

**Clifton Scannell Emerson**  
Associates

# Outline Construction and Environmental Management Plan EngineNode 220 kV Substation and Grid Connection



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**Client: EngineNode**

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**Date: 1<sup>st</sup> September 2020**

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CONSULTING ENGINEERS

Civil Engineering   Structural Engineering   Transport Engineering   Environmental Engineering   Project Management   Health and Safety





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## Document Control Sheet

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## 1 Introduction

This Outline Construction Environmental Management Plan (CEMP) has been prepared by Clifton Scannell Emerson Associates (CSEA) on behalf of EngineNode in support of a planning application to An Bord Pleanála (ABP) for planning permission for the provision of the following:-

- new Gas Insulated Switchgear (GIS) 220 kV Substation (Gunnocks),
- two 220 kV underground circuits from the proposed Substation to two new interface compounds which connect the proposed underground cables to the existing 220 kV overhead line between Corduff and Woodlands,
- an underground 75kVA cable installation which replaces existing overhead lines which traverse the EngineNode site and provides a new rural supply to the proposed substation.

EirGrid will be the transmission system operator (TSO). ESB Networks will be the transmission asset owner (TAO).

This Outline CEMP defines the approach to environmental management at the site during the construction phase. It provides a basis for achieving and implementing the construction related mitigation measures identified in the Environmental Impact Assessment Report (EIAR, Chapter 1, Appendix 1.1 Schedule of Mitigation) and promotes best environmental on-site practices for the duration of the construction phase.

The outline CEMP provides a framework from which a final CMP will be developed to avoid, minimise or mitigate any construction effects on the environment prior to commencement on site.

The contractor will prepare specific method statements which should identify perceived risks to the environment and detail mitigation measures to be employed which will negate the risk to the environment.

The main issues that have been considered within this document are as follows;

- Description of works;
- Construction programme and phasing;
- Site logistics;
- Workforce;
- Public relations and community liaison;
- Construction traffic and access; and
- Safety, health and environmental management.

Preparation of the final CEMP should comply with the Schedule of Mitigation Measures presented in the EIAR (Chapter 1, Appendix 1.1 Schedule of Mitigation) and all additional measures may be added to following consultation with relevant consultees in preparation of specific method statements prior to commencement of works.

## 2 Description of the Project

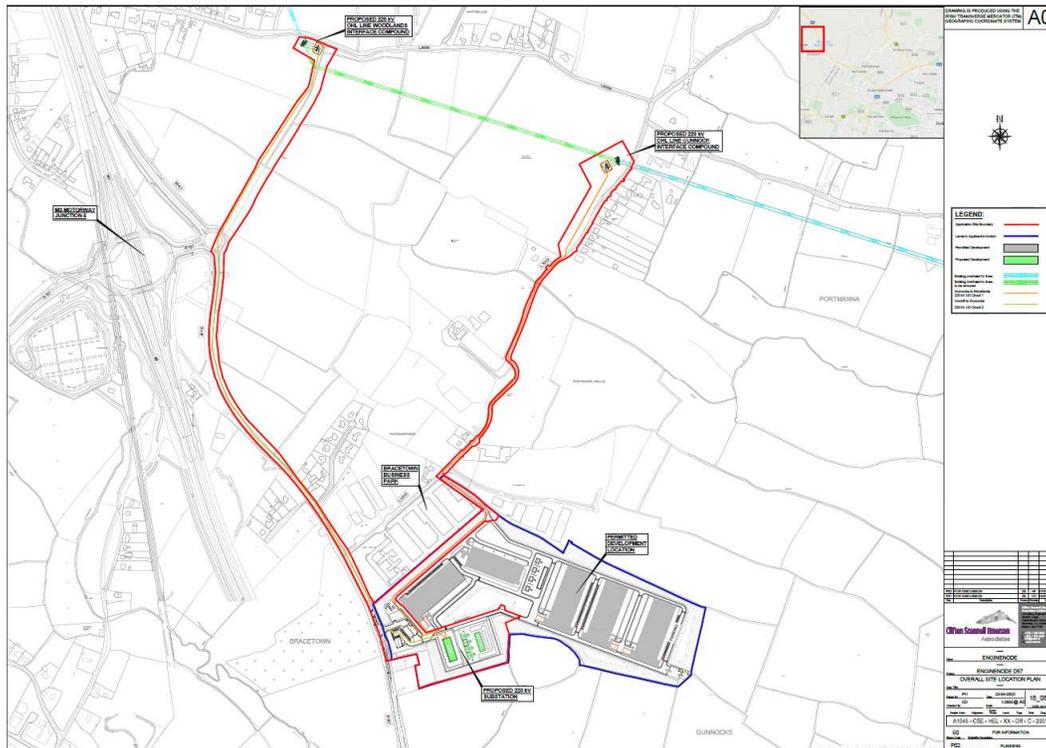
The Proposed Development comprises a new Gas Insulated Switchgear (GIS) 220 kV Substation (Gunnocks) and two underground 220kV cable circuits which will connect to two separate points along the existing overground 220 kV (Woodland – Corduff overhead line (ref Figure 2.1)).

The substation will be located immediately south of the concurrent EngineNode data storage facility proposed development, all currently within a large greenfield area located in Bracetown, Dunboyne, Co. Meath just off the M3 Motorway. The site is located c. 1.8km north-east of Dunboyne and traverses the townlands of Bracetown, Gunnocks, Normanstown, Pace and Portmanna, in the Barony of Dunboyne and the Civil Parish of Dunboyne.

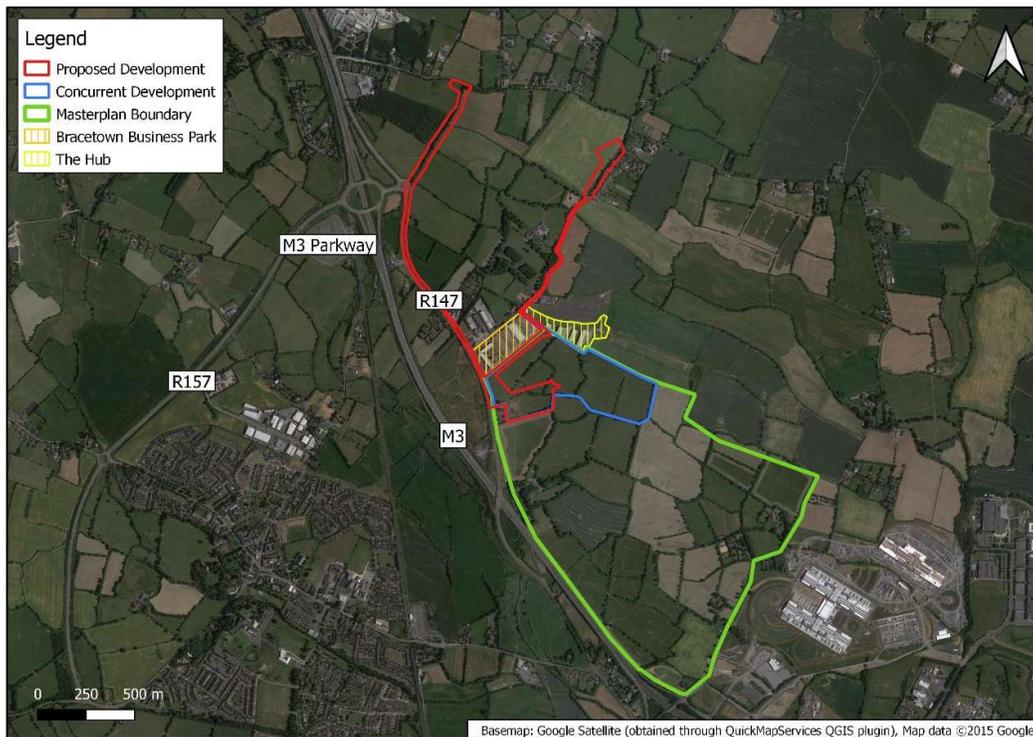
The substation site is 1.7 hectares in area and is zoned as industrial/commercial (E2 - General Industry and Employment/E3 - Warehousing and Distribution as per the Meath County Development Plan 2013-2019 (MCDP)).

