# 16 Schedule of Mitigation

## 16.1 Introduction



This EIAR has assessed the impacts and resulting effects likely to occur as a result of the Proposed Development on the aspects of the receiving environment, grouped under the following headings:

- Population & Human Health
- Biodiversity
- Lands, Soils & Geology
- Hydrology & Hydrogeology
- Air, Odour & Climate
- Noise & Vibration
- Landscape & Visual
- Traffic & Transportation
- Archaeology & Cultural Heritage
- Material Assets

Annex IV(7) of the EIA Directive, as amended, requires that the EIAR should include '*a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases"*.

The Proposed Development will be constructed and operated in a manner that will ensure that the potential impacts on the receiving environment are avoided where possible. Where impacts or potential impacts have been identified, mitigation measures have been proposed to reduce the significance.

This Chapter of the EIAR collates and summarises the mitigation and monitoring measures detailed in **Chapter 5.0** to **Chapter 14.0.**

Mitigation and monitoring measures proposed during the construction phase are outline in **Table 16.1**, and measures proposed during the operational phase are presented in **Table 16.2** below.

## 16.2 Construction Phase

**Table 16.1: Mitigation and monitoring (Construction Phase)**

| Construction Phase | | | |
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| **EIAR Chapter No.** | **Mitigation Ref.** | **EIAR Section Ref** | **Description of Mitigation/Monitoring measure** |
| **Ch 5 Biodiversity**<br><br>**(Pre Construction)** | **BIO 1** | **5.12.2** | **Impacts to existing site biodiversity post construction commencing**<br><br>Site preparation and construction must be confined to the Proposed Development site only and it must adhere to all the mitigation measures outlined in this Chapter and in the separate NIS.<br><br>Work Areas should be kept to the minimum area required to carry out the propsed works and this area should be clearly marked out in advance of the poposed works |

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| | **BIO 2** | **5.12.3** | **Water Quality of Ballynamoney Stream and receptors of the River Barrow and River Nore SAC**<br><br>The site engineer and the contractors must be made aware of the ecological sensitivity of the Proposed Development site and its connection to the River Nore and River Barrow.<br><br>They must be made familiar with the mitigation measures outlined in this Chapter and the NIS report and a signed statement saying that they have taken on board the mitigation measures contained herein should be presented to the local authority along with the Notice of Commencement.<br><br>The applicant will be responsible for alerting the engineers and contractors to the sensitivity of the habitats and water receptors surrounding the Proposed Development site. This will be done prior to the commencement of any site works.<br><br>. |

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| | **BIO 3** | **5.12.4** | **Impacts on existing Terrestrial Habitats & Features**<br><br>In accordance with the policies and objectives of the Regional and County Development Plans, the existing green infrastructure (GI) of the Proposed Development site, i.e., the treelines and hedgerows, must be incorporated into the development.<br><br>In order to prevent damage to treelines / hedgerows in the Proposed Development site that are to be retained, then protective barrier fencing should be erected at a minimum 2m out from these boundaries to protect these features prior to the commencement of site clearance works. There must be no dumping or storage of construction waste or machinery in this zone during construction.<br><br>Any small tree or shrubs that require removal should be removed outside of the bird nesting season (March – August).<br><br>The laying of the gas pipe from the Proposed Development must result in the minimal disturbance to existing roadside hedgerow vegetation. Roadside hedgerows must be left intact, and the root systems of these hedgerows must not be damaged. Upon completion of the work, the soil should be reinstated, and grassy verge vegetation should be allowed to recolonise naturally. |

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| **Ch 5 Biodiversity**<br><br>**(During Construction)** | **BIO 4** | **5.12.4.1** | Protection of Water Quality and Management of Pollutants<br><br>Adhereance to the following best practice documents:<br><br>Construction Industry Research and Information Association (CIRIA) (2005) Environmental Good Practice on Site (C692).<br>Construction Industry Research and Information Association (2001) Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532).<br>Construction Industry Research and Information Association (2000) Environmental Handbook for Building and Civil Engineering Projects (C512).<br>Environmental Protection Agency (2015) List of Waste and Determining if Waste is Hazardous or Non-Hazardous.<br>Environment Agency et al. (2015) Guidance on the Classification and Assessment of Waste, Technical Guidance WM3.<br><br>Works should be avoided during periods of heavy rainfall.<br><br>There must be no uncontrolled discharges of contaminated waters to ground or surface waters from this development, either during the construction or operation of the development. The control and management of hydrocarbons on site will be vital to prevent deteriorations in surface and groundwater quality locally.<br><br>During construction re-fuelling of equipment and machinery must be done off site. If this is not possible, then a dedicated re-fuelling location must be established on site in the compound area away from ground clearance or rock-breaking activities.<br><br>Spill kits stations must be provided at the fuelling location for the duration of the works.<br><br>Staff must be provided with training on spill control and the use of spill kits.<br><br>All fuel storage containers must be appropriately bunded, roofed and protected from vehicle movements. These bunds will provide added protection in the event of a flood event on site. |

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| | | | All chemicals must be stored as per manufacturer's instructions. A dedicated chemical store within a building must be provided on site if chemicals are to be stored on site.<br><br>Procedures and contingency plans must be established on site to address cleaning up small spillages as well as dealing with an emergency incident. A stock of absorbent materials such as sand, spill granules, absorbent pads and booms should be kept on site, on plant working near the water and at the refuelling area.<br><br>Daily plant inspections will be completed by all plant operators on site to ensure that all plant is maintained in good working order. Where leaks are noted on these inspection sheets, the applicant must remove the plant from operations for repairs.<br><br>All personnel shall observe standard precautions for handling of materials as outlined in the Safety Data Sheets (SDS) for each material, including the use of PPE. Where conditions warrant, emergency spill containment supplies should be available for immediate use.<br><br>Best practice concrete / aggregate management measures must also be employed on site during construction.<br><br>It is important that run-off from the construction works does not enter the Ballynamony stream or any drains that lead to this river. Therefore, it is recommended that silt fences are installed along the northwestern and northeastern extent of the construction site area. The silt fence should be sturdy and constructed of a suitable geotextile membrane (Hy-Tex Terrastop Premium silt fence, or similar) to ensure that water can pass through, but that silt will be retained. The silt fences must be capable of preventing particles of 425mm from passing though. The footing of the fencing to be buried into the ground and the visible fencing to be ca. 0.5m high. |

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| | | | An interceptor trench will be required in front of this silt fence.<br><br>The silt fences should be monitored daily to ensure that they remain functional throughout the construction of the Proposed Development. Maintenance of the fences should be carried out regularly. Fences should be inspected thoroughly after periods of heavy rainfall.<br><br>Concrete Washout Skip: Chutes of concrete trucks are only to be washed out into an impermeable lined (polythene) skip. The washout water is to be removed off-site for treatment.<br><br>The concrete washout skip is to be located to the east of the site, where the underlying overburden is greater.<br><br>Excavations lined with an impermeable liner are not permitted as concrete washout bays on the site.<br><br>Large excess loads of concrete are to be returned to the supplier or poured into concrete block modules (Betonblock or similar design), in order to minimise waste and reduce the risk of concrete being dumped throughout site.<br><br>Best practice in bulk-liquid concrete management should be employed on site, addressing pouring and handling, secure shuttering, adequate curing times etc. |
| | | | Stockpile areas for sands and gravel must be kept to a minimum size, well away from drains on site.<br><br>Where concrete shuttering is used, measures should be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils<br><br>Activities which result in the creation of cement dust should be controlled by dampening down the areas.<br><br>Raw and uncured waste concrete should be disposed of by removal from the site. |

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| | **BIO 5** | **5.13.4.2** | **Impacts to Ballynamoney water quality during construction of access road**<br><br>The proposed access road will necessitate the crossing of one small drain in the site. It is recommended that pre-cast open box culverts are used to minimise disruption to the ecology of the bed of the watercourse on site. The minimal amount of vegetation should be removed to facilitate the insertion of these culverts. The installation of these crossings should be overseen by the Clerk of Works. |
| | | | **Negative biodiversity impacts from Construction Waste and Soil**<br><br>All construction waste must be removed from site by a registered contractor to a registered site. Evidence of the movement and safe disposal of the construction waste must be retained and presented to the Local Authority upon request. Removal of the construction waste should occur as soon as possible after construction works. There must be no disposal of construction waste or topsoil in any designated site or site of biodiversity value.<br><br>All topsoil generated from site works should be stored within the Proposed Development site until it is required for landscaping. It must not be stored outside the Proposed Development site boundaries and it must not be used for the infilling of any area outside of the Proposed Development site. If there is more topsoil than is needed for landscaping, it must be removed from site by a registered contractor for appropriate use elsewhere. The end location of the topsoil must be identified and records presented to the local authority if requested. |

