



Construction Environmental Management Plan

SSE Generation Ireland Ltd
Planning Support
IE0312377-22-RP-0018, Issue: B



Document Sign Off

Construction Environmental Management Plan

SSE Generation Ireland Ltd
Planning Support
IE0312377-22-RP-0018, Issue B

File No:IE0312377.22.080

CURRENT ISSUE					
Issue No: B	Date: 09 Aug 2023	Reason for issue: Planning			
Sign Off	Originator	Checker	Reviewer	Approver	Customer Approval (if required)
Print Name	Anna Crowley	AOIFE.OLEARY		PAUL.OSULLIVAN	
Signature	Authorized Electronically				
Date	09 Aug 2023	09 Aug 2023		09 Aug 2023	

PREVIOUS ISSUES							
Issue No	Date	Originator	Checker	Reviewer	Approver	Customer	Reason for issue
A	27 Jul 2023	Anna Crowley	Paul O'Sullivan		Aoife O'Leary		Planning

Contents

1	Introduction	5
1.1	Objective/Purpose	5
1.2	Scope	5
2	Description of Proposed Development	6
2.1	Existing Site Description	6
2.2	Proposed Development Description	6
2.3	Construction Duration	8
3	Team Roles & Responsibilities	9
3.1	Team Structure	9
3.2	Responsibility Assignment Matrix	9
3.3	Environmental Awareness & Training	11
4	Environmental Management Measures	12
4.1	Regulatory, Client Requirements & Relevant Guidelines	12
4.2	Key Environmental Aspects	13
4.3	Population and Human Health	19
4.4	Landscape and Visual Impact	19
4.5	Traffic and Transportation	19
4.6	Land and Soils	20
4.7	Biodiversity	21
4.8	Noise and Vibration	25
4.9	Water and Waste Water	26
4.10	Air Quality (Dust & Vehicle Exhaust Emissions)	26
4.11	Waste Management	27
4.12	Archaeology, Architecture and Cultural Heritage	27
4.13	Climate	28
5	Environmental Response	29
5.1	Environmental Emergency response	29
6	Monitoring & Reporting	31
6.1	Monitoring	31
6.2	Inspections and Audits	31

6.3	Complaints/Incidents	31
6.4	Reporting & Record Keeping	32
Appendix A		33
	Monitoring Programme	33
Appendix B		35
	Resource and Waste Management Plan	35
	Changes in this revision are shown in purple font with a vertical line in the right hand margin	

1 Introduction

PM Group has prepared this Construction Environmental Management Plan (CEMP) on behalf of SSE Generation Ireland Ltd (SSE) who propose to construct an Open Cycle Gas Turbine (OCGT) Power Plant with a 170MW (electrical output) in Platin, Duleek, Co. Meath.

In the event that planning permission is granted, a CEMP will be prepared by the Construction Management Team (CMT) prior to commencement of construction to incorporate planning conditions specific to environmental protection during the construction phase. The CEMP prepared by the CMT will be in full compliance with the planning conditions.

The CEMP will be a key contract document which the Contractor will be legally required to implement. Requirements and responsibilities will be reviewed with each contractor at site kick-off meetings and at regular progress meetings.

The CEMP is considered a 'live' document and as such will be reviewed on a regular basis. Updates to the CEMP may be necessary due to any changes in environmental management practices and/or contractors during the life cycle of the Proposed Development. As noted, the CEMP prepared by the CMT will be in full compliance with the planning conditions. The procedures agreed in the latest revision of the CEMP will be audited regularly throughout the construction phase to ensure compliance.

1.1 Objective/Purpose

The CEMP is an integral part of the site health, safety, environmental and quality management system and constitutes a component of the Construction Management Plan documentation. The CEMP is also subject to the requirements of the site quality management system with respect to documentation control, records control and other relevant measures.

1.1.1 Document Review and Updates

The provisions of the CEMP will regularly reviewed by the Project Environmental Officer, to ensure that measures remain appropriate and are suitable to each phase of works. Further to appropriate liaison with or feedback received from relevant stakeholders, this CEMP will be supplemented by additional measures if necessary.

1.2 Scope

The CEMP defines the approach to environmental management at the site during the construction phase. ***Compliance with the CEMP, the procedures, work practices and controls will be mandatory and must be adhered to by all personnel and contractors employed on the construction phase of the Proposed Development.*** Each contractor must complete the Contractor Environmental Management Form before commencement of work on site.

2 Description of Proposed Development

2.1 Existing Site Description

The proposed OCGT Generation Plant site is approx. 10.55 in size and located approx. 4.8km south-west of the centre of Drogheda and approx. 2.7km north-east of the centre of Duleek (refer to Figure 2.1).

The site is currently a green field site and used for agriculture tillage. The land is situated approximately 450m to the south of a large cement manufacturing plant and its associated quarry (Irish Cement Ltd), at its nearest point to the site. In addition, the Indaver Waste to Energy facility lies immediately northwest of the site across the R152 road. Directly adjacent to the proposed OCGT Generating Plant is a cluster of commercial and residential buildings including a commercial vehicle servicing centre and CVRT (Commercial Vehicle Roadworthiness Testing) centre. Residential development in the vicinity of the site is scattered, typical of the rural location.



Figure 2.1 Site Location and Red Line Boundary for the Proposed Development

2.2 Proposed Development Description

The plant will operate as an open cycle gas turbine (OCGT) which means that when air is taken from the atmosphere and passes through the gas turbine combustion process, the hot exhaust air will be discharged back to the atmosphere without any heat recovery.

The proposed development will comprise a 170MW (electrical output) Open Cycle Gas Turbine (OCGT) Power Plant. The proposed development will comprise an electricity generating plant which will use Hydrotreated Vegetable Oil (HVO) as fuel and will be connected to a previously permitted 110kV substation (ABP-303678-19) and associated site works and improved access from the R152. The development comprises the following elements:

- a) Three gas turbine buildings (each 990m²) each housing 1 no. turbine, 1 no. generator and auxiliary equipment with a total of 269 MWth generating capacity all on concrete plinths.
- b) The power plant will have three exhaust stacks (25m in height), one exhaust stack per OCGT. Therefore, each OCGT will comprise a standalone Large Combustion Plant. The power plant may need to utilise selective catalytic reduction (SCR) (c. 18m high, 4.5m width, 14m length) for nitrogen oxide (NOx) abatement.
- c) Water treatment plant comprising:
 - a 275m² Deionising Building (6m high x 11m wide x 25m long)
 - a raw water treatment tank of 2,262m³ (12.8m high)
 - a deionised water tank (max. volume of 3,925m³)(15.4m high)
 - a processed water tank of 450m³ (9m high)
 - 1 no. 20m² firefighting water tank of 45m³ (2m high)
 - 1 no. 25m² firewater module (4m high x 5m wide x 5m long)
 - 1 no. sanitary foul water cesspool tank of 79m³ located underground (1.98m high x 2.5m wide x 16 long)
 - A bulk chemical storage area (4.75m wide x 7.75m long)
- d) 2 no. HVO tanks (max. storage of 2300m³ of HVO per tank), 13m high with a diameter of 15m and associated fuel pumping and filtering equipment and pipework, within a 43.5m L x 45.5m W x 1.5m Bund capacity is 2970m³
- e) 1 ammonia tank – (1.8m high 3.5m length with bund 2.5 m x 5 m with a height of 1.5 m)
- f) 1 no. fuel polishing system (3m high x 6m wide x 24m long)
- g) 2 no. 110kV transformers each 160m², and each measuring (5m high x 10m wide x 15m long). 3 no. Lightning Masts (18m in height) and kiosks, cable gantry connection to the adjoining consented 110kV Substation.
- h) A 520m² services building (6m high x 13m wide x 40m long)
- i) A 160m² Switchgear (MV) building (5m high x 6.1m wide x 26.3m long)
- j) All other miscellaneous and ancillary site works, including: 12 no. Car parking spaces and 1 No. fuel unloading bay, one lowered site platform area, new internal roads and hard and soft landscaping including material berms (1.2m to 2m high), a temporary construction compound, temporary security building, and associated fencing.
- k) New road markings, including deceleration lane approaching the site, on the R152

The proposed development will include connection to public water mains and wastewater provision, supplied by Uisce Éireann. There is no sewer connection required as foul and process waste will be collected in a sealed tank and emptied by a specialist waste service provider.

The proposed development will connect to a previously consented 110 kV substation which will be located adjacent and to the south-west of the proposed OCGT Power Plant.

The application relates to a development which comprises or is for the purposes of an activity requiring an Industrial Emissions Directive (IED) licence, and full details of the proposed development and its anticipated environmental impacts will be notified to the Environmental Protection Agency.

This is a site to which the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) applies

The plant will be operated as a backup peaking plant and will thus only operate during periods when electricity demand is high.

The proposed plant will be designed for flexible operation, allowing for fast starts, load following and cycling capabilities, and will be able to respond rapidly to load changes on the grid (e.g. due to wind power variation).

2.3 Construction Duration

Pending the grant of planning permission, the construction is expected to commence in Q4 2023 (subject to receipt of planning permission), with a duration of 30 months and will employ up to 40-60 construction personnel at peak.

