

BM BARRETT MAHONY
CONSULTING ENGINEERS
CIVIL & STRUCTURAL



OUTLINE CONSTRUCTION &
DEMOLITION WASTE MANAGEMENT
PLAN


Claremont Project, Howth

PROJECT: PROPOSED CONSTRUCTION OF MIXED USE DEVELOPMENT, AT THE CLAREMONT DEVELOPMENT SITE, HOWTH, CO. DUBLIN

PROJECT NO. 18.386

DOCUMENT TITLE: OUTLINE CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN MIXED USE DEVELOPMENT, AT THE CLAREMONT DEVELOPMENT SITE, HOWTH, CO. DUBLIN

DOCUMENT NO: 18.386-C&D WMP-01

Issue	Date	Description	Orig.	PE	PD	Issue Check
1	01.11.2019	DRAFT	MC	MC	VB	
2	10.11.2019	DRAFT	MC	MC		
3	21.11.19	Final Draft	MC	MC		
4	25.11.19	Issued for Planning	MC	MC	VB	
PL1	05.12.19	PLANNING	MC	MC	VB	

**OUTLINE CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN FOR A
PROPOSED MIXED USE DEVELOPMENT, AT THE CLAREMONT DEVELOPMENT
SITE, HOWTH, CO. DUBLIN**

barrett mahony

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1.0 INTRODUCTION

Atlas GP Limited has commissioned Barrett Mahony Consulting Engineers (BMCE) to prepare a Outline Construction & Demolition Waste Management Plan (C&D WMP) for the mixed-use Proposed Development on Howth Road, Co. Dublin.

The purpose of this report is to define the project specific measures and methodologies for the management of waste to be put in place during the construction process and for which planning permission is in place. Therefore, confirming that the waste destination has been fully assessed through the regulatory consent process in relation to potential impacts on the environment.

This report should be read in conjunction with the following reports:

- Barrett Mahony Consulting Engineers - Outline Construction Management Plan (CMP),
- Enviroguide Consulting - Outline Environmental Management Plan (CEMP),
- Minerex Environmental Report – Planning stage dewatering plan, risk assessment and mitigation measures,
- Golders Associates Ireland Limited – Materials Management & Remedial Strategy Plan.

The project Outline Construction & Demolition Waste Management Plan (C&D WMP) will be subject to periodic review and has been developed in respect of the permitted development. It is intended to be a live document which will be updated as the construction process proceeds to account for any necessary changes that are required to the measures and methodologies set out within.

The C&D WMP is subject to change based on the following:

- Compliance requirements with Fingal County Council
- Requirements by other state bodies/ Regulations
 - o Waste Management Act 1996
 - o Eastern-Midlands Regional Waste Management Plan (WMP) 2015-2021
- Concerns raised by residents and any other persons affected by the works

To ensure this plan is as accurate as possible, BMCE have liaised with Walls Construction, Golders Associates Ireland Ltd and Atlas GP as part of its preparation.

The site is located on the outskirts of Howth town, beside the DART station.



Figure 1 - Location of Site

1.1 Scope of Works

This report will detail the following:

- 1) Waste management for welfare facilities during the construction phase;
- 2) Demolition waste management;
- 3) Site management procedures, including waste minimisation, stockpile management, temporary storage procedures, waste disposal requirements;
- 4) Soil waste material break down;
- 5) Record Keeping

This is a live document and will be revised as required, including further testing carried out to determine exact quantities of Hazardous, Non-Hazardous and Inert material.

1.2 METHODOLOGY

This plan has been prepared with reference to:

- Eastern-Midlands Regional Waste Management Plan (WMP) 2015-2021.
- Code of Practice – Environmental Risk Assessment for Unregulated Waste Disposal Sites, 2007
- CIRIA document 133 Waste Minimisation in Construction;
- 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.
- EPA Guidance 2015
- HazWasteOnline – by OneTouch Data – to assist in classification of potentially hazardous and non-hazardous materials.
- WAC for inert, stable non-reactive hazardous waste, and hazardous waste decision by the European Commission (Council Decision 2003/33/EC)

1.3 THE SITE

Figure 2- Shows the locations of the site. The site is located on the main Howth road on the periphery of Howth village before the DART station.