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| **Ch 6 Population & Human Health** | **PPH1** | **6.7.1** | **Impacts to local Population during the Construction Phase**<br><br>Potential impacts during the construction phase will be minimised through the implementation of the Construction Environmental Management Plan which will be submitted to the council prior to construction. |
| | **PPH2** | **6.7.5.1** | **Air Pollution**<br><br>Construction and operation phase mitigation measures are outlined in Chapter 9: Air, Odour & Climate. |
| | **PPH3** | **6.7.5.2** | **Noise Pollution**<br><br>Construction and operation phase mitigation measures are outlined in Chapter 10: Noise and Vibration. |
| **Ch 7 Land Soils & Geology** | **LSG1** | **7.6.1** | **General Mitigation Measures**<br><br>Construction Environmental Management Plan (CEMP)<br><br>The implementation and compliance with the conditions of the CEMP will be overseen by the Project Supervisor Construction Stage (PSCS) and/or onsite Environmental or Ecological Clerk of Works (ECoW) where necessary |

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| | **LSG2** | **7.6.1** | Site preparation and construction must be confined to the Proposed Development only and it must adhere to all the mitigation measures outlined in this Chapter. Work areas should be kept to the minimum area required to carry out the proposed works and this area should be clearly marked out in advance of the proposed works |
| | **LSG3** | **7.6.1** | Prior to the commencement of developments on site, the PSCS/ ECoW will ensure that contractors will be made aware of the sensitive receptors identified in this chapter and the associated mitigation factors. A signed statement saying that they have taken on board the mitigation measures contained herein should be presented to the local authority along with the Notice of Commencement |

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| | **LSG4** | **7.6.1** | A wheel wash/ power wash facility will be established at the site-setup stage of construction to limit the translocation of sediment onto the local road network. |
| | **LSG5** | **7.6.1** | A best practice measure in reducing the risk of the translocation of invasive species all machinery initially arriving to site will be inspected. Any dirty equipment will be refused entry to site. |
| | **LSG6** | **7.6.1** | All construction waste will be removed from site by a registered contractor to a registered site. Evidence of the movement and safe disposal of the construction waste will be retained and presented to the Local Authority upon request. Removal of the construction waste will occur as soon as possible after construction works. |
| | **LSG7** | **7.6.1** | The following Guideline documents should be adhered to:<br><br>- Construction Industry Research and Information Association (CIRIA) (2005) Environmental Good Practice on Site (C692).<br><br>- Construction Industry Research and Information Association (2001) Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532).<br><br>- Construction Industry Research and Information Association (2000) Environmental Handbook for Building and Civil Engineering Projects (C512).<br><br>- Environmental Protection Agency (2015) List of Waste and Determining if Waste is Hazardous or Non-Hazardous. |

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| | | | - Environment Agency et al. (2015) Guidance on the Classification and Assessment of Waste, Technical Guidance WM3. |
| | **LSG8** | **7.6.1** | **Topsoil Removal**<br><br>Excavated topsoil will be stockpiled in an area abounded by silt fencing to contain/ reduce any sediment run-off during times of inclement weather. |
| | **LSG9** | **7.6.1** | Driving machinery on topsoil stockpiles is not advised as it damages the soil structure, reduces porosity, and subsequent percolation rates, and can result in 'smearing' of the soil surface, which prevents water infiltration into the soil. |
| | **LSG10** | **7.6.1** | Any excess topsoil will be removed from site and disposed of appropriately. |
| | **LSG11** | **7.6.1** | Stockpiling and slight compaction of stockpiles to minimise both hydraulic and climatic erosion. |

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| | **LSG12** | **7.6.1** | Running stockpiles in the direction of prevailing wind to minimise windborne erosion rates, SW-NE. (EPA, 2013). |
| | **LSG13** | **7.6.1** | Construction of silt fences around topsoil stockpiles to contain sediment run-off. |
| | **LSG14** | **7.6.1** | Minimise the export of topsoil off site by incorporating in the final landscape design. |
| | **LSG15** | **7.6.1** | Minimise handling and tracking of material to maintain optimum soil structure. |
| | **LSG16** | **7.6.1** | Landscaping to take place as soon as possible to reduce exposure of subsoil and topsoil stockpiles. |
| | **LSG17** | **7.6.1** | Works will be avoided during periods of extended rainfall. |
| | **LSG18** | **7.6.1** | All topsoil generated from site works should be stored within the Proposed Development until it is required for landscaping. It must not be stored outside the Proposed Development boundaries and it must not be used for the infilling of any area outside of the Proposed Development. If there is more topsoil than is needed for landscaping, it must be removed from site by a registered contractor for appropriate use elsewhere. The end location of the topsoil must be identified and records presented to the local authority if requested. |

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| | **LSG19** | **7.6.1** | **Excavation**<br><br>Excavation work will be conducted in stages to minimise the exposure of unprotected soil, subsoil and bedrock. |
| | **LSG20** | **7.6.1** | Where possible excavated subsoil material will be reworked and used on site. |
| | **LSG21** | **7.6.1** | A geotechnical investigation of the site will be required in order to assess the potential of the underlying soil, subsoil and bedrock for reuse. |
| | **LSG22** | **7.6.1** | Stockpiling material in appropriate locations, away from water sources, with a silt fence surrounding it to reduce the rate of run-off from hydraulic conditions. |
| | **LSG23** | **7.6.1** | Light compaction of stockpiles to minimise the rate of erosion from climatic methods. |
| | **LSG24** | **7.6.1** | Stockpile heights should be kept to a minimum to ensure stockpile stability and minimise wind borne erosion. |
| | **LSG25** | **7.6.1** | Excavations will be postponed in high rainfall conditions to reduce the risk of excavation collapse and erosion to soil and subsoil profiles. |
| | **LSG26** | **7.6.1** | If extreme weather conditions are forecast high sediment stockpiles will be covered to minimise erosion. |

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| | **LSG27** | **7.6.1** | Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and bedrock. |
| | **LSG28** | **7.6.1** | All temporary excavations will be conducted in a safe manner to ensure sidewall stability and prevent collapse of excavations. Mobile shoring equipment will be utilised to this end where required. |
| | **LSG29** | **7.6.1** | All long-term soil stockpiles are to be planted with a vegetative cover to bind the soil and improve slope stability. |
| | **LSG30** | **7.6.1** | Engineered retaining walls are to be installed where required to ensure stability of contiguous and Proposed Development topography. |
| | **LSG31** | **7.6.1** | “Mole Plough” installation method will be utilised to install the stormwater discharge pipe to the Ballynamoney stream. This will limit trenching requirements and reduce the risk of sediment laden run-off. |
| | **LSG32** | **7.6.1** | **Geological Sensitivities and Harmful Substances**<br><br>Mitigation measures include pre-construction trial pit investigations to ascertain soil depth throughout the site, a desktop study to determine environmental sensitivities in the vicinity of the site as well as backfilling and landscaping of any temporary excavation works as soon as possible. |
| | **LSG33** | **7.6.1** | **Soil Compaction**<br><br>Construction of a hardcore gravel access road on and around the site. |

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| | **LSG34** | **7.6.1** | Confine site traffic to designated routes. |
| | **LSG35** | **7.6.1** | Minimise traffic flows on site and establish a construction stage parking compound. |
| | **LSG36** | **7.6.1** | Avoid the use of oversized machinery when and where possible. |
| | **LSG37** | **7.6.1** | Prevent movement of vehicles on site during and after periods of rainfall. |
| | **LSG38** | **7.6.1** | Driving machinery on topsoil stockpiles will be avoided as it damages the soil structure, reduces porosity, and subsequent percolation rates, and can result in 'smearing' of the soil surface, which prevents water infiltration. |
| | **LSG39** | **7.6.1** | Works will be avoided during periods of extended rainfall. |
| | **LSG40** | **7.6.1** | **Run-Off**<br><br>As a standard best practice measure silt fencing will be erected along the eastern western extents<br>of the Proposed Development site to limit accidental discharge of sediments into the adjacent stream/ drainage ditch located to the west and southwest. The fencing is to be made of a permeable filter fabric (Hy-Tex Terrastop Premium silt fence, or similar), with the footing of the fencing to be buried into the ground and the visible fencing to be ca. 0.5m high. |
| | **LSG41** | **7.6.1** | An interceptor trench will be installed in front of the silt fence. |
| | **LSG42** | **7.6.1** | The silt fence will be visually inspected daily to ensure that they remain functional throughout the construction of the Proposed Development. Maintenance of the fences will be carried out regularly. Fences will be inspected thoroughly after periods of heavy rainfall |

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| | **LSG43** | **7.6.1** | Excavated and/or imported material will be stockpiled and silt fencing will be constructed around stockpile locations to contain/ reduce any sediment run-off during times of inclement weather. |
| | **LSG44** | **7.6.1** | Compacting of stockpiles will reduce the rate of airborne and hydraulic erosion. |
| | **LSG45** | **7.6.1** | Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site. |
| | **LSG46** | **7.6.1** | Silt Fences to be erected where excavation works are required in close proximity to water features and along depressions in land where there's increased surface water flow rates. |
| | **LSG47** | **7.6.1** | Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays. |
| | **LSG48** | **7.6.1** | A temporary drainage system will be established complete with a settlement pond to remove contaminants from run-off, prior to discharge. |
| | **LSG49** | **7.6.1** | Temporary staff welfare facilities will be installed on site at the pre-commencement stage. These will include toilet facilities. All foul discharges from welfare facilities will be collected in a septic storage tank. This tank will be regularly emptied, and the contents disposed of at a registered facility. |
| | **LSG50** | **7.6.1** | **Concrete**<br><br>Concrete Washout Skip: Chutes of concrete trucks are only to be washed out into an impermeable lined (polythene) skip. The washout water is to be treated prior to discharge. |
| | **LSG51** | **7.6.1** | The concrete washout skip is to be located to the east of the site, where the overburden is greater. |
| | **LSG52** | **7.6.1** | Excavations lined with an impermeable liner are not permitted as concrete washout bays. |
| | **LSG53** | **7.6.1** | Large excess loads of concrete are to be returned to the supplier or poured into concrete block moulds (Betonblock or similar design) in order to minimise waste and reduce the risk of contaminants leaching into the surrounding environment. |
| | **LSG54** | **7.6.1** | Best practice in bulk-liquid concrete management should be employed on site addressing pouring and handling, secure shuttering, adequate curing times etc. |
| | **LSG55** | **7.6.1** | Where concrete shuttering is used, measures will be put in place to prevent against shutter failure and control storage, handling and disposal of shutter oils. |

