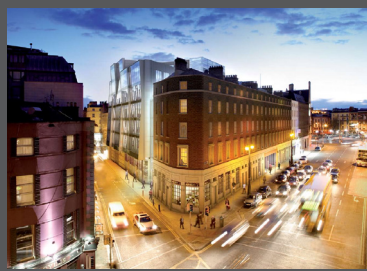


BM BARRETT MAHONY CONSULTING ENGINEERS CIVIL & STRUCTURAL



CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN

PROPOSED MIXED USE RESIDENTIAL DEVELOPMENT,

THE CONDORDE INDUSTRIAL ESTATE, NAAS ROAD, WALKINSTOWN, DUBLIN 12

PROJECT: PROPOSED CONSTRUCTION OF MIXED USE, COMMERCIAL & RESIDENTIAL DEVELOPMENT, CONCORDE INDUSTRIAL ESTATE, NASS ROAD, WALKINSTOWN, CO. DUBLIN.

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CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN FOR A PROPOSED DEVELOPMENT OF MIXED USE, COMMERCIAL & RESIDENTIAL DEVELOPMENT, CONCORDE INDUSTRIAL ESTATE, NASS ROAD, WALKINSTOWN, CO. DUBLIN.

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1.0 INTRODUCTION

Development Ocht Limited has commissioned Barrett Mahony Consulting Engineers (BMCE) to prepare a Construction & Demolition Waste Management Plan (C&D WMP) for the mixed-use Concorde Residential Development at Concorde Industrial Estate, Naas Road, Walkinstown, Dublin 12. The proposed development will consist of 8no., above ground floor, levels extending across most of the site along with a single level basement.

The subject site is currently occupied by a number of small businesses focused towards automobile repair/sale, along with one unit being used as a gym. The building at the south-east corner of the site and the last unit to the west end of the building are currently unoccupied. The site is located to the west of Dublin City Centre, 220m south-west of the intersection of the Old Naas Road and the Naas Road.

The site is bounded to the north by the Naas Road, to the east by an un-named public access road (cul de sac), to the west by an ESB high voltage mast and compound and to the south by a car yard and Drimnagh Castle playing fields. The main point of access to the site will be via the un-named road to the east which, in turn, is accessed from the Naas Road via a signalised junction (see Appendix 2 for site vehicle access plan). The overall site area is 18,800m² with the proposed building footprint area being 5,825 m². In total the development will consist of 492 non-commercial residential units totalling 31,034m² and commercial space totalling 3,327m². The proposed apartment mix consists of 104 no. studio units, 136 no. 1 bed units, 21 no. 2 bed units (3 person) and 231 no. 2 bed units (4 person). The site surface is generally flat, at approximately +39.65m. The surface levels drop in the south-east corner by 0.5 m to +39.15m. There is a low retaining wall along the south boundary. There is also a low-level retaining wall (circa 0.75m in height) along the full northern (Naas Road) boundary.

The new development will consist of one large building divided into 5no. blocks (Blocks A-E) and a second smaller building in the south-east corner of the site (block F). Block A is the front block of the development, parallel to the Naas Road for the full length of the site. Block A will comprise of a mixture of commercial units (Ground to First Floor) and residential units (Second to Seventh Floor) with the Seventh Floor setback on the west side of the block. Blocks B, C and D will extend from Ground Floor to Seventh Floor and comprise of residential units alone. The three blocks will extend from close to the southern boundary, in a north-south orientation and connect with the south side of block A, with setbacks at the south end of the blocks at the Fourth, Fifth and Sixth Floors. Block E of the development will run perpendicular to the east end of block A, parallel to the un-named road which bounds the site to the east. It will comprise of residential units from Ground to Seventh Floors. Block F will be in the south-eastern corner of the site, extending from Ground to Seventh Floor and consisting solely of residential units. The basement of the development will be a single level basement with car parking spaces, bicycle storage spaces, plant rooms, waste and water storage areas the total basement area will be 7875m². At Ground Floor three ESB substations will be provided. There will be additional carparking spaces along the Naas Road boundary of the site and additional bicycle storage spaces will be provided within the residential courtyards. A total of 238 no. car parking spaces will be provided, with 200 no. provided in the basement car park allocated to the residential units. 38 no. surface car parking spaces are provided for the commercial units and this will incorporate 10 no. car club spaces. The development includes 516 no. bicycle parking spaces for the apartments and commercial units, located at basement and ground floor level. A full site layout plan can be found in Appendix 1.

