CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

FOR

ESB NORTH WALL EMERGENCY POWER DEMOLITION

AT

ESB NORTH WALL GENERATING STATION,

ALEXANDRA ROAD, DUBLIN PORT

JULY 2021

ON BEHALF OF

Hegarty DEMOLITION

Prepared by

Enviroguide Consulting

Dublin
3D Core C, Block 71, The Plaza,
Park West, Dublin 12

Kerry
19 Henry Street
Kenmare, Co. Kerry

Wexford
Unit 11 Floor B
Westpoint Business Park
Clonard Road, Wexford

www.enviroguide.ie
info@enviroguide.ie
+353 1 565 4730

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1 INTRODUCTION

Enviroguide Consulting (hereafter referred to as Enviroguide) was retained by Hegarty Demolition Ltd. (hereafter referred to as HDL, the Contractor) to prepare this Construction and Demolition Waste Management Plan (CDWMP) for the demolition works as part of the ESB North Wall Emergency Power Demolition at the ESB North Wall Generating Station, Alexandra Road, Dublin Port. (hereafter referred to as the Site).

North Wall Generating Station facility operates under an Integrated Pollution and Prevention & Control Licence (IPPC Licence) issued by the Environmental Protection Agency (EPA) (Licence No. P0579-03). The Site is located within the facility boundary of the North Wall Generating Station and therefore activities on the Site must comply with the requirements of the IPPC Licence.

1.1 Scope and Purpose of this CDWMP

The purpose of this CDWMP is to provide the information necessary to ensure that the management of construction and demolition (C&D) waste arising from the demolition works at the Site is undertaken in accordance ESB document '*Engineering & Major Projects - Employers Minimum Environmental Requirements Document No.: QD-357597-01-S460-001-000*' (ESB, July 2020) (referred to as ESB Minimum Environmental Requirements*),* and with all statutory obligations and requirements.

This plan will ensure minimum waste is generated and maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It will provide guidance on the appropriate 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 CDWMP forms part of the Construction and Environmental Management Plan (CEMP) which has been developed to define the approach to environmental management during implementation and roll-out of the construction phase of the project.

1.2 'Live document'

This CDWMP is considered a 'live' document and as such will be reviewed on a regular basis. Updates to this CDWMP may be necessary due to any changes in waste management practices and/or contractors.

As detailed in later sections, the exact materials and quantities of construction waste that will be generated from the proposed works will be audited throughout the project roll-out phase to prevent waste arising in the first place, and to re-use, recycle or recover waste materials where possible.

All documentation required by this CDWMP such as Waste Collection Permits, Certificates of Registration (CORs), Waste Facility Permits and Waste Licences, in addition to waste transfer documents and landfill gate receipts will be compiled in the annex of documents to accompany this CDWMP. A register of documents is provided in Section 1.3.

1.3 Register of Documents

A live register of documents will be maintained digitally as part of this CDWMP. The content of this register is outlined below. It will be the responsibility of the Construction Environmental Site Manager to ensure that the register of documents is updated as appropriate.

A. Register of Legislation, Policy and Regulations
B. Waste Facility Acceptance Letters.
C. Approved Receiving Waste Facility Permits and Licences.
D. Approved NWCPO Permits.
E. Waste Management Log Sheet – Digital Log to be Maintained On-Site.
F. Schedule of Audits
G. Chain of Custody / Waste Dispatch Dockets
H. Landfill Gate Receipts.
I. ESB, August 2019. Management Asbestos Survey Report – ESB North Wall Generating Station
J. Waste Classification Reports
K. Figures and Drawings
L. Curricula Vitae

2 CONSTRUCTION AND DEMOLITION WASTE POLICY AND LEGISLATION IN IRELAND

A register of the current list of C&D waste policy, legislation and regulations are provided in Appendix A and discussed below.

2.1 National Policy

The Irish Government issued a policy statement in September 1998 known as Changing Our Ways', 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., 2013).

In response Changing Our Ways, 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' concerning the development and implementation of a voluntary construction industry programme to meet the Government's objectives for the recovery of C&D waste.

The National Construction and Demolition Waste Council (NCDWC) was launched in June 2002, as one of the recommendations of the Forum for the Construction Industry, in the Task Force B4 final report. The NCDWC subsequently produced 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' in July 2006 in conjunction with the then Department of the Environment, Heritage and Local Government (DoEHLG). The Best Practice Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion. These Best Practice Guidelines have been followed in the preparation of this document which includes the following elements:

- Predicted C&D wastes and procedures to prevent, minimise, recycle and reuse wastes.
- Waste disposal/recycling of C&D wastes at the site;
- Provision of training for waste manager 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).

Section 3 of the Best Practice Guidelines identifies thresholds above which there is a requirement for the preparation of a C&D Waste Management Plan for developments. This development requires a CDWMP under the following criterion:

- Civil Engineering projects producing in excess of 500m3 of waste, excluding waste materials used for development works on the site.

Design Out Waste (EPA, 2015) notes that the preparation of a Waste Management Plan within the early design and feasibility phases provides a framework to carry out design reviews, and should be used as an implementation, benchmarking, monitoring and reporting tool throughout the overall construction process. Similar to the Best Practice Guidelines (DoEHLG, 2006), Design Out Waste Guidelines recommends that a Waste Management Plan should address the following aspects of the proposed development:

- Project description;
- Waste forecasting: Analysis of the waste arising / materials surpluses;
- Specific waste management objectives for the project;
- Proposed strategies and associated costs: Methods proposed for prevention, reuse and recycling of wastes;
- Materials logistics;
- Individual responsibilities;
- Monitoring procedures: Auditing and record keeping; and
- Proposals for education of workforce and plan dissemination programme.

The Best Practice Guidelines note that contractual arrangements need to be established in a manner which ensures that there is a contractual obligation on the Contractor(s) to prepare a Waste Management Plan in accordance with the above considerations at a minimum. It is noted that the EPA are currently developing the Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects which will supersede the Best Practice Guidelines (DoEHLG, 2006). The replacement guidelines, which are currently in the process of public consultation, will aim to reflect the current waste legislation and policy including 'A Waste Action Plan for a Circular Economy Ireland's National Waste Policy 2020-2025' published in September 2020 (updated in January 2021).

The 'Waste Action Plan for a Circular Economy' focuses on the prevention of waste disposal by maximising the value of material resources and reducing waste generation. The document sets out a number of actions in relation to C&D waste and commits to revise the NCDWC, 2006 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects', update C&D waste management plan guidelines, put in place incentives to encourage the use of recycled materials, further develop methods to encourage segregation of waste materials on-site and improve consistency across the waste sector.

Other guidelines followed in the preparation of this report include 'Construction and Demolition Waste Management – a handbook for Contractors and Site Managers' published by FÁS and the Construction Industry Federation in 2002.

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 Irish Waste Management Targets

The Waste Framework Directive (WFD) (2008/98/EC) requires a 70% reuse, recycling and materials recovery rate target of non-soil and stone construction and demolition waste to be achieved by 2020.

The State is currently exceeding this target, with a rate of 77% recorded in 2018 (EPA, September 2020. National Waste Statistics Summary Report for 2018). This also represents an improvement on the C&D recovery rate of 71% achieved by Ireland in 2016. It should be noted, however, that soil and stone wastes are excluded from the calculation of the Waste Framework Directive targets.

The EPA (2018) notes that C&D produces the largest volume of waste in the EU; specifically, within 2014, C&D waste within Ireland totalled 3.3m tonnes of waste from various waste

streams with soil and stone accounting for 74% of the total. Final treatment (recycling, re-use as backfilling, re-use as a fuel, disposal) varied greatly between the various material streams generated during C&D operations as noted in Table 2-1.

Table 2-1. Final Treatment for C&D Waste Material Classes (2014)

C&D Waste Material	Recycled (t)	Backfilled (t)	Used as a fuel (t)	Disposed (t)
Metal	173,810	-	-	-
Glass	2,838	-	-	66
Paper and Cardboard	211	-	-	-
Plastic	343	-	-	5
Wood	43,597	7,992	566	-
Waste containing polychlorinated biphenyls (PCBs)	-	-	-	2
Mixed	-	-	-	2,504
Mineral	196,522	203,602	46	1,240
Asbestos	-	-	-	6,246
Soil and Stones	34,917	2,394,139	12	34,681
Residue from treatment of mixed wastes	29	183,819	242	26,430
% of total treated	14%	84%	<1%	2%

As noted above, approximately 98% of all C&D waste material in 2014 was either re-used or recycled with the most dominant recovery operation being re-use as backfilling (i.e., land reclamation, improvements, or infill works).

This CDWMP sets out the waste management objectives for the proposed development for waste prevention, maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It also sets out the appropriate measures to be taken regarding 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).

2.3 Regional Policy

The proposed development is located in Dublin City, and therefore governed by the Eastern Midlands Region Waste Management Plan, 2015-2021.

The Eastern-Midlands Region Waste Management Plan 2015 – 2021 is the regional waste management plan for the DCC area published in May 2015. The Regional Plan sets out the strategic targets for waste management in the region and sets a specific target for C&D waste of 70% preparing for reuse, recycling and other recovery of construction and demolition waste" (excluding natural soils and stones and hazardous wastes) to be achieved by 2020. The plan reflects the targets set out for C&D waste in the Waste Framework Directive (WFD).

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €130 - €150 per tonne of waste which includes a €75 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2012.

The Dublin City Council Development Plan 2016–2022 sets out a number of policies, objectives and actions for the Dublin area in line with the objectives of the regional waste management plan. Waste objectives and actions with a particular relevance to the proposed development are:

- SI19: To support the principles of good waste management and the implementation of best international practice in relation to waste management in order for Dublin city and the region to become self-reliant in terms of waste management.
- SI20: To prevent and minimise waste and to encourage and support material sorting and recycling.

2.4 Legislative Requirements and Guidelines

The primary piece of legislation governing waste management in Ireland is the Waste Management Act 1996, (as amended) and all associated regulations. Waste management is also regulated by the Environmental Protection Act 1992, (as amended), Litter Pollution Act 1997, (as amended) and the Planning and Development Act 2000, (as amended).

Under the Waste Management Act, 1996, (as amended), 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). This includes transportation by an authorised waste contractor.

2.4.1 European Communities (Waste Directive) Regulations 2011

These regulations transpose European Directive 2008/98/EC amending and superseding a number of provisions of the Waste Management Act 1996 (as amended), and associated regulations. Provisions include extended producer responsibility, the implementation of the Waste Management Hierarchy, and measures to promote the preparation of materials for re-use, recycling, and other material recovery (including beneficial backfilling operations using waste as a substitute). The European Communities (Waste Directive) Regulations 2011 also transpose EU waste management targets as set out in Section 1.3 as statutory benchmarks to achieved by Ireland.

2.4.2 Waste Management (Facility Permit and Registration) (Amendment) Regulations 2015 (S.I. No. 198/2015)

Waste receiving facilities must be appropriately permitted or licensed and must be listed in the appendix of the Waste Collection Permit as an authorised destination. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or Waste Management Facility Permit granted by the relevant Local Authority under the Waste Management (Facility Permit & Registration) Regulations 2007 as amended or a licence granted by the EPA under the Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) and S.I. No. 137/2013 - Environmental Protection Agency (Industrial Emissions) (Licensing) Regulations 2013.

The COR/permit/licence held will specify the type and quantity of waste that the facility is authorised to accept, store, process, recycle, recover and/or dispose of.

2.4.3 Waste Management (Licensing) Regulations 2004 and Waste Management (Licensing) (Amendment) Regulations 2010

These regulations relate to the process for obtaining a waste licence from the EPA for the operation of certain waste recovery or disposal facilities under Part V of the Waste Management Act.

2.4.4 Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820/2007), as amended

The Waste Management (Collection Permit) Regulations 2007, as amended (S.I No. 820 of 2007) regulate the transport of waste in Ireland and provide that in order to transport waste, a waste carrier must hold a valid waste collection permit. Waste contractors engaged by construction contractors must be 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 does not give rise to environmental pollution or the risk of environmental pollution.

A valid waste collection permit to transport the specific waste types generated by the project must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO).

2.4.5 Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous

Correct classification of waste is the foundation for ensuring that the collection, transportation, storage and treatment of waste is carried out in a manner that provides protection for the environment and human health and in compliance with legal requirements.

In 1994, the European Waste Catalogue was published by the European Commission. In 2002, the EPA published a document titled the European Waste Catalogue and Hazardous Waste List. This document has been replaced by the EPA 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' which became valid from the 1stJuly 2018.

The waste classification system applies across the EU and is the basis for all national and international waste reporting obligations such as those associated with waste collection permits, certificates of registration, waste facility permits, EPA Waste and Industrial Emissions licences and the EPA National Waste Database.

The EPA document 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (EPA, 2018) consolidates the legislation and allows the generators of waste to classify the waste as hazardous or non-hazardous and in the process to assign the correct List of Waste entry. Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code (previously referred to as European Waste Code or EWC).

2.5 Integrated Pollution Prevention and Control Licence

The Site is within the facility currently owned and operated by the ESB as a power generating station. Its operations fall into the categories of industrial activity referred to the First Schedule

of the Environmental Protection Agency Act 1992, as amended and is operated under the IPPC Licence issued by the EPA (IPPC Licence No. P0579-03).

3 DESCRIPTION OF THE PROJECT

3.1 Site Location

The Site is located at the ESB North Wall Generating Station, Alexandra Road, Dublin Port. Access to the Site is via the secured entrance at Alexandra Road. The Site location is presented in Figure 3-1.

Figure 3-1. Site Location

3.2 Site Description

North Wall Generating Station operates under an IPPC Licence issued by the EPA (IEL Licence No. P0579-03). The Site where demolition works will take place is located within the IPPC Licenced facility boundary.

The North Wall Generating Station was built in 1947 on a 7.5-acre site where the original development comprised one (1No.) 12.5MW steam turbine, soon followed by two (2No.) 17MW steam turbines in 1953 and the original 12.5MW unit replaced in 1963 by another 17MW unit. In 1982 two (2No.) new GE gas turbines were installed incorporating a waste heat recovery boiler. This provided a repowered combined cycled gas turbine (CCGT) arrangement and a separate open gas cycle turbine (OCGT).The three (3No.) steam turbines remain in situ in original condition in the engine room. There are four (4No.) large distillate oil tanks on the east side of the North Wall Generating Station incorporating the fuel house pumphouse and associated pipework. The old boiler house and heavy goods store is sited on the opposite side of the North Wall Generating Station and remains predominantly intact. Currently the old boiler house is used for the storing of spare parts and equipment. It is noted that there is an asbestos waste storage container located within the old boiler house.

The North Wall Generating Station also comprises a water treatment building, gas compressor building, 220Kv switchgear building/relay room, canteen/conference room and a natural gas landing station. The administration building is unoccupied and forms a two-storey brick faced building comprising the workshop and stores. The control building is still operational and houses the existing control room, office area and electrical rooms.