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| | **LSG56** | **7.6.1** | Activities which result in the creation of cement dust will be controlled by dampening down the areas. |
| | **LSG57** | **7.6.1** | Raw and uncured waste concrete will be disposed of by removal from the site. |
| | **LSG58** | **7.6.1** | **Construction Contaminants**<br><br>Fuels, oils and other environmental deleterious chemicals are to be stored in a bunded well-ventilated chemical stores. |
| | **LSG59** | **7.6.1** | Use of such chemicals and fuels is to be contained to bunded areas, where possible. |
| | **LSG60** | **7.6.1** | Fuel bowsers to be located in bunded areas which can cater for 110% of the primary vessel capacity. |
| | **LSG61** | **7.6.1** | Any spills or leaks to the soil is to be immediately contained and the soil in question is to be removed by a licensed contractor and disposed of in a registered facility. |
| | **LSG62** | **7.6.1** | Oil spill containment kits are to be situated near areas of potential spills. |
| | **LSG63** | **7.6.1** | Regular inspections carried out on plant and machinery for leaks and general condition. |
| | **LSG64** | **7.6.1** | Use of ready-mixed supply of wet cement products. |
| | **LSG65** | **7.6.1** | Scheduling cement pours for dry days. |
| | **LSG66** | **7.6.1** | Maintenance and repair works will be carried out at least 10m from any collection of surface water. |
| | **LSG67** | **7.6.1** | No refuelling will be undertaken within 50m of the drainage channel adjacent to the west of the site. |
| | **LSG68** | **7.6.1** | Ancillary machinery equipment such as hoses, pipes and fittings which contain hydrocarbons will be stored within a bund or drip tray. |
| | **LSG69** | **7.6.1** | Any repair works required on machinery involving fuel and oil control will be carried out off-site where practical, if not possible then repairs will be undertaken on a clean hardcore area of site. Unless unavoidable, repair works carried out in the field where machinery is operational will use spill trays and absorbent materials to prevent release of contaminants to the ground. |
| | **LSG70** | **7.6.1** | Daily checks prior to start-up of plant and machinery will minimise the risk of breakdown and associated contamination risks for on-site repairs. Daily pre-start checks will be undertaken and records maintained. A clean site policy and diligent housekeeping will also reduce the potential of hydrocarbon release on-site. |
| | **LSG71** | **7.6.1** | **Importation of Contaminated Materials**<br>All material will be sourced and transported by registered suppliers. |
| | **LSG72** | **7.6.1** | All materials will be inspected prior to acceptance on site. |

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| | **LSG73** | **7.6.1** | Any deliveries found to be contaminated will be refused access to deposit on site. Any contaminated materials accidentally deposited on site will be removed immediately from site. If this is not possible then it will be stored in a “quarantine zone”. |
| | **LSG74** | **7.6.1** | The quarantine zone is to be lined with an impermeable liner which the material will be stored on. A cover will be placed over the liner to avoid hydraulic run-off of contaminated materials. The quarantine zone is to be fenced off and surrounded by silt fencing, as a secondary containment measure. |
| | **LSG75** | **7.6.1** | **Excavation of Contaminated Soils**<br><br>All excavated materials will be visually assessed for contamination. |
| | **LSG76** | **7.6.1** | Any contaminated material detected will be sent for analysis to a suitable environmental laboratory and subsequently quantified, segregated and transported for disposal by a licenced contractor. |
| **Ch 8 Hydrology + Hydrogeology** | **HH1** | **8.6.1** | **General Mitigation Measures**<br><br>Construction Environmental Management Plan (CEMP) |

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| | **HH2** | **8.6.1** | **Increased Run-off and Sediment Loading**<br><br>A temporary drainage system will be established complete with oil interceptors and settlement ponds to remove contaminants from run-off, prior to discharge off-site.<br><br>Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains, gullies leading off-site, and the drainage ditches.<br><br>Installation of impermeable liner is recommended under the storage material areas.<br><br>Covers are to be provided over soil debris stockpiles when high wind and inclement weather are encountered if required.<br><br>Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays.<br><br>A temporary drainage system will be established complete with oil interceptors and settlement ponds to remove contaminants from run-off, prior to surface water discharge off-site.<br><br>Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.<br><br>Covers are to be provided over soil stockpiles when high wind and inclement weather are encountered if required. |

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| | **HH3** | **8.6.1** | **Accidental Spillages of Harmful Substances**<br><br>Establishment of bunded oil and chemical storage areas.<br><br>Refuelling of mobile plant in designated areas provided with spill protection.<br><br>Fuel bowsers to be located in bunded areas which can cater for 110% of the primary vessel capacity or 25% of the total volume of the substance which could be stored withing the bunded area.<br><br>Only appropriately trained site operatives permitted to refuel plant and machinery on-site.<br><br>Regular inspections carried out on plant and machinery for leaks and general condition.<br><br>Emergency response plan.<br><br>Spill kits readily available throughout the site.<br><br>Use of ready-mixed supply of wet cement products.<br><br>Scheduling cement pours for dry days. |

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| | | | **Increased Groundwater Vulnerability/ Excavation of Bedrock Aquifer**<br><br>**Detailed Ground Investigations**<br><br>To better understand the hydrogeological conditions and inform construction planning, a detailed ground investigation should be undertaken prior to commencement of works. This should include:<br><br>To better understand the hydrogeological conditions and inform construction planning, a detailed ground investigation should be undertaken prior to commencement of works. This should include:<br><br>Drilling of cable percussion and/or rotary Bs with the installation of standpipes to obtain geological and hydrogeological data.<br><br>Pumping tests to determine baseline groundwater levels and assess aquifer hydraulic properties.<br><br>Assessment of hydraulic connectivity between the sand and gravel aquifer and nearby surface water features such as drainage ditches, ponded areas, and rivers.<br><br>Evaluation of surface water infiltration pathways and the potential for groundwater ingress during excavation activities.<br><br>Identification of any long-term risks to groundwater quality or quantity. |

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| | | | **Dewatering Requirements**<br><br>The results of detailed ground investigations will be compiled into a technical report and submitted to the relevant local authorities. These findings will be used to develop a hydrogeological conceptual model for the site to determine whether dewatering is necessary. If dewatering cannot be avoided, the following aspects will be assessed:Dewa<br><br>Estimated volume and duration of dewatering required to facilitate the deepest excavations, always accounting for worst-case scenarios.<br><br>Potential temporary impacts on local groundwater resources and groundwater-dependent receptors.<br><br>Anticipated aquifer drawdown, including potential effects on existing wells and nearby surface water features.<br><br>Evaluation of construction methods that may minimise dewatering requirements and reduce associated impacts.<br><br>Discharge strategy based on predicted flow rates, identifying best discharge location (surface water or groundwater), and incorporating temporary settlement tanks or treatment units where necessary.<br><br>Licensing requirements for discharge to surface water or groundwater, including the need to obtain a Discharge Licence from Kildare County Council. |

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| | **HH4** | **8.6.1** | **Increased Groundwater Vulnerability / Excavation of Bedrock/Gravel Aquifer**<br><br>Excavations will be backfilled as soon as practicable to minimise the risk of contaminant infiltration into the subsurface and underlying aquifer.<br><br>Landscaping works will be carried out promptly to reduce surface erosion and weathering.<br><br>Baseline groundwater quality monitoring will be conducted prior to the commencement of works.<br><br>Foundation and service designs will account for groundwater pressures and will include attenuation systems where appropriate, ensuring alignment with greenfield runoff rates (Qbar).<br><br>Surface water will be managed using Sustainable Drainage Systems (SuDS) to reduce runoff and support on-site infiltration.<br><br>Pollution prevention measures will be enforced throughout all construction phases to prevent untreated runoff, spills, or other pollutants from entering groundwater or surface waters.<br><br>Where dewatering systems are necessary, they will be designed in accordance with recognised best practice (i.e. CIRIA C750). Monitoring of groundwater levels and discharge quality will be undertaken in accordance with the requirements of the relevant local authorities. Dewatering plans will be subject to revision as site conditions evolve.<br><br>Following the completion of construction, any dewatering systems will be decommissioned gradually to allow for the natural recovery of groundwater levels. Post-construction monitoring will be carried out as required to verify restoration of pre-development conditions and to ensure there are no residual impacts on groundwater or associated receptors. |