The development will consist of some work outside of the site boundary in the public space by a specialist contractor and will involve the construction of a new pedestrian crossing and footpath along the Naas Road. The specialist contractor will prepare a method statement for this work to be agreed with Dublin City Council and Transport Infrastructure Ireland. This element of the development is not considered further in this report.

This report addresses the management of waste likely to be generated during the demolition of the existing structures on the site and the construction of the proposed development. It will cover the

methods for prevention, minimisation, reuse, recycling, recovery and disposal. The Construction & Demolition Waste Management Plan forms part of the planning application for this Strategic Housing Development application.



Figure 1.1 – Site location plan.

2.0 METHODOLOGY

This plan has been prepared with reference to:

- Eastern-Midlands Regional Waste Management Plan (WMP) 2015-2021.
- The Waste Management Act (1996) and subsequent amendments.
- Department of Environment policy statements, including:
 - “Changing our Ways” (1998).
 - “Delivering Change – Preventing and Recycling Waste” (2002).
 - “Taking Stock and Moving Forward” (2004).
 - “Best Practice Guidelines on the Preparation of Waste Management Plans for Construction & Demolition Projects” (Dept. of Environment July 2006).
- National Construction and Demolition Waste Council initiative.

3.0 CONSTRUCTION & DEMOLITION WASTE MANAGEMENT

3.1 Introduction

A detailed Construction & Demolition Waste Management Plan will be prepared by the main contractor prior to commencement on site. The purpose of this Construction & Demolition Waste Management Plan is to ensure that waste arising from the works carried out will be managed and disposed of in a way that ensures the provisions of the Waste Management Act 1996 and the associated Eastern-Midlands Regional Waste Management Plan (WMP) 2015-2021 are complied with. It will also ensure that optimum levels of reduction, re-use and recycling are achieved. The plan will establish specific objectives and guidelines prior to construction but will be flexible to allow the plan to evolve and develop during the

construction phase of the project. An outline Construction & Demolition Waste Management Plan for the project is set out below. It is intended that this outline plan will form the basis of the detailed plan.

3.2 Details of Waste Streams to be Produced

3.2.1 Existing Structure to be demolished

There are several existing structures on the site which require demolition prior to commencement of any works for the proposed development, the structures which require demolition are;

- 2no. Single-storey warehouses (building A – 50% mezzanine floor).
- 2no. Two-storey masonry buildings.

