HERBATA DATA CENTRE, NAAS

EIAR
VOLUME I MAIN TEXT – CHAPTER 18 SUMMARY OF MITIGATION

NI2615
01
June 2024

rpsgroup.com

18 SUMMARY OF MITIGATION

18.1 Introduction

As described throughout the EIAR, the design of the Project has been progressed taking account of identified environmental constraints and considerations, enabling avoidance or reduction of potential environmental impacts where practicable. This chapter summarises the additional mitigation measures identified in the EIAR, which are considered necessary to avoid; reduce; or offset potential impacts.

The purpose of the following Summary of Mitigation is to collate mitigation measures, both for ease of reference and for use by the contractor. These mitigation measures are those identified within Chapters 5 to 16 of this EIAR.

The timing of mitigation varies and may be a design requirement, or implemented prior to construction, during construction and/or during operation of the proposed scheme. The stated mitigation measures have been identified through the EIA process, and whilst some of these are also necessary to achieve separate legislative compliance (e.g. protected species licences), they are included as they still encompass mitigation commitments of this EIAR.

18.2 Biodiversity

18.2.1 Designated Sites and Features of Natural Heritage Importance

The Project is considered to have negligible potential to give rise to significant effects upon designated sites of conservation significance. As such no specific mitigation measures are proposed in respect of designated sites.

Mitigation measures set out below in respect of freshwater aquatic habitats will also act to prevent any effects upon downstream European sites which are nonetheless deemed to be below a *de minimis* threshold.

18.2.2 Habitats

The Project will incorporate measures, as set out within the accompanying Landscape Statement and associated plans (see Volume III Technical Appendices) for the protection of retained habitats in addition to the delivery of proposed compensatory planting.

Proposed SuDS features, which will comprise a significant area of the Project site, will be subject to a range of wetland planting, including wet grasslands, marginals and aquatic species which are designed to provide a mosaic of habitats which are either temporarily or permanently wet and will provide significant floral diversity including a range of species of high value for pollinators.

Of the areas proposed for SuDS planting, including dry grassland swales and the margins of wetland ponds, a total of 2.6ha of species rich wet grasslands and wetland planting are proposed within the development. It is considered that this wet grassland planting will fully compensate for losses to areas of wet grassland and tall sedge swamps which will occur at construction phase of the Project as these existing habitats are relatively species poor. In addition, the proposals will also incorporate 1.38ha of biofiltration planting, comprised of a range of non-native species which nonetheless provide some opportunities for pollinators and other native invertebrates.

Proposed SuDS features themselves, which will support variable depths of open water, depending on weather conditions, will provide pond habitat which is not currently present on site and offer potential opportunities for a wide range of aquatic fauna including a wide range of invertebrates, in addition to associated benefits for foraging birds and bats. These features, which are likely to hold some water year-round will fully mitigate for any adverse effects associated with the loss of seasonally dry drainage ditches within the site and represent a significant ecological enhancement of the site post-development.

The Project, as set out above, will give rise to the loss of around 2.9km of hedgerows and treelines in addition to 0.22ha of orchard, comprised of a former kitchen garden, and 0.46ha of scrub largely dominated by bramble. In order to compensate for these losses, the Project is to incorporate large areas of woodland, scrub and hedgerow planting. In total 5.4ha of woodland planting is to be delivered within the scheme, described as

native mixed structural screen planting and comprised of a range of native species including a proportion of standard trees. A further 0.9ha of native scrub/hedge mix is also proposed for areas where full height woodland is not appropriate, such as in proximity to overhead lines, and will be managed to a maximum of 3m in height. This planting is to be located around the margins of the site, to provide screening of the development from adjacent areas and also providing continuous habitat corridors linking SuDS features and other proposed landscape planting with semi-natural habitats off-site to the south-west.

In addition to woodland and scrub planting the proposals will incorporate 0.639km of native hedgerows planted throughout the site and managed to a maximum height of 3m.

It is considered that proposed woodland, scrub and hedgerow planting will fully mitigate for proposed losses to hedgerows, scrub and orchard habitats within the site over the long term. Some residual short term adverse effects (minor adverse) are nonetheless predicted associated with the loss of mature hedgerows and treelines and the associated delay in the establishment of compensatory habitats.

The Project will also incorporate significant areas of species-rich grassland planting including 3.1ha of short-cut floral lawns, comprising a range of native species tolerant to regular mowing to a relatively short height, and 3.4ha of long wildflower meadows which are to be managed through an annual hay cut regime. These habitats will be inclusive of a range of native flora species of value for invertebrates and will, it is considered, fully mitigate for losses of semi-improved neutral agricultural grasslands and dry meadows/grassy verges habitat which will arise as a result of the Proposed Development. Furthermore, it is considered that these areas of species-rich meadow will represent a significant enhancement of the site over the current situation.

In addition to proposed native planting a proportion of the proposed buildings will incorporate a total of 0.9ha of green roofs which are to be planted with a non-native sedum blanket and subsequently managed to ensure this habitat is maintained. These areas will provide some opportunities for a range of pollinator species.

Subject to the implementation of this compensatory planting it is envisaged that adverse ecological impacts associated with the loss of various habitats on site required to facilitate the Proposed Development, will be largely mitigated. Furthermore, the scheme is predicted to deliver biodiversity net gain over the current situation through the provision of a range of species-rich habitats of value for pollinators in addition to wetland habitats, woodland and scrub.

Indirect effects associated with construction phase of the Project were limited to those associated with water quality and habitat deterioration effects arising to lowland river habitat (the Bluebell Stream) through sedimentation and pollution effects associated with nearby earthworks and other construction activities.

In order to mitigate these potential effects upon the freshwater environment a range of mitigation measures are to be implemented within the Proposed Development, and are set out within Chapter 7: Water and Hydrology of the EIAR and within the accompanying Construction and Environmental Management Plan (CEMP). Subject to the implementation of these construction phase mitigation measures it is considered that any potential significant adverse effects upon freshwater habitats within the Bluebell Stream, and any downstream watercourses, would be fully mitigated.

In addition to the above construction phase mitigation measures, the proposals will also incorporate a range of design measures to ensure that surface water run-off of the site is maintained consistent with the greenfield run-off rates including a range of SuDS features which will include petrol interceptors. Furthermore, proposals will incorporate the discharging of foul water to the existing Irish Water foul sewer for treatment at Osberstown WwTW. These features will ensure that any potential operational phase effects upon lowland river habitats (the Bluebell Stream) are fully mitigated.

While proposed mitigation measures will fully mitigate for impacts which are predicted to arise to habitats, some residual **minor adverse** and **significant** effects remain in relation to the loss of mature hedgerows and treelines within the site. While proposed compensatory planting will fully mitigate for such losses in the long term, residual short-term adverse effects are associated with the time required for establishment of compensatory planting following loss of mature hedgerow and treeline habitats.

18.2.3 Bats

Demolition of any building with a known bat roost must take place between March - mid- May or September - October inclusive, of any given year, to avoid the bat maternity and hibernation seasons and minimise the impact on bats. A NPWS bat roost derogation/roost exclusion licence will be obtained prior to the commencement of demolition of Structure 1, see accompanying Bat Survey Report (Appendix 5.B, Volume II Technical Appendices).