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| | **HH6** | **8.6.1** | **Excavation of Contaminated Soils**<br><br>Procedure in place for incidence of contaminated land within CEMP<br><br>Contaminated soils encountered to be tested, quantified, segregated and transported for disposal by a licenced contractor |

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| | **HH8** | **8.6.1** | **Increase in Flood Risk to Receiving Catchment**<br><br>The construction phase will involve the gradual conversion of the existing greenfield site to areas of hardstanding. The following measures will be implemented in the construction phase to minimise an increase of flood risk to the receiving catchment:<br><br>A temporary drainage system will be implemented during the construction phase, incorporating oil interceptors and settlement ponds to treat surface water runoff and remove potential contaminants prior to controlled discharge off-site.<br><br>Bunds and diversion channels will be installed to divert surface water away from sensitive areas, including open excavations and adjacent drainage ditches leading off-site.<br><br>All temporary drainage features will be subject to regular inspection and maintenance to ensure effective operation and to prevent blockages or failures.<br><br>The drainage strategy will be reviewed and adapted throughout the construction period to reflect evolving site conditions.<br><br>. |

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| | | | A flood risk response plan will be developed to set out actions and procedures in the event of extreme weather during construction.<br>If dewatering systems are required, they will be designed in accordance with recognised best practice guidance, such as CIRIA C750.<br><br>A discharge strategy will be developed based on predicted flow rates, identifying the most suitable discharge location and incorporating temporary settlement tanks or treatment units where necessary. Discharge to surface water will be controlled to ensure it does not exceed greenfield runoff rates.<br><br>Where discharge to surface water is proposed, the relevant licensing requirements will be addressed, and a Discharge Licence will be obtained from Kildare County Council, as required. |
| **Ch 9 Air Odour & Climate** | **AOC1** | **9.8** | **Fuel Storage**<br><br>Temporary Fuels used during construction will be stored in sealed containers. |

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| | **AOC2** | **9.8** | **Stockpiling**<br><br>At the construction planning stage, the siting of activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance.<br><br>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 |
| | **AOC3** | **9.8** | **Use of heavy plant / multiple plant use**<br><br>The Contractor must monitor performance of plant and machinery to ensure that the proposed mitigation measures are implemented, and that dust effects and nuisance are minimised.<br><br>The prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. |

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| | **AOC4** | **9.8** | **Topsoil stripping**<br><br>During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions.<br><br>During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.<br><br>Overburden material shall be protected from exposure to wind by storing the material in sheltered regions of the site. Where possible storage piles should be located downwind of sensitive receptors.<br><br>Sufficient watering will take place to ensure the moisture content is high enough to suppress dust. |

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| | **AOC5** | **9.8** | **Construction and operation of compound buildings and amenities**<br><br>Implementation of Construction Environmental Management Plan.<br><br>The specification of a site policy on dust and the identification of the site management responsibilities for dust issues.<br><br>The development of a documented system for managing site practices with regard to dust control.<br><br>The development of a means by which the performance of the dust minimisation plan can be regularly monitored and assessed.<br><br>The specification of effective measures to deal with any complaints received.<br><br>The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details site.<br><br>A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out.<br><br>At all times, the procedures put in place will be strictly monitored and assessed.<br><br>The dust minimisation measures shall be reviewed at regular intervals during the works to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures.<br><br>Record any exceptional incidents that cause dust and/or air emissions, either on or off site and the action taken to resolve the situation in a dedicated logbook. |

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| | **AOC6** | **9.8** | **Constructing and operating site access roads**<br><br>A speed restriction of 15 km/hr will be applied as an effective control measure for dust for onsite vehicles using unpaved site roads.<br><br>Access gates to the site shall be located at least 10m from sensitive receptors, where possible<br><br>Watering shall be conducted during sustained dry periods to ensure that unpaved areas are kept moist.<br><br>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.<br><br>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.<br><br>A wheel wash facility shall be installed if feasible. All trucks leaving the site must pass through the wheel wash.<br><br>Public roads outside the site shall be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. |

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| **Ch 10 Noise & Vibration** | **NV1** | **10.7.2** | Construction phase mitigation measures as outlined in the CEMP. |
| | **NV2** | **10.7.2** | No plant used on site will be permitted to cause an on-going public nuisance due to noise.<br><br>The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.<br><br>All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working for the duration of the contract.<br><br>Compressors will be attenuated models, fitted with properly lines and sealed acoustic convers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.<br><br>Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. |

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| | **NV3** | **10.7.2** | Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.<br><br>During the construction programme, supervision of the works will be include ensuring compliance with the limits detailed in Section 6.2.1 using methods outlined in BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise.<br><br>The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 07:00hrs and 19:00hrs weekdays and between 08:00hrs and 16:00hrs on Saturdays. However, any necessary or emergency out of hours working will be agreed in advance with the local Planning Authority. |

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| **Ch 11 LVIA** | **LV1** | **11.6** | **General Mitigation Measures**<br><br>Any area of site subject to soil disturbance is to be repaired, the soil reworked into the site, recontoured and modelled. Matching sod/seed sown to blend the topography back into the rural landscape.<br><br>All construction materials, fill, gravel, etc to be removed from the site and surrounding fields once the works are complete.<br><br>Earthworks and hedgerow banks to facilitate appropriate drainage for the soil type and this to be detailed at the design detail stage.<br><br>An irrigation plan to be put in place to allow for establishment of plantings with the irrigation water source to be identified prior to the spring of the first year of planting. A plan to irrigate in hot weather and as required to be put in place especially for the first two years after planting. Recovered process water which has been cooled may be used.<br><br>Hedgerows are to be maintained as thick tall hedgerows with an A shaped profile and laid as required in the traditional manner. Hedgerow trees are to be maintained as such. |
| | **LV2** | **11.6.1** | **Avoidance, Prevention, Reduction and Offsetting**<br><br>The positioning of the digestion tanks into the topography by retaining the bunds and sloping the access into the site of the Proposed Development has prevented the structures breaking the skyline at specific viewpoints and reduced its impact. |

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| | **LV3** | **11.6.1.1** | **Disease**<br><br>The avoidance of *Fraxinus excelsior*, ash, in any infill planting in the hedgerow system will not only protect existing landscape trees from the biologically infectious chalara disease, but it will also protect the local habitats that ash supports for as long as possible, by avoiding this biosecurity risk.<br><br>Any plant materials brought on site to bulk out the plantings during the operational phase of the project to be disease free, to at a minimum hold all relevant plant passports and preferably be sourced field grown and inspected at source prior to planting. This is to avoid spreading potential infections to local populations. All trees and shrubs will conform to the specification for nursery stock as set out in British Standard 3936 Parts 1 (1992) and 4 (1984). Advanced Nursery stock trees if used in tree planting shall conform to BS 5236. |
| | **LV4** | **11.6** | **Topsoil**<br><br>Avoid bringing any additional topsoil on site. Use local soil to make localised repairs. Where additional topsoil is required use from a matching source as local as possible to the Proposed Development. Do not mix topsoil and sub soil during construction. Identify storage area where soils are to be stored separately until they are reworked into the soil. |

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| | **LV5** | **11.6** | **Invasive Species**<br><br>Avoid spreading or bringing invasive plant species onsite in soil or plant materials. Soil and plant material hygiene to be observed and plant, boots, tools and equipment to be clean before being brought on site. All involved at the construction stage to be made aware of this prior to coming on site.<br>Invasive Alien Plant Species include;<br>o Japanese knotweed Fallopia japonica<br>o Giant knotweed Fallopia sachalinensis<br>o Bohemian knotweed Fallopia x bohemica<br>o Himalayan knotweed Persicaria wallichii<br>o Old man's beard Clematis vitalba<br>o Winter heliotrope Petasites fragrans<br>o Garden Yellow Archangel Lamiastrum galeobdolon ssp argentatum<br><br>Of these, knotweed is most likely to be problematic if introduced on site.<br><br>*Thaumetopoea processionea*, commonly known as the Oak Processionary Moth (OPM) is not to be brought onsite and reported immediately to the Department of Agriculture, Food, and the Marine (DAFM), if identified on or near to the site.<br><br>*Xylella fastidiosa* also presents a threat to new and existing planting and is to be avoided and reported to DAFM if detected on or near the site.<br><br>All hedgerows and hedgerow trees which are being retained are to be protected during the construction process with a root protection zone established, prior to the commencement of construction. |

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| | | **11.6** | No root systems to be trenched severed or cut and there is to be no piling of building materials, soil, plant, containers, or any loading material on the protected root zone during construction. All parties involved in the construction process to be made aware of this avoidance measure. No unnecessary damage is to occur to the existing tree and hedgerow complex during construction or afterwards during operations.<br><br>At the detailed design stage tunnelling is to be preferred over trenching where pipework interacts with existing hedgerow systems in selected areas. This to minimise the impact of pipe works on adjacent hedgerow structures.<br><br>The root protection zone is to at a minimum be positioned outside the drip line of the hedgerow system.<br><br>Palisade fencing is to be screened with hedging and trees.<br><br>Planting specifications to be overseen by a qualified landscape architect during the construction and operational period as required. |
| | **LV6** | **11.6** | Planting specifications to be overseen by a qualified landscape architect during the construction and operational period as required. |

