

# **RESOURCE & WASTE MANAGEMENT PLAN**

**FOR**

**DUBLIN CITY COUNCIL**

**RELATING TO A MIXED-USE DEVELOPMENT AT**

**EMMET ROAD,  
INCHICORE  
DUBLIN 8**

**27<sup>th</sup> September 2022**



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## 1.0 INTRODUCTION

This document presents the Resource and Waste Management Plan (RWMP) for the control, management and monitoring of resources and waste associated with a proposed mixed-use development at Emmet Road, Inchicore, Dublin 8 comprising of 578 no. residential units, community facilities, a creche and retail units.

The RWMP has been prepared to demonstrate how the Construction Phase will comply with the following relevant legislation, relevant Best Practice Guidelines and Local Authority Waste Management Policies:

*Waste Management Acts 1996-2011*

*Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)*

*Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)*

*EPA Best Practice Guidelines for the preparation of resource management plans for construction and demolition projects, April 2021*

*The Eastern-Midlands Region Waste Management Plan*

*Draft Dublin City Council Development Plan 2022-2028*

*EPA "Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019*

The Key Aspects of this RWMP are:

- 1 To maximise the use of resources in the Design and Construction Phases and to minimise the generation of waste with regard to the following principals:

Green Procurement and Design  
Resource Re-Use, Recycling and Management  
Waste Prevention and Segregation

- 2 To maximise the segregation of construction and demolition waste materials on-site to produce uncontaminated waste streams for re-use and recycling both on-site and off-site.

## **2.0 DUBLIN CITY COUNCIL DEVELOPMENT PLAN WASTE POLICIES**

The Draft *Dublin City Development Plan 2022-2028* includes specific Objectives relating to the management of Construction and Demolition Waste as follows:

### *DCC Policy S127*

#### *Sustainable Waste Management*

*To support the principles of the circular economy, good waste management and the implementation of best practice in relation to waste management in order for Dublin City and the Region to become self-sufficient in terms of resource and waste management and to provide a waste management infrastructure that supports this objective.*

### *DCC Policy 128*

#### *Sustainable Waste Management*

*To prevent and minimise waste generation and disposal, and to prioritise prevention, recycling, preparation for reuse and recovery in order to safeguard against environmental pollution.*

### *DCC Chapter 15.18.2 Waste Management*

*All planning applications in excess of 30 or more residential units and / or 1,000 sq. m. of commercial development shall be accompanied by both a Construction and Operational Waste Management Plan. The construction waste management plan may form part of the overall construction management plan and shall detail the strategy in relation to on site waste storage, segregation and disposal. Development proposals shall recycle demolition material and re-use existing building materials where possible. In all developments of 30 or more housing units or commercial developments in excess of 1,000 sq. m, a materials source and management plan showing type of materials / proportion of re use/ recycled materials to be used shall be implemented by the developer.*

The *Dublin City Development Plan 2016-2022* includes specific Objectives relating to the management of Construction and Demolition Waste as follows:

### *DCC Policy SIO17*

*To promote the re-use of building materials, recycling of demolition material and the reuse of materials from renewable sources.*

### *DCC Policy SIO19*

*To implement the Eastern-Midlands Region Waste Management Plan and achieve the plan targets and objectives*

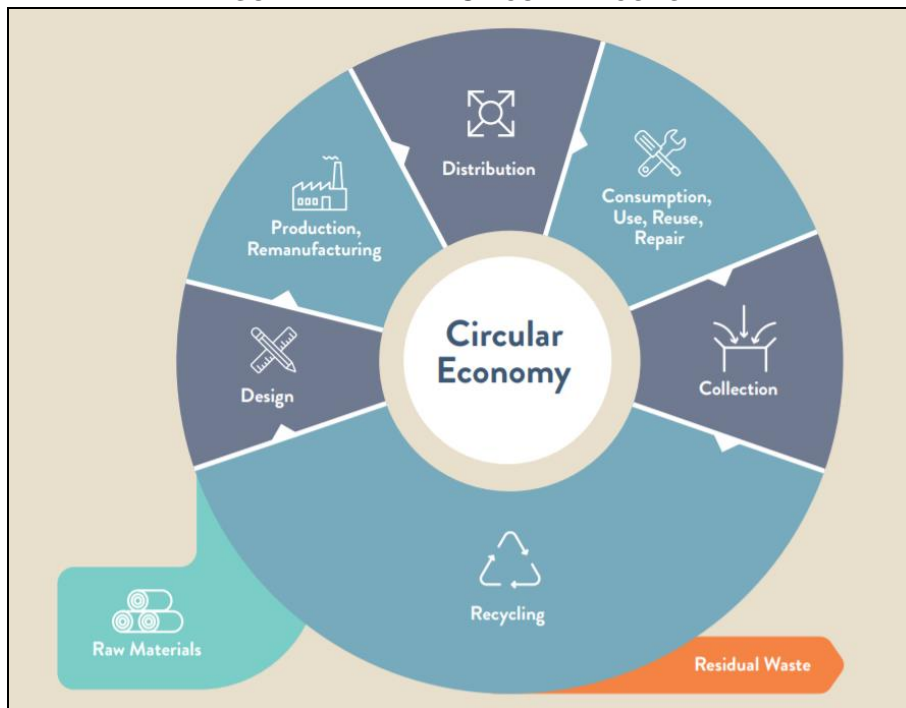
### 3.0 THE CIRCULAR ECONOMY

Ireland's national waste policy is 'A Waste Action Plan for A Circular Economy – Ireland's National Waste Policy 2020 – 2025'. The policy, published September 2020, is intended to move Ireland toward a circular economy in which focus is shifted away from waste disposal, favouring circularity and sustainability by identifying and maximising the value of material through improved design, durability, repair and recycling. By extending the time resources are kept within the local economy, both environmental and economic benefits are foreseen.

The proposed development will implement the above policy as follows:

- Re-Use on-site of all excavated soils and stones as fill material and as landscaping material.
- The purchase of construction materials as needed to prevent over supply and potential for damage whilst in storage.
- The segregation of construction waste streams into separate storage containers to maximise the potential for the re-use of the materials.
- The import of Article 27 soils where possible.
- The Developer of the Project is committed to implementing the relevant aspects of the Circular Economy Policy throughout the construction phase of the development.