3 Team Roles & Responsibilities

3.1 Team Structure

A Proposed Development organisation chart is included in Figure 3.1. The SSE appointed Construction Management Team (CMT) is responsible for the delivery of all elements of the CEMP. The CMT will retain all responsibility for issuing, changing and monitoring the CEMP.

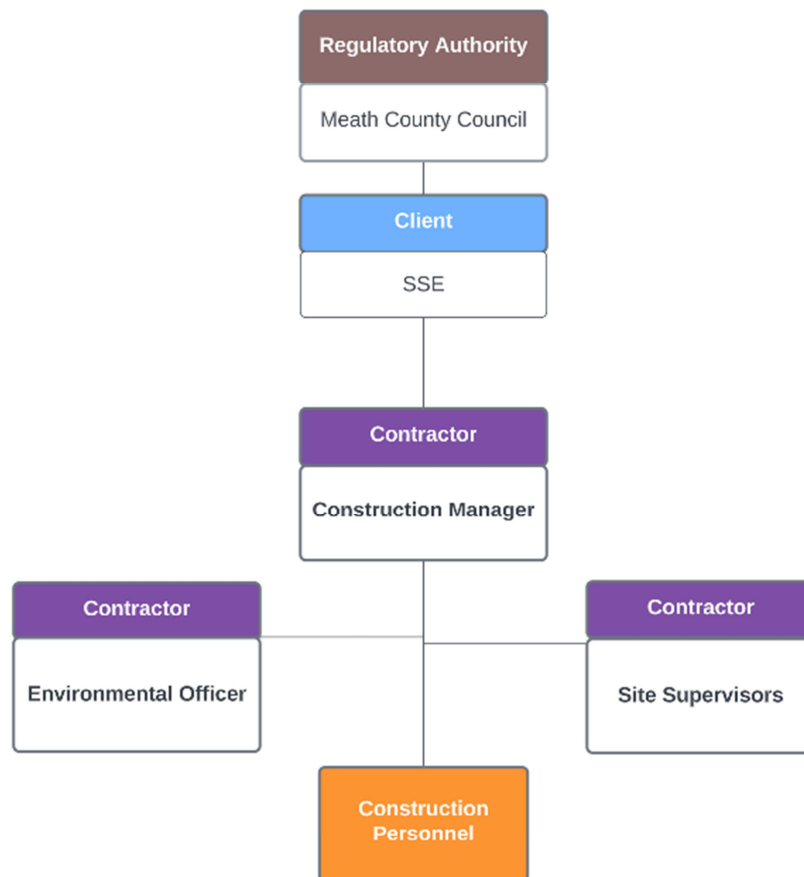


Figure 3.1 Team Structure and Responsibilities

3.2 Responsibility Assignment Matrix

Table 3.1 outlines the roles and responsibilities for the relevant Proposed Development personnel within the CMT. The Construction Manager (CM) has overall responsibility for the development and implementation of the CEMP and as such should ensure that Table 3.1 is understood by and agreed with all members of the CMT.

Table 3.1: CEMP Responsibility Matrix

Responsibility	Construction Manager	Env. Officer	Contractor Supervisors	Contractor Personnel
Assign an Environmental Officer to the Proposed Development.	X			
Generate and maintain a Register of Potential Environmental Impacts & Controls		X		
Upon request assist/support CM with development of CEMP		X		
Implementation of all measures specified in the CEMP	X	X		
Provision of adequate resources & facilities to implement CEMP	X	X		
Ensuring CEMP requirements form part of tenders & contracts	X	X		
Review Register of Potential Environmental Impact & Controls for relevance to task	X	X	X	X
Develop Environmental Compliance Procedures as required by CEMP		X	X	
Ensure monitoring such as noise, dust etc. as required by CEMP is in place		X		
Develop Site Specific CEMP Training Package		X		
Provision of CEMP Training (Induction), Guidance & Advice to all Contractors		X		
Site Environmental Inspections		X		
Provide Inspection & Monitoring Reports as required to Client		X		
Site Environmental Audits		X		
Environmental Reporting on Key Performance Indicators		X		
Read, understand & adhere to all aspects of CEMP	X	X	X	X
Ensure Method Statements & instructions include all relevant environmental controls			X	
Ensure Safe Plans of Action (SPA) include assessment of environmental risks				X
Report environmental incidents or near misses to Client			X	X
Utilisation of Toolbox Talks for Environmental Awareness	X	X		
Maintenance of Contractor Environmental Management Form		X		
Maintenance of Waste Transfer Notes		X		

3.3 Environmental Awareness & Training

Environmental Induction Training will be provided to all contractors and staff working on the Proposed Development. A record of training must be maintained by the CMT. Training must identify the site's environmental sensitivities and control measures required as per the CEMP.

Toolbox talks and awareness sessions will be used periodically throughout the Proposed Development to raise awareness and education on good environmental issues and good practice onsite (e.g. spill response, waste management, biodiversity and sustainability).

4 Environmental Management Measures

This section outlines the environmental management measures, which will be put in place to meet the environmental regulatory and planning requirements for this Proposed Development.

4.1 Regulatory, Client Requirements & Relevant Guidelines

There is mandatory legislation, standards and guidance which will be adhered to environmental management and the key environmental aspects of the Proposed Development.

4.1.1 Relevant Best Practice Guidelines

- BS5228-1-2009-A1-2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites-Part 1: Noise
- CIRIA Guidance No C532 – Control of Water Pollution From Construction Sites
- CIRIA Guidance No C741 – Environmental Good Practice on Site
- Guidelines on Protection of Fisheries during Construction Works and Adjacent to Waters, (Inland Fisheries Ireland, 2016).

4.1.2 Relevant Client Documentation

Applicant appropriate documents that will be adhered to:

- Contractor Management
- Incident Management & Emergency Response

4.1.3 Relevant National Legislation & Guidance

The relevant legislation and associated guidance are listed by category below:

Waste Management

- Waste Management Act 1996 (as amended) and associated regulations;
- The Litter Acts of 1997 to 2009
- Eastern-Midland Region Management Plan 2015-2021
- Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects (EPA, 2021)
- Guidance on Soil and Stone By-products (EPA, 2019)

Groundwater and Surface Water Protection

- Directive 2000/60/EC of the European Parliament and of the Council of 23rd October 2000 establishing a framework for Community action in the field of water policy;
- Local Government (Water Pollution) Act, 1977 and Local Government (Water Pollution) (Amendment) Act, 1990;
- Local Government (Water Pollution) Regulations 1978;
- European Communities (Water Policy) Regulations 2003 as amended
- Inland Fisheries Acts 1959 to 2017
- European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended
- European Communities Environmental Objectives (Groundwater) Regulations, 2010, as amended

Biodiversity

- Wildlife Act 1976 as amended
- The Flora (Protection) Order 2022
- The Habitats Directive 1992 (As amended)
- The Birds Directive 2009 (As amended)

Noise

- Environmental Protection Agency Act 1992 (As amended)
- Environmental Protection Agency Act, (Noise) Regulations, 1994 (SI No. 179 of 1994)
- Protection of the Environment Act 2003 and associated Regulations
- European Communities (Noise Emission by Equipment of Use Outdoors) Regulations, 2001 (SI No. 632 of 2001) and Amendments
- European Communities (Construction Plant & Equipment) (Permissible Noise Levels) Regulations, 1996.

Air Quality

- Environmental Protection Agency Act, 1992 (As amended)
- Protection of the Environment Act, 2003
- Safety, Health and Welfare at Work Act 2005
- Air Pollution Act, 1987.

4.1.4 Relevant Planning Conditions

Planning conditions will be incorporated into in the CEMP prior to construction should planning permission be granted.

4.2 Key Environmental Aspects

The main environmental aspects, which will be relevant to the Proposed Development will include:

- Population and Human Health
- Landscape and Visual Impact
- Traffic and Transportation
- Land and Soils
- Biodiversity
- Noise and Vibration
- Water and Waste Water
- Air Quality
- Waste Management
- Climate

Environmental objections are the broad goals that the contractor must set in order to improve environmental performance. Environmental targets are set performance measurements (Key Performance Indicators (KPI's)) that must be met in order to realise a given objective.

The key aspects and associated objectives, targets for the Proposed Development are summarised in Table 4.1.