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| | **LV7** | **11.6** | **Reinforcing Landscape**<br><br>Any damage to field boundaries received during construction to be repaired in the traditional manner. Low banks for planting trees and hedgerows are to be reinforced where possible. The screening planting and new tree planting will reinforce much of the landscape pattern. Following correct landscape construction and planting, all plant material is to be properly and satisfactorily, irrigated, pruned and given correct amounts of appropriate fertiliser to ensure plant health and vigour. |
| | **LV8** | **11.6** | **Landscape Maintenance and Management Plan**<br><br>A landscape management plan is to be produced and ready post construction so that all new and existing planting, hedgerows, and trees will be immediately cared for and promptly maintained. This plan along with any necessary method statements to be produced during the operational phase of the planting by a qualified landscape architect.<br><br>Landscape maintenance and management plans ought to remain in place until all plantings are fully established and during the life of the Anaerobic Digestion Facility. The aim of the plan is to continue to ensure landscape character is maintained as well as biodiversity and habitat protection.<br><br>A landscape maintenance and management plan will include a small woodland/hedgerow management plan and will address appropriate hedgerow cutting, timing of operations, protection of hedgerow habitats, address irrigation of newly planted trees or infill plants, accessing water, pruning, weeding, fertilising, trimming, management of dead and diseased wood, and general maintenance. Any areas requiring artificial shelterbelt to help them establish are to be identified at the outset after planting is commenced. Plant establishment to be provided for appropriately. All amelioration as required for good plant establishment to be tailored to the plants, trees and hedgerows to satisfy their growing needs. |

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| **Ch 12 Traffic & Transport** | **TT1** | **12.6.1** | A detailed Traffic Management Plan (TMP), produced in accordance with Chapter 8 of the Traffic Signs Manual, will be finalised and agreed upon with the Local Authority prior to construction works commencement. The following mitigation measures are proposed during the construction phase of the development.<br><br>Appointment of a Construction Project Manager to be responsible for the day-to-day implementation of measures outlined in the TMP.<br><br>Identify routes to be used in the delivery and export of materials to the site and routes that shall be avoided by HGVs.<br><br>Monitor the condition of the roads throughout the construction period and a truck-mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.<br><br>Access to the site to be monitored at all times by a banksman who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles. |
| **Ch 13 Archaeological & Cultural Heritage (Pre Construction)** | **ACH 1** | **13.4** | It is recommended that a programme of archaeological testing be carried out in advance of construction. Test excavation is that form of archaeological excavation where the purpose is to establish the nature and extent of archaeological deposits and features present in a location which it is proposed to develop (though not normally to fully investigate those deposits or features) and allow an assessment to be made of the archaeological impact of the proposed development. It may also be referred to as 'archaeological testing' (DAHGI 1999a, 27). |

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| | **ACH 3** | **13.4** | Testing should be carried out under licence to the National Monuments Service at the DHLGH. The application for such a licence requires a detailed method statement, outlining the procedures to be adopted to monitor, record, and recover material of archaeological interest during such work. |
| | **ACH 4** | **13.4** | Should archaeological material be uncovered at any location, the feature will be summarily investigated to determine the form, age, nature, depth, and extent of the feature. The feature will be planned, photographed, and recorded to best professional standards. |
| | **ACH 5** | **13.4** | In addition, the report on the results of the test excavation and an impact statement will be submitted to the planning authority to inform the archaeological site strategy. Where archaeological material is identified, the developer will submit an archaeological mitigation strategy and a detailed method statement for written agreement with the planning authority detailing proposed mitigation including, preservation in situ by way of avoidance or redesign, and/or archaeological excavation under a Section 26 licence in advance of development. |
| | **ACH 6** | **13.4** | The agreed archaeological mitigation (preservation in situ/full excavation) shall take place under licence prior to the commencement of development. The developer shall make provision for excavation, post excavation, interpretation, and publication of the results. A preliminary report detailing the findings of the agreed resolution shall be submitted to the planning authority within four weeks of the licence expiry and a full and final report shall be submitted to the planning authority within 1 year of the licence expiry date. |

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| **Ch 14 Material Assets** | **MA1** | **14.6.1** | **Roads Infrastructure**<br><br>A detailed Traffic Management Plan (TMP), produced in accordance with Chapter 8 of the Traffic Signs Manual, will be finalised and agreed upon with the Local Authority prior to construction works commencement.<br><br>Appointment of a Construction Project Manager to be responsible for the day-to-day implementation of measures outlined in the TMP.<br><br>Identify routes to be used in the delivery and export of materials to the site and routes that shall be avoided by HGVs.<br><br>Monitor the condition of the roads throughout the construction period and a truck-mounted vacuum mechanical sweeper will be assigned to roads along the haul route as required.<br><br>Access to the site to be monitored at all times by a banksman who will direct traffic safely into the construction site and facilitate the safe navigation of larger construction vehicles.<br><br>Traffic management measures will be implemented on a temporary basis while connections to underground services (gas, telecommunications, water) are established. |

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| | **MA2** | **14.6.1** | **Foul Water Network**<br><br>Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.<br><br>All foul water infrastructure to be installed in accordance with the relevant industry standards. |
| | **MA3** | **14.6.1** | **Surface Water Network**<br><br>A temporary drainage system will be established complete with oil interceptors and settlement ponds to remove contaminants from run-off, prior to discharge off-site.<br><br>Stockpile areas for sands and gravel should be kept to minimum size, well away from storm water drains and gullies leading off-site.<br><br>Covers are to be provided over soil stockpiles when high wind and inclement weather are encountered, if required.<br><br>Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.<br><br>Landscaping to take place as soon as possible to reduce weathering.<br><br>Harmful materials such as fuels, oils, greases, paints and hydraulic fluids must be stored in bunded compounds well away from storm water drains and gullies. Refuelling of machinery should be carried out using drip trays. |

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| | **MA4** | **14.6.1** | **Public Water Network**<br><br>Excavations to be backfilled as soon as possible to prevent any infiltration of contaminants to the subsurface and the aquifer.<br><br>Consultation with Irish Water be undertaken prior to works on the existing public water network and notification given to local population. |
| | **MA5** | **14.6.1** | **Gas Network**<br><br>All works to the existing and proposed gas pipelines will be carried out by GNI in accordance with Standard I.S. 328 2021 Gas transmission – Pipelines and pipeline installations. |
| | **MA6** | **14.6.1** | **Electricity Network**<br><br>Consultation with ESB and Dial-Before-You-Dig platforms prior to works on the existing electricity network.<br><br>Implement best practice measures when working on electricity lines.<br><br>Inform the public of when works are to be carried out to ensure they are aware of any temporary interruptions in power supply that may occur. |

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| | **MA7** | **14.6.1** | **Telecommunications Network**<br><br>Consultation with Eir and Dial-Before-You-Dig platforms prior to works on the existing telecommunications network.<br><br>Implement best practice measures when working on telecommunications lines.<br><br>Inform the public of when works are to be carried out to ensure they are aware of any temporary telecommunications outages that may occur. |
| | **MA8** | **14.6.1** | **Municipal Waste**<br><br>Inform staff through toolbox talks/training etc on the relevance and importance of correct waste segregation and management.<br><br>Ensure waste receptacles available for the different identified waste streams to ensure proper and efficient segregation of waste onsite.<br><br>Install signage to promote and encourage proper waste segregation, recycling etc.<br><br>Ensure bins/skips are not allowed to overflow to prevent litter build-up onsite.<br><br>Ensure all bins have lids and skips are covered when be removed offsite to prevent littering elsewhere.<br><br>Ensure waste is collected by a registered vendor and disposed of at a facility licenced to take said waste.<br><br>Maintain good waste records onsite to ensure all is accounted for.<br><br>Concrete Washout Skip: Chutes of concrete trucks are only to be washed out into an impermeable lined (polythene) skip. The washout water is to be treated prior to discharge.<br><br>The concrete washout skip is to be located to the east of the site, where the overburden is greater.<br><br>Excavations lined with an impermeable liner are not permitted as concrete washout bays. |

## 16.3 Operational Phase

**Table 16.1: Mitigation and monitoring (Operational Phase)**

| Operational Phase | | | |
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| **EIAR Chapter No.** | **Mitigation Ref.** | **EIAR Section Ref** | **Description of Mitigation/Monitoring measure** |
| **Ch 5 Biodiversity** | **BIO 6** | **5.13.5.1** | **Enforcing the Environmental Management System**<br><br>An Environmental Management System (EMS) accredited to ISO14001:2015 ill be prepared and implemented by the operating company during the operational phase.<br><br>The Proposed Development will operate under an Industrial Emissions Licence (IEL) issued by the Environmental Protection Agency (EPA). The licence will contain several conditions which the operator must remain in compliance with for the entire duration of the Anaerobic Digestion Facility's lifespan. |

