Clifton Scannell Emerson Associates

Outline Construction Environmental Management Plan

EdgeConneX 110kV Duct Route

edgeconnex®

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CONSULTING ENGINEERS

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

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1 Introduction

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 2, Appendix 2.3 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 CEMP 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 2, Appendix 2.3 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

Overview
The following report is being submitted as part of the Planning Application for the provision of two no. 110kV transmission lines along with associated and ancillary works, that will connect the permitted and under construction Coolderrig 110kV Gas Insulated Switchgear (GIS) substation that includes 2 no. transformers and an MV switch room within an overall compound that was granted permission under SDCC Reg. Ref. SD18A/0298 with the Grange Castle - Kilmahud Circuit.

Description of the site
The Proposed Development is to be located on a site of c. 1.49 hectares. The permitted Coolderrig 110kV GIS Substation and Transformers / MV control room compound is located within the north-east of the overall Edgeconnex landholding that is bounded by the R120 and residential properties to the west; the Grand Canal and an access road along its southern bank to the north; the Takeda facility and Grange Castle Business Park to the east (through which the transmission lines will be built); and a Microsoft data centre facility to the south within the townland of Grange, Dublin 22.

110 kV transmission line to the Coolderrig Substation
The two proposed underground single circuit 110kV transmission lines will connect the permitted Coolderrig 110kV GIS Substation to the existing Grange Castle - Kilmahud Circuits to the east. The proposed parallel transmission lines cover a distance of approximately 559m and 574m within the townland of Grange, Dublin 22. They will pass outside of the site and along and under the internal road infrastructure within the Edgeconnex site and Grange Castle Business Park; above the culverted Griffeen River and along a wayleave to the north of the Griffeen River to the joint bays where it will connect into the Kilmahud Circuit.

