

ENVIRONMENTAL IMPACT STATEMENT

Non-Technical Summary

In relation to

Proposed Residential Regeneration at O' Devaney Gardens, Dublin 7

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1.0 INTRODUCTION

This is the Non-Technical Summary of the Environmental Impact Statement (EIS) prepared as part of the Environmental Impact Assessment (EIA) undertaken for a proposed development at O' Devaney Gardens, Dublin 7.

This Non-Technical Summary follows the format outlined in Articles 2 and 3 of the Second Schedule of the European Communities (Environmental Impact Assessment) Regulations 1989 (S.I. No. 349 of 1989 as amended by the European Communities (Environmental Impact Assessment) Regulations 1999 and the Planning and Development Regulations 2001 – 2009.

The EIS has been prepared having regard to the '*Guidelines on the Information to be Contained in Environmental Impact Statements*' and also '*Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*', both of which were prepared by the Environmental Protection Agency (EPA) in 2002 and 2003 respectively.

The proposed development comprises Phase 1A of a wider mixed use redevelopment of O'Devaney Gardens incorporating residential development, commercial / retail floorspace and community facilities. The first phase of the re-development (Phase 1A) comprises of 110 no. residential units and 4,680 sq.m. neighbourhood park.

As required, this EIS includes an assessment of the cumulative impact of the proposed Phase 1A development in conjunction with future phases of development on the site. All future phases of development will be subject to separate applications for development and environmental assessment, where required. Figure 1.1 overleaf provides an outline of the proposed boundaries for the application site (Phase 1A) and Masterplan boundaries.

For the purposes of clarity, the proposed Phase 1A development does not include proposals for demolition. The demolition of the 5 no. blocks to

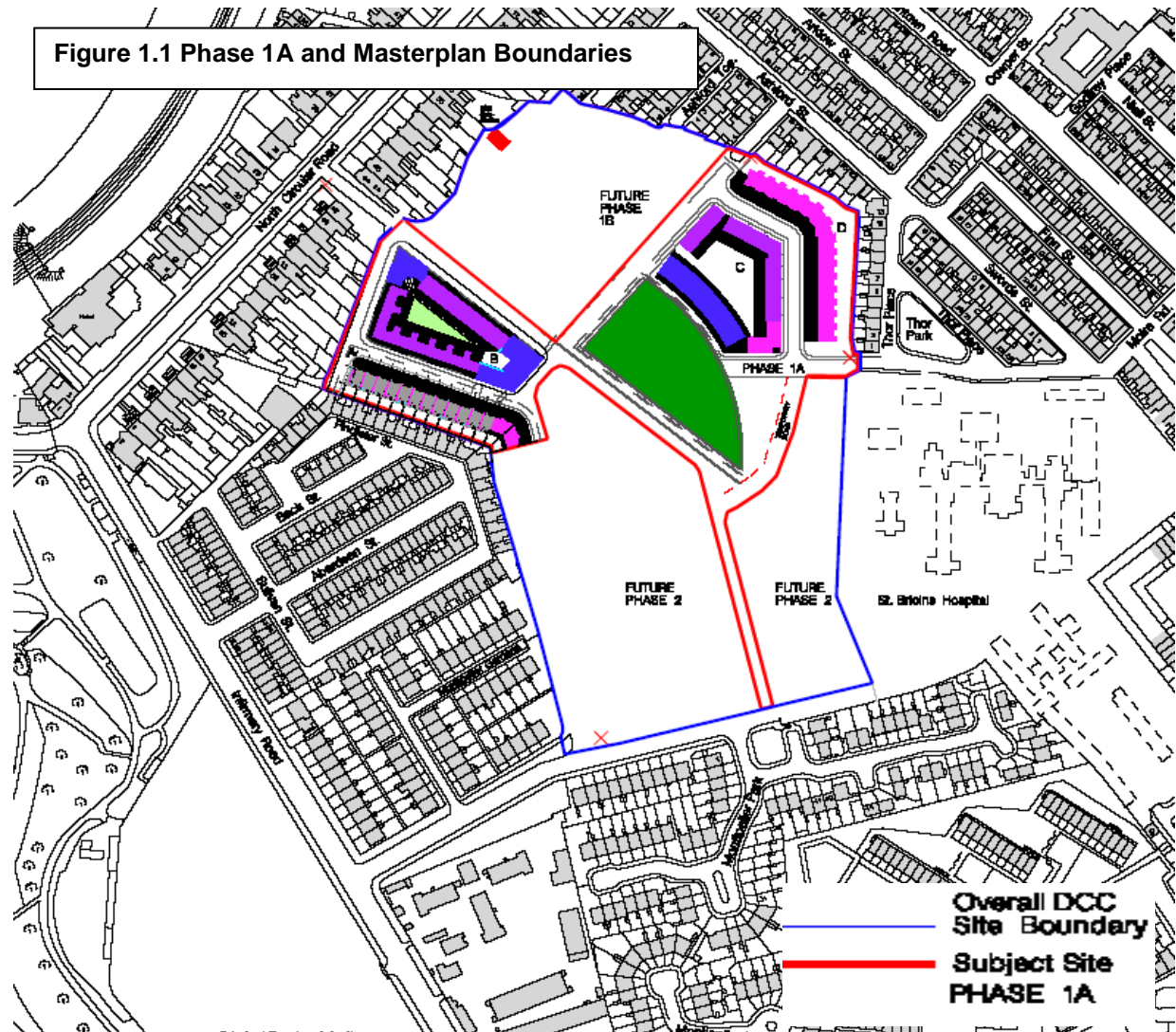
facilitate the implementation of the proposed development will be pursued by way Part 8 approval (Reg. Ref: 3607/10).

2.0 DESCRIPTION OF THE SUBJECT SITE

The subject site is located approximately 1km to the west of Dublin City Center and is to the east of the Phoenix Park and the north of Heuston Station. The O' Devaney Gardens Local Authority Flat complex was constructed in the 1950's by Dublin City Council and consists of 278 flats over 13 four storey blocks.

A number of these blocks have now been demolished. Under Planning Register Reference 3544/08 permission was granted for the demolition of 4 four storey blocks including units 1-32 and 117-148, a single storey community building and crèche and a two storey block comprising of four commercial retail units. There are currently 93 units occupied.

A Part 8 application has recently been approved for the demolition of the existing 5 no. blocks to the north of the site to facilitate the implementation of the proposed development (Planning Register Reference 3607/10).



3.0 COMMUNITY CONSULTATION

The proposed development has been the subject of a continual process of consultation with the residents on site through the structures established by the community.

This structure includes a Regeneration Board where resident representatives and key stakeholders including Dublin City Council, elected councillors and other key stakeholders have a forum to meet on a quarterly or bi-monthly basis to discuss the masterplan, Phase 1A details and progress.

Design sub committees were established which included the resident representatives and an invitation for councillors and other residents to attend. These meetings were chaired by independent regeneration workers. This process resulted in a regular schedule of progress meetings. The issues and opinions of the residents were taken and included in the design process

4.