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| | **BIO 7** | **5.13.5.2** | **Uncontrolled releases to the Ballynamoney Stream**<br><br>Dedicated hard standing for off-loading areas, with a minimum separation distance from adjacent water courses.<br><br>Use of spill kits, bunded pallets and secondary containment units, as appropriate.<br><br>All bunds sized to contain 110% of the volume of the primary storage vessel.<br><br>Environmental Management System to include site specific standard operating procedures pertaining to waste management and emergency response.<br><br>There will be no direct discharges to surface or groundwater bodies during the operational phase.<br><br>The entire digestion tank area of the Proposed Development site will be underlain by an impermeable bund structure, acting as secondary containment in the event of a catastrophic failure.<br>Tanks and bunds will be subject to integrity assessments by a suitably qualified engineer. |

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| | **BIO 8** | **5.13.5.3** | **Harmful effects of Landscaping and Lighting on Biodiversity**<br><br>The treelines and hedgerows around the site are important ecological corridors. These features should be enhanced and maintained for the benefit of wildlife.<br><br>The existing gappy hedges should be enhanced with some more native shrubs if possible<br><br>Planting should focus on providing year-long interest for pollinators and should be in accordance with the Landscaping Plan which accompanies the application.<br><br>The natural verges along the hedgerows could also provide excellent opportunity for the benefit of wildlife. These should be managed as old hay meadows, cutting only in late summer. This will be of significant benefit to local pollinators.<br><br>It is recommended that further actions that are outlined as part of the National Pollinator Plan should be implemented.<br><br>Nesting areas for solitary bees could be included by providing south or east-facing banks or areas of bare earth.<br><br>Bee boxes for cavity-nesting bees could be created by drilling holes in untreated wooden blocks and attaching them to an outdoor structure.<br><br>Bat boxes could be installed around the Proposed Development.<br><br>When erecting bat boxes externally put up a minimum of three boxes facing in different directions to provide a range of temperature conditions.<br><br>The use of herbicides within the Proposed Development should be minimised. The clearance of vegetation around fences should be done by hand if possible.<br><br>Where spraying is necessary, it should be done with a knapsack sprayed to minimise spray and target required areas only.<br><br>All rodenticides use on the Proposed Development should be in accordance with the Campaign for Responsible Rodenticide use. |

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| | | | Lighting should be kept to a minimum around the remaining trees on the Proposed Development. Guidelines from Bat Conservation Ireland will be provided for considering how to avoid light pollution of the hedgerows to allow for feeding, commuting, and roosting.<br><br>There should be no lighting directed from the Proposed Development towards mature vegetation or the Ballynamoney stream.<br><br>Lighting shall be controlled to avoid light pollution of green areas and shall be targeted to areas of human activity and for priority security areas. Motion-activated sensor lighting is preferable to reduce light pollution. None of the remaining mature trees or trees proposed for planting shall be illuminated.<br><br>Dark corridor for movement of bats along the grounds of the Proposed Development. Lighting shall be directed downwards away from the treetops and shall not illuminate the Ballynamoney stream or vegetation along its banks.<br><br>All luminaires shall lack UV elements when manufactured and shall be LED.<br><br>A warm white spectrum (ideally <2700 Kelvin) to reduce blue light component.<br><br>Luminaires shall feature peak wavelengths higher than 550nm.<br><br>Tree crowns shall remain unilluminated.<br><br>Planting shall provide areas of darkness suitable for bats to feed and commute. |

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| | **BIO 9** | **5.13.5.6** | **Land and water pollution from use of the Biobased Fertiliser by Customer Farmers**<br><br>In order to avoid any reductions in water quality within the catchment as a whole, all biobased fertilisers must be used in accordance with S.I. 113 of 2022 European Communities<br><br>The spreading of the biobased fertiliser on the customer farms must be done in accordance with the specific Nutrient Management Plan for that farm. Records will kept by the farmer and routinely provided to the Applicant for verification. |
| **Ch 6 Population & Human Health** | **PHH 4** | **6.7** | **Impacts to Population & Human Health during the Operational Phase**<br><br>No mitigation measures are required during the operational phase. |
| **Ch 7 Land Soils & Geology** | **LSG77** | **7.6.2** | **General Mitigation Measures**<br><br>An Environmental Management System (EMS) will be prepared and implemented by the facility operating company |

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| | **LSG78** | **7.6.2** | The proposed facility will operate under an Industrial Emissions Licence (IEL) issued by the Environmental Protection Agency (EPA). The licence will contain several conditions which the operator must remain in compliance with for the entire duration of the facility's lifespan. Typical conditions relating to the protection of water receptors include:<br><br>- Emissions Limit Values for all emissions including surface water<br><br>- Monitoring requirements for surface waters<br><br>- Resource use and energy efficiency<br><br>- Waste management control and documentation<br><br>- Storage and transfer of substances<br><br>- Facility management<br><br>- Accident prevention and emergency response including fire water retention<br><br>- Operational Controls |
| | **LSG79** | | **Geological Sensitivities and Harmful Substances**<br><br>During the operational phase, the site will be bunded, with hardstanding established for offloading areas. No process water will be discharged off-site and storm water will be monitored. Thus, the risk of pathways which could exacerbate or contribute to increased levels of the aforementioned minerals and heavy metals in groundwater sources are minimised. |

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| | **LSG80** | | **Attenuation Tanks**<br><br>The attenuation tanks will be lined with an impermeable membrane to limit the risk of contaminants leaching into local subsoils and the underlying poor aquifer and locally important gravel aquifer. |
| | **LSG81** | | **Attenuation Pond**<br><br>No soils will be imported to site.<br><br>Any contaminated materials will be refused entry to site<br><br>Quarantine zone will be available to isolate any contaminated soils identified. The area will have an impermeable linear, cover and surrounded by silt fencing<br><br>The pond will be lined with an impermeable geotextile liner to limit percolation of the contents into the underlying groundwater |
| | **LSG82** | **7.6.2** | **Uncontrolled Releases and Spillages**<br><br>Dedicated hard standing for off-loading areas, with a minimum separation distance from adjacent water courses. |
| | **LSG83** | **7.6.2** | Use of spill kits, bunded pallets and secondary containment units, as appropriate. |
| | **LSG84** | **7.6.2** | All bunds sized to contain 110% of the volume of the primary storage vessel. |

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| | **LSG85** | **7.6.2** | Environmental Management Plan (EMP) to include site specific standard operating procedures pertaining to waste management and emergency response. |
| | **LSG86** | **7.6.2** | There will be no intentional discharge of untreated storm water to surface or ground waters during the operational phase. All stormwater discharges from site will be via the attenuation ponds with all areas, with the exception of the roofs, being directed through Class 1 petrol/oil interceptors before passing through the attenuation ponds prior to discharge. |
| | **LSG87** | **7.6.2** | The Digestion Tanks and Digestate Storage tanks will be located within a bunded location to the east of the site, this will act as a secondary containment in the event of loss of tank contents. |
| | **LSG88** | **7.6.2** | All primary pipelines and bunded structures will be inspected and integrity tested prior to handover from the appointed construction contractor. All works will be installed to Construction Quality Assurance (CQA) plan. |
| | **LSG89** | **7.6.2** | **Land Spreading of Biobased Fertiliser**<br><br>In order to avoid any reductions in water quality within the catchment as a whole, all biobased fertilisers must be used in accordance with S.I. 113 of 2022 European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2022). |

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| | **LSG90** | **7.6.2** | The spreading of the biobased fertiliser on the customer farms must be done in accordance with the specific Nutrient Management Plan for that farm. |
| | **LSG91** | **7.6.2** | Application of biobased fertiliser to be conducted in compliance with the Nitrates Action Programme (e.g. prohibited periods and nitrogen application rates). |
| | **LSG92** | **7.6.2** | All biobased fertiliser is to be pasteurised prior to removal from the Proposed Development to comply with Regulation (EU) 142/2011 on Animal By-Products in Organic Fertilisers. |
| | **LSG93** | **7.6.3** | **Decommissioning Phase**<br><br>A Closure, Restoration and Aftercare Management Plan (CRAMP) will be developed as a condition of the industrial emission licences and in compliance with the Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites set by the EPA (2012) |

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| **Ch 8 Hydrology + Hydrogeology** | **HH9** | **8.6.2** | **General Mitigation Measures**<br><br>An Environmental Management System (EMS) will be prepared and implemented by the operator during the operational phase.<br><br>The Proposed Development will operate under an Industrial Emissions Licence (IEL) issued by the Environmental Protection Agency (EPA). Typical conditions relating to the protection of water receptors include:<br><br>Site specific trigger levels will be established and agreed with the EPA.<br><br>Monitoring requirements for surface waters<br><br>Resource use and energy efficiency<br><br>Waste management control and documentation<br><br>Storage and transfer of substances<br><br>Facility management<br><br>Accident prevention and emergency response including fire water retention<br><br>Operational Controls |