The overall North Wall Generating Station site layout is presented in Figure 3 2.

Figure 3-2. Existing Site Layout

3.3 Development Description

The overall proposed development for the site is to replace the existing gas turbines (NW4 and NW5) with two new 120MW open cycle gas turbines. It is proposed that this new re-powering project will be operational by October 2022. As part of the re-powering project there will be demolition and enabling works carried out on-site with a view to returning part of the site to Dublin Port following the completion of the construction phase.

The proposed works will be undertaken within the boundary of the North Wall Generating Station IEL (Licence No. P0579-03) and will need to comply with all relevant requirements of this licence.

There will be no excavation works below ground level required for the duration of the demolition and enabling works at the site with the exception of the opening up of existing service trenches. The proposed works will include a soft strip and demolition of a number of buildings onsite (i.e., 38KV sub-station building, fuel pump house, gas compressor building and hydrogen gas storage compound), the removal of stockpiled mixed construction and demolition (C&D) waste materials (i.e., metal, timber, plasterboard etc.), the removal of below

ground concrete cable chambers including cables, which will backfilled with imported, suitable for use aggregate materials, and the dismantling of five (5No.) transformers for removal offsite.

Prior to works commencing HDL will also install precast concrete rings around existing groundwater monitoring wells across the site in order to protect them against accidental damage during the demolition phase.

The proposed demolition works site layout is presented in Figure 4-1. It is noted that the exact scope of the demolition and enabling works is to be agreed with ESB and HDL and the relevant details of this CEMP will be updated as necessary once the scope has been confirmed and agreed.

4 CONSTRUCTION SCHEDULE AND PLAN

4.1 Programme

This CDWMP relates to the demolition and enabling works element of the construction stage only.

The programme for the demolition and enabling works is six months as outlined in the Construction Management Plan (CMP) for the works.

4.2 Traffic

One of the main construction traffic generating activities will be associated with the removal of surplus and waste material arising from the demolition works.

HDL will prepare a traffic and pedestrian management (TMP) plan as part of the Health and Safety project documentation. The TMP will detail all information regarding the traffic management required to complete the project works, inclusive of:

- Traffic management plans;
- Erection, supervision and removal details;
- Implementation phases of the project; and
- Risk assessment for the works.

All traffic management measures will be implemented, maintained and removed by competent personnel holding CSCS Signing, Lighting and Guarding certification.

Site access is available via Alexandra Road through the existing secured entrance to North Wall Generating Station (refer to Figure 4-1).

All trucks exiting the site will pass through a wheel wash to prevent any soil or debris leaving the site. Where required trucks will be covered in accordance with the CEMP for the works.

4.3 Construction Compound and Waste Management

All construction support related activities will be contained within the site. This will include office facilities, welfare facilities such as toilets and canteen. Designated areas will be maintained for materials handling, waste segregation and temporary storage of soils (e.g. of skips or stockpiled material until a viable load is available or if pending waste classification).

Materials handling and plant storage including waste shall be contained within the boundary of the Permitted Development Site. The compound area will be secured from the construction site by means of surrounding Heras fencing. Warning signs will illustrate the required PPE and risks associated when entering the construction Permitted Development.

A dedicated, secure waste segregation area will be provided onsite for the duration of the demolition works. Waste Storage areas will be set up in the Works Area No.1 (refer Figure 4-1).The dedicated waste storage area will house all bins and skips for the storage of segregated construction waste generated. All containers will be marked with clear signage which will identify which waste types are to be placed into each container.

The construction site layout and logistics plan is provided in Figure 4-1.

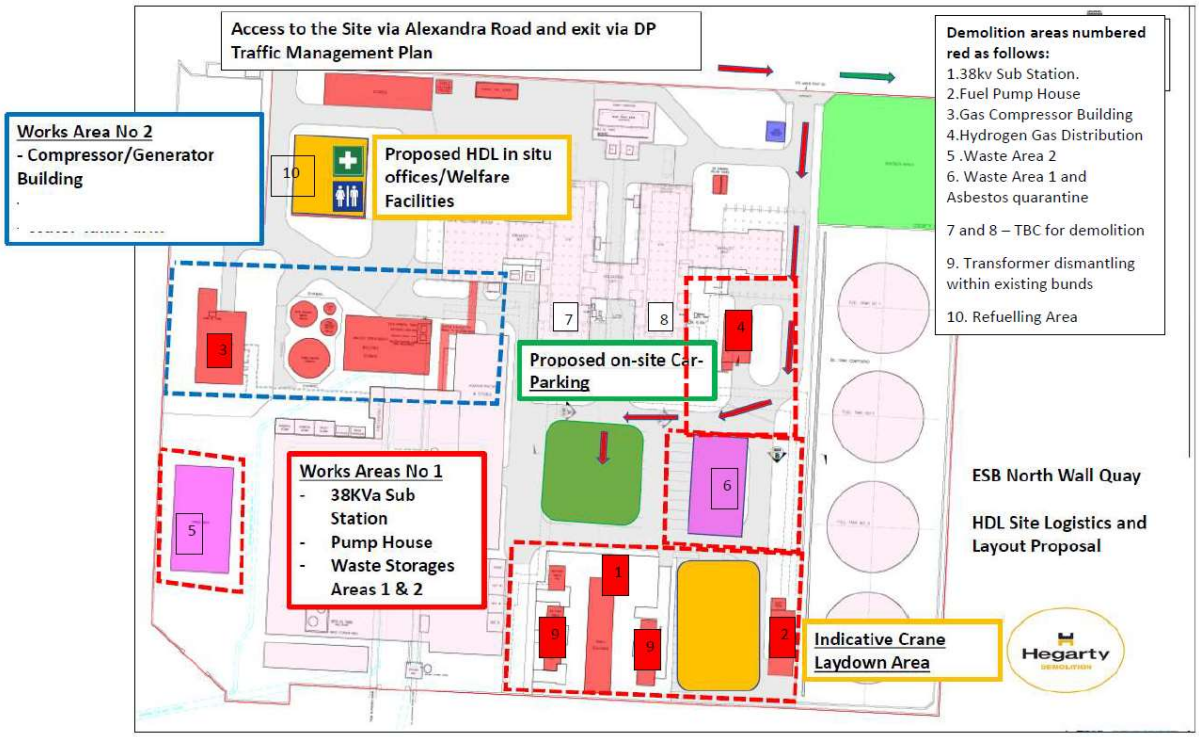


Figure 4-1. Construction Site Layout and Logistics Plan

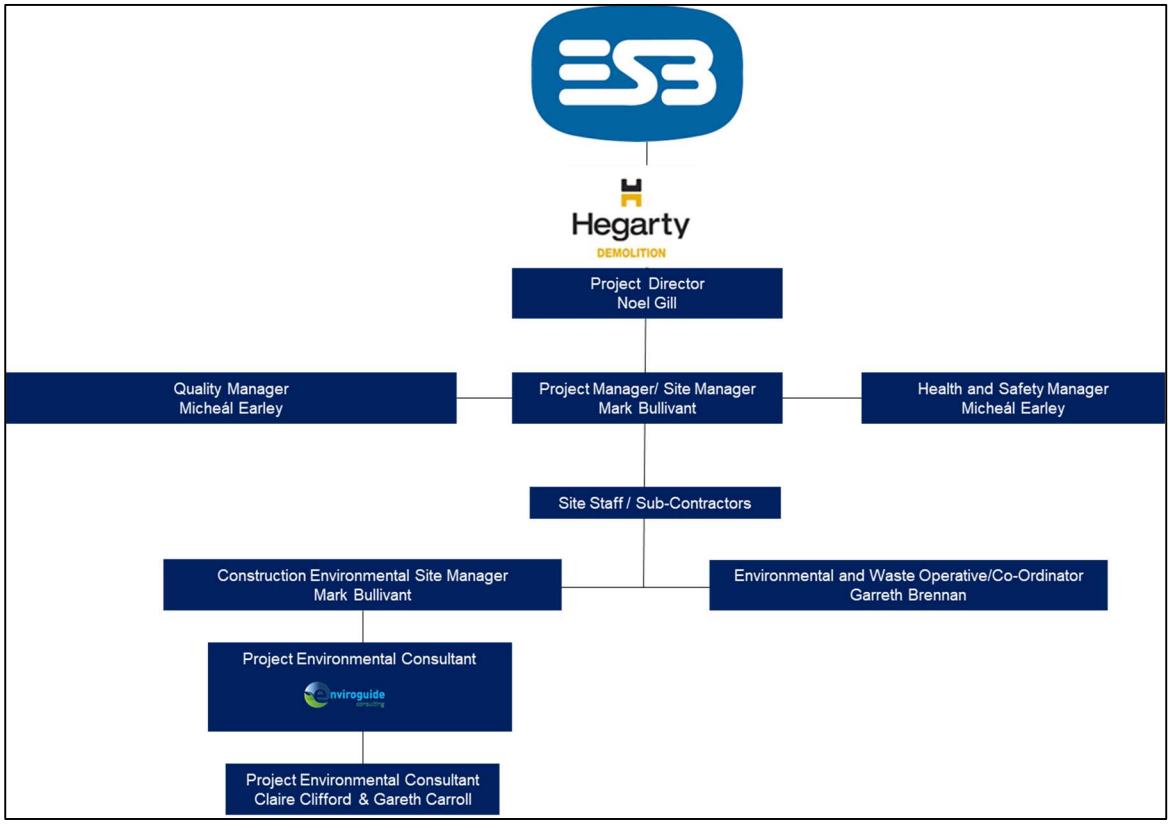
5 WASTE MANAGEMENT TEAM

5.1 Roles and Responsibilities

ESB as the Client has appointed Hegarty Demolition Limited (HDL) as the Contractor and Project Supervisor Construction Stage (PSCS) to carry out the demolition and enabling works element of the construction stage of the project. The Project Director will have overall responsibility for environmental management on the site. The Project Manager will be responsible to the Project Director and the appointed Construction Environmental Site Manager. HDL has appointed Enviroguide Consulting as the Project Environmental Consultant who will report directly to the Project Manager and act in the roles of Ecologist Clerk of Works, Environmental Clerk of Works and Contaminated Land Specialist to provide guidance and advice on environmental issues related to the site.

An organogram of the project team structure is included in Figure 5-1.

Figure 5-1: Project team Structure



The roles and responsibilities of personnel and the lines of communication specific to the CDWMP are outlined in the following sections.

The roles and responsibilities are indicative and may be amended over the course of the project.

5.1.1 Project Director

The Project Director (HDL – Noel Gill) will have an overall responsibility for the organisation and execution of all related environmental and waste management activities as appropriate,

in accordance with regulatory and project environmental and waste management requirements. The principal duties and responsibilities of the Construction Director will include:

- Overall responsibility for the development and implementation of the CEMP and CDWMP;
- Ensuring adequate resources are available to ensure the implementation of the CEMP and CDWMP;
- Responsibility for the management review of the CEMP and CDWMP for suitability, adequateness and effectiveness; and
- Setting out the focus of environmental and waste management policies, objectives and targets for the Contractor.

5.1.2 Project Manager

The Project Manager (HDL- Mark Bullivant) is directly responsible to the Project Director for the successful execution of the project. The principal duties and responsibilities of this position will include:

- Reporting to the Project Director on the on-going performance of the CEMP and CDWMP;
- Discharging his/her responsibilities as outlined in the CEMP and CDWMP;
- Supporting the Contractor and the Environmental Officer through the provision of adequate resources and facilities to ensure the implementation of the CEMP and CDWMP;
- Give Contractors precise instructions as to their responsibility to ensure correct working methods where risk of environmental damage exists;
- Where appropriate, ensure Contractors method statements include correct waste disposal methods;
- Co-ordinate environmental and waste management planning of Contractor activities to comply with environmental and waste management requirements and with minimum risk to the environment.

5.1.3 Construction Environmental Site Manager

The appointed Construction Environmental Site Manager (HDL- - Mark Bullivant) will be responsible to the Project Manager for, but not limited to, the following activities:

- Ensuring that the requirements of the CEMP and CDWMP are developed and environmental and waste management system elements (including procedures, method statements and work instructions) are implemented and adhered to with respect to environmental requirements;
- Reviewing the Environmental and Waste Management responsibilities of all Sub-Contractors in scoping their work and during their Contract tenure;
- Keep up to date with waste legislation, codes of practice and other literature.
- Ensuring that advice, guidance and instruction on all CEMP and CDWMP matters is provided to all managers, employees, construction contractors and visitors on site;
- Reporting to the Project Manager on the environmental and waste management performance of Line Management, Supervisory Staff, Employees and Contractors;
- Immediately notify ESB of any complaints or environmental incidents.
- Advising project management on environmental and waste management matters.

- Be aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management. This will include for the existing groundwater monitoring network of monitoring wells across the site and maintaining suitable protection from site activities and inspection access to each well at all times.
- Ensure materials/waste register is completed.
- Maintenance of all environmental related documentation.
- Provide completed CEMP and CDWMP documentation to the ESB on completion of the project and provide reports as required. Full Waste Reports will be generated and submitted to the ESB, as required.
- Facilitate ESB site audits of the works.

The Construction Environmental Site Manager will also have the overall responsibility to oversee recording of all waste management at the site. Some of the principal duties and responsibilities of this role include:

- Report to Project Manager on environmental and waste management at the site;
- Inform the ESB on all aspects of waste generation, waste recycling and waste minimisation on site.
- Delegate responsibility to sub-contractors, where necessary;
- Coordinate with suppliers, service providers and sub-contractors;
- Prioritise waste prevention and salvage;
- Maintain a log of each load of waste materials being transported off-site;
- Maintain a record of all necessary documentation including contractor waste collection permits, waste destination consents, waste transfer documents and waste management facility gate receipts in the waste management file;
- Preparing environmental and waste management.
- Investigate incidents of significant, potential or actual poor waste management, ensure corrective actions are carried out and recommend means to prevent recurrence.
- Assist with the waste management training requirements, and subsequent training for all levels of employees.
- Full Waste Reports will be generated and submitted to the Employer, as required.

The Construction Environmental Site Manager will also have the responsibility for conducting all public liaison associated with the construction phase of the project and associated responsibilities and duties will include the following:

- Responding to any concerns or complaints raised by the public in relation to the construction phase of the project; and,
- To liaise with the Project Manager on community concerns relating to the environment.

5.1.4 Environmental and Waste Operative

The Environmental and Waste Operative / Co-ordinator (HDL – Garreth Brennan) will be responsible to the Construction Environmental Site Manager for, but not limited to, the following activities:

- Assisting with the implementation and monitoring that the requirements of the CEMP and CDWMP are implemented and adhered to with respect to environmental and waste management requirements;

- Reviewing the Environmental and Waste Management responsibilities of all Sub-Contractors in scoping their work and during their Contract tenure;
- Monitoring and auditing the movement of excavated and waste material across the site, the generation of all waste steams across the site, the stockpiling of material on site and the off-site disposal of all material; and
- Co-ordinating and maintaining waste management logs and records.

