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Deansgrange Flood Relief Scheme

Preliminary CEMP

Final Report

June 2023

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Revision History

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Contract

This report describes work commissioned by Dun Laoghaire Rathdown County Council, by a letter dated 16 December 2019. Conor O'Neill of JBA Consulting carried out this work.

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Purpose

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Abbreviations

AA	Appropriate Assessment
AEP	Annual Exceedance Probability
CEMP	Construction Environmental Management Plan
CFRAM	Catchment Flood Risk Assessment and Management
CIEEM	Chartered Institute of Ecology and Environmental Management
CMP	Construction Management Plan
ECoW	Ecological Clerk of Works
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
FRS	Flood Relief Scheme
GHS	Geological Heritage Site
GIS	Geographic Information System
GSI	Geological Survey Ireland
EIS	Environmental Impact Statement
MCA	Multi-Criteria Assessment
EIA	Environmental Impact Assessment
NHA	Natural Heritage Area
NIAH	National Inventory of Architectural Heritage
NPWS	National Parks and Wildlife Service
OPW	Office of Public Works
PCD	Public Consultation Day
PE	Population Equivalent
pNHA	Proposed Natural Heritage Area
QI	Qualifying Interest
RBMP	River Basin Management Plan
SAC	Special Areas of Conservation
SFRA	Strategic Flood Risk Assessment
SPA	Special Protection Areas
UWWTP	Urban Wastewater Treatment Plant
WFD	Water Framework Directive
WWTP	Wastewater Treatment Plant
ZoI	Zone of Influence

1 Introduction

1.1 General

JBA Consulting have developed a preliminary Construction Environmental Management Plan (CEMP) in relation to the proposed Deansgrange Stream Flood Relief Scheme (FRS) (the 'proposed development'). The proposed development will comprise the construction of flood defences or interventions at several locations along the Deansgrange Stream, outlined in detail in Section 3.2.

1.2 Background

Dún Laoghaire Rathdown County Council intends to apply for planning permission for a Flood Relief Scheme along the Deansgrange Stream, from Deansgrange to Loughlinstown. The proposed development, which will be submitted under Part 8 of the Planning and Development Act (2000) as amended, consists of development of a flood relief scheme to minimise the risks currently posed to people, the community, social amenity, environment and landscape.

Deansgrange Stream has a history of flooding. A flood event occurred at Glenavon Park in 2008 caused by backing up at a footbridge. The footbridge has since been replaced. Regular flood events in recent years have occurred at Seafield Court, Killiney Hill Road and Achill Road affecting several properties in these areas. Reoccurring flood events have been reported upstream, in the Little Meadow area, Pottery Road and Johnstown Road.

The following reports, produced by JBA, have been submitted with this preliminary CEMP as part of the planning application:

- EIA Screening
- Ecological Impact Assessment
- AA Screening.

The above reports should be read in full to ascertain the ecological and environmental constraints that may be applicable to the construction works for this project.

1.3 Objective of the CEMP

The objective of this document is to inform all personnel (Main Contractor and sub-contractors) of their obligations with regards to environmental protection. The CEMP seeks to:

- Provide a basis for implementing construction related mitigation measures to safeguard identified environmental issues;
- Comply with all relevant planning conditions, environmental legislation and statutory consents; and
- Promote best construction and environmental on-site practices for the duration of the works.

This CEMP defines the project-specific environmental measures that are to be put in place and procedures to be followed for the scope of construction works, both temporary and permanent, for the project. This plan and methodology seek to demonstrate how works on the project can be delivered in a logical, sensible and safe sequence with the incorporation of specific measures to mitigate the impact on people, property and the environment.

This should be viewed as a 'live' document, to be updated by the Main Contractor for implementation throughout the project in response to changing conditions on site. This review of construction activities covers a description of:

- Duration and phasing
- Site preparation

- Construction methods
- Materials source and transportation
- Employment and accommodation
- Dust, noise, and traffic
- Construction safety
- Waste disposal
- Services Requirements.

Proposed environmental measures that will be installed on site during construction are included in this CEMP. This document will be updated to include any additional conditions proposed by the relevant local authority as a result of their review of the CEMP.

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

In the event of an accident or emergency on site during the construction period, the CEMP will be reviewed, and procedures amended if necessary. All personnel and sub-contractors will be made aware of the CEMP during the toolbox talks. The site manager or his environmental manager will be responsible for maintaining and updating the approved document.

The Main Contractor will be required to produce a site-specific CMP (Construction Management Plan), which will ensure that their construction activities are planned and will meet the environmental requirements outlined in this CEMP (Construction Environment Management Plan). The procedures agreed in this CEMP will be audited regularly throughout the construction phase to ensure compliance.

2 Legislation and Guidance

Relevant legislation and best practice guidance that have been considered includes but is not limited to the following:

2.1 National and International Legislation

- European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) which brings into effect the EU Water Framework Directive (2000/60/EC);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009;
- Local Government (Water Pollution) Acts 1977-1990.

2.2 Environment Liability Regulations

The Regulations supplement existing National and European Legislation to achieve the prevention and remediation of environmental damage. Environmental damage under the Environmental Liability Regulations 2008 means:

- Water damage that has significant adverse effects on water status under the Water Framework Directive (2000/60/EC);
- Land damage that creates a significant risk to human health as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms; and
- Damage to protected species and natural habitats.

The Regulations represent an overarching piece of legislation that can be used in concert with all the Agency's existing powers but will only be used in the appropriate circumstances when environmental damage has occurred as a result of an incident.

2.3 Best Management Guidelines

The following Guidelines will be used, as a minimum, by the contractor to prepare their Method Statements and Environmental Management Plan:

- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters. Inland Fisheries Ireland, (IFI, 2016);
- Inland Fisheries Ireland - Planning for Watercourses in the Urban Environment. A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate / Flood Risk and Recreational Planning (IFI, 2020)
- Fishery guidelines for Local Authority works. Department of Marine and Natural Resources 1998;
- CIRIA – Guideline Document C532 – Control of Water Pollution from Construction Sites;
- CIRIA – Guideline Document C642 – Development and Flood Risk – Guidance for the Construction Industry;
- CIRIA Guidance C515: 'Control of groundwater for temporary works' (Somerville et al., 1986);
- CIRIA Guidance C741: Environmental good practice on site guide (Charles & Edwards, 2015);
- CIRIA Guidance C750D: 'Groundwater control: design and practice' (Preene et al., 2016);
- CIRIA - Control of water pollution from construction sites - guide to good practice (SP156);
- CIRIA - C648 Control of water pollution from linear construction projects & Site Guide C649;
- NetRegs Guidance for Pollution Prevention for works and maintenance in or near water (NetRegs, 2017);
- Environment Agency Pollution Prevention Guidelines for construction and demolition sites (EA, 2012).
- NRA (2005) Guidelines for the crossing of watercourses during the construction of National Road Scheme.

3 Proposed Development

3.1 Site Location

The area slopes towards the south-east from an elevation of approximately 100mOD in the upper catchment to sea level where the river discharges at Killiney Beach. It is highly urbanised with limited large areas of greenspace.

The Deansgrange Stream is the main watercourse within the Deansgrange AFA. There are additional inflows into the watercourse from the West-Pier area via stormwater connections. The total catchment area for the watercourse is approximately 8.34km^2. The Carrickmines-Shanganagh River flows to the south of the Deansgrange Stream. There is no connection between the two watercourses.