Prior to the demolition of the confirmed bat roost, Structure 1 (S1), and the other structures on site which have roosting suitability (S2-S6), the licenced ecologist will thoroughly search for the presence of roosting bats using an endoscope and torch. If bats are found to be present during demolition, species rescue and translocation will be carried out using gloves, and the bat(s) carefully transported to a nearby artificial bat roost. If a bat(s) is found roosting where it cannot be safely removed by hand, or where there are features with potential to conceal a roosting bat which cannot be sufficiently searched to confidently confirm that roosting bats are absent from the cavity, a bespoke designed bat exclusion device will be fitted around the roost entrance. Details of such measures will be included in the NPWS bat roost derogation licence method statement, as required.

All trees which have been confirmed to have Moderate or High bat roosting suitability will either have a dawn re-entry survey carried out or be inspected using an endoscope by a licenced ecologist immediately prior to felling. If any bats are found and cannot be safely removed by hand, the same measures stated above for structures will be applied.

4no. bat roost box locations are proposed within the site. These will comprise pole-mounted bat boxes, with two individual bat boxes proposed per location. Poles will be set in concrete or alternatively driven to a depth of at least 1m. Boxes themselves will be manufactured by Greenwood Ecohabitats[1] or similar, and will be erected, two per pole and fastened to the pole with metal straps or banding at a height of 3.5m or higher. These boxes are intended to compensate for the loss of numerous trees with bat roost potential which were not recorded to support bat roosts and to provide additional roosting resources for the local bat population. Greenwood Eco-Habitat artificial bat roost boxes are constructed from Ecostyrocrete and have a high bat uptake rate. The following boxes will be utilised, two per pole:

- ‘Half and Half bat box’ consist of a two-crevice design, and the other half of the box has the Small Hollow design, providing roosting opportunities for a wide range of bat species, or similar (Four no. total)
- Two crevice bat boxes, or similar. (Four no. total)

In addition to proposed bat box locations the proposals will incorporate three bat house structures. It is proposed that one will be a blockwork structure with floor dimensions of three-by-three metres, with a pitched slate/slate tile roof with 1F felt underlay, bat-access slates and gaps in soffits and facia to facilitate access. The interior of this structure will include layers of spaced plywood or OSB between rafters to provide interior crevices (“squeeze boxes”) which will ensure that the structure is suitable for a variety of bat species. A door into this structure will be provided to facilitate access for monitoring and maintenance, as required.

The remaining two bat house structures will utilise a timber design with floor dimensions of approximately 2.5 x 2.5m and significantly raised off the ground. Such structures will utilise interior “squeeze box” features in addition to appropriate access points, including for monitoring. Further details on the design of these structures will be provided in respect of the NPWS derogation license application for the scheme and/or in respect of any relevant planning conditions.

Typical designs for bat houses and bat boxes are illustrated in drawing number 22217-RKD-ZZ-ZZ-DR-A-1402 (Volume III).

In addition to proposed bat box locations the proposals will incorporate three bat house structures. The exact design of these structures is yet to be finalised however it is proposed that one will be a blockwork structure with floor dimensions of three-by-three metres, with a pitched slate/slate tile roof with 1F felt underlay, bat-access slates and gaps in soffits and facia to facilitate access. The interior of this structure will include layers of spaced plywood or OSB between rafters to provide interior crevices (“squeeze boxes”) which will ensure that the structure is suitable for a variety of bat species. A door into this structure will be provided to facilitate access for monitoring and maintenance, as required.

The remaining two bat house structures will be constructed using a timber A-frame design utilising four square wooden corner posts set in concrete approximately 2.5m apart, raising the structure off the ground by approximately 1.8m or higher. The structures will have a pitched A-frame roof, constructed from sheet-metal,

[1] https://www.greenwoodsecohabitats.co.uk/shop

lined with OSB, gable walls constructed from wooden cladding, incorporating interior “squeeze box” features and no floor, allowing access from below.

An ECoW will provide advice on the exact design and location of artificial bat roosts however the initially proposed locations are shown on the project Landscape Masterplan (BSM-ZZ-ZZ-DR-L-0301) which accompanies the EIAR submissions. Proposed artificial bat roost boxes and bat houses are to be located along the southern site boundary to utilise the connectivity of the bluebell stream to the River Liffey, in addition to providing close access to proposed mitigation planting and SUDs features for foraging.

The Lighting Strategy for the Project has been designed in accordance with the Institution of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light (ILP 2011) and Bats and Artificial Lighting in the UK (ILP 2018).

Artificial lighting will only be installed where and when necessary, i.e. when it is needed for safety reasons or to comply with statutory guidelines. There will be no direct illumination of any artificial bat roosts. Lighting will be avoided in areas where existing trees are to be retained and in areas proposed for native woodland buffer planting. Lighting design will aim to use narrow spectrum lights with no UV content; directional downlights illuminating below the horizontal plane; bollard or low level downward directional luminaries; external security lighting should be set on motion-sensors and short (1 minute) timers; and use accessories such as baffles, shields, louvres or adjusting the angle of the lamp where necessary (ILP 2018).

Proposed bat box and house locations will be located within areas of the site which will not be subject to lighting levels greater than 0.1lux associated with the proposed development. Proposed mitigation planting will in the medium term, provide further attenuation of artificial lighting from off-site sources.

The Project will incorporate significant areas of compensatory planting including areas of woodland, scrub, species rich grassland, hedgerows and SUDs features which are likely to fully mitigate for the loss of foraging habitats currently supported on the site for bats. The site was not considered likely to act as a significant commuting route for local bat populations given its location between areas of existing development and the M7 road. Connectivity of the site and the wider area will be maintained through the proposed landscape planting regime.

It is considered that the provision of these measures will fully mitigate for the loss of roosts and potential roosts which will occur as a result of the proposed development. Furthermore these proposals will represent a significant enhancement of the site for roosting bats and will provide opportunities for maternity colonies and individual roosting bats which are not currently supported on the site.

18.2.4 Birds

The Project has potential to give rise to significant effects upon nesting bird’s species which are likely to utilise habitats including scrub, orchard, scattered trees, hedgerows, amenity planting and buildings within the Application Site.

In order to avoid any significant impacts upon birds all site clearance, in addition to demolition of buildings, will take place during the period 1st September to 28th February which is outside the breeding season for those bird species that are likely to breed on the site. This will avoid any direct impacts of the Project on breeding birds.

Proposed mitigation planting and SUDs features within the scheme design are likely to provide significant opportunities for breeding birds during the operational phase of the proposed development.

18.3 Lands and Soil

18.3.1 Incorporated Design Mitigation

The design of the pond structures and foundations will be such that the depths are of a minimum in relation to fluvial flood levels, thus maintaining the excavations required at a minimum also. This, in addition to a design that has tried to balance the cut and fill required for the development shall serve to reduce the volume of soils to be exported off-site and therefore reduce the quantity of imported materials. The Contractor shall seek to export waste arising from the Construction Phase to licensed facilities as close to the site as possible to minimise the carbon footprint associated with handling of the material.

18.3.2 Construction Phase Mitigation

The following sections describe the mitigation measures which shall be adopted as part of the construction works on site to reduce the potential impacts on the soils, geology and hydrogeological environment.