5.1.5 Environmental Consultant

An Environmental Consultant (Enviroguide Consulting: Claire Clifford and Gareth Carroll – Refer to Appendix L for CVs) will be engaged for the duration of the construction work by the Contractor. The appointed Environmental Consultant will be competent, qualified and experienced in the field of environmental management; with expertise in the areas of contaminated land, water and waste management and will be responsible for producing all environmental reporting procedures.

The Project Environmental Consultant will be responsible to the Construction Environmental Site Manager for, but not limited to, the following activities:

- Preparation of the CEMP, the CDWMP, environmental control plans and supporting procedures;
- Advising the site management on environmental and waste management matters as appropriate;
- Carrying out environmental surveys (data logging (noise, water, dust, etc.)) where required;
- Generating reports as required to show environmental data trends and incidents;
- Advising on the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce as required;
- Assist with the waste management training requirements, and subsequent training for all levels of employees;
- Investigating incidents of significant, potential or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence;
- Observe and advise upon all work carried out by subcontractors where there are direct waste management issues;
- Understanding current groundwater plume underlying the Site and advising on site-specific measures to minimise any impact by Site works on the groundwater condition beneath the Site; and
- Carry out site investigation, soil sampling and waste classification as required.

5.2 Site Contact Details

The contact details for the appointed Construction Environmental Site Manager and the Environmental / Waste Operative are included below in Table 5-1.

Table 5-1: Site Contact Details

Site Contact Numbers	Contact
Project Manager Construction Environmental Site Manager Mark Bullivant	+353 (87) 311 7088
Environmental / Waste Operative – Garreth Brennan	+353 (87) 221467

5.3 Training Provisions

All training records will be documented and maintained in the Project HSEQMS records which will be made available to the ESB and regulatory bodies upon request.

5.3.1 Construction Environmental Site Manager

The Construction Environmental Site Manager will keep up to date with waste legislation, codes of practice and other literature.

The Construction Environmental Site Manager will be trained in how to perform an audit and how to establish targets for waste management onsite. The Construction Environmental Site Manager 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 CDWMP. Regular audits of all subcontractors will be carried out.

The Construction Environmental Waste Manager will also assist with the waste management training requirements, and subsequent training for all levels of HDL employees on the project.

5.3.2 Environmental / Waste Operative Training

The Environmental / Waste Operative will be trained in how to set up and maintain a record keeping system.

5.3.3 Site Personnel Training

A basic awareness briefing will be held for all site crew to outline the CDWMP 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, asbestos awareness and manual handling.

This basic briefing 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 briefing and the particular dangers of each hazardous waste will be explained.

The subcontractors will be instructed to comply with this CDWMP and will be audited by the Construction Environmental Site Manager and ESB Environmental Personnel to ensure that this is the case.

Training records will be maintained as part of the QEHS

6 WASTE TYPES

6.1 Details of Potential Non-Hazardous Wastes

6.1.1 Non-Hazardous C&D Waste

During the demolition phase, it is anticipated that the demolition waste produced will comprise mainly non-hazardous wastes including structural concrete, brick, metal and timber / timber composite.

Demolition of buildings will involve the striping out, demolition of building structures and the appropriate disposal of all materials arising from the demolition. A breakdown of the potential waste materials produced during the demolition and reinstatement works are identified as follows:

- Soft Strip
    - A soft strip will be undertaken to remove all furniture and fittings including timber, partitions, glazing, electrical and plumbing equipment.
- Demolition
    - Demolition will proceed from the top with removal of the roof and then wall cladding. Non-structural elements such as masonry infill and partition walls and steel access platforms will be removed. The structural frames will then be removed from roof level down to ground. Removal of cable chambers and cables and backfill with clean, suitable for use, inert fill.

There will be no excavation works below ground level required for the duration of the demolition and enabling works at the site with the exception of the opening up of existing service trenches.

The dismantling of five (5no) transformers will be carried out onsite in accordance with a strict procedure to be prepared by HDL and agreed in advance with ESB, ESB Minimum Environmental Requirements and having regard to the conditions of the IEL Licence for the site. The transformers are understood to have been drained of all oils by ESB however, testing for the presence of oils and testing of any residual oil for the presence of PCBs will be carried out by HDL appointed Environmental Consultant (refer to Section 8.1.9). The dismantling of the transformers will be undertaken within their respective existing concrete bunded areas for removal offsite.

6.1.2 Non-Hazardous Soil and Stone

The proposed demolition works do not include the removal of non-hazardous soil and stone. In the event that HDL is directed by ESB to remove soil and stone soil sampling and classification will be required. The sampling, testing specification and classification will be undertaken by Enviroguide Consulting in accordance with the waste classification procedures outlined in Section 7.2 and ESB Minimum Environmental Requirements.

6.1.3 Other Non-Hazardous Wastes

Waste will also be generated from construction workers (e.g., organic/food waste, dry mixed recyclables (wastepaper, newspaper, plastic bottles, packaging, aluminium cans, tins and cartons), mixed non-recyclables and potentially sewage sludge from temporary welfare facilities provided onsite 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.

6.2 Hazardous Wastes

6.2.1 Asbestos

An asbestos survey was carried out at the ESB North Wall Generating Site (OHSS, 2019). Asbestos Containing Materials (ACMs) were found to be present across the Site including in the waste storage container located within the boiler house. All ACMs from plant and buildings will be safely identified and removed by an approved Specialist Asbestos Contractor prior to commencement of demolition and enabling works. Refer to Section 7.2.2 and Section 8.1.1.

6.2.2 Hazardous Soil and Stone

Taking account of design requirements for demolition works it is anticipated that there will be no hazardous soil and stone that would require offsite disposal generated during the demolition works. In the event that potentially contaminated soil is encountered that would require removal on direction from the ESB, soil sampling and classification will be required. The sampling, testing specification and classification will be undertaken by the appointed Environmental Consultant in accordance with the waste classification procedures outlined in Section 7.2.

6.2.3 Fuel and Oils

Fuels and oils are classed as hazardous materials. The storage and use of fuel and oils will be minimised at the Site due to the presence of the existing groundwater hydrocarbon plume beneath the Site.

Refuelling will be undertaken at the Site in strict accordance with the refuelling procedures outlined in the CEMP. A refuelling and fuel storage procedure will be drawn up by HDL as part of the Health and Safety project documentation which will be adhered to during refuelling of on-site vehicles. This will include the following:

- Fuel will be stored onsite within a double bunded fuel bowser located in the designated impermeable area (Figure 4-1);
- The double bunded bowser, will be inspected daily by the Environmental Waste operative on a continual basis (i.e., daily);
- Fuel will be delivered to the bowser on-site by a dedicated tanker;
- All deliveries will be supervised and records will be kept of delivery dates and volumes;
- The delivery driver will be issued with, and will carry at all times, absorbent sheets and granules to collect any spillages that may accidentally occur;
- All refuelling will be from the double bunded bowser which will be equipped with proper fuel nozzles. Where the nozzle of a fuel pump cannot be placed into the tank of a machine then a funnel will be used;
- All re-fuelling will take place in the designated impermeable area (Figure 4-1);
- Drip trays will be used to minimise the possible accidental release of fuel. In addition, oil absorbent materials will be kept on-site in close proximity to the re-fuelling area.
- Refuelling will not be undertaken within 10m of any open drains which will be protected for the duration of the works or temporary diversion put in place (i.e., sandbags).

If small quantities of oils and chemicals oils are required at the Site the use of these will be strictly controlled in accordance with procedures outlined in the CEMP and storage will be avoided where possible. All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds and storage areas shall be designed having regard to the conditions of the IEL Licence for the site and guidance published by the EPA 'IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004). All tank and drum storage areas shall, as a minimum, be bunded to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bunded area; or
- 25% of the total volume of substance that could be stored within the bunded area

Any fuels retained on drip trays, mobile bunds, etc., will be emptied into a secure bunded waste oil drum to await appropriate disposal offsite

Where possible any oil and lubricant changes and maintenance will take place offsite. Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed off site

All personnel working on site will be trained in pollution incident control response. Emergency silt control & spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident.

Provided that these requirements are adhered to and site crew are trained in the appropriate refuelling techniques, it is not expected that there will be any fuel/oil wastage at the site.

6.2.3.1 Transformers

The dismantling of the five (5no.) transformers on site will include the requirement to drain any residual oil within the transformers for appropriate storage and disposal prior to completing the dismantling of the transformers. All works will be carried out onsite in accordance with a strict procedure to be prepared by HDL and agreed in advance with ESB, ESB Minimum Environmental Requirements and having regard to the conditions of the IEL Licence for the site (refer to Section 8.1.9).

6.2.4 Other Hazardous Substances

Any paints, glues, adhesives, and other known hazardous substances will be stored in designated areas and will be sealed, bunded and clearly marked. They will generally be present in small volumes only, ordered as needed and therefore, associated waste volumes generated will be kept to a minimum.

It is not envisaged that there will be any other hazardous waste generated throughout the construction works however if generated, on-site storage of any hazardous wastes produced (i.e., waste fuels/chemicals) will be kept to a minimum, with compliant removal off-site organised on a regular basis. Storage of hazardous substances will be in accordance with the procedures outlined in the CEMP.

It is noted that storage of all hazardous wastes on-site will be undertaken to minimise exposure to on-site personnel and to also minimise potential for environmental impacts. A specialist hazardous waste contactor will be used to remove any hazardous waste arising.

6.3 Invasive Species

Buddleia has been recorded throughout the site by the ESB Ecologist. As detailed in the CEMP, buddleia will be removed by a qualified specialist sub-contractor in accordance with NPWS guidelines prior to clearance and excavation works to prevent uncontrolled transportation and dispersion of invasive species from the site

In the event that additional invasive species are suspected or identified at the Site and if directed by ESB an Invasive Alien Species (IAS) Management Plan will be developed that will identify mitigation measures to prevent uncontrolled transportation and dispersion of invasive species the Site. All works will be undertaken in accordance the mitigation measures outlined in the IAS Management Plan.

6.4 Main C&D Waste Quantities

It is estimated that approximately 1,750tonnes of C&D waste materials will be generated during the demolition works at the Site. Table 6-1 details a breakdown of the approximate waste quantities that will be generated throughout the demolition works at the Site, based on the information available to date and estimated demolition quantities provided by HDL. The List of Waste (LoW) code for each waste stream is also shown.

The scope of the project may change as agreed with the ESB and HDL and the types and quantities of waste materials generated may vary and therefore the details provided in Table 6-1 will be reviewed and updated as part of the ongoing review of the CEMP and CDWMP. The waste management objective will be to prevent waste arising in the first place, and to re-use, recycle or recover waste materials where possible.

Table 6-1: Predicted Quantities of C&D Waste

Waste Type	**List of Waste (LoW) Code**	Tonnes (Approximately)
Concrete	17 01 01	1000
Bricks	17 01 02	250
Mixture of concrete, bricks, tiles, and ceramics	17 01 07	50
Timber	17 02 01	100
Glass	17 02 02	20
Plastic	17 02 03	20
Bituminous Mixtures	17 03 02	20
Mixed metals	17 04 07	250
Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	--^
Insulation materials containing asbestos	17 06 01	20
Construction materials containing asbestos	17 06 05	5
Insulating or heat transmission oils containing PCBs	13 03 01*	TBC

Mineral-based non-chlorinated insulating and heat transmission oils	13 03 07*	
Total		**1735**

Note:
TBC – To be confirmed
^Where possible, all waste materials will be segregated onsite. However, there may be a requirement for segregation of waste materials offsite at the receiving waste facility. In this instance the materials will be transported offsite as LoW Code 17 09 04 Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03

Where possible, the waste categories in Table 6-1 will be segregated into general waste and dry recycling categories.

Hazardous waste and in particular ACMs (170601 and 170605) will be segregated from materials in other non-hazardous waste categories. Details on waste management and segregation are provided in Section 8.

7 WASTE CLASSIFICATION

7.1 Roles and Responsibilities

7.1.1 Construction Environmental Site Manager

The appointed Construction Environmental Site Manager Gareth Brennan will be responsible for ensuring all waste classification of wastes generated throughout the works to ensure offsite removal for recycling/recovery and disposal in compliance with all relevant waste management legislation.

7.1.2 Environmental / Waste Operative

The appointed "Environmental / Waste Operative" will assist with the Construction Environmental Site Manager as required by monitoring the movement and segregation of all waste steams from the Site.

7.1.3 Environmental Consultant

Where necessary and if required, the appointed Environmental Consultant (Enviroguide) will be responsible for completing any additional waste classification of waste materials to enable off-site disposal in compliance with all relevant waste management legislation.

7.2 Waste Classification

7.2.1 C&D Waste Materials

The waste classification of inert C&D wastes generated throughout the construction phase of the development including structural concrete, metal, timber, cladding, plastics, cardboard, and tiles will be based on visual observations and in line with the existing IPPC for North Wall Station (EPA licence reg. P0579-03) by the Construction Environmental Waste Manager or appointed delegate (i.e., Environmental / Waste Operative).

Concrete will be segregated for removal off-site to an authorised permitted/licensed waste facility for recovery, recycling.

7.2.2 Asbestos and Asbestos Containing Materials

The waste classification of ACMs will be based on an assessment by an appropriately qualified asbestos specialist. An asbestos survey has been completed for the demolition works (ESB, 2019) and classification of all confirmed and potential asbestos and ACMs will be undertaken in accordance with the survey report and the HDL asbestos management plan for the works.

7.2.3 Soil and Stone

During the demolition works it is considered that there will be no requirement to remove any soil and stone from the Site.

If directed by ESB to remove soil and stone as part of the works, soil sampling and classification will be required. The sampling, testing specification and classification will be undertaken by the appointed Environmental Consultant in accordance with EPA guidance and requirements set out in Waste Classification – List of Waste & Determining if Waste is

Hazardous or Non-Hazardous, (EPA, 2018). Any samples collected will be submitted for laboratory analysis at an accredited laboratory (Section Table 7-1).

A soil sampling plan will be developed by the Environmental Consultation with sample details including location sample reference number and depth of the samples will be recorded and retained in the waste management records. Where large quantities of soil are to be removed from a site the testing requirements will be agreed with ESB in advance. Soil to be removed offsite will be segregated for appropriate sampling and testing. Soil sample frequency (or density) will be based on the ground conditions encountered and an assessment by the Environmental Consultant. The testing frequency will be determined to ensure that the appropriate sample data is available for accurate waste classification to enable compliant removal of soil offsite in accordance with the with regulatory requirements for the intended destination facility or site and all applicable current legislation and industry guidelines.