**FIGURE 1 THE CIRCULAR ECONOMY**



It is Dublin City Council's intention to conform to the waste hierarchy (Figure 2), whereby waste prevention is the most preferred strategy. Where waste generation is unavoidable, re-use is the most preferred fate, followed by recycling and then energy recovery, with disposal (e.g. to landfill) being the least preferred fate.

**Figure 2 The Waste Hierarchy**



#### **4.0 PROJECT DESCRIPTION**

#### **4.1 Proposed Development**

The development will comprise 578 no. apartments, community facilities including a Library/Community Hub, Creche, Retail/Retail services, Café units, a supermarket and a public plaza fronting onto Emmet Road.

**Figure 3 Site Location**



## **4.2 Site History**

The central and southern area of the site consists of the former St. Michaels Estate which has been demolished and exists now as open space. The north section of the site comprises a partially demolished building, as well as active recreational, social and community facilities with associated landscaping and car parking. The northern part of the site contains a number of structures which will be demolished to make way for the proposed development including St. Michaels Community Centre and the HSE Health Centre which were permitted under PRR 2221/21 The Inchicore Community Sport Centre (outside the site area) shall be retained and integrated into the design of the proposed scheme.

## **4.3 Existing Structures**

The subject site at Emmet Road consists of a grassed area (the former St. Michael's Estate), a former halting site, former health centre building and a former community centre building.

## **4.4 Site Clearance**

The site is currently comprised of a large grassed area (the former St. Michael's Estate), hard surfaced areas comprised of concrete and tarmacadam and buildings. The former halting site area contains historically dumped waste which will be analysed for the presence of Asbestos Containing Materials (ACM) prior to its removal off-site.

The former health centre building and a former community centre building, wall structures and hardstanding areas are to be demolished to facilitate the development.

## **4.5 Material Balance Cut and Fill**

The estimated Cut volume is c.35,289m<sup>3</sup>.

## **4.6 Site contamination**

Soils at the site have been classified by *O'Connor Sutton Cronin (Report Dated Jan 2021)* following sampling, analysis and the utilisation of the *HazWasteOnline software WM3V.1.1*. The results are presented in Table 1 below.

**Table 1** Soil Classification Results

A	B1	B2	C1	C2	D	D
Inert – Waste Permitted or Recovery Sites	e.g. IMS Landfill	e.g. IMS Landfill Inert Inc. Limits	Non-Haz	Non-Haz Quantifiable asbestos	Hazardous	Hazardous with Asbestos > 0.1%
11	98	30	26	1	16	1

The Waste Soil Classification Grids are presented in Appendix I.

#### 4.7 Invasive Species

Species listed on the *Third Schedule of S.I. 477/2011 (as amended)*

An invasive species survey conducted by *Enviroguide* identified the presence of *Buddleia* in the northern section of the site.

An ecological assessment of the site prepared by *Enviroguide* has identified the presence of *Buddleia* plant species on the subject site. The management of the species shall be managed by cutting *Buddleia* plants to a basal stump during active growth (late spring to early summer) and immediately treating the total cut surface with herbicide concentrate. Monitoring will be required and retreatment, as necessary.

#### 4.8 Asbestos

Asbestos was identified in 2. No. soil samples with values ranging between 0.003% - 0.176%.

Historically fly-tipped waste in the former halting site area shall be investigated to determine if asbestos is present.



## 4.9 Project Phasing

The sequence of development works are detailed below in Table 2.

**Table 2** Sequence of Construction Works

Activity Sequence	General Description
Site access and security	Set up site access point and erect site hoarding
Invasive Species	Removal of Buddlea
Historic Waste	Testing and removal of waste materials
Identification of Existing Utility Services	Set up bunting, mark location of live services, including E.S.B., Gas etc.
Facilities	Install site offices and welfare units
Compounds	Establish materials storage compound and waste management compound
Demolition	Removal of existing structures
Removal of Vegetation	e.g. Trees and vegetation
Site Preparation	Soil stripping, stockpiling, export
Infrastructure installation	Drainage, Utility ducts, power, internal roads
Substructure	Foundations
Superstructure	Steel Frame
External Envelope	Place façade to superstructure
Internal Finishes	Mechanical & Electrical
External Landscaping	Hard and soft landscaping, road surfacing

## **5.0 RWMP ROLES AND RESPONSIBILITIES**

### **5.1 Project Director / Manager**

The Project Director will be responsible for the overall implementation of the RWMP and providing the budget for its implementation and management. The Project Director will ensure that the reporting and recording requirements are met and all necessary resources are in place to support the implementation of the RWMP from Design Stage to Project Completion.

### **5.2 Resource and Waste Manager**

The Resource and Waste Manager (RWM) will be responsible for:

- Implementing all aspects of the RWMP throughout the Construction Phase.
- Assisting the Project Manager on the implementing of the aspects of the Circular Economy.
- Ensuring that all resources are managed throughout the Construction Phase
- Recording the volumes and types of construction wastes generated.
- Communicating with the Local Authority on waste related matters and issuing of waste records.
- Management of the waste storage compound to ensure that all construction waste streams are stored separately and that cross-contamination does not occur.
- Maintaining a file of all Waste Collection Permits and Waste Facility Permits / Waste Licences that each waste load is exported to.
- Ensuring that all waste loads exiting the site are contained in a vehicle displaying an appropriate NWCPO Permit number.
- Maintaining a receipt of each waste load delivered to authorised facilities.
- Identifying and reporting on damaged construction materials and identifying how damage to resources and materials shall be prevented.
- Preparation of monthly waste management report detailing waste volumes generated, re-use and recycling rates and details on damaged raw materials and how they can be returned for repair and future re-use.
- Conducting Resource and Waste Management Audits
- Communicating with the EPA regarding Article 27 By-Product determinations

- The name and contact details of the Resource and Waste Manager shall be forwarded to the Waste Management Section of the Local Authority on appointment.

### **5.3 Site Personnel**

All personnel on site will be responsible for the effective implementation of the RWMP. All staff will receive Induction and Tool-Box training on resource management and waste prevention, segregation and disposal.

### **5.4 Gate Person**

Gate Person duties will include the inspection of all vehicles exiting site with waste to ensure that they have a Waste Collection Permit (WCP) Number displayed on the side of the vehicle.