18.3.2.1 Control of Excavations and Export of Material Arising from the Site

The proposed works shall incorporate, as identified in the Construction Environmental Management Plan (Volume II, Appendix 4.5), the reduce, reuse and recycle approach in relation to the excavation of soil on site. All excavation arisings shall be, where possible, reused on site. Stockpiles have the potential to cause negative impacts on air and water quality, therefore, the effects of soil stripping and stockpiling shall be mitigated through the implementation of an appropriate earthworks handling protocol implemented by the Contractor during the Construction Phases. Stockpiles shall be formed within the boundary of the excavation zone and there shall be no direct link or pathway from this zone to any surface water body. Only local/low level of stockpiling shall occur as the bulk of the material to be excavated shall be paced directly into haulage vehicles for transport off site to an appropriately licensed facility or, where possible, will be reused in other areas of the site as fill. The Contractor shall implement dust suppression measures, vehicle wheel washes, road sweeping and general housekeeping to ensure that the surrounding environment is free of nuisance dirt and dust dirt on roads.

18.3.2.2 Export of Material Arising from Site

Where demolition and construction material, such as excavated material, cannot be reused on site it shall be transported for recovery/disposal at an appropriately licenced facility as outlined in the Construction Environmental Management Plan. Following the geo-environmental sampling and associated laboratory testing, the waste classification completed on the soils has found that all results indicate that the materials are free from asbestos and are classified as a non-hazardous soil waste suitable for disposal at an inert landfill facility. Additional Soil Classification shall be carried out as part of the Construction Phases and waste shall be delivered by the Contractor to licensed Waste facilities which are authorised under the Waste Management Act 1996, as amended, and which hold the appropriate certificate of registration, Waste facility permit or EPA licence.

18.3.2.3 Control of Water During the Construction Phases

The Contractor shall carry out the earthwork and excavation activities 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 silts. The Contractor shall exercise care to ensure that exposed soil surfaces are stable in order to minimise erosion and that all exposed soil surfaces shall be within the main excavation site thus limiting the potential for any offsite impacts. All surface water run-off shall be prevented from directly entering into any water courses whatsoever in accordance with the Construction Environmental Management Plan. During the excavation of the existing site for the pond structures and foundation excavations, surface water shall pond in the excavations. The Contractor shall implement pre-treatment and silt reduction measures on site and shall include a combination of silt fencing, settlement measures (silt traps, silt sacks and settlement tanks) and hydrocarbon interceptors (as outlined in the Construction Environmental Management Plan). Qualitative and quantitative monitoring shall be implemented, with the client's Environmental Consultant auditing the Contractor's regular sampling and analysis results.

18.3.2.4 Sources of Fill Material / Aggregates for the Site

The Contractor shall source all imported fill and aggregate for the Project from reputable suppliers and shall ensure the following

- Aggregate Declarations of Performance for the classes of material specified,
- Environmental Management status and the Regulatory and Legal Compliance status of the proposed suppliers.

The Contractor may consider recycled or recovered materials as aggregates for the Project where appropriate.

18.3.2.5 Fuel and other Hazardous Substance Handling, Transport and Storage

The Contractor shall implement the following mitigation measures on site in order to prevent any spillages to ground of fuels and prevent any resulting soil and/or groundwater quality impacts:

- Dedicated bunded refuelling areas,
- Provision of spill kits for hazardous substances,

Diesel/ petrol powered equipment to be placed on suitable drip trays.

18.3.2.6 Construction Environmental Management Plan

A Construction Environmental Management Plan for the Project is provided in Volume II, Appendix 4.5. The Construction Environmental Management Plan sets out the minimum requirements which will be adhered to during the construction phase of the Project to help ensure that construction activities are planned and managed in accordance with the environmental requirements identified within and the relevant guidance and legislation.

The Construction Environmental Management Plan will form part of the Contract Documents for the construction stage to ensure that the Contractor undertakes the works required to implement mitigation measures.

18.3.3 Operational Phase Mitigation

As noted above there is limited impact on the geological environment of the area expected during the operational phase of the development. The site has been designed to mitigate any soil contamination which may occur during the operational phase of the Project. This includes bunding of all chemical and fuel containers, the discharge of waste process water to the foul drainage network, the containment of firefighting water run-off in detention ponds and the provision of oil and fuel interceptors on drainage networks.

18.4 Water and Hydrology

18.4.1 Mitigation Incorporated into the Drainage Design

18.4.1.1 Wastewater

Wastewater generated on-site particularly during the operational phase of the development will be piped and discharged to the existing Irish Water foul sewer which flows along the L2030 Newhall Road to the Newhall Wastewater Pumping Station located (west of the site), and is ultimately pumped to Osberstown WWTP (north of the site). Irish water has provided agreement in principle for the connection of the development associated with the development to their assets and have confirmed that the connection is feasible without the need to upgrade Irish Water infrastructure. The Project will include a private rising mains from the site to the existing 300mm wastewater gravity network along Newbridge Road. Provided the sewer network is installed using industry standard best practice, including the installation of the sewer under the Bluebell Stream by trenchless techniques, and routinely checked there is likely to be no impact from wastewater from the development and therefore no further mitigation required. Drainage pipelines will be inspected by CCTV at completion of the construction project and any damage will be repaired.

18.4.1.2 Surface Water

There is no existing surface water infrastructure on the site, drainage runoff is collected via overland flows to agricultural ditches connected to Bluebell Stream. Consultation has taken place with Inland Fisheries Ireland (IFI) and the IFI document “Planning for Watercourses in the Urban Environment” has been incorporated into the design. The development has incorporated a variety of Sustainable Drainage Systems (SuDS) techniques to counteract the potential increased runoff as a result of increased hardstanding. It is proposed to collect all surface water as far as practically possible at surface level with ponds and swales. Surface water will therefore be utilised at peak times, as well as hydrant and sprinkle back supply. The excess water will be discharged

back into Bluebell Stream. While all storm water collected on site will be discharged into the current water course following treatment via SuDS measures which include permeable surfaces, grass lined swales, bioretention ponds and oil interceptors at critical locations within the drainage network, e.g. on the surface water drainage form the GIS substation. The SuDS processes decrease the impact of the development on the receiving environment by providing amenity and biodiversity in many cases.

Adequately specified oil interceptors will be incorporated into the proposed drainage network for the substation, parking areas and access roads.

18.4.2 Construction Phase Mitigation Measures

18.4.2.1 Construction Phase Best Practice Measures

Mitigation measures will be implemented by the contractors who will construct the development in accordance with the requirements listed within the Construction Environmental Management Plan which will be submitted as part of the planning applications for the development. Furthermore, once appointed, the contractors will submit a detailed Construction Management Plan based on the requirements of these submitted planning documents for approval by the Planning Authority. The mitigation measures implemented by the contractor will refer to the construction management procedures for best practice regarding the following recognised international guidelines:

- Good practice guidelines on the control of water pollution from construction sites developed by the Construction Industry Research and Information Association (CIRIA, 2001);
- Control of Water Pollution from construction sites, Guidance for consultants and contractors (C532);
- Environmental Good Practice on Site (3rd edition) (C692); and
- Guidelines on Protection of Fisheries During Construction Works and Adjacent to Waters (2016).

18.4.2.2 Suspended Sediment and Sedimentation

Preventing run-off is an effective method of preventing sediment pollution in the water environment. Therefore, adoption of appropriate erosion and sediment controls to manage run-off during construction is essential to prevent sediment pollution.