Table 4.1: Environmental Objectives and Target

Key Aspect	Objective, target	Potential Impact	Control Methods/ Methods for achieving objectives
Population and Human Health	Ensure local population and human health is not adversely effected by the proposed development	Individual environmental impacts on the local human environment such as noise or traffic generation are discussed in the relevant Chapters of the Environmental Report that was submitted with this planning application.	Refer to Section 4.3 “Population and Human Health”
Landscape and Visual Impact	Ensure that the local population are not adversely effected by visual impact from the proposed development	The cranes may impact the skyline visual and the landscape.	Refer to Section 4.4 “Landscape and Visual Impact”
Traffic and transportation	Ensure the local population are not effected by traffic from the Proposed Development construction works	Increases in traffic and HGVs as a result of site construction.	Refer to Section 4.5 ‘Traffic Management’
Land and Soils	Protect land and soils from degradation and contamination.	<ul style="list-style-type: none"> – An uncontained spillage of pollutants, such as concrete/cement, oil or other chemicals used during construction – An uncontained spillage of domestic effluent generated during construction 	Refer to Section 4.6 ‘Land and Soils
Biodiversity	Ensure biodiversity, habitat is not degraded during the construction works.	<p>The potential sources of impact identified at the construction phase are:</p> <ul style="list-style-type: none"> – Habitat degradation as a result of hydrological impacts – The effects of hydrological impacts on qualifying interests (QI) and special conservation interests (SCI) species. – The effect of vegetation clearance on the bat habitats. 	Refer to Section 4.7 ‘Biodiversity’

Key Aspect	Objective, target	Potential Impact	Control Methods/ Methods for achieving objectives
Noise and Vibration	Ensure the local population is not negatively impacted by noise and/or vibration generated by construction works.	<ul style="list-style-type: none"> - High levels of noise may negatively impact nearby populations. - Noise sensitive locations in the area of the development may be negatively impacted by construction noise. - High levels of vibration may cause nuisance 	Refer to Section 4.8 'Noise and Vibration'
Water and Waste Water	Ensure that the surrounding water environment is not negatively impacted by the construction works. Protect surface water and groundwater onsite	<p>In the absence of adequate management and mitigation measures the construction phase of the development could have an adverse impact on the surface water environment in the event of storm water runoff from the site becoming contaminated by:</p> <ul style="list-style-type: none"> - The discharge of high levels of suspended solids as a result of silt/mud being washed off the site. - The discharge of raw or uncured concrete - The discharge of wash-down water from construction vehicles - An uncontained spillage of pollutants, such as fuel, oil or hazardous chemicals used during construction, or - An uncontained spillage of domestic/foul effluent generated during construction 	Refer to Section 4.9 'Water and Waste Water'
Air Quality Including Dust	Ensure that the local environment is not negatively impacted by dust generated by construction works	<ul style="list-style-type: none"> - Dust may be temporarily generated on site with the potential of impacting local receptors. - Mud, soil, dust may be transferred onto roads - Increased exhaust emissions associated with construction equipment, mobile plant and traffic may impact local ambient air quality. 	Refer to Section 4.10 'Air Quality including dust'

Key Aspect	Objective, target	Potential Impact	Control Methods/ Methods for achieving objectives
Waste Management	Ensure that best waste management practices on site are fully implemented to comply with national, regional and local regulatory requirements	<ul style="list-style-type: none"> - Creation of avoidable wastes. - Improper storage of hazardous wastes may pollute environmental receptors. - Improper segregation of wastes may lead to contamination making other wastes unsuitable for re-use or recycling. - Improper waste storage may result in litter onsite. - The use of unlicensed waste contractors could give rise to unsuitable waste management resulting in environmental pollution. 	Refer to the Resource and Waste Management Plan contained in Appendix B of this document and Section 4.11 'Waste Management'
Archaeology, Architecture and Cultural Heritage	Ensure that archaeological features of the proposed development are protected during construction works	The greatest potential impacts on archaeological heritage will arise during construction therefore during ground works at the initial construction phase as this type of disturbance using heavy plant machinery is inherently destructive to archaeological sites that have no surface expression.	Refer to Section 4.12 "Archaeology, Architecture and Cultural Heritage"
Climate	Ensure best practices are fully implemented in the operation of the proposed development and align with European, national, regional and local regulatory requirements and climate targets	<p>The construction phase impact assessment has included GHG emissions arising from the following activities (relevant lifecycle stages in brackets):</p> <ul style="list-style-type: none"> - Production of construction materials, also known as materials' embodied carbon (A1, A2, A3); - Delivery of construction materials to site (A4); - Energy used in construction activities (A5); and - Transport of waste to disposal site and waste disposal emissions (A5). 	Refer to Section 4.13 "Climate"

4.2.1 Potential Environmental Impacts & Control Measures

The potential environmental impacts that are predicted to occur as a result of the Proposed Development are assessed in the Register of Potential Environmental Impacts & Controls. This register will be drafted once construction commences and will be reviewed on an on-going basis by the CMT.

The Proposed Development Environmental Consultant will inspect the Register as part of the audit programme. The impacts register and risk score is calculated as shown in Table 4.2. **Likelihood (L) X Severity (S) = Risk Score.**

Table 4.2 Risk Score Matrix

Likelihood (L) Categories	Severity (S) Categories	Risk (R) Matrix	Risk Acceptability																																													
5 Certain or Near Certain 4 Very Likely 3 Likely 2 Somewhat Likely 1 Unlikely	5 Massive damage to a large area, irreversible in medium term 4 Severe damage to local environment 3 Moderate damage to environment 2 Minor impact/localised or nuisance 1 No damage or negligible change to the environment.	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="5">SEVERITY</th> </tr> <tr> <th colspan="2"></th> <th>5</th> <th>4</th> <th>3</th> <th>2</th> <th>1</th> </tr> </thead> <tbody> <tr> <th rowspan="5">LIKELIHOOD</th> <th>5</th> <td>High</td> <td>High</td> <td>High</td> <td>Medium</td> <td>Low</td> </tr> <tr> <th>4</th> <td>High</td> <td>High</td> <td>Medium</td> <td>Medium</td> <td>Low</td> </tr> <tr> <th>3</th> <td>High</td> <td>High</td> <td>Medium</td> <td>Low</td> <td>Low</td> </tr> <tr> <th>2</th> <td>High</td> <td>Medium</td> <td>Medium</td> <td>Low</td> <td>Low</td> </tr> <tr> <th>1</th> <td>Medium</td> <td>Low</td> <td>Low</td> <td>Low</td> <td>Low</td> </tr> </tbody> </table>			SEVERITY							5	4	3	2	1	LIKELIHOOD	5	High	High	High	Medium	Low	4	High	High	Medium	Medium	Low	3	High	High	Medium	Low	Low	2	High	Medium	Medium	Low	Low	1	Medium	Low	Low	Low	Low	<p>High (H) These are considered to be high-level risks requiring priority attention. These risks have the potential to be catastrophic and as such should be addressed quickly.</p> <p>Medium (M) These are medium-level risks requiring action, but are not as critical as a red coded risk.</p> <p>Low (L) These are lowest-level risks and indicate a need for continuing awareness and monitoring on a regular basis. Whilst they are currently low or minor risks, some have the potential to increase to medium or even high-level risks and must therefore be regularly monitored and if cost effective mitigation can be carried out to reduce the risk even further this should be pursued.</p>
		SEVERITY																																														
		5	4	3	2	1																																										
LIKELIHOOD	5	High	High	High	Medium	Low																																										
	4	High	High	Medium	Medium	Low																																										
	3	High	High	Medium	Low	Low																																										
	2	High	Medium	Medium	Low	Low																																										
	1	Medium	Low	Low	Low	Low																																										

4.3 Population and Human Health

The construction of the proposed development is not predicted to have any significant impact on the health of local residents. The environmental aspects that may have an impact on Population and Human Health are air, noise and traffic.

The mitigation measures for air pollution to mitigate the effect on human health are:

- Set requirements through site inductions, toolbox talks and awareness training of staff
- During dry periods, use dust-dampening techniques (e.g. water dampening of dust on roads, use of low speed limits onsite and use of covers dusty materials during transport and storage)
- Ensure contractors complete pre construction checks on vehicles and have pre start checklists for daily checks and carry out service of plant to ensure there is no excessive pollution from plant and machinery.

The mitigation measures for noise pollution to mitigate the effect on human health are:

- Use plant and machinery with noise emissions under specified noise levels.
- Use noise-dampening measures (e.g. shields, covers, acoustic barriers) on noise plant and machinery where appropriate

The mitigation measures for traffic to mitigate the effect on population are:

- Defined route of transportation to site – HGV route to the site during the construction phase will be from the M1 motorway exiting at Junction 8 (Lower Platin) via the R152, directly to the site. The distance from the motorway to the site is approx. 2.1km. No HGVs will be required to access Duleek village and will be prohibited from doing so. No HGV traffic will be permitted to approach the site on the R152 from the south and therefore there is no requirement for a right-turn lane at the site entrance. All workers for the construction and operational phases will follow this route to the site.

The construction phase of this development is not predicted to have any significant adverse impacts on the population and settlements, for more information refer to Section 3.3 of the Environmental Report accompanying this planning application.

4.4 Landscape and Visual Impact

There will be visibility of cranes during the construction process. The site entrance area will be widened and will also provide increased visibility into the site during this period.

None of these effects will lead to any significant visibility from protected views or from the Brú Na Bóinne complex.

All landscape and visual impacts from the construction phase will be slight and temporary in nature.

4.5 Traffic and Transportation

The CMT will ensure that all construction traffic routes are maintained throughout the works period. The CMT will ensure that no degradation is caused to the permanent works and will provide suitable protection to such areas. The CMT will be responsible for maintaining all external works of all other Contractors on site. Wheel washing will be provided if necessary for heavy goods vehicles (HGVs) prior to their exit from the site.

Site access for staff and construction staff will be segregated.

Defined route of transportation to site - the HGV route to the site during the construction phase will be from the M1 motorway exiting at Junction 8 (Lower Platin) via the R152, directly to the site. The distance from the motorway to the site is approx. 2.1km. No HGVs will be required to access Duleek village and will be prohibited from doing so. No HGV construction traffic will be permitted to approach the site on the R152 from the south and therefore there is no requirement for a right-turn

lane at the site entrance. Similarly, all workers for construction and operational phases will use this route to avoid undue traffic congestion through Duleek.