The route of the 220 kV circuit comprises 2 no. underground cables, as follows:

- Circuit 1 - Gunnocks to Woodlands
- Circuit 2 - Gunnocks to Corduff.



**Figure 2.1** Proposed development (substation and grid lines)



**Figure 2.1b** Proposed Development Lands (Red boundary), concurrent datacentre development (blue) and Masterplan area (green)

The Gunnocks-Woodland route will run (subsurface) along the R147 road from the proposed substation building c.1km to its junction with the R157 road. At this point, the route will cross agricultural land, where it continues to the NE c. 550m towards the existing overhead 220kV line, located c.80m to the south of the L5026. The ground level along the route varies between 69-76mOD.

The Gunnocks- Corduff route is projected along the L1010 road from the proposed substation site c. 750m to the NE where it enters the planned datacentre development site prior to exiting to the L1010 route for c. 300m towards the existing overhead 220kV line, located c.160m to the south of the L5026. The ground level along the route varies between 71-74mOD.

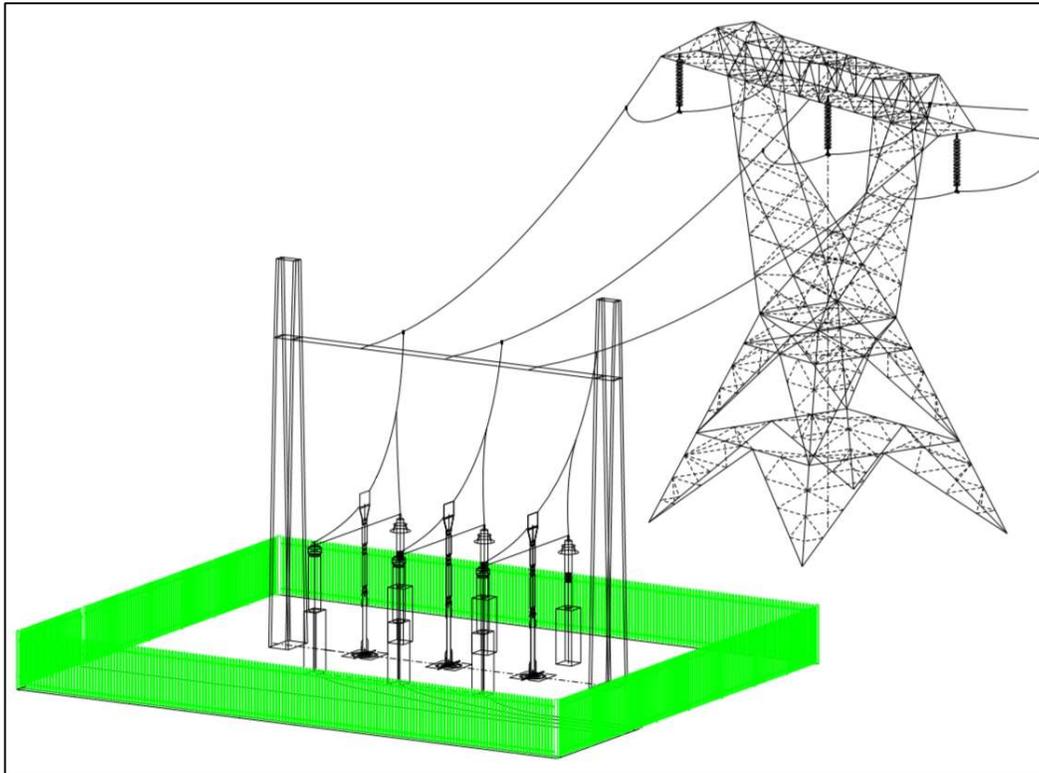
Figure 2.1 illustrates the boundary of the proposed substation (blue) and the boundary of the concurrent datacentre proposed development and overall landholding (red). Bracetown Business Park is located to the north-east of the datacentre development with further warehouse development (The Hub Logistics Park) currently being constructed to the north and north west of the site. Planning for data storage facilities (Runways - Planning Ref. RA/180671) has been obtained for lands to the west and south of the site and construction is ongoing. The R147 forms part of the western boundary.

The substation is accessible from the R147 and in time will be accessed through the datacentre development from a new access in the northwest once road development works are completed.

Each underground 220 kV underground circuit will terminate at a “cable – overhead interface compound” measuring 27 m x 22 m and contain air-insulated electrical equipment mounted on concrete plinths. Adjacent to each interface compound, an overhead line tower will be erected to facilitate connection of the new underground cables to the existing “Woodland – Corduff” overhead line. Each new overhead line tower will be approximately 21 m in height and require 4 concrete plinths to support the new structure.

Two existing overhead towers would be made redundant after construction of the above interface infrastructure and the transmission system operator/owner (Eirgrid/ESB Networks) may remove them

as part of a separate project. Please refer to below figure for overview of the proposed interface compounds and associated overhead lines:



**Figure 2.2** Example of Interface compound

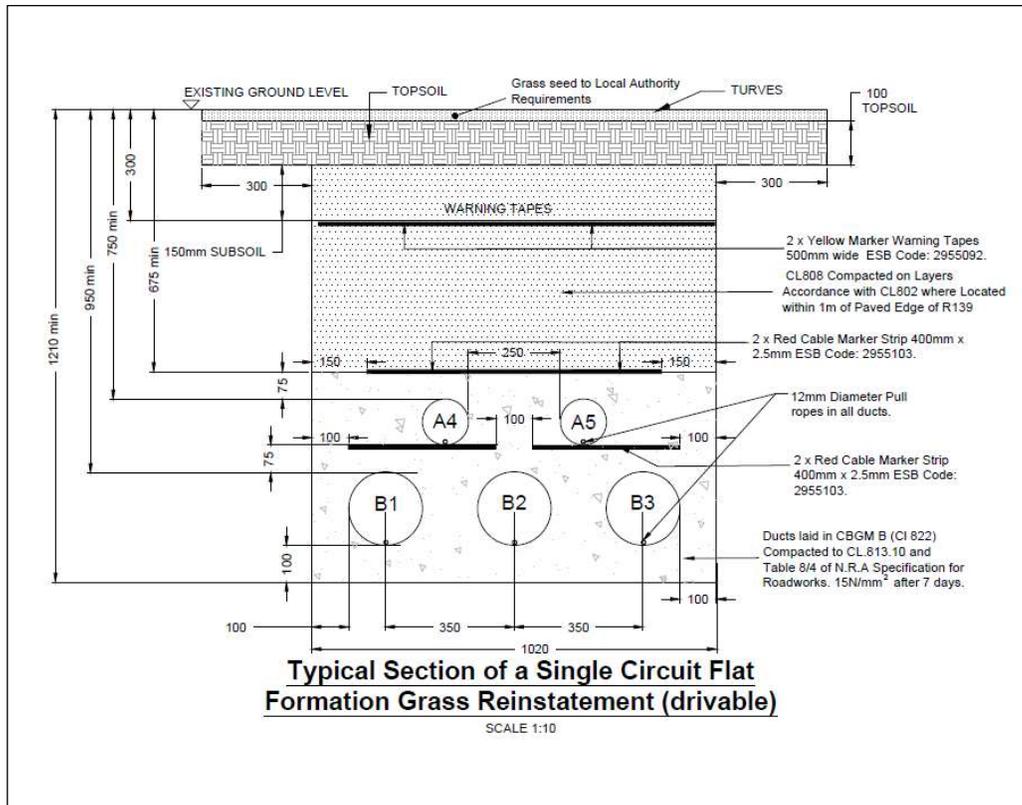
The development will comprise:

- 1 no Indoor Gas Insulated Switchgear (GIS) two storey building equipped with 8 no. 220kV bays and rated for the system voltage of 220 kV;
- Approximate Building dimensions (L: 63 metre W: 21 metre H: 17.5 metre)
- Two 220kV underground cables which will connect the proposed Substation development to existing transmission system;
- 2 no. Oil-filled step-down 220/20 kV power transformers positioned within banded enclosures; (height circa 2 x 8.6 m);
- 6 no. lightning protection masts (height circa 6 x 19 m);
- Single storey buildings used for control and ancillary;
- Internal access roads;
- A 2.6-metre-high palisade fence;
- Drainage infrastructure; and
- All associated and ancillary site development works.