Mitigation measures to address the potential impact from suspended solids will be carried out in accordance with a site specific CEMP. The measures will be employed prior to the commencement and during construction and will include such measures as:

- Drainage and measures to control run-off will be employed to manage sediments prior to any works to be undertaken at the site, i.e., arrangements for the treatment of dirty groundwater ingress from any excavations will be in place in advance of the dewatering to ensure it can be adequately managed on site;
- If possible, earthworks operations should be limited to the summer months.
- The site shall be surveyed to identify all existing drainage features and waterbodies.
- It is proposed that this work on the culverts to facilitate the secondary access through the M7 Business Park will be undertaken in dry conditions and will utilising an open-cut methodology with temporary damming and fluming of the relevant lengths of watercourse.
- Works within the channel of a watercourse with sensitive fish present (i.e. salmon, lamprey, trout and eels) requires appropriate timing of the works. Therefore, IFI's document entitled 'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016) will be consulted for additional information on timing of works. In salmonid rivers such as the Liffey_100, downstream of the Project, the guidelines require that all in-stream works should be carried out during the period July to September; any requirement for works to be conducted earlier will seek approval from IFI.
- In order to ensure that the biological elements of the ecological status are not impacted the risk of the potential loss or crushing of sensitive fish in the vicinity of the culvert crossings should be mitigated before in-channel works commence by their capture and translocation distantly away from the works area. Authorisation via Section 14 of the Fisheries Act will be required from IFI and should be conducted using a competent fisheries expert, with the application made at least 12 weeks prior to works commencement.

- A minimum Buffer of 10 metres is proposed from the proposed works to the Bluebell Stream to protect the aquatic environment.
- Silt fencing will be installed at strategic locations around the perimeter of the site. The indicative location of the silt fencing has been determined in the Construction Phase Surface Water Management Plan within the in the construction stage CEMP (EIAR Volume II, Appendices, Appendix 4.5) and will be subject to confirmation for phase to be developed. The purpose of the silt fencing is to prevent silt laden water leaving the site and entering neighbouring land with the potential to impact nearby watercourses.
- Filter drains be cut to intercept surface water where there is a risk of significant water flow into excavations or on to adjoining lands. There will also be a requirement to periodically pump water from excavations. All collected and pumped water will have to be treated prior to discharge. The run-off will be directed through appropriately sized propriety settlement tanks, with a proprietary silt bag to intercept bulk silt volumes, to remove suspended solids. Details are provided in the Surface Water Management Plan included in the construction phase CEMP (EIAR Volume II, Appendices, Appendix 4.5);
- The use of filter drains and temporary settlement ponds shall further treat any potential contaminated/ polluted runoff prior to discharge to a Silt Bag arrangement which will provide maximum treatment of surface water runoff entering the Bluebell stream.
- During the construction phase of the development, all silt/ pollution removal strategy structures shall be constructed/ installed outside the extent of the riparian buffer which has been determined as 10m from the Bluebell Stream bank
- Retention and utilisation of subsoil and topsoil for the creation of landscape mounding, up to 6.5m high, to the site boundary with the M7 and for reinstatement of disturbed landscape areas
- Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident;
- Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same;
- The site manager will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained;
- Any temporary storage of soil, hardcore, crushed concrete or similar material will be stored as far as possible from any surface water drains. There can be no direct pumping of silty water from the works directly to any watercourse. All water from excavations must be treated by infiltration over lands or via settlement areas, silt busters etc;
- 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 material with potential for dust emissions to an off-site location shall be enclosed or covered at all times to restrict the escape of dust;
    - Any hard surface site 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;
    - A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate;
    - Road sweepers will be employed to clean the site access route as required.

The incorporation of these mitigation measures during the construction phase means the potential impact to receiving water environment will be reduced to negligible thus reducing the significance of the environmental effect to **imperceptible**, based on the very high sensitivity of the receiving environment.

18.4.2.3 Concrete and Cement Pollution

The impacts in relation to cement and concrete for the development are, for the most part (but not limited to) the installation of the concrete areas (to be poured in-situ) and construction works of buildings. The principal risks are:

The use of concrete in close proximity to water bodies requires a great deal of care. Fresh concrete and cement are very alkaline and corrosive and can cause serious pollution in water bodies. It is essential to ensure that the use of wet concrete and cement in or close to any water course is carefully controlled so as to minimise the risk of any material entering the water, particularly from shuttered structures or the washing of equipment. The following measures will be undertaken to mitigate against possible pollution:

- A concrete washdown area will be provided on site for trucks to use after delivery of concrete or on return to the batching plant. This area will be adequately bunded to mitigate the risk of contaminated runoff discharge to the Liffey_100 water body. Concrete trucks are to be washed down within the concrete truck washdown area after delivery of concrete, prior to exiting the site. Washdown runoff will be appropriately treated prior to discharge;
- Wash-out areas on site will be properly designed with an impermeable line to contain all cement laden water. No wash-out of ready-mix concrete vehicles shall be located within 10 metres of any temporary or permanent drainage features. Signage shall be erected to clearly identify the wash-out areas. Sufficient wash-out areas shall be provided to cater for all vehicles at peak delivery times;
- The installation of the box and pipe culverts, including the concrete required for the binding will be undertaken in dry conditions through the damming and fluming of the minor water course, to prevent wet concrete from entering the aquatic environment.

In circumstances where the mitigation measures are employed during construction operations, the potential impact to receiving water environment will be reduced to negligible thus reducing the significance of environmental effect to **imperceptible**.

18.4.2.4 General Construction Works

The risk of water quality impacts associated with works machinery, infrastructure and on-land operations (for example leakages/spillages of fuels, oils, other chemicals and waste water) will be controlled through good site management and the adherence to codes and practices which limit the risk to within acceptable levels. The following measures will be implemented during construction:

- A works specific Construction Environmental Management Plan has been prepared as part of the planning submission and will be developed and implemented by the contractor and will include detail in respect of every aspect of the works in order to minimise potential impacts and maximise potential benefits associated with the works;
- Management and auditing procedures, including tool box talks to personnel, will be put in place to ensure that any works which have the potential to impact on the aquatic environment are being carried out in accordance with the contactors environmental controls, which will be consistent with an approved CEMP and any planning conditions;
- Existing and proposed surface water drainage and discharge points will be mapped on the Drainage layout. These will be noted on construction site plans and protected accordingly to ensure water bodies are not impacted from sediment and other pollutants using measures to intercept the pathway for such pollutants;
- Welfare facilities (canteens, toilets etc.) will be available within the construction compound and this will remain in place for the construction of the Project. The offices and site amenities will initially need to have their own foul water collection until connections are made to the mains networks.

The use of oils and chemicals on-site requires significant care and attention. The following procedures will be followed to reduce the potential risk from oils and chemicals:

- New metal gerry cans with proper pouring nozzles will be used to move fuel around the site for the purposes of refuelling items of small plant on site. Metal gerry cans and any other items of fuel containers will be stored in certified metal bunded cabinets.
- Drip trays will be used under items of small plant at all times. Any waste oils etc. contained in the drip trays or the bunded area will be emptied into a waste oil drum, which will be stored within the bund.

