

Chapter 14:

Summary of EIAR Mitigation and Monitoring Measures

14.0 SUMMARY OF EIAR MITIGATION & MONITORING MEASURES

14.1 INTRODUCTION

The central purpose of EIA is to identify potentially significant adverse impacts at the pre-consent stage and to propose measures to mitigate or ameliorate such impacts. This chapter of the EIAR document has been prepared by **John Spain Associates** and sets out a summary, for ease of reference, of the range of methods described within the individual chapters of this EIAR document which are proposed as mitigation and for monitoring during the construction and operational phases of the proposed development. It is intended that this chapter of the EIAR document will provide a useful and convenient summary to the competent/consent authority of the range of mitigation and monitoring measures proposed.

EIA related conditions are normally imposed by the competent/consent authority as part of conditions of planning consent and form a key part of the Impact Anticipation and Avoidance strategy. Conditions are principally used to ensure that undertakings to mitigate are secured by explicitly stating the location, quality, character, duration and timing of the measures to be implemented. A secondary role of EIA related conditions is to ensure that resources e.g. bonds / insurances will be available and properly directed for mitigation, monitoring or remedial action, in the event that the impacts exceed the predicted levels.

Monitoring of the effectiveness of mitigation measures put forward in the EIAR document, both by the competent authorities and the developer, is also an integral part of the process. Monitoring of environmental media and indicators arise either from undertakings or from conditions.

In the case of mitigation and monitoring measures it is important for all parties to be aware of the administrative, technical, legal and financial burdens that can accompany the measures proposed. It is also important to ensure that, where monitoring is provided for, it is clearly related to thresholds, which if exceeded cause a clearly defined set of actions to be implemented.

The 2018 EIA Guidelines published by the Department of Housing, Planning and Local Government state:

“While not a mandatory requirement an EIAR can very usefully include a summary table of features and/or measures envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects of the proposed development, and a timescale for the implementation of proposed mitigation measures.”

Given the complexity of the scheme in question, and the detail provided within this EIAR, this chapter seeks to provide a complete overview of mitigation and monitoring measures proposed, in the spirit of the above statement within the EIA Guidelines albeit not formatted as a table.

14.2 MITIGATION STRATEGIES

14.2.1 Introduction

There are three established strategies for impact mitigation - avoidance, reduction and remedy. The efficacy of each is directly dependent on the stage in the design process at which environmental considerations are taken into account (i.e. impact avoidance can only be considered at the earliest stage, while remedy may be the only option available to fully designed projects).

14.2.2 Mitigation by Avoidance

Avoidance is generally the fastest, cheapest and most effective form of impact mitigation. Environmental effects and consideration of alternatives have been taken into account at the earliest stage in the project design processes. The consideration of alternatives with respect to the proposed project has been fully described in Chapter 2.

14.2.3 Mitigation by Reduction

This is a common strategy for dealing with effects which cannot be avoided. It concentrates on the emissions and effects and seeks to limit the exposure of the receptor. It is generally regarded as the "*end of pipe*" approach because it does not seek to affect the source of the problems (as do avoidance strategies above). As such this is regarded as a less sustainable, though still effective, approach.

14.2.4 Reducing the Effect

This strategy seeks to intercept emissions, effects and wastes before they enter the environment. It monitors and controls them so that acceptable standards are not exceeded. Examples include wastewater treatment, filtration of air emissions and noise attenuation measures.

14.2.5 Reducing Exposure to the Impact

This strategy is used for impacts which occur over an extensive and undefined area. Such impacts may include noise, visual impacts or exposure to hazard. The mitigation is effected by installing barriers between the location(s) of likely receptors and source of the impact (e.g. sound barriers, tree screens or security fences).

14.2.6 Mitigation by Remedy

This is a strategy used for dealing with residual impacts which cannot be prevented from entering the environment and causing adverse effects. Remedy serves to improve adverse conditions which exist by carrying out further works which seek to restore the environment to an approximation of its previous condition or a new equilibrium.

14.3 MITIGATION AND MONITORING MEASURES

The following provides a list, for ease of reference, of the key mitigation and monitoring measures recommended in each chapter of the EIAR.

14.3.1 Project Description & Alternatives Examined

Construction Phase

PD&AE CONST 1: It will be necessary for the appointed contractor to prepare and implement a construction management plan (including traffic management) to reduce the impacts of the construction phase on local residents and ensure the local road network is not adversely affected during the course of the construction project.

PD&AE CONST 2: The appointed contractor should prepare a Construction and Demolition Waste Management Plan for the proposed development as part of their contractual responsibilities. The Waste Management Plan should meet the requirements of the Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects.

Operational Phase

Not applicable.

Monitoring

Not applicable.

14.3.2 Human Beings

Construction Phase

HB CONST 1: A construction, including traffic, management plan should be implemented during the construction phase to protect local amenities and the integrity and operation of the local road network.