Additionally, there will be a Construction Environmental Management Plan and Traffic Management Plan for the approved 110kV substation submitted to and agreed with Meath County Council prior to the commencement of construction, as per ABP planning condition no. 6, reference ABP-303678-19: *“The construction of the proposed development shall be managed in accordance with a Construction and Environmental Management Plan and Traffic Management Plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. This plan shall provide details of intended construction practice for the proposed development, including noise and dust management measures, surface water management proposals, control and management of accidental spillages, detailed design of watercourse crossings, the management of construction traffic, the means to protect the public road and off-site disposal of construction waste.”* The Traffic Management Plan will cover both developments: the proposed development and the approved 110 kV substation.

4.6 Land and Soils

Given the groundwater WFD (Water Framework Directive) status of ‘poor’ and the ‘regionally important’ aquifer located beneath the site, robust mitigation measures will be put in place during the construction phase to prevent any adverse impacts on the soils or groundwater of the area:

Fuel and Chemical Handling, Transport and Storage

- Any potentially polluting substances such as fuel, lubricants, oil, paint etc. will be carefully handled and will be stored in a dedicated temporary bunded area which will fully contain any spillages;
- All containers will be clearly labelled so that appropriate remedial action can be taken in the event of a spillage.
- If a refuelling area is required on site, it will be a designated bunded refuelling area at the contractor’s compound away from the site drainage infrastructure. Fuel leaks identified in any equipment will be reported and fixed as soon as possible.
- Spill kit facilities will be provided at the fuelling area and any other relevant area, in order to provide for any accidental releases or spillages.
- Any used spill kit materials will be disposed of using a hazardous waste contractor.
- Portable generators will be placed on suitable drip trays and any spillages should be cleaned up using spill kit materials.
- All domestic effluent generated by construction staff on site during construction will be discharged to a temporary effluent containment facility, prior to transport and treatment off-site.
- In the event of a spill on site, a chemical cleaning agent such as Bioversal will be utilised to ensure no groundwater or soil contamination, preventing a rise in hydrocarbon levels.

Dewatering

Dewatering is not expected to be required. For any dewatering operations that may be required, the water is to be pumped to a settling tank or equivalent to allow any suspended solids to settle out before the water is discharged to the surface water drainage system on site.

Concrete

- The majority of concrete will be mixed off-site and imported to the site. The pouring of concrete will take place within designated areas to prevent concrete runoff into the soil/groundwater media.
- Wet concrete and cement will be adequately controlled. This will include the location of concrete mixing facilities (if required for small quantities of concrete) away from the associated

site drainage infrastructure and consideration of weather conditions (e.g. dry weather), allowing for sufficient curing of concrete.

- Wash down and washout of concrete transporting vehicles will take place within a designated area of the site.
- Regular inspections will be carried out on concrete transporting vehicles to check for defects.
- Lime or cement will be stored internally away from rainfall or other water or liquid sources.

Dust

Water bowsers will be deployed for dust suppression in periods of dry weather during the construction phase.

Sources of Aggregates for the Project

The project contract and procurement procedures will be developed to ensure that all aggregates are sourced from reputable sources. Only suppliers who are in compliance with the relevant planning requirements should be considered for inclusion in the project.

Cut and Fill Volumes

Topsoil, superficial material and structural fill at the site will be excavated during the earthworks for the construction of the proposed development and approved 110kV Substation.

It is currently anticipated that all excavated material during earthworks will be re-used on site as structural fill and as part of the landscape proposals. There will be imported material consisting of compacted stone, gravel topping, road construction make-up, footpaths, concrete bases, etc. required for the completion of the earthworks of the site. The construction phase will not result in the excavation or removal of any bedrock from the development site.

4.7 Biodiversity

4.7.1 Measures to Minimise Habitat Loss and to Reduce the Potential for Impacts on Vegetation to Be Retained

Any vegetation (including trees, hedgerows or scrub adjacent to, or within, the proposed development boundary) which is to be retained will be afforded adequate protection during the construction phase in accordance with the Proposed Soft Landscape Plan (drawing no. 60695232-PTN-DR-011) that is being submitted with this planning application.

- All trees along the proposed development boundary that are to be retained, both within and adjacent to the proposed development boundary (where the root protection area of the tree extends into the proposed development boundary), will be fenced off at the outset of works and for the duration of construction to avoid structural damage to the trunk, branches or root systems of the trees. Temporary fencing will be erected at a sufficient distance from the tree so as to enclose the Root Protection Area (RPA) of the tree. The RPA will be defined based upon the recommendation of a qualified arborist;
- Where fencing is not feasible due to insufficient space, protection for the tree/hedgerow will be afforded by wrapping hessian sacking (or suitable equivalent) around the trunk of the tree and strapping stout buffer timbers around it;
- The area within the RPA will not be used for vehicle parking or the storage of materials (including soils, oils and chemicals). The storage of hazardous materials (e.g. hydrocarbons) or concrete washout areas will not be undertaken within 10 m of any retained trees, hedgerows and treelines;
- A qualified arborist will assess the condition of, and advise on any repair works necessary to, any trees which are to be retained or that lie outside of the proposed development boundary but whose RPA is impacted by the works. Any remedial works required will be carried out by a qualified arborist; and,

- A buffer zone of at least 5m will be maintained between construction works and retained hedgerows to ensure that the root protection areas are not damaged.

4.7.2 Construction Phase Mitigation – Habitat Replacement

No hedgerows will be removed during the construction of the proposed development.

In terms of further enhancing the proposed development site, the bulk of the soft landscaping specification is for native species. This is notwithstanding the accepted value of some non-native or landscape flowering herb and shrubs to attract pollinator species. Thus, although the proposed development will result in the loss of part of a species-poor arable field, the planting regime which is proposed for the site landscaping will result in an increase the floral diversity of the site, as demonstrated on Proposed Soft Landscape Plan (Drawing no. 60695232-PTN-DR-011) and Proposed Material Storage Area (Drawing no. 60695232-PTN-DR-016).

4.7.3 Construction Phase Mitigation – Measures To Protect Surface Water Quality during Construction

The mitigation measures to protect surface water in the receiving environment during construction are detailed in Environmental Report *Chapter 9 Water & Wastewater*. The mitigation measures have been developed in consideration of the following standard best international practice including but not limited to:

- Construction Industry Research and Information Association (CIRIA) (2005) Environmental Good Practice on Site (C741);
- Construction Industry Research and Information Association (2001) Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);
- Construction Industry Research and Information Association (2000) Environmental Handbook for Building and Civil Engineering Projects (C512);
- Environmental Protection Agency (2018) List of Waste and Determining if Waste is Hazardous or Non-Hazardous; available at: <https://www.epa.ie/publications/monitoring--assessment/waste/2019--FULL-template.pdf>; and
- Environment Agency (2015) Guidance on the Classification and Assessment of Waste, Technical Guidance WM3;
- Environmental Protection Agency (2013) Guidance (and Templates) on the Management of Contaminated Land and Groundwater at EPA Licensed Sites
- Environment Agency (2020) Land Contamination risk management (LCRM). Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

The following mitigation measures are prescribed to protect surface water quality during construction:

- The Silt traps shall be placed in drains to capture any excess silt in the run-off;
- Good housekeeping (daily site clean-ups, use of disposal bins, etc.) will be maintained on the proposed development site during construction, and the proper use, storage and disposal of construction materials and their containers will prevent contamination;
- For all activities involving the use of potential pollutants or hazardous materials, such as concrete, fuels, lubricants and hydraulic fluids, there will be a requirement to ensure that material will be carefully handled and stored to avoid spillages. Potential pollutants shall also be adequately secured against vandalism and will be provided with proper containment according to codes of practice. Any spillages will be immediately contained, and contaminated soil removed from the site by an appropriately licensed contractor and disposed of to a licensed facility;
- Water pollution will be minimised by the implementation of good construction practices. Such practices will include adequate bunding for silos, oil containers, wheel washers and dust

suppression on site roads, and regular plant maintenance. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites (Masters – Williams et al., 2001).

- In accordance with the CIRIA document which recommends that a contingency plan for pollution emergencies will be prepared which will address the following:
 - containment measures;
 - emergency discharge routes;
 - list of appropriate equipment and clean-up materials;
 - maintenance schedule for equipment;
 - details of trained staff, location and provision for 24-hour cover;
 - details of staff responsibilities;
 - notification procedures to inform the Environmental Protection Agency (EPA) or environmental department of the Dublin City Council;
 - audit and review schedule;
 - telephone numbers of statutory water consultees; and
 - list of specialist pollution clean-up companies and their telephone numbers.

4.7.4 Construction Phase Mitigation – Measures to Protect Air Quality during Construction

Chapter 10 Air Quality of the Environmental Report prescribes the following good site practice mitigation measures to minimise emissions to air during the construction phase. The following mitigation measures will be in place to minimise any construction related emissions to air and thus prevent any significant impact on air quality.