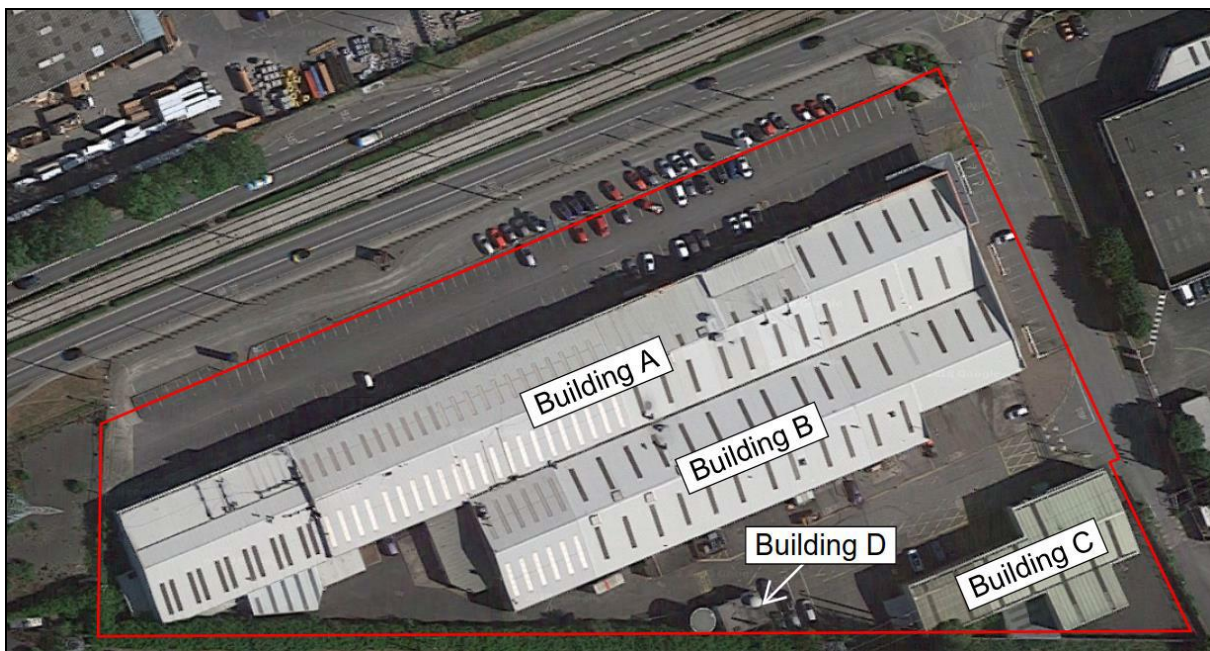


Figure 3.1 - Existing Structures on Proposed Site.

The warehouses (buildings A and B) are primarily portal or braced frames, roughly 8m in height and with a lightweight steel roof cladding. Building A is clad with a lightweight steel façade while building B has a predominantly masonry façade. The two smaller buildings (C and D) are primarily constructed of masonry with building C having a sheet metal façade above level 1. A site investigation should be performed by the contractor prior to the commencement of the demolition works to confirm the method of construction.

The site was primarily used for automotive repairs and storage, therefore there is a high possibility of the top soil being contaminated with effluent from vehicles as well as left over automotive parts which will require consideration when being disposed of. A detailed site investigation including soils contamination will be commissioned by the client prior to commencement on site.



Figure 3.2 - Elevation of building A.



Figure 3.3 - Elevation of Building B.

3.2.2 Proposed Development

The proposed buildings will be constructed as in-situ reinforced concrete structures, including the building columns, slabs and stair core walls. During construction, there will be construction waste generated such as excavated earth spoil from the basement excavation, foundations and service trenches, hazardous materials in small quantities (paints, oils, diesel etc), timber formwork, excess steel reinforcing bars and over-supply of materials along with packaging such as cardboard, plastic and polystyrene.

3.2.3 Main Construction Waste Categories:

The main non-hazardous waste streams that will be generated by the demolition & construction activities at the site are:

- Non-hazardous stones / bedrock, topsoil and subsoil, made ground fill, from excavations
- Excess new concrete, brick, tiles and ceramics
- Excess asphalt and tar products
- Excess plasterboard
- Scrap metal
- Cardboard (packaging)
- Plastic (wrapping, packaging)
- Waste wood

- Paper
- Glass
- Damaged materials

The hazardous waste streams may also include the following:

- Excavated soils classified as 'Hazardous'
- Batteries
- Oils / fuels from machinery and equipment
- Excess paints

Fuels used during the demolition and construction stages are classified as hazardous. If fuel is stored on site for machinery and construction vehicles, then areas around fuel tanks and draw off points will be banded. When fuel is correctly contained and banded, there should not be any significant fuel wastage at the site.

3.2.4 Waste Arising from Demolitions, Excavations and Site Preparation

The demolition of the existing structures will vary based on the structure type and material, it is assumed that the site has a 150mm concrete slab. Estimated demolition quantities are given below. The contractor should prepare a more detailed estimate on possession of the site.

