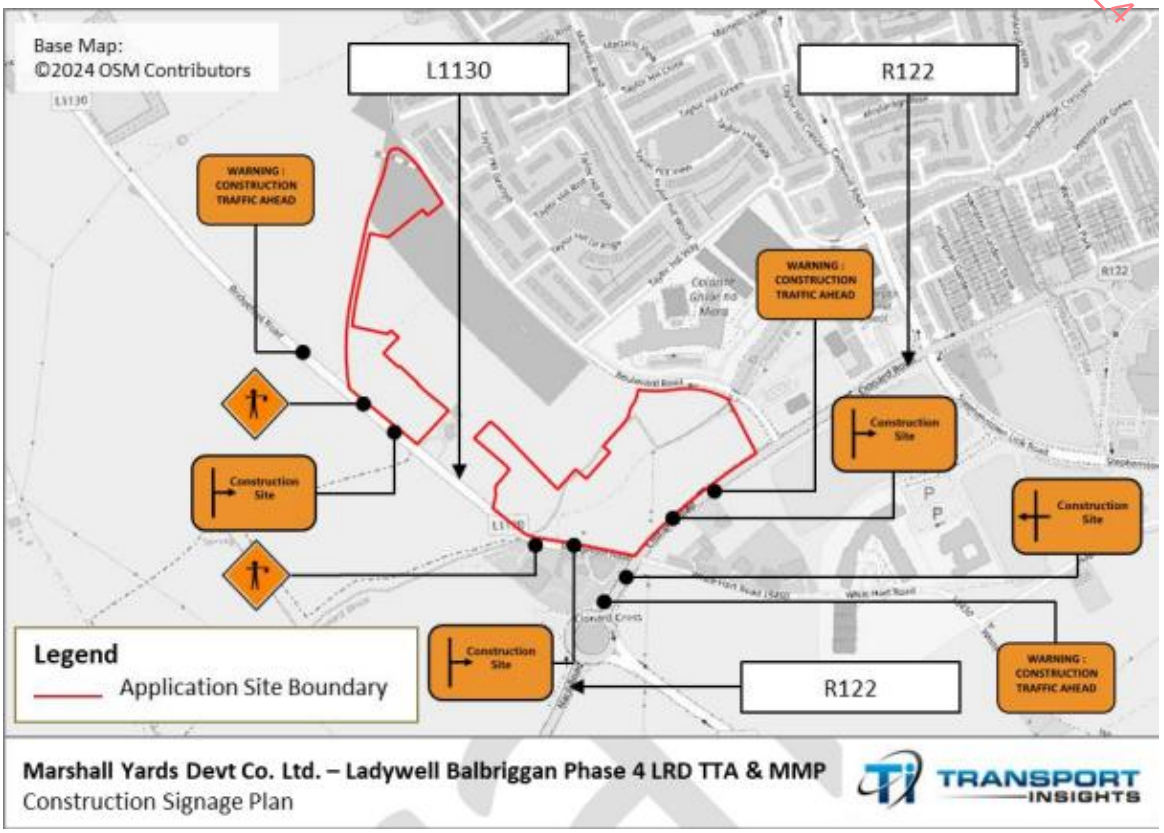
The site will operate from 07:00hrs to 19:00hrs on weekdays and from 07:00hrs to 14:00hrs on Saturday. No works will be undertaken on Sundays or Bank Holidays without the consent of FCC.

Construction Staff Mobility Management Plan

A CSMMP will be developed for the site and will apply to all construction staff (including sub contractors). The CMMP will seek to promote and inform staff in relation to non-car based means of accessing the site. To facilitate public transport use amongst construction staff, secure on-site storage facilities for equipment and tools will be provided.

Construction Signage Plan

A signage plan will be developed and implemented, providing advance warning of the construction access junction, and likelihood of slow-moving turning traffic to/ from the site. The figure below provides an outline of the site signage plan.



Sub-Contractors Obligations

Compliance with the CTMP will form part of written contracts between the principal contractor and nominated sub-contractors. The TMC will be responsible for monitoring the sub-contractor's performance in relation to all CTMP requirements, including all staff under their direct control.

Loading/ Unloading Arrangements

Methods of handling materials on site will be in accordance with construction site health and safety requirements.

Construction Vehicle Management & Cleaning

Where required, construction vehicles will be inspected prior to exit from the site to ensure that dirt is not spread onto the adjoining road, and systems shall be put in place to facilitate

this process, including an on-site cleaning area and/ or rumble grid located within the site prior to the exit location.

Statutory Approvals

The principal contractor will comply at all times with FCC requirements, including but not limited to hoarding/ scaffolding licences, skip licences etc.

CTMP Monitoring and Maintenance

The CTMP will be monitored constantly throughout the proposed construction programme and updated as needed to reflect the evolving needs of the project. The process for monitoring and updating the CTMP will be in accordance with FCC requirements.

This outline Construction Traffic Management Plan (CTMP) sets out the basis for mitigating the impacts of the construction related traffic from the Ladywell housing development in Balbriggan, County Dublin. There are sufficient vehicle routing and delivery scheduling options available to mitigate the traffic impacts of the construction phase.

The Main Contractor will be required to prepare the final CTMP, at which point greater detail will be available on methods of construction, volumes of construction materials and likely traffic movements associated with the construction. The final CTMP will also demonstrate compliance with any conditions set out in the Planning Permission.

The Main Contractor will be required to appoint a Construction Traffic Manager who will be required to coordinate and schedule all deliveries to the site, ensure that roadways are kept clear of mud and debris, advise haulage contractors of appropriate routes and ensure adherence to good traffic management principles

APPENDIX E – MATERIAL ASSETS – WASTE MANAGEMENT

Resource and Waste Management Plan (RWMP)

Operational Waste Management Plan (OWMP)

Resource and Waste Management Plan (RWMP)

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RESOURCE AND WASTE MANAGEMENT PLAN FOR A PROPOSED LARGE-SCALE RESIDENTIAL DEVELOPMENT AT LANDS AT LADYWELL IN BALBRIGGAN.

BALLBRIGGAN PHASE 4 APPENDIX 12.1

Report Prepared For

Marshall Yards Development Company Limited

Report Prepared By

Chonaill Bradley, Principal Environmental Consultant

Our Reference

CB/237501.0756WMR01

Date of Issue

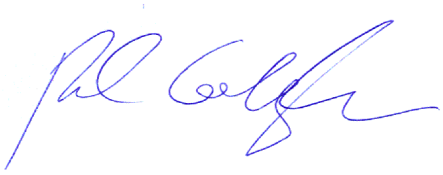
10 July 2024

AWN Consulting Limited
Registered in Ireland No. 319812

Document History

Document Reference		Original Issue Date	
CB/237501.0756WMR01		10 July 2024	
Revision Level	Revision Date	Description	Sections Affected

Record of Approval

Details	Written by	Approved by
Signature		
Name	Chonaill Bradley	Fergal Callaghan
Title	Principal Environmental Consultant	Director
Date	10 July 2024	10 July 2024

CONTENTS

1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Construction and Demolition (C&D) Resource & Waste Management Plan (RWMP) on behalf of Marshall Yards Development Company Limited. The proposed development comprises 197 no. dwellings along with 1 no. retail/café unit (c. 175 sq. m) and 1 no. retail/medical unit (c. 175 sq. m) consisting of 129 no. houses, 18 no. townhouses, 16 no. duplex dwellings, 4 no. apartments, 12 no. maisonette apartments and 18 no. later living dwellings all on a site of c. 7.15 hectares.

This plan provides information necessary to ensure that the management of C&D waste at the site is undertaken in accordance with the current legal and industry standards including the Waste Management Act 1996 as amended and associated Regulations [1], Environmental Protection Agency Act 1992 as amended [2], Litter Pollution Act 1997 as amended [3],the National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024) [4]. In particular, this plan aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It also provides appropriate measures in relation to the collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water).

This RWMP includes information on the legal and policy framework for C&D waste management in Ireland, estimates of the type and quantity of waste to be generated by the proposed development and prescribes measures for the management of different waste streams. The RWMP should be viewed as a live document and will be regularly revisited throughout the project's lifecycle so that opportunities to maximise waste reduction / efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

2.0 C&D WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Irish Government issued a policy statement in September 1998*, Changing Our Ways* [5], which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. The target for C&D waste in this report was to recycle at least 50% of C&D waste within a five year period (by 2003), with a progressive increase to at least 85% over fifteen years (i.e. 2018).

In response to the *Changing Our Ways* report, a task force (Task Force B4) representing the waste sector of the already established Forum for the Construction Industry, released a report entitled '*Recycling of Construction and Demolition Waste'* [6] concerning the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

In September 2020, the Irish Government published a policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan, *'A Waste Action Plan for a Circular Economy'* [7] (WAPCE), replaces the previous national waste management plan, *"A Resource Opportunity"* (2012), and was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to an altered economical model, where climate and environmental challenges are turned into opportunities.

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorientates policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement and waste enforcement.

One of the first actions to be taken was the development of the *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less'* (2021) [8] to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The Circular Economy and Miscellaneous Provisions Act 2022 [9] was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will work to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

The Environmental Protection Agency (EPA) of Ireland issued '*Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects' in November 2021* [10]. These guidelines replace the previous 2006 guidelines issued by The National Construction and Demolition Waste Council (NCDWC) and the Department of the Environment, Heritage and Local Government (DoEHLG) in 2006 [11]. The guidelines provide a practical approach which is informed by best practice in the prevention and management of C&D wastes and resources from design to construction of a project, including consideration of the deconstruction of a project. These guidelines have been followed in the preparation of this document and include the following elements:

- Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes;
- Design teams roles and approach;
- Relevant EU, national and local waste policy, legislation and guidelines;
- Waste disposal/recycling of C&D wastes at the site;
- Provision of training for Resource Waste Manager (RM) and site crew;
- Details of proposed record keeping system;
- Details of waste audit procedures and plan; and
- Details of consultation with relevant bodies i.e. waste recycling companies, Local Authority, etc.