In the event contaminated soil is discovered onsite during the demolition and enabling works, HDL will immediately notify ESB; the EPA and other relevant authorities will be notified as required and agreed with ESB and a soil management plan will be designed and implemented detailing the estimated volumes, mitigation measures, destinations for the authorised disposal/treatment and the designated authorised contractors for the movement of the material.

7.2.3.1 Laboratory Analysis for Soil Waste Classification

If required, the analytical suite in Table 7-1 will be used to enable an accurate waste classification for soil material at the site, additional analysis will be carried out, where deemed necessary. All sampling will be carried out at an accredited laboratory.

Table 7-1: Soil Analysis Summary Table.

Parameter	Analysis Type
Metals: **Antimony, Arsenic, Barium, Cadmium, Total Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Zinc, Boron, Hexavalent Chromium & Chromium III**	CEN 10:1 Leachate & Total Pollutant Content (Solid) analysis
Polycyclic Aromatic Hydrocarbons (PAHs): **EPA sum of 6 & EPA Sum of 17**	Total Pollutant Content (Solid) analysis
TPHCWG (Total Petroleum Hydrocarbon Criteria Working Group) and Mineral Oil C10-C40	Total Pollutant Content (Solid) analysis
Benzene, Toluene, Ethylbenzene, m/p-Xylene, o-Xylene (BTEX) and MTBE	Total Pollutant Content (Solid) analysis
Polychlorinated biphenyls (PCBs)	Total Pollutant Content (Solid) analysis
Fibre screen/ asbestos ID and quantification if identified	Asbestos Screen Analysis
pH, Moisture content as % wet weight, Phenols, Total Organic Carbon (TOC), Total Cyanide, Total Sulphate, Sulphide, Elemental Sulphur	Total Pollutant Content (Solid) analysis
Chloride, Fluoride, Sulphate, Phenols, Dissolved Organic Carbon (DOC), Total Dissolved Solids (TDS) and Ammoniacal Nitrogen as N	CEN 10:1 Leachate

7.2.3.2 Soil Waste Classification and Assessment

Where it is identified that additional sampling is required by the Environmental Consultant (Enviroguide Consulting – Contaminated Land and Waste Specialist) as set out in Section 7.2.3 in order to enable an accurate soil waste classification, all material designated for off-site disposal will be classified based on additional laboratory analysis for landfill classification suites to enable classification of the material as inert, non-hazardous, or hazardous. Records of all waste classification assessments including updated scale drawings showing the lateral and vertical delineation of waste classification of soil at the Site will be incorporated in a waste classification report. All existing and future waste classification report(s) will be included in Appendix J of the waste management file.

Soils requiring offsite removal from the Site will be classified based on the following method:

- Assessment of results to determine if the sample is a hazardous or non-hazardous waste in accordance with EPA guidance 'Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous' (EPA, 2018) using the http://www.hazwasteonline.com application developed by One Touch Data Limited based on Regulation (EC) No. 1272/2008: the classification, labelling and packaging of substances and mixtures (CLP), UK Environment Agency, 2021 Version 1.1 GB (EU Exit Update): Guidance on the Classification and Assessment of Waste (1st Edition v1.1.GB) Technical Guidance WM3 (UK EA, WM3 2021) and the Northern Ireland Environment Agency, 2021. Version 1.1 NI (EU Exit): Guidance on the Classification and Assessment of Waste (1st Edition v1.1.NI) Technical Guidance WM3 (NI EA, WM3 2021). It is noted that while both the UK EA, WM3 2021 and the NI EA, WM3 2021 guidance applies to different regulatory jurisdictions, their approach and methodology is accepted by the EPA.
- Screening the sample analytical results against the waste acceptance criteria (landfill WAC) set out in the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002) and the EPA (2020) 'Guidance on waste acceptance criteria at authorised soil recovery facilities.
- Screening the sample analytical results against the Maximum Concentrations and/or Soil Trigger Levels set out in the Environmental Protection Agency (2020) "Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities" (SRF WAC).
- Assigning a waste category for each sample is based on the above criteria and as summarised in Table 7-2.

Table 7-2: Soil Waste Classification and Waste Acceptance Criteria.

Waste Category	Classification Criteria
Category A	Uncontaminated soil and stone free from anthropogenic contamination (including up to 2% non-natural materials such as rubble, concrete brick) as per the EPA 'Guidance on waste acceptance criteria at authorised soil recovery facilities' (EPA, 2020). Note that individual soil recovery / waste permit/ COR facilities may have specific acceptance criteria that vary from this guidance (EPA, 2020) agreed with EPA or Local Authority.

Waste Category	Classification Criteria
Category B1	Results found to be non-hazardous using the HazWasteOnline[tm] application[2]. Analytical results meet the inert waste acceptance criteria (WAC) limit values set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002).
Category B2	Results found to be non-hazardous using the HazWasteOnline[tm] application[2]. Reported concentrations greater than Category B1 but meet the inert waste acceptance criteria for specific facilities that are licensed by the EPA to accept waste with limit values of up to three time the limit set in 2003/22/EC for example the IMS Hollywood (W0129 02/C) and Walshestown Restoration (W0254-01) .
Category C (Non- Hazardous)	Results found to be non-hazardous using the HazWasteOnline[tm] application[2]. Analytical results greater than Category B1 and B2 criteria but less than non-hazardous waste acceptance criteria, which are based on waste acceptance criteria set out by the adopted EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002).
Category C1 (Non- Hazardous) with asbestos fibre content <0.001% w/w	As category C and containing <0.001% w/w asbestos fibres.
Category C2 (Non- Hazardous) with asbestos fibre content <0.01% w/w	As category C and containing <0.01% w/w asbestos fibres.
Category C3 (Non- Hazardous) with asbestos fibre content <0.1% w/w	As category C and containing <0.1% w/w asbestos fibres.
Category D (Hazardous for Export)	Analytical results found to be hazardous using the HazWasteOnline[tm] application.[2]
Category D1 (Hazardous for Export) with asbestos fibre content >0.1% w/w	Hazardous due to presence of fragments of identifiable fragments of asbestos containing material and (if applicable) analytical results found to be hazardous using the HazWasteOnline[tm] application.[2]

NOTES

1. It should be noted that while waste soil maybe classified as inert based on the EU Council Decision 2003/33/EC and similarly, waste may be identified as inert and meeting the requirements set out in EPA 'Guidance on waste acceptance criteria at authorised soil recovery facilities' (EPA, 2020). However, waste acceptance criteria may vary at each receiving facility it is recommended that each facility is consulted to ensure that the material is suitable for recovery or disposal at the facility in compliance with permit/licence requirements and all statutory obligations.
2. Consultation may be required with the facility to confirm suitability for disposal.
3. http://www.hazwasteonline.com. Application developed by One Touch Data Limited based on Regulation (EC) No. 1272/2008: the classification, labelling and packaging of substances and mixtures (CLP), the UK EA WM3, 2021 guidance and the NI EA WM3, 2021 guidance. It is noted that while both the NI EA WM3, 2021 and the UK EA WM3, 2021 guidance applies to different regulatory jurisdictions, their approach and methodology is accepted by the EPA.
4. Soils with an asbestos fibre concentration of <0.1% will be classified as non-hazardous if all other analytical results found to be non-hazardous using the HazWasteOnline[tm] application.

8 WASTE MANAGEMENT

8.1 Demolition and Construction Waste Management

As detailed in Section 6, construction and demolition waste will be generated during the soft strip, demolition works, ground clearance and levelling works and reinstatement works at the Site. Asbestos containing materials will also be removed by the appointed specialist contractor.

The management of the main waste streams are detailed as follows:

8.1.1 Asbestos and Asbestos Containing Materials

The management of asbestos at the site and off-site transport will be undertaken by the appointed specialist contractor in accordance with the HDL asbestos management plan for the works and the recommendations of the asbestos surveys for the Site (Refer to Appendix I).

Asbestos and ACMs will be removed by the specialist contractor into laminated, double walled and sealed in 1tonne bags. Temporary storage of asbestos will be in the dedicated, secure, segregated asbestos quarantine zone within the waste compound. The Construction Environmental Site Manager or appointed delegate (i.e., Environmental / Waste Operative) will ensure that all operatives hold relevant asbestos training certificates. Waste will be transferred offsite by an authorised haulage contractor to an authorised waste transfer station for shipment and disposal in mainland Europe in accordance with Trans-Frontier Shipment (TFS) controls and legislative requirements.

8.1.2 Concrete and Bricks

The majority of concrete blocks and bricks generated as part of the demolition and enabling works are expected to be clean, inert material. Concrete and bricks will be segregated for removal offsite to an authorised permitted/licensed waste facility for recovery and/ or recycling.

8.1.3 Metal

Metals will be segregated into mixed ferrous, aluminium cladding, high grade stainless steel, low grade stainless steel etc., where practical and stored in skips and recycled off site at an authorised recycling facility.

8.1.4 Timber Glass and Hard Plastic

Glass, hard plastic (e.g., material cut offs) and timber that is uncontaminated (i.e., free from paints, preservatives, glues etc.) will be segregated into dedicated skips/receptacles and recycled off-site at an authorised recycling facility.

8.1.5 Tiles, Ceramics and Gypsum

Tiles, ceramics and gypsum generated as part of the construction and demolition works will be segregated into dedicated skips/receptacles and recycled off-site at an authorised recycling facility. Under no circumstances, will gypsum containing materials (e.g., plasterboard) be stored with mixed waste. The Construction Environmental Manager or appointed delegate (i.e., Environmental / Waste Operative) will ensure that supply of new plasterboard is carefully monitored to minimise waste.

8.1.6 Waste Electrical and Electronic Equipment (WEEE)

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

8.1.7 Other Recyclables

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

8.1.8 Non-Recyclable Waste

C&D waste which is not suitable for reuse or recovery, such as polystyrene, some plastics and some contaminated cardboards, will be placed in separate skips or other suitable receptacles. Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by the appointed Waste Officer or delegate 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.

8.1.9 Hazardous Wastes

Onsite storage of any hazardous wastes produced will be kept to a minimum, with removal offsite organised on a regular basis. Storage of all hazardous wastes on-site will be undertaken so as to minimise exposure to onsite 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. Hazardous wastes produced (i.e., waste fuels/chemicals) will be kept to a minimum, with removal off-site organised on a regular basis by an appointed specialist hazardous waste contactor.

In the event that hazardous wastes, previously deposited wastes are discovered on-site, HDL will immediately notify the ESB and other relevant authorities where directed by the ESB , and a hazardous waste/soil management plan will be designed and implemented detailing the estimated volumes, mitigation measures, destinations for the authorised disposal/treatment and the designated authorised contractors for the movement of the material.

8.1.9.1 Transformers

The dismantling of the five (5no.) transformers on site will include the requirement to drain any residual oil within the transformers for appropriate storage and disposal prior to completing the dismantling of the transformers. All works will be carried out onsite in accordance with a strict procedure to be prepared by HDL and agreed in advance with ESB, ESB Minimum Environmental Requirements and having regard to the conditions of the IEL Licence for the site.

The residual transformer oil will be sampled by Enviroguide Consulting to determine if PCBs are present in the transformer oil prior to dismantling and draining of the transformers. Where residual transformer oil is present, a sample from each of the transformers will be submitted to an accredited laboratory (Element Materials Technology Ltd.) for analysis.

Removal off-site of residual transformer oil will be undertaken by an appointed specialist hazardous waste contactor.

The dismantling of the transformers will be undertaken within their respective existing concrete bunded areas for removal offsite. Where required, any residual oils remaining with the dismantled transformers will be hand cleaned prior to removal offsite. Where possible, the use of water to remove residual oils from within the dismantled transformers will be avoided. However, any contaminated water generated during the cleaning of the transformers will be tankered offsite treatment and disposal in accordance with all waste management legislation.

8.1.10 Soil and Stone

There is no design requirement to remove soil and stone from the Site. However, in the event that the off-site removal of surplus soil and stone materials is required it will be undertaken in accordance with all relevant legislative requirements.

Soil and stone waste materials requiring removal off-site will be characterised and classified in accordance with the procedure outlined in this document in advance of consigning the waste from the site (refer to Section 7).

8.2 Segregation of Waste On-Site

Material will be segregated on-site for the appropriate waste stream and disposal destination. The Construction Environmental Site Manager or appointed delegate (i.e., Environmental / Waste Operative) will ensure waste streams are adequately identified. The segregation and management of waste storage and stockpiling will be routinely inspected and audited by the Construction Environmental Site Manager and audit findings recorded in the CDWMP records.

Concrete will be segregated for removal off-site to an authorised permitted/licensed waste facility for recovery, recycling.

C&D waste will be segregated onsite into labelled dedicated skips / receptacles with a capacity of 1,100l capacity and HDL will make arrangements for regular collection and disposal of same offsite. Where the onsite segregation of certain waste types is not practical, offsite segregation will be carried out an authorised waste recovery facility.

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

Waste materials generated from site office and canteen will be segregated into general waste, biodegradable waste and dry recycling and stored in appropriate refuse bins in a dedicated storage area on-site, where it is practical.

Any heavily contaminated material/soil that may be encountered will need to be segregated for appropriate sampling, waste classification and authorised removal offsite. The temporary storage of any contaminated material/soil must be stored in accordance with best practice and as set out in Section 8.3.

The Construction Environmental Site Manager will ensure that site personnel involved in the excavation and removal of waste soil materials at the site are informed of and can identify the different waste types and categories of waste soil materials encountered onsite.

8.3 Storage of Waste and Stockpile Management

A dedicated, secure waste segregation area will be provided onsite for the duration of the demolition works (Refer to Figure 4-1).

The dedicated waste storage area will house all bins and skips for the storage of segregated construction waste generated. All containers will be marked with clear signage which will identify which waste types are to be placed into each container.

Adequate storage space will be provided in a dedicated waste storage area on the site to accommodate the separate collection of dry recyclables and organic food waste arising from the canteen and offices. The dedicated waste storage area will not be visible from or on a public street, it will be well lit and ventilated so as to minimise odours and potential nuisance from vermin/flies. All bins and skips will be collected from the waste compound and will not be placed for collection on the public street.

8.3.1 Soil Stockpiles

Where possible, the storage of contaminated material if encountered onsite will be avoided. In the event that material is being temporarily stockpiled onsite for reuse in the proposed development or in the event of material excavated pending waste classification for removal off-site, the material will be temporarily stockpiled in a designated, secure and impermeable area onsite. If materials are to be temporarily stockpiled onsite, consultation with the ESB and where applicable the EPA and other relevant statutory bodies will be undertaken, prior to commencing storage, to ensure that any relevant authorisations are obtained and that spoil is managed, at all times, in accordance with all relevant legislation and the existing IPPC Licence (EPA Licence Reg. No. P0579-03).