- Good housekeeping and site management including the proper storage of spoil / loose materials on site;
- Hard surfaced roads will be swept to remove mud and aggregate materials from their surface and any un-surfaced roads will be restricted to essential site traffic only with speed restrictions;
- Water bowsers will be deployed for dust suppression in periods of dry weather during the construction phase;
- Wheel washing of construction vehicles leaving site will be implemented as necessary;
- Public roads outside the site will be regularly inspected and cleaned as necessary;
- Provision of an adequate water supply for effective dust/particulate matter suppression/mitigation; and
- All vehicles and equipment used in relation to the site will be: mechanically sound; operated and maintained in accordance with the manufacturer’s recommendations and switched off when not in use.

4.7.5 Construction Phase Mitigation – Measures to Protect Bats during Vegetation Clearance

The following mitigation measures are proposed in relation to those tree groups identified as having potential to support roosting bats. Bats could occupy suitable roosting features at any time prior to the commencement of works. Therefore, there is an inherent risk that bats could be affected by the proposed felling works. The following mitigation procedures will be followed:

- Felling of confirmed and potential tree roosts will be undertaken during the periods April – May or September – October as during this period bats are capable of flight and may avoid the risks from tree felling if proper measures are undertaken, but also are neither breeding nor in hibernation;

- Where trees are to be removed to facilitate construction and/or in the interest of health and safety, they will first be checked for the presence of bats by an appropriately qualified, experienced, and licensed professional. Checks of trees will involve the investigation of all cavities with potential to host roosting bats. These checks will likely require access at height to the cavities, which may be facilitated with a mobile elevated working platform or through tree climbing with appropriate equipment. Cavities may be inspected with endoscope or torch, under licence from the NPWS;
- In the case that potential roost features are examined in trees during checks in advance of felling, but these features are too large to examine thoroughly, there will be a requirement to undertake a series of surveys to remove any doubt over the presence of roosting bats. The scope and number of surveys required will be determined by the scale, nature and location of the potential roost feature(s).
- In the case that potential roost features are examined and the surveyor is confident that bats are not using the feature as a roost, or where no bats are observed emerging from or returning to roost in the tree following detector surveys, felling will take place immediately after the completion of surveys;
- Where bats are confirmed to use the tree as a roost, the local Conservation Ranger of the NPWS will be contacted, and a mitigation strategy will be prepared to facilitate an application for a derogation to legally remove the roost. The mitigation strategy must be prepared by an appropriately qualified, experience and licenced ecologist. The preparation of a mitigation strategy may require compensatory measures for the replacement of the lost roost(s);
- Where remedial work (e.g. pruning of limbs) is to be undertaken to trees deemed to be suitable for bats, the affected sections of the tree will be checked by a bat specialist (using endoscope under a separate derogation licence held by that individual) for potential roost features before removal. For limbs containing potential roost features high in the tree canopy, this will necessitate the rigging and lowering of the limb to the ground (with the potential roost feature intact) for inspection by the bat specialist before it is cut up or mulched. If bats are found to be present, they will be removed by a bat specialist licenced to handle bats and released in the area in the evening following capture.

4.7.6 Construction Phase Mitigation – Measures To Protect Breeding Birds during Vegetation Clearance

Vegetation (e.g. hedgerows, trees, scrub and grassland) removal should be avoided where at all possible between the 1st March and the 31st August, to avoid direct impacts on nesting birds.

4.7.7 Construction Phase Mitigation – Measures To Protect Amphibians during Construction

Habitat Loss, Disturbance & Mortality Risk

If site clearance works are to begin during the season where frogspawn or tadpoles may be present (February – mid-summer) and will impact on the drainage ditches present around the margins of the proposed development site, a pre-construction survey will be undertaken to determine whether breeding common frogs are present.

Any frog spawn, tadpoles, juvenile or adult frogs present will be captured and removed from affected habitat by hand net and translocated to the nearest area of available suitable habitat, beyond the ZOI of the proposed development. Any capture and translocation works shall be undertaken immediately in advance of site clearance/construction works commencing.

4.8 Noise and Vibration

4.8.1 Noise

There is no statutory guidance relating to the maximum permissible noise level that may be generated during the construction phase of a Proposed Development. Local authorities normally control construction activities by imposing limits on hours of operation and have also included conditions to limit noise levels to those in *BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites*.

The construction phase of the development will have the potential to cause an increase in noise levels in the immediate vicinity of the development site. However the development contractor will be obliged to reduce as far as possible the potential noise impact of the construction activity.

In addition, piling may be required as part of the foundation works – this will be confirmed during detailed design of the project.

The main mitigation measures that will be implemented are as follows:

- Control of Working Hours – Normal construction hours will be Monday to Friday 10 hours a day (08:00-18:00) with extended periods under stricter noise limits to 21:00hrs when required and approved, and a half day on Saturdays (08:00hrs-15:00hrs).
- Limiting the hours during which site activities that are likely to create high levels of noise or vibration are permitted.
- Channels of communication will be established between the Contractor / Developer, Local Authority, and residents.
- A site representative will be appointed who will be responsible for matters relating to noise.
- Noise levels will be monitored during critical periods and at sensitive locations.

Furthermore, following noise control measures will be employed:

- Selection of plant with low inherent potential for generation of noise and/or vibration;
- All construction equipment used will comply with the relevant regulations on plant and equipment noise, namely the *European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 (SI No. 320 of 1988) as amended (SI No. 359 of 1996)* and the *European Communities (Noise Emission by Equipment of Use Outdoors) Regulations, 2001 (SI No. 632 of 2001), as amended (SI No. 241 of 2006)*;
- All plant and equipment will undergo regular maintenance in accordance with manufacturer recommendations, be switched off if not in use, and be appropriately fitted with silencers or contained in acoustic enclosures as necessary;
- Minimisation of impulsive noise sources and activities, including reduction of material drop heights, minimising hammering activities together with regular checks during impulsive noise generating activities at the nearest noise sensitive locations such as the national schools and the nearest residential properties;
- Erection of barriers as necessary around noisy processes and items such as generators, heavy mechanical plant or high duty compressors;
- Keeping all Site access roads even so as to mitigate the potential for vibration from lorries.

4.8.2 Vibration

For this project, rotary-bored piling or driven piling is proposed. The type of piling to be carried out will be confirmed during design development.

Given the type of piling being proposed for the Proposed Development, together with the distances to the sensitive receivers from the proposed piling works, the vibration causing aspects of bored piling will be insignificant and the piling activities will be imperceptible at sensitive locations. For

more information refer to Section 8.4.2 of the Environmental Report accompanying this planning application.

4.9 Water and Waste Water

It is considered that storm water runoff during the construction phase of the proposed development will have a medium-term, significant – negative effect on the environment in the absence of mitigation measures.

The following mitigation measures will be implanted during the construction phase of the proposed development to prevent/contain any accidental discharges of potentially polluting substances to surface waters, via storm water outfall from the site:

- It will be a condition of the construction contract that the appointed contractor will take all necessary measures to ensure that there is no discharges of hazardous materials to or contamination of watercourses during construction;
- Appropriate containment measures will be used to retain solids/silt present in storm water runoff (e.g. silt traps/ settlement ponds);
- The amount of exposed ground and soil stockpiles will be minimized and stockpiles will be covered as necessary to minimize silt levels in storm water run-off;
- Stock piles will be shaped at regular intervals to ensure appropriate compaction and gradient formation to prevent soil creep. Unstable areas will be protected until they have stabilised and/or vegetation has established. No materials or spoil produced during construction are to be stockpiled within or adjacent to site drainage channels.
- Adequate environmental protection measures e.g. silt fences, or similar; will be used in the control of suspended solids run-off during construction. Silt fences to be used in sloped areas to retain soil onsite and prevent run-off, and near any water sources such as the Platin River stream.
- Concrete, cement and associated waste materials will be carefully handled and disposed of appropriately and in a manner that will not impact on surface waters;
- Any potentially polluting substances such as fuel, lubricants, oil, paint etc. will be carefully handled and will be stored in temporary bunded areas which will fully contain any spillages;
- All domestic effluent generated by construction staff on site will be discharged to a temporary effluent containment facility, prior to transport and treatment off-site.

Taking into account the above mitigation measures the construction phase of the development is not predicted to have any significant adverse impact on surface waters.

4.10 Air Quality (Dust & Vehicle Exhaust Emissions)

The potential for dust to be emitted during construction works is dependant on the type of activity being carried out and environmental factors including levels of rainfall, wind speeds and wind direction. The potential for impacts from dust depends on the distance from the site to potentially sensitive receptors and whether the wind can carry the dust to these locations. The majority of dust produced will be deposited close to the generated source.

The following mitigation measures will be in place to minimise any construction related emissions to air and thus prevent any significant impact on air quality:

- Good housekeeping and site management including the proper storage of spoil / loose materials on site
- Hard surfaced roads will be swept to remove mud and aggregate materials from their surface and any un-surfaced roads will be restricted to essential site traffic only with speed restrictions
- Water bowsers will be deployed for dust suppression in periods of dry weather during the construction phase

- Wheel washing of construction vehicles leaving site will be implemented as necessary
- Public roads outside the site will be regularly inspected and cleaned as necessary
- Provision of an adequate water supply for effective dust/particular matter suppression/mitigation
- All vehicles and equipment used in relation to the site will be: mechanically sound; operated and maintained in accordance with the manufacturer's recommendations and switched off when not in use.