Section 3 of the Guidelines identifies thresholds above which there is a requirement for the preparation of a bespoke RWMP for developments. The new guidance classifies developments on a two-tiered system. Developments which do not exceed any of the following thresholds may be classed as Tier 1 development, which require a simplified RWMP:

- New residential development of less than 10 dwellings.
- Retrofit of 20 dwellings or less.
- New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250m^2.
- Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 2,000m^2; and
- Demolition projects generating in total less than 100m^3 in volume of C&D waste.

A development which exceeds one or more of these thresholds is classed as Tier-2 projects.

This development requires a RWMP as a Tier 2 development as it is above following criterion:

- New residential development of less than 10 dwellings.

Other guidelines followed in the preparation of this report include *'Construction and Demolition Waste Management – a handbook for Contractors and Site Managers'* [12], published by FÁS and the Construction Industry Federation in 2002 and the previous guidelines, 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' (2006).

These guidance documents are considered to define best practice for C&D projects in Ireland and describe how C&D projects are to be undertaken such that environmental impacts and risks are minimised and maximum levels of waste recycling are achieved.

2.2 Regional Level

The proposed development is located in the Local Authority area of Fingal County Council (FCC).

The Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021 has been superseded as of March 2024 by the NWMPCE 2024 - 2030.

The NWMPCE does not dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector.

This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

The national plan sets out the following strategic targets for waste management in the country that are relevant to the development:

National Targets

1B. (Construction Materials) 12% Reduction in Construction & Demolition Waste Generated by 2030.

3B. (Reuse Facilities) Provide for reuse at 10 Civic Amenity Sites, minimum.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140 - €160 per tonne of waste which includes an €85 per tonne landfill levy introduced under the *Waste Management (Landfill Levy) (Amendment) Regulations 2015 (as amended).*

The *Fingal Development Plan 2023 – 2029* [13] (2023) sets out a number of policies and objectives for the Fingal region in line with the objectives of the regional waste management plan, including the following:

- Objective **IUO34** – Waste Management in New Developments -
  Require the provision of appropriate, well designed, accessible space to support the storage, separation and collection of as many waste and recycling streams as possible in all new commercial and residential developments within the County.

- Objective **DMSO234 –** Provision of Public Bring Banks - Ensure the provision of public bring banks in all large retail developments, unless there are existing facilities within a 1 km radius. Bring bank facilities will generally be required at appropriate locations in the following development types:
  - In conjunction with significant new commercial developments, or extensions to existing developments.
  - In conjunction with new waste infrastructure facilities, proposals should include bring facilities for the acceptance of non-hazardous and hazardous wastes from members of the public and small businesses.
  - In conjunction with medium and large scale residential and mixed-use developments providing in excess of 10 residential units, proposals should provide recycling and bring bank facilities to serve residents and in some appropriate locations, the wider community.
  - In conjunction with all large retail developments provide space for reverse vending machines to promote the circular economy.

- Objective **DMSO235** – Communal Refuse Storage Provision - In the case of communal refuse storage provision, the collection point for refuse should be accessible both to the external collector and to the resident and be secured against illegal dumping by non-residents. In the case of individual houses, the applicant shall clearly show within a planning application the proposed location and design of bin storage to serve each dwelling, and having regard to the number of individual bins required to serve each dwelling at the time of the application and any possible future requirements for refuse storage/collection. The following criteria will be considered in the assessment of the design and siting of waste facilities and bring facilities:
  - The location and design of any refuse storage or recycling facility should ensure that it is easily accessible both for residents and/or public and for bin collection, be insect and vermin proofed, will not present an odour problem,

and will not significantly detract from the residential amenities of adjacent property or future occupants.

- Provision for the storage and collection of waste materials shall be in accordance with the guidelines for waste storage facilities in the relevant Regional Waste Management Plan and the design considerations contained in Section 4.8 and 4.9 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, DHLGH (2020).
- Refuse storage for houses should be externally located, concealed / covered and adequate to cater for the size and number of bins normally allocated to a household. For terraced houses, the most appropriate area for bins to be stored is to the front of the house, which should be located in well-designed enclosures that do not to detract from visual amenity.
- All applications shall clearly identify the waste storage and collection points and detail the anticipated waste collection schedule having regard to the impact on road users both within the development and the surrounding area.
- Access to private waste storage in residential schemes should be restricted to residents only.

- Objective **DMSO236** – Segregation and Collection of Waste - Ensure all new large-scale residential and mixed-use developments include appropriate facilities for source segregation and collection of waste.

- Objective **DMSO237** – Distance from Front Door to Communal Bin Area - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened alcoves or other such mitigation measures are provided.

- Objective **DMSO239** – Refuse storage areas - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened or other such mitigation measures are provided.

- Objective **DMSO240** – Distance to Communal Bin Areas - Ensure the maximum distance between the front door to a communal bin area does not exceed 50 metres.

- Objective **DMSO241 -** Construction and Demolition Waste Management Plan - Require that Construction and Demolition Waste Management Plans be submitted as part of any planning application for projects in excess of any of the following thresholds:
  - ¨New residential development of 10 units or more.
  - ¨New developments other than above, including institutional, educational, health and other public facilities, with an aggregate floor area in excess of 1,250 sqm.
  - ¨Demolition / renovation / refurbishment projects generating in excess of 100m^3 in volume of C&D waste.

- ¨Civil engineering projects in excess of 500m^3 of waste materials used for development of works on the site.

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the proposed development are:

- Waste Management Act 1996 as amended.
- Environmental Protection Agency Act 1992 as amended.
- Litter Pollution Act 1997 as amended.
- Circular Economy and Miscellaneous Provisions Act 2022.
- Planning and Development Act 2000 as amended [14].

One of the guiding principles of European waste legislation, which has in turn been incorporated into the *Waste Management Act 1996* as amended and subsequent Irish legislation, is the principle of *"Duty of Care"*. This implies that the waste producer is responsible for waste from the time it is generated through until its legal recycling, recovery or disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final destination, waste contractors will be employed to physically transport waste to the final destination. Following on from this is the concept of *"Polluter Pays"* whereby the waste producer is liable to be prosecuted for pollution incidents, which may arise from the incorrect management of waste produced, including the actions of any contractors engaged (e.g. for transportation and disposal/recovery/recycling of waste).

It is therefore imperative that the Developer ensures that the waste contractors engaged by construction contractors are legally compliant with respect to waste transportation, recycling, recovery and disposal. This includes the requirement that a contractor handle, transport and recycle/recover/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments* or a Waste or Industrial Emissions Licence granted by the EPA. The COR / permit / licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

3.0 DESIGN APPROACH

The client and the design team have integrated the *'Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects'* guidelines into the design workshops, to help review processes, identify and evaluate resource reduction measures and investigate the impact on cost, time, quality, buildability, second life and management post construction. Further details on these design principals can be found within the aforementioned guidance document.

The design team have undertaken the design process in line with the international best practice principles to firstly prevent wastes, reuse where possible and thereafter sustainably reduce and recover materials. The below sections have been the focal point of the design process and material selections and will continued to be analysed and investigated throughout the design process and when selecting material.

As noted in the EPA guidelines, the approaches presented are based on international principles of optimising resources and reducing waste on construction projects through:

- Prevention;
- Reuse;
- Recycling;
- Green Procurement Principles;
- Off-Site Construction;
- Materials Optimisation; and
- Flexibility and Deconstruction.

3.1 Designing For Prevention, Reuse and Recycling

Undertaken at the outset and during project feasibility and evaluation the Client and Design Team considered:

- Establishing the potential for any reusable site assets (buildings, structures, equipment, materials, soils, etc.);
- The potential for refurbishment and refit of existing structures or buildings rather than demolition and new build (No demolition on this project);
- Assessing any existing buildings on the site that can be refurbished either in part or wholly to meet the Client requirements; and
- Enabling the optimum recovery of assets on site.

3.2 Designing for Green Procurement

Waste prevention and minimisation pre-procurement have been discussed and will be further discussed in this section. The Design Team will discuss proposed design solutions, encourage innovation in tenders and incentivise competitions to recognise sustainable approaches. They will also discuss options for packaging reduction with the main Contractor and subcontractors/suppliers using measures such as ‘Just-in-Time’ delivery and use ordering procedures that avoid excessive waste. The Green procurement extends from the planning stage into the detailed design and tender stage and will be an ongoing part of the long-term design and selection process for this development.

3.3 Designing for Off-Site Construction

Use of off-site manufacturing has been shown to reduce residual wastes by up to 90% (volumetric building versus traditional). The decision to use offsite construction is typically cost led but there are significant benefits for resource management. Some further considerations for procurement which are being investigated as part of the planning stage design process are listed as follows:

- Modular buildings as these can displace the use of concrete and the resource losses associated with concrete blocks such as broken blocks, mortars, etc.;

- Modular buildings are typically pre-fitted with fixed plasterboard and installed insulation, eliminating these residual streams from site.

- Use of pre-cast structural concrete panels which can reduce the residual volumes of concrete blocks, mortars, plasters, etc.;
- The use of prefabricated composite panels for walls and roofing to reduce residual volumes of insulation and plasterboards;
- Using pre-cast hollow-core flooring instead of in-situ ready mix flooring or timber flooring to reduce the residual volumes of concrete/formwork and wood/packaging, respectively; and
- Designing for the preferential use of offsite modular units.

3.4 Designing for Materials Optimisation During Construction

To ensure manufacturers and construction companies adopt lean production models, including maximising the reuse of materials onsite as outlined in section 3.1, structures should be designed with the intent of designing out waste. This helps to reduce the environmental impacts associated with transportation of materials and from waste management activities. This includes investigating the use of standardised sizes for certain materials to help reduce the amount of offcuts produced on site, focusing on promotion and development of off-site manufacture.

3.5 Designing for Flexibility and Deconstruction

Design flexibility has and will be investigated throughout the design process to ensure that where possible products (including buildings) only contain materials that can be recycled and are designed to be easily disassembled. Material efficiency is being considered for the duration and end of life of a building project to produce; flexible, adaptable spaces that enable a resource-efficient, low-waste future change of use; durability of materials and how they can be recovered effectively when maintenance and refurbishment are undertaken and during disassembly/deconstruction.