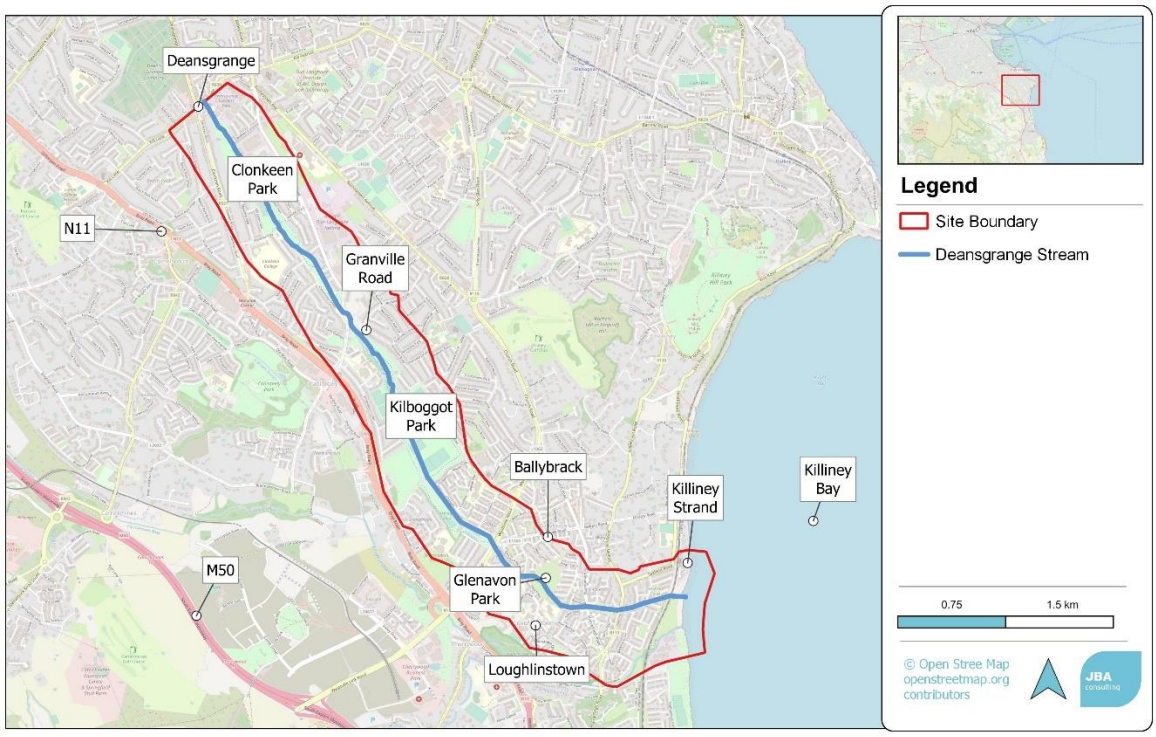

Figure 3.1: Site location and boundary of works (OSM, 2022)

3.2 Proposed Development

The works associated with the Deansgrange Flood Relief Scheme (FRS) extend through several locations across the Deansgrange Stream catchment, all at or in close proximity to the stream, between Johnstown Rd / Granville Rd and the environs of the Dublin-Wexford Rail line.

The proposed scheme consists of the installation of a 1200mm diameter tunnelled overflow culvert underneath the railway, the provision of additional storage in Glenavon Park, a series of flood containment walls upstream of the Killiney Hill Road Bridge, including upgrading the parapet of the existing bridge, upgrade works in the existing culvert at Granville Road, the upgrade of the existing screen at the entry of the Seafield culvert, installation of additional coarse screens and the provision for future adaptation of all the measures listed to the impact of climate change on the modelled flood levels.

The Deansgrange FRS' main objective is providing the required Standard of Protection (SoP) against floods caused by the 1 in 100 year design storms across the Deansgrange catchment. This area, studied as part of the wider Loughlinstown catchment, had been designated at risk of flooding in the Eastern Catchment Flood Risk Assessment and Management (CFRAM). The works undertaken within the Deansgrange FRS will manage this risk.

3.2.1 Johnstown Road

The flood protection measure required at Johnstown Road will consist of the relocation of an existing pedestrian entrance serving the walkway at the southwest in Clonkeen Park. A new entrance matching the characteristics of the existing entrance will be installed at a distance of 47m to the north. A short section of the existing masonry stone wall and railing will be removed to accommodate the new entrance. The new masonry stone wall and decorative railing will be constructed at the location of the existing entrance to match the existing masonry wall features.

To facilitate the continued circulation of pedestrians throughout the park, a new 4m wide footpath of length 30m will be installed at acceptable gradients (e.g., 1/21) to integrate Johnstown Road and the existing circulation route. The existing public cycle path will be extended north to facilitate continued access for cyclists to Clonkeen Park.

3.2.2 Granville Road

The flood relief measure required at Granville Road will consist of the replacement of 2 No. twin Concrete 1050mm dia. pipes which traverse beneath the existing road structure in a North-South direction with a new concrete culvert (inverted U shape) with dimensions of 1.2m high x 3m wide. New concrete headwalls will be constructed at the upstream and downstream face of the culvert. The culvert will extend the full width of the road carriageway including grass verge and footpaths, approximately 20m.

3.2.3 Glenavon Park

The flood relief measure proposed at Glenavon Park is an offline flood storage system within the existing greenspace adjoining the stream and the housing estate at Gleanntan. Two offline detention basins and a new flood defence embankment at the southern section of the park will provide a storage capacity of up to 9,615m3 during flood events. The Total Water Level (TWL) within the park will be controlled by a flow control structure which will be installed on the existing stream and also form part of the flood defence embankment structure. The new detention basins will be sloped at a gradient of 1:3 and include a new wetland which will seek to generate habitat opportunities along with some native planting. Included will be a series of meandering swales lined with stone to provide the permanent water to the sedimentation pond and wetland. The swales will be fed by a nearby surface water source to the north and local drainage.

The new flood defence embankment will be constructed to a level of 14.00mOD and will be integrated into the existing landscape to the east and west of the park. Integration of the embankment with existing levels will include new pedestrian pathways with viewing areas, promoting active travel from Gleanntan along the existing pathways on the east of the stream. The top of the embankment will be relatively flat and will be graded at a slope of 1:3 to meet existing ground levels. To traverse the stream from one side of the park to the other at the footpath, a new pedestrian bridge is proposed. This will be installed directly over the spillway.

Where the flood defence embankment adjoins the stream, a pipe will convey the main channel flow with a new bespoke headwall with rip rap or similar at either face. Directly above the main channel flow, the flow control weir and spillway will be installed to limit the top water level during a storm event. The wing walls for the new pipe within the river channel and spillway will also act as retaining walls for the flood defence embankments. The existing footpaths and bridge will be removed.

3.2.4 Killiney Hill Road

The proposed flood defence measure at Killiney Hill Road will consist of new walls of up to 1.5m in height along the boundaries of the properties upstream of the bridge and an upgrade to the existing bridge parapet. The new flood defence walls will be constructed of reinforced concrete and supported by precast or cast in situ piles with an interconnecting ground beam/ pile cap. This foundation has been specifically designed to mitigate any impact the foundations may have on the existing mature tree roots. In locations where the trees are not impacted, the walls will be supported by a conventional strip foundation. The new walls will be constructed to a total length of 240m; 103m and 130m on the northern and southern embankments respectively. At the upstream face of the existing bridge, c.13m of stone parapet and c.8m windward

boundary wall will be upgraded and reinforced. The walls will be clad on both façades and hand railings will be installed as required. A 7m long embankment will be also added at the northwest end of walls.