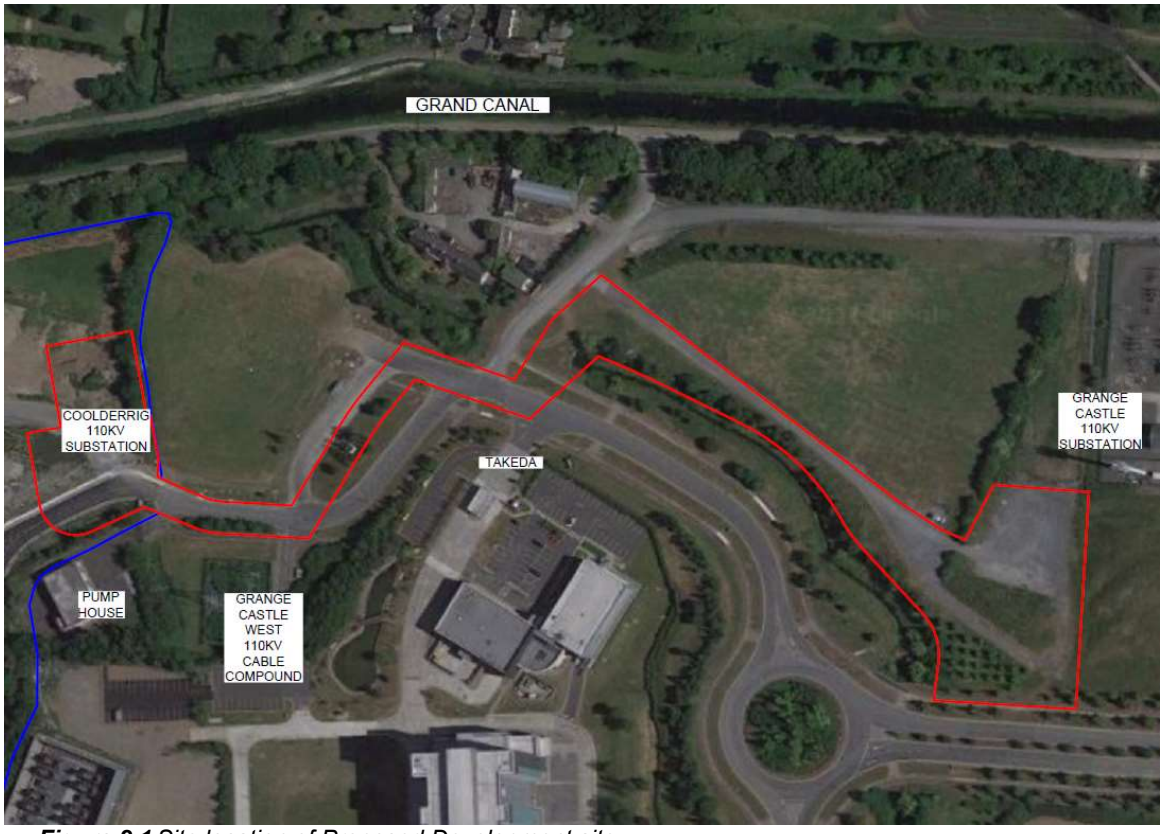

Figure 2.1 *Site location of Proposed Development site*

The Proposed Development comprises:

The proposed development primarily comprises the provision of two no. 110kV transmission lines along with associated and ancillary works. The proposed transmission lines will connect the permitted and under construction Coolderrig 110kV Gas Insulated Switchgear (GIS) substation compound that was granted permission under SDCC Reg. Ref. SD18A/0298 with the existing Grange Castle – Kilmahud Circuits. The site of the proposed development has an area of c. 1.49 hectares.

The two proposed underground single circuit 110kV transmission lines will connect the permitted Coolderrig 110kV GIS Substation, within the existing Edgeconnex landholding, to the existing Grange Castle - Kilmahud Circuits to the east. The proposed transmission lines cover a distance of approximately 559m and 574m within the townland of Grange, Dublin 22. The route of the transmission lines will pass along and under the internal road infrastructure within the Edgeconnex site and Grange Castle Business Park; above the culverted Griffeen River and along a wayleave to the north of the Griffeen River to the joint bays where it will connect into the Grange Castle – Kilmahud Circuits.

The development includes the connections to the permitted Coolderrig substation as well as to the Grange Castle – Kilmahud Circuits, as well as changes to the landscaping within the Grange Castle Business Park and all associated construction and ancillary works.

110kV transmission lines

The design of each underground 110kV transmission line will comprise a single 110kV circuit installed underground in high-density polyethylene (HDPE) ducting. The 110kV 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 the ground in the event of a failure (such as a short circuit, a joint fail, a termination failure etc.). These types of failures would not have the potential to result in a perceptible environmental impact.

The installation of the HDPE ducting will require the excavation of one trench along each of the routes; each containing one 110kV circuit. The optimum depth of excavation of the trenches will typically be 1.25m below ground level but may increase up to c. 3.5m at utility crossings. The typical width of each trench is 0.6m, however this may vary depending on ground conditions and the location of existing services. Between five and separate ducts will be installed in each trench. For the purposes of this assessment, reference to the ‘transmission lines’ refers to both the transmission line to the Coolderrig substation and the transmission line to the Grange Castle - Kilmahud circuits.