If the vehicle does not have a WCP Number displayed, the vehicle will be refused exit and the RWM will ensure that the waste load is returned to the site area from where it came.

### **5.5 Staff Training**

Copies of the RWMP will be made available to all relevant personnel on site. The RWM will arrange for all site personnel and contractors to be instructed about / receive training on the objectives of the RWMP and materials management, and be informed of the responsibilities that fall upon them as a consequence of its implementation. The topics to be covered will include;

- Project programme and requirements
- Health and Safety requirements
- RWMP
- Materials to be segregated
- Segregation systems and protocols
- Arrangement for the storage and handling of reusable materials and recyclables
- Document control requirements

Where source segregation and materials re-use techniques apply, each member of staff will be given instructions on how to comply with the RWMP and will be displayed for the benefit of site staff.

**Table 2** Principal Project Staff

<b>Title</b>	<b>Name</b>	<b>Contact Details</b>
Project Director	TBC	
Construction Director	TBC	
Construction Manager	TBC	
Resource & Waste Manager	TBC	
Engineer	TBC	
Quantity Surveyor	TBC	
Design Lead	TBC	

TBC To be confirmed by contractor when appointed.

## **6.0 RESOURCE AND WASTE MANAGEMENT DESIGN APPROACH**

This section provides details on how resource optimisation and the management and minimisation of waste streams shall be implemented from design phase through to completion of the project.

### **6.1 Site Preparation**

- Reuse site hoardings and staff welfare units from previous Projects.
- Minimise concrete use in site compounds.

### **6.2 Re-Use of existing site elements**

- Identify materials prior to demolition that can be re-used or recycled on-site to minimise the use of virgin materials.
- Hard surfaces comprised of concrete and tarmacadam may be re-used to form the ground surface of the site compound.

### **6.3 The Use of Recycled materials and surplus materials**

- Use recycled aggregates where possible to minimise the use of virgin materials.
- Identify materials which have a % of recycled material contained within them e.g., Asphalt may include recycled glass or recycled asphalt.
- Where material surpluses arise, they shall be stored to prevent damage and re-used on other projects or returned to the supplier.

#### **6.4 Materials Procurement**

- Identify suppliers that can supply low environmental impact products and materials
- Identify recycled materials to be used on the project
- Minimise over-ordering to reduce over storage and to minimise potential of damage to materials
- Request that material suppliers take back damaged materials for repair and re-use.
- Request that suppliers minimise packaging on all materials

#### **6.5 Off-Site Construction**

The use of pre-constructed building elements is an efficient process that minimises the generation of construction site waste.

- Steel frames and wall and ceiling panels shall be constructed off-site and assembled on-site.
- Use of prefabricated composite wall panels
- Use of prefabricated concrete wall and roof panels
- Use of modular bathroom and kitchen units

#### **7.0 DESCRIPTION OF WASTE ARISING**

The expected construction and demolition waste quantities that will be generated throughout the course of the development are described in Table 3 below.

The calculated construction waste tonnage with the exception of soils and stones has been derived from the Building Research Establishment Environmental Assessment Method (BREEAM) which specifies that 11.1 tonnes of construction waste is generated for every 100m<sup>2</sup> of development area.

**Table 3** Predicted construction waste

LoW Code	Description	Volume Generated (tonnes)	Prevention (tonnes) Non Waste	Reused (tonnes) Non-Waste	Recycled (tonnes) Waste	Recovered (tonnes) Waste	Disposed (tonnes) Waste
17 01 01	Concrete	0					
17 01 02	Brick	0					
17 01 03	Tiles and Ceramics	0					
17 01 07	Mix of concrete, brick, tiles, ceramics	341			114	114	113
17 02 01	Wood	0					
17 02 02	Glass	0					
17 02 03	Plastic	0					
17 03 02	Bituminous Material	62					62
17 04 01	Copper, Bronze, Brass	0					
17 04 02	Aluminium	0					
17 04 03	Lead	0					
17 04 04	Zinc	0					
17 04 05	Iron and Steel	0					
17 04 06	Tin	0					
17 04 07	Mixed Metals	123			123		
17 04 11	Cables	0					
17 05 04	Soil and Stone	52,670					52,670
17 06 04	Insulation Material	0					
17 08 02	Gypsum	0					
17 09 04	Mixed C&D Waste	213			71	71	71
17 01 06*	Mix of concrete, bricks tiles containing hazardous substances	0					
17 02 04*	Glass, Plastic and Wood containing hazardous substances	0					
17 03 01*	Bituminous mixtures containing coal tar	0					
17 05 03*	Soils and Stones containing hazardous substances	0					
17 04 09*	Metal waste containing hazardous substances	0					

**Table 3 contd.** Predicted construction waste

LoW Code	Description	Volume Generated (tonnes)	Prevention (tonnes) Non Waste	Reused (tonnes) Non-Waste	Recycled (tonnes) Waste	Recovered (tonnes) Waste	Disposed (tonnes) Waste
17 06 05*	Construction materials containing asbestos	0					
13 07 01*	Fuel Oils and Diesel	0					
20 01 05*	WEEE	0					
20 01 08	Biodegradable Canteen Waste	5					5
20 03 01	Mixed Municipal Waste	20					20
20 01 01	Paper & Cardboard	1			1		0

**Table 4** Predicted demolition waste

LoW Code	Description	Volume Generated (tonnes)	Prevention (tonnes) Non Waste	Reused (tonnes) Non-Waste	Recycled (tonnes) Waste	Recovered (tonnes) Waste	Disposed (tonnes) Waste
17 01 01	Concrete	1947			389	973.5	973.5
17 03 02	Bituminous materials	1904					1904
17 04 07	Mixed Metals	12			12		

Figures referenced from Garland Report and Survey dated February 2021 Planning Reg. Ref. 2221/21