Figure 2 - Location of Site

Figure 3- Shows the brake down of the site. Originally the site was broken into three separate premises: Techrete – Precast Concrete Manufacturing Plant, Teeling Motors- Car Garage, and the Garden Centre.

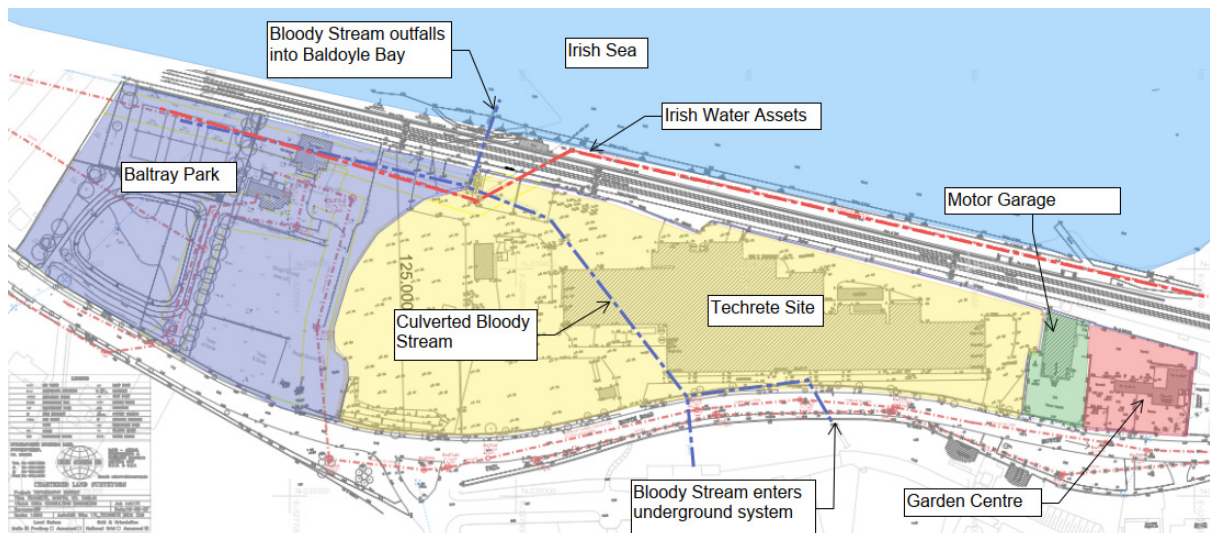


Figure 3 -Site Brake Down

The Techrete factory, in operation from 1985 till 2008, specialise in the design, manufacture and supply of architectural precast cladding to the Irish and UK construction markets. Since then the site has remained vacant. The site consists of offices, manufacturing and storage facilities located within a minimum 8 interconnected buildings a dozen or so interconnected, two-to-three storey industrial style sheds with corrugated steel roof and masonry walls. These buildings are located mainly in the centre of the application site and spread towards the east, up to the Teeling Motors site and come within six metres of the southern site boundary with Howth Road. The remainder of the site was used as a storage area for manufacturing equipment/material and the storage of the finished products i.e. concrete panels. An internal walk through the building was not possible, however given it previous function the internal soft materials will be a mix of non-hazardous and hazardous materials, i.e. partitions, cabling, asbestos and leftover manufacturing chemicals. The Techrete site comprises mostly of the overall application site (c.2.672 hectares).

The Teeling Motors site consists of is a steel portal frame structure with a corrugated roof, separate garage and car park. The third site consists of a single storey masonry building, corrugated roof and concrete yard. All three site are now vacant.