1. 2no. Single-storey warehouses as below;

Building	Material	Total Building Area (m ²)	Roof Cladding (m ²)	Perimeter (m)	Height (m)	Wall Cladding (m ²)	Total Cladding (m ²)
A	Steel	4,820	4,820	430	8	3,440	8,260
	Masonry	-	-	-	-	-	-
B	Steel	2,920	2,920	-	-	-	2,920
	Masonry	-	-	310	8	2,480	2,480

Table 3.1

2. 2no. Two-storey masonry buildings as below;

Building	Material	Total Building Area (m ²)	Roof Cladding (m ²)	Perimeter (m)	Height (m)	Wall Cladding (m ²)	Total Cladding (m ²)
C	Steel	820	820	151	4	604	1,424
	Masonry	-	-	151	4	604	604
D	Steel	61	61	35	-	-	61
	Masonry	-	-	35	8	280	280

Table 3.2

Approx. breakdown of the materials from demolition of existing buildings are as follows;

- | | |
|-----------------------|----------------------|
| 1. Steel and Cladding | 12,665m ² |
| 2. Masonry | 3,364m ² |
| 3. Concrete | 2,379m ³ |
| 4. Bitumen | 140m ³ |

There will be excavations on site for the proposed basement, foundations and for buried services. The total square meterage of the site is approx. 18,800m² and two building footprints are approx. 5,825m². The depth of foundations will need to be determined by the structural design engineer. We have

assumed site strip to a depth of 0.5m over the full site area. In total a volume of 17,747m³ of soil is expected to be removed from the site following excavations

Excavated material will be generally disposed of off-site to a licensed facility for land reclamation. It is anticipated that some contaminated soil will be uncovered in the top layer based on the current site usage. Should the excavated material be found to be contaminated, an appropriate disposal method shall be selected depending on the type of contaminant found. Testing will be carried out in advance of site possession by the contractor to determine the soil classification; i.e. inert, non-hazardous or hazardous.

Material to be removed off-site will be classified in a Waste Classification Report. The classifications are 'Hazardous', 'Non-Hazardous' and 'Inert'. Material of a particular classification is to be disposed of to a landfill or facility licensed to take that class of material. All contracted hauliers and disposal facilities used to dispose of excavation waste from the site must be licensed to dispose of this waste as noted, and all licenses/permits must be valid and conditions adhered to.

3.2.5 Waste Arising from Construction Activities

Refer to Section 3.2.3 for types of waste generated. Appropriate measures should be taken to ensure excess waste is not generated during construction, including;

- Ordering of materials should be on an as needed basis to prevent over supply to site. Co-ordination is required with suppliers enabling them to take/buy back surplus stock.
- Purchase of materials pre-cut to length to avoid excess scrap waste generated on site.
- Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal
- Ensuring correct sequencing of operations.
- Use reclaimed materials in the construction works.

3.3 Proposed Uses for Waste and Surpluses Generated on Site

Concrete and masonry waste should be source segregated separately and disposed off-site at a facility for the reprocessing and reuse of such waste as aggregate or backfill material. Timber and scrap metal shall be collected in receptacles with mixed construction waste materials, for subsequent separation and recycling at an off-site facility. Other construction waste materials will be collected in receptacles with mixed waste materials, for subsequent separation and disposal at an off-site remote facility.

Hazardous wastes will be identified, removed and kept separate from other waste materials to avoid contamination.

All generated waste should be separated into paper/glass/plastic recycling and removed to an off-site recycling facility. Under no circumstances is the burning of waste material permitted.

Packaging waste will be separated into glass, paper, steel, aluminium, fibreboard, wood and plastic sheeting fractions with arrangements made for it to be collected by a Repak approved waste contractor.

3.4 Removal of Waste Off-Site

It is anticipated that waste materials will have to be moved off site as outlined above. It is the contractor's responsibility to either; gain a waste collection permit or, to engage specialist waste service contractors who will possess the requisite authorizations, for the collection and movement of waste off site. Material will be brought to a facility which currently holds a waste permit. Accordingly, it will be necessary to arrange the following waste authorizations specifically for the project, see Appendix 2 for guidelines:

- Waste Permit
- Waste Collection Permit (possibly)

3.4.1 Tracking and Documentation Procedures

All waste will be documented prior to leaving the site. All information will be entered into a waste management system kept on the site.