3.2.5 Seafield Screen

A series of proposed works to upgrade and install new screens have been included as part of the FRS. These will include the following works:

- A new debris screen is proposed at the entrance to the existing Seafield culvert. The works will include the replacement of adjoining walls and the onsite installation of a debris screen manufactured offsite. A horizontal and an inclined panel will provide the screening with a new working platform for maintenance.
- A new coarse screen is proposed to be installed at the pedestrian bridge adjoining the Abberley estate and upstream of Killiney Hill Road.
- The existing screens at Shanganagh Road and the Fish Pass in the environs of St. Columbanus National School are proposed to be upgraded. The existing screens and associated ancillaries will be demolished and replaced with new foundations, support structures and screens.

3.2.6 Seafield Railway Culvert

The current proposal allows for the installation of an overflow to the Seafield Culvert, consisting of the following elements:

- A 1200mm concrete pipe jacked sewer c.47m, installed underneath the existing railway line, including entry and exit shafts and temporary surcharge zones.
- A 1800mm concrete pipe c.119m section installed using open cut techniques between the exit shaft and the outfall.

Additional works to connect the trenchless and open cut sections of the overflow sewer, including a flow control weir and an outfall structure to the Deansgrange Stream.

3.2.7 Site compounds and access pathways.

Site compounds will be located on the amenity green spaces of the various housing estates and urban park within the site area. These compounds will be located +50m from the nearest watercourse. Access route will be along existing pathways and suburban roads for the majority of the scheme, with some access routes present through parkland.

Access pathways may require the use of a bailey bridge crossing the Deansgrange stream at Glenavon and a supporting bailey bridge on top of the existing bridge over the Shanganagh River near the WWTP so that heavy machinery are supported. The bailey bridge over the Shanganagh River will require piled foundations to support the weight of the bridge.

Vegetation removal will be restricted to removal of a low number of immature sycamore trees at Seafield Ct to facilitate entry for the proposed site compound within this amenity green space.

3.2.8 Plans

An overview of the proposed works is shown in the Buildability Report (JBB, 2023) which accompanies this report

3.2.9 Excavations

Maximum depths of 8.0m will be reached during the construction of culvert pipe under the railway near the stream outfall, however the majority of excavations will not be as deep as this.

3.2.10 Duration of the Works

Works are expected to take approximately 18 months in total and will be completed in phases following environmental constraints such as breeding birds and seasonal restrictions to instream works. Works are expected to last until July 2026.

3.3 Receiving Environment

The FRS is located in an urban or suburban environment, with stretches of park or treelines appearing intermittently. The proposed works at Glenavon Park and Killiney Hill Road Bridge are in vegetated areas with treelines and parkland surrounding. The measure at Granville Road will cross the road itself, and affect a grass verge and footpaths.

The EcIA prepared for the FRS can be read for a full description of the receiving environment.

3.4 Invasive Non-Native Species

A total of eight invasive non-native species were recorded within Clonkeen Park, namely: Three-cornered garlic, Sycamore, Canadian Waterweed *Elodea canadensis*, Winter Heliotrope, Cherry Laurel, Butterfly-bush, Himalayan Knotweed, Japanese Knotweed and Traveller's Joy. This included five different invasive species listed on the Third Schedule of the European Communities Birds and Natural Habitats Regulations (S.I. 477 of 2011). An INNS Management Plan was drafted and carried out to eradicate these species along the stream. Japanese Knotweed was originally recorded in five locations (Figure 3.2 and Figure 3.3), all of which have been treated. Only stands 002, 003, and 004 have remaining Japanese Knotweed stands with 10%, 15%, and 5% of biomass remaining respectively, as of the last INNS Management Report (Envirco, 2022).

A stand of Japanese Knotweed was also recorded near the pedestrian access bridge on the 19th of May, as shown in Figure 3.4 and Figure 3.5. This stand of Japanese Knotweed did not seem to be actively managed by the aforementioned INNS management plan.

Figure 3.2: INNS being treated on site in Glenavon Park (Extracted from Envirico 2022 report)

Figure 3.3: INNS being treated on site near Seafield Culvert (Extracted from Envirico 2022 report)

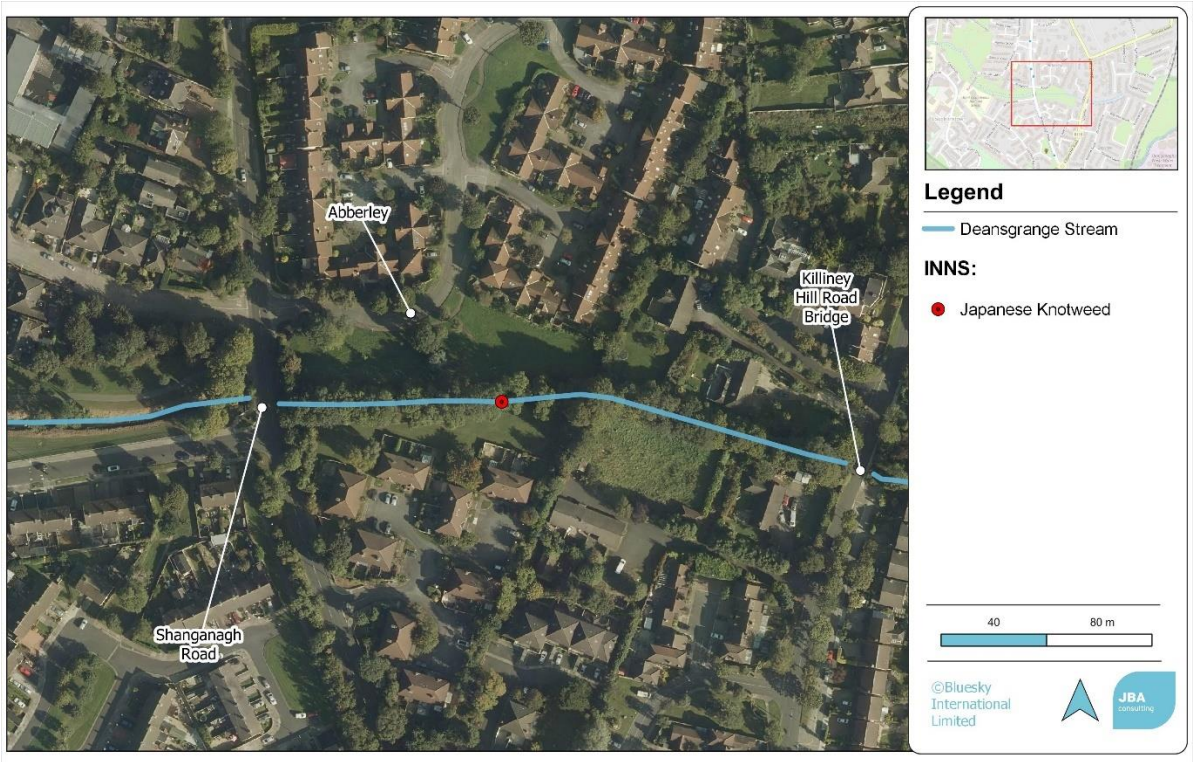

Figure 3.4: Location of Japanese Knotweed recorded on the 19th of May 2023

Figure 3.5: Japanese Knotweed recorded on the 19th of May 2023

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3.5 Watercourses in the Vicinity of the Proposed Site

The site lies within the Water Framework Directive (WFD) Ovoca-Vartry catchment and Dargle_SC_010 sub-catchment (EPA, 2020).