4.11 Waste Management

A Resource and Waste Management Plan describing control methods for waste management during the construction phase of this project is included in Appendix B of this report

4.12 Archaeology, Architecture and Cultural Heritage

Embanked enclosure

While the proposed development has been designed to avoid the archaeological monument by establishing a 25m exclusion zone around its perimeter, the potential for impact during construction is increased due to its levelled nature. No ground works, stockpiling of topsoil or storage of construction materials and plant equipment will take place within the agreed buffer zone, which will be clearly defined prior to the commencement of any development works by a solid post and wire fence.

Potential sub-surface archaeological features

The construction phase of any development involves considerable ground disturbance therefore the greatest potential impact of the proposed development at Caulstown on the archaeological resource will be during the removal of topsoil and general ground reduction. The test excavation identified a number of potential archaeological features and these features will be excavated prior to the main phase of groundworks at the site.

Following commencement of groundworks, all topsoil removal operations required of the development will be fully monitored by a qualified archaeologist. The archaeologist will obtain an excavation licence for this work to be issued by The National Monuments Service, Department of Regional Development, Rural Affairs, Arts and the Gaeltacht and approved by the National Museum of Ireland. The developer will allow the archaeologist sufficient time, usually four weeks, to obtain an archaeological licence prior to the commencement of construction works. The time-scale for the construction phase will be made available to the archaeologist at an early stage with information on where and when topsoil stripping will take place.

In the event of archaeological features being exposed during the course of monitoring, the archaeologist will be empowered to have works ceased in the vicinity of such material. If archaeological remains are encountered, these areas become archaeological sites and are protected by National Monuments legislation (National Monuments Act 1930 (as amended)). Further work on the site will require consultation with the archaeological staff of The National Monuments Service, Department of Culture, Heritage and the Gaeltacht. Should archaeological artefacts material be uncovered, the requirements of the National Museum of Ireland with regard to such items will be implemented.

Provision, including financial and time, will be made to facilitate any excavation or recording of archaeological material that may be uncovered during the developmental works. The excavations will be undertaken in compliance with any measures that the National Monuments Service and the National Museum of Ireland deem appropriate. Following completion of monitoring, and other possible archaeological investigations, the archaeologist will submit a report to the National Monuments Service, the National Museum and the Local Authority.

4.13 Climate

The following climate mitigation measures will be implemented at construction stage:

- Where possible, utilise HGVs delivering HVO which are fuelled by HVO. Minimise transport distances and select low carbon transport methods such as shipping or train transportation;
- Where possible, minimise the quantity of materials used, and aim to reuse and/or repurpose local materials instead of procuring or importing new ones.
- Where possible, use low carbon materials. This is of particular importance for high embodied carbon materials such as steel, and materials used in large quantities like concrete;
- Notwithstanding the above, it is important to consider the durability of materials and/or equipment and their maintenance, replace and refurbishment over the project life. Selection should aim to reduce the overall project climate impact, not only the embodied carbon when constructed; and
- Select energy efficient construction materials and vehicles, ensure rational use to minimise emissions.

4.13.1 SSE Sustainability Policy

Sustainability is embedded in SSE business operations. Environmental considerations e.g. carbon, water, energy, materials, life cycle analysis, sustainable procurement will need to be considered during the construction of the Proposed Development.

5 Environmental Response

5.1 Environmental Emergency response

The Construction Management Team (CMT) and all contractors should be aware of SSE requirements and site emergency response procedures, as applicable, and the emergency response actions required in the event of, for example, a spillage or loss of containment.

In the event of an incident occurring within the confines of the Proposed Development, the CMT will immediately follow the key steps:

1. Isolate the source of any such emission (assuming it is safe to do so);
2. Carry out an investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
3. Evaluate the environmental pollution, if any, caused by the incident;
4. Identify and execute measures to minimise the emissions/malfunction and the effects thereof;
5. Notify PCS (Project Control System) who will in turn assess the potential environmental impact of the incident and notify the relevant authorities as appropriate
6. Complete relevant Incident Investigation Form

The CMT must identify and put in place measures to avoid any recurrence of the incident.

Specifically for spill response, the following steps are to be followed:

1. **Stop**
 - Use PPE and if safe to do so, prevent any more material from spilling (e.g. close the valve or upright and chemical/fuel drum)
 - Eliminate any sources of ignition.
2. **Alert**
 - Warn others in the immediate area of the spill
 - Notify the Emergency Response Team (ERT) and Environmental Officer
3. **Prepare**
 - Wear appropriate PPE and if trained in spill response gather spill kits materials.
 - If not trained, notify appropriate staff (trained in spill response) of location and nature of the spill
4. **Contain**
 - Use materials in the spill kit to clean up the spill such as absorbent mats, booms or granules. Do not hose the spillage down or use any detergents.
 - Check the spill has not reached any nearby drains or manholes, watercourses or other sensitive areas.
 - Block drains or manholes to stop the substance to entering the site drainage system.
 - Ensure spill contents are replaced after use.
5. **Dispose**
 - All materials and equipment used for decontamination are to be treated as hazardous waste and brought to designated storage area, before the end of the workday.
 - Notify the Environmental Officer so that used absorbent material can be disposed of using a licensed waste contractor.

6. Report

- Report all spills to the CMT and Environmental Officer immediately who can liaise with SSE.
- Provide information on location, quantity and type of material spilled, reason for the incident, actions taken to resolve it, any details of and sensitive locations (i.e. drains and/or watercourses) affected.
- For spills on soil, follow the procedure and stop work immediately, remove all contaminated soil and bag it. Dig deeper than the affected area to ensure no further soil has been contaminated. Take pictures of the soil to show it is no longer contaminated. Move the soil waste to a designated waste area to be removed from site by a licensed contractor.

6 Monitoring & Reporting

6.1 Monitoring

6.1.1 Environmental Monitoring Programme

The environmental monitoring programme, which details the relevant aspect, location/sensitive receptor, methodology, frequency and responsibility is shown in Appendix A (to be updated with any planning conditions). If suitable, environmental aspects which require monitoring will be identified and the monitoring programme will be implemented.

Contractors are responsible for the implementation of control measures. These control measures may be further detailed in approved Method Statements, permits or other site-generated documentation.

6.1.2 Monitoring Compliance Records

The CMT will carry out regular inspections to confirm compliance with the CEMP.

Inspections by the CMT will address potential environmental impacts including dust, litter, waste management and general housekeeping.

6.2 Inspections and Audits

The Environmental Officer will act as the main point of contact with specific responsibility for environmental matters. This person will have the necessary qualification/ expertise/ experience to allow them to discharge this role. The appointed person must carry out regular inspections (daily and weekly) to confirm compliance with the CEMP. Feedback from the inspections should inform Toolbox Talks.

The Environmental Officer will carry out documented environmental audits of the site. Where practicable, best practice is a monthly audit frequency but the frequency should be agreed between the CM and Environmental Consultant subject to nature of contractor activity.

In the event of noncompliance/incident, the existing on site procedures will be followed.

6.2.1 Corrective Actions

Corrective Actions 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 CEMP requirements or any environmental issues.

CARs may be raised as a result of:

- An internal or external communication or complaint
- An internal audit
- A regulatory audit or inspection
- A suggestion for improvement
- An incident or potential incident

All corrective action requests will be numbered and logged.

6.3 Complaints/Incidents

6.3.1 Complaints

The following complaints procedure will be followed:

- A complaints register is maintained by the CMT in which the following information is recorded:

- Name, address and contact details of complainant
- Nature of complaint
- Date, time and duration of event leading to the complaint
- All communications made in relation to the complaint
- Observations of reoccurrence
- Resolution of complaint
- The Environmental Officer or nominee will carry out a root cause analysis of the complaint.
- The results of the findings will be communicated back to the complainant by the applicant.
- The Environmental Officer will prepare a corrective action and update the CEMP documentation as necessary to prevent a reoccurrence.

6.3.2 Incidents

All environmental incidents will be reported to the Environmental Officer and the applicant, and recorded.

6.4 Reporting & Record Keeping

The Environmental Officer will ensure that fully detailed records are maintained of any 'incident/event' likely to cause non-compliance and / or harm to the environment. The Environmental Officer will be responsible for notification to SSE of all environmental incidents, near misses and party complaints received.

The Environmental Officer will be responsible for maintaining records of any required environmental monitoring during the construction of the Proposed Development.

Complaints and Follow up Actions in relation to construction activities on the site will be recorded on record sheets to be developed prior to commencement of construction.

A copy of environmental audit findings as recorded will be maintained by the Environmental Officer.

Unless otherwise agreed with SSE, reporting to external bodies (e.g. local authority) will be managed in the first instance by SSE.

Appendix A

Monitoring Programme

To be completed prior to commencement of construction phase, in compliance with local regulatory requirements and any conditions of permits and planning conditions.

Aspect	Location/Sensitive Receptor	Monitoring Methodology	Frequency	Responsibility
Noise	Boundary/ Existing site			
Vibration	Boundary/ Existing site			
Air Quality (Dust)	Boundary/ Existing site			
Water	Boundary			
Biodiversity	Boundary/Existing site			

Appendix B

Resource and Waste Management Plan

Contents

B1. Introduction	34
B2. Assignment of Responsibilities	35
B3. Site Waste Management	36
B4. Waste Storage and Segregation	37
B5. Design Approach	40
B6. Identification of Waste Streams and Outcomes	42

B1. Introduction

This Resource and Waste Management Plan (RWMP) has been prepared in conjunction with the CEMP and accompanying Environmental Report and all documents should be read together. This RWMP is an outline of the resource and waste management practices which will occur in relation to the proposed development. A more detailed RWMP will be completed post-planning. The CMT will manage construction resources and waste in accordance with legislation, SSE procedures and relevant regulatory conditions.