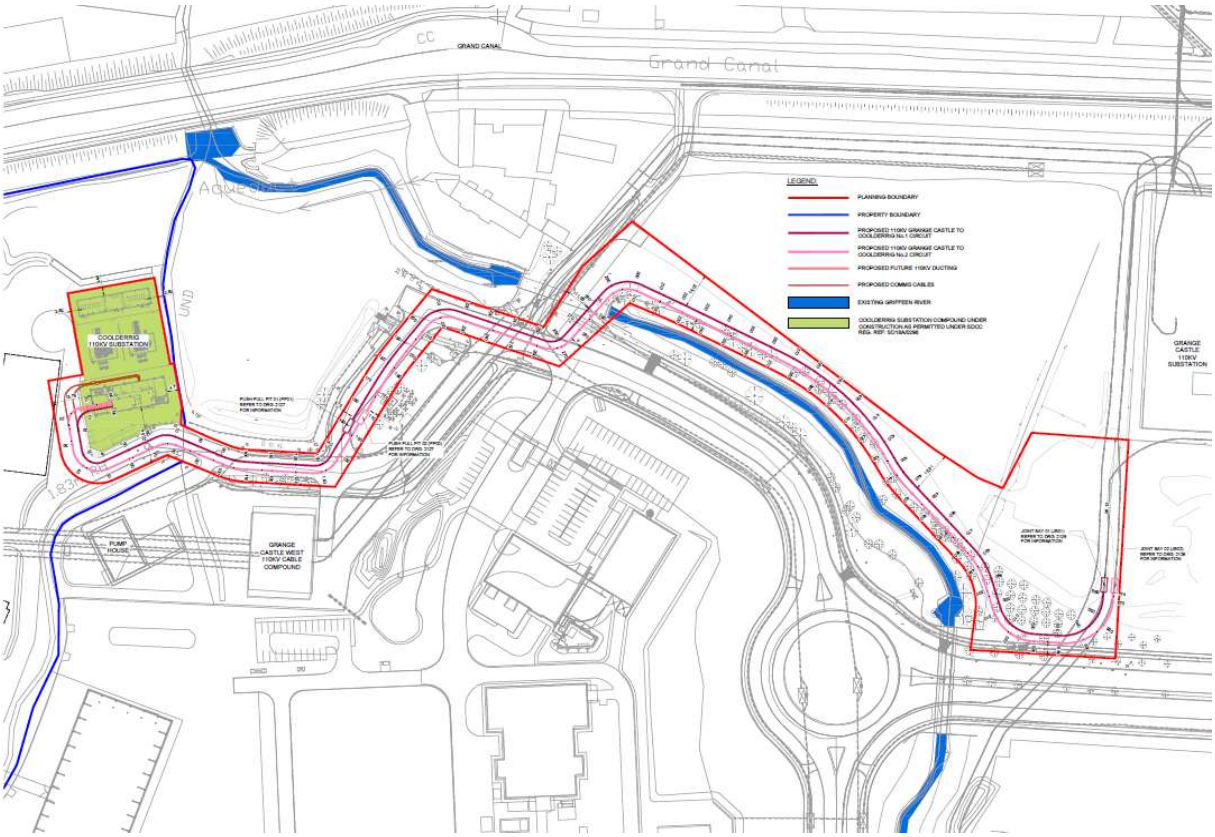

Figure 2.2 *Proposed site layout plan of the Proposed Development site indicating proposed 110 kV transmission lines (Source: Drawing no. 20_167-CSE-00-XX-DR-C-2120, CSEA Consulting Engineers)*

3 Construction Programme and Phasing

The Proposed Development will be constructed over a two-month period, commencing in October 2021.

The construction of the 110 kV transmission line will comprise three main stages, namely;

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

The construction of the new joint bays and push-pull chambers will be undertaken as part of the 110kV transmission line works to the Grange Castle - Kilmahud circuit.

Site Preparation

For on road works the existing carriageways will be used for access to the works areas. For works areas adjacent to the Griffeen River it is proposed to use the existing stone surfaces haul road to the north. A construction compound will be set up to the eastern end of the works on an existing hard standing area accessed by the aforementioned haul road.

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.

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 two no. 110 kV transmission line installation will be limited with minimal site clearance required.

4 Excavation

4.1 Archaeological and Architectural Heritage

The purpose of the site assessment was to identify any archaeological, architectural or cultural heritage features or areas of archaeological potential within the 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 excavation of the trench for the proposed cable installations.

Archaeological monitoring will be required in areas where open cut methodologies will be used to excavate the cable trench.

Should archaeological features or material be uncovered during archaeological testing or any phase of construction, ground works will cease immediately and the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht should be informed. Time must be allowed for a suitably qualified archaeologist to inspect and assess any material. If it is established that archaeologically significant material is present, the National Monuments Service may require that further archaeological mitigation be undertaken.

4.2 Ground Condition

Ground works will be required to clear the site and to facilitate, 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.

Bedrock was recovered from depths ranging from 2.50mbgl to 3.40mbgl and the core recovered shows that bedrock is strong to very strong light grey fine-grained muddy Limestone interbedded with moderately weak to moderately strong dark grey calcareous Mudstone with thin calcite veins and in BH02, occasional pyrite crystals. The weathering state is fresh to slightly weathered. The discontinuities are generally smooth occasionally rough, planar, tight to open, sub-horizontal to sub-vertical dip with clean surfaces which are occasionally stained grey.

Topsoil and subsoil will be excavated to facilitate the construction of the proposed transmission cable installation route and other ancillary works.