- Any gas bottles will be stored in a caged area at a secure location on the site. All will be properly secured at point of work.
- No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks may be kept in the material storage area in suitable containers and will be stored on appropriately bunded spill pallets as required. Any fuel and oil stored onsite shall be stored on bunded spill pallets approved under BS EN 1992-3:2006). All bunds will be impermeable and capable of retaining a volume of equal to or greater than 1.1 times (>10%) capacity of the containers stored on them. In the event of a filling spillage excess oil or fuel will be collected in the bund;
- Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will be undertaken offsite where possible. Where this is not possible, filling and maintenance will take place in a designated material storage compound, which is located at least 10 metres from any temporary or permanent drainage features. Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release. Training will be given to appropriate site workers in how to manage a spill event. A certified double skinned metal fuel tank will be situated in this secure bunded area on the construction site if applicable. This tank will be certified for lifting when full.
- Spill protection equipment such as absorbent mats, socks and sand will be available to be used in the event of an accidental release during refuelling. Training will be given to appropriate site workers in how to manage a spill event. A hazardous bin will also be available to contain any spent sand or soak pads.
- Contingency Planning: A project specific Pollution Incident Response Plan will be prepared by the contractor and will refer to PPG 21 Pollution Incident Response Planning. The contractor's Environmental Manager will be notified in a timely manner of all incidents where there has been a breach in agreed environmental management procedures. Suitable training will be provided by the contractor to relevant personnel detailed within the Pollution Incident Response Plan to ensure that appropriate and timely actions is taken.

The following mitigation measures will be taken at the construction site in order to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:

- Refuelling will be undertaken off site where possible;
- Where mobile fuel bowsers are used the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training; and
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

Provided these mitigation measures are employed during construction operations, the potential impact to receiving water environment will be reduced to **negligible** thus reducing the significance of environmental effect will be reduced to **imperceptible**.

18.4.2.5 Demolition Works

The risk to water quality impacts associated with demolition works during the construction phase will be controlled through good site management conforming to health and safety, while adhering to codes and practices which limit the risk of demolition related contamination. PPG 6: Working at construction and demolition sites, shall be adhered to particularly in relation to safe and secure on site storage and minimising storage time, wheel washing, placing of concrete and dealing with silty water for the construction and demolition industry (Environmental Agency, 2012).

A Method Statement for the demolition of the building shall be prepared showing the sequence of demolition and the method of demolition to be employed. A health and safety plan showing all the measures for the protection of the public including hoardings shall also be prepared.

In circumstances where the above mitigation measures are employed during the construction phase operations, the potential magnitude of the impact on the receiving waters will be reduced to negligible thus reducing the significance of the environmental effect to imperceptible during demolition works.

18.4.3 Operational Phase Mitigation Measures

18.4.3.1 Foul Water

Foul wastewater generated on-site particularly during the operational phase of the development will be piped and discharged to the existing Irish Water foul sewer. Agreement in principal to discharge to the existing foul network and Osberstown WWTP will be secured with Irish Water and will ensure the wastewater discharge authorisation for the existing agglomeration will not be adversely affected (see EIAR Volume II, Appendices, Appendix 4.12, Planning Engineering Report, Appendix E).

Furthermore, each data centre building is serviced by its own local foul drainage network which conveys flows to one of two onsite pumping stations, located west and east of the site. Each pumping station will have sufficient capacity to accommodate wastewater generated by a sprinkler discharge event by a data centre (max 440m^3). This is sufficient to accommodate 24 hour storage for domestic and process wastewater generation.

Both the surface water and foul system are to be entirely separate developments.

Where the mitigation measures listed above are employed, the potential impact to receiving water environment will be reduced to negligible thus reducing the significance of environmental effect will be reduced to Imperceptible.

18.4.3.2 Storm Water Run-off

The development has incorporated a variety of Sustainable Drainage Systems (SuDS) techniques to counteract the potential increased need for supply. SuDS, supplemented by bypass separators on the piped storm water network, will include green roofs, permeable paving, rain gardens, attenuation tanks, bioretention pods, as well as, grassed and open space landscape portions of the site.

To reduce the water demand on the Local Authority water supplies and to reduce the requirement of the facility to use mains connection, water conservation measures will be incorporated throughout the development. Surface waters will be collected as far as practically possible at surface level via ponds and swales, to be used for peak hours and hydrant and sprinkler back up supply. Rainwater will be collected for use in the cooling operations of the plant to decrease reliance on public supply.

During the operational phase, there is potential for storm water run-off to be impacted by pollutants arising within the car parking areas and roadways. This runoff has the potential to provide pathways for a wide range of contaminants arising from general operations to the aquatic environment. The main potential pollutants from surface water drainage or direct run-off are sediment, hydrocarbons, and trace contaminants including metals and organics.

The attenuation tanks and pervious pavements have proposed dual purpose and whilst they are flow attenuation features they also mitigate against potential water quality issues associated with storm water run-off.

All surface water run-off from roof areas and hardstanding areas are designed to be collected by a gravity pipe network. The collected stormwater will be diverted through a petrol interceptor prior to an underground attenuation storage tank.

Provided the best-practice techniques illustrated in CIRIA's guidance document (C768 – Guidance on the Construction of SuDS) are followed, no further mitigation is required. Where the measures listed above are employed, the potential impact to receiving water environment will be reduced to **negligible** thus reducing the significance of environmental effect will be reduced to **imperceptible**.

18.4.3.3 Hydromorphology

In terms of the culvert installation the condition of the Bluebell Stream the existing stream bed shall be excavated to the design formation levels as set by the engineer. If suitable, all existing bed material will be stockpiled on site for re-use along the culverted stream channel. Where the measures listed above are employed, the potential impact to receiving water environment will be reduced to negligible thus reducing the significance of environmental effect will be reduced to imperceptible.

18.5 Air Quality

18.5.1 Pre-Construction & Construction Phase

Mitigation measures are divided into general measures applicable to the entire and measures applicable specifically to the defined construction activities (i.e. demolition, earthworks, construction and track-out). As the risk of dust impact on receptors from soiling has been identified to range from medium to high during the demolition stage specifically, the highest risk category should be applied when considering general mitigation measures (IAQM, 2023).

A Dust Management Plan (DMP) will be prepared by the appointed contractor for the Site and submitted to the Council for written agreement prior to commencement of construction. The DMP will at a minimum include the following mitigation measures listed below to minimise and manage potential dust emissions:

18.5.1.1 Communications

With respect to communications, the following will be implemented:

- Develop and implement a stakeholder communications plan that includes community engagement;
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the Site Manager;
- Appropriate training will be provided to all staff to ensure that they are aware of and understand the dust control and other environmental control measures; and,
- Display the head or regional office contact information.

To be implemented before works commence on site and training given as appropriate by the appointed contractor.

18.5.1.2 Site Management

With respect to site management, the following will be implemented:

- Daily visual inspections of the site and site boundary for evidence of dust depositions will be made. A dust inspection of the site will be undertaken by a suitable person, trained and nominated by the site manager. Increase frequency of site inspections will be undertaken when activities with a high potential to produce dust are being carried out, such as earthworks activities, power tool use and during prolonged windy or dry condition;
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- Make the complaints record available to the relevant regulatory authorities when asked;
- Record any exceptional incidents that cause dust and/or air emissions, either on or offsite, and the action taken to resolve the situation in an environmental log book;
- Avoid site runoff of water or mud;
- Use covered skips;
- No bonfires and burning of waste materials on site;
- It is recommended that passive monitoring at three - site boundary locations shall be completed for the duration earthworks (Bergerhoff method);
- Keep surfaces such as Site fencing and barriers clean using wet methods.

To be implemented during works as required by the appointed contractor.

18.5.1.3 Earthworks

Earthworks are planned as part of the Project including foundations (and associated excavation of soils and materials), creation of stockpiling and cut and fill areas. With respect to earthworks, the following will be implemented:

- Disturbance of the ground will be kept to a minimum wherever possible;
- Soil handling should be restricted during adverse weather conditions such as high winds or exceptionally dry spells – depending on outcome of walk over survey identifying any potential issues ;
- Minimise drop heights from loading or handling equipment/materials and use fine water sprays on such equipment wherever appropriate;
- Dampening methods will be used where necessary; and,
- Methods and equipment will be in place for immediate clean-up of spillages of dusty or potentially dusty materials.