4.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

4.1 Location, Size and Scale of the Proposed Development

The development will consist of the construction of 197 no. dwellings ,open space, and ancillary infrastructure will facilitate Phase 4 of the lands at Ladywell in Balbriggan as follows:

A) 129 no. terraced and semi-detached houses comprising 55 no. 2-bedroom houses (House Type E1 – 2 storey), 67 no. 3-bedroom houses (House Types D1, D3, F1, F3 – 2 storey) and 7 no. 4-bedroom houses (House Types F4 & F5 – 3 storey);
B) 18 no. 3 bedroom townhouse dwellings (House Types G1, G2, G3); 18 no. Later Living Units (8 no. 1 bedroom & 10 no. 2 bedroom – all bungalows);
C) 12 no. 1 bedroom Maisonettes [Apartment Types P1, P2, P3, & P4] in 6 no. 2-storey semi-detached buildings, and 4 no. 1 bedroom apartments (Type A1) in a 3-storey building (all apartments with private open space) along with 1 no. retail/café unit (c.175 sq. m) and 1 no. retail/medical unit (c. 175 sq. m) [both units to be able to be sub-divided and amalgamated].
D) 16 no. duplex apartments (Duplex Types J, K, JM, KM comprising 8 no. 1 bedroom and 8 no. 2 bedroom units) in 4 no. 3 storey buildings ;

E) Public open space c.0.79 hectares (with an additional c.0.85 hectares of riparian corridor open space), hard and soft landscaping (including public lighting & boundary treatment) and Communal Open Space (c. 660 sq. m) for the proposed duplex and apartment units;
F) Vehicular access will be provided via the Boulevard Road along with the provision of car parking spaces (290 no.), bicycle parking spaces and all internal roads and footpaths and bicycle and bin stores;
G) Provision of surface water attenuation measures, (including widening of Clonard Brook), connection to water supply, provision of foul drainage infrastructure to Irish Water specifications and all ancillary site development, construction, and landscaping works;
H) The proposal will also amend the layout to elements of the shared layout across the permitted phases to include (Phase 3A [F21A/0055;ABP Ref:312048-21] relating to 29 no. dwellings replaced with 26 no. dwellings, Phase 3B [F22A/0526] relating to layout and Phase 3C [F22A.0670] relating to 3 no. dwellings replaced with 4 no. dwellings and associated amendments to attenuation (Clonard stream) and services.
I) Inclusion of signalised upgrade of the junction of Boulevard Road and the Clonard Road (R122).

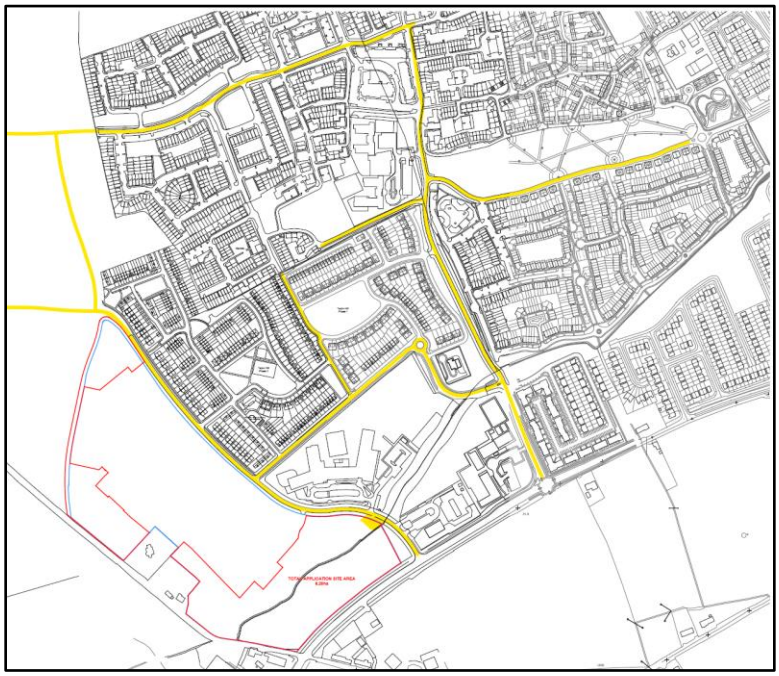


Figure 4.1 *Proposed Site Redline Boundary*

Figure 4.2 *Proposed Site Layout Plan*

4.2 Details of the Non-Hazardous Wastes to be Produced

There will be soil and stones excavated to facilitate construction of the development. The development engineers (Paul McGrail Consulting Engineers Limited) have estimated that c. 25,340 m^3 of material will need to be excavated to do so. It is currently envisaged that c.12,740.42m^3 of the excavated will be able to be retained and reused onsite. The remaining excavated material (c.13,198.72m^3) is either unsuitable or unrequired for reuse and will need to be removed offsite. This material will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

During the construction phase there may be a surplus of 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 (waste paper, 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.

4.3 Potential Hazardous Wastes Arising

4.3.1 Contaminated Soil

Site investigations and environmental soil testing were undertaken by Ground Investigations Ireland (GII) in March 2024. Additional environmental soil testing will be undertaken prior to any material being removed offsite.

If any potentially contaminated material is encountered or any material is to be removed from site, it will be segregated from clean / inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication entitled *'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [15] using the *HazWasteOnline™* tool (or similar approved classification method). The material will then be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC* [16], which establishes the criteria for the acceptance of waste at landfills.

In the unlikely event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.* All asbestos will be taken to a suitably licensed or permitted facility. Due to the nature of the site being green field it is not envisaged that ACM will be encountered onsite.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the contractor will notify FCC 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).

4.3.2 Fuel/Oils

Fuels and oils are classed as hazardous materials; any on-site storage of fuel / oil, and all storage tanks and all draw-off points will be bunded and located in a dedicated, secure area of the site. Provided that these requirements are adhered to and the site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel / oil waste generated at the site.

4.3.3 Invasive Plant Species

A site survey was undertaken by the Openfield Ecology (Project Ecologists). This included a site walkover survey of the entire site, and around part of the outside perimeter to search for any invasive species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended.

No species listed on the Third Schedule of the Birds and Habitats Regulations 2011 (as amended), such as Japanese knotweed (*Reynoutria japonica*), giant hogweed (*Heracleum mantegazzianum*), Himalayan balsam (*Impatiens glandulifera*) or three-cornered leek (*Allium triquetrum*) have been recorded at the proposed development site during the surveys undertaken to date. If any third schedule invasive species is detected during the construction phase of the development, then an invasive species management plan will be produced and submitted to FCC.

4.3.4 Asbestos

In the unlikely event that ACMs are detected on site, the removal of asbestos or ACMs will be carried out by a suitably qualified contractor and ACMs will only be removed from site by a suitably permitted/licenced waste contractor. in accordance with *the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010*. All material will be taken to a suitably licensed or permitted facility. It is not envisaged that ACM's will be encountered due to the nature of the site being a greenfield site.

4.3.5 Other Known Hazardous Substances

Paints, glues, adhesives and other known hazardous substances will be stored in designated areas. They will generally be present in small volumes only and associated waste volumes generated will be kept to a minimum. Wastes will be stored in appropriate receptacles pending collection by an authorised waste contractor.

In addition, WEEE (containing hazardous components), printer toner / cartridges, batteries (Lead, Ni-Cd or Mercury) and / or fluorescent tubes and other mercury containing waste may be generated from during C&D activities or temporary site offices. These wastes, if generated, will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

5.0 ROLES AND RESPONSIBILITIES

The *Best Practice Guidelines on the Preparation of Resource Waste Management Plans for Construction and Demolition Projects* promotes that a RM should be appointed. The RM may be performed by number of different individuals over the life-cycle of the Project, however it is intended to be a reliable person chosen from within the Planning/Design/Contracting Team, who is technically competent and appropriately trained, who takes the responsibility to ensure that the objectives and measures within the Project RWMP are complied with. The RM is assigned the requisite authority to meet the objective and obligations of the RWMP. The role will include the important activities of conducting waste checks/audits and adopting construction methodology that is designed to facilitate maximum reuse and/or recycling of waste.

5.1 Role of the Client

The Client are the body establishing the aims and the performance targets for the project.

- The Client has commissioned the preparation and submission of this RWMP as part of the design and planning submission;
- The Client is to commission the preparation and submission of an updated RWMP as part of the construction tendering process;
- The Client will ensure that the RWMP is agreed on and submitted to the local authority and their agreement obtained prior to commencement of works on site;
- The Client will request the end-of-project RWMP from the Contractor.

5.2 Role of the Client Advisory Team

The Client Advisory Team or Design Team is formed of architects, consultants, quantity surveyors and engineers and is responsible for:

- Drafting and maintaining the RWMP through the design, planning and procurement phases of the project;
- Appointing a RM to track and document the design process, inform the Design Team and prepare the RWMP.
- Including details and estimated quantities of all projected waste streams with the support of environmental consultants/scientists. This will also include data on waste types (e.g. waste characterisation data, contaminated land assessments,

site investigation information) and prevention mechanisms (such as by-products) to illustrate the positive circular economy principles applied by the Design Team;
- Handing over of the RWMP to the selected Contractor upon commencement of construction of the development, in a similar fashion to how the safety file is handed over to the Contractor;
- Working with the Contractor as required to meet the performance targets for the project.

5.3 Future Role of the Contractor

The future construction Contractors have not yet been decided upon for this RWMP. However, once select they will have major roles to fulfil. They will be responsible for:

- Preparing, implementing and reviewing the (RWMP throughout the construction phase (including the management of all suppliers and sub-contractors) as per the requirements of the EPA guidelines;
- Identifying a designated and suitably qualified RM who will be responsible for implementing the RWMP;
- Identifying all hauliers to be engaged to transport each of the resources / wastes off-site;
- Implementing waste management policies whereby waste materials generated on site are to be segregated as far as practicable;
- Renting and operating a mobile-crusher to crush concrete for temporary reuse onsite during construction and reduce the amount of HGV loads required to remove material from site;
- Applying for the appropriate waste permit to crush concrete onsite;
- Identifying all destinations for resources taken off-site. As above, any resource that is legally classified as a 'waste' must only be transported to an authorised waste facility;
- End-of-waste and by-product notifications addressed with the EPA where required;
- Clarification of any other statutory waste management obligations, which could include on-site processing;
- Full records of all resources (both wastes and other resources) will be maintained for the duration of the project; and
- Preparing a RWMP Implementation Review Report at project handover.