Currently running under the Techrete site is a culverted stream, "The Bloody Stream". This stream rises in the Hill of Howth and navigates it way towards Howth Castle. Presently there are water control measure in place, via three large retaining walls, which attenuate the flow before entering a piped system that traverses the site and outfalls via the "Bob Davis Culvert" into Baldoyle Bay. This stream is tidal influenced but only during high tide. During medium to low tide it is clear of sea water, Figure 3.

The whole site has historical contaminated land, and hotspots of contamination have been identified and documented in Golder Associates Ireland Limited, October 2019. Materials Management & Remedial Strategy Plan Claremont Development Site, Howth (Golder 2019). The findings, construction practices of handling the contaminated soil and the protection of the surface and ground water are discussed in the Outline Construction Environmental Management Plan (CEMP).

1.4 DEVELOPMENT OVERVIEW

The development will involve the demolition of all existing structures on all three sites.



Figure 4- Proposed Development Layout

The proposed development will occur at a site bounded to the south by the Howth Road, to the east by a private dwelling, to the north by the DART line, and to the west by Local Authority lands. The site incorporates the former Techrete manufacturing facility, the former Beshoff's Motors showroom, and the former Howth Garden Centre.

The proposed development will include the demolition of all structures on site (c.8,162sqm GFA) and excavation of a basement. The proposed development comprises of the provision of a mixed use development of residential, retail/restaurant/cafe uses and a creche in 4 no. blocks (A to D), over part basement. Blocks A, B, C and D with a height up to a maximum of seven storeys of apartments over lower ground floor and basement car parking levels (a total of eight storeys over basement level). The residential component will consist of 512 no. residential units. The proposed development includes the provision of two vehicular entrances on to Howth Road, excavation of basement to provide for car parking, plant, waste storage and ancillary use. Additional car parking spaces shall be provided at lower ground floor level. A total of 439 no. car parking spaces and 1,335 no. bicycle parking spaces, including 49 no. bicycle spaces to cater for the retail units and creche shall be provided. One vehicular access is located at Block A, serving car parking spaces. The second is at Block C, providing access to the basement, residential and

retail parking, and a service area for the retail units. A service route will be provided along part of the northern perimeter of the site with access from the western end of the site at a junction with Howth Road and at the main vehicular entrance at Block C;

A publicly accessible walkway/cycleway to the north of the site shall be provided at podium level. A civic plaza will be provided between Blocks D and C, and a landscaped park to the west of Block A. A channel to the sea for the Bloody Stream with associated riparian strip shall be incorporated as a feature within a designed open space between Blocks A and B. Communal gardens will be provided for Blocks A, B and C;

The residential component consists of 512 no. residential units, which includes 4 no. studio, 222 no. one bed, 276 no. two bed, 10 no. three bed apartments, and communal facilities of 708 sqm. Ground floor units onto the Howth Road will have own door access. The units will be served by balconies or terraces on all elevations;

Block A, with a maximum height of seven storeys of apartments over lower ground level car park (a total of eight storeys), will provide for 234 residential units, with residents' amenities to include a gym, residents' lounge, residents' support office, and 2 no. residents' multi-purpose rooms. Block B, with a maximum height of seven storeys of apartments over lower ground floor and basement car park (a total of eight storeys over basement), shall provide for 154 no. units, residents' lounge, residents' multi-purpose room, and creche of 236 sqm with outdoor play area. Own door access will be provided at ground floor. Block C, with a maximum height of seven storeys over basement car parking (a total of seven storeys) will provide for 83 no. residential units in two wings over a retail unit and Block D, with a maximum of 6 storeys over basement, shall provide for 41 no. residential units over retail units;

The commercial component in Blocks C and D consists of 4 no. units with 2,637 sqm gross floor area. In Block C, it consists of a 1,705 sqm anchor unit, accessed from the civic plaza. In Block D, it consists of a restaurant (243 sqm) and retail unit (603 sqm) and café (86 sqm). The restaurant and retail units are accessed from Howth Road, and the café is accessed from the upper level of the civic plaza. The proposed development includes the provision of public and communal open space, green roofs, landscaping, boundary treatments, set down locations, substations, meter rooms, waste management and all ancillary site works, including upgrading of the public paths along Howth Road and relocation of bus stop in new setback with a bus shelter. Two set down areas are provided at either end of the site; The gross floor area of the proposed development is 48,252 sqm (excluding enclosed car parking) on a site of 2.68 ha.