Stockpiles of different waste material will be located, maintained, and separated by a sufficient distance to prevent any inadvertent mixing of excavated material. All stockpiles will be clearly identified (e.g., signage) and recorded on a site map.

When a stockpile has been sampled for classification purposes (Refer to Section 7.2), it will be considered to be complete, and no more soil will be added to that stockpile prior to disposal. An excavation/stockpile register will 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 and haulier waste collection permit details;
- Disposal/recovery destination and destination facility permit / licence details; and
- Photograph.

Details on the management of stockpiles and procedures to prevent environmental and nuisance issues are set out in the CEMP. Stockpiles will be located, arranged and managed so that risk to receiving water, and other receptors, from silt and contaminants is minimised.

8.3.2 Storage of Waste Policy

Waste storage, fuel storage and stockpiling and movement are to be undertaken with a view to protecting the underlying soils and groundwater. Waste will be stored on-site, including non-hazardous soil and stone and inert C&D wastes, 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 to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery; and
- Prevent hazards to site workers and the public during construction phase (largely noise, vibration and dust).

9 OFF-SITE REMOVAL OF WASTE

9.1 Removal and Disposal of Surplus and Waste Materials

Removal and recovery/recycling/disposal of all waste materials will be carried out in accordance with the Waste Management Act 1996 and as amended, S.I. No. 820/2007 - Waste Management (Collection Permit) Regulations 2007 and as amended and S.I. No. 821/2007 - Waste Management (Facility Permit and Registration) Regulations 2007 and as amended. This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO.

The nominated Construction Environmental Site Manager or delegate (see Section 5.1.3) will maintain a copy and a register of all waste collection permits on-site and will review these to ensure they have not expired. Copies of the valid waste collection permit(s) including appendices for appointed haulier will be obtained and reviewed and maintained in the waste management file in advance of removal of any waste from the site.

9.2 Waste Management Procedure

All waste will be documented prior to leaving the site. Waste will be weighed or logged by the contractor, either by weighing mechanism on the truck or at the receiving facility. These waste records will be maintained on site by the nominated project Environmental/Waste Officer.

Prior to any removal of waste from the site, written confirmation should be obtained from the receiving waste facility, that acceptance of the waste will be in accordance with all waste management legislation and the conditions of the receiving waste facility licence or permit. A copy of the applicable licences and permits should be obtained and retained on-site.

If the waste is being transported to another site, a copy of the Local Authority waste COR/permit or EPA Licence for that site will be provided to the nominated project waste officer (see Section 9). If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) notification document will be obtained from the National Transfrontier Shipment of Waste Office (NTFSO) (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. Regular audits of waste paperwork will be undertaken to ensure traceability of all loads off site to the final destination.

To control off-site movements of waste a comprehensive docketing / waste tracking system should be implemented on-site. A daily record (including preparing and reconciling waste transfer note) of excavation at, and dispatch from the site should be maintained on-site.

All material excavated or segregated for off-site disposal should be transferred from site under chain of custody or waste dispatch dockets that should record:

- Date and time of transfer;
- Name of Carrier;
- National Waste Collection Permit Number and details
- Vehicle Registration and Name of Driver;
- List of Waste (LOW) Code;
- Waste Classification and origin of material at the site;
- Details of waste including quantity (tonnes/litres as appropriate)

- Details of proposed treatment (Reuse/Recycling/Disposal) including appropriate disposal/recovery code;
- Destination of load (receiving facility);
- Destination facility Waste Licence or Waste Permit number and details;
- Confirmation of receipt and acceptance at the final designated waste facility.

All waste will be documented prior to leaving the Site. Waste quantities will be recorded by an agreed procedure with ESB in addition to the weighbridge receipts at receiving facility. These waste records will be provided and maintained on site by the Site Environmental Manager and provided to the ESB for auditing. A receipt from the final destination of the material shall be kept as part of the on-site waste management records and demonstration of disposal shall be provided to ESB within 48 hours unless otherwise agreed with the ESB.

It is recommended that chain of custody / waste dispatch dockets are issued in triplicate. On dispatch the docket should be signed by the issuing operative and one copy retained on-site. The remaining two copies should accompany the load and be signed or stamped by the receiving facility.

To ensure complete site records are maintained on-site, a copy of the completed chain of custody / waste dispatch docket should have a copy of the weighbridge docket from the receiving facility attached and retained with the waste management records for the site. The completed chain of custody / waste dispatch docket will be maintained in the waste management file.

A record of all waste removed from the site including its ultimate disposal destination will be maintained on-site available for inspection on-site.

All necessary documentation requirements will be fulfilled prior to transfer of material. A log of each load of waste materials being transported off-site will be compiled that will include details of the waste collection permit or skip operator licence, load of materials, name of the destination facility and serial number on the accompanying waste docket. In addition, the stamped dockets and gate receipts will be cross checked against details of the outgoing load and details entered on the log sheet. A record of all necessary documentation including waste transfer documents and landfill gate receipts will be stored in the waste management file. A copy of the HDL Waste Management Log Sheet Template is included in Appendix E.

All loads will be checked prior to exiting the site. In addition to logging the trucks of waste materials, all trucks will be visually inspected to ensure the loads are within the permissible haulage limits. All trucks and skips will be covered, and any loose debris removed prior to leaving the site.

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 (Ref. 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 and the waste generated must be ancillary to their own activities.

9.3 Off-Site Destinations for Waste Materials

All waste materials that will be required to be transported off-site for further treatment or disposal will be undertaken in compliance with all Waste Management Legislation and all waste materials will only be transferred to appropriately permitted or licensed waste management facilities.

Details of the nominated waste facilities proposed for each specified waste type are listed in Table 9-1.

Table 9-1: Nominated Waste Facility Details

Waste Type	Facility Location	Waste Facility Permit / No./ Licence No.	Expiry/Renewal Date
Concrete	IMS, Hollywood Great, Nags Head, The Naul, Co. Dublin	W0129-02	N/A
	Callan Recycling, Drinnanstown North, Rathangan, Co. Kildare	WFP-KE-16-0083-01	09/08/2021
	Whitestown, Castleruddery Lower, Donard, Co. Wicklow	WFP-WW-19-0053-01	28/08/2024
Bricks	Callan Recycling, Drinnanstown North, Rathangan, Co. Kildare	WFP-KE-16-0083-01	09/08/2021
Mixture of concrete, bricks, tiles, and ceramics	Callan Recycling, Drinnanstown North, Rathangan, Co. Kildare	WFP-KE-16-0083-01	09/08/2021
Timber	Allied Waste, Unit 74A Naas Industrial Estate, Naas, Co. Kildare	WFP-KE-21-0106-01	26/01/2026
	Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	W0205-01	N/A
Glass	Gannon Eco C., Split Hill Quarry, Hazelwood, Kilbeggan, Co. Westmeath	WFP-WM-2014-05	07/12/2019*
Plastic	Allied Waste, Unit 74A Naas Industrial Estate, Naas, Co. Kildare	WFP-KE-21-0106-01	26/01/2026
	Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	W0205-01	N/A
Bituminous Mixtures	Callan Recycling, Drinnanstown North, Rathangan, Co. Kildare	WFP-KE-16-0083-01	09/08/2021
	Allied Waste, Unit 74A Naas Industrial Estate, Naas, Co. Kildare	WFP-KE-21-0106-01	26/01/2026
Mixed metals	Hammond Lane Metal Company Ltd., Pigeon House Rd., Ringsend, Dublin 4	P1002-01	N/A
Insulation materials containing asbestos	Enva, Greenogue Business Park, Rathcoole, Co. Dublin	W0185-01	N/A
Construction materials containing asbestos	Enva, Greenogue Business Park, Rathcoole, Co. Dublin	W0185-01	N/A
Insulating or heat transmission oils containing PCBs	Enva Ireland Limited (Portlaoise), Clonminam Industrial Estate, Portlaoise, Laois.	W0184-02	N/A
Mineral-based non-chlorinated insulating and heat transmission oils	Enva Ireland Limited (Portlaoise), Clonminam Industrial Estate, Portlaoise, Laois.	W0184-02	N/A
Note:			

*=Correspondence from Meath County Council dated 7th May 2020 – Ongoing review of Gannon Eco C waste facility permit. Current permit remains in place until such time as reviewed waste facility permit is granted or refused.

The register of waste facility licences/permits as detailed in Table 9-1 and contracts will be maintained in the waste management file for the Site (refer to Appendix C) and will be updated by HDL on an on-going basis to include additional waste facilities and contracts as appropriate and where required.

The expiry dates on all licences and permits will be reviewed routinely as part of the waste audits. Only facilities with a valid permit or licence a will be retained for off-site management of waste.

9.4 Waste Collection and Transport

Only carriers/hauliers with a valid National Waste Collection Permit Office (NWCPO) issued Waste Collection Permit which authorises the transport of the applicable List of Waste (LoW) Code and delivery to the receiving facility will be appointed to transport the waste from the site.

Details of the waste haulage contractors are listed in Table 9-2 below.

Table 9-2: Waste Haulage Contractor Details

Waste Type	Haulage Contractor	Waste Collection Permit/Skip Operator Licence No.	Expiry Date
Concrete	Digby Bridge, Sallins, Co. Kildare	NWCPO-13-11274-02	26/08/2024
	Dolly Plant Hire Ltd., 66 Ballymany Manor, Newbridge, Co. Kildare	NWCPO-18-12028-01	16/04/2023
	David Stephenson, Rustyduff, Donard, Co. Wicklow	NWCPO - 17-11888-01	04/05/2022
	John Watson, Housefield, Oldtown, Co. Dublin	NWCPO- 11-01363-02	09/01/2022
Bricks	Digby Bridge, Sallins, Co. Kildare	NWCPO-13-11274-02	26/08/2024
	Dolly Plant Hire Ltd., 66 Ballymany Manor, Newbridge, Co. Kildare	NWCPO-18-12028-01	16/04/2023
	John Watson, Housefield, Oldtown, Co. Dublin	NWCPO- 11-01363-02	09/01/2022
Mixture of concrete, bricks, tiles, and ceramics	Digby Bridge, Sallins, Co. Kildare	NWCPO-13-11274-02	26/08/2024
	Dolly Plant Hire Ltd., 66 Ballymany Manor, Newbridge, Co. Kildare	NWCPO-18-12028-01	16/04/2023
	John Watson, Housefield, Oldtown, Co. Dublin	NWCPO- 11-01363-02	09/01/2022
Timber	Allied Recycling, Clonmellon Industrial Estate, Clonmellon, Navan, Co. Meath	NWCPO - 12-11002-05	08/10/2022
	Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	NWCPO - 08-01154-04	16/04/2023
Glass	Gannon Eco C., Split Hill Quarry, Hazelwood, Kilbeggan, Co. Westmeath	NWCPO-13-11140-02	16/04/2023
Plastic	Allied Recycling, Clonmellon Industrial Estate, Clonmellon, Navan, Co. Meath	NWCPO - 12-11002-05	08/10/2022
	Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	NWCPO - 08-01154-04	16/04/2023

Bituminous Mixtures	Allied Recycling, Clonmellon Industrial Estate, Clonmellon, Navan, Co. Meath	NWCPO - 12-11002-05	08/10/2022
	Digby Bridge, Sallins, Co. Kildare	NWCPO-13-11274-02	26/08/2024
	Dolly Plant Hire Ltd., 66 Ballymany Manor, Newbridge, Co. Kildare	NWCPO - 18-12028-01	16/04/2023
Mixed metals	Hammond Lane Metal Company Ltd., Pigeon House Rd., Ringsend, Dublin 4	NWCPO - 09-01184-04	19/11/2025
Insulation materials containing asbestos	Hegarty Demolition Ltd., 46 Blackburne Sq., Rathfarnam Gate, Rathfarnum, Dublin 14	NWCPO-15-11685-01	12/05/2026
	Gravity Construction Ltd., Crescent Quay, Co Wexford	NWCPO-16-11812-01	16/01/2022
Construction materials containing asbestos	Hegarty Demolition Ltd., 46 Blackburne Sq., Rathfarnam Gate, Rathfarnum, Dublin 14	NWCPO-15-11685-01	12/05/2026
	Gravity Construction Ltd., Crescent Quay, Co Wexford	NWCPO-16-11812-01	16/01/2022
Insulating or heat transmission oils containing PCBs	Enva Ireland Ltd. Clonmainham Industrial Estate, Portlaoise, Co. Laois	NWCPO-08-01116-03	22/05/2024
Mineral-based non-chlorinated insulating and heat transmission oils	Enva Ireland Ltd. Clonmainham Industrial Estate, Portlaoise, Co. Laois	NWCPO-08-01116-03	22/05/2024

Copies of the waste collection permits and contracts will be maintained in the waste management file on-site (refer to Appendix D). This register will be updated as approved hauliers/contractors are appointed to the project by HDL.

It is noted that in the case of hazardous waste the Site Environmental Manager will ensure that all drivers hold valid ADR training certificates, as required under the Carriage of Dangerous Goods Regulations, 2007.

The expiry dates on all permits will be reviewed routinely as part of the waste audits. Only haulage contractors with a valid permit will be retained for offsite removal of waste.

10 WASTE AUDIT AND INSPECTION

The Environmental and Waste Operative will be responsible for conducting waste inspections at the site during the demolition and enabling works to ensure the compliance with waste management procedures as outlined above to ensure that all procedures are strictly adhered to.

Waste skips/receptacles and stockpiles (if required) will be inspected daily by the Environmental and Waste Operative to ensure materials are segregated on-site for the appropriate waste stream and disposal destination.

The Environmental and Waste Operative will report their findings to the Construction Environmental Site Manager with regard to waste management on an on-going basis.

Regular audits will be undertaken by the Construction Environmental Site Manager or designate which shall include checking the following in relation to waste management onsite:

- Segregation and storage practices;
- Recycling rates;
- Litter prevention practices;
- Documentation for waste removed;
- Documentation for waste received at destination facilities;
- Centrally recorded waste data;
- Waste collection permits for all waste hauliers used; and
- Waste management facility permits/licences for all waste management facilities used.

Daily site inspections will be carried out by the Environmental and Waste Operative to check for housekeeping, litter, and correct segregation. Where poor segregation practices are observed, littering is apparent or housekeeping falls below standard, a non-conformance shall be raised with the Construction Environmental Site Manager or designate for corrective action.

Regular checks will be carried out to ensure that all waste is accounted for and full load traceability exists. Where gaps are identified in the records available, a root cause analysis shall be carried out and a preventive measure put in place to ensure that this does not happen in future. Any missing documentation should be sought from the waste haulier and the waste destination in the event that it is not present for audit and inspection.

ESB will be informed of any non-conformances and the corrective actions implemented.

Any audits undertaken by ESB will be facilitated and all documentation made available in a timely manner on request.

11 RECORD KEEPING AND REPORTING

11.1 Maintaining Records

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling, recovery or disposal.