The 220 kV underground cable feeders will comprise a 220 kV circuit installed underground in HDPE ducting. The 220kV cables will be a standard XLPE (cross-linked polyethylene) copper cable. XLPE does not contain oil, therefore there is no risk of migration of oil into ground in the event of a failure.

The installation of the HDPE ducting will require the excavation of a trench along each of the connection routes. The typical optimum depth of excavation required to facilitate installation of the ducting is c. 1.35m below ground level (bgl) but may increase to up to c. 3.0 to 6.0m at utility crossings. The typical optimum width of each trench is c. 1.0m, however this may vary depending on ground conditions and existing services. A width of 5 metres is required for construction access.

A typical cross section of the trench utilising flat and trefoil duct arrangement for the 220 kV cables is illustrated in Figure 2.3.



**Figure 2.3** Typical Cross Section of Trench with Flat and trefoil Duct arrangement for 220 kV underground cable

The design of the 75 kVA underground cable will comprise a looped MV circuit installed underground in HDPE ducting. The MV cables will be a standard XLPE (cross- linked polyethylene) Aluminium cable. XLPE does not contain oil, therefore there is no risk of migration of oil into the ground in the event of a failure (such as a short circuit, a joint fail, a termination failure etc.).

The Proposed Development is not located directly adjacent to any areas of national or local environmental sensitivity/designation.

### 3 Construction Programme and Phasing

Subject to grant of planning permission, construction work is anticipated to commence at the end of Q4 2020 with completion of construction and commissioning scheduled for the end of Q3 2022.

The construction works associated with the development consist of the following principal elements:

The construction of the proposed 220 kV GIS substation will comprise four main stages, namely;

- Site preparation works;
- Building Structure Construction;
- Building Envelop Construction; and
- Fit Out Including M&E fit-outs and commissioning.

The construction of the 220 kV transmission line and 75 kVA cable installation will comprise three main stages, namely;

- Site preparation works and excavations;
- Cable installation, jointing, testing; and
- Reinstatement.

The construction of the 2 no. new overhead drop down towers will comprise three main stages, namely;

- Site preparation works and excavations;
- Construction of concrete bases for the electrical apparatus; and
- Fit Out Including M&E and commissioning.

#### **Site Preparation**

It is proposed that the accesses and haul roads for vehicles, the contractors' compound and fencing that have been established for the construction of the concurrent data storage development will be utilised for the proposed development, where possible.

The construction compound will facilitate office, portable sanitary facilities, equipment storage, parking etc. for contractors. It will be used for the duration of the works.

The primary activities that will be required during the site preparation phase for the GIS substation will be site clearance, excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures and any rerouting of services/connections to services.

A combination of excavators, trucks and other soil shifting plant will commence the main site clearance and levelling aspects.

The site preparation required for the 220kV transmission line, the 75 kVA cable installation and the 2 no. new interface compounds will be limited with minimal site clearance required.

#### **Building Construction Works**

##### *Foundations and Structure*

Following the completion of site clearance and levelling, all structures will require foundations to structural engineer specifications. Building structures will comprise standard structural steel frames.

It is anticipated that foundations will require moderate scale excavations. Local minor dewatering may be required during excavation works and groundworks (depending on the time of year development works are carried out).

##### *Levelling/Cut and Fill*

It is predicted that all of the spoil generated during site preparation/levelling will be removed from site.

The importation of fill will be required to facilitate construction the substation compound and the transmission line.

Contractors will be required to submit and adhere to a method statement (including the necessary risk assessments) and indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

Any temporary storage of spoil required will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

*Building Envelopes and Finishes*

The outer finishing of the building envelopes are intended to be of a similar quality and appearance to the concurrent developments.

Reinstatement along the 220kV transmission line and 75 kVA cable installation route will be as current, i.e. grassed in greenfield areas and hardstand along paved areas and roads.

*Roads, Services and Landscaping*

The internal road system will be completed as part of the EngineNode concurrent development.

Landscaping will be undertaken in accordance with the landscape masterplan for the proposed development (refer to Chapter 11 of EIAR).

## 4 Excavation

### 4.1 Archaeological and Architectural Heritage

Geophysical survey was undertaken in March 2019 by Target Archaeological Geophysics (Licence no. 19R0071) as part of the overall archaeological management plan for the main development site. The survey objectives were to identify the location, form and extent of buried archaeological remains, where present within the site boundary, and to advise further works prior to proposed development at the site. A programme of archaeological test excavations commenced on site by Stephen Hickey of AMS Consultants in May 2020 and is on-going at the time of writing (License no. 20E0246). The purpose of the site assessment was to identify any archaeological, architectural or cultural heritage features or areas of archaeological potential within the site. The testing is focussed on the potential features identified during the geophysical survey but will also assess the entire site.

There are no direct or indirect (visual) impacts on the architectural heritage features identified within the desktop assessment due to their distance from the site, local topography and intervening developments.

Potential impacts on archaeological and cultural heritage associated with the proposed development involves ground disturbance associated with the construction of the proposed GIS substation and the excavation of the trench for the proposed cable installations.

Archaeological monitoring (by a suitably qualified archaeologist under license to the National Monuments Service) should be undertaken where ground disturbance will be undertaken in greenfield areas

Any archaeological features identified during monitoring will require permission from National Monuments for archaeological excavation (preservation by record) of these remains, in advance of development works continuing in these areas.

Financial, logistical and time provision should be made for archaeological excavation, if required, prior to the commencement of the construction phase of the development.

The estate wall and other features associated with Normanstown estate should be avoided and provision made for its protection during construction works.

*Please note that the recommendations given here are subject to the approval of the National Monuments Service, Department of the Culture, Heritage and the Gaeltacht.*

### 4.2 Ground Condition

Groundworks will be required to clear the site and to facilitate construction of building foundations, access roads, utilities and landscaping. The Land, Soils, Geology & Hydrogeology Chapter of the EIAR details the existing ground conditions at the site and provides a summary of the anticipated stratigraphy of the soil beneath the site.

Site investigations undertaken in 2019 within the Enginenode development area confirmed the following subsoil structure in the area where the Substation is projected:

- Topsoil: Topsoil is generally 0.1-0.2m thick.
- Subsoil: Below the topsoil, the subsoil is primarily made up of:
  - Silt/Clay up to 0.5-0.8mbgl;
  - Sandy Gravel up to 2.2-2.5mbgl;
  - Sandy gravelly Clay up to 4.9-5.5mbgl
  - Bedrock: Bedrock was encountered at depth between 4.9-5.5mbgl. in the Substation area.

The boulder clays generally exhibit very low permeability in the order of  $1 \times 10^{-7}$  to  $1 \times 10^{-9}$  m/s or lower. The glacial boulder clay provides protection to the underlying limestone bedrock (fracture dominated flow).