6.0 KEY MATERIALS & QUANTITIES

6.1 Project Resource Targets

Project specific resource and waste management targets for the site have not yet been set and this information will be updated for these targets once these targets have been confirmed by the client. However, it is expected for projects of this nature that a minimum of 70% of waste is fully re-used, recycled or recovered. Target setting will inform the setting of project-specific benchmarks to track target progress. Typical Key Performance Indicators (KPIs) that will be used to set targets include (as per guidelines):

- Weight (tonnes) or Volume (m^3) of waste generated per construction value;

- Weight (tonnes) or Volume (m^3) of waste generated per construction floor area (m^2);
- Fraction of resource reused on site;
- Fraction of resource notified as by-product;
- Fraction of waste segregated at source before being sent off-site for recycling/recovery; and
- Fraction of waste recovered, fraction of waste recycled, or fraction of waste disposed.

6.2 Main Construction and Demolition Waste Categories

The main non-hazardous and hazardous waste streams that could be generated by the construction activities at a typical site are shown in Table 6.1. The List of Waste (LoW) code (2018) for each waste stream is also shown.

Table 6.1 *Typical waste types generated and LoW codes (individual waste types may contain hazardous substances)*

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*

6.3 Demolition Waste Generation

There is no demolition associated with the proposed development as the development site is greenfield.

6.4 Construction Waste Generation

Table 6.2 shows the breakdown of C&D waste types produced on a typical site based on data from the EPA *National Waste Reports* [17] *and the joint EPA & GMIT study* [18].

Table 6.2 *Waste materials generated on a typical Irish construction site*

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

Table 6.3, below, shows the estimated construction waste generation for the project 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 and stones) are based on an average large-scale development waste generation rate per m^2, using the waste breakdown rates shown in Table 6.2. These have been calculated from the schedule of development areas provided by the architect.

Table 6.3 *Predicted on and off-site reuse, recycle and disposal rates for construction waste*

Waste Type	Tonnes	Reuse		Recycle/Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	344.4	10	34.4	80	275.5	10	34.4
Timber	292.2	40	116.9	55	160.7	5	14.6
Plasterboard	104.4	30	31.3	60	62.6	10	10.4
Metals	83.5	5	4.2	90	75.1	5	4.2
Concrete	31.3	30	9.4	65	20.3	5	1.6
Other	156.5	20	31.3	60	93.9	20	31.3
Total	**1012.2**		**227.5**		**688.2**		**96.5**

In addition to the waste streams in Table 6.3, there will be c. 25,939.14 m^3 of soil and stone excavated to facilitate the construction of new foundations and underground services. It is currently envisaged that all of the excavated material with the exception of 13,198.72m^3 will be able to be retained and reused onsite. When excavated material is deemed unsuitable for reuse or is not required, then the material will need to be removed offsite for appropriate offsite reuse, recovery, recycling and / or disposal.

It should be noted that until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

6.5 Proposed Resource and Waste Management Options

Waste materials generated will be segregated on-site, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source, where feasible. All waste receptacles leaving the site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. There are numerous waste contractors in the Dublin region that provide this service.

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

National End-of-Waste Decision EoW-N001/2023 (Regulation 28) establishes criteria determining when recycled aggregate resulting from a recovery operation ceases to be waste. Material from this proposed development will be investigated to see if it can cease to be a waste under the requirements of the National End of Waste Criteria for Aggregates.

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

Written records will be maintained by the contractor(s), detailing the waste arising throughout the C&D phases, the classification of each waste type, waste collection permits for all waste contactors who collect waste from the site and COR / permit / licence for the receiving waste facility for all waste removed off-site for appropriate reuse, recycling, recovery and / or disposal

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

The anticipated management of the main waste streams is outlined as follows:

Soil and Stone

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

If material is removed off-site it could be reused as a by-product (and not as a waste). If this is done, it will be done in accordance with Regulation 27 of the European Communities (Waste Directive) Regulations 2011, as amended, which requires that certain conditions are met and that by-product notifications are made to the EPA via their online notification

form. Excavated material should not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material.

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

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

If the material is deemed to be a waste, then removal and reuse / recovery / disposal of the material will be carried out in accordance with the *Waste Management Act 1996* as amended, the *Waste Management (Collection Permit) Regulations 2007* as amended and the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended. Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

In the event that contaminated material is encountered and subsequently classified as hazardous, this material will be stored separately to any non-hazardous material. It will require off-site treatment at a suitable facility or disposal abroad via Transfrontier Shipment of Wastes (TFS).

Bedrock

While it is not envisaged that bedrock will be encountered, if bedrock is encountered, it is anticipated that it will not be crushed on site. Any excavated rock is expected to be removed off-site for appropriate reuse, recovery and / or disposal. If bedrock is to be crushed on-site, the appropriate mobile waste facility permit will be obtained from FCC.

Silt & Sludge

During the construction phase, silt and petrochemical interception will be carried out on run-off and pumped water from site works, where required. Sludge and silt will then be collected by a suitably licensed contractor and removed off-site.

Concrete Blocks, Bricks, Tiles & Ceramics

The majority of concrete blocks, bricks, tiles and ceramics generated as part of the construction works are expected to be clean, inert material and will be recycled, where possible. If concrete is to be crushed on-site, the appropriate mobile waste facility permit will be obtained from FCC.

Hard Plastic

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

Timber

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

Metal

Metals will be segregated, where practical, and stored in skips. Metal is highly recyclable and there are numerous companies that will accept these materials.

Plasterboard

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

Glass

Glass materials will be segregated for recycling, where possible.

Waste Electrical & Electronic Equipment (WEEE)

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

Other Recyclables

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

Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some cardboards, will be placed in separate skips or other receptacles. Prior to removal from site, the non-recyclable waste skip / receptacle will be examined by a member of the waste team (see Section 8.0) to determine if recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle.

Asbestos Containing Materials

If any asbestos or ACM found on-site will be removed by a suitably competent contractor and disposed of as asbestos waste before the site works begin. All asbestos removal work or encapsulation work must be carried out in accordance with the *Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.*

Other Hazardous Wastes

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

On-Site Crushing

It is currently not envisaged that the crushing of waste materials will occur on-site. However, if the crushing of material is to be undertaken, a mobile waste facility permit will first be obtained from FCC and the destination of the accepting waste facility or if an application under regulation 28 will be made using National End-of-Waste Decision EoW-N001/2023, will be supplied to the FCC waste unit.

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

6.6 Tracking and Documentation Procedures for Off-Site Waste

All waste will be documented prior to leaving the site. Waste will be weighed by the contractor, either by a weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project RM (see Section 9.0).

All movement of waste and the use of waste contractors will be undertaken in accordance with the *Waste Management Act 1996* as amended, *Waste Management (Collection Permit) Regulations 2007* as amended and *Waste Management (Facility Permit & Registration) Regulations 2007* and amended. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The nominated project RM (see Section 8.0) will maintain a copy of all waste collection permits on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR / permit or EPA Waste / Industrial Emissions Licence for that site will be provided to the nominated project RM (see Section 8.0). If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from DCC (as the relevant authority on behalf of all Local Authorities in Ireland) and kept on-site along with details of the final destination (COR, permits, licences, etc.). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

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

7.0 ESTIMATED COST OF WASTE MANAGEMENT

An outline of the costs associated with different aspects of waste management is outlined below. The total cost of C&D waste management will be measured and will take into account handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

7.1 Reuse

By reusing materials on site, there will be a reduction in the transport and recycle / recovery / disposal costs associated with the requirement for a waste contractor to take the material off-site. Clean and inert soils, gravel, stones, etc., which cannot be reused on-site may be used as access roads or capping material for landfill sites, etc. This material is often taken free of charge or at a reduced fee for such purposes, reducing final waste disposal costs.

7.2 Recycling

Salvageable metals will earn a rebate, which can be offset against the costs of collection and transportation of the skips.

Clean, uncontaminated cardboard and certain hard plastics can also be recycled. Waste contractors will charge considerably less to take segregated wastes, such as recyclable waste, from a site than mixed waste.

Timber can be recycled as chipboard. Again, waste contractors will charge considerably less to take segregated wastes, such as timber, from a site than mixed waste.

7.3 Disposal

Landfill charges are currently at around €140 - €160 per tonne which includes a €85 per tonne landfill levy specified in the *Waste Management (Landfill Levy) Regulations 2015 as amended*. In addition to disposal costs, waste contractors will also charge a collection fee for skips.

Collection of segregated C&D waste usually costs less than municipal waste. Specific C&D waste contractors take the waste off-site to a licensed or permitted facility and, where possible, remove salvageable items from the waste stream before disposing of the remainder to landfill. Clean soil, rubble, etc., is also used as fill / capping material, wherever possible.

8.0 TRAINING PROVISIONS

A member of the construction team will be appointed as the RM to ensure commitment, operational efficiency and accountability in relation to waste management during the C&D phases of the development.

8.1 Resource Manager Training and Responsibilities

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

The RM will have overall responsibility to oversee, record and provide feedback to the client on everyday waste management at the site. Authority will be given to the RM to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and material salvage.

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

8.2 Site Crew Training

Training of site crew in relation to waste is the responsibility of the RM and, as such, a waste training program should be organised. A basic awareness course will be held for all site crew to outline the RWMP and to detail the segregation of waste materials at source. This may be incorporated with other site training needs such as general site induction, health and safety awareness and manual handling.

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

9.0 TRACKING AND TRACING / RECORD KEEPING

Records should be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the waste arisings on Site.

A waste tracking log should be used to track each waste movement from the site. On exit from the site, the waste collection vehicle driver should stop at the site office and sign out as a visitor and provide the security personnel or RM with a waste docket (or Waste Transfer Form (WTF) for hazardous waste) for the waste load collected. At this time, the security personnel should complete and sign the Waste Tracking Register with the following information:

- Date
- Time
- Waste Contractor
- Company waste contractor appointed by, e.g. Contractor or subcontractor name
- Collection Permit No.
- Vehicle Reg.
- Driver Name
- Docket No.
- Waste Type
- Waste Quantity
- LoW

The waste vehicle will be checked by security personal or the RM to ensure it has the waste collection permit no. displayed and a copy of the waste collection permit in the vehicle before they are allowed to remove the waste from the site.