Suitable soils and stones will be reused on site as backfill in the grassed areas, where possible. However, it is currently envisaged that majority of the excavated material will require removal offsite. Soil tested and classified as hazardous or non-hazardous in accordance with the EPA Waste Classification has been completed and results confirm that the soil tested is “inert”.

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

The site office and welfare facilities will be situated in an onsite compound to the eastern end of the works. All the sub-contractors as well as the main contractor and project managers will occupy offices in the same area. The site parking for all staff, contractors and visitors will also be located in this area.

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;
- Permit to Work within Grange Castle Business Park;
- Construction commencement notices; and
- 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 internal access road will be utilised in order to serve the proposed development during the construction.

5.4 Material Handling and Storage

Key materials will include cables, 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 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 eastern end of the site from the internal access road and haul 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 2 months from the commencement of construction for site development works.

The works will be carried out on a combination of on-road and off-road areas. All works within the Park will be subject to a Permit to Work and will be applied for directly to South Dublin County Council in advance of the works commencing.

During the works, no construction vehicles will access the 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 Friday, with no on site construction activities to take place on Weekends 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.

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: 5 - 10;
- Peak construction staff (peak staff levels during Civil Works): 12;

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 works will be carried out on a combination of on-road and off-road areas. All works within the Park will be subject to a Permit to Work and will be applied for directly to South Dublin County Council in advance of the works commencing.

During construction of the proposed development, construction traffic will travel to and from the site via internal access roads within the Park. 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(s) within the Park;
- Temporary car parking facilities for the construction workforce (10 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 and industrial developments 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.

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.

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) [1];
- US Environment Protection Agency (USEPA), *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition* (periodically updated) (1986) [2];
- 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) [3]; and
- Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction* (2014) [4].

Site Management

The site activities will be undertaken with due consideration of the surrounding environment and the 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% [5].

- 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%. 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 facility; 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. The construction of the cable route over the existing culvert removes the potential for hydrological pathways in terms of aquatic impacts.

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. 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 Sections 7.5 and 7.6 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 14 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 14.1 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 SDCC.

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 proposed underground circuits 110kV and transmission cable installation. 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.

7.6 Mitigation Methodology for the works adjacent to the Griffeen River

The construction of the cable route will involve excavation of a small amount of soil in close proximity to the Griffeen River. This creates the potential for sediment and/or nutrient run-off, especially if soil is stored in an unconsolidated state for a period of time. Suspended solids or nutrients resulting from the decomposition of organic material could potentially enter the adjacent Griffeen River and other drainage features. It is considered unlikely that this would happen to a significant degree given the presence of dense riparian vegetation along the existing watercourses.

Mitigation

- Excavation and infilling will be carried out in small progressive stages;
- Any topsoil that is of use for landscaping will be stored on the site. Where this is required during the construction phase, it will be stored suitably far away from the Griffeen River and covered to avoid excessive sediment run-off or wind blow;
- Whilst no significant run off of silt laden run off is anticipated, given the proposed construction methodology, the site will be regularly monitored by construction staff for signs of run-off such as silt in surrounding vegetation and measures will be put in place to prevent this where necessary. This may include the erection of a silt fence. A silt fence may be constructed by attaching a sheet of geotextile membrane to a stock fence and burying the bottom of it into the ground, thus allowing water to pass through but not the heavier fraction of the sediment;
- Excavations will be carried out using a suitably sized excavator and always from the northern bank of the River;
- Any excavated soil that is not re-used will be disposed of to a Local Authority approved waste disposal facility;
- In all circumstances, excavation depths and volumes will be minimised and excavated material will be re-used where possible.

8 Summary

This Outline CEMP sets out the overall management strategy for construction works for two proposed underground single circuit 110kV transmission lines that will connect the permitted Coolderrig 110kV GIS Substation to the existing Grange Castle - Kilmahud Circuits to the east.

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.

9 References

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   - Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended
   - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007) as amended
   - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
   - Waste Management (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
   - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
   - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
   - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
   - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
   - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
   - European Union (Household Food Waste and Bio-waste) Regulations 2015 (S.I. No. 191 of 2015)
   - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended
   - Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007)
   - Waste Management (Movement of Hazardous Waste) Regulations 1998 (S.I. No. 147 of 1998)
   - The European Communities (Transfrontier Shipment of Hazardous Waste) Regulations 1988 (S.I. No. 248 of 1988)
   - European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
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