No indications of contamination were recorded during the site investigation works within the Enginenode or Substation site.

Along the the R147 and L1010 routes, made ground is expected.

The surplus soils and stones may be suitable for acceptance at either inert or non-hazardous soil recovery facilities/landfills in Ireland or, in the event of hazardous material being encountered, be transported for treatment/recovery or exported abroad for disposal in suitable facilities.

## **5 Site Logistics**

### **5.1 Site Establishment and Security**

It is proposed that the accesses and haul roads for vehicles, the contractors' compound and fencing that have been established for the construction of the concurrent proposed data storage facility development will be utilised for the Proposed Development. The construction compound will facilitate office, portable sanitary facilities, equipment storage, parking etc. for contractors. It will be used for the duration of the works.

### **5.2 Consents and Licences**

All statutory consents and licences required to commence on-site construction activities will be obtained ahead of works commencing, allowing for the appropriate notice period. These will include, but are not limited to:

- Site notices;
- Construction commencement notices; and
- Licence to connect to existing utilities and mains sewers, where required.
- Road opening licences.

### **5.3 Service and Utilities**

Welfare facilities (canteens, toilets etc.) will be available within the construction compound on site. The watermain from the concurrent EngineNode Data Storage Facility will be utilised in order to serve the proposed development during the construction.

### **5.4 Material Handling and Storage**

Key materials will include cables, steel structure, concrete and piping, apart from cables which are ordered by specific order for the project, a 'Just in Time' delivery system will operate to minimise storage of materials, the quantities of which are unknown at this stage. Where possible it is proposed to source general construction materials from the Greater Dublin area to minimise transportation distances.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound on site. Liquid materials will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications – BS EN 1992-3:2006) to prevent spillage.

Construction materials will be brought to site by road. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway.

The majority of construction waste materials generated will be soil from excavation works. Soil requiring removal offsite will be removed from site regularly to ensure there is minimal need for stockpiling.

### **5.5 Visitor Management**

Visitors will only be allowed to enter the main site compound at the western boundary of the site from the R147 Regional Road or via designated pedestrian access gates. A dedicated, secured footpath to

the security office is established at the gate for registration and obtaining PPE prior to entering the site. A log will be maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the site unless being accompanied by an inducted member of the site team.

Visitors will then be taken by an inducted member of the construction team to the required area of the site.

## **5.6 Site Working Hours**

Construction of the proposed development would take place over a period of approximately 18 months from the commencement of construction for site development works.

Majority of the 220 kV grid connection works are to be done on the R147 Regional Road and the L1010 Local Road. There are off-road sections in the EngineNode site and within farmland at the northern end of both Circuit 1 and Circuit 2. The works associated with the 75 kVA supply will be primarily located within the EngineNode site with the exception of the tie-in to the existing underground ESB MV network in the L1010. On-road works may require the incremental closure of one or more lanes on the R147 and potential a full-road closure on sections of the L1010. This will be managed via the T2 road opening licence application process with Meath County Council.

During the off-road section of works, no construction vehicles will access the EngineNode site (or commence work) before 7.30 a.m. and all construction vehicles departing the site will do so before 7.00 p.m. Construction activities will be carried out Monday to Saturday, with no on site construction activities to take place on Sundays or Bank Holidays. However, it is possible that the appointed contractors may wish to carry out certain operations outside these hours i.e. evening hours during long summer days etc. Such occurrences will be notified to the local authority, where required and generally kept to a minimum. Where they do occur, contractors will ensure they take place over as short a timeframe as possible and as such are unlikely to cause excessive disturbance.

The section of works requiring lane / road closures will be subject to a T2 road opening licence application to Meath County Council, which will inform the construction methodology and timing for these works.

## **5.7 Employment and Management Workforce**

In general, the civil works element of work will require a higher number of staff and construction vehicles compared to the cable installation, jointing and testing. The following construction data has been used to estimate peak daily construction traffic:

- Average construction staff: 15-20;
- Peak construction staff (peak staff levels during Civil Works): 30;

All employees working on the site will be required to have a Safe Pass Card (or similar approved Construction Health & Safety card), manual handling training and the necessary certificates to operate machinery, as required. The details of training required, records maintained, and induction procedures will be outlined in the Main Contractor's Health and Safety Plan(s).

## 6 Construction Traffic and Site Access

The route of the 220 kV underground cable involves works within the EngineNode site, along the R147 Regional Road, L1010 Local Road and within farmland. The route of the 75 kVA cable is entirely off-road, with the exception of the tie-in to the existing ESB Network on the L1010. On-road works may require the incremental closure of one or more lanes on the R147 and potential a full-road closure on sections of the L1010.

During construction of the proposed development, construction traffic will travel to and from the site via the construction site access located on the western section of the site off the R147 Regional Road. It is expected that the origins and destinations of construction traffic will continue to match the distribution of traffic currently using the surrounding road network.

The following measures will be put in place during the construction works:

- The contractor will be required to provide wheel cleaning facilities, and regular cleaning of the main access road;
- Temporary car parking facilities for the construction workforce (30 no. spaces) will be provided within the site for and the surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining roads;
- Monitoring and control of construction traffic will be ongoing during construction works. Construction traffic will minimise movements during peak hours.
- Construction Traffic routes minimising traffic impact on surrounding residential development will be used by construction vehicles.

### **Traffic Queueing**

Material deliveries and collections from site will be planned, scheduled and staggered to avoid any unnecessary build-up of construction works related traffic. In addition, a rolling site entrance and a setback area at the site entrance will be provided to reduce or eliminate traffic queueing on R147.

### **Site Hoarding and Security Fencing**

Security fencing has already been established around the site compound.

Site access will be restricted by dedicated security personnel who will check all incoming and outgoing vehicles and workers.

## 7 Safety, Health and Environmental Considerations during Construction Works

The appointed main contractor will be required to prepare a Construction Health & Safety Plan which will be put in place prior to commencement of the works. At a minimum, this plan will include:

- Construction Health & Safety training requirements;
- Induction procedures;
- Emergency protocols; and
- Details of welfare facilities.

The environmental considerations specific to this site are summarised below and in Appendix A Schedule of mitigation measures.

### 7.1 Air Quality

This section describes the site policy with regard to dust management and the specific mitigation measures which will be put in place during construction works. The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the following measures have been formulated by drawing on best practice guidance from Ireland, the UK and the US, such as:

- Department of Environment, Heritage and Local Government (DOEHLG), *Quarries and Ancillary Activities, Guidelines for Planning Authorities* (2004) <sup>1</sup>;
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) <sup>2</sup>;
- The Scottish Office – Development Department, *Planning Advice Note PAN50 Controlling the Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings* (1996) <sup>3</sup>; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) <sup>4</sup>.

### Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the close proximity of sensitive receptors such as watercourses, residents and pedestrians. Dust management during the construction phase will be the most important aspect in terms of minimising the impacts of the project on the surrounding air quality. The following measures will also be implemented to ensure impacts are minimised:

- Complaint registers will be kept detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- Equipment and vehicles used on site will be in good condition such that emissions from diesel engines etc. are not excessive; and
- Pre-start checks will be carried out on equipment to ensure they are operating efficiently and that emission controls installed as part of the equipment are functional.

### Dust Control Measures

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design, planning and effective control strategies. The siting of construction activities and the limiting of stockpiling will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse weather conditions by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs.

- During working hours, technical staff will be available to monitor dust levels as appropriate; and
- At all times, the dust management procedures put in place will be strictly monitored and assessed.

The dust minimisation measures should be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust generation. In the event of dust nuisance occurring outside the site boundary, site activities should be reviewed, and procedures implemented to rectify the problem. Specific dust control measures to be employed are presented below.

### **Site Roads**

Site access routes (particularly unpaved routes) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25% to 80% <sup>5</sup>.