The waste transfer dockets will be transferred to the RM on a weekly basis and can be placed in the Waste Tracking Log file. This information will be forwarded onto the FCC Waste Regulation Unit when requested.

Each subcontractor that has engaged their own waste contractor will be required to maintain a similar waste tracking log with the waste dockets / WTF maintained on file and available for inspection on site by the main contractor as required. These subcontractor logs will be merged with the main waste log.

Waste receipts from the receiving waste facility will also be obtained by the site contractor(s) and retained. A copy of the Waste Collection Permits, CORs, Waste Facility Permits and Waste Licences will be maintained on site at all times and will be periodically checked by the RM. Subcontractors who have engaged their own waste contractors, should provide the main contractor with a copy of the waste collection permits and COR / permit / licence for the receiving waste facilities and maintain a copy on file, available for inspection on site as required.

10.0 OUTLINE WASTE AUDIT PROCEDURE

10.1 Responsibility for Waste Audit

The appointed RM will be responsible for conducting a waste audit at the site during the C&D phase of the project. Contact details for the nominated RM will be provided to the FCC Waste Regulation Unit after the main contractor is appointed and prior to any material being removed from site.

10.2 Review of Records and Identification of Corrective Actions

A review of all waste management costs and the records for the waste generated and transported off-site should be undertaken mid-way through the construction phase of the project.

If waste movements are not accounted for, the reasons for this should be established in order to see if and why the record keeping system has not been maintained. The waste records will be compared with the established recovery / reuse / recycling targets for the site. Each material type will be examined, in order to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed in order to highlight how the targets can be achieved.

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

11.0 CONSULTATION WITH RELEVANT BODIES

11.1 Local Authority

Once construction contractors have been appointed and have appointed waste contractors, and prior to removal of any C&D waste materials off-site, details of the proposed destination of each waste stream will be provided to the FCC Waste Regulation Unit.

FCC will also be consulted, as required, throughout the excavation and construction phases in order to ensure that all available waste reduction, reuse and recycling

opportunities are identified and utilised and that compliant waste management practices are carried out.

11.2 Recycling / Salvage Companies

The appointed waste contractor for the main waste streams managed by the construction contractors will be audited in order to ensure that relevant and up-to-date waste collection permits and facility registrations / permits / licences are held. In addition, information will be obtained regarding the feasibility of recycling each material, the costs of recycling / reclamation, the means by which the wastes will be collected and transported off-site, and the recycling / reclamation process each material will undergo off-site.

11.3 Pest Management

A pest control operator will be appointed as required to manage pest onsite during the construction phase of the project. Organic and food wastes generated by staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

12.0 CONCLUSION

Adherence to this plan will also ensure that waste management during the construction phase, at the development is carried out in accordance the requirements in the EPA's Best Practice Guidelines for the Preparation of Resource & Waste Management Plans for Construction & Demolition Projects, and the FCC Waste Bye-Laws.

13.0 REFERENCES

1. Waste Management Act 1996 as amended.
2. Environmental Protection Agency Act 1992 as amended.
3. Litter Pollution Act 1997 as amended.
4. Regional Waste Management Planning Offices, *The National Waste Management Plan for a Circular Economy 2024 – 2030 (2024).*
5. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998).
6. Forum for the Construction Industry – *Recycling of Construction and Demolition Waste.*
7. Department of Communications, Climate Action and Environment (DCCAE), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (Sept 2020).
8. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less*' (2021).
9. Circular Economy and Miscellaneous Provisions Act 2022.
10. Environmental Protection Agency (EPA) *'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021).*
11. Department of Environment, Heritage and Local Government, *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* (2006).
12. FÁS and the Construction Industry Federation (CIF), *Construction and Demolition Waste Management – a handbook for Contractors and* site *Managers* (2002).
13. Fingal County Council (FCC)*, Fingal County Development Plan 2023 – 2029* (2023).
14. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended.
15. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018).
16. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.
17. Environmental Protection Agency (EPA), National Waste Database Reports 1998 – 2020 and the Circular Economy and National Waste Database Report 2021 -
18. EPA and Galway-Mayo Institute of Technology (GMIT), *EPA Research Report 146 – A Review of Design and Construction Waste Management Practices in Selected Case Studies – Lessons Learned* (2015).

Operational Waste Management Plan (OWMP)

OPERATIONAL WASTE MANAGEMENT PLAN FOR A PROPOSED LARGE-SCALE RESIDENTIAL DEVELOPMENT AT LANDS AT LADYWELL IN BALBRIGGAN.

BALLBRIGGAN PHASE 4 APPENDIX 12.2

Report Prepared For

Marshall Yards Development Company Limited

Report Prepared By

Chonaill Bradley, Principal Environmental Consultant

Our Reference

CB/237501.0756WMR02

Date of Issue

10 July 2024

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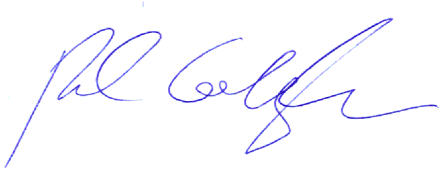
Document History

Document Reference		Original Issue Date	
CB/237501.0756WMR02		10 July 2024	
Revision Level	Revision Date	Description	Sections Affected

Record of Approval

Details	Written by	Approved by
Signature		
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Date	10 July 2024	10 July 2024

CONTENTS

1.0 INTRODUCTION

AWN Consulting Ltd. (AWN) has prepared this Operational Waste Management Plan (OWMP) on behalf of Marshall Yards Development Company Limited. he proposed development comprises 197 no. dwellings along with 1 no. retail/café unit (c. 175 sq. m) and 1 no. retail/medical unit (c. 175 sq. m) consisting of 129 no. houses, 18 no. townhouses, 16 no. duplex dwellings, 4 no. apartments, 12 no. maisonette apartments and 18 no. later living dwellings all on a site of c. 7.15 hectares.

This 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 [1], Environmental Protection Agency Act 1992 as amended [2], Litter Pollution Act 1997 as amended [3], *the* National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024) [4] and Fingal County Council *'Segregation, Storage and Presentation of Household and Commercial Waste Bye-Laws'* (2020) [5]. In particular, this OWMP aims to provide a robust strategy for the storage, handling, collection and transport of the wastes generated at Site.

This OWMP aims to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. The OWMP also seeks to provide guidance on the appropriate collection and transport of waste to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil or water resources). The plan estimates the type and quantity of waste to be generated from the proposed Development during the operational phase and provides a strategy for managing the different waste streams.

At present, there are no specific national guidelines in Ireland for the preparation of OWMPs. Therefore, in preparing this document, consideration has been given to the requirements of national and regional waste policy, legislation and other guidelines.

2.0 OVERVIEW OF WASTE MANAGEMENT IN IRELAND

2.1 National Level

The Irish Government issued a policy statement in September 1998 entitled *'Changing Our Ways'* [6], which identified objectives for the prevention, minimisation, reuse, recycling, recovery and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill and finding alternative methods for managing waste. Amongst other things, *Changing Our Ways* stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document, *'Preventing and Recycling Waste – Delivering Change'* was published in 2002 [7]. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority.

This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled *'Making Irelands Development Sustainable – Review, Assessment and Future Action'* [8]. This document also stressed the need to decouple economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document *Changing Our Ways*, a review document was published in April 2004 entitled *'Taking Stock and Moving Forward'* [9]. Covering the period 1998 – 2003, the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider

developments since the policy framework and the local authority waste management plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

In particular, *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. The report noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services.

In September 2020, the Irish Government published a new policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan *'A Waste Action Plan for a Circular Economy'* [10] (WAPCE), was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to a new economy, where climate and environmental challenges are turned into opportunities, replacing the previous national waste management plan *"A Resource Opportunity"* (2012).

The WAPCE sets the direction for waste planning and management in Ireland up to 2025. This reorientates policy from a focus on managing waste to a much greater focus on creating circular patterns of production and consumption. Other policy statements of a number of public bodies already acknowledge the circular economy as a national policy priority.

The policy document contains over 200 measures across various waste areas including circular economy, municipal waste, consumer protection and citizen engagement, plastics and packaging, construction and demolition, textiles, green public procurement and waste enforcement.

One of the first actions to be taken was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less' (2021) [11] to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021. It is anticipated that the Strategy will be updated in full every 18 months to 2 years.

The Circular Economy and Miscellaneous Provisions Act 2022 [12] was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions, tackling the delays which can be encountered by industry, and supporting the availability of recycled secondary raw materials in the Irish market, and tackles illegal fly-tipping and littering.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic *'National Waste (Database) Reports'* which as of 2023 have been renamed *Circular Economy and Waste Statistics Highlight Reports* [13] detailing, among other things, estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery and disposal of these materials. The 2021 National Circular Economy and Waste Statistics web resource, which is the most recent study published, along with the national waste statistics web resource (November 2023) reported the following key statistics for 2020:

- **Generated** – Ireland produced 3,170,000 t of municipal waste in 2021. This is a 1% decrease since 2020. This means that the average person living in Ireland generated 630 kg of municipal waste in 2021.

- **Managed** – Waste collected and treated by the waste industry. In 2020, a total of 3,137,000 t of municipal waste was managed and treated.
- **Unmanaged** – An estimated 33,000 tonnes of this was unmanaged waste i.e., not disposed of in the correct manner in 2021.
- **Recovered** – The amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In Ireland 42% of Municipal waste was treated by energy recovery through incineration in 2021.
- **Recycled** – Just over 1.3 million tonnes of municipal waste generated in Ireland was recycled in 2021, resulting in a recycling rate of 41 per cent. The recycling rate remains unchanged from 2020 and indicates that we face significant challenges to meet the upcoming EU recycling targets of 55% by 2025 and 65% by 2035.
- **Disposed** – The proportion of municipal waste sent to landfill also remains unchanged at 16% the same as 2020.
- **Reuse** – 54,800 tonnes of second-hand products we estimated by the EPA to have been reused in Ireland in 2021. The average annual Reuse rate per person in Ireland is 10.6 kg per person.