The Deansgrange Stream is classed as Poor Status under the WFD and is At Risk, with hydromorphology, urban runoff, and urban wastewater all pressures on the stream. The catchment is mainly urban or suburban in nature, with pollution and channelisation from these sources contributing to its poor status. The Deansgrange Stream eventually flows into Killiney Bay and the Irish Sea.

4 Roles and Responsibilities

The Main Contractor is responsible for ensuring that all employees and sub-contractors follow the requirements of the CEMP. The Contractor will be required to provide training and supervision to ensure that the requirements are adhered to.

It is anticipated that the main environmental responsibilities for the key staff will be as set out below.

4.1 Site manager

The site manager will be required to:

- Prepare the site-specific CMP; this will include the key elements as outlined in this CEMP.
- Be responsible for ensuring that adequate equipment, adequate control measures and adequate resources are made available to meet the requirements of the CEMP;
- Manage the preparation of the methods statements and will be responsible for implementing these on-site;
- Retain all training records; and
- Retain all records on the quantities of material that leaves the site for disposal, and all disposal records.

4.2 Ecological Clerk of Works

- Act as the contact for the Planning Authority and agree the frequency and number of site inspections and monitoring programme for the implementation of the biodiversity related mitigation of the EcIA and CEMP.
- Act as the primary on-site ecological contact for the main contractor and site manager regarding implementation of the Biodiversity related mitigation of the EcIA and CEMP;
- Ensure compliance with all Biodiversity related mitigation of the EcIA and CEMP;
- Request relevant records and documentation from the site manager where necessary;
- Attend routine meetings with the site manager;
- Keep detailed records of any ecological incidents and the remedies required and implemented. Report these to the main contractor and Planning Authority;
- The ECoW shall produce the staged monitoring reports in agreement with the Planning Authority on the implementation of Biodiversity related mitigation of the EcIA and CEMP. The ECoW shall submit these directly to the Planning Authority and to the main contractor.
- The ECoW shall also act as overall technical advisor to the main contractor and site manager regarding the implementation of all Biodiversity related mitigation of the EcIA and CEMP.

4.3 Staff and Operators

Staff and operators will be responsible for;

- Ensuring that mitigation measures are in place before the work commences;
- Reporting any environmental incidents to the site manager and the ECoW; and
- All site personnel will undertake site induction prior to carrying out any activity. Induction topics to be covered include:
- Duties and responsibilities;
- Emergency response procedure;
- Site rules;
- Environmental best practice; and
- Waste management and housekeeping.

4.4 Continuous Monitoring

Continuous monitoring of the site will be performed by the site manager.

5 Construction Operations

The works will be contained within the redlined areas outlined in Appendix A.

The construction of the scheme will lead to employment by direct construction work, and indirectly by the requirement for other local support services during the works. The numbers employed are unknown at this stage and are also likely to vary over the construction period.

5.1 Programme of Works

A detailed programme of works is not available at this time. Vegetation clearance works along the existing stream will need to take place outside the bird breeding season (March to August inclusive).

5.2 Equipment, machinery and works

Equipment to be used during the construction of the works will be typical of a project of this scale. The precise configuration of on-site plant will be determined by the contractor. In general, the following machinery will be used:

- Excavators,
- Dumpers,
- Forklifts,
- Delivery vehicles for materials; and
- Generator.

The main activities on site will involve construction of the new riparian zone and habitats, and diversion of the stream.

5.3 Site Confines

Site establishment by the Contractor will be limited to the following:

- Setting up of access control to the site;
- Construction traffic management and alert signage, including pedestrian management;
- On-site toilet facility, site offices and site canteen;
- Temporary fencing, hedgerow/tree protection fencing, silt (watercourse protection) fencing and site security;
- Bunded storage of fuels and refuelling area; and
- Storage of materials.

Mitigation measures associated with site and compound establishment are outlined in Section 6.1.1.

5.4 Method Statements

In advance of any operations commencing at the site the appointed contractor will be required to prepare Method Statements for approval by Dún Laoghaire Rathdown County Council. The method statement should accompany the submission to the council – along with this CEMP for approval. This may include:

- Location of site compounds, storage areas, and car parking facilities for workers;
- Site security fencing and hoarding, including fencing off of sensitive ecological features;
- Traffic management plan and Waste Disposal Plan;
- Details on vegetation clearance and earthworks, Landscape Plan;
- Biosecurity Plan;
- Storm Water Management Plan; and
- Bunding/drip tray proposals for fuel storage & vehicles as required.

6 Environmental Impacts and Mitigation Requirements

During the construction and operational stages of the development there are potential risks to ecological features from the following;

- Potential leakage of hydrocarbon/lubricants;
- Increased surface water runoff and sediment loading;
- Physical and noise disturbance to habitats and species;
- Dust deposition;
- Noise,
- Vibration;
- Lighting disturbance.

Measures will be proposed in the following sections to mitigate against any potentially significant impacts on the surrounding environment in the vicinity of the site and downstream of the site. These measures were developed in and as a result of the Ecological Impact Assessment (EcIA) prepared for the development.

6.1 Toolbox talks and Environmental Management

The activities of the project for the construction phase shall remain within the areas described in the buildability report accompanying this report. Site compound areas are also described in this report and are often situated in nearby amenity greenspaces. Within the area of works, the mitigation measures outlined below shall be implemented.

Construction method statements will be submitted to Dun Laoghaire Rathdown County Council by the main contractor for agreement prior to site works commencing.

6.1.1 Compound

- The compound will be sited at least >50m away from the Deansgrange Stream within and bordering the site, in order to minimise any potential impacts.
- Only plant and materials necessary for the construction of the works will be permitted to be stored at the compound location.
- Site Security to restrict unauthorized entry;
- Bunded storage of fuels and refuelling area. Bunds shall be 110% capacity of the largest vessel contained within the bunded area.
- A separate container will be located in the Contractors compound to store absorbents used to contain spillages of hazardous materials. The container will be clearly labelled, and the contents of the container will be disposed of by a licenced waste contractor at a licenced site. Records will be maintained of material taken off site for disposal.
- A maintenance programme for the bunded areas will be managed by the site environmental manager. The removal of rainwater from the bunded areas will be their responsibility. Records will be maintained of materials taken off site for disposal.
- The site environmental manger will be responsible for maintaining all training records.
- Drainage collection system for washing area to prevent run-off into surface water system.
- All refuelling of vehicles will be carried out at the fuel stores within the main site compound and only ADR trained personnel will be permitted to operate fuel bowsers.