2.0 CONSTRUCTION & DEMOLITION WASTE MANAGEMENT STRATEGY

2.1 Introduction

The management of waste will be in accordance with the Eastern-Midlands Regional Waste Management Plan 2015-2021, The National Hazardous Waste Management Plan 2014-2020 and The Waste Management Act 1996, as amended and all associated regulations. The removal of all waste from site shall be supervised at all times. Waste shall only be consigned to a holder of an appropriate waste collection permit which includes authorisation to collect in the area, to collect the specific waste types required and includes authorisation to transport waste to the designated facility for which the waste is destined. Waste shall only be consigned from the site to destinations which are licenced by the EPA, hold a waste management facility permit or certificate of registration issued by the relevant local authority.

2.2 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.

2.3 Waste Arisings During Demolition & Construction Phase

2.3.1 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 from some inert hot spots, timber formwork, excess steel reinforcing bars and over-supply of materials along with packaging such as cardboard, plastic and polystyrene.

2.3.2 Existing Structure to be demolished

As mentioned above the development site is a combination of three former establishments, Techrete, Teeling Motor Garage and the Garden Centre. The existing structure are made up as follows;

The Techrete part of the development consists of offices, manufacturing and storage facilities located within a minimum 8 interconnected buildings a dozen or so interconnected, two-to-three storey industrial style sheds with corrugated steel roof and a combination of masonry and precast walls. These buildings are located mainly in the centre of the application site and spread towards the east, up to the Teeling Motors site and come within six metres of the southern site boundary with Howth Road. The remainder of the site was used as a storage area for manufacturing equipment/material and the storage of the finished products i.e. concrete panels.

The Teeling Motors site consists of steel frame show room, separate garage and car park.

The third site, formerly a garden centre this consists of a single storey masonry building with a corrugated roof and concrete yards.