- A speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles;
- Bowsers will be available during periods of dry weather throughout the construction period. Research shown found that the effect of surface watering is to reduce dust emissions by 50% <sup>6</sup>. The bowser will operate during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use;
- Access gates to the site shall be located at least 10m from sensitive receptors where possible; and
- Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.

### **Land Clearing/Earth Moving**

Land clearing/earth-moving works during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust;
- During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.

The movement of truck containing materials with a potential for dust generation to an off-site location will be enclosed or covered.

### **Stockpiling**

The location and moisture content of rubble stockpiles are important factors which determine their potential for dust emissions. The following measures will be put in place:

- Overburden material will be protected from exposure to wind by storing the material in sheltered parts of the site, where possible;
- Regular watering will take place during dry/windy periods to ensure the moisture content is high enough to increase the stability of the soil and suppress dust;
- There will be no storage of soil along the cable route; and
- Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.

### **Site Traffic on Public Roads**

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:

- Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;
- At the main site traffic exits, a wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash; and
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary.

### **General**

The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory management of dust by the construction contractor.

## **7.2 Ecology**

The proposed development will have a neutral imperceptible effect on designated sites within the zone of impact of the development site. The proposed development is located in an area of low ecological value and as such predicted to have a neutral imperceptible effect on biodiversity.

There will be no impacts on water courses. There are two crossings of Watercourses (the Pace and Normansgrove Streams) on Circuit 2 Gunnocks to Corduff. It is proposed to cross both of these streams at the existing culverts where the streams are crossed by the L1010 Local Road. The proposed ducting will be installed within the existing roadbed at the culvert crossings in order to minimise any impact on the watercourses in question.

The key strategies to be undertaken to minimise impact on the local flora and fauna during site clearing and construction are as follows.

- All site clearance and landscaping works will comply with current legislative requirements and best practice;
- Where possible, the removal of trees and tree lines suitable for use by nesting birds will be undertaken outside the bird nesting season (avoiding the period 1st March to 31st August);
- Should any trees or tree lines be removed that contain features suitable for roosting bats, such work will only be done during the autumn months;
- Taking measures to limit the working area during the construction phase will reduce the impacts of the development on adjacent areas. The construction area will be clearly delimited by the site boundary and machinery should operate only within this allocated site area;
- All re-fuelling of plant, equipment and vehicles will be carried out at the construction compound in the area of future development adjacent to proposed 220 kV Substation. All fuels, chemicals, liquid and solid waste will be stored in areas bunded in accordance with established best practice guidelines at the construction compound.
- Provision of a water and sediment management plan, providing for means to ensure that surface water run-off is controlled such that no silt or other pollutants enter local water courses or drains.
- The measures outlined in Section 7.5 will ensure that silt run-off and potential flooding risks are minimised which will protect any ecological receptors associated with the site.

### 7.3 Noise and Vibration

Noise impacts arising from earthworks and construction activities have the potential to cause annoyance or nuisance to local residents in the area. The earthworks will generate typical construction activity related noise and vibration sources from use of a variety of plant and machinery such as rock breakers (where required), excavators, lifting equipment, dumper trucks, compressors and generators.

The noise limits to be applied for the duration of the infrastructure works are those specified in the B Category of BS 5228. These limits are summarised below and will be applied at the nearest sensitive receptors to the works.

- Night (23:00-07:00) = 55dB
- Evening (19:00-23:00) = 65dB
- Day (07:00-19:00) = 70dB
- At the commercial property = 75dB

The total noise (LAeq) which should not be exceeded during daytime is therefore 70dB. Vibration limits to be applied for the infrastructure works are those specified in the TII document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII, Revision 1, 2004). These limits are outlined below:

Allowable Vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of;

- Less than 11Hz - 3mm/s
- 11 to 50 Hz - 3 to 8mm/s
- 50 to 110 Hz (and above) - 8 to 11mm/s

Any noise complaints related to activities at the site will be logged and investigated and, where required, measures taken to ameliorate the source of the noise complaint.

A designated noise liaison should be appointed to site during construction works. Any complaints should be logged and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity, e.g. excavation close to a property, etc., the site contact should inform the nearest noise sensitive locations of the time and expected duration of the works.

All works on site shall comply with BS 5228 2009+ A1 2014 (Parts 1 & 2) which gives detailed guidance on the control of noise and vibration from construction activities. In general, the contractor shall implement the following mitigation measures during the proposed infrastructure works:

- Avoid unnecessary revving of engines and switch off equipment when not required.
- Keep internal haul roads well maintained and avoid steep gradients.
- Minimise drop height of materials.
- Start-up plant sequentially rather than all together

More specifically the Contractor shall ensure that:

- In accordance with "Best Practicable Means", plant and activities to be employed on site are reviewed to ensure that they are the quietest available for the required purpose.
- Where required, improved sound reduction methods are used e.g. enclosures.
- Site equipment is located away from noise sensitive areas, as much as physically possible.
- Regular and effective maintenance by trained personnel is carried out to reduce noise and / or vibration from plant and machinery.
- Hours are limited during which site activities likely to create high levels of noise and vibration are carried out.
- A site representative responsible for matters relating to noise and vibration will be appointed prior to construction on site.

## **7.4 Waste Management**

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment.

Chapter 15 of EIAR contains a detailed description of waste management relating to construction of the proposed development. A site-specific Construction and Demolition Waste Management Plan is included as Appendix 15.1 of the EIA Report. This C&D Waste Management Plan will be refined and updated in advance of the works to ensure best practice is followed in the management of waste from the proposed development.

Adherence to the C&D Waste Management Plan prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the Waste Management Acts 1996 – 2011 as amended 7, associated Regulations 7, the Litter Pollution Act of 1997 as amended 8 and the Eastern-Midlands Region Waste Management Plan 2015 – 2021 9, and achieve optimum levels of waste reduction, re-use and recycling.

Typical waste materials that will be generated from the construction works will include:

- Soil and stones;
- Biodegradable/Green waste
- Bituminous mixtures, coal tar and tarred products;

The management of all hazardous waste materials, if they occur, shall be coordinated in liaison with Health and Safety Management.

### **7.4.1 Waste Minimisation**

Waste minimisation measures proposed are summarised as follows:

- Materials will be ordered on an 'as needed' basis to prevent over supply;
- Materials will be correctly stored and handled to minimise the generation of damaged materials;
- Materials will be ordered in appropriate sequence to minimise materials stored on site; and
- Sub-contractors will be responsible for similarly managing their wastes.

All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

### **7.4.2 Waste Storage**

A dedicated and secure compound containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities are to be stored, is to be established within proposed site compound.

Waste materials generated will be segregated on at the site compound, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled.

The site construction manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

### **7.4.3 Responsibility**

It will be the responsibility of the construction manager to ensure that a written record of all quantities and natures of wastes removed from the site are maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager or his/her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licenced or permitted waste facility in compliance with the relevant Regulations.

The contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will assist the project manager in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

Prior to commencement of the excavation and construction activity and removal of any waste off-site, details of the proposed destination of each waste material will be provided to Meath County Council.

## **7.5 Surface Water Management**

Run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Earthwork operations will be carried out such that surfaces, as they are being raised, shall be designed with adequate drainage, falls and profile to control run-off and prevent ponding and flowing. Correct management will ensure that there will be minimal inflow of shallow/perched groundwater into any excavation. Due to the very low permeability of the Dublin Boulder Clay and the relative shallow nature for excavations, infiltration to the underlying aquifer is not anticipated.

Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. No discharge of construction water is anticipated during the construction of the two proposed underground 220 kV circuits. There may be localised pumping of surface run-off from the excavations (up to 3m) during and after heavy rainfall events to ensure that the trenches are kept relatively dry.