3.4.2 Control of Traffic Volume

During the demolition and construction works, the traffic generated by plant removing waste off site will be significant. Due to the volume of routine high traffic volumes on the surrounding road network, the site location is sensitive to such HGV traffic causing problems.

To prevent undesirable high volumes of construction traffic during the works, it may be decided to limit the times during which waste can be removed to outside of morning and evening rush hour (7am to 9.30am and 4.30pm to 7pm). Outside of these hours there is generally lower traffic volumes on the surrounding road network.

The contractor will be required to submit a method statement for approval to outline the proposed schedule for removal of materials off site.

3.5 Roles and Responsibilities for Demolition and Construction Waste

A construction and demolition waste manager should be appointed on site to ensure that waste prevention / minimisation and recycling are managed appropriately. Their main tasks should be;

- To implement all items set out above effectively and to keep accurate records on the waste generated, and the cost associated with waste generation and management.
- Document each consignment of construction and demolition waste, including;
 - Type of material being transported,
 - Quantity of material,
 - Name and permit number of waste collection contractor,
 - Destination of material and proposed use.

Note: Summary reports are required to be provided on the above, which also include estimates of the quantity of waste that is diverted from landfill.

- Document the extent of re-use, salvage, recycling and solid waste disposal

The construction and demolition waste manager should have the authority to instruct all site personnel to comply with the construction and demolition waste management plan. At the operational level, sub-contractors shall have an appointed person who has the responsibility to ensure operations in the construction waste management plan are carried out on an ongoing basis.

3.6 Waste Auditing

The appointed waste manager on site will be responsible for conducting a waste audit on site. The audit will include a review of all the records for the waste generated and transported on or off the site to be undertaken. This will include:

- Reviewing details of materials arriving on site.
- Reviewing the amount, nature and composition waste leaving site.
- Calculate the total cost of waste management.
- All areas, and stages of the project should be reviewed to ensure that obvious opportunities for waste reduction are not overlooked.
- Summary of waste arising should be sent to the environmental authority at the completion of the project.

3.7 Training

Copies of the construction and demolition waste management plan should be made available to all personnel on site, and objectives, procedures and responsibilities of the construction and demolition waste management plan should be outlined to all site personnel during their site induction.

Members of staff should be instructed on, waste segregation, and material reuse, and how to comply with the construction and demolition waste management plan. Posters should be displayed on site reinforcing the key messages of the construction and demolition waste management plan.

3.8 Estimated Cost of Waste Management

The cost of waste management should be estimated by the appointed contractor. This should include:

- The purchase cost of waste materials.
- Handling costs.
- Storage and transportation costs.
- Disposal costs including landfill tax.

It should then be possible to estimate:

- Total waste steel management costs.
- Total waste timber management costs.
- Total waste concrete management costs.
- Total waste soil management costs.
- Total waste masonry management costs.

This will help ensure that unproductive and avoidable costs of construction and demolition waste management are eliminated and will be effective in enhancing internal cost control procedures. The estimate of the cost of the waste management should be updated throughout the project at each stage at which a waste audit is carried out.