2.2 Regional Level

The proposed development is located in the Local Authority administrative area of Fingal County Council (FCC).

The Eastern Midlands Regional (EMR) Waste Management Plan 2015 – 2021 has been superseded as of March 2024 by the NWMPCE 2024 - 2030. The NWMPCE is the national waste plan for Ireland that supersedes the previous three regional waste management plans.

The NWMPCE does not dissolve the three regional waste areas. The NWCPCE sets the ambition of the plan to have a 0% total waste growth per person over the life of the Plan with an emphasis on non-household wastes including waste from commercial activities and the construction and demolition sector.

This Plan seeks to influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation.

The national plan sets out the following strategic targets for waste management in the country that are relevant to the proposed development:

Proposed National Targets

1A. (Residual Municipal Waste) 6% Reduction in Residual Municipal Waste per person by 2030

2A. (Contamination of Materials) 90% of Material in Compliance in the Dry Recycling Bin

2B. (Material Compliance Residual) 10% per annum increase in Material Compliance in the residual bin. (90% by the end of 2030)

3A. (Reuse of Materials) 20kg Per person / year – Reuse of materials like cloths or furniture to prevent waste.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €140-160 per tonne of waste, which includes a €85 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2015.

The *Fingal Development Plan 2023 – 2029* [14] sets out a number of policies and objectives for the Fingal region in line with the objectives of the regional waste management plan, including the following:

- Objective **IUO34** – Waste Management in New Developments - Require the provision of appropriate, well designed, accessible space to support the storage, separation and collection of as many waste and recycling streams as possible in all new commercial and residential developments within the County.
- Objective **DMSO234 –** Provision of Public Bring Banks - Ensure the provision of public bring banks in all large retail developments, unless there are existing facilities within a 1 km radius. Bring bank facilities will generally be required at appropriate locations in the following development types:
  - In conjunction with significant new commercial developments, or extensions to existing developments.
  - In conjunction with new waste infrastructure facilities, proposals should include bring facilities for the acceptance of non-hazardous and hazardous wastes from members of the public and small businesses.
  - In conjunction with medium and large scale residential and mixed-use developments providing in excess of 10 residential units, proposals should provide recycling and bring bank facilities to serve residents and in some appropriate locations, the wider community.
  - In conjunction with all large retail developments provide space for reverse vending machines to promote the circular economy.
- Objective **DMSO235** – Communal Refuse Storage Provision - In the case of communal refuse storage provision, the collection point for refuse should be accessible both to the external collector and to the resident and be secured against illegal dumping by non-residents. In the case of individual houses, the applicant shall clearly show within a planning application the proposed location and design of bin storage to serve each dwelling, and having regard to the number of individual bins required to serve each dwelling at the time of the application and any possible future requirements for refuse storage/collection. The following criteria will be considered in the assessment of the design and siting of waste facilities and bring facilities:
  - The location and design of any refuse storage or recycling facility should ensure that it is easily accessible both for residents and/or public and for bin collection, be insect and vermin proofed, will not present an odour problem, and will not significantly detract from the residential amenities of adjacent property or future occupants.
  - Provision for the storage and collection of waste materials shall be in accordance with the guidelines for waste storage facilities in the relevant Regional Waste Management Plan and the design considerations contained in Section 4.8 and 4.9 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, DHLGH (2020).
  - Refuse storage for houses should be externally located, concealed / covered and adequate to cater for the size and number of bins normally allocated to a household. For terraced houses, the most appropriate area for bins to be stored is to the front of the house, which should be located in well-designed enclosures that do not to detract from visual amenity.
  - All applications shall clearly identify the waste storage and collection points and detail the anticipated waste collection schedule having regard to the impact on road users both within the development and the surrounding area.
  - Access to private waste storage in residential schemes should be restricted to residents only.

- Objective **DMSO236** – Segregation and Collection of Waste - Ensure all new large-scale residential and mixed-use developments include appropriate facilities for source segregation and collection of waste.
- Objective **DMSO237** – Distance from Front Door to Communal Bin Area - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened alcoves or other such mitigation measures are provided.
- Objective **DMSO239** – Refuse storage areas - Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse storage areas are not situated immediately adjacent to the front door or ground floor window, unless adequate screened or other such mitigation measures are provided.
- Objective **DMSO240** – Distance to Communal Bin Areas - Ensure the maximum distance between the front door to a communal bin area does not exceed 50 metres.

2.3 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the proposed development are:

- Waste Management Act 1996 as amended;
- Environmental Protection Agency Act 1992 as amended;
- Litter Pollution Act 1997 as amended;
- Planning and Development Act 2000 as amended [15];
- Circular Economy and Miscellaneous Provisions Act 2022.

These Acts and subordinate Regulations transpose the relevant European Union Policy and Directives into Irish law.

One of the guiding principles of European waste legislation, which has in turn been incorporated into the Waste Management Act 1996 as amended and subsequent Irish legislation, is the principle of “Duty of Care”. This implies that the waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal). As it is not practical in most cases for the waste producer to physically transfer all waste from where it is produced to the final disposal area, waste contractors will be employed to physically transport waste to the final waste disposal site.

It is, therefore, imperative that the residents and any proposed facilities management undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted / licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contactor handle, transport and reuse / recover / recycle / dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007, as amended, or a Waste Licence granted by the EPA. The COR / permit / licence held will specify the type and quantity

of waste able to be received, stored, sorted, recycled, recovered and / or disposed of at the specified site.

2.3.1 Fingal County Council Waste Bye-Laws

The FCC *"Segregation, Storage and Presentation of Household and Commercial Waste Bye-Laws 2020"* came into effect in March 2020. The Bye-Laws set a number of enforceable requirements on waste holders and collectors with regard to storage, separation, presentation and collection of waste within the FCC functional area. Key requirements under these *Waste Bye-Laws* are:

- Kerbside waste presented for collection shall not be presented for collection earlier than 6:00pm on the day immediately preceding the designated waste collection day;
- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath or any other public place no later than 9:00am on the day following the designated waste collection day;
- Neither recyclable household kerbside waste nor food waste arising from households shall be contaminated with any other type of waste before or after it has been segregated; and
- A management company, or another person if there is no such company, who exercises control and supervision of residential and/or commercial activities in multi-unit developments, mixed-use developments, flats or apartment blocks, combined living/working spaces or other similar complexes shall ensure that:
    - Separate receptacles of adequate size and number are provided for the proper segregation, storage and collection of recyclable household kerbside waste and residual household kerbside waste;
    - Additional receptacles are provided for the segregation, storage and collection of food waste where this practice is a requirement of the national legislation on food waste;
    - The receptacles referred to in paragraphs (a) and (b) are located both within any individual apartment and at the place where waste is stored prior to its collection;
    - Any place where waste is to be stored prior to collection is secure, accessible at all times by tenants and other occupiers and is not accessible by any other person other than an authorised waste collector,
    - Written information is provided to each tenant or other occupier about the arrangements for waste separation, segregation, storage and presentation prior to collection;
    - An authorised waste collector is engaged to service the receptacles referred to in this section of these bye-laws, with documentary evidence, such as receipts, statements or other proof of payment, demonstrating the existence of this engagement being retained for a period of no less than two years. Such evidence shall be presented to an authorised person within a time specified in a written request from either that person or from another authorised person employed by South Dublin County Council;
    - Receptacles for kerbside waste are presented for collection on the designated waste collection day; and
    - Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

The full text of the Waste Bye-Laws is available from the FCC website

2.4 Regional Waste Management Service Providers and Facilities

Various contractors offer waste collection services for the residential sector in the FCC region. Details of waste collection permits (granted, pending and withdrawn) for the region are available from the NWCPO.

As outlined in the regional waste management plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational and all are operated by the private sector. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second in Poolbeg in Dublin.

There is a bring centre located at Seatown Park, Estuary Recyling Centre c. 16.5km to the south of the proposed development site, which can be utilised by the residents of the proposed development for other household waste streams while a bottle bank can be found c. 400m away at Millfield Shopping Centre, Balbriggan, Dublin, Leinster, Ireland, K32YK70.

A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all Waste Licenses issued are available from the EPA.

3.0 DESCRIPTION OF THE DEVELOPMENT

3.1 Location, Size and Scale of the Development

he proposed development comprises 197 no. dwellings along with 1 no. retail/café unit (c. 175 sq. m) and 1 no. retail/medical unit (c. 175 sq. m) consisting of 129 no. houses, 18 no. townhouses, 16 no. duplex dwellings, 4 no. apartments, 12 no. maisonette apartments and 18 no. later living dwellings all on a site of c. 7.15 hectares.

3.2 Typical Waste Categories

The typical non-hazardous and hazardous wastes that will be generated at the proposed Development will include the following:

- Dry Mixed Recyclables (DMR) - includes waste paper (including newspapers, magazines, brochures, catalogues, leaflets), cardboard and plastic packaging, metal cans, plastic bottles, aluminium cans, tins and Tetra Pak cartons;
- Organic waste – food waste and green waste generated from internal plants / flowers;
- Glass; and
- Mixed Non-Recyclable (MNR)/General Waste.

In addition to the typical waste materials that will be generated at the proposed development on a daily basis, there will be some additional waste types generated less frequently / in smaller quantities which will need to be managed separately including:

- Deposit Return Scheme - bottles, cans and tins made from plastic, aluminium or steel.
- Green / garden waste may be generated from internal plants and external landscaping;
- Batteries (both hazardous and non-hazardous);
- Waste electrical and electronic equipment (WEEE) (both hazardous and non-hazardous);
- Printer cartridges / toners;

- Chemicals (paints, adhesives, resins, detergents, etc.);
- Light bulbs;
- Textiles;
- Waste cooking oil (if any generated by the residents);
- Furniture (and, from time to time, other bulky wastes); and
- Abandoned bicycles.

Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible.

3.3 List of Waste Codes

In 1994, the *European Waste Catalogue* [16] and *Hazardous Waste List* [17] were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List* [18], which was a condensed version of the original two documents and their subsequent amendments. This document has recently been replaced by the EPA '*Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* [19] 2018. This waste classification system applies across the EU and is the basis for all national and international waste reporting, such as those associated with waste collection permits, COR's, permits and licences and EPA National Waste Database.

Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code for typical waste materials expected to be generated during the operation of the proposed development are provided in Table 3.1 below.

Table 3.1 Typical Waste Types Generated and LoW Codes

Waste Material	LoW/EWC Code
Paper and Cardboard	20 01 01
Plastics	20 01 39
Metals	20 01 40
Mixed Non-Recyclable Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25
Textiles	20 01 11
Batteries and Accumulators*	20 01 33* - 34
Printer Toner/Cartridges*	20 01 27* - 28
Green Waste	20 02 01
WEEE*	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents, etc.) *	20 01 13*/19*/27*/28/29*30
Fluorescent tubes and other mercury containing waste*	20 01 21*
Bulky Wastes	20 03 07

** Individual waste type may contain hazardous materials*

4.0 ESTIMATED WASTE ARISINGS

A waste generation model (WGM) developed by AWN has been used to predict waste types, weights and volumes expected to arise from operations within the proposed development. The WGM incorporates building area and use and combines these with other data, including Irish and US EPA waste generation rates.

The estimated quantum / volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units.

The estimated waste generation for the proposed development for the main waste types is presented in Tables 4.1 and 4.2.

Table 4.1 *Estimated Waste Generation for Residential Units (Individual)*

Waste Type	Waste Volume per Unit Type (m^3 / week)			
	1 Bedroom Maisonette / Duplex / Later Living Unit	2 Bedroom House / Later Living Unit	3 Bedroom House / Duplex / Townhouse	4 Bedroom House
Organic Waste	0.01	0.02	0.02	0.02
DMR	0.08	0.11	0.13	0.18
Glass	>0.01	>0.01	>0.01	>0.01
MNR	0.04	0.07	0.08	0.09
Total	**0.13**	**0.20**	**0.23**	**0.29**

Table 4.2 *Estimated Waste Generation for Residential Units (Shared)*

Waste Type	Waste Volume per Unit block (m^3 / week)		
	Apartment Block (Combined)	Café Unit	Pharmacy Unit
Organic Waste	0.07	0.14	0.02
DMR	0.48	0.33	0.37
Glass	0.01	0.01	0.01
MNR	0.29	0.42	0.16
Confidential Paper	-	-	0.15
Total	**0.84**	**0.90**	**0.71**

BS5906:2005 Waste Management in Buildings – Code of Practice [20] has been considered in the calculations of waste estimates. AWN's modelling methodology is based on recently published data and data from numerous other similar developments in Ireland and is based on AWN's experience, it provides a more representative estimate of the likely waste arisings from the proposed development.

5.0 WASTE STORAGE AND COLLECTION

This section provides information on how waste generated within the Site will be stored and collected. This has been prepared with due consideration of the proposed Site layout as well as best practice standards, local and national waste management requirements, including those of FCC. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice,
- The NWMPCE (2024);
- FCC Fingal County Council Development Plan 2023-2029 (2023);
- FCC Segregation, Storage and Presentation of Household and Commercial Waste Bye-Laws (2020); and
- DoHLGH, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2023) [21].

Waste Storage Areas

Locations of all Waste Storage Areas (WSAs) can be viewed on the drawings submitted with the planning application under separate cover.

Individual Houses, Maisonettes, Duplexes, Apartments, Townhouses and Later Living Units

These residential units will have their own individual Waste Storage Areas (WSAs) allocated at the rear of their home where external access to the rear yard is possible. Where external access to the rear of the property is unavailable, bins will be stored at the front of the unit, shielded from view of the road in their own bin store. Some units will have external shared bins stores with their own individual bins located in them.

Café and Pharmacy Units (Commercial Units)

Two (2 no.) WSAs have been allocated for each commercial unit in the design of this development. Both WSAs for the units are located at ground floor level in close proximity to the units.

Using the estimated waste generation volumes in Tables 4.1 above, the waste receptacle requirements for MNR, DMR, organic waste and glass have been established for the WSAs. Residents with individual WSAs will be required to take their glass to the nearest bottle bank. It is envisaged that all waste types will be collected on a weekly basis.

Waste Storage Requirements

Estimated waste storage requirements for the operational phase of the proposed development are detailed in Table 5.1, below.

Table 5.1 *Waste storage requirements for the proposed development*

Area/Use	Bins Required			
	MNR[1]	DMR[2]	Glass	Organic
Houses, Maisonettes, Duplexes, Apartments, Townhouses and Later Living Units (Individual)	1 no. 240 L	1 no. 240 L	Bottle Bank	1 no. 240 L
Café Unit (Individual)	1 no. 240 L	1 no. 240 L	1 no. 120 L	1 no. 120 L
Pharmacy Unit (Individual)	2 no. 240 L	2 no. 240 L	1 no. 120 L	1 no. 240 L

Note: 1 = Mixed Non-Recyclables
2 = Dry Mixed Recyclables

The waste receptacle requirements have been established from distribution of the total weekly waste generation estimate into the holding capacity of each receptacle type.

The types of bins used will vary in size, design and colour dependent on the appointed waste contractor. However, examples of typical receptacles to be provided in the WSA are shown in Figure 5.1. All waste receptacles used will comply with the SIST EN 840-1:2020 and SIST EN 840-2:2020 as the standards for performance requirements of mobile waste containers, where appropriate.

Figure 5.1 Typical waste receptacles of varying size (240L and 1100L)

Receptacles for organic, mixed dry recyclable, glass and mixed non-recyclable waste will be provided in the shared residential WSAs prior to first occupation of the development i.e. prior to the first residential unit being occupied.

This Plan will be provided to each resident with shared WSAs from first occupation of the development i.e. once the first residential unit is occupied. This Plan will be supplemented, as required, by the facilities management company with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

It will be the responsibility of the commercial units and the residential units with individual WSAs to contact a waste contractor to acquire the appropriate waste storage receptacles (as per Table 5.1 above, or similar appropriately approved containers), which will be provided by the waste contractor for that individual unit.

5.1 Waste Storage – Residential Units

Residents of the apartment units, duplexes and houses will be required to segregate their waste into the following main waste categories within their own units:

- DMR;
- MNR;
- Organic waste; and
- Glass.

Provision will be made in all residential units to accommodate 3 no. bin types to facilitate waste segregation at source. An example of a potential 3 bin storage system is provided in Figure 5.2 below.

Figure 5.2 Example three bin storage system to be provided within the unit design

Residents will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins. The locations of the residential WSAs are illustrated in the drawings submitted with the planning application under separate cover.

Each bin / container in the residential WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which waste types can be placed in each bin.

Other waste materials such as textiles, batteries, furniture, printer toner/cartridges and WEEE may be generated infrequently by the residents. Residents will be required to identify suitable temporary storage areas for these waste items within their own units and dispose of them appropriately. Further details on additional waste types can be found in Section 5.4.

5.2 Waste Storage – Commercial Units (Café and Pharmacy Unit)

The commercial tenants will be required to segregate waste within their own unit into the following main waste types:

- Organic Waste;
- DMR;
- Glass; and
- MNR.

The commercial tenants will be required to take their segregated waste materials to their designated WSA and deposit their segregated waste into the appropriate bins. The location of the commercial WSAs are illustrated in the drawings submitted with the planning application under separate cover.

Suppliers for the commercial tenants should be requested by the tenants to make deliveries in reusable containers, minimize packaging or remove any packaging after delivery, where possible, to reduce waste generated by the proposed development.

If any kitchens are allocated in unit area, this will contribute a significant portion of the volume of waste generated on a daily basis, and as such it is important that adequate provision is made for the storage and transfer of waste from these areas to the WSAs.

If kitchens are required it is anticipated that waste will be generated in kitchens throughout the day, primarily at the following locations:

- Food Storage Areas (i.e. cold stores, dry store, freezer stores and stores for decanting of deliveries);
- Meat Preparation Area;
- Vegetable Preparation Area;
- Cooking Area;
- Dish-wash and Glass-wash Area; and
- Bar Area.

Small bins will be placed adjacent to each of these areas for temporary storage of waste generated during the day. Waste will then be transferred from each of these areas to the appropriate waste store within their unit.

All bins / containers in the commercial tenants' areas as well as in the commercial WSAs will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which wastes can be put in each.

Other waste materials such as textiles, batteries, lightbulbs, WEEE, cooking oil and printer toner / cartridges will be generated less frequently. The tenants will be required to store these waste types within their own unit and arrange collection with an appropriately licensed waste contractor. Facilties management may arrange collection, depending on the agreement. Further details on additional waste types can be found in Section 5.5.

5.3 Waste Collection

There are numerous private contractors that provide waste collection services in the FCC area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered / permitted / licensed facilities only.

Residents and commercial tenants with their own individual WSAs will be responsible for moving their bins to the curtilage for collection and removal after emptying, in line with the FCC waste by-law requirements.

Bins will be returned to the WSAs immediately following collection in line with the waste bye-laws.

Waste will be collected at agreed days and times by the nominated waste contractors. The vehicle tracking for refuse trucks can be viewed on the drawings submitted with the planning application under separate cover and in Appendix 1 of this report.

All waste receptacles should be clearly identified as required by waste legislation and the requirements of the FCC *Waste Bye-Laws*. Waste will be presented for collection in a manner that will not endanger health, create a risk to traffic, harm the environment or create a nuisance through odours or litter.

It is recommended that bin collection times are staggered to reduce the number of bins required to be emptied at once and the time the waste vehicle is on-site. This will be determined during the process of appointment of a waste contractor.

5.4 Additional Waste Materials

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

Deposit Return Scheme

Most drinks containers can be recycled via the deposit return scheme, such as bottles, cans and tins made from plastic, aluminium or steel can be returned once they are between 150ml and 3 litres in size and have the Re-turn logo on them.

At the shops you can either return the containers:

- Using a Reverse Vending Machine (RVM)
- Manually in the shop

If a shop does not have a RVM but they sell containers with the Re-turn logo, the shop may allow you to manually return containers in store, unless they have a take back exemption.

Locations of RVM machines can be found via the Re-turn website (www.re-turn.ie)

Green Waste

Green waste may be generated from gardens, external landscaping and internal plants / flowers. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens internal plants / flowers can be placed in the organic waste bins.