The following measures will be put in place during the construction phase to ensure protection of surface waterbodies.

These measures are in compliance with the following relevant CIRIA guidance documents:

- Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532) 10; and Environmental Good Practice on Site (3rd edition) (C692) 11.

## 8 Summary

This Outline CEMP sets out the overall management strategy for construction works for a new Gas Insulated Switchgear (GIS) 220 kV Substation (Gunnocks), two 220 kV underground circuits from the proposed Substation to two new interface compounds which connect the proposed underground cables to the existing 220 kV overhead line between Corduff and Woodlands. Furthermore the CEMP covers the underground 75kVA cable installation which replaces existing overhead lines which traverse the EngineNode site and provides a new rural supply to the proposed substation.

The Outline CEMP aims to ensure the management of construction activity is carried out in a planned, structured and considerate manner which minimises the impacts of the works on the local environment, residents and commercial activities in the vicinity of the site. Due to the nature of construction works, there may be unforeseen events which occur at the site and the project team will actively manage any changes and discuss with the relevant authorities, where required.

The project team are committed to ensuring that the construction activities to be carried out are pro-actively managed so as to minimise potential impacts

## **Appendix A Schedule of Mitigation**



Project Phase	Mitigated By	Justification	Mitigation Measures	References
<b>Land, Soil and Geology</b>				
Construction	Management	Environmental Pollution	<p>The excavation will require site levelling. It is envisaged that all of the spoil generated during site preparation/levelling for the substation will be reused on site while excavated material for the grid lines along roadways will be removed for licenced disposal.</p> <p>A suitable area will be allocated for temporary stockpiling of excavated and infill materials which will be located away from any surface water courses or site boundaries.</p>	<p>Environmental Protection Agency (EPA ) Draft 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2017); Institute of Geologists of Ireland (IGI) 'Guidelines for the preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013); and National Roads Authority (NRA) 'Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2009); "Guidelines on protection of fisheries during construction works in and adjacent to waters" Inland Fisheries Ireland (2016)</p>

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Construction	Management	Environmental Pollution	<p>No contaminated soil is expected at the substation site. However, localized contaminated soils and tarmacadam etc will be removed during the grid line development. This will be removed for reuse or disposed of by contractors licensed under the Waste Management Act of 1996 and amendments.</p>	<p>Environmental Protection Agency (EPA ) Draft 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2017); Institute of Geologists of Ireland (IGI) 'Guidelines for the preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013); and National Roads Authority (NRA) 'Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2009); Waste Management Act, 1996.</p>
Construction	Management	Soil and Water Protection	<p>Any contaminated soil or suspected contaminated soil will be isolated from clean soil pending testing to confirm its classification and removal to a licenced facility.</p>	<p>Environmental Protection Agency (EPA ) Draft 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2017); Institute of Geologists of Ireland (IGI) 'Guidelines for the preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013); and National Roads Authority (NRA) 'Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2009).</p>

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Construction	Management	Soil and Water Protection	Only material of a known clean origin will be sourced for infill. Should any material be considered suspect it will be tested prior to use as infill material.	Environmental Protection Agency (EPA ) Draft 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2017); Institute of Geologists of Ireland (IGI) 'Guidelines for the preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013); and National Roads Authority (NRA) 'Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2009).
Construction	Management	Soil and Water Protection	As recommended in Inland Fisheries Ireland (2016) "Guidelines on protection of fisheries during construction works in and adjacent to waters", where stripping occurs, the resulting excavated fractions will be separated into subsoil and topsoil stockpiles. Temporary storage of spoil will be managed to reduce release of dust and uncontrolled surface water run-off which may contain sediment etc.	Environmental Protection Agency (EPA ) Draft 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (2017); Institute of Geologists of Ireland (IGI) 'Guidelines for the preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013); Inland Fisheries Ireland (2016) "Guidelines on protection of fisheries during construction works in and adjacent to waters", and National Roads Authority (NRA) 'Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2009).
Operational	Protection	Soil and Water Protection	No bulk chemical or fuel storage is required during operation.	Environmental Protection Agency (EPA ) Draft 'Guidelines on the Information to be contained in

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				Environmental Impact Assessment Reports' (2017); Institute of Geologists of Ireland (IGI) 'Guidelines for the preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013); Guidance to Storage and Transfer of Materials for Scheduled Activities (EPA, 2004); and National Roads Authority (NRA) 'Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' (2009).
Construction	Management	Soil and Water Protection	There will be no direct discharges to surface waters during construction and a buffer protecting open water will be maintained as recommended in Inland Fisheries Ireland (2016) "Guidelines on protection of fisheries during construction works in and adjacent to waters"	As above
Construction	Management	Soil and Water Protection	Oil and fuel storage tanks shall be stored in designated areas within the contractors compound, and these areas shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30 mm for rainwater ingress). Drainage from the bunded area(s) shall be diverted for collection and safe disposal.	As above
Construction	Management	Soil and Water Protection	Concrete will be delivered to site and tankers will not be allowed to be washed out on the site. Out areas will be provided to ensure protection of water quality.	As above
Operational	Prevention	Soil and Water Protection	A class 1 oil-water full retention separator will be installed to capture any oil in the run-off from the hard stand area.	As above
Operational	Protection	Soil and Water Protection	All staff will be trained in spill containment measures and emergency response.	As above
Hydrology				



Construction	Management	Water Protection	Effluent generated on the site from the contractor's sanitary facilities will be contained and disposed of appropriately off site or where feasible directed to the existing off-site foul sewer network, once connected. These facilities will be connected to the IW foul drainage system once the pumping station is commissioned. In the short term, portable sanitary facilities will be provided with waste collected and disposed of appropriately.	CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532) Construction Industry Research and Information Association; CIRIA (2002) Control of water pollution from construction sites: guidance for consultants and contractors (SPI56) Construction Industry Research and Information Association; CIRIA (2005), Environmental Good Practice on Site (C650); Construction Industry Research and Information Association; BPGCS005, Oil Storage Guidelines; CIRIA 697 (2007), The SUDS Manual; UK Pollution Prevention Guidelines, (PPG) UK Environment Agency, 2004.
Construction	Prevention	Infrastructure protection	All sewer connections will be made with the approval of IW and the Local Authority and checked prior to commissioning.	As above
Construction	Prevention	Infrastructure protection	The connection to public water supply on site will be carried out in full compliance with the requirements of MCC and IW.	As above
Construction	Prevention	Surface Water Protection	An outline construction management plan (CEMP) will be prepared for the proposed development prior to commencement of construction. This CEMP will ensure effective stormwater management during construction and will address potentially polluting activities and include emergency response procedures. All relevant personnel working on the site will be trained in the implementation of the procedures. A summary of items covering are provided below:	As above

			<ul style="list-style-type: none"> <li>• During the construction phase, surface water run-off collected in excavations will be diverted to settlement ponds and will not be allowed to directly discharge directly to the existing field drainage. A buffer distance with no storage of soils will be maintained along field ditches and streams in compliance with fisheries guidelines “Guidelines on protection of fisheries during construction works in and adjacent to waters” Inland Fisheries Ireland (2016);</li> <li>• Aggregate and infill materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.</li> <li>• As recommended in Inland Fisheries Ireland (2016) “Guidelines on protection of fisheries during construction works in and adjacent to waters” there will be no direct discharges to surface waters during construction and a buffer protecting open water will be maintained;</li> <li>• Oil and fuel storage tanks shall be stored in designated areas within the contractor’s compound, and these areas shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30 mm for rainwater ingress). Drainage from the bunded area(s) shall be diverted for collection and safe disposal; and,</li> <li>• Concrete will be delivered to site and tankers will not be allowed to be washed out on the site. Out areas will be provided to ensure protection of water quality.</li> </ul>	
Operational	Management	Surface and groundwater Protection	The water main system will be metered as directed to facilitate detection of leakage and prevention of water loss.	As above
Operational	Management	Surface and groundwater Protection	Surface drainage will be discharged using surface water retention pond/attenuation pond which will be designed using a hydro-brake vortex control device to restrict discharge to greenfield run-off rates.	As above