APPENDIX

1

SITE LAYOUT
DRAWINGS

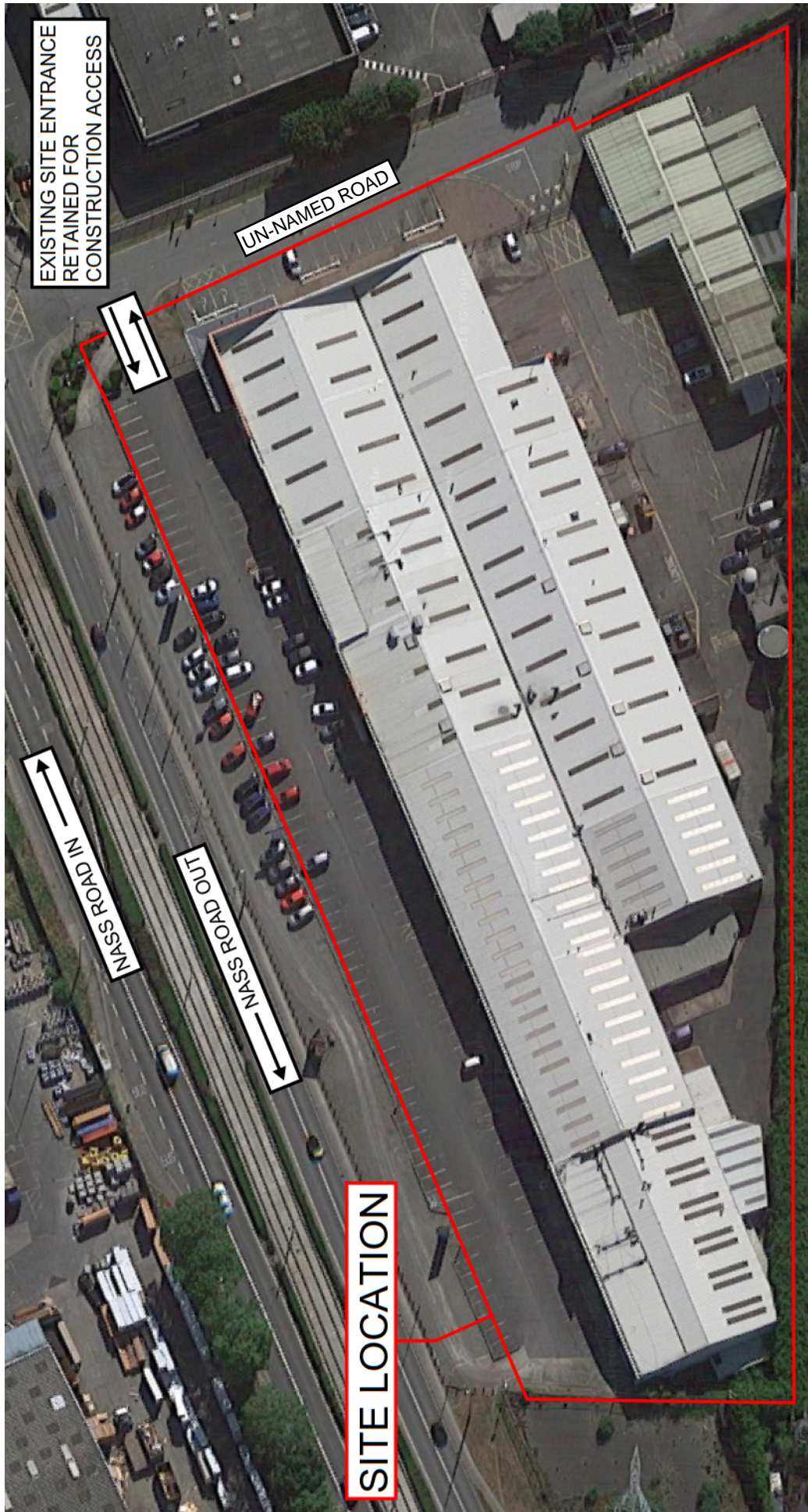


APPENDIX

2

SITE VEHICLE
ACCESS



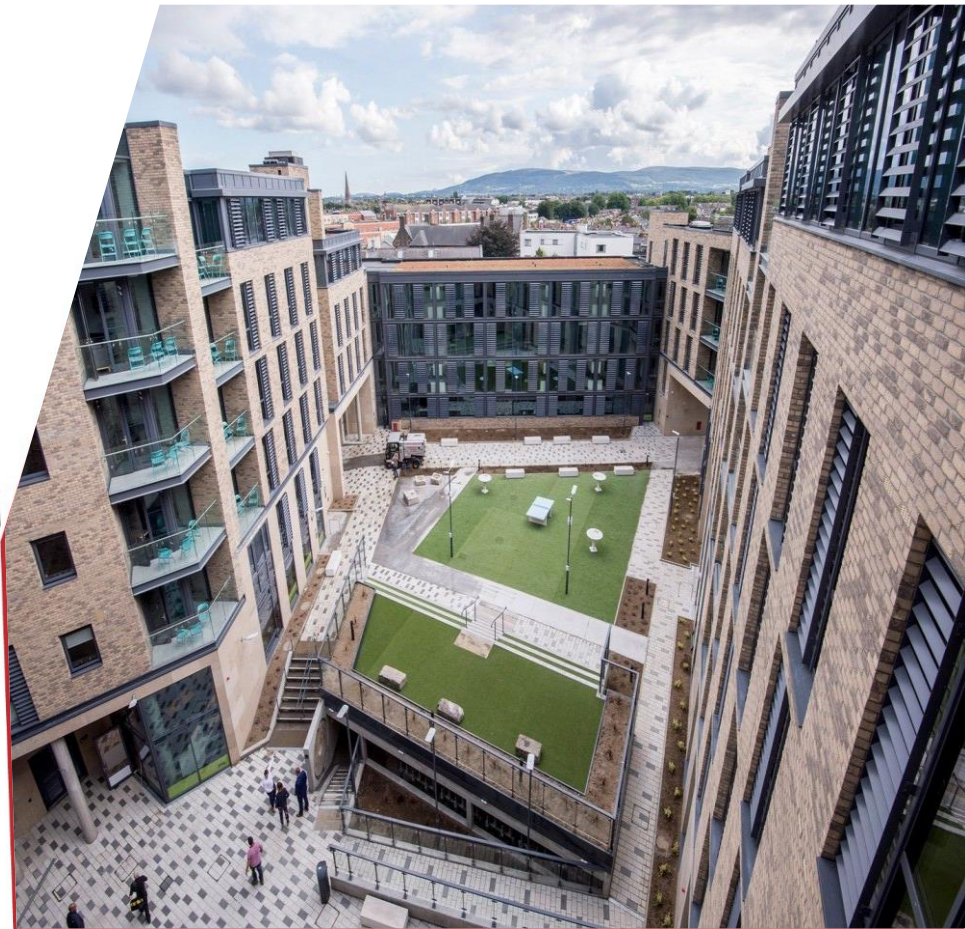


SITE VEHICLE ACCESS

APPENDIX

3

EPA WASTE
GUIDANCE

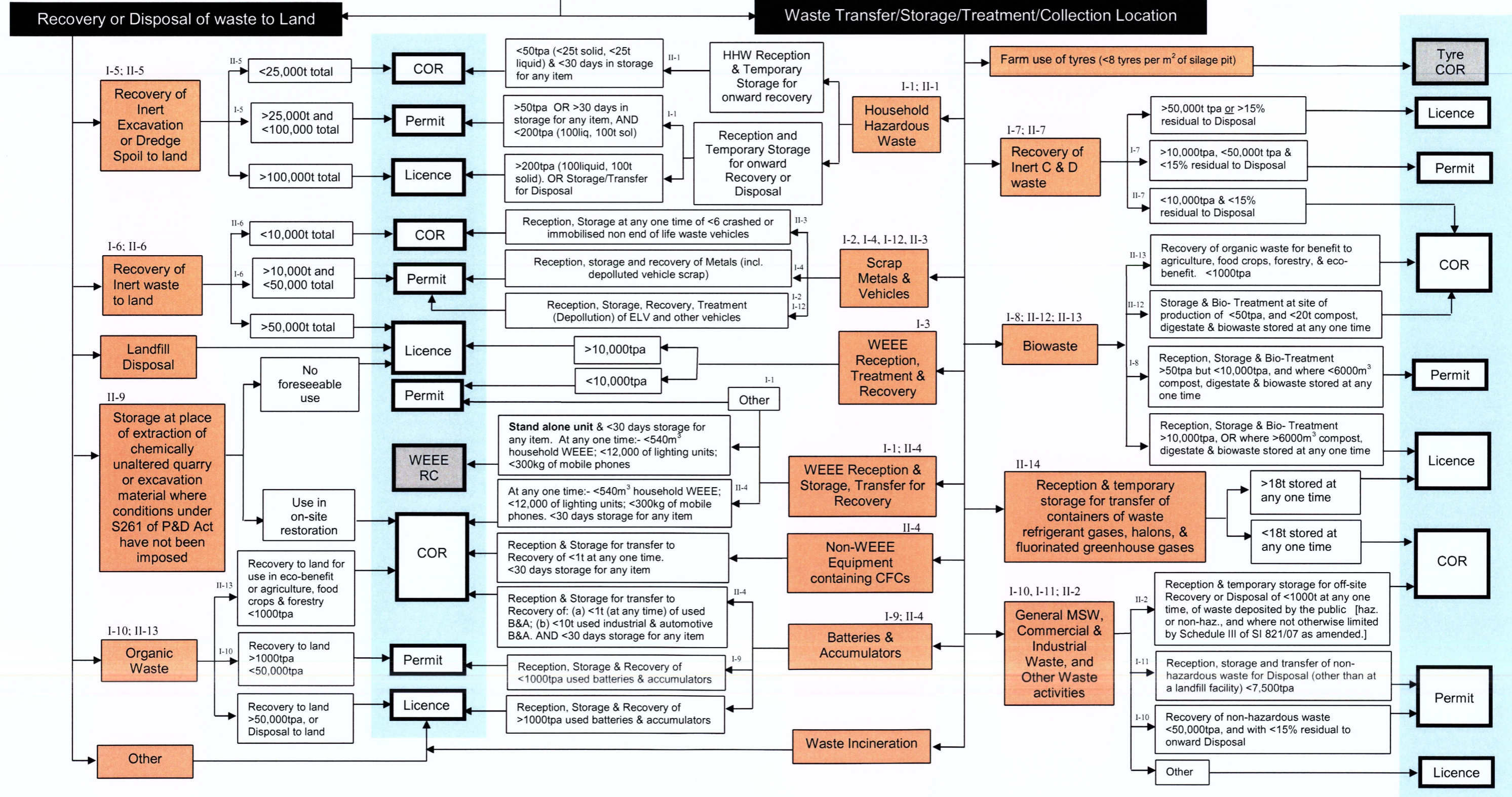


Do I need a Waste Licence, Permit or Certificate of Registration ?

KEY
 COR – Certificate of Registration under SI 821 of 2007 as amended
 Permit – under SI 821 of 2007 as amended
 Licence – under Part V of the Waste Management Act
 Tyre COR – under Tyre Regulations SI 664 of 2007
 WEEE RC – Registration Cert. under WEEE Regulations SI 340 of 2005
 P&D Act - Planning & Development Act 2000
 NB: See definitions in Article 5 of SI 821 of 2007

Exempt from requirement to hold a Waste Licence, Permit or COR:

- WMA Section 39(7):- Specified waste activities on an IPPC regulated site; deposit of litter in a bin; the disposal of specified animal by-products; the disposal of household waste within the curtilage of the dwelling where produced; transfer of waste to an authorised person for Recovery.
- WMA Section 51:- Recovery of sludge for use in agriculture; recovery of animal or poultry blood or slurry/manure.
- Temporary storage (<6 months) of waste on the site of its production (certain limitations for WEEE distribution centres, see Art 39(1a) of SI 340 of 2005).
- WEEE Regs SI 340 of 2005. Art 39(1) & (1b):- Temporary storage of certain quantities & types of WEEE at a distribution outlet; and storage by registered charities of <90m³ of certain household WEEE and <50kg mobile phones (at any one time).
- Tyre supplier temporarily storing <180m³ waste 'take-back' tyres (SI 664 of 2007, Article 33(1))
- Temp storage of waste batteries at workplaces, distributors & charity venues. Certain limits apply. See Article 44 of SI 268 of 2008



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