Monitoring

Not applicable.

14.3.3 Archaeology

Construction

Not applicable.

Operation Phase

Not applicable.

Monitoring

No monitoring measures are required.

14.3.4 Biodiversity

Construction and Operational Phase

Not applicable.

Monitoring

No further monitoring is required.

14.3.5 Landscape and Visual Impact

Construction and Operational Phase

Not applicable.

Monitoring

The principal monitoring from a landscape and visual consideration is focused on the ongoing protection of trees to be retained under the parent permission of the Rejuvenation Scheme, as well as implementation of additional boundary planting proposed under the parent permission. The proposed development also includes additional supplementary planting at boundaries to further reinforce visual screening at site boundaries. Monitoring of landscape protection and establishment will ensure the effectiveness of proposed landscape treatment.

14.3.6 Land and Soils

Construction Phase

Land and Soils Construction Stage Measures to be Implemented:

- In order to prevent the accidental release of hazardous materials (fuels, paints, cleaning agents, etc.) during construction site activity all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks should be used on the site during the construction phase of the project. Safe materials handling of all potentially hazardous materials should be emphasised to all construction personnel employed during this phase of the project.
- Sediment runoff will be minimised by standard engineering measures including sediment skirts around soil stockpiles, sediment retention barriers in surface water drains and the use of adequate construction roads.
- Construction access to the site will be from the Frascati Road. The provision of wheel wash areas at the construction entrances to the development will minimise the amount of soil deposited on the surrounding road network.
- Measures will be implemented throughout the construction stage to minimise the risk of contamination of the soil from accidental oil and petrol leakage from site plant. Bunding of storage areas and refueling areas will be incorporated into the site compound. The bund walls will be designed to the appropriate level to ensure no over-spilling occurs in the event of an accidental spillage. All lock up/storage areas will have a metal or concrete leak proof floor. Any accidental chemical spillages should be cleaned up and disposed of in an approved landfill site in accordance with the chemical manufacturer's recommendations.

Operational

Not Applicable.

Monitoring

Monitoring during the construction phase is recommended, in particular in relation to the following:-

- Adequate protection of any topsoil stockpiled for re-use.
- Adequate protection from contamination of soils for removal.
- Monitoring of surface water discharged to the existing culverted watercourse that crosses the site.
- Monitoring cleanliness of the adjoining road network.
- Monitoring measures for prevention of oil and petrol spillages.
- Dust control by dampening down measures as & when required by unusually dry weather conditions.

The Construction Management Plan (CMP) prepared by the contractor will cover these mitigation measures in more detail.

14.3.7 Water

Water Supply

Construction Phase

None. Watermain connection already exists.

Operational Phase

Water Supply Operational Stage Measures to be Implemented:

- The site water main system will be metered as directed by the Council to facilitate detection of leakage and the prevention of water loss.
- Dual & low flush toilets, water economy outlets and rainwater harvesting will all be considered to reduce the water demand.

Monitoring

Metering will allow the water supply to the development to be monitored, this is to be done to the requirements of Dun Laoghaire Rathdown County Council.

Surface Water Drainage

Construction Phase

Surface Water Construction Stage Measures to be Implemented:

- A method statement for all works to be carried out will be prepared by the contractor and agreed with Dun Laoghaire Rathdown County Council prior to commencement of works to outline what measures are to be taken to ensure there is no loss of service during the works;
- Dewatering measures should only be employed where necessary;
- If concrete mixing is carried out on site, the mixing plant should be sited in a designated area with an impervious surface;
- Existing surface drainage channels within the lands that serve adjacent lands should be retained where possible to prevent causing increased flooding impacts;
- Construction methods used should be tailored to reduce, as much as possible, dust and noise pollution;
- Comprehensive traffic management procedures, including the provision of access to all roads, and access/egress points should be prepared and agreed with the Local Authority. These traffic management measures should be implemented at times when traffic disruption may be experienced;
- Road sweeping and/or wheel wash facilities should be provided, as required;
- All oils/diesel stored on site for construction equipment are to be located in appropriately bunded areas;
- Filters and silt traps will be used to prevent rain washing silts and other materials into the surface water network and creating blockages.

- Adjacent watercourses/groundwater need to be protected from sedimentation and erosion due to direct surface water runoff generated onsite during the construction phase. To prevent this from occurring surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary positive drainage system shall be installed prior to the commencement of the construction works to collect surface water runoff from the site during construction. A series of geotextile lined cascading, high level outfall, settling basins will be installed upstream of the agreed discharge point. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed before being discharged in a control manner to the agreed outfall. Inlet to the cascading settling basins will be ripped to prevent scour and erosion in the vicinity of the inlet.

Operational Phase

Surface Water Operational Stage Measures to be Implemented:

- Water Quality: The green roof for the apartments on the shopping centre roof will improve the quality of surface water run from the site.