To be implemented during earthworks by the appointed contractor.

18.5.2 Construction

With respect to construction, the following will be implemented:

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- Ensure bulk cement and other fine powder materials are delivered in enclosed;
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust;
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems; and,
- Cleaning of hard stand areas by personnel only or if required mechanical road sweepers (with water suppressant fitted) to clean any site hard stand area.

To be implemented during construction period by the appointed contractor.

18.5.2.1 Vehicle Movement and Vehicle Emissions

As with any construction site, there are associated vehicle movement, emissions and plant use. With respect to vehicle movement and vehicle emissions, the following will be implemented:

- Implement a wheel washing system until earthworks are completed. Wheel wash system should have an adequate amount of hard surface between it and the Site exit;
- Transportation of dusty/fine materials will be conducted in enclosed or sheeted vehicles;
- An onsite speed limit (to be displayed) will be implemented by the main contractor that will be appropriate to the types of construction plant utilised;
- Regular cleaning and maintenance of site roads as appropriate. Hard surface roads should be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic only;
- Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary;
- Ensure all vehicles switch off engines when stationary and not in immediate use - no idling vehicles (emissions to air controlled);
- All plant utilised should be regularly inspected (emissions to air controlled);

- Visual monitoring of plant will include: Ensuring no black smoke is emitted other than during ignition (emissions to air controlled);
- Ensuring exhaust emissions are maintained to comply with the appropriate manufacturers limits (emissions to air controlled); and,
- Vehicle exhausts will be directed away from the ground and other surfaces and preferably upwards to avoid road dust being re-suspended to the air.
- Avoid the use of diesel or petrol powered generators where possible, using mains electricity or battery powered items where practicable;
- Impose and signpost a speed limit of 20 km/hr on sealed surfaces and 15 km/hr on unsealed surfaces.

To be implemented throughout by the appointed contractor.

18.5.3 Operational Phase

The proposed facility incorporates the following good design and best practice measures, which have been accounted for in the assessment as far as is possible:

- Reuse/recycling of material on-site where possible reducing emissions related to production of virgin materials;
- Solar photovoltaic (PV) arrays are located on the roof top of each of the six DC buildings. The solar PV arrays will provide a minimum 500kW peak per building provided as part of 30% renewable energy target for operational energy target;
- LED lighting, which is proven to use 75% less energy when compared to traditional incandescent bulbs will contribute to further reduce already minimal indirect emissions due to electricity use; and,
- Planting of trees contribute to carbon sequestration and improved air quality.

18.6 Noise and Vibration

18.6.1 Construction Phase

Worst case construction noise predictions can be reduced through use of appropriate mitigations as detailed below in Section Construction Mitigation. The target for mitigation measures is a reduction in daytime construction noise to achieve the daytime Category A threshold limit (i.e. 65dBA).

BS 5228-1 states that:

> "…*if the site noise level exceeds the appropriate category value, then a potential significant effect is indicated. The assessor then needs to consider other project specific factors, such as the number of receptors affected and the duration and character of the impact, to determine if there is a significant effect*."

These factors have therefore been considered to determine the effect significance.

As a summary of proposed construction works:

1. Construction works will be temporary and limited in duration;
2. Construction plant and machinery have been assessed as operating for the full working period of the day, i.e. 100% duty cycle. Due to natural pauses in activity and rest breaks equipment will not be fully operational during the working day; and
3. Construction works are not proposed to occur during night-time or on Sundays, unless for emergency works. Therefore, there will be no associated construction noise impact during these times at construction noise receptors.
4. Temporary construction noise barriers will be used to achieve attenuation of noise levels between ground based construction plant and the nearest noise-sensitive properties.

18.6.1.1 Specific Construction Mitigation

Construction mitigation measures will be put in place to ensure construction noise levels are attenuated and reduced where necessary.

Best practice measures will be employed to ensure that construction phase noise levels are reduced to the lowest possible levels.

BS5228:2009+A1:2014 – Noise and vibration control on construction and open sites outlines a range of measures that can be used to reduce the impact of construction phase noise on the nearest noise sensitive receptors. These measures will be applied by the contractor where appropriate during the construction phase of the Proposed Scheme. Construction best practice measures which will be implemented included below:

1. Ensuring that mechanical plant and equipment used for the purpose of the works are fitted with effective exhaust silencers and are maintained in good working order;
2. Careful selection of quiet plant and machinery to undertake the required work where available;
3. Machines in intermittent use will be shut down in the intervening periods between work;
4. Ancillary plant such as generators, compressors and pumps will be placed behind existing physical barriers, and the direction of noise emissions from plant including exhausts or engines will be placed away from sensitive locations, in order to cause minimum noise disturbance. Where possible, in potentially sensitive areas, temporary construction barriers or enclosures will be utilised around noisy plant and equipment;
5. Handling of all materials will take place in a manner which minimises noise emissions; and
6. Audible warning systems will be switched to the minimum setting required by the Health & Safety Executive.

The use of the proposed construction noise mitigation measures will ensure that construction noise levels are controlled to the lowest levels practicable.

Construction traffic noise will be controlled through management of parking, loading and traffic arrangements. These will be managed by the contractor to reduce traffic volumes and in and around the site prevent congestion.

18.6.1.2 Piling Noise and Vibration Mitigation

Particular attention should be paid to piling noise when piling strategy is developed, in terms of location, scheduling and pile type. It is understood that rotary bored piling will be employed. Although this piling technique tends to generate lower levels of vibration than pile driving, transient vibrations can also occur when the auger strikes the base of the borehole. If it is necessary to insert an appreciable length of temporary casing to support the boring, a casing dolly can be used and, as with the impact bored piling method, this will give rise to intermittent vibrations. The use of special tools, such as chisels, will also result in intermittent vibrations.

Occupants of residential properties should be advised of likely piling and demolition schedules; awareness of when and where these works will be taking place can help residents and businesses to prepare for potential impacts.

18.6.1.3 Construction Environmental Management Plan

Further details of all environmental mitigation measures are included in the Construction Environmental Management Plan (CEMP), which accompanies the planning application(s) for the Project.

Once further details of construction methodology and schedule are finalised, a specific Noise Management Plan will be produced and implemented by the final appointed contractor of the project The CEMP and subsequent noise management plan will set out the mitigation measures that will be employed to reduce the noise and vibration impacts of the development during the construction phase.

18.6.2 Operational Phase

Mitigation measures have been considered and implemented in the design and engineering of the Project, including factors such as selection of plant and equipment, noise control at source, selection of construction materials, orientation of buildings and site layout. The benefit of these mitigation measures has been included in the noise predictions and subsequent operational noise impact assessment in Section 9.5.2.

Operational conditions have been carefully considered to ensure that operational requirements are fulfilled in terms of power generation and cooling, whilst minimising noise impact. This is particularly important for the night-time period. There will be controlled use of gas turbines/gas engines during the night, with the number of gas turbines or engines online minimised where possible. The number of gas turbines or engines online should not exceed the 'worst-case' scenarios for daytime and night-time which have been assessed in this chapter. Routine maintenance works, such as testing and servicing will be limited to daytime periods where there is potential for increased noise outputs.