6.1.2 Water Quality

Relevant legislation and best practice guidance that have been considered includes but not limited to the following:

- Water Framework Directive (2000/60/EC);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009;
- Local Government (Water Pollution) Acts 1977-1990;

- CIRIA C532 *Control of water pollution from construction sites*. Guidance for consultants and contractors. (www.ciria.org);
- CIRIA Guidance C750D: *Groundwater control: design and practice* (Preene *et al.*, 2016) (www.ciria.org);
- Inland Fisheries Ireland (2016) *Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters;*
- *Inland Fisheries Ireland (2020) A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate / Flood Risk and Recreational Planning*
- CIRIA C515 Groundwater control – design and practice, 2nd ed. (CIRIA, 2021 - www.ciria.org)
- CIRIA Guidance C741: *Environmental good practice on site guide* (Charles & Edwards, 2015; CIRIA, 2020 - www.ciria.org)

To prevent watercourse pollution:

- Adoption of a surface water plan including appropriate barrier controls to prevent any polluted surface water from the proposed works reaching the Deansgrange Stream.
- Minimise area of exposed ground by maintaining existing vegetation in vicinity of site compound.
- Oil booms and oil soakage pads should be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge. These shall be disposed of correctly and records will be maintained by the environmental manager of the used booms and pads taken off site for disposal.
- Fail-safe site drainage and bunding through drip trays on plant and machinery will be provided to prevent discharge of chemical spillage from the sites to surface water.
- Any accidental discharge will be controlled by use of oil booms in the water prior to construction starting.
- Phased installation of silt fences (see Figure 6.1) along the lengths of the site boundary where excavation works are taking place away from the stream. Specific measures must be followed for instream works, described below. The measures must be taken prior to performing excavations on-site, in order to prevent any uncontrolled flow of surface water run-off (with high sediment loading) from the site into the stream. This must be completed prior to performing any movement of soil or excavations on-site, in order to prevent any uncontrolled flow of surface water run-off (with high sediment loading) from the site into the Deansgrange Stream.
- The precise locations of silt fences must be mapped after the detailed design stage of the scheme and published as an appendix in the site-specific CEMP.
- Where silt fences cannot be erected due to the presence of hardstanding, geotextile sandbags (triple layered) must be installed. This must be completed prior to performing any movement of soil or excavations on-site, in order to prevent any uncontrolled flow of surface water run-off (with high sediment loading) from the site into the Deansgrange Stream.
- An Ecological Clerk of Works (ECoW) will inspect the structural integrity of the silt fences/ geotextile sandbags once installed; following this the ECoW will check these silt fences monthly until the end of the construction phase. The role and responsibilities of the ECoW are outlined in Section 4.2 above.

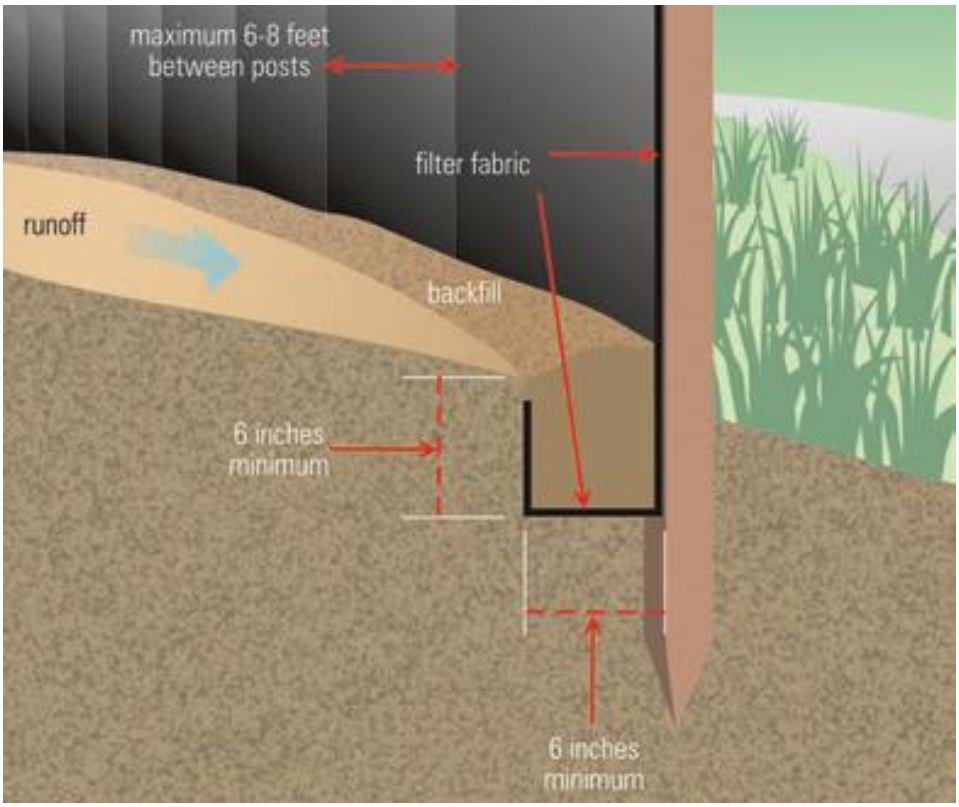

Figure 6.1: Example of suitable silt fence mitigation ensuring maximum safeguarding efficiency

6.1.3 Instream Works

All instream works should be approved by Inland Fisheries Ireland and overseen by an Ecological Clerks of Works for its duration. All instream works will follow guidance in:

- Guidelines on protection of fisheries during the construction works in and adjacent to waters (IFI, 2016)

In order to facilitate instream works, water must be diverted from the works area. This must be achieved through a stream diversion and not overtop pumping in order to retain habitat connectivity for the duration of works. Stream diversions are required at Granville Road and at Glenavon Park, details of which will be published during the detailed design phase. New connections with the Deansgrange Stream are required for the new Seafield culvert overflow, however this work will not require a stream diversion.

Stream diversions

These recommendations as well as any other recommendations that come as a result of consultation with IFI should be detailed in the site-specific CEMP and referred to in the Construction Methodology report prior to any works commencing. All stages of the stream diversion should be overseen by an ECoW who will be on site for all stages of the work.

Habitat connectivity should be retained during the proposed works. Instream works will require dry celling to create a dry bed for construction works. In order to maintain river connectivity and avoid the use of water pumping, the stream should be temporarily diverted into a temporary stream bed which maintains connectivity downstream. This temporary stream diversion should be constructed in advance of drying, the temporary riverbed should be made of compacted soil lined with Terram geotextile up to the banks. Appropriate gravels and boulders (in line with local bedrock type present in the stream) should be placed overtop the Terram geotextile. Both ends of the temporary diversion should be disconnected from the stream with a geotextile Terram lined sheet piling in advance of connection. The temporary diversion should be opened in tandem with the closure of the works area, described below.

A full description of the diversion should be set out in the site-specific CEMP and a construction methodology submitted to IFI in advance of works.

Installation of Sheet Piling (dry cell area); Cement Pours; and Silt Fence Functionality Checks

In order to ensure the safeguarding of the Deansgrange Stream as well as downstream habitats which support a variety of protected species; the presence of an Ecological Clerk of Works (ECoW) will be required during the installation of the sheet piling within the stream and the upstream and downstream boundaries of the zone of works. The precise location of these dry cell areas should be set out in the site-specific CEMP following detailed design.

Dewatering of this new dry cell area between the sheet pilings and bank will be required. These waters will be pumped to lands that are over 30 metres from the stream and discharged via a silt bag to a discharge point. The discharge point will consist of a circle of triple silt fences surrounding a circle of straw bales wrapped in Terram geotextile. All waters pumped from the excavation will filter though the silt bag, straw bales and silt fences before diffusely discharging to the ground. The discharge points will be constructed prior to commencement of construction works and will be monitored on a daily basis when in use to ensure that the release of any polluting material is mitigated. These works will need to be scheduled for a dry weather period, as heavy rains during these works will compromise the absorption ability of the discharge point. This monitoring will take place until the installation of the pile caps. Should any aquatic fauna enter the dewatering system or become trapped in the dry cell area, the ECoW will be there to secure them and ensure their safe return to the Deansgrange stream.