All necessary documentation requirements will be fulfilled prior to transfer of material.

A copy of the receiving waste facility permits and licences with all appendices will be retained onsite.

A copy of the NWCPO waste collection permit with all appendices will also be retained on-site.

As well as the Waste Management Log Sheet (refer to Appendix E), the appointed Waste Officer or delegate will record the following:

- Waste removed for reuse off-site;
- Waste removed for recycling;
- Waste removed for disposal; and
- Reclaimed waste materials brought to site for reuse (if required).

All waste will be documented prior to leaving the site. These waste records will be provided and maintained on site by the Site Environmental Manager and provided to the ESB for auditing.

For each movement of waste on or off-site, a signed docket will be obtained by the Environmental / Waste Operative or delegate from the contractor, detailing the date, vehicle registration, driver name and signature weight and type of the material and the source and destination of the material. This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of construction waste generated for each material can be determined. The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of construction waste and to highlight the successes or failures against these targets. Certificates of recycling/recovery will be obtained from the facility to which the waste has been consigned, in order to confirm receipt and trace the waste to end destination. This documentation will be cross checked with removal dockets to ensure that all waste removed from the site has been accounted for and accepted at end destinations.

11.2 Non-Conformance and Corrective and Preventative Action

Non-conformances may be raised through site inspection or audit, or by any site personnel by reporting a non-conformance to the Construction Environmental Site Manager.

Non-conformances will be recorded, investigated to determine the root cause, and Corrective Action Requests (CARs) will be issued to ensure that prompt action is agreed and committed to, with a view to the effective resolution of any deviations from the CDWMP requirements or any environmental issues.

CARs may be raised as a result of:

- An internal or external communication;

- An internal audit;
- A regulatory audit or inspection;
- A suggestion for improvement;
- A complaint; or
- An incident or potential incident.
- All corrective action requests will be numbered and logged.

Corrective Action Requests will only be closed out on sign off by the Construction Environmental Site Manager Officer that the required corrective actions have been completed.

11.3 Reporting

All waste management documents demonstration of compliant removal of waste offsite shall be provided to the ESB within the agreed timeframe with the ESB. It is noted that receipt of completed dockets from haulage and waste facility operators can typically take up to 48 hours.

A record of all necessary documentation including waste transfer documents and landfill gate receipts will be stored in the waste management file.

Where required an Invasive Alien Species Management Plan will be developed in consultation with ESB which will identify mitigation measures to prevent uncontrolled transportation and dispersion of invasive species from the Site.

In the event that hazardous wastes, previously deposited wastes or contaminated soil are discovered on-site, HDL will notify ESB, and other relevant authorities as required, and a hazardous waste management plan will be designed and implemented detailing the estimated volumes, mitigation measures, destinations for the authorised disposal/treatment and the designated authorised contractors for the movement of the material.

12 CONSULTATION WITH RELEVANT BODIES

12.1 ESB

All information regarding the management of the waste during works, will be made available to the ESB upon request.

The Environmental Construction Site Manager or delegate will submit appropriate written reports of findings and recommendations to the ESB relating to site waste management. Full Waste Reports will be generated and submitted to the ESB, as required.

The Environmental Construction Site Manager will inform the ESB on all aspects of waste generation, waste recycling and waste minimisation on site.

In the event of an environmental incident or emergency the ESB will be immediately notified

12.2 Local Authority

The local authority (Dublin City Council) will be consulted as required with prior agreement with the ESB.

CDWMP records will be made available to DCC where requested and agreed with ESB

12.3 Environmental Protection Agency

The ESB as the Licensee will be the point of contact with the EPA, however the Construction Environmental Manager will assist the ESB where required.

The ESB will be notified of any potential issues that may require notification to the EPA.

13 REFERENCES

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Appendix A

Register of Waste Policy, Legislation and Regulations
Article 27 of the European (Waste Directive) Regulations (S.I. No 126 of 2011)
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National Hazardous Waste Management Plan 2014-2020
Northern Ireland Environment Agency, 2021. Version 1.1 NI (EU Exit): Guidance on the Classification and Assessment of Waste (1st Edition v1.1.NI) Technical Guidance WM3
Planning and Development Act 2000 as amended
Regulation (EC) No. 1272/2008. The Classification, Labelling and Packaging of Substances and Mixtures (CLP)
UK Environment Agency, 2021 Version 1.1 GB (EU Exit Update): Guidance on the Classification and Assessment of Waste (1st Edition v1.1.GB) Technical Guidance WM3
Waste Management Acts 1996 as amended and associated Regulations
Waste Management (Food Waste) Regulations 2009 (S.I. 508/2009)
Waste Management (Food Waste) Amendment Regulations S.I. 190 of 2015
Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998) as amended 2000 (S.I. No. 73 of 2000).
Waste Management (Collection Permit) Regulations (S.I No. 820 of 2007) as amended 2008 (S.I No 87 of 2008), 2015 (S.I. No. 197 of 2015) and 2016 (S.I. No. 24 and 346 of 2016).
Waste Management (Facility Permit and Registration) Regulations 2007,(S.I No. 821 of 2007) as amended 2008 (S.I No. 86 of 2008) as amended 2014 (S.I No. 320 and No. 546 of 2014) and as amended 2015 (S.I. No. 198 of 2015).
Waste Management (Food Waste) Regulations 2009 (S.I. 508 of 2009), as amended 2015 (S.I. 190 of 2015) and European Union (Household Food Waste and Bio-waste) Regulation 2015 (S.I. No. 191 of 2015).
Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010).
Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014) as amended 2015 (S.I No 542 of 2015).
Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997).
Waste Management (Landfill Levy) (Amendment) Regulations 2019 (S.I. No. 182 of 2019) .
Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419 of 2007) as amended by European Communities (shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I No. 324 of 2011).
Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998).

Appendix B

Register of Waste Facility Acceptance Letters	
Facility Location	**Waste Facility Acceptance Letter Received (Y/N)**
IMS, Hollywood Great, Nags Head, The Naul, Co. Dublin	
Callan Recycling, Drinnanstown North, Rathangan, Co. Kildare	
Whitestown, Castleruddery Lower, Donard, Co. Wicklow	
Allied Waste, Unit 74A Naas Industrial Estate, Naas, Co. Kildare	
Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	
Gannon Eco C., Split Hill Quarry, Hazelwood, Kilbeggan, Co. Westmeath	
Hammond Lane Metal Company Ltd., Pigeon House Rd., Ringsend, Dublin 4	Y
Enva, Greenogue Business Park, Rathcoole, Co. Dublin	Y
Enva Ireland Limited (Portlaoise), Clonminam Industrial Estate, Portlaoise, Laois	

Appendix C

Register of Approved Waste Facilities		
Facility Location	**Waste Facility Permit No. / Licence No.**	**Waste Facility Permit / Licence Received (Y/N)**
IMS, Hollywood Great, Nags Head, The Naul, Co. Dublin	W0129-02	Y
Callan Recycling, Drinnanstown North, Rathangan, Co. Kildare	WFP-KE-16-0083-01	Y
Whitestown, Castleruddery Lower, Donard, Co. Wicklow	WFP-WW-19-0053-01	Y
Allied Waste, Unit 74A Naas Industrial Estate, Naas, Co. Kildare	WFP-KE-21-0106-01	Y
Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	W0205-01	Y
Gannon Eco C., Split Hill Quarry, Hazelwood, Kilbeggan, Co. Westmeath	WFP-WM-2014-05	Y
Hammond Lane Metal Company Ltd., Pigeon House Rd., Ringsend, Dublin 4	P1002-01	Y
Enva, Greenogue Business Park, Rathcoole, Co. Dublin	W0185-01	Y
Enva Ireland Limited (Portlaoise), Clonminam Industrial Estate, Portlaoise, Laois	W0184-02	

Appendix D

Register of Approved NWCPO Permits		
Haulage Contractor	**Waste Collection Permit No. / Skip Operator Licence No.**	**Waste Collection Permit / Skip Operator Licence Received (Y/N)**
Digby Bridge, Sallins, Co. Kildare	NWCPO-13-11274-02	Y
Dolly Plant Hire Ltd., 66 Ballymany Manor, Newbridge, Co. Kildare	NWCPO-18-12028-01	Y
David Stephenson, Rustyduff, Donard, Co. Wicklow	NWCPO - 17-11888-01 /	
John Watson, Housefield, Oldtown, Co. Dublin	NWCPO- 11-01363-02	
Allied Recycling, Clonmellon Industrial Estate, Clonmellon, Navan, Co. Meath	NWCPO - 12-11002-05	Y
Greyhound Recycling and Recovery Ltd., Crag Avenue, Clondalkin Industrial Estate, Clondalkin, Co. Dublin	NWCPO - 08-01154-04	Y
Gannon Eco C., Split Hill Quarry, Hazelwood, Kilbeggan, Co. Westmeath	NWCPO-13-11140-02	Y
Hammond Lane Metal Company Ltd., Pigeon House Rd., Ringsend, Dublin 4	NWCPO - 09-01184-04	Y
Hegarty Demolition Ltd., 46 Blackburne Sq., Rathfarnam Gate, Rathfarnum, Dublin 14	NWCPO-15-11685-01	Y
Gravity Construction Ltd., Crescent Quay, Co Wexford	NWCPO-16-11812-01	Y
Enva Ireland Ltd. Clonmainham Industrial Estate, Portlaoise, Co. Laois	NWCPO-08-01116-03	

Appendix E

Date of Issue:

Issue Date:

Project: **North Wall Generating Station**

SITE RECORD OF OFF-SITE DISPOSALS

Disposal Type:	
LoW Code	
Site:	
Project No:	

Page:	**1**
Site Last Updated:	
Accounts Last Updated:	

Date	Time	HDL Ticket No	Carriers Ticket No	Vehicle Registration No.	Site Area/Location	Skip Size	Waste Type	Haulage Company	Waste Facility Destination	Net Weight/	ACCOUNTS USE ONLY		
											Inv weight	Supplier Inv #	Invoice Ref.

Appendix F

Weekly Schedule of Audits

Date	Audit Scope	Date Completed (dd/mm/year)	Remarks/Improvements Required	Checked By.
Week 1	1. Review segregation and storage practices; 2. Review recycling rates; 3. Review litter prevention practices; 4. Ensure a copy of the applicable licences and permits have been obtained and are retained on site. 5. Review Waste Management Log Sheet to ensure a log of each load of waste materials being transported offsite has been completed. 6. Ensure the stamped dockets and gate receipts have been cross checked against details of the outgoing load and details entered on the waste management log sheet. 7. Ensure a record of all necessary documentation including waste transfer documents and landfill gate receipts have been stored in the waste management file.			
Week 2				
Week 3				
Week 4				
Week 5				
Week 6				
Week 7				
Week 8				
Week 9				
Week 10				
Week 11				

Weekly Schedule of Audits

Date	Audit Scope	Date Completed (dd/mm/year)	Remarks/Improvements Required	Checked By.
Week 12	1. Review segregation and storage practices; 2. Review recycling rates; 3. Review litter prevention practices; 4. Ensure a copy of the applicable licences and permits have been obtained and are retained on site. 5. Review Waste Management Log Sheet to ensure a log of each load of waste materials being transported offsite has been completed. 6. Ensure the stamped dockets and gate receipts have been cross checked against details of the outgoing load and details entered on the waste management log sheet. 7. Ensure a record of all necessary documentation including waste transfer documents and landfill gate receipts have been stored in the waste management file.			
Week 13				
Week 14				
Week 15				
Week 16				
Week 17				
Week 18				
Week 19				
Week 20				
Week 21				
Week 22				

Weekly Schedule of Audits

Date	Audit Scope	Date Completed (dd/mm/year)	Remarks/Improvements Required	Checked By.
Week 23				
Week 24				

Appendix G

Appendix H

Appendix I

Appendix J

Appendix K


Site Location
ESB North Wall Generating Station
FAIRVIEW
Fairview Park
Eastpoint Business Park
NORTH STRAND
EAST WALL
TOLKA QUAY
Tolka Quay Rd
POINT VILLAGE
DUBLIN DOCKLANDS
Trinity College Dublin
Gallery of Ireland
Merrion Square Park
Ringsend
STELLA GARDENS
Aviva Stadium
Temporarily closed
Irishtown
Tritonville Rd
Sandymount
BALLSBRIDGE
Herbert Park
RDS Grounds
NELAGH
Marlborough Rd
NORTH BULL ISLAND NATURE RESERVE
Dublin, IE - Douglas, Isle of Man
Dublin, IE - Bootle, UK
Dublin, IE - Cherbourg, FR
Poolbeg Lighthouse
Google

LEGEND:

1. GATE KEEPERS OFFICE
2. 220kV TRANSFORMER
3. CT4 GAS EXHAUST & DUCT STRUCTURE
4. CT5 GAS EXHAUST & DUCT STRUCTURE
5. CANTEEN BUILDING
6. TURBINE HALL
7. UNLOADING BAY
8. DIESEL TANKS
9. CAR PARK
10. 38kV SUBSTATION BUILDING
11. CONTROL BUILDING
12. ADMINISTRATION BUILDING
13. OLD BOILER HOUSE
14. NATURAL GAS AGI (GAS NETWORKS IRELAND)
15. 220kV GIS (ESB NETWORKS)
16. FUEL OIL PUMPHOUSE
17. STEAM TURBINE HALL
18. WATER TREATMENT PLANT BUILDING
19. GAS COMPRESSOR BUILDING