18.7 Cultural Heritage

18.7.1 Mitigation by Avoidance / Design

The fulacht fia (KD019-028----) located within the Project area will be preserved *in situ* as an undeveloped greenspace. The project design has been altered to avoid a direct impact on this feature whose extent has been identified from the geophysical survey. A minimum 5m buffer from the outer edge of the archaeological site will be established prior to any construction works commencing within the site.

18.7.2 Mitigation by Prevention

The c.5m buffer around fulacht fia (KD019-028----) will be fenced-off prior to the commencement of construction in order to protect the site during the course of works. This fence shall remain in place until all development works have been completed. The fencing will be erected under archaeological supervision and no construction related activities, such as machine movements, dumping of spoil or storage of materials will occur within the fenced-off area.

18.7.3 Mitigation by Reduction

Archaeological investigations have identified the existence of several previously unrecorded features of potential archaeological origin within the development area. With the exception of the recorded monument (fulacht fia KD019-028----) preservation *in situ* of the identified features of archaeological potential is not a viable option within the Project site. Therefore, they will be preserved by record through a programme of archaeological excavation and recording under licence from the National Monuments Service (NMS) in the Department of Housing, Local Government and Heritage.

The archaeological excavations will involve the stripping of topsoil from appropriate areas around the identified archaeological features within the development site and this will be carried out under the constant supervision of a suitably qualified archaeologist. The stripped area will include at least 10m of clearance from the edge of the archaeological feature to the edge of the excavation. The supervised topsoil stripping will be undertaken using a mechanical excavator fitted with a toothless bucket which will remove the topsoil down to the uppermost archaeological layer or the surface of natural subsoil in areas where no archaeological material is present. A systematic programme of manual archaeological excavation of all revealed features of archaeological potential will then be carried out in accordance with the method statement submitted to the NMS as part of the licence application process. This will include the manual excavation of all identified archaeological features, the compilation of written, drawn and photographic records, the retrieval of archaeological objects and a programme of environmental sampling.

The archaeological excavations will be undertaken in advance of the main construction works in the relevant areas in order to allocate adequate time to appropriately excavate and record the archaeological deposits/features.

Following the completion of excavations, a post-excavation phase of works, involving analysis, reporting and dissemination to the relevant authorities will be undertaken off site. The level of the post-excavation analysis and reporting will be commensurate with the level of archaeology excavated on site.

There are a number of obligatory processes to be undertaken as part of applications to the National Monuments Service for licences to carry out archaeological excavations and these will allow for monitoring of the successful implementation of mitigation measures. A detailed method statement stating the proposed strategy for the pre-construction archaeological excavations will accompany the submitted licence application which will clearly detail the extent of the archaeological works and outline the processes to be enacted to excavate and record all identified archaeological materials. A preliminary report on the archaeological excavations will then be submitted to the National Monuments Service, the National Museum of Ireland and the Planning Authority which will clearly describe the results of all archaeological works in written, mapped and photographic formats. Following the completion of all required post-excavation analyses, including environmental, artefact studies and dating, a final report on the excavations will be submitted to the above bodies.

It is also proposed to carry out a photographic survey of the vernacular buildings located at the centre of the site prior to their demolition to allow for their preservation by record.

A photographic survey of the portions of townland boundary to be removed should be undertaken prior to their removal and other groundworks on site. Sections through the townland boundaries should be archaeologically recorded during the archaeological excavations outlined above.

18.8 Landscape and Visual

18.8.1 Mitigation of Construction Impacts

The clearance of the existing site and subsequent construction works will be restricted to land within the site boundary. A site compound, including site accommodation, together with hoarding, scaffolding, cranes, and other associated temporary works will be required during the construction phase. These features will be visible during the construction phase from areas immediately adjacent to the Project site. Cranes and scaffolding may be visible at a greater distance, though this will be dependent upon view direction and intervening built form. These temporary features will be viewed as a feature of construction in the urban setting. All construction impacts are limited to the construction period and therefore of temporary duration.

18.8.2 Mitigation of Operational Impacts

Please refer to EIAR Volume III Technical Drawings & Figures for details on the proposed hard and soft landscape plans for the Project, which are set on the planning application and described in Chapter 4 of the EIAR.

Only those trees which require removal to facilitate the development will be replaced. All other trees which can be maintained within the scheme shall be retained and protected from damage in accordance with BS 5837:2012 (Trees in relation to design, demolition, and construction).

It is important that a landscape management plan is prepared to ensure the healthy establishment of all trees within the Project and the replacement of any dead or dying plants in subsequent years.

18.9 Traffic and Transportation

There is no proposed mitigation upon the surrounding highway network as part of this proposal. The Project is served by existing motorways and regional roads which can accommodate the predicted levels of traffic during the construction and operational phases.

18.10 Material Assets

18.10.1 Construction Phase

18.10.1.1 Surface Water

Groundwater or run-off that collects in excavations or foundation trenches will be drained or pumped to a construction site water treatment arrangement. The water is to be directed into a proprietary settlement tank, with a proprietary 'silt bag' to intercept bulk silt volumes. This process entails sediment-laden water being pumped into a filter bag, which traps the solids inside and allows the filtered water to flow freely out through the Geotextile fabric to disperse into the collection point. The proposed collection point shall be a series of silt trap fences and filter drain arrangements, adjacent to constructed pond which will act as temporary settling ponds during the construction The water and silt within the pond are to be emptied into water vacuum tanker and is to be disposed of off-site toa licenced facility.

Due to the sloping nature of the existing topography, there is a risk of silt/ sediment accumulating/ discharging towards the Bluebell stream. To mitigate against unwanted silt discharge, Silt traps in the form of silt fences or hay bale structures will be adopted across lengths of the site to intercept runoff and provide a stage of treatment and runoff filtration.

Runoff filtered through the silt trap fence shall be then intercepted by a temporary filter drain which will run directly parallel to the downstream side of the silt trap fence. The collected, filtered runoff shall discharge to the constructed ponds which shall act as temporary settlement structures during the construction phase. The use of filter drains and temporary settlement ponds shall further treat any potential contaminated/ polluted runoff prior to discharge to a Silt Bag arrangement which will provide maximum treatment of surface water runoff entering the Bluebell stream.

During the construction phase of the development, all silt/ pollution removal strategy structures shall be constructed/ installed outside the extent of the riparian buffer which has been determined as 10m from the Bluebell Stream bank.

18.10.1.2 Foul Drainage

During construction, all new sewers shall be pressure tested and CCTV surveyed in accordance with the Uisce Éireann Standards to identify potential defects and such defects should they arise, shall be repaired prior to the connection

18.10.1.3 Water Supply

During construction, the watermains shall be tested in accordance with the requirements of Irish Water prior to connection.

18.10.1.4 Gas Networks Ireland

During construction, the gas mains shall be tested in accordance with the requirements of GNI prior to connection. The turbines will also be tested in accordance with the manufacturer's specifications.

18.10.1.5 ESB Utility Services

During construction as part of the final testing and commissioning, the overhead lines and underground cables will all be tested in accordance with the requirements of ESB and Eirgrid's standard procedures.

18.10.1.6 Fibre Utility Services

During construction, the ductwork for the fibre network will be CCTV surveyed to ensure no breakages has occurred during installation.