## 8.0 CONSTRUCTION WASTE MANAGEMENT

- It is proposed that from the outset of construction activities, a dedicated and secure compound containing bins, and skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the active construction phase of the development site.
- Spill kits shall be located within the site compound with clearly labelled instructions on how they shall be used to clean up fuel/oil spills.
- All vehicle and plant oils and liquid construction materials shall be stored in secure impermeable storage units.
- All diesel-powered generators shall be inspected on at least a weekly basis by a delegate of the project manager to ensure it is not leaking diesel or oils.
- All empty containers containing residual quantities of oils, greases and hydrocarbon-based liquids shall be stored in a dedicated, clearly labelled impermeable container.
- In order to ensure that the construction contractor correctly segregate waste materials, it is the responsibility of the site construction manager to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.
- It will be the responsibility of the Resource and Waste Manager (RWM) to ensure that a written record of all quantities and natures of wastes exported off-site are maintained on-site in a Waste File at the Project office.
- It is the responsibility of the RWM that all contracted waste haulage drivers hold an appropriate Waste Collection Permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the following relevant Regulations:  
*Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)*  
*Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)*  
*Waste Management (Facility Permit and Registration) Regulations S.I.821 of 2007 and the Waste Facility Permit under the Waste Management (Facility Permit and Registration) Amendment Regulations S.I.86 of 2008.*
- It is proposed that waste materials will be collected and stored in separate clearly labelled skips and suitable containers in a defined and separate waste storage area in the site compound and that these materials will be collected by a Permitted Waste Contractor holding an appropriate Waste Collection permit in compliance with *Waste Management (Collection Permit) Regulations 2007 (SI No. 820 of 2007)* and *Waste Management (Collection Permit) Amendment Regulations 2008 (SI No. 87 of 2008)* and that they will be sent for disposal or further processing to appropriately Permitted / Licensed Waste Facilities in compliance with *Waste Management (Facility Permit and Registration) Regulations S.I. No. 821 of 2007* and *the Waste Management (Facility Permit and Registration) Amendment Regulations S.I. No. 86 of 2008.*



- Prior to the commencement of the Project, the RWM shall identify a permitted Waste Contractor(s) who shall be engaged to collect and dispose of all inert and hazardous wastes arising from the project works.
- The RWM shall maintain copies of all Waste Collection Permits and copies of the Waste Facility Permit or Waste Licence to which waste materials are exported to. The RWM shall ensure that all Permits/Licences are within date.
- All waste soils prior to being exported off-site, shall be classified as inert, non-hazardous or hazardous in accordance with the EPA's *Waste Classification Guidance – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* document to ensure that the waste material is transferred by an appropriately permitted waste collection permit holder and brought to an appropriately permitted or licensed waste facility.

**Figure 2** Construction Waste segregation compound design concept



**Figure 3** Oil Spill Kit



**Figure 4** Bund for waste oil container storage



## 9.0 ON-SITE RESOURCE MANAGEMENT & WASTE REUSE RECYCLING AND MANAGEMENT

This section of the RWMP describes how construction waste shall be minimised and how the re-use and recycling of wastes shall be maximised

- Materials shall be ordered on an “*as needed*” basis to prevent over supply and preventing damage to bulk orders stored on-site.
- Materials shall be stored and handled in a manner that minimises the generation of damaged materials
- Materials shall be ordered in appropriate sequence to minimise materials stored on site
- All staff and Sub contractors shall be advised through inductions and tool box talks on how to dispose of their waste correctly on-site.
- Broken concrete blocks and excess aggregate materials shall be segregated and stored off-site for use as hard standing material on future projects. This will result in the following positive impacts:
  - Reduction in the requirement for virgin aggregate materials from quarries
  - Reduction in energy required to extract, process and transport virgin aggregates
  - Reduced HGV movements associated with the delivery of imported aggregates to the site
  - Reduction in the amount of landfill space required to accept C&D waste
- Excess wood will be segregated in separate skips and sent for recycling.
- Plastic arising from general waste or packaging will be segregated and stored in separate skips.
- Metals waste shall be stored in dedicated skips
- Top soil that is stripped shall be retained in managed bunds to prevent erosion and reduce the leaching of minerals from the soil.
- Any hazardous material (e.g., unknown hotspot, underground tanks) discovered during the course of the construction phase shall be isolated and the removal of contaminated materials shall be managed by the RWM.

## 10.0 WASTE SOILS & STONES EXPORT & ARTICLE 27 DECLARATIONS

Excavated excess soils that are required to be exported off-site shall be tested to determine their classification as hazardous or non-hazardous in accordance with EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous. Non-Hazardous soils may be suitable for re-use in other construction sites and may be declared as a by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011*. Article 27 requires that the material classified not a waste but a by-product must meet specific criteria and that that a declaration of a material as a by-product is notified to the EPA. The EPA publication *“Guidance on Soil and Stone By-Products in the context of Article 27 of the European Communities (Waste Directive) Regulations – Version 3 June 2019* shall be considered in this regard. Appendix I presents the schematic process by which a material is determined as a waste or a by-product.

The records of all Article 27 declarations and WAC Analytical Tests and *Haz Online* assessments shall be maintained on-site by the RWM.

## 11.0 WASTE RECORD KEEPING

It is the responsibility of the RWM that a record of all quantities and natures of all wastes reused / recycled and exported off-site during the project are maintained in a Waste File at the Project office.

The following information shall be recorded for each load of waste exported off-site:

- Waste Type EWC Code and description.
- Volume of waste collected.
- Waste collection contractor’s Waste Collection Permit Number and collection receipt including vehicle registration number.
- Destination of waste load including Waste Permit / Licence number of facility.
- Description of how waste at facility shall be treated i.e. disposal / recovery / export

An indicative template is contained in Figure 4, to ensure the full traceability of waste materials to their final destination.

Verifiable and validated tracking and authorisation documentation will be maintained for all wastes destined for re-use, recovery, recycling or disposal. Justification will also be provided where a disposal option had been employed.

The waste records shall be issued to Fingal County Council as required / requested.

## **12.0 RESOURCE & CONSTRUCTION WASTE MANAGEMENT AUDITING**

The effectiveness of a Resource and Waste Management Plan and its implementation, will be subject to quarterly audits by the RWM throughout the duration of the construction phase.

Audits will focus on materials inputs to the project and the waste outputs identifying:

### **Resources**

How resource management was integrated into the design of project buildings and areas

Re-use, recycling of existing on-site materials prior to development including soils, buildings, structures.

Re-using surplus materials from previous development projects e.g., office cabins, fencing, aggregates, concrete products.

Additional opportunities for future resource management.