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Operational	Management	Surface and groundwater Protection	Attenuation ponds will be constructed to retain a constant volume of water to promote settling and reduce conveyance of suspended solids and other particles to the receiving waters (refer to engineering report for calculations). Stormwater will discharge through oil interceptors to allow mitigation of any accidental release of hydrocarbons to ground.	As above
Operational	Management	Surface and ground Water Protection	All staff will be trained in spill containment measures and emergency response.	As above
<b>Biodiversity</b>				
Construction and Operation	Protection	Ecological Protection (Biodiversity))	Potential impacts on birds will be avoided by cutting of vegetation outside the bird nesting season March 1st to August 31st.	CIRIA Report C532 of Water Pollution from Construction Sites. CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland. Institute of Ecology and Environmental Management. Department of the Environment, Heritage and Local Government (2010) Guidance on Appropriate Assessment of Plans and Projects in Ireland (as amended February 2010). EC (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. EC (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43EEC. European Commission, Brussels.
<b>Air, Dust and Climatic Factors</b>				

Construction	Management	Dust Management	<p>At the construction planning stage, the siting of activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. As the prevailing wind is predominantly south-westerly, locating construction compounds and storage piles downwind (to the north-east) of sensitive receptors will minimise the potential for dust nuisance to occur at sensitive receptors.</p>	<p>'Guidance on the Assessment of Dust from Demolition and Construction' (IAQM, 2014); 'Planning Advice Note PAN50 Annex B: Controlling The Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings' (The Scottish Office, 1996); 'Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance' (UK Office of Deputy Prime Minister, 2002); 'Controlling Particles, Vapours &amp; Noise Pollution From Construction Sites' (BRE, 2003); 'Fugitive Dust Technical Information Document for the Best Available Control Measures' and the USA (USEPA, 1997). ; and 'Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition' (periodically updated) (USEPA, 1986).</p>
Construction	Prevention	Dust Management	<p>When rainfall is greater than 0.2mm/day, dust generation is generally suppressed (UK Office of Deputy Prime Minister (2002), BRE (2003)). The potential for significant dust generation is also reliant on threshold wind speeds of greater than 10 m/s (19.4 knots) (at 7m above ground) to release loose material from storage piles and other exposed materials (USEPA, 1986). Particular care should be taken during periods of high winds (gales) as these are periods where the potential for significant dust emissions are highest. The prevailing meteorological conditions in the vicinity of the site are favorable in general for the suppression of dust for a significant period of the year. The following measures should be taken in order to avoid dust nuisance occurring under unfavorable meteorological conditions:</p> <ul style="list-style-type: none"> <li>• The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed</li> </ul>	<p>As above</p>

			<p>mitigation measures are implemented and that dust impacts and nuisance are minimised;</p> <ul style="list-style-type: none"> <li>• During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions;</li> <li>• The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board will also include head/regional office contact details;</li> <li>• It is recommended that community engagement be undertaken before works commence on site explaining the nature and duration of the works to local residents and businesses;</li> <li>• A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out;</li> <li>• It is the responsibility of the contractor at all times to demonstrate full compliance with the dust control conditions herein; and,</li> <li>• At all times, the procedures put in place will be strictly monitored and assessed.</li> </ul>	
Construction	Management	Dust Management	<p>The dust minimisation measures shall be reviewed at regular intervals during the works to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed and satisfactory procedures implemented to rectify the problem.</p>	As above
Construction	Prevention	Dust Management	<p>Movement of construction trucks along site roads (particularly unpaved roads) can be a significant source of fugitive dust if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions. Studies show that these measures can have a control efficiency ranging from 25 to 80% (UK Office of Deputy Prime Minister, 2002).</p> <ul style="list-style-type: none"> <li>• A speed restriction of 20 km/hr will be applied as an</li> </ul>	As above



			<p>effective control measure for dust for on-site vehicles using unpaved site roads;</p> <ul style="list-style-type: none"> <li>• Access gates to the site shall be located at least 10m from sensitive receptors where possible;</li> <li>• Browsers or suitable watering equipment will be available during periods of dry weather throughout the construction period. Research has found that watering can reduce dust emissions by 50% (USEPA, 1997). Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and,</li> <li>• Any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.</li> </ul>	
Construction	Prevention	Dust Management	<p>Land clearing / earth-moving works during periods of high winds and dry weather conditions can be a significant source of dust.</p> <ul style="list-style-type: none"> <li>• During dry and windy periods, and when there is a likelihood of dust nuisance, watering shall be conducted to ensure moisture content of materials being moved is high enough to increase the stability of the soil and thus suppress dust; and,</li> <li>• During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.</li> </ul>	As above



Construction	Prevention	Dust Management	<p>The location and moisture content of storage piles are important factors which determine their potential for dust emissions.</p> <ul style="list-style-type: none"> <li>• Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site. Where possible storage piles should be located downwind of sensitive receptors;</li> <li>• Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency (UK Office of Deputy Prime Minister, 2002);</li> <li>• Where feasible, hoarding will be erected around site boundaries to reduce visual impact. This will also have an added benefit of preventing larger particles from impacting on nearby sensitive receptors.</li> </ul>	As above
Construction	Prevention	Dust Management	<p>Spillage and blow-off of debris, aggregates and fine material onto public roads should be reduced to a minimum by employing the following measures:</p> <ul style="list-style-type: none"> <li>• Vehicles delivering or collecting material with potential for dust emissions shall be enclosed or covered with tarpaulin at all times to restrict the escape of dust;</li> <li>• At the main site traffic exits, a wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash. In addition, public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary.</li> </ul>	As above



Construction	Management	Dust Management	<p>The pro-active control of fugitive dust will ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the satisfactory performance of the contractor. The key features with respect to control of dust will be:</p> <ul style="list-style-type: none"> <li>• The specification of a site policy on dust and the identification of the site management responsibilities for dust issues;</li> <li>• The development of a documented system for managing site practices with regard to dust control;</li> <li>• The development of a means by which the performance of the dust minimisation plan can be regularly monitored and assessed;</li> <li>• The specification of effective measures to deal with any complaints received.</li> </ul>	As above
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Noise and Vibration



Construction	Management	Noise Pollution	<p>Management of noise and vibration on site will be minimised and managed through the implementation of the following measures:</p> <ul style="list-style-type: none"> <li>- Limit the hours during which the site activities likely to create high levels of noise or vibration are permitted;</li> <li>- Establish channels of communication between the contractor/developer, Local Authority and residents. Appoint a site representative responsible for matters relating to noise and vibration;</li> <li>- Monitoring typical levels of noise and vibration during critical periods and at sensitive locations, and;</li> <li>- All site access roads will be kept even so as to mitigate the potential for vibration from lorries.</li> </ul>	<p>British Standard BS 5228:2009+A1:2014 (Parts 1 and 2) Code of practice for noise and vibration control on construction and open sites                      EPA Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) (2017) and draft revised Guidelines on information to be contained in Environmental Impact Statements; and Advice Notes for preparing EIS (2015).                      Draft 'Guidelines for Noise Impact Assessment' produced by the Institute of Acoustics/Institute of Environmental Management and Assessment Working Party.</p>
Construction	Management	Noise Pollution	<p>It is envisaged that a variety of practicable noise control measures will be employed. These may include:</p> <ul style="list-style-type: none"> <li>- selection of plant with low inherent for generation of noise and/or vibration</li> <li>- erection of barriers as necessary around items such as generators or high duty compressors;</li> <li>- situate any noisy plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary.</li> </ul>	As above
Construction	Management	Noise Pollution	<p>Vibration from construction activities be limited to the values set out in Chapter 9 Noise and Vibration of the EIAR. It should be noted that these limits are not absolute but provide guidance as to magnitudes of vibration that are very unlikely to cause cosmetic damage. Magnitude of vibration slightly greater than those in the EIAR are normally unlikely to cause cosmetic damage, but construction work creating such magnitudes should proceed with caution. Where there is</p>	As above