This RWMP has been prepared in accordance with, where possible, the guidelines set out in *Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects* (EPA, 2021).

The EPA Guidance defines two types of developments depending upon scale, namely Tier 1 and Tier 2, with a Tier 2 development being of larger scale.

A development below the following thresholds is defined as Tier 1:

- *“New residential development of less than 10 dwellings.”*
- *“Retrofit of 20 dwellings or less”*
- *“New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250 m².”*
- *“Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 2,000 m².”*
- *“Demolition projects generating in total less than 100 m³ in volume of C&D waste.”*

This project, by scale, is classified as a Tier 2 project as it is an infrastructural development with an aggregate floor area greater than 1,250 m².

B2. Assignment of Responsibilities

All staff onsite play a part in ensuring proper waste management procedures are followed onsite throughout the project.

The client advisory team (PM Group) are responsible for drafting and maintaining the RWMP through the design and planning phases of the project. This includes appointing a Resource Manager (RM) to track the design process, inform the Design Team and prepare the RWMP for planning application submission. The RWMP includes details on all projected waste streams. Handover of the RWMP to the Contractor occurs at commencement of the development.

The Construction Management Team (CMT) and appointed waste management contractor will be responsible for the preparation of all waste handling documentation and costs associated with the recycling, recovery and disposal of all hazardous and non-hazardous waste and compliance with this plan in general. A copy of all waste documentation (waste transfer notes, weighbridge docketts, collection, permits, facility permits/licenses etc.) must be kept on site at all times. Handling and collection of waste onsite must be tracked and the records maintained.

Collection, segregation and disposal of wastes are the responsibility of the Construction Management Team (CMT) and must be handled, in the case of hazardous waste, through an approved waste disposal registered contractor with appropriate documentation.

The Environmental Officer will be technically competent and appropriately trained, and take the responsibility to ensure that the measures identified within the outline RWMP are delivered. This role is to be assigned the requisite authority to secure achievement of this purpose.

Overall the function of the Environmental Officer in this role will be to communicate effectively with colleagues in relation to project waste management. The Environmental Officer will maintain accurate records on the quantities of waste/surpluses arising during the construction phase.

At the operational level, appropriate personnel from the main contractor and each sub-contractor on the site will be assigned the direct responsibility to ensure that the discrete operations stated in the RWMP are performed on an on-going basis.

The Environmental Officer will regularly audit the implementation of the RWMP and will revise the plan in the event of additional waste streams being identified in the construction phase.

The CMT, in general, will ensure that waste segregation and management is being done correctly onsite through site checks and audits as required.

The projected hazardous and non-hazardous waste streams likely to arise during the construction phase on site are identified and recorded in Table B.3 and B.4. This table is to be updated regularly as required when/if new waste streams arise.

B3. Site Waste Management

Prevention/Minimisation of Waste

The Waste Management Hierarchy (*Article 4 of the Waste Framework Directive (Directive 2008/98/EC)*) states that the most preferred option for waste management is prevention and minimisation of waste, followed by re-use and recycling, other recovery (i.e. waste to energy and anaerobic digestion) and, least favoured of all, disposal.

The main contractor is to prioritise waste prevention and reduction. To facilitate waste prevention and minimisation, the following steps are to be taken during construction:

- Ordering of appropriate quantities of materials, with a just-in-time philosophy;
- Immediate and careful storage of materials delivered to the site;
- Storing under cover and raising above ground materials, that are vulnerable to damage by rain;
- Careful handling of materials, using appropriate equipment, to avoid damage;
- Designating separate storage areas for different types of waste in order to maximise the re-use and recycling potential of the waste;
- Assign individual responsibility (through appropriate contractual arrangements) to subcontractors for the purchase of raw materials and for the management of wastes arising from their activities, thereby ensuring that available resources are not expended in an extravagant manner at the expense of the main contractor.

Reuse of Waste

Reuse of material on site should be favoured after waste prevention. Materials designated as waste which have reuse potential should be first considered over procuring new raw materials.

Recycling of Waste

Once all available beneficial re-use options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered.

Recycling and recovery options include, but are not limited to:

- Waste timber can be recycled as shuttering or hoarding or it can be sent for reprocessing as medium density fibreboard
- Construction waste generated at the site will, if not reused, be sent to the established construction waste markets for beneficial use
- Segregated construction wastes will consist of concrete blocks, bricks, tiles, ceramics, hard plastic, metal and glass. These can also be managed via waste transfer stations.

The site waste management contractor will arrange for the collection of segregated materials by licensed hauliers and delivery to an appropriate licensed and approved waste recycle facility.

Disposal of Waste

The site waste management contractor will be responsible for ensuring that the disposal facilities are appropriate during the lifetime of the development. The disposal facilities may change due to availability of such facilities and commercial agreements with the waste contractor.

B4. Waste Storage and Segregation

The CMT will ensure that all construction waste generated onsite shall be segregated where possible. A waste compound will be provided as part of the site infrastructure and will hold waste skips for the segregation of waste at source as much as is practicable. Every effort will be made to avoid cross-contamination of waste materials.

Wastes will be segregated into separate bins and skips according to waste type, including:

- Timber;
- Metal;
- Paper/cardboard;
- Paint/chemical containers; and
- Oils and greases.

Any potentially hazardous waste will be packaged and labelled appropriately before being moved to the appropriate waste storage area prior to collection by an authorised waste collection permit holder.

The following rules are to be followed for storage:

- Where wastes that are intentionally collected in containers with covers to control nuisances or hazards, covers are kept closed except when being filled or emptied.
- All liquid wastes are stored in closed tanks or sealed containers except when being filled or emptied.
- Waste containers are managed in areas with a non-permeable surface and adequate secondary containment or diversion systems to handle spills.
- Wastes that are incompatible are stored separately and provided with separate secondary containment to prevent hazard upon concurrent release.
- Waste is not permitted, where possible, to come into contact with rain.
- Steel containers of waste are stored in locations that protect the container from corrosion if the container is not designed for outdoor use.
- Wastes containing harmful materials are securely stored at designated locations to prevent accidental release, unauthorized access, and theft.
- Waste storage locations are clearly identified and designated for consolidation and collection of waste with such methods as signage or floor markings.
- Any excavated soil with a potential for contamination should be kept separate and not mixed with other previously excavated soil.

Waste Removal and Documentation

Removal of waste will be managed by the Site Waste Management Contractor. The CMT will oversee removal of waste from site, waste transfer notes and collection of waste information for SSE.

The CMT also ensures that any sub-contractor used by them is approved by SSE and has a current waste collection permit in accordance with the *Waste Management (Collection Permit) Regulations 2007* (as amended) and current waste facility permits/licences for any waste facilities that will be used in accordance with the *Waste Management (Facility Permit & Registration) Regulations 2007* (as amended) and the *Waste Management (Licensing) Regulations 2000* (as amended).

In order to transfer waste off site a waste collection permit to transport waste must be held by the relevant waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of

such facilities cannot receive any waste, unless in possession of a waste permit granted by the relevant Local Authority, where the facility is located, under the *Waste Management (Facility Permit & Registration) Regulations 2007* (as amended) or a waste licence granted by the EPA. The permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specified site.

For waste being transported to another site, the Waste Management Contractor will retain a copy of the Local Authority waste permit or EPA Waste Licence for that site. If the waste is being shipped abroad, the Waste Management Contractor arranges the relevant Trans frontier Shipping (TFS) documentation to allow the material to be shipped to an appropriate licenced treatment facility.

A certificate of disposal for all hazardous materials shipped offsite is kept as part of the waste management records.

Each consignment of waste taken from the site is subject to appropriate documentation, which will ensure full traceability of the material to its final destination as per Table B.1.

The Environmental Officer will liaise with Waste Contractor personnel to ensure full details of all waste arising's, movements and treatment of waste discards are recorded during the project. All waste records are managed and retained by the site waste management contractor and are readily accessible to SSE personnel to view. A certificate of destruction (disposal) must be provided for hazardous waste.

Table B.1 Details to be included within Waste Transportation Dockets

Detail	Particulars
Name of Project of Origin	e.g. energy facility
Material being Transported	e.g. Concrete, Metals, Crushed Asphalt etc.
Waste Catalogue Code	e.g. 20 01 XX
Trans frontier Shipment Form	As applicable
Quantity of Material	e.g. 20.50 tonnes. (exact weight available from waste contractor at their facility)
Date of Material Movement	e.g. 01/01/2021
Waste Transporter and Collection Permit No.	e.g. Authorised Carriers Ltd. Permit No. XXXXX
End Destination and Waste Facility Permit/Licence Destination of Material	e.g. Authorised Waste Facility and relevant EPA Licence number or Waste Facility Permit number.
Recovery/Disposal Code	e.g. R1/D1

Training & Awareness (Waste Management)

The training and awareness of the site staff in relation to waste management is the responsibility of the CMT. The Construction Management Team ensures that all operatives & staff receive appropriate Safety & Environmental training.