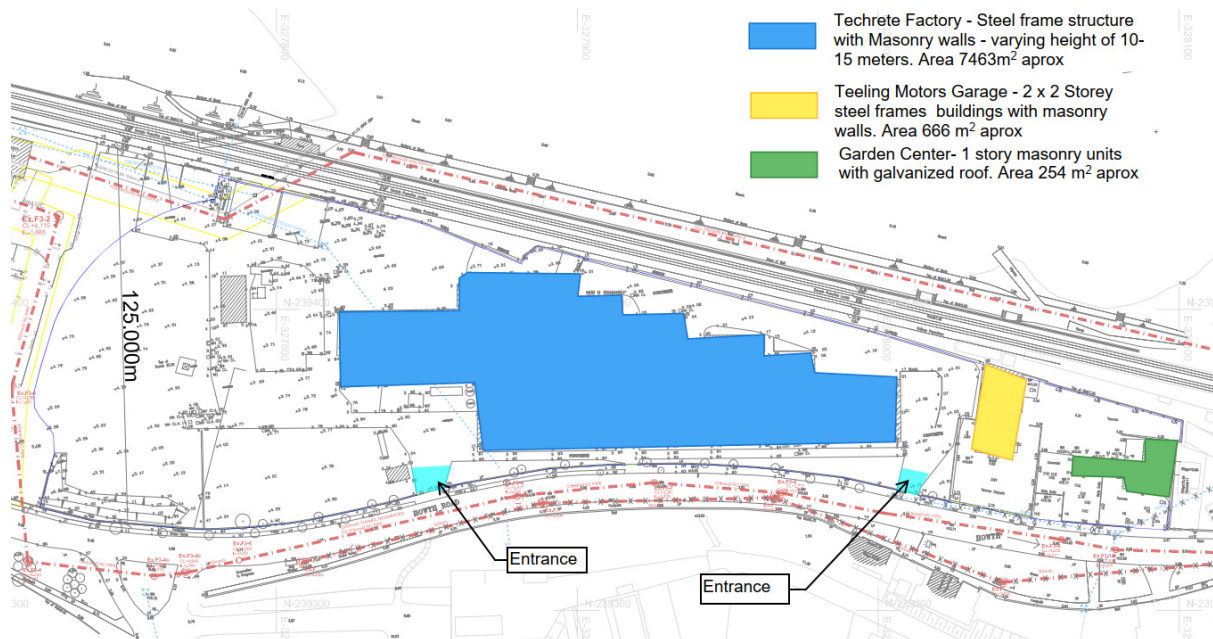


Figure 5- Existing Site Layout.

2.3.3 Main Construction Waste Categories:

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

- 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 include the following:

- Excavated soils classified as 'Hazardous'
- Batteries
- Oils / fuels from machinery and equipment
- Excess paints
- Asphalt
- Asbestos
- Waste Electrical & Electronic Equipment - (WEEE)

2.3.4 Fuel Storage

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 stored in/on a designated bunded tank/storage unit with a 110% capacity in the event of breach.

Fuel storage areas must be positioned such that easy access is maintained for fuel delivery vehicles and the onsite machinery. They must be located at a level to minimise the risk of damage by impact from

plant or vehicles, at least 10m from a watercourse or 50m from a borehole or well and located within the compound and away from the boundary fences.

When fuel is correctly contained and banded, the fuel wastage onsite will be minimal.

2.3.5 Waste Arising from Demolitions

The demolition of the existing structures will vary based on the structure type and material, it is assumed that the site has a 150 mm concrete slab covering 70% of the complete development site.

Table 1- shows the approx. breakdown of the materials from demolition of existing buildings. The contractor should prepare a more detailed estimate on possession of the site.

Building	Plan Area	Concrete/Masonry	Steel	Cladding/Roof Finishes	Soft finishes	Total Waste
	m²	tonne	tonne	tonne	tonne	tonne
Techrete Development	7463	14,478	336	112	50	14,976
Teeling Motor Garage	666	1292	30	10	25	1,357
Garden Centre	254	492	12	4	25	533
Total		16,262	378	126	100	16,866

Table 1 - Demolition Waste

2.3.6 Soils/Subsoil

Soil will be excavated to facilitate construction of the basement, foundations and buried services. This will be broken down into three subcategories of soil materials that require management and/or offsite removal during the groundworks construction phase of the project. These categories are as follows:

- Insitu soils for assessment and verification for reuse/disposal
- Pile Arisings
- Hazardous Soils

Where it is inert, excavated topsoil will be reused on site for landscaping. It is anticipated that any additional soil will be removed from the site for reuse, recovery and /or disposal as there are limited suitable onsite re-use options. Any material considered for re-use on site must be subject to testing against the Reuse Target Criteria for Controlled Waters and Human Health which are set out in Golder Associates Ireland Limited, October 2019. Materials Management & Remedial Strategy Plan Claremont Development Site, Howth.

Insitu soils were sampled to assess whether this material is likely to be classified as hazardous or non-hazardous waste. Based on this analysis, the majority of samples are classified as non-hazardous.

A site investigation has been completed by IGSL and Golder Associates Irl Ltd. Golders carried out an assessment on both site investigation and their conclusion are shown in Figure 6. This figure is a plan for the whole site, showing the outline of the proposed development. The site has been divided into different colours to show where Hazardous, Non-Hazardous and Inert material has been found. It also highlights areas that require further investigation.

Figure 6- Is a plan of the site, showing the break down of the excavated area and categorisation for disposal. Taken from the Golders Report – Material Management Plan Remedial Strategy.