			existing damage these limits may need to be reduced by up to 50%.	
Operational	Management	Noise Pollution	<p>Noise from external plant will be minimised by the following measures:</p> <ul style="list-style-type: none"> <li>• Purchasing low noise generating equipment, and;</li> <li>• Incorporating appropriately specified in line attenuators for stacks and exhausts where necessary.</li> </ul> <p>With due consideration as part of the detailed design process, this approach will result in the site operating well within the constraints of the best practice guidance noise limits that have been adopted as part of this detailed assessment.</p>	As above
<b>Landscape and Visual Assessment</b>				
Construction	Management	Landscape Protection	The principal mitigation measures during construction are in ensuring a managed and orderly construction site, appropriate storage of materials, and ensuring debris is not carried onto the public roads by construction vehicles. Where the site adjoins the public road, site hoarding will be established and maintained in an orderly manner so as to minimise the effect of the construction site on along the public road.	EPA Draft 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2017) 'Draft Advice Notes for preparing Environmental Impact Statements' (2015)
Operational	Management	Landscape Protection	Landscape and visual mitigation measures are inherent in the architectural and landscape design of the proposed development. Mitigation therefore focusses on the successful and complete implementation of the architectural and landscape designs as proposed.	As above



Construction	Management	Landscape Protection	Trees and vegetation outside of the site shall be protected in accordance with BS:5837:2012 during construction works.	EPA Draft 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2017); 'Draft Advice Notes for preparing Environmental Impact Statements' (2015); British Standard (BS 5837:2012): Trees in Relation to Design, Demolition and Construction – Recommendations
Archaeological, Architectural and Cultural Heritage				
Construction	Protection	Protection of Local Heritage	<p>Prior to the commencement of construction works (including enabling works), the following will be required:</p> <ul style="list-style-type: none"> <li>- A suitably qualified archaeological consultant will be required to oversee the works and undertake the required archaeological testing, excavations, monitoring and reporting.</li> <li>- Archaeological testing (under license to the National Monuments Service) should be undertaken of the anomalies identified by the geophysical survey. Given the nature and extent of features uncovered, limited test excavation of areas where no features were positively identified should also be undertaken, to alleviate the risk of them being uncovered during the construction phase(s).</li> <li>- Any archaeological features identified by testing in areas where they will be impacted on, directly or indirectly, by the development, will require permission from National Monuments for archaeological excavation (preservation by record) of these remains.</li> <li>- Financial, logistical and time provision should be made for archaeological excavation, if required, prior to the commencement of the construction phase of the development.</li> </ul>	EPA Draft 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2017) 'Draft Advice Notes for preparing Environmental Impact Statements' (2015)
Traffic and Transportation				



Construction	Prevention	Traffic Congestion	<p>The contractor will be required to provide wheel cleaning facilities, and regular cleaning of the main access road;</p> <p>Temporary car parking facilities for the construction workforce (30 no. spaces) will be provided within the site and the surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining roads;</p> <p>Monitoring and control of construction traffic will be ongoing during construction works. Construction traffic will minimise movements during peak hours.</p> <p>Construction traffic routes minimising traffic impact on surrounding residential development will be used by construction vehicles.</p>	<p>TII Traffic and Transport Assessment Guidelines, 2014;</p> <p>Design Manual for Urban Roads and Streets (DMURS), 2013, Department of Transport, Tourism and Sport &amp; Department of Environment, Community and Local Government.</p>
Material Assets: Water Supply, Drainage & Utilities				
Construction	Management	Continuation of Services	<p>Ongoing consultation with MCC, Irish Water, EirGrid, ESB Networks, Gas Networks Ireland and other relevant service providers within the locality and compliance with any requirements or guidelines they may have will ensure a smooth construction schedule without disruption to local and business community.</p>	
Construction	Management	Surface Water Infrastructure	<p>During the construction phase, any surface water run-off collecting in excavations or from exposed soil will likely contain a high sediment load. This will be diverted to settlement ponds and will not be allowed to enter surface water infrastructure as installed during the course of the development. A suitable area will be allocated for temporary stockpiling of excavated materials pending removal for reuse which will be located away from any surface water courses or other sensitive receptors. Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination. Liquid materials will be stored within</p>	

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			temporary bunded areas, doubled skinned tanks or bunded containers	
Construction	Management	Surface Water Infrastructure	Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.	
Construction	Management	Foul Sewer Infrastructure	Portable toilets will be provided for construction staff until connection with the public sewer is completed.	
Construction	Management	Surface Water & Foul Sewer Infrastructure	Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.	
Operational	Management	Foul Sewer Infrastructure	Foul drainage for the proposed development will be in accordance with the Building Regulations Technical Guidance Document H for design and construction.	Building Regulations Technical Guidance Document H Drainage and Waste Water Disposal, Department of Environment, Heritage and Local Government (2010)
Operational	Management	Surface Water Infrastructure	Following attenuation, drainage will be designed to meet requirements of MCC and Irish Water requirements.	
Waste Management				

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Construction	Management	Environmental Pollution	A project specific C&D WMP has been prepared in line with the requirements of the guidance document issued by the Department of Environment Heritage and Local Government (DoEHLG). Adherence to the high level strategy presented in this C&D WMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the construction phase of the Proposed Development. Prior to commencement of construction, the contractor(s) will be required to refine/update this document to detail specific measures to minimise waste generation and resource consumption and provide details of the proposed waste contractors and destinations of each waste stream.	The Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021. The Fingal County Council Development Plan 2017 – 2023. European Communities Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC
Construction	Management	Environmental Pollution	The main contractor will endeavour to ensure that surplus material is reused on site where possible. Where there is no suitable reuse or recovery option available, it will be disposed of at an authorised facility.	As above
Construction	Management	Environmental Pollution	Building materials will be chosen with an aim to 'design out waste'	As above

Construction	Management	Environmental Pollution	On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery – it is anticipated that the following waste types, at a minimum, will be segregated: o Concrete rubble (including ceramics, tiles and bricks); o Plasterboard; o Metals; o Glass; and o Timber.	As above
Construction	Management	Environmental Pollution	Left over materials (e.g. timber off-cuts, broken concrete blocks/bricks) and any suitable construction materials shall be re-used on-site, where possible	As above
Construction	Management	Environmental Pollution	All waste materials will be temporarily stored in skips or other suitable receptacles in designated areas of the site	As above
Construction	Management	Environmental Pollution	Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required)	As above
Construction	Management	Environmental Pollution	A person responsible for waste management will be appointed by the main contractor(s) to ensure effective management of waste during the excavation and construction works	As above
Construction	Management	Environmental Pollution	All construction staff will be provided with training regarding the waste management procedures	As above
Construction	Management	Environmental Pollution	All waste leaving site will be reused, recycled or recovered where possible to avoid material designated for disposal	As above

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Construction	Management	Environmental Pollution	All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities	As above
Operational	Management	Environmental Pollution	All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins or other suitable receptacles in a designated, easily accessible areas of the site.	As above
Operational	Management	Environmental Pollution	All waste collected from the development will be reused, recycled or recovered where possible, with the exception of those waste streams where appropriate facilities are currently not available	As above
Operational	Management	Environmental Pollution	All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities	As above

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