### **Waste**

The audits will also investigate the operational factors and management policies that contribute to the generation of waste and identify appropriate corrective actions, where necessary.

Performance targets will be developed, e.g., an 85% overall recycling target, successes and failures will be recorded and Action Plans will be developed to address any issue which arise.

Inspections of the waste storage areas will be undertaken and recorded on a weekly basis, issues relating to housekeeping, inappropriate storage and segregation of wastes.

The RWM will record the findings of the audits, including types and quantities of waste arising, final treatments and costs, in a quarterly audit report.

The Final Waste Audit will examine the manner of how resources are managed and how and where the waste is produced and how waste generation can be reduced in future projects.

### **13.0 WASTE EXPORT PERMITS/LICENCES**

All vehicles exiting the site containing any waste material shall be inspected by the gate man to ensure that they display on the side of the vehicle a Waste Collection Permit#.

Where a Waste Collection Permit# is not displayed the RWM shall be notified and the vehicle shall be instructed to return the waste load to the specific area on the site and will not be allowed exit the site with the waste load.

Once a Demolition Contractor, Groundworks contractor and a Main Contractor have been appointed, the associated Waste Collection Permits for vehicles exporting materials off-site and the receiving facility Waste Facility Permits / Waste Licenses shall be maintained by the RWM and issued to Dublin City Council.

**Table 4** Register of Waste Collection Permits and Waste Facility Permits / Licences

Contractor	Address & Contact	Waste Collection Permit #	Expiry Date	Receiving Facility	Waste Facility Permit / Licence #	Expiry Date
TBC	TBC	TBC	TBC	TBC	TBC	TBC

TBC To be confirmed by contractor when appointed.