Monitoring

Construction Phase

Monitoring during the Construction Phase of the development should consist of the following:

- Normal quality control inspection of the works
- Monitoring of possible discharges to the existing culverted watercourse at its outfall may also be required by DLRCC to ensure that no unauthorised discharges are occurring.
- Pressure testing and CCTV inspections of the surface water drains following completion of stages of the construction is recommended to ensure that the required construction standards are being maintained.
- Upon completion of the development, monitoring of the discharges from the development will be undertaken as required.

Operational Phase

Monitoring during the operational phase of the development is recommended as follows:

- All filters, silt traps, hydro-brakes and overflows should be inspected regularly and in particular after heavy rainfall events to ensure that they are not blocked.
- Gullies in the public road should be inspected and cleaned as required
- Pollutants which accumulate within the oil petrol interceptor on site should be regularly monitored and removed as necessary.

Foul Water Drainage

Construction Phase

Foul Water Drainage Construction Stage Measures to be Implemented:

- Road sweeping and/or wheel wash facilities should be provided, as required;
- All onsite sewers should be tested and surveyed prior to connection to the public sewer to prevent any possibility of ingress of ground water;

- All sewers will be inspected and where necessary sealed to ensure that uncontrolled ground water inflow does not occur;
- Any leakage from the foul sewer will be cordoned off and the contaminated effluent and soil collected and disposed by licensed contractors.

Operational Phase

Foul Water Drainage Operational Stage Measures to be Implemented:

- Dual & low flush toilets and water economy outlets will be used to reduce flows from the development.

Monitoring

Construction Phase

Monitoring during the Construction Phase of the development should consist of the following:

- Normal quality control inspection of the works;
- Monitoring of possible discharges to the existing culverted watercourse is also required by Dun Laoghaire Rathdown County Council to ensure that no unauthorised discharges are occurring;
- Pressure testing and CCTV inspections of the foul sewers following completion of stages of the construction is recommended to ensure that the required construction standards are being maintained;
- Upon completion of the development, monitoring of the discharges from the development will be undertaken as required.

Operational Phase

No monitoring of foul effluent from the development is considered to be necessary.

14.3.8 Air Quality & Climate

Construction Phase

AQ CONST 1: Air Quality Mitigation Measure

The dust minimisation measures specified in Appendix 9.2 of this chapter will be implemented during the construction phase of the project and thus fugitive emissions of dust from the site will be insignificant and pose no nuisance at nearby receptors.

Operational

Not applicable.

Monitoring

In order to ensure that any dust nuisance is minimised, a series of mitigation measures have been listed in Appendix 9.2. If the construction contractor adheres to good working practices and implements dust mitigation measures the levels of dust generated are assessed to be minimal and are unlikely to cause an environmental nuisance.

14.3.9 Microclimate

Construction Phase

Not applicable

Operational

Not applicable.

Monitoring

Not applicable.

14.3.10 Noise and Vibration

Construction Stage

N&V CONST 1- Noise Mitigation

The appointed contractor will ensure that relevant measures to control noise from construction works as set out within BS 5882 Part 1: 2009 +A1 2014 are employed to ensure construction noise limits are not exceeded. These control measures are included in the existing Construction Management Plan.

Operational

N&V OPERAT 1: *Mechanical and Electrical Plant*

A design goal has been set for building services plant at the nearest noise sensitive locations in order to avoid any significant increase to the existing noise environment. In order to achieve the design goal, best practice control measures will be adopted during the detailed design stage. This will typically involve the following forms of noise control techniques:-

- selection of plant with low noise and vibration emissions;
- provision of solid barriers or acoustic louvered panels screening external plant;
- installation of duct mounted attenuators on the atmosphere side of air moving plant;
- installation of splitter attenuators or acoustic louvres providing free ventilation to internal plant areas, and;
- anti-vibration mounts on reciprocating plant.

Monitoring

Construction Phase

During the construction phase consideration will be given to noise monitoring at the nearest sensitive locations, where necessary, i.e. in the event that noisy activities are expected.

Noise monitoring will be conducted in accordance with the International Standard ISO 1996: 2007: *Acoustics – Description, measurement and assessment of environmental noise* and survey locations should be located a distance of greater than 3.5m away from any reflective surfaces, e.g. walls, in order to ensure a free-field measurement without any influence from reflected noise sources.

Operational Phase

Not applicable.

14.3.11 Material Assets

Construction Phase

MA CONST 1: A construction, including traffic, management plan should be implemented during the construction phase to protect local amenities and the integrity and operation of the local road network.

MA CONST 2: Provision of utilities should be carried out in accordance with the recommendations of the relevant statutory bodies (ESB, Gas Networks Ireland, Irish Water, EIR, DLRCC etc.)

MA CONST 2: Water Metering should be included in each unit to record consumption.

Operational Phase

Not applicable.

Monitoring

Not applicable.