OVERALL SITE BOUNDARY

0		FIRST ISSUE				

ESB ENGINEERING & MAJOR PROJECTS

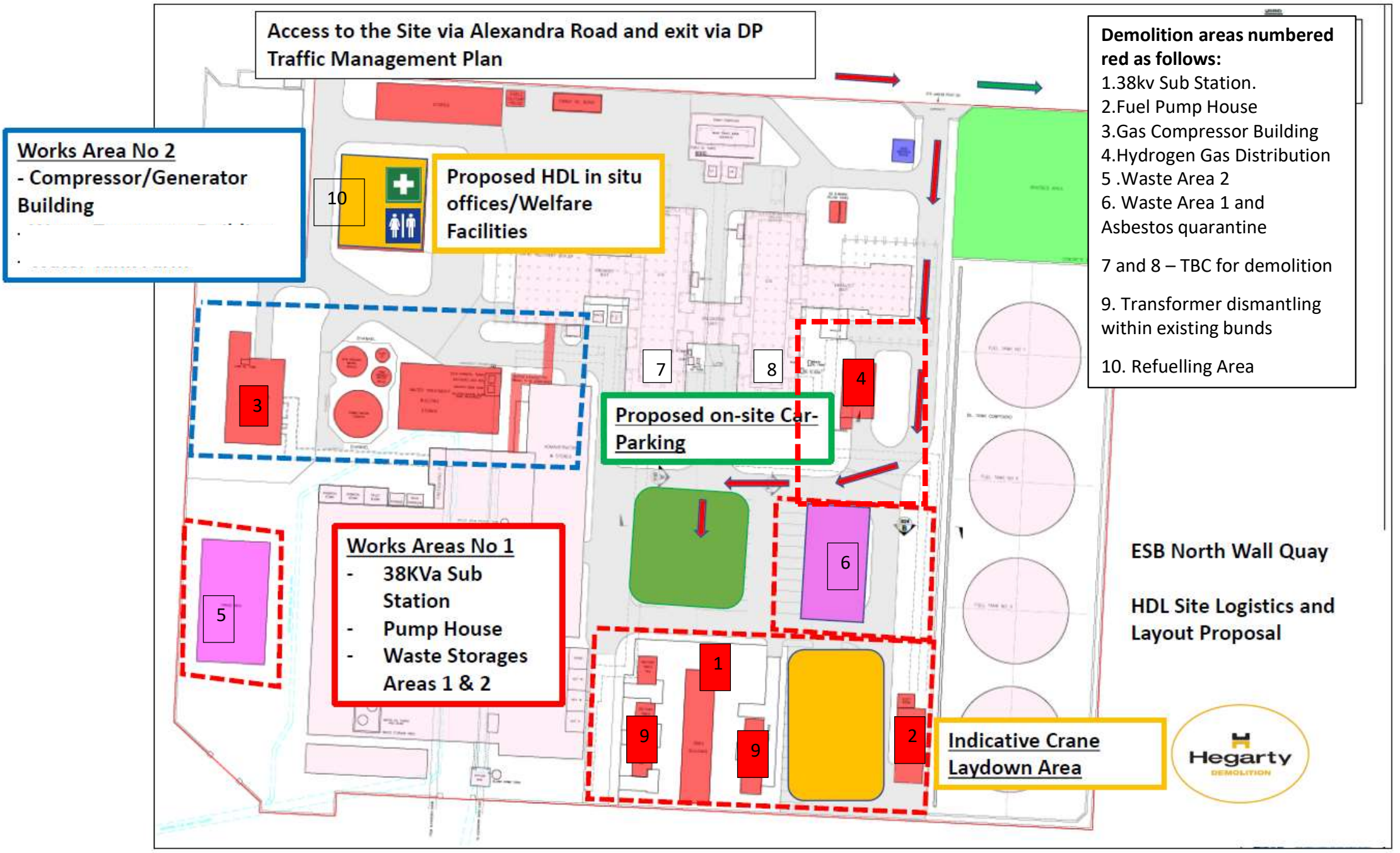
NORTHWALL REPOWERING PROJECT

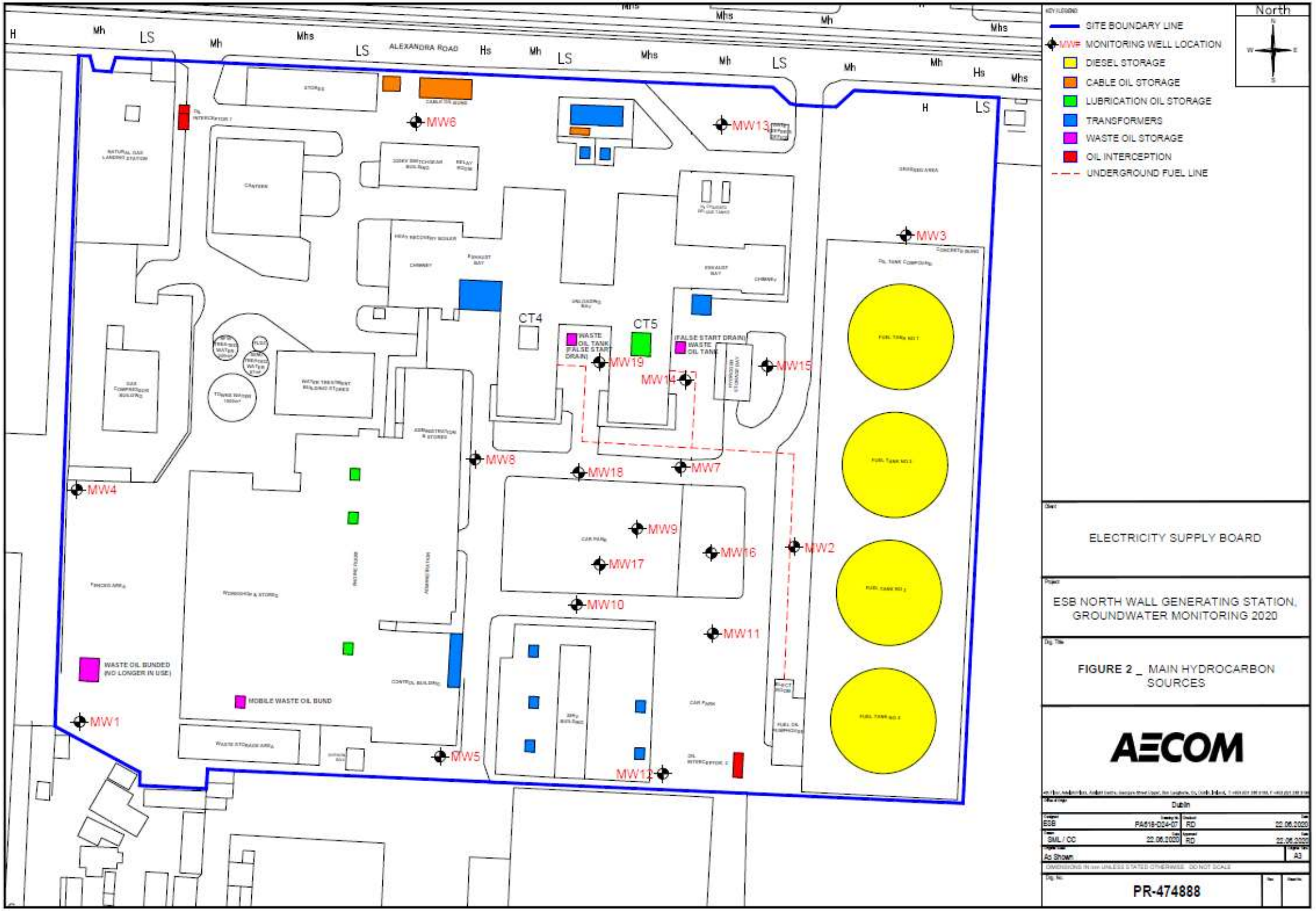
NORTHWALL
EXISTING SITE LAYOUT AND
SITE BOUNDARY OVERVIEW

GENERATION ENGINEERING

ESB INTERNATIONAL

P000349-ME00-0001


Access to the Site via Alexandra Road and exit via DP Traffic Management Plan
Demolition areas numbered red as follows:
1.38kv Sub Station.
2.Fuel Pump House
3.Gas Compressor Building
4.Hydrogen Gas Distribution
5 .Waste Area 2
6. Waste Area 1 and Asbestos quarantine
7 and 8 – TBC for demolition
9. Transformer dismantling within existing bunds
10. Refuelling Area
Works Area No 2
- Compressor/Generator Building
10
Proposed HDL in situ offices/Welfare Facilities
3
7
8
4
Proposed on-site Car-Parking
6
5
Works Areas No 1
- 38KVa Sub Station
- Pump House
- Waste Storages Areas 1 & 2
1
9
9
2
Indicative Crane Laydown Area
ESB North Wall Quay
HDL Site Logistics and Layout Proposal
Hegarty
DEMOLITION


ALEXANDRA ROAD
MW1
MW2
MW3
MW4
MW5
MW6
MW7
MW8
MW9
MW10
MW11
MW12
MW13
MW14
MW15
MW16
MW17
MW18
MW19
CT4
CT5
WASTE OIL BUNDED (NO LONGER IN USE)
MOBILE WASTE OIL BUND
WASTE OIL TANK (FALSE START DRAIN)
(FALSE START DRAIN) WASTE OIL TANK
North
KEY FLEGEND
SITE BOUNDARY LINE
MW# MONITORING WELL LOCATION
DIESEL STORAGE
CABLE OIL STORAGE
LUBRICATION OIL STORAGE
TRANSFORMERS
WASTE OIL STORAGE
OIL INTERCEPTION
UNDERGROUND FUEL LINE
Client
ELECTRICITY SUPPLY BOARD
Project
ESB NORTH WALL GENERATING STATION, GROUNDWATER MONITORING 2020
Dg. Title
FIGURE 2 _ MAIN HYDROCARBON SOURCES
AECOM
Office of Origin
Dublin
Designed
ESB
Drawing No.
PA518-024-07
Checked
RD
Date
22.06.2020
Drawn
SML / OC
Date
22.06.2020
Approved
RD
Date
22.06.2020
Origin Scale
As Shown
Origin Size
A3
DIMENSIONS IN mm UNLESS STATED OTHERWISE. DO NOT SCALE
Dg. No.
PR-474888
Rev
Remarks

Appendix L

Claire Clifford -Technical Director

BSc Hons, MSc

Position: Technical Director - Synergy Environmental Limited T/A Enviroguide Consulting

Claire is a Professional Geologist with over nineteen years professional experience working as a contaminated land specialist in Ireland, the UK and Canada on an extensive variety of projects.

Claire holds a BSc (Hons) Geology and MSc Environmental Sciences and is a Professional Member of the Institute of Geologists of Ireland (PGeo), full member of the European Federation of Geologists (EurGeol) and is listed on the Institute of Geologists of Ireland Specialist Register: Register of Professionally Qualified Geoscientists / Competent Persons: Regulated and Unregulated Waste Disposal / Contaminated Lands Assessments (Section 2.3 of the EPA Code of Practice.)

Claire has extensive project experience that includes undertaking complex contaminated land and hydrogeology assessments in support of due diligence assessments for property acquisition and divestiture, IPPC/IED licensed facilities including licence applications, surrender and compliance as well as assessment of unregulated and landfill sites for private sector clients and local authorities.

As Technical Director of Contaminated Land at Enviroguide Consulting Claire provides our clients with expert contaminated land and hydrogeology consultancy services in a manner that is scientifically robust, practical, and commercially focused.

Employment Record

- Present: Technical Director, Enviroguide

Notable skills and experiences

Kildare County Council, Silliot Hill, Co. Kildare - Project Manager and Contaminated Land Consultant / Hydrogeologist.

- This project involved the delivery of an updated CSM and remediation plan in accordance with the EPA Code of Practice of the closed unlined landfill at Silliot Hill IWMF.
- Claire was responsible for liaison with KCC, which forms an integral part in the delivery of the project and attends key milestone meetings with KCC as required.
- Claire was responsible for technical oversight for the project which has involved a data gap assessment to determine the scope of additional site investigation including a geophysical survey, borehole drilling and a groundwater monitoring regime.
- Claire prepared the final technical reports required for the delivery of the project including an updated environmental risk assessment and CSM in accordance with the EPA CoP and a remediation plan including cost estimates.

Private Sector Client. Co. Kildare - Project Manager and Contaminated Land Consultant.

- Claire was project manager on a large-scale contaminated land (unregulated landfill) assessment project for a private development site in Co. Kildare.
- A detailed site investigation and environmental risk assessment (Tier 1, Tier 2 and Tier 3) was undertaken to determine the scope the remediation works for the site in accordance with the EPA Code of Practice.
- A detailed remediation and restoration plan was prepared and costed for the site that included leachate management.
- Detailed waste classification and management plans were developed for the

Professional Qualifications:

- **B.Sc. (Hons) Geology,** University College Cork, 1999
- **M.Sc. Environmental Sciences**, Trinity College, Dublin, 2003

Professional Accreditations:

- Professional Geologist (PGeo) - Institute of Geologists of Ireland (IGI)
- European Geologist (EurGeol) - European Federation of Geologists
- Institute of Geologists of Ireland Specialist Register: Register of Professionally Qualified Geoscientists / Competent Persons: Regulated and Unregulated Waste Disposal / Contaminated Lands Assessments
- Registered (RSoBRA) Register of Risk Assessors Society of Brownfield Risk Assessment (UK)

Relevent Training:

- Safe Pass
- Manual Handling

site.

- Claire was responsible for project management and liaison with the client and regulatory authorities.

Sligo County Council - Contaminated Land Consultant / Hydrogeologist

- Technical lead for the completion of Tier1, Tier 2 and Tier 3 risk assessments for the Finisklin landfill site in accordance with the EPA Code of Practice. This project also included preparing a detailed remediation plan for landfill site that addressed all identified plausible SPR linkages and risks.

South Dublin County Council Project Manager and Contaminated Land Consultant / Hydrogeologist

- Claire was Project Manager as the Competent Person (Section 2.3 EPA CoP) for the Tier1, Tier 2 and Tier 3 Environmental Risk Assessment the unlicensed Lucan Demesne landfill in accordance with of EPA Code of Practice.
- The project involved undertaking an extensive site investigation and monitoring programme that required careful consideration of the site owner's requirements as the site was an active golf course.
- Detailed Quantitative Risk Assessment (DQRA) was undertaken to evaluate the SPR linkages associated with leachate migration from the landfill.
- A remediation plan was prepared for the site including budget cost estimates to undertake the remediation works**.**

Private Sector EPA Licensed Facility Dublin - Contaminated Land Specialist

- Claire managed a contaminated land impact assessment following an accidental release at the facility. The scope of the overall assessment included assessment of air quality, ecological and soil and groundwater impact assessments. Claire managed the overall assessment on behalf of the client.
- A site investigation was undertaken to inform the assessment and a detailed hydrogeological impact assessment was undertaken in accordance with EPA guidelines.
- Claire prepared detailed technical reports for submission to the EPA and ongoing validation monitoring to verify the findings of the assessment is being carried out.

Private Sector Client. Waterford City - Project Manager and Contaminated Land Specialist

- Claire was the technical lead and project manager of a large-scale contaminated land and groundwater remediation project for a multinational Client in Waterford.
- Soil and groundwater at the site was contaminated with chlorinated hydrocarbons and chlorinated solvents. This project included detailed site characterisation, DQRA including hydrogeological and human health risk modelling to derive site specific remedial targets for the remedial design.
- Detailed remediation plan (including soil bulk dig, drainage upgrade works, groundwater in-situ remediation) was prepared for Stage 1 of the remediation works.
- Claire was responsible for project management, procurement of remediation works to completion and liaison with the client and their legal advisors and regulatory authorities.

Former Waterford Stanley Site, Waterford - Project Manager and Contaminated Land Consultant / Hydrogeologist

- Project Manager for an Environmental risk assessment project, on a complex site including intrusive site investigation design, developing monitoring programmes, contractor management, client liaison, human health (J&E modelling) and hydrogeological risk assessment risk assessment and report writing.
- Preparation of residuals management plan for closure of the site and surrender of the IPPC licence for the site.