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| | **HH10** | **8.6.2** | **Contaminated Run-off**<br><br>Compared to untreated manures and slurries, biobased fertiliser poses a lower risk of nutrient leaching into watercourses.<br><br>Design criteria adopted for the development include:<br><br>Pipes are designed for small catchment areas as defined in GDSDS, based on the modified rational method and a rainfall intensity of 50mm/ hour onto impermeable surfaces.<br><br>All surface water pipes have been designed to achieve a minimum self-cleansing velocity of 0.75m/s<br><br>Surface water pipework will be laid to a gradient no flatter than 1:500<br><br>Backdrop heights will be greater than 0.6m where practicable<br><br>The GDSD requirements with respect to interception volume, long-term storage volume and treatment volume have been considered.<br><br>Minimum surface water pipe size of 225mm<br><br>Minimum depth of cover to pipework of 1.2m below trafficked area, or where this cannot be achieved, adequate protection will be provided.<br><br>Maximum depth of pipework of 5m<br><br>Roughness value for surface water pipework, ks, 0.6mm |

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| | **HH11** | **8.6.2** | **Foul Water**<br><br>All sewage infrastructure to be installed in accordance with the relevant industry standards and pressure tested/CCTV surveyed prior to commissioning to ensure absence of defects<br><br>Programme of inspection and maintenance to ensure any defects are repaired<br><br>The wastewater treatment plant will comprise a tertiary treatment system (6PE EuroTank BAF2 Wastewater Treatment System), followed by a 6PE EuroTank TER3 Percolation Unit. The system is proposed with discharge to a Ter3 packaged tertiary unit with a minimum 60m2 attenuation layer.<br><br>The treatment plant will be specified and installed by an appropriately qualified technician and will be subject to regular desludging and maintenance, subject to manufacturers recommendations. |

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| | **HH12** | **8.6.2** | **Increased Groundwater Vulnerability**<br><br>Site bunding will be designed in accordance with the EPA IPC Guidance Note on the Storage and Transfer of Materials for Scheduled Activities (EPA, 2004), ensuring high standards of containment and impermeability.<br><br>The entire tank farm will be bunded to contain potential leaks. All bunds will be:<br><br>Impermeable, constructed of concrete or suitable material with chemical resistance.<br><br>Sized to hold a minimum of 110% of the volume of the largest single tank within the bunded area.<br><br>Fitted with sealed sumps to allow for safe inspection and removal of stormwater or spill residues.<br><br>Dedicated hardstanding areas will be provided for vehicle off-loading and chemical handling, with appropriate drainage controls and a minimum setback distance from any nearby surface watercourses.<br><br>Spill prevention and containment measures will include the use of:<br><br>Bunded pallets and secondary containment units for smaller storage vessels.<br><br>Mobile spill kits strategically located throughout the site.<br><br>Clearly marked and regularly inspected emergency shut-off systems. |

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| | **HH13** | | Runoff from substantial areas of impermeable surfaces, including roofs and service yards, will be directed to a rainwater harvesting system. These tanks will:<br><br>Store rainwater for reuse (e.g., for washdown or non-potable applications).<br><br>Include overflow mechanisms to regulate discharge during heavy rainfall and avoid overloading the system.<br><br>Connect to a properly designed outfall system incorporating flow control structures and filtration, where necessary.<br><br>All proposed below-ground structures will be constructed to be fully impermeable. The rainwater harvesting tanks will comprise reinforced concrete construction. The smaller circular tanks are pre-cast concrete units supplied by Molloy Precast and are designed to be watertight. The larger rainwater harvesting tank will also be constructed from reinforced concrete, likely cast in-situ, and will achieve full impermeability. Both tank types are to be installed on a compacted bed of single-sized granular material, in accordance with standard detailing for below-ground concrete structures.<br><br>Attenuation storage will be provided using proprietary modular geocellular units (e.g. Pluvial Cube or similar). As these systems are not inherently impermeable, they will be encapsulated in a welded or taped impermeable geomembrane or geotextile liner to ensure full watertightness. The attenuation systems will also be laid on, and surrounded by, compacted single-sized granular fill to facilitate structural stability and membrane protection. |

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| | **HH14** | **8.6.2** | **Fire and Resultant Water**<br><br>A Firewater Risk Assessment will be commissioned within the first six months of operation and will determine the volume of firewater retention storage require on site.<br><br>Adequate firewater retention capacity is installed and maintained on-site in the event of a worst-case scenario fire event.<br><br>Firewater retention will be the large rainwater harvesting tank.<br><br>All retention infrastructure systems will be automatically activated in the event of a fire alarm being triggered.<br><br>All retention tanks, etc., shall be maintained empty, or at least to a point where the required retention capacity is available.<br><br>Bunds and tanks will be constructed to Eurocode standard (BS EN 1992-3:2006).<br><br>All proposed below-ground structures will be constructed to be fully impermeable. The rainwater harvesting tanks will comprise reinforced concrete construction. The smaller circular tanks are pre-cast concrete units supplied by Molloy Precast and are designed to be watertight. The larger rainwater harvesting tank will also be constructed from reinforced concrete, likely cast in-situ, and will achieve full impermeability. Both tank types are to be installed on a compacted bed of single-sized granular material, in accordance with standard detailing for below-ground concrete structures. |

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| | **HH15** | **8.6.2** | **On site Flooding**<br><br>The proposed Finished Floor Levels are above the estimated 1 in 1000-year return period fluvial flood event placing the units within Flood Zone C.<br><br>The proposed stormwater management system is designed in accordance with industry standards and is projected to emulate the current greenfield runoff rates calculated at the site.<br><br>Stormwater discharge is proposed to occur to the drainage ditch along the northwestern boundary of the site. It is recommended that a detailed assessment of the ditch's capacity be undertaken prior to the commencement of construction works to ensure its adequacy in receiving the proposed discharge. |

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| | **HH17** | **8.6.2** | **Atenuation Tanks**<br><br>The attenuation tanks have been sized using Causeway Flow drainage software and considers that the rainwater harvesting tank may be full at the time of a 1:100year +30% climate change rainfall event.<br><br>The lower-level sub catchment will discharge to an isolated drainage system in order to contain any potential contaminated water should there be a failure in the digestate tanks. This limits the potential for SuDS based attenuation features and as such the full 1:100 year + 30% climate change volume will be contained below ground in the proposed pluvial cube system. An automated penstock will be provided within the final manhole prior to discharge from the sump level that will be activated in the unlikely event that there is a failure of the digester or digestate tanks.<br><br>Post-attenuation, surface water runoff will be discharged at the greenfield runoff rate calculated for each catchment via means of a Hydrobrake or similar approved flow control device. |

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| | | | Attenuation and rainwater harvesting volumes have been sized based on a 95% runoff rate from all impermeable surfaces throughout the site.<br><br>Attenuation storage will be provided using proprietary modular geocellular units (e.g. Pluvial Cube or similar). As these systems are not inherently impermeable, they will be encapsulated in a welded or taped impermeable geomembrane or geotextile liner to ensure full watertightness. The attenuation systems will also be laid on, and surrounded by, compacted single-sized granular fill to facilitate structural stability and membrane protection. |

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| | **HH19** | **8.6.2** | **Attenuation Pond**<br><br>Runoff from each rain event is detained and treated in the pool. The retention time promotes pollutant removal through sedimentation and the opportunity for biological uptake mechanisms to reduce nutrient concentrations.<br><br>Ponds can be designed to control flow rates by storing floodwater and releasing it slowly once the risk of flooding has passed (also known as a balancing pond). The stored water will change the water level, and ponds should be designed to function in both dry and wet weather. Quantity can also be influenced by the amount of water that can be allowed to infiltrate into the ground if there is no risk to groundwater quality.<br><br>A flow control device will be fitted to the outlet manhole from the attenuation tanks and attenuation pond. This will control outflow from the features internally and offset discharge downstream within the network. The cumulative flow to discharge into the adjacent watercourse, will be discharged at greenfield runoff rates. All flow control manholes will be fitted with a pen stock on the inlet to the flow control manhole to facilitate any future maintenance work. All flow control chambers are also to have slit traps installed. |
| **Ch 9 Air Odour & Climate** | **AOC7** | **9.8** | **Biogas Release**<br><br>The flare stack will have an operational capacity of 110% of the expected maximum hourly biogas production and will ensure the safe and complete combustion of the biogas where necessary. |

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| | **AOC8** | **9.8** | The odour abatement proposed for the facility will consist of odour treatment system and carbon filters with a high level of efficiency to remove impurities such as hydrogen sulphide, ammonia, bioaerosols, siloxanes etc. in the exhaust gas to prevent odour impacts of significance beyond the site boundary.<br><br>H2S will be trapped on activated carbon; CO2 and water vapour will be emitted to the atmosphere. |
| | **AOC9** | **9.8** | The reception hall has been designed to allow for multiple trucks to unload at any one time. This will significantly reduce the number of trucks waiting outside of the building and therefore minimising fugitive odour emissions on-site.<br><br>The proposed reception building will be sealed to prevent fugitive emissions from this building |

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| | **AOC10** | **9.8** | All waste activities at the facility will be carried out within a ventilated building which will be extracted to an odour abatement system using carbon filtration and / or UV methodologies to remove odorous compounds.<br><br>The building will operate under negative pressure with up to 2 air changes per hour. Ventilation pipe work installed in the headspace of the building will be connected to an industrial centrifugal fan that will draw off the warm, buoyant building air that will be generated by a combination of emissions from the feedstock materials in the intake area and from fugitive emissions from the movement of the material to the pre-treatment and digesters. |