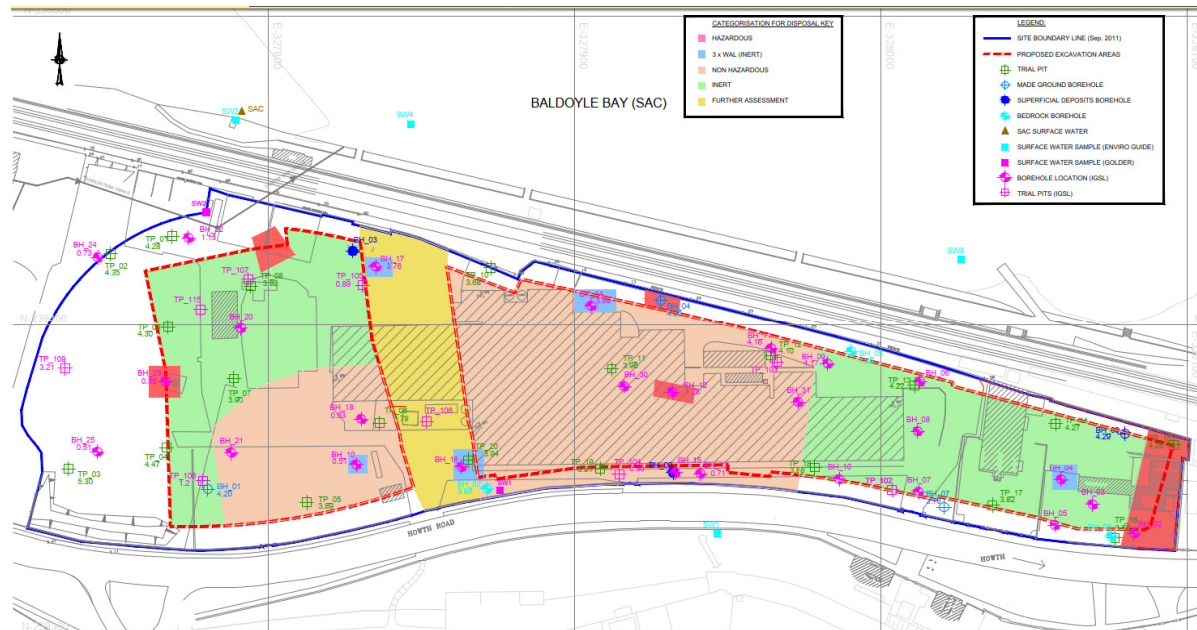


Figure 6- Categorisation for Disposal- Golders Report – Material Management Plan Remedial Strategy

In terms of managing the balance of materials on site, Golder Associates Ireland Limited, October 2019. Materials Management & Remedial Strategy Plan Claremont Development Site, Howth makes the following recommendations:

- There are several hazardous hotspots identified by TP12, TP15 and TP16 and these areas may require further delineation and sampling for disposal off-site waste;
- Hazardous samples are identified in the historic sampling dataset from the 2017 IGSL site investigation. BH22 and BH24, TP109 are located in the made ground in the north west area of the site, which is not expected to be excavated as part of the proposed works;
- Due to elevated total organic carbon concentrations identified in t made ground samples from TP11, TP12, TP19 and TP20, this material will require disposal at a non-hazardous facility;

The remainder of the material represented by Golder's sampling is considered suitable for disposal at inert landfill subject to verification testing.

The Waste Management Hierarchy state that the most preferred option for waste management is prevention and minimisation of waste, followed by reuse and recycling/recovery, energy recovery and least favoured of all disposal.

2.4 Soil Management

The total square meterage of the site is approx. 26,860m² and total building footprints is approx. 8,383m². The basement, under Block B, C & D, is to extend 5m below ground level and of this it is expected that at least 1.2m will be rock. The foundation under Block A will extend circa 2.5m below ground level. In total a volume of 67,400m³ of soil/rock is expected to be removed from the site following excavations.