18.10.2 Operational Phase

18.10.2.1 Surface Water

Surface water runoff from the Project will be managed in accordance with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS), with surface water attenuation and retention included as part of the main surface water drainage system. The surface water management proposals shall serve to significantly reduce the overall impact of the Project on the existing environment and shall reduce the risk of flooding in the receiving public surface water network. The proposed SuDs strategy shall also provide cleansing of all surface water prior to the discharge to the Bluebell Stream, increasing the sustainability of the design.

18.10.2.2 Foul Drainage

The proposed development's management company shall carry out operational inspection and maintenance regimes to carry out to ensure the system keeps operating within the design specifications.

18.10.2.3 Water Supply

The Project's management company shall carry out operational inspection and maintenance regimes to carry out to ensure the system keeps operating within the design specifications.

18.10.2.4 Gas Networks Ireland

GNI shall carry out operational inspection and maintenance regimes to carry out to ensure the system keeps operating within the design specifications.

18.10.2.5 ESB Utility Services

The substation will be managed, operated and maintained by ESB who will carry out operational inspection and maintenance regimes to ensure the system keeps operating within the design specifications .

18.10.2.6 Fibre Utility Services

The Project's management company shall carry out operational inspection and maintenance regimes to carry out to ensure the system keeps operating within the design specifications.

18.11 Population

The Project will generate more than 100 no. jobs. The provision of c. 225 no. jobs over a c.37ha site in proximity to other low density employment generators is not considered to be a "large scale employment centre". It is therefore considered that there is no requirement to provide a childcare facility at this location. The surrounding area is well served by childcare facilities, pre-schools and schools there are a large number of childcare facilities in the immediate surrounds. No further mitigation measures are proposed.

18.12 Human Health

18.12.1 Physical Activity

During the operation and maintenance phase new routes to include access that supports people of all ages, including those with mobility and/or sensory needs. This includes: suitable width and surface to new routes for children's buggies, mobility aids and wheelchairs; appropriate route access points (including to parking); signs in formats that respond to visual impairments; connecting to existing routes and trail networks, including appropriate road crossings. This measure would be secured by a Mobility Management Plan.

18.12.2 Transport modes, access and connections

During construction and decommissioning advertise lane closures in advance so road users are forewarned and can manage commute to work effectively. Ensure that early and ongoing sharing with emergency and healthcare services with regard to any temporary road closures, diversions or lane closures. This measure would be secured by a Construction Travel Management Plan.

Ensure suitable pedestrian access is maintained for diversions of any temporary route closures and provide appropriate wayfinding information for temporary diversions during construction and decommissioning, such as being advertised online and signposting, including approximate journey times on the routes. Wayfinding for circular walks or to destinations should be clearly signposted. This measure would be secured by a Construction Travel Management Plan.

18.12.3 Education and training

As far as reasonably practicable (e.g. subject to standards and security checks) provide a targeted scheme of access to operation and maintenance training schemes and apprenticeships for young people in the local and regional area for people who are Not in Education, Employment, or Training (NEET). This would be secured through a workforce management plan.

Monitoring of the proportion of NEETs taking up, and completing, training opportunities with the Project in order to confirm the expected benefit and further tailor the targeting of local vulnerable groups.

Based on the efficacy of such strategies there is the potential for a moderate beneficial (significant) population health residual effect for education and training. This reflects the potential to achieve long-term benefits from a targeted training intervention at a critical stage in the life course of this group.

18.12.4 Employment and income

As far as reasonably practicable (e.g. subject to standards and security checks) provide a targeted scheme of access to operation and maintenance employment opportunities in the local and regional area for people who are Not in Education, Employment, or Training (NEET). This would be secured through a workforce management plan.

Monitoring of the proportion of local people with long-term unemployment, high job instability or low income who enter good quality stable employment with the Project in order to confirm the expected benefit and further tailor the targeting of local vulnerable groups. This would be secured through a workforce management plan.

If a high proportion of good quality operation and maintenance employment opportunities were targeted to vulnerable groups, notably people who are unemployed, on low incomes, or who have high job instability, including young adults early in their careers, then there is the potential locally for a moderate beneficial (significant) population health residual effect. This reflects the potential to achieve long-term benefits though avoiding adverse physical and mental health effects (including to dependants) associated with long-term unemployment, high job instability or low income.

18.12.5 Public understanding of electro-magnetic field risk

Continued community consultation and sharing of non-technical information relating to the project (e.g. explaining compliance with public exposure guidelines, actual risks associated with the project), to allow people to express concerns and gain awareness of actual health effects. This will partially be met through the application process, including the EIAR NTS. Non-technical information and a point of contact for community liaison to be provided on the project website.

18.13 Climate Change

18.13.1 Construction Phase

While the Project already includes extensive embodied carbon mitigation within its design and material procurement commitments within the Applicant's control, the following further mitigation measures should be considered:

- The Applicant should seek to obtain product EPDs for required MEP and building services during product procurement, with the aim to procure lower carbon products where available. Through close engagement with the supply chain and greater transparency into the GHG impacts of products being specified, it can be ensured that products used in the construction of the Proposed Development are manufactured in conditions with minimal GHG impacts (e.g. via the use of renewable energy and efficient resource consumption);
- Increase commitments with regards to the recycled content of the construction materials, where supply is available; and
- The Applicant should seek to understand and influence where possible the approach taken by future tenants with regards to server procurement processes, including whether product EPDs are obtained and lower carbon servers are preferentially specified, and what practices the tenant has in place for re-using, repairing or recycling servers (as required of signatories of the Climate Neutral Data Centre Pact).

18.13.2 Operational Phase

18.13.2.1 Assessment of Effects as a Result of Climate Change

The following embedded mitigation measures are incorporated into the Project's design, reducing the significant adverse effect to a negligible effect, which is not significant in EIA terms:

- Passive design measures will minimise excessive solar gain, such as admin areas housing office spaces and reception areas being north-west and north-east facing to minimise unwanted solar gains;
- Adiabatic cooling system will be designed to allow for further water storage adjacent to each building, to accommodate higher temperatures if needed, and
- The roof of each building will be provided with a reflective finish to improve solar reflectivity.

18.13.2.2 Assessment of Effects on Climate Change

While the Project already includes extensive embodied carbon mitigation within its design and material procurement commitments, the following further mitigation measures should be considered to further reduce energy consumption and resultant emissions:

- While design measures to reduce unregulated energy consumption from the data halls lie within the scope of the tenant during the fit out of the building, the below measures are included for tenant consideration as methods by which such unregulated energy may be reduced:
    - Reduce energy losses from power distribution units by using more efficient units, and look to install those which can also monitor power usage where relevant.
    - Implement efficient air flow management measures to improve cooling efficiency. Examples may include using a hot aisle / cold aisle layout, reducing the number of aisles requiring cooling; and using curtains or panels to avoid cold air from mixing with hot exhaust air.
    - Optimise airflow management within server units to ensure air leakage and recirculation are minimised, and cool air is guided exclusively through the IT equipment.

Waste heat produced by the data centres has the potential to be used as part of a local district heating network providing low carbon heat, avoiding the use of fuels with higher carbon intensities. The development of district heating networks is supported within both national and local policy, which expect data centre developments to aid in such development of heating infrastructure. Given no heat network yet exists in the locality of the site, the Project will ensure it is ready to export heat should demand for such infrastructure grow in the future. A number of the proposed gas turbines will be linked to waste heat boilers, with waste heat pumped via heat exchangers to the perimeter of the site, enabling future nearby developments to connect on and receive heat for a range of uses.