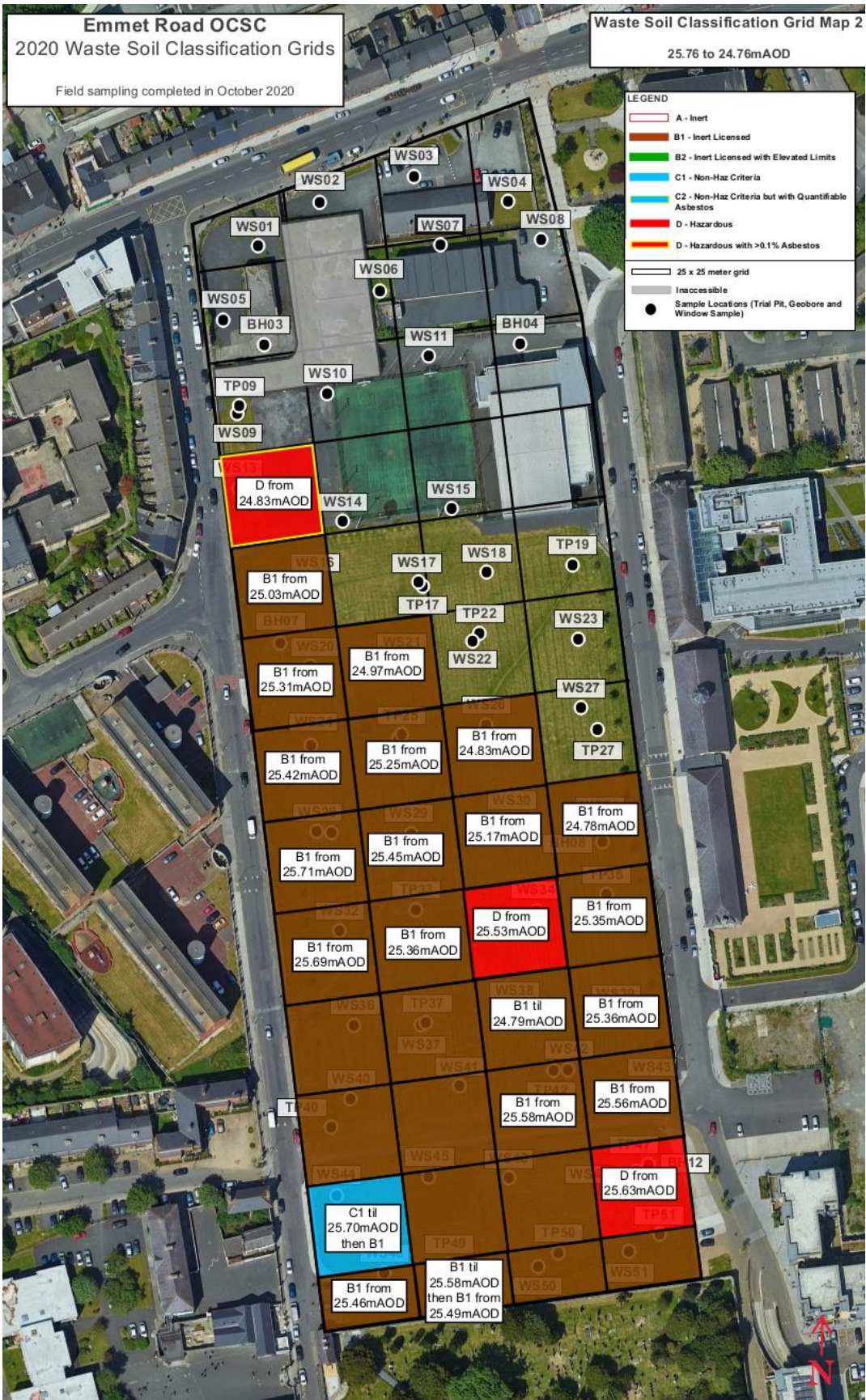


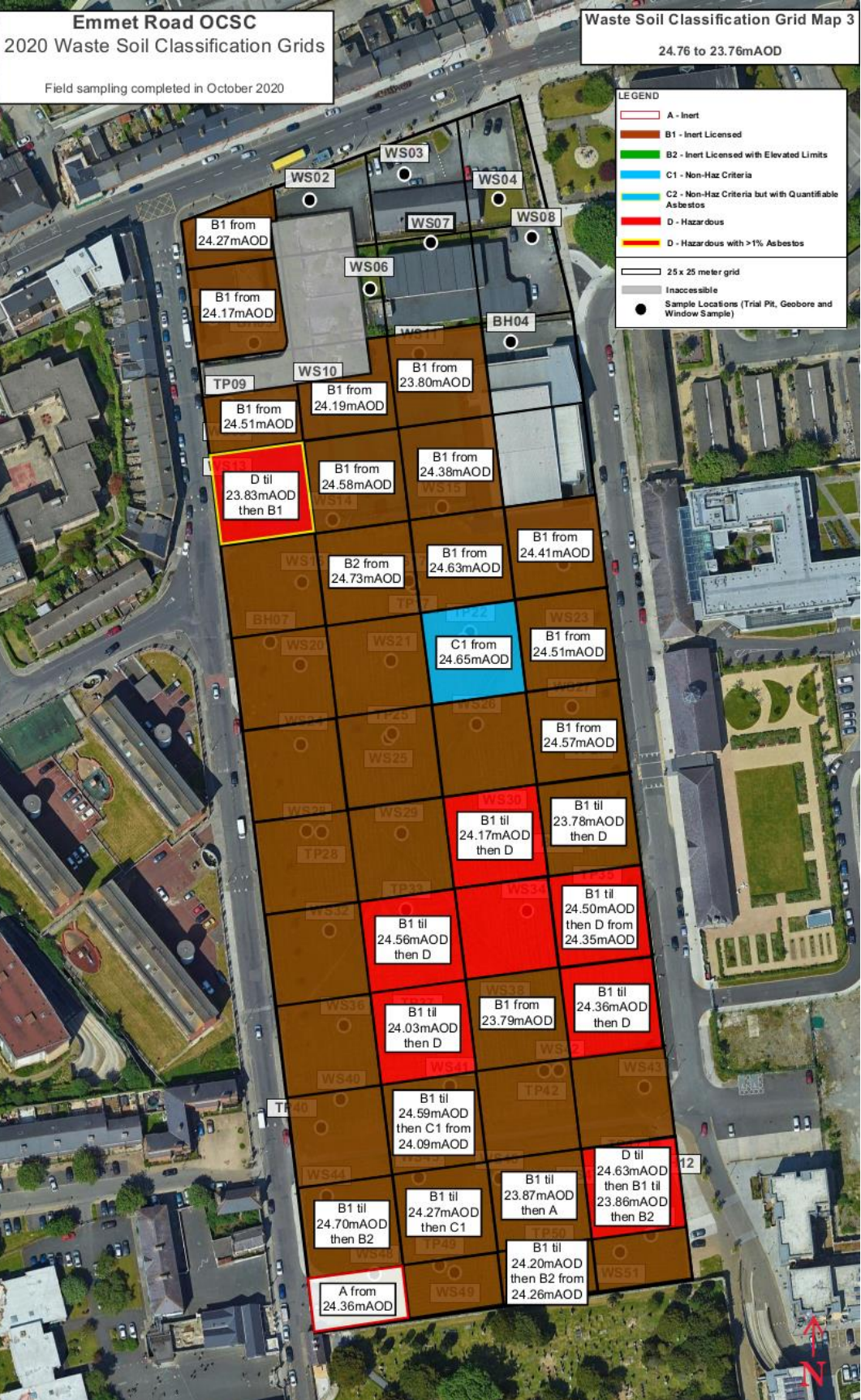


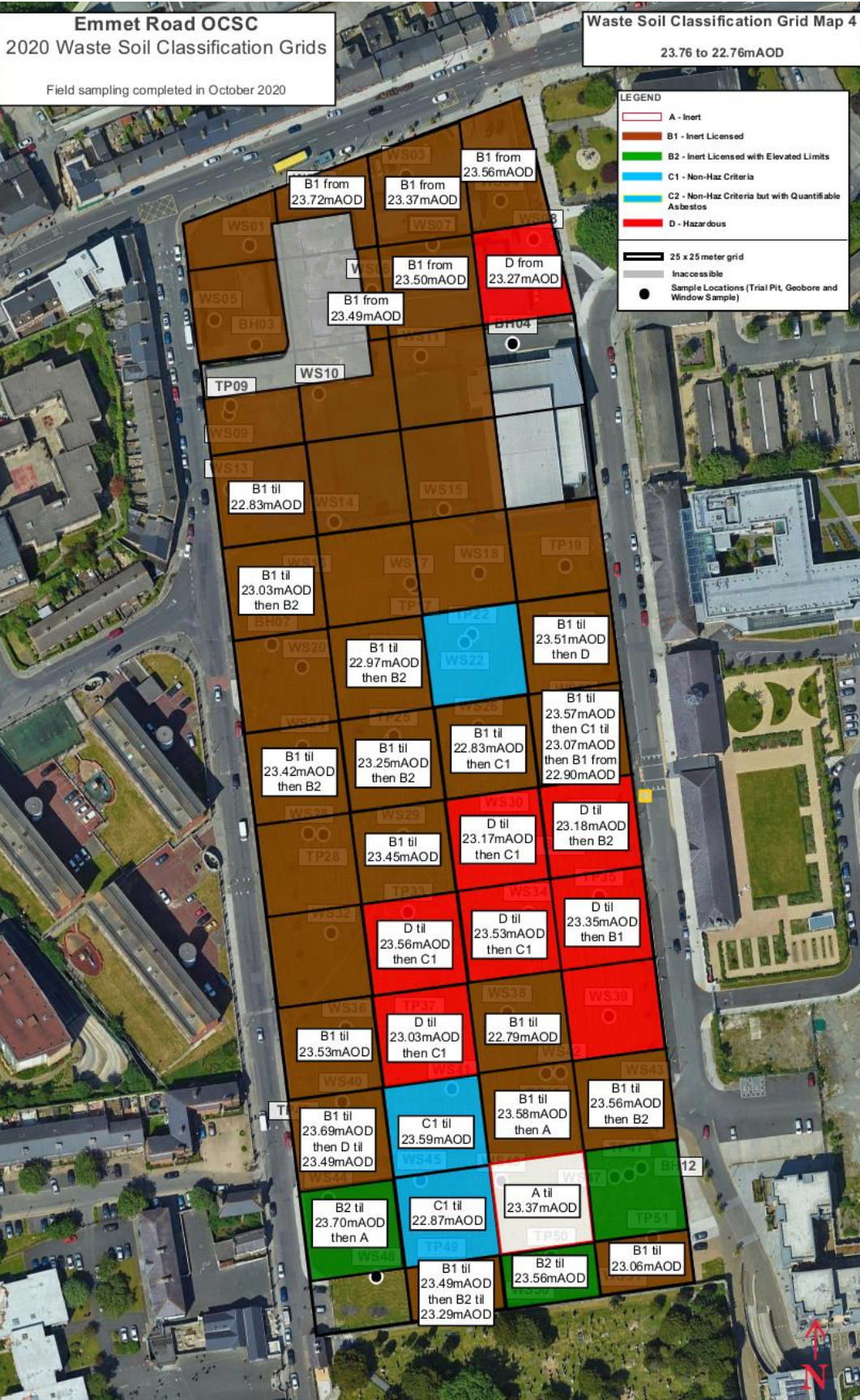