Table 2 – Lists the estimated excavation quantities to be removed off site, this includes the excavation works for the proposed basement, foundations and buried services.

Cut Balance	Area (m ²)	Volume (m ³)
Earth		
Block A (2.5m strip)	6,308	15,770
Basement (0-4.0m)	9,933	39,732
Block B (road strip 2.0m)	690	1,380
Riparian Strip		
Max Depth – 2m	1,632	3,264
<i>Pile Arising</i>		
West Block 970 No.600 dia x 12m (plus 25%)		3,940
East Block 450dia secant wall x 4m		1,015
Total Earth		65,101
Landscaping, 1.75m above	4,000	-7,000
Cut/Fill Balance		58,101
Rock		
Basement (circa 1.2m)	9,933	11,920
East Block Pile Arising – 2m		510
Total Rock		12,450
Total Approx. quantity of excavated material		70,551
Hazardous soil for verification (estimate for disposal off site)		2,600
Pile Arisings (Non-Hazardous for disposal)		5,200
Insitu Soils (Inert/Non HazWaste less fill requirement)		50,301
Rock		12,450
Total Volume Removed off site		70,551

Table 2- Excavation Quantities to be Removed off Site

Any soil/subsoil that is deemed to be contaminated will be stored separately to clean and inert soil/subsoil, in accordance with the Construction Environmental Management Plan (CEMP) control of stockpiles.

The material will be appropriately tested and classified as either non-hazardous or hazardous in accordance with the EPA Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous using the HazWasteOnline application (or similar approved classification method). The

material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC.

Waste soil and material intended for off-site disposal, recycling or recovery shall not be removed from site prior to appropriate waste classification and receiving written confirmation of acceptance from the selected waste receiving facility.

The classification and destination of excavated material should be supervised by a suitably qualified and competent environmental consultant with specific knowledge and experience in waste management and the management of contaminated land.

Where known contaminated soil is to be excavated for which sampling and analysis has been carried out in-situ, provision should be put in place to removal of site, subject to appropriate packaging and transport arrangement, and for transfer to an appropriately licenced facility as opposed to stockpiling it on site where possible.

All contracted HGV's 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.

2.4.1 Management of Stockpiles

Segregation and storage of wastes generated during works will be segregated and temporarily stored on site (pending removal or for re-use on site) in accordance with a pre-determined segregation and storage strategy (to be developed by the Principal Contractor as part of their C&D WMP). It is proposed that a stockpile compound will be designated at the west side of the site.

While waste classification and acceptance at a waste facility is pending, excavation soil for recovery/disposal shall be stockpiled as follows:

- A suitable temporary storage area shall be identified and designated;
- All stockpiles shall be assigned a stockpile number;
- Soil waste categories will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on site drawings;
- Erroneous pieces of concrete shall be screened from the stockpiled soils and segregated separately;
- Non Hazardous and hazardous soil (if required to be stockpiled) shall be stockpiled only on hard-standing or high grade polythene sheeting to prevent cross-contamination of the soil below;
- Soil stockpiles shall be covered with high-grade polythene sheeting to prevent run-off of rainwater and leaching of potential contaminants from the stockpiled material generation and/or the generation of dust;

When a stockpile has been sampled for classification purposes, it shall be considered to be complete and no more soil shall be added to that stockpile prior to disposal. An excavation/stockpile register shall be maintained on site showing at least the following information:

- Stockpile number;
- Origin (i.e. location and depth of excavation)
- Approximate volume of stockpile
- Date of creation;
- Description and Classification of material;
- Date sampled;
- Date removed from site;

- Disposal/recovery destination; and
- Photograph;

Waste storage, fuel storage and stockpiling and movement are to be undertaken with a view to protecting any essential services (electricity, water, etc) and with a view to protecting existing surface water drains and groundwater quality boreholes (if applicable); and

Waste will be stored on site, including concrete, asphalt and soil stockpiles, in such a manner as to:

- Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required);
- Maximise waste segregation minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery; and
- Prevent hazards to site orders and the general public during construction phase (largely noise, vibration and dust).