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| | **AOC11** | **9.8** | The main entrances to the reception building will be fitted with rapid response roller shutter doors. A closed-door management strategy will be enforced.<br><br>Treated emissions from the odour control plant in the reception building will be discharged via an 11.0m stack to enhance dispersion. The proposed location of the odour abatement system emission point within the site footprint was also designed to ensure that the distance between the emission point and the nearest sensitive receptors was maximised, thereby aiding dispersion. |
| | **AOC12** | **9.8** | All feedstocks will be delivered in covered or sealed containers.<br><br>Feedstock delivery times will be controlled in order to minimise truck waiting times outside of the reception building and therefore minimising fugitive odour emissions on-site. |

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| | **AOC13** | **9.8** | Digestate will be stabilised before storage and removal from the site in order to minimise odour generation.<br><br>As part of the company ISO14001 standard EMS, an odour management plan will be prepared for the operational phase of the site to ensure that all odour control methods applied are sufficient and assessed at regular intervals. The plan will also outline a procedure for addressing any odour complaints. |

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| **CH10 Noise & Vibration** | **NV4** | **10.7.1** | The impact assessment herein adopts a worst-case with all noise sources operating simultaneously and continuously. In reality the noise levels and the impact will be less.<br><br>There are no mitigation measures therefore required to minimise the impact of the operational phase with the exception of regular maintenance of the plant and suitable assessment of any replacement plant that may be required in the future. |

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| **Ch 12 Traffic & Transport** | **TT2** | **12.6.2** | The operational phase of the development will generate a maximum of 60No. vehicle movements day, where 50No. are HGVs and 10No. are private vehicles and vans. The additional vehicles will represent a maximum of 13.5% increase in traffic under a very conservative scenario and will not generate queues and delays along the road network in the vicinity of the site, therefore, no mitigation measure is proposed for the operational phase of the development. |
| **Ch 13 Archaeological & Cultural Heritage (Operational Phase)** | **ACH 0** | | No mitigation measures are proposed for Archaeology & Cultural Heritage during the operational phase of the development. |

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| **Ch 14 Material Assets** | **MA9** | **14.6.2** | **Roads Infrastructure**<br><br>The operational phase of the development will generate a maximum of 60No. vehicle movements day, where 50No. are HGVs and 10No. are private vehicles and vans. The additional vehicles will represent a maximum of 13.5% increase in traffic under a very conservative scenario and will not generate queues and delays along the road network in the vicinity of the site, therefore, no mitigation measure is proposed for the operational phase of the development.<br><br>Strong lines of communication with hauliers, strict delivery schedules and just-in-time delivery methods will be in operation to ensure no more than two trucks will visit the site at any one tim |

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| | **MA10** | **14.6.2** | **Foul Water Network**<br><br>A regular schedule of foul infrastructure inspection and maintenance will be carried out over the lifetime of the Proposed Development.<br><br>The onsite WWTP will be subject to regular desludging and maintenance, subject to manufacturer recommendations. |
| | **MA11** | **14.6.2** | **Surface Water Network**<br><br>Dedicated hard standing for off-loading areas will be established, with a minimum separation distance from adjacent water courses.<br><br>Use of spill kits, bunded pallets and secondary containment units, as appropriate.<br><br>All bunds sized to contain 110% of the volume of the primary storage vessel.<br><br>All bunds and pipelines (foul & process) will be subject to integrity assessments every 3 years by a suitably qualified engineer.<br><br>Surface water drainage features onsite will undergo routine inspection and maintenance to ensure absence of blockages or leaks.<br><br>The site will be subject to annual inspections from the EPA which will assess compliance with conditions outlined in the IEL. Surface water outflows from the site will be assessed as part of these inspections to ensure emissions from the site are compliant with the license. |

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| | **MA12** | **14.6.2** | **Public Water Network**<br><br>Waste water, such as wash water, will be supplied from rainwater harvesting or from treated process water. This water will undergo UV treatment prior to use and storage. |
| | **MA13** | **14.6.2** | **Gas Network**<br><br>The GUI and gas connection pipeline will be installed and maintained by Gas Networks Ireland. All works to the existing and proposed gas pipelines will be carried out by GNI in accordance with Standard I.S. 328 2021 Gas transmission – Pipelines and pipeline installations. |
| | **MA14** | **14.6.2** | **Electricity Network**<br><br>Utilisation of power from the public grid will serve only as a backup. Power usage for the Proposed Development under normal operating conditions will be supplied by CHP and solar PV array onsite. |

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| | **MA15** | **14.6.2** | **Telecommunications Network**<br><br>No mitigation measures are proposed for the operational phase of the Proposed Development. The onsite office/canteen/staff welfare facility will require a constant telecommunications connection meaning slight impacts to the existing network is unavoidable. |

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| | **MA16** | **14.6.2** | **Municipal Waste**<br><br>Inform staff through toolbox talks/training etc on the relevance and importance of correct waste segregation and management.<br><br>Ensure waste receptacles available for the different identified waste streams to ensure proper and efficient segregation of waste onsite.<br><br>Install signage to promote and encourage proper waste segregation, recycling etc.<br><br>Ensure bins/skips are not allowed to overflow to prevent litter build-up onsite.<br><br>Ensure all bins have lids and skips are covered when be removed offsite to prevent littering elsewhere.<br><br>Ensure waste is collected by a registered vendor and disposed of at a facility licenced to take said waste.<br><br>Maintain good waste records onsite to ensure all waste is accounted for. |

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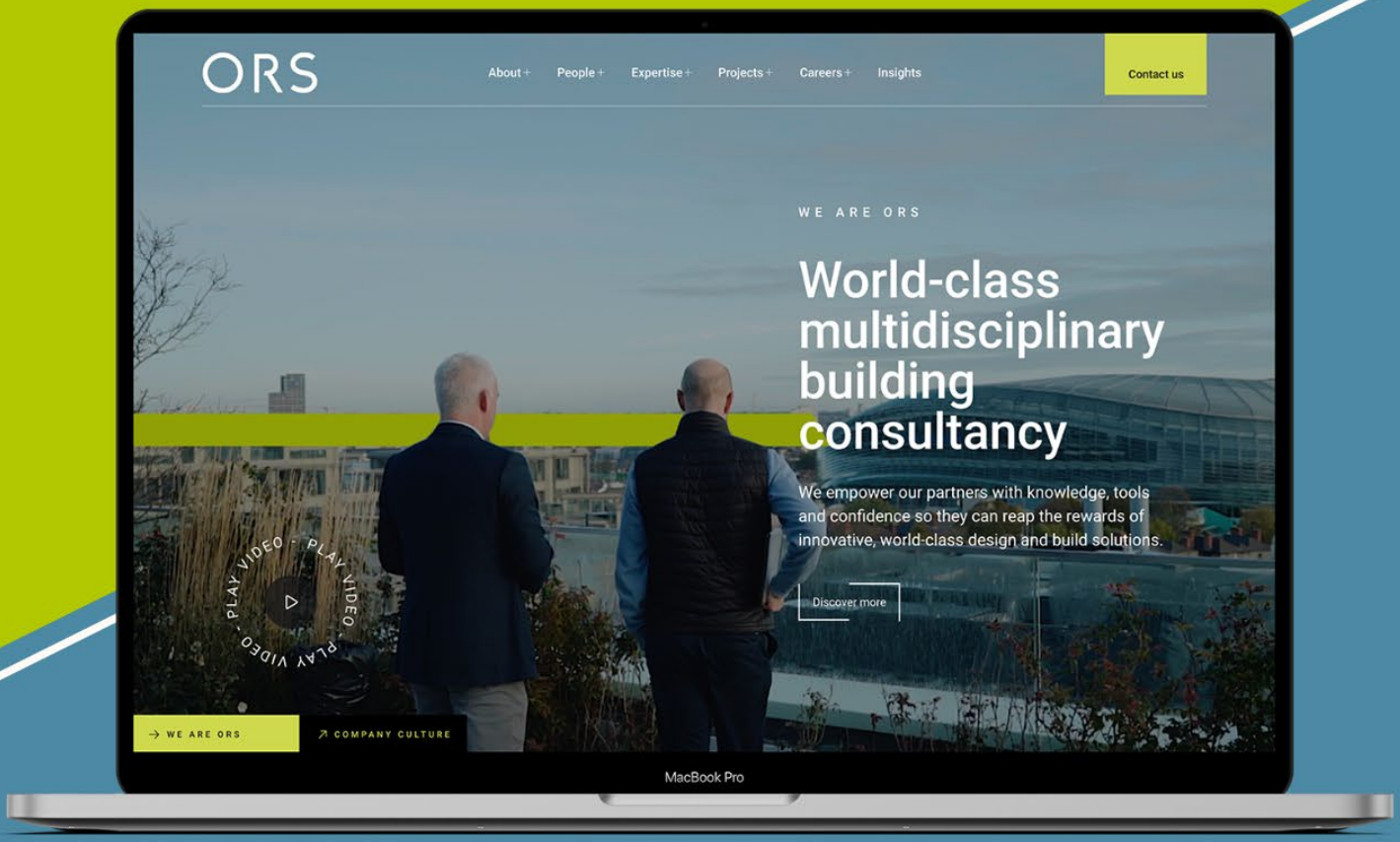


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