# Appendix I

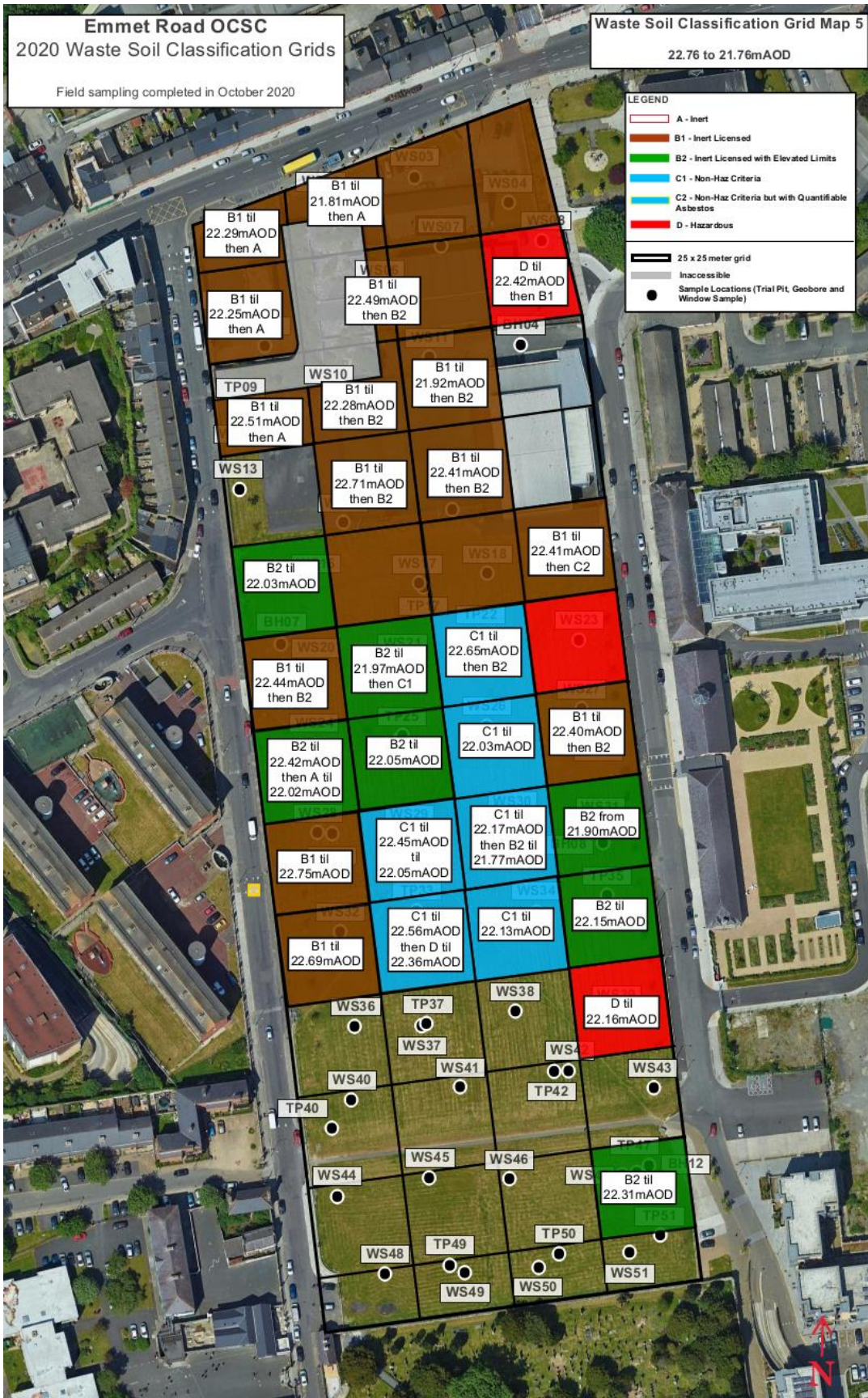
## Waste Soil Classification Grids

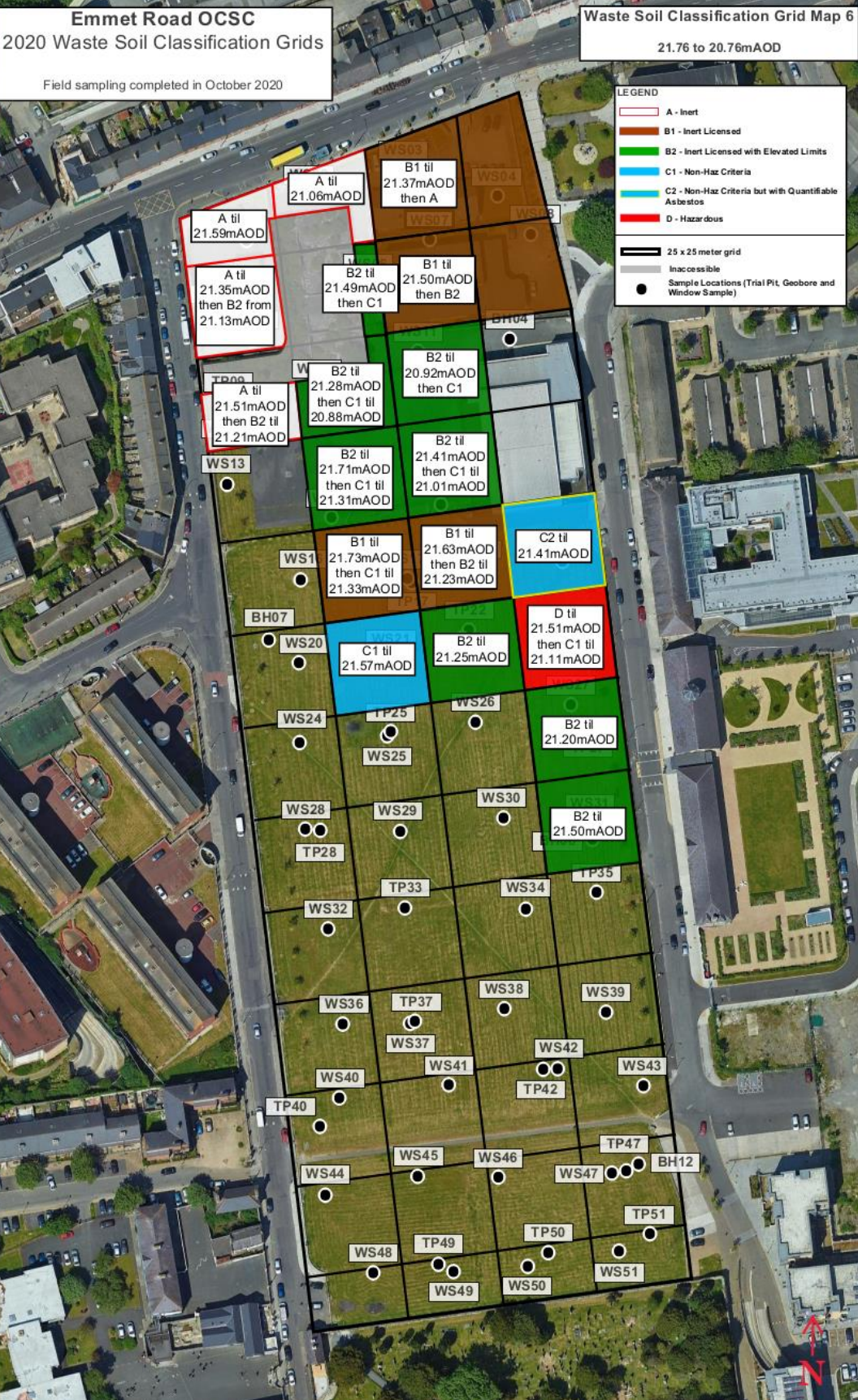