Waste permitting, licences & Documentation under the Waste Management (Collection Permit) Regulations 2007, as amended, a collection permit to transport waste, which is issued by the National Waste Collection Permit Office (NWCPO), must be held by each waste collection contract.

Any other relevant waste permits required for any proposed processing of materials shall be obtained prior to construction at the site if required.

2.4.2 Concrete Bricks, Tiles & Ceramics

The majority of concrete, bricks, tiles and ceramics waste generated as part of the construction works will be clean, inert material and will be recycled where possible.

2.4.3 Hard Plastics

Hard plastic is a highly recyclable material and the majority of the plastic generated will be from new materials off-cuts. It will be recycled, where possible. All recyclable plastic will be segregated where suitable, to improve its recovery quality.

2.4.4 Timber

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc, will be segregated and stored in skips for timber recycling.

Timber that is contaminated will be sent to a licenced recycling facility.

2.4.5 Metal

Metals will be segregated into mixed ferrous, cladding aluminium, high grade stainless steel, low grade stainless steel etc. where practical. Metals will be segregated and stored in skips until collected and taken to an authorised facility. Metal is highly recyclable and there are numerous companies that will accept these materials.

2.4.6 Plasterboard

There are currently a number of recycling services for plasterboard (gypsum) in Ireland. Plasterboard from the construction phase will be stored in a separate skip, pending collection for recycling. The site

manager and project engineers will ensure that supply of new plasterboard is carefully monitored to minimise waste.

Gypsum will be stored in a separate container and sent to a licenced recyclable facility.

2.4.7 Glass

Glass materials will be segregated for recycling, where possible.

2.4.8 Organic (Food) Waste

Waste collected on site will be disposed of into the general waste bin, provided near the canteen. This waste will be disposed to a licenced landfill.

2.4.9 Non-Recyclable Waste

Construction and Demolition (C&D) waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard and plastic which are deemed unsuitable for recycling (e.g. if contaminated). Prior to removal from site, the nonrecyclable waste skip/receptacle will be examined by a member of the waste team to determine if any 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 and a procedure put in place to avoid a repetition.

2.4.10 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 the 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.

2.4.11 Waste Arising from Construction Activities

Refer to Section 2.3.3 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.

2.5 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)

2.5.1 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.

2.6 Record Keeping

2.6.1 Waste Management Procedure

A waste management system will be prepared by the groundworks contractor and included in their CMP. During the construction period, the groundworks contractor will have full time attendance on site to ensure that the work is completed as required and that all relevant records are collected. The following record of the works will be retained by the groundworks contractor in accordance with best practice: The documentation to be maintained, as a minimum, shall be the following:

- The names of the agent(s) and transporter(s) of the wastes;
- The names(s) of the person (s) responsible for the ultimate recycling, recovery or disposal of the wastes;
- The ultimate destination(S) of the wastes;
- Written confirmation of the acceptance and recovery, recycling or disposal of any waste consignments;
- Copies of verification sampling results;
- The tonnages and LoW code of all waste materials;
- Details of any rejected waste consignments;
- Waste Transfer Forms (WTF) for hazardous wastes transferred from site and associated appendices; and
- Photographic evidence of the removal of suspect material.

2.6.2 Responsibility for Waste Manager

The appointed Construction Waste Manager will be responsible for conducting a waste audit at the site during the construction and demolition phase of the development.

They will also be responsible to ensure that a target of 85% recyclables is achieved.

2.6.3 Review of Records and Identification of Corrective Action

A review of all the records for the waste generated and transported on or off-site should be undertaken mid-way through the project. If waste movements are not accounted for, the reasons for this should be established in order to see if a why the record keeping system has not be maintained.

The waste records will be compared with the established recovery/reuse/recycling targets for the site and other waste records.

2.7 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.

2.8 Estimated Cost of Waste

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



DRAFT

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