The ECoW will also be present during any phase of the project which involves the pouring of cement within 10m of the Deansgrange Stream, in order to safeguard the stream during the proposed works by identifying any arising ecological issues during these works. The ECoW at these times will also conduct a structural integrity check on the silt fence and geotextile sandbag buffers installed within the zone of works.

All instream works should be conducted between July and September inclusive as per IFI recommendations.

6.1.4 Specific Mitigation for works upstream of Killiney Hill Road Bridge

For the construction of the flood relief wall upstream of Killiney Hill Road Bridge, works will be in close proximity to the tree line and the Deansgrange Stream. These works will require excavation of a series of slit trenches to allow for the foundation of these walls. This report looks at the worst-case scenario for the treeline on site, where provision of the trees is not successful. All efforts to retain these trees should be made in order to have smallest possible impact on this habitat. To achieve this, an arborist must be on site to supervise excavation and provide insight into the root protection and avoidance during construction. The following measures should be followed in advance of excavation and throughout the works:

- An Ecological Clerk of Works must supervise all removal of vegetation on site in advance of construction works. The ECoW should survey the bankside of the stream to determine if any new indications of protected mammals are present.
- A qualified arborist must be on site to supervise all stages of excavation inside the Root Protection Area of the treeline. The arborist will have authority to stop works at any point and should provide insight into root structure and placement of piles to avoid roots in the area. If required, the arborist will recommend crowning and best removal of tree limbs to avoid tree loss.
- If tree loss is unavoidable works must be stopped, a full assessment of trees to be removed will be required as well as an assessment on the bank stability, looking specifically at the link between the tree roots and how they support the bank.
- If the trees can be removed without disrupting bank stability, ivy must be removed in advance of tree cutting in order to uncover any potential roosting features obscured by Ivy. This work should be conducted collaboratively between a tree surgeon and ECoW on site.
- If Ivy removal uncovers a potential roost, an inspection of the roost and assessment of impact will be required. If a roost is present a derogation licence is required in advance of tree removal.
- In the absence of potential roost features, the tree can be removed. Removal should take place outside of the breeding bird season (1st of March to 31st of August inclusive).
- A silt trap (as described above) should be placed along the bank of the stream to prevent any sediment resulting from excavations entering the stream. A geotextile sealed lining should be placed within trenches and piled excavations before any concrete is poured for foundations.

6.1.5 Concrete Management Procedures

Concrete will be used for formation of a number of construction elements (e.g., foundations for infrastructure and piling). The following measures will be implemented to prevent liquid concrete/cement entering the surface water systems, i.e., Deansgrange Stream.

- Concrete delivery, concrete pours and related construction methodologies will be part of the procedure agreed with the contractor to mitigate any possibility of spillage or contamination of the local environment. Particular attention will be paid during the pouring process in order to avoid leakages or spills of concrete.
- Washout of concrete plant will occur off site at a designated impermeable area with waste control facilities.
- Raw, uncured or waste concrete will be stored appropriately prior to disposal by licenced contractor.
- The contractor's construction methodology will require the use of precast elements where practical; the use of secondary protection shuttering for concrete pours; all pours to be carried out in dry weather conditions; and that all trucks be cleaned prior to leaving respective depots and on-site compound.
- The contractor will be required to use experienced operators for the work; provide an appropriate level of continuous monitoring during any concrete pours by experienced management; and have method statements approved by DLRCC prior to commencing works. Works will be carried out using recommendations from current guidance and relevant codes of practise as outlined in **EA (2011) -** *Managing concrete wash waters on construction sites: good practice and temporary discharges to ground or to surface waters*.

6.1.6 Pollution Control and Spill Prevention

Spill kits containing absorbent pads, granules and booms will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site foremen's vehicles will carry large spill kits at all times. Absorbent material will be used with pumps and generators at all times and used material disposed of in accordance with the Waste Management Plan. All used spill materials e.g., absorbent pads will be placed in a bunded container in the contractor's compound. The material will be disposed of by a licenced waste contractor at a licenced facility. Records will be maintained by the environmental site manager.

Regular inspections and maintenance of plant and machinery checking for leaks, damage or vandalism will be made on all plant and equipment.

In the event of a spill the Contractor will ensure that the following procedure are in place:

- Emergency response awareness training for all Project personnel on-site works.
- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum:
  - Absorbent granules;
  - Absorbent mats/cushions;
  - Absorbent booms
  - Track-mats, geotextile material and drain covers.
- All potentially polluting substances such as oils and chemicals used during construction will be stored in containers clearly labelled and stored with suitable precautionary measures such as bunding within the site compound.
- All tank and drum storage areas on the site will, as a minimum, be bunded to a volume not less than the following:

  - 110% of the capacity of the largest tank or drum within the bunded area, or
  - 25% of the total volume of substances which could be stored within the bunded area.

- The site compound fuel storage areas and cleaning areas will be rendered impervious and will be constructed to ensure no discharges will cause pollution to surface or ground waters.
- Designated locations for refuelling are within Site Compound.
- Potentially contaminated run off from plant and machinery maintenance areas will be managed within the site compound surface water collection system.
- Damaged or leaking containers will be removed from use and replaced immediately.

6.1.7 Dust and Noise Minimisation

The construction of the development will largely be limited to daylight hours where possible, ensuring minimum disturbance to commuting and foraging activities of local wildlife. The works will also be temporary. With regard to construction activities, reference will be made to BS 5228-1, which offers detailed guidance on the control of noise from demolition and construction activities. A variety of practicable noise control measures will be employed. These include:

- Erection of barriers at construction works boundary as necessary and around items such as generators or high duty compressors.
- Limiting the hours during which site activities likely to create high levels of noise are permitted. Construction activities will take place Monday to Friday, between 07:00 and 18:00, and on Saturdays, between 08:00 and 13:00.
- A site representative responsible for matters relating to noise will be appointed to liaise with DLRCC.
- The implementation of a quiet plan, where the least noisy tools will be selected wherever possible, and units be supplied with manufacturers' proprietary acoustic enclosures where available.
- The use of machinery for lifting bulky items, dropping, and loading of materials within work areas should be restricted to normal working hours.
- For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant should be switched off when not in use and not left idling.
- For compressors, generators, and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- Demountable enclosures can also be used to screen operatives using hand tools and will be moved around site, as necessary.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- Care will be taken when cleaning augers of piling rigs. Shaking and banging of the auger to loosen earth will be avoided.
- Use of pneumatic hand tools will be avoided at night-time and fixings should be manually tightened where possible.
- Works involving piling such as those in close proximity to Killiney Bay, should be achieved in consideration of noise reduction where the least noise producing option is the preferred option.

Additional guidance relevant to acceptable vibration and noise levels will be followed and is contained in the following documents:

- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration.
- British Standard BS 5228-2: 2009: Code of Practice for Noise and Vibration Control on Construction and Open Sites: Vibration.
- NRA: 2014: Guidelines for the Treatment of Noise and Vibration in National Road Schemes.