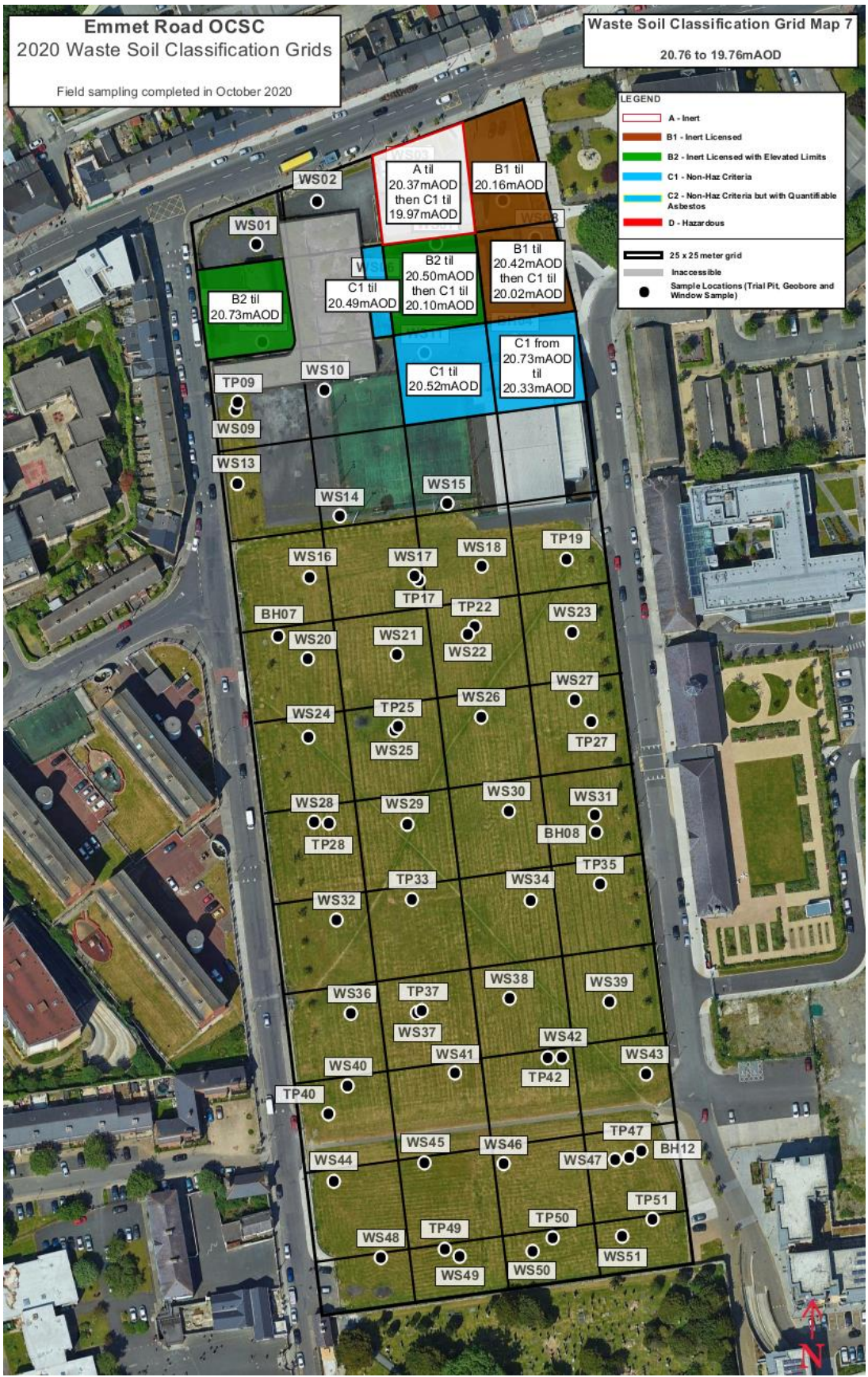














## Appendix II

### Decision tree for determining whether a material is a by-product