Colin Lennon – Technical Director of Projects

BSc, MSc

Position: Environmental Engineer – Enviroguide Consulting

Business unit manager & Environmental Engineer with over 18 years' experience in leadership, commercial, compliance, operational and technical roles within the highly regulated Irish waste management industry. This experience is backed up with sound technical and professional competencies such as sustainability & resource management, environmental compliance, health and safety management, hazardous and difficult waste management, operations, financial and project management. Exhibits strong leadership skills comfortably working individually or collaboratively and enjoys facing and rising to new challenges.

Colin has extensive experience in the Management of a multi-million turnover business unit, leading a team of environmental professionals to deliver growth of the business unit and compliant & competitive resource and waste management solutions. He has an excellent working knowledge of waste management, environmental, health and safety legislation and authoring, implementation and auditing of sustainability, resource and waste management plans, ISO 14001 accredited Environmental Management Systems and OHSAS 18001 accredited Occupational Health & Safety Management Systems and the development of risk assessments and safe systems of work.

Employment Record

- 2020 – Present: Technical Director of Projects, Enviroguide Consulting

Notable Experience as Environmental Engineer

RIlta Environmental Ltd - Contaminated Land Division Manager

Wholly owned by One51 PLC, Rilta Environmental was one of Ireland's largest hazardous waste management company operating under the regulation of an Environmental Protection Agency issued Industrial Emissions Directive licence. Rilta Environmental compliantly managed over 100,000 tonnes annually of hazardous waste for a wide array of public and private sector clients throughout Ireland.

Key Responsibilities

- Operations Management of three divisions, Contaminated Land, Asbestos Waste and Oil Filled Electrical Waste management division
- Responsible for Health, Safety & Environmental compliance, financial and budgetary management of divisions with a combined turnover in excess of €14.5 million
- Management of all projects relating to the three divisions, project values can range from €50k to €23million
- Management of blue chip clients which include public and semi state companies such as ESB Networks and the Office of Public Works and private multinational organisations such as ExxonMobil and Diageo
- Liaison with regulators and competent authorities both domestic and foreign such as the Trans-frontier shipment authorities in Ireland, UK, Germany, Netherlands and Belgium.
- Technical competencies include the interpretation of environmental reports and data.
- Specialist in contaminated soil, asbestos waste, invasive plant species management and bulk shipment of hazardous wastes
- Provision of science based, compliant, cost-effective and efficient waste management and environmental resource management solutions such as the export of waste to a network of specialist treatment, recovery and disposal facilities throughout Europe.
- Due diligence and environmental compliance auditing of waste management facilities throughout Europe to ensure that the waste being dispatched to these facilities is compliantly managed on behalf of an extensive client base.
- Establishing and maintaining relationships with the operators of specialist waste management facilities throughout Europe
- Sales management including the preparation of quotations and tenders

Professional Qualifications:

- **M.Sc. in Management**, UCD Michael Smurfit Graduate Business School, 2021
- **Post Graduate Diploma in Environmental Engineering**, Trinity College Dublin, 2006
- **FETAC waste facility management certification**, FAS (now SOLAS / ETB), 2004
- **FETAC Waste Management training and certification**, FAS (now SOLAS / ETB), 2003
- **B.Sc. in Biotechnology**, Dublin City University, 2002

Relevent Traning:

- Introductory Certificate in Front-Line Management, Institute of Leadership & Management, 2003

- Co-ordination and direction of the activities of consultants, engineers and sub-contractors to ensure the effective delivery of projects
- Supported internal technical review groups assessing new waste management technologies and exploring new business opportunities.
- Working with other division managers to ensure effective cross division delivery of projects
- Ensuring compliance with the requirements of permits and licenses such as an Industrial Emissions Directive licence issued by the Environmental Protection Agency, Transfrontier Shipment permits issued by the National TFS office and Waste Collection Permits issued by the National Waste Collection Permit Office

Alpha Environmental Services Ltd. - Project Manager

- A Northern Ireland based land remediation company specialising in the remediation of domestic and small-scale industrial fuel spills with offices in England, Northern Ireland and Dublin employing over 80 people. I left this role following being invited to join Rilta Environmental to manage their contaminated land services division.

Key Responsibilities

- Established the Dublin business unit for Alpha Environmental along with a team of two other environmental professionals, one admin support and six remediation specialists.
- Responsibilities included the operational management of three teams of environmental remediation specialists, customer management, undertaking site investigations, environmental testing, analysis and reporting, preparation of quotations and tenders
- Generation of safe systems of work and method statements,
- Remediation project management including the scheduling of remediation activities and treatments to ensure optimal spill remediation
- Preparation of monthly accounts and regular reporting for head office.
- Clients included large insurance companies, loss adjusters, private individuals and local authorities.

Helsinn Birex Pharmaceuticals Ireland Ltd. - Temporary Document Controller

- Helsinn manages global supply of group products to its partners worldwide. Including the labelling packaging and serialising of a wide range of package formats ready for local distribution. The site is approved by several regulatory agencies including the European Medicines Agency, US FDA, and the Japanese PMDA, and exports to over 50 countries worldwide.

Key Responsibilities

- Assisted in the implementation and maintenance of the Quality Management System (QMS) by co-ordinating the revision, review, and approval of SOPs and other GMP documents ensuring compliance with applicable standards and regulations.
- Maintained change control and deviation processes for SOPs, master batch records, specifications, test methods, validation protocols/reports, technical protocols/reports, and other GMP documents.

Gareth Carroll – Senior Environmental Consultant

BAI, BA

Position: Senior Environmental Consultant – Enviroguide Consulting

Gareth is an environmental engineer with nine years of experience throughout Ireland, the United Kingdom and Canada as an environmental consultant.

Gareth specialises in the disciplines of contaminated land site investigation and assessment.

Since starting as an environmental consultant in 2012, Gareth has worked on a wide range of projects. These projects range from environmental risk assessments to large scale remedial excavations. Gareth is experienced in undertaking site investigations of a number of sites in accordance with the EPA's Code of Practice for Unregulated Waste Disposal Sites including the completion of risk ranking prioritisation and quantitative risk assessments.

Gareth has also worked with a wide variety of clients, ranging from individual householders to commercial enterprises and local authorities. As part of these projects Gareth would routinely supervise trial pitting/drilling exercises and undertake ground water, surface water, soil and monitoring as part of site investigations and the validation of remediation strategies.

From his experience, Gareth has a diverse skill set which he can use to ensure quality and health and safety objectives of his projects are met.

Employment Record

- 2018 – Present: Senior Environmental Consultant, Enviroguide Consulting
- 2016 – 2018: Environmental Consultant, Keystone Environmental Ltd.
- 2015 – 2016: Environmental Consultant, OES Consulting Ltd.
- 2012 – 2014: Environmental Consultant, Smith Grant LLP

Notable Experience

Iarnród Éireann - Waste Classification and Assessment

- Preparation and review of technical reports for a number of locations across the Athlone and Dublin Divisions
- Review of analytical data,
- Waste classification using HazwasteonlineTM.

Private Sector Client, Dublin 8 and Dublin 17 - Waste Classification and Assessment

- Contaminated land consultant and technical lead for Environmental Assessment and Waste Classification for a number of proposed development sites across Dublin 8 and Dublin 17.
- Supervision of site work including trial pitting, soil sample collection, groundwater monitoring and ground gas monitoring.
- Sample selection for human health risk assessment and waste classification.
- Liaison with client and contractor.
- Sample interpretation and reporting.
- Completed review of development design measures and recommended remediation design measures are warranted to address the identified risks associated with the current site condition.

Private Sector Clients (Building Contractors), Dublin and Kildare - Waste Classification and Assessment

- Gareth has undertaken numerous waste classification assessments on a range of brownfield sites in Dublin City and Kildare to enable the client to remove all waste arising from the groundworks in accordance with relevant waste management legislation.
- Gareth prepared numerous waste classification report with excavation plans delineating the waste disposal classification (i.e. inert/non-hazardous/hazardous) for the development.

Professional Qualifications:

- **BAI (Civil Structural and Environmental Engineering)**, Trinity College Dublin, 2011
- **BA (Mathematics),** Trinity College Dublin, 2009

Professional Accrediation:

- Certificate of Competence in Environmental Noise, Institute of Acoustics, 2015

Relevent Traning:

- Introduction to 1D and 2D Modelling, Flood Modeller by Jacobs, 2020

Kildare County Council, Kilcullen, Co. Kildare – Environmental Engineer

- Project scope was the preparation of an updated CSM and remediation plan in accordance with the EPA Code of Practice of the closed unlined landfill at Silliot Hill IWMF.
- Gareth was responsible for the procurement of sub-contractors including the preparation of a tender evaluation report for KCC.
- Gareth supervised the site investigation including logging of boreholes and supervision of monitoring well installation.
- Gareth evaluated the data and prepared a gap analysis to identify data requirements to update the CSM in particular the groundwater flow regime.

South Dublin County Council, Lucan, Co. Dublin - Contaminated Land Consultant

- Gareth supervised the site investigation including logging of boreholes and trial pits, waste characterisation, supervision of monitoring well installation and supervising water and landfill gas monitoring.
- Waste classification was undertaken for removal of surplus spoil arising from the site investigation.
- A Tier 3 ERA was undertaken for the client in accordance with the EPA's Code of Practice.

Kildare County Council, Monasterevin, Co. Kildare

- Contaminated land consultant responsible for the site investigation of a historical landfill (C&D waste) on a privately owned site in Monasterevin, Co. Kildare.
- Gareth supervised the site investigation including logging of boreholes, waste characterisation, supervision of monitoring well installation, supervising water and landfill gas monitoring and supervising remedial activities on the site.
- Waste classification was undertaken for the removal of soils arising from the remedial works on site.
- A risk assessment was undertaken for the client in accordance with the EPA's Code of Practice for Unregulated Waste Disposal Sites.

Private Client – Unauthorised Waste Site Co. Kildare - Environmental Consultant

- Gareth undertook the site investigation including waste classification for an unauthorised waste site in Co. Kildare.
- Trial pitting and sampling and waste classification of materials including, C&D Waste and Mixed Municipal Solid.

Private Client, Listowel, Co. Kerry - Environmental Consultant

- Gareth carried out the groundwater monitoring investigation at a historic landfill which had been contaminated with metals contamination. This involved an extensive groundwater monitoring program with quarterly reports provided to the local authority to demonstrate a stable and decreasing plume.
- Throughout this project Gareth also carried out the environmental audits for the installation of the newly
- extended landfill to the north of the historic landfill.

Private Sector Client, West Vancouver, BC, Canada - Contaminated Land Consultant

- As Field Supervisor Gareth supervised the investigation of a dry-cleaning operation in West Vancouver. The sites complexity involved investigating groundwater and soil vapour for dry-cleaning compounds and their daughter products, delineating contamination and evaluating the source for contamination identified on and off-site. The site involved drilling on and off-site to fully delineate the contamination.
- Gareth executed various field programs for the project including tasks such as soil sampling, drilling, surveying, groundwater sampling and hydrogeology slug testing.

Private Sector Client, Surrey, BC, Canada - Contaminated Land Consultant

- Detailed site investigation of a former commercial property for redevelopment which had been contaminated by hydrocarbons from the former petrol filling station. Throughout the project Gareth was responsible for supervision of site investigation, coordination of the monitoring programme, writing the reports associated with the investigation and preparing all submission documents for the Ministry of the Environment.

Professional Profile I Gillian Free I Director

Gillian Free – Director
BSc Hons, LL.M, Dip.

Position: Director - Synergy Environmental Limited T/A Enviroguide Consulting
Gillian has a BSc (Environmental Management), a Master of Laws in Environmental and Natural Resources Law, a Diploma in Environmental Resources Management and a Diploma in Environmental and Planning Law from the Law Society of Ireland. She is a qualified Lead Environmental Auditor and Trainer. Gillian is a chartered member of the CIWM (a constituent body of the Society for the Environment) and a member of the Irish Environmental Law Association.

Gillian has been a company Director with Enviroguide Consulting since 2010. Gillian has specific expertise and experience in the areas of waste management, environmental auditing and inspection, environmental enforcement, and compliance.

Prior to Enviroguide Consulting, Gillian worked as a Regional Environmental Manager for Oxigen Environmental Limited. Gillian's was responsible for Management of environmental compliance on a regional level, Identification of significant environmental aspects and design of control measures and objectives and targets for continual improvement. Design of facility environmental inspection programmes. Supervision of team of Environmental Compliance Officers at various facilities and internal compliance audits throughout the company's facilities against requirements of relevant legislation, facility licences, permits and customer requirements. Gillian is Senior Environmental Consultant with specific expertise and experience in the areas of waste management, environmental auditing and inspection, environmental enforcement, and compliance.

Employment Record

- April 2005 - May 2010: Regional Environmental Manager, Oxigen Environmental Ltd.
- 2010 - Present: Director, Enviroguide Consulting
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Notable skills and experiences

- Contract manager on the Panel of Approved Assessors since 2013
- Contract Manager on EPA Provision of Agents for Odour Impact Assessment Contract 2016-present
- Contract Manager on EPA EMS Support Contract 2020
- Contract Manager on EPA WEEE and Batteries PRI Enforcement Support Contract 2018
- Contract Manager on EPA Halon Critical Use Surveys 2015, 2016, 2017, 2018
- Contract Manager on EMS Design and Implementation for National Broadband Ireland 2020
- Contract Manager multiple consent application projects for private sector clients
- Consultancy in all aspects of environmental compliance for private sector clients
- Design of facility environmental inspection programmes
- Management of a team if environmental consultants and inspectors
- Internal compliance audits throughout the company's facilities against requirements of relevant legislation, facility licences, permits and customer requirements
- Designed and implementation of corrective action programmes
- Facilitated external audits from certification bodies, the EPA, Local Authorities on behalf of private sector clients

Professional Qualifications:

- LL.M in Environmental and Natural Resources Law, University College Cork , 2018
- BSc (HONS) in Environmental Management, DIT, 2003
- Dip in Environmental Resources Management, DIT, 2000
- Dip in Environmental and Planning Law, The Law Society of Ireland, 2011

Relevent Training:

- Courtroom Skills and Expert Witness Training, 2012
- Lead Environmental Auditor (IEMA Approved), 2010
- Intensive Course on Waste Law, TCD, 2010
- Certificate of Technical Competence, Transfer Non-Hazardous and Hazardous Waste (4TSH) - Certified by WAMITAB (Waste Management Training and Advisory Board, UK), 2009
- Train the Trainer, 2009
- Dangerous Goods Safety Advisor (D.G.S.A), 2008
- National Certificate in Waste Management, 2006

Professional Memberships:

- Chartered member of the CIWM (a constituent body of the Society for the Environment)
- The Irish Environmental Law Association
- An affiliate member of the Institute of Environmental Management and Assessment.