To minimise the dispersion of airborne pollutants in the form of dust the following mitigation measures should be followed:

- Spraying of exposed earthwork activities and site haul roads during dry weather;

- Provision of wheel wash at exit points;
- Covering of stockpiles;
- Control of vehicle speeds and vehicle access; and sweeping of hard surfaced roads;
- Erection of a 2.4m high hoarding will be provided around work areas where allowable to minimize the dispersion of dust from working areas;
- Stockpiles will be located as far away as possible from sensitive receivers and covered/dampened during dry weather;
- Generators will be located as far away as practicable from sensitive receivers;
- On-site and delivery vehicles will be prevented from leaving engines idling, even over short periods. This is to prevent the harmful emissions from vehicle exhausts.

6.1.8 General Avoidance Measures

Although it has been identified that there will be no permanent impact through disturbance to wildlife during the work, it is advised that general avoidance measures be undertaken to protect wildlife while the works are being carried out.

General avoidance measures that should be incorporated by the contractors working on site include:

- Limit the hours of working to daylight (including twilight hours), to limit disturbance to nocturnal animals;
- Due to the potential presence of Badger, Hedgehog, Otter, bat species and Common Frog the use of lighting at night should be avoided. If the use of lighting is essential, then a directional cowl should be fitted to all lights to prevent light spill and to be directed away from all treelines / wooded areas;
- Contractors must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled; and
- Any pipes should be capped when not in use (especially at night) to prevent local fauna becoming trapped. Any excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be placed to allow animals to escape.

6.1.9 Mitigation for clearance of the vegetation

The clearance of scrub, hedge or tree vegetation is to be conducted outside of the breeding bird season (March – August inclusive). If this is not possible, a breeding bird survey by an appropriately qualified ecologist will be undertaken in advance of the works to ensure that there will be no impacts on nesting birds. If nests are found, they will be safeguarded, with an appropriate buffer, until the chicks have successfully fledged. The removal of scrub in the vicinity of works proposed at the Seafield Culvert Overflow should be limited to the minimum removal required. Removal should be conducted in such a way that mature plants should be cut back but not entirely removed so that recolonisation of the scrub habitat after completion of works can be hastened.

6.1.10 Invasive species management

DLRCC currently have an Invasive Species Management Plan for a number of species along the Deansgrange stream that were deemed problematic (i.e., Japanese Knotweed). Works conducted on site should not interfere with the objectives of this plan, and should works come in close proximity of managed plots, the Ecologist in charge of DLRCC Invasive Species Management Plan should be consulted.

Winter Heliotrope grows in abundance along sections of the banks in Glenavon Park. Prior to clearance of vegetation and the commencement of works in the area, any Winter Heliotrope or other encountered INNS should be removed and appropriately disposed of to avoid further dispersal of the species. Winter Heliotrope should be physically removed with topsoil and vegetative roots intact and disposed of in a controlled manner following NRA guidance; The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (NRA, 2010). Soils containing the plant are classified as controlled waste and should be disposed of at licensed landfill. The optimal time for removal is in early spring when the surface vegetation is most visible. If reoccurrence occurs post work, follow-up treatment will be carried out with foliar spray, wiper applicator or spot treatment.

Biosecurity awareness training should be conducted on site as a toolbox talk for any staff working on site and if any INNS is uncovered during the construction, works are to cease in the vicinity and the presence should be reported to the Ecological Clerk of Works who will devise management plan for removal.

6.1.11 Site lighting (Nocturnal species)

Hours of illumination during construction:

Site lighting should be switched off or at lower light output during inactive construction site hours; this would benefit the bats foraging and/or commuting in the locality.

Light levels and type:

Construction site lighting that meets the lowest light levels permitted under health and safety would be preferable for bats in the vicinity. The specification and colour of light treatments, such as single bandwidth lights and no UV light are essential. LED luminaires are ideal and should be used where possible due to their sharp cut-off, lower intensity, and dimming capability. A warm white spectrum (2700K – 3000K) should be used in the lighting located along the boundaries of the site to reduce the blue light component.

6.2 Dust, Noise and Vibrations

The production of dust, noise and vibrations during construction, and possible mitigation measures, are discussed in this section.

6.2.1 Dust minimisation

Dust minimisation measures will be included in the Construction Health and Safety Plan to be prepared by the appointed contractor for the development. The extent of dust generation is dependent on the nature of the material (soils, peat, sands, gravels, silts etc.) and the location of the construction activity. In addition, the potential for dust dispersion depends on the local meteorological factors such as rainfall, wind speed and wind direction.

During construction, some dust could be generated by activities such as:

- Site fencing;
- Excavation works;
- Hauling surplus material off site; and
- Movement of vehicles on site during construction.

Significant dust emissions could arise during dry weather. Water suppressants will be used during any dry weather conditions (if required). Where temporary stockpiles are required, the material will be stored in designated areas and will be covered with tarpaulins and/or regularly dampened during dry weather periods.

Temporary stockpiles of infill and temporary waste storage will be covered to avoid airborne dust emissions.

6.2.2 Noise and vibration

The construction of the development will largely be limited to daylight hours where possible, ensuring minimum disturbance to commuting and foraging activities of local wildlife. The works will also be temporary. With regard to construction activities, reference will be made to BS 5228-1, which offers detailed guidance on the control of noise from demolition and construction activities. A variety of practicable noise control measures will be employed. These include:

- Erection of barriers at construction works boundary as necessary and around items such as generators or high duty compressors.
- Limiting the hours during which site activities likely to create high levels of noise are permitted. Construction activities will take place Monday to Friday, between 07:00 and 18:00, and on Saturdays, between 08:00 and 13:00.

- A site representative responsible for matters relating to noise will be appointed to liaise with Dún Laoghaire Rathdown County Council.

Additional guidance relevant to acceptable vibration and noise levels will be followed and is contained in the following documents:

- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration.
- British Standard BS 5228-2: 2009: Code of Practice for Noise and Vibration Control on Construction and Open Sites: Vibration.
- NRA: 2014: Guidelines for the Treatment of Noise and Vibration in National Road Schemes.

6.3 Materials

6.3.1 Material Sourcing

In so far as possible, construction materials will be from local sources. All imported material that will be used on site will be procured from approved sources.

All construction products will be subject to the European Union (Construction Products) Regulations 2013. CE marking will be mandatory for all construction products placed on the market for which harmonised standards are in place. The Construction Products Regulation aims to ensure that reliable performance-related data is made available, by means of Declarations of Performance, in relation to construction products being placed on the European market.

6.3.2 Material Storage

Materials stored on site must be in a waterproof and secured protected storage area.

6.3.3 Transportation of Materials

Transportation of building materials can significantly contribute to their environmental impact, particularly in relation to use of fossil fuels and emissions of pollutants and carbon dioxide. For this reason, insofar as possible, construction materials will be sourced from local suppliers.

Construction of the proposed scheme will require the delivery to site of minimal quantities of construction materials. The bulk of these materials will be associated with the landscaping of the scheme.

6.4 Traffic

6.4.1 Site Access

A detailed Traffic Management Plan for the proposed works will be prepared prior to the commencement of construction by the contractor to ensure the safety of road users and construction personnel.

All vehicles entering and exiting the site, including (material and equipment deliveries) and cars/vans (Contractor's personnel, client staff and Visitors) will do so via the agreed route which will be outlined in the Strategy.