Batteries

A take-back service for waste batteries and accumulators (e.g. rechargeable batteries) is in place in order to comply with the S.I. No. 283/2014 - European Union (Batteries and Accumulators) Regulations 2014, as amended. In accordance with these regulations, consumers are able to bring their waste batteries to their local civic amenity centre or can return them free of charge to retailers which supply the equivalent type of battery, regardless of whether or not the batteries were purchased at the retail outlet and regardless of whether or not the person depositing the waste battery purchases any product or products from the retail outlet.

The commercial tenants cannot use the civic amenity centre. They must segregate their waste batteries and either avail of the take-back service provided by retailers or arrange for recycling / recovery of their waste batteries by a suitably permited / licenced contractor. Facilties management may arrange collection, depending on the agreement.

Waste Electrical and Electronic Equipment (WEEE)

The WEEE Directive (Directive 2002/96/EC) and associated Waste Management (WEEE) Regulations have been enacted to ensure a high level of recycling of electronic and electrical equipment. In accordance with the regulations, consumers can bring their waste electrical and electronic equipment to their local recycling centre. In addition, consumers can bring back WEEE within 15 days to retailers when they purchase new equipment on a like for like basis. Retailers are also obliged to collect WEEE within 15 days of delivery of a new item, provided the item is disconnected from all mains, does not pose a health and safety risk and is readily available for collection.

As noted above, the commercial tenants cannot use the civic amenity centre. They must segregate their WEEE and either avail of the take-back / collection service

provided by retailers or arrange for recycling / recovery of their WEEE by a suitably permited / licenced contractor. Facilties management may arrange collection, depending on the agreement.

Printer Cartridge / Toners

It is recommended that a printer cartridge / toner bin is provided in the commercial unit, where appropriate. The commercial tenant will be required to store this waste within their unit and arrange for return to retailers or collection by an authorised waste contractor, as required.

Waste printer cartridge / toners generated by residents can usually be returned to the supplier free of charge or can be brought to a civic amenity centre.

Chemicals

Chemicals (such as solvents, paints, adhesives, resins, detergents, etc) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery / recycling / disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products generated in the commercial units that is classed as hazardous (if they arise) will be appropriately stored within the tenants' own space. Facilties management may arrange collection, depending on the agreement.

Any waste cleaning products or waste packaging from cleaning products that are classed as hazardous (if they arise) generated by the residents should be brought to a civic amenity centre.

Light Bulbs

Waste light bulbs (fluorescent, incandescent and LED) may be generated by lighting at the commercial units. It is anticipated that commercial tenants will be responsible for the off-site removal and appropriate recovery / disposal of these wastes. Facilties management may arrange collection, depending on the agreement.

Light bulbs generated by residents should be taken to the nearest civic amenity centre for appropriate storage and recovery / disposal.

Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse. Commercial and residential tenants will be responsible for disposing of waste textiles appropriately.

Waste Cooking Oil

If the commerial tenants use cooking oil, waste cooking oil will need to be stored within the unit on a bunded area or spill pallet and regular collections by a dedicated waste contractor will need to be organised as required. Under sink grease traps will be installed in any cooking space.

If the residents generate waste cooking oil, this can be brought to a civic amenity centre.

Furniture & Other Bulky Waste Items

Furniture and other bulky waste items (such as carpet, etc.) may occasionally be generated by the commercial tenant. The collection of bulky waste will be arranged, as required by the tenant. If residents wish to dispose of furniture, this can be brought a civic amenity centre.

Abandoned Bicycles

Bicycle parking areas are planned for the development. As happens in other developments, residents sometimes abandon faulty or unused bicycles, and it can be difficult to determine their ownership. Abandoned bicycles should be donated to charity if they arise or Facilties management willmay arrange collection by a licensed waste contractor.

5.5 Waste Storage Area Design

The commercial WSAs will be designed and fitted-out to meet the requirements of relevant design Standards, including:

- Be fitted with a non-slip floor surface;
- Provide ventilation to reduce the potential for generation of odours with a recommended 6-10 air changes per hour for a mechanical system for internal WSAs;
- Provide suitable lighting – a minimum Lux rating of 400 is recommended;
- Be easily accessible for people with limited mobility;
- Be restricted to access by nominated personnel only;
- Be supplied with hot or cold water for disinfection and washing of bins;
- Be fitted with suitable power supply for power washers;
- Have a sloped floor to a central foul drain for bins washing run-off;
- Have appropriate signage placed above and on bins indicating correct use;
- Have access for potential control of vermin, if required; and
- Be fitted with CCTV for monitoring.

The building management company, tenants and residents will be required to maintain the resident bins and storage areas in good condition as required by the FCC Waste Bye-Laws.

5.6 Facility Management Responsibilities

It shall be the responsibility of the Facilities Management Company to ensure that all domestic waste generated by residents is managed to ensure correct storage prior to collection by an appropriately permitted waste management company.

Facilities Management will provide the following items on shared waste storage areas.

- Provision of a Waste Management Plan document, prepared by the Facilities Management Company to all residential units, which shall clearly state the methods of source waste segregation, storage, reuse and recycling initiatives that shall apply to the management of the development;
- Provision and maintenance of appropriate graphical signage to inform residents of their obligation to reduce waste, segregate waste and in the correct bin;
- Preparation of an annual waste management report for all residential and commercial units;
- Designation of access routes to common waste storage areas to ensure safe access from the apartment units by mobility impaired persons;
- Provision of an appropriately qualified and experienced staff member, who will be responsible for all aspects of waste management at the development;
- Daily inspection of waste storage areas and signing of a daily check list, which shall be displayed within the area; and
- Maintenance of a weekly register, detailing the quantities and breakdown of wastes collected from the development and provision of supporting documentation by the waste collector to allow tracking of waste recycling rates.

5.7 Pest Management

A pest control operator will be appointed as required to manage pests onsite during the operational phase of this development. All waste generated within the development will be stored in closed waste receptacles both within units and within the WSAs. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

All WSAs will have access for potential control of vermin, if required, be supplied with hot or cold water, drainage point and will be regularly inspected by facilities management to deter pests.

6.0 CONCLUSIONS

In summary, this OWMP presents a waste strategy that addresses all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the proposed development.

Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the proposed development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus contributing to the targets set out in the *NWMPCE (2024)*.

Adherence to this plan will also ensure that waste management at the proposed development is carried out in accordance with the requirements of the *FCC Waste Bye-Laws.*

The waste strategy presented in this document 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.

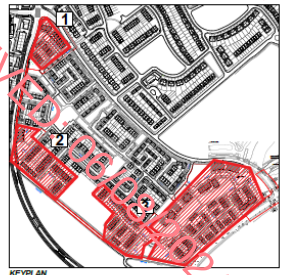
7.0 REFERENCES

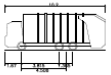
1. Waste Management Act 1996 as amended.
2. Environmental Protection Agency Act 1992 as amended.
2. Litter Pollution Act 1997 as amended;
4. Regional Waste Management Planning Offices, *The National Waste Management Plan for a Circular Economy 2024 - 2030 (2040).*
5. Fingal County Council *'Segregation, Storage and Presentation of Household and Commercial Waste Bye-Laws'* (2020).
6. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998)
7. Department of Environment, Heritage and Local Government (DoEHLG) *Preventing and Recycling Waste - Delivering Change* (2002)
8. DoELG, *Making Ireland's Development Sustainable – Review, Assessment and Future Action (World Summit on Sustainable Development)* (2002)
9. DoEHLG, *Taking Stock and Moving Forward* (2004)
10. Department of Communications, Climate Action and Environment (DCCAE), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (2020).
11. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less*' (2021).
12. Circular Economy and Miscellaneous Provisions Act 2022
13. Environmental Protection Agency (EPA), *National Waste Database Reports 1998 – 2020* and the *Circular Economy and National Waste Database Report 2021 -*
14. FCC*, Fingal County Development Plan 2023 – 2029* (2023).
15. Planning and Development Act 2000 (S.I. No. 30 of 2000) as amended
16. European Waste Catalogue - Council Decision 94/3/EC (as per Council Directive 75/442/EC).
17. Hazardous Waste List - Council Decision 94/904/EC (as per Council Directive 91/689/EEC).
18. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
19. EPA, *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2018)
20. BS 5906:2005 Waste Management in Buildings – Code of Practice.
21. Department of Housing Local Government and Heritage *(*DoHLGH), *Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities* (2023).

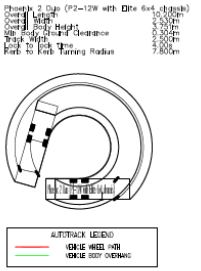
APPENDIX 1: VEHICLE TRACKING FOR REFUSE TRUCKS

SECTOR 1:

SECTOR 2:







00	07/06/24	ISSUED FOR PLANNING	AC
REV:	DATE:	DESCRIPTION:	ISSUED:

PLANNING

PAUL Mc GRAIL
CONSULTING ENGINEERS
4 FAGAN'S LANE, 1ST FLOOR
MAYNOOTH, CO. KILDARE
W23 K3RV
WEBSITE: WWW.PMCG.IE
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CLIENT: MARSHALL YARDS DEVELOPMENT CO LTD.

PROJECT: RESIDENTIAL DEVELOPMENT, BALBRIGGAN, CO. FINGAL

PHASE: 4

TITLE: AUTOTRACK TRUCK ANALYSIS - SHEET 01

SCALES	DRAWN	APPROVED
1:500 @A1	AC	PMG
	DATE: JUN'24	DATE: JUN'24

DRAWING No.: 2023-126-040141

REV: 00

ACONEX REF. No.:


SECTOR 3:
RECEIVED: 06/08/2024
EXISTING BOULEVARD ROAD
AUTOTRACK LEGEND
VEHICLE WHEEL PATH
VEHICLE BODY SWEPING
KEYPLAN
PLANNING
PAUL Mc GRAIL
CONSULTING ENGINEERS
MARSHALL YARDS DEVELOPMENT CO LTD.
RESIDENTIAL DEVELOPMENT, BALBRIGGAN, CO. FINGAL
AUTOTRACK TRUCK ANALYSIS - SHEET 02
040142
00