Waste management arrangements for the project are to be communicated to contractors at tender stage and to all construction personnel at induction stage. All site personnel and sub-contractors learn on induction about the objectives of the Resource & Waste Management Plan and are informed of their responsibilities, which fall upon them.

Waste awareness sessions (toolbox talks) will be held for all site crew during the project, to outline the waste section of the CEMP, detail the segregation of waste materials at source and material reuse techniques (if they can be applied).

Waste management priorities will be highlighted and reinforced at weekly Environmental, Health and Safety (EHS) Contractor progress meetings and by information posters displayed prominently on site.

Inspections and Audits

The CMT is responsible for conducting waste audit/s on a regular basis at the site.

Weekly site audits, walk downs will be undertaken by the Environmental Officer to ensure waste management procedures are being followed onsite (good housekeeping and waste segregation). Any issues found will be discussed with the staff as appropriate and addressed as required.

Waste movements will be audited periodically by the Environmental Officer, by reviewing Waste Transfer Notes and documentation as required from the CMT's waste management system. If waste movements are not accounted for, the reasons for this should be established in order to determine if and why the record keeping system has not been maintained.

This will offer a consistent and frequent monitoring of the waste management process with follow-up on corrective actions as required ensuring compliance with project requirements.

The management and segregation of construction related waste will be subject to inspection and audits by the CMT.

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

B5. Design Approach

As per the EPA guidance document, (Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects, EPA 2021), this section looks to address the design approach to this project. Table B.2 summarises the steps taken during the project to incorporate steps in the design approach outlined in section 4 the EPA guidance document.

3,605m³ of excavated soil is forecasted for this project. This excavated soil material will be dealt with appropriately as per the Waste Management Act of 1996 (as amended) and associated Regulations and relevant EPA guidance^{1,2} on the subject.

The design process has considered resource efficiencies and waste prevention at a number of key points in the design process and construction stages. A summary of these are shown in Table B.2.

-
- ¹ EPA (2020). Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities. EPA, Johnstown Castle, Wexford, Ireland.
 - ² EPA (2019). Guidance on Soil and Stone By-products in the context of article 27 of the European Communities (Waste Directive) Regulations 2011. Version 3. EPA, Johnstown Castle Estate, Wexford, Ireland.

Table B.2: Design Approach Aspects & Considerations

Aspects to consider in design, construction phases ³	Steps In Design and Construction
Document design initiatives adopted for Materials Optimisation – refer to Section 4.3.4 of guidance document ^{1,2} .	3,605m ³ of soil to be excavated onsite, will be used as infill where possible. 11,734m ³ of soil to be reused onsite, in a landscaping berm.

³ Best Practice Guidelines for the Preparation of Resource Management Plans for Construction and Demolition Projects, EPA 2021

B6. Identification of Waste Streams and Outcomes

The projected hazardous and non-hazardous waste streams likely to arise during the construction phase on site are identified and recorded in Tables B.3 and B.4. These tables are to be updated regularly as required when/if new waste streams arise.

Also upon completion of the project, Tables B.3 and B.4 are to be updated by the CMT including data on the outcomes of the project's waste management, i.e. statistics on recovery, reuse, recycling and final destinations for all waste resources taken off-site.

Table B.3: Resource and Non-Hazardous Waste Forecast and Inventory

Waste Name	LoW Code	Predicted Waste Volumes (tonnes)	Waste Disposal Route	Volume Generated (tonnes)	Prevention (tonnes) (non-waste)	Reused (tonnes) (non-waste)	Recycled (tonnes) (waste)	Recovered ¹ (tonnes) (waste)	Disposed (tonnes) (waste)	Recycling/Recovery Target (%)	Waste Management Company	Waste Carrier	Waste Carrier Permit No.	Waste Destination Site	Waste Facility Permit/Licence No.	Comments
Timber	17 02 01	15	Reuse/ Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	Timber pallets and cable drums will be returned to supplier or sent for direct reuse where possible. It is expected there will be timber waste generated from material off-cuts, used cable drums, damaged pieces and wooden pallets and crates used for deliveries to site. Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc., will be segregated at source and stored in dedicated skips and collected on site by a designated waste contractor for recycling.
Glass	17 02 02	10	Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	A designated skip will be provided for any broken or other waste glass, which can then be recycled.
Plastic	17 02 03	12	Recycling							75	TBC	TBC	NWCPO-	TBC	TBC	Plastic generated will be primarily from packaging and material off-cuts. All recyclable plastic will be segregated at source and stored in dedicated recycling skip.
Cardboard	20 01 01	8	Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	Excess cardboard will be generated from shipping containers, boxes, packing material etc. Cardboard will be flattened and placed in a designated covered recycling skip on site to prevent it getting wet.
Metals (including their alloys)	17 04	107	Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	Metals will be segregated for recycling e.g. mixed ferrous, aluminium, stainless steel, etc. Metals will be segregated at source from other waste streams and stored in dedicated skips. Steel panels are comprised of composite metal and non-metal materials bonded together and are therefore more difficult to recycle; these will be taken off-site by a designated waste contractor for specialist shredding, metal recovery and conversion of the residual to fuel will be used for energy generation at suitably licensed facilities.
Insulation materials e.g. piping and ducting, insulation panels etc. (non-hazardous)	17 06 04	32	Recovery ¹							75	TBC	TBC	NWCPO-	TBC	TBC	Waste insulation materials (e.g. offcuts etc.) will be separated and placed in a designated covered recycling skip on site to prevent it getting wet. This waste will be collected by a designated waste contractor to be recycled.
Concrete	17 01 01	353	Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	Any concrete generated is expected to be clean, inert material and it is proposed to reuse it for construction purposes where possible. Where not possible it will be sent for appropriate recovery, recycling or disposal.
Waste Electrical and Electronic Equipment (WEEE)	20 01 36	0.5	Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	This will consist of electrical equipment out of date or damaged. Any electrical or electronic equipment will be taken back by the suppliers or sent for appropriate recycling. A receptacle will be available for WEEE.
Excess soil and stones (non-hazardous)	17 05 04	11	Reuse							100	TBC	TBC	NWCPO-	TBC	TBC	If there is any excess inert soils and subsoils excavated that are not required or suitable for reuse on site, this waste will be re-used offsite. Material will only be moved and reused by suitably licensed waste contractors and facilities.
Paints, inks, adhesives and resins	20 01 28	1	Recovery ¹							75	TBC	TBC	NWCPO-	TBC	TBC	Paints, inks, adhesives and resins will be collected separately on site and removed by a designated waste contractor for appropriate recycling or disposal.

¹ Recovered here includes energy recovery, backfilling and other recovery

Table B.4: Resource and Hazardous Waste Forecast and Inventory

Waste Name	LoW Code	Predicted Waste Volumes (tonnes)	Waste Disposal Route	Volume Generated (tonnes)	Prevention (tonnes) (non-waste)	Reused (tonnes) (non-waste)	Recycled (tonnes) (waste)	Recovered ¹ (tonnes) (waste)	Disposed (tonnes) (waste)	Recycling /Recovery Target (%)	Waste Management Company	Waste Carrier	Waste Carrier Permit No	Waste Destination Site	Waste Facility Permit/Licence	Comments
Hydraulic oils	13 01*	.7	Recovery ¹							75	TBC	TBC	NWCPO-	TBC	TBC	Liquid waste will be stored in drums in a designated bunded area of the construction compound. When the drums are full, the site waste contractor will be notified, and they will arrange for the material to be transported off site to an approved waste recovery facility.
Engine, gear and lubricating oils	13 02*	1	Recovery ¹							100	TBC	TBC	NWCPO-	TBC	TBC	
Liquid Fuels	13 07*	0.8	Recovery ¹							75	TBC	TBC	NWCPO-	TBC	TBC	
Oil wastes not otherwise specified	13 02 08*	2	Recovery ¹							75	TBC	TBC	NWCPO-	TBC	TBC	
Insulation materials, e.g. piping and ducting, insulation panels, etc.	17 09 03* / 17 06 03*	2	Incineration							NA	TBC	TBC	NWCPO-	TBC	TBC	These will be transferred to a specialised container in the waste storage area and taken off site by a licensed waste contractor for disposal.
Paints, inks, adhesives, resins	20 01 27*	0.4	Incineration							NA	TBC	TBC	NWCPO-	TBC	TBC	These will be transferred to a specialised container in the waste storage area and taken off site by a licensed waste contractor for disposal.
Absorbents, filter materials, wiping cloths and protective clothing	15 02 02*	0.5	Incineration							NA	TBC	TBC	NWCPO-	TBC	TBC	All disposable PPE or material will be segregated from non-hazardous waste and disposed of in designated waste receptacles. All wipes and cloths used in the event of spills on site will be treated as hazardous waste and will be managed accordingly.
Waste Electrical and Electronic Equipment (WEEE)	20 01 35*	0.1	Recycling							100	TBC	TBC	NWCPO-	TBC	TBC	This material will be transferred to a specialised container in the waste storage area and be taken off site by a licensed waste contractor.

¹ Recovered here includes energy recovery, backfilling and other recovery

* Hazardous Material