6.4.2 Traffic Management Plan

The Construction Traffic Management Plan (CTMP) will be agreed between the Contractor, local authorities and client's Representative. The following should be considered:

- Delivery times (during operational phase) are to be limited to the specified working hours, i.e., 07:30-18:00, Monday to Friday and 08:00-14:00 on Saturday, or as specified by the Council;
- Construction vehicles will follow the hierarchy of the existing road network and use suitable routes to and from the site;
- Deliveries to site are to be restricted to quiet periods, where possible;

- A wheel wash facility should be provided if necessary;
- Appropriate information and signage along construction routes must be provided on approach roads either side of the construction site;
- Where appropriate, vehicle loads are to be securely sheeted and restrained prior to dispatch;
- Consultation with the local authorities regarding enhancement measures and concerns regarding accidents and road safety along the proposed is recommended; and
- Traffic signage and temporary construction stage traffic measures are to be implemented in accordance with the Department of Transport's Traffic Signs Manual, particularly Chapter 8 entitled "Temporary Traffic Measures and Signs for Road works".

6.5 Archaeology

The EIA Screening Report prepared for this development concluded that no architectural structures or archaeological sites would be impacted by the proposed development and construction works. It is noted however that underground archaeological features could be uncovered during any excavation works.

In the event that a feature or item of archaeological interest is found during the course of excavations, an archaeologist should be instructed. The current policy of the Minister for Culture, Heritage and the Gaeltacht is the preservation in situ of archaeological sites. Where preservation in situ cannot be achieved, then a programme of full archaeological excavation will be required to ensure the preservation by record of the portion of the site directly affected.

PLEASE NOTE: the above recommendations are subject to the approval of the National Monuments Section at the Department of Culture, Heritage and the Gaeltacht.

6.6 Waste Management

6.6.1 Clearance and Excavation

During the construction phase any excess soil/subsoil will be removed off site. These activities will be detailed in a Construction Waste Management Plan to be produced by the appointed contractor. It is expected that the majority of material excavated at Glenavon Park can be reused for embankments and landscaping at that location. Encounters with contaminated ground are not anticipated.

Excess inert materials not required on-site will be recovered off-site. Soil will only be removed by authorised waste collectors to an authorised site. Any material excavated at the site, which is deemed to be contaminated (i.e., non-hazardous or hazardous) will be stored separately to the inert material, sampled and tested, in order to appropriately classify the material as non-hazardous or hazardous in accordance with EC Council Decision 2003/33/EC10, which establishes the criteria for the acceptance of waste at landfills before being transported to an appropriately authorised facility by permitted contractors.

Discussions about the acceptance of the material should be undertaken with individual landfill operators before removal of any material from site is carried out and further investigation may be required to satisfy the operators requirements. Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material, if encountered. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011, as amended. Similarly, if any soils or stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27. If the material is deemed to be a waste, then removal and reuse/recycling/recovery/disposal of the material will be carried out in accordance with the Waste Management Acts 1996 – 2011 as amended, the Waste Management (Collection Permit) Regulations 2007 as amended and the Waste Management (Facility Permit & Registration) Regulations 2007 as amended.

The volume of waste removed will dictate whether a Certificate of Registration (COR), permit or licence is required by the receiving facility. Once all available beneficial reuse options have been exhausted, the

options of recycling and recovery at waste permitted and licensed sites will be considered. Contaminated material will be required to be removed from site for treatment or disposal as appropriate.

6.7 Pest Control

It is recommended that a rodent and pest control plan is put in place to manage and limit any potential disturbance to populations that may utilise the site. The pest control plan should be in accordance with the following guidelines:

- Chartered Institute of Environmental Health (CIEH) “Pest minimisation: Best practice for the construction industry” or a similar appropriate standard.

A Pest Control Plan for the construction phase shall be completed and included in the site-specific CEMP written by the Contractor.

7 Health and Safety

As required by the Regulations, a Construction Health and Safety Plan will be prepared which addresses health and safety issues from the design stages through to the completion of the construction and maintenance phases. This plan is treated as a 'live' working document and will be reviewed as the development progresses by the main contractor. The contents of the Health and Safety Plan will follow the requirements of the Regulations.

In accordance with the Regulations, a “Project Supervisor Design Process” has been appointed and a “Project Supervisor Construction Stage” will be appointed.

The Project Supervisor Construction Stage will assemble the Safety File as the project progresses. The Safety File will be incorporated into the overall technical record system at the end of the project.

Conditions on the site must be included in the creation of the Safety file, better working conditions such as minimising dust, vibration etc. have all been included as elements of the health safety plan. The plan will include measures for minimisation of dust, vibration and noise to provide a safe place of work (Section 6.4 of this document).

A Project Safety Plan will be developed to ensure that the safety of human beings is not impacted on in a negative way by the construction works. All visitors to the site will be required to report to the site manager and the site is to be adequately secured to prevent unauthorised access. These measures shall not have any negative impact on the safety of human beings when implemented. Ensuring that relevant health and safety legislation is adhered to and that recommended mitigation measures are implemented is the responsibility of the ‘Project Supervisor Construction Stage.

7.1 Emergency Response Plan

7.1.1 Objective

The emergency response plan is a process/procedure for dealing with environmental preparedness and response. The Project Supervisor Construction Stage (PSCS) will, as required by the Safety Health and Welfare legislation, prepare emergency procedures for major accidents on-site.

If an environmental emergency arises, the contractor will implement the Environmental Emergency Procedures. The procedure will be prepared and agreed with Fingal County Council in advance of work proceeding at the site. The most likely causes of an environmental emergency may arise:

- Discharge of potentially polluting materials;
- Rupturing of a silt fence or curtain during heavy periods of rain; and
- An uncontained spillage in the contractor’s compound.

All contractors and sub-contractors will be made aware of the Emergency Response Plan. The Emergency Response Plan will address, as a minimum:

- Fuel handling procedures;
- Silt curtain construction details;
- Adequate supplies of spill control equipment;
- Traffic accidents on the public road;
- Notification procedures; and
- Measures to protect water in the event of a spillage.

In the event of a spill the Contractor will ensure that the following procedures are in place:

- Emergency response awareness training for all Project personnel on-site works.

- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum;
    - Absorbent granules;
    - Absorbent booms; and
    - Absorbent mats/cushions.
- Spill kits will contain gloves to handle contaminated materials and sealable disposal sacks.
- Track mats will be provided to ensure access following heavy rainfall.

Any contaminated materials/soil media will be segregate, analysed and disposed of by a licensed waste disposal contractor.

7.1.2 Contact personnel in the event of an environmental emergency

Provided below are some contact details for organisations/statutory bodies that should be contacted if an environmental emergency arises on site. The appointed Contractor will add to this as needed.

- DLRCC Water Services Section Tel: 01 205 4800
- DLRCC Emergency Number (after 5pm and on weekends): 01 677 8844
- Inland Fisheries Ireland, 3044 Lake Drive, City West Business Park, 01 884 2600
- Local Conservation Ranger, NPWS, 90 North King Street, Dublin, 01 888 3242

Appendices

(locations of silt fences to be published as an appendix in the site-specific CEMP by the main contractor)

Offices at:
Dublin
Limerick
Cork
Castlebar

JBA Registered Office
24 Grove Island
Corbally, Limerick
Ireland
+353 61 345463
info@jbaconsulting.ie
www.jbaconsulting.ie

JBB Registered Office
Classon House
Dundrum Business Park
Dundrum, Dublin 14
Ireland
+353 1 485 1400
info@jbbarry.ie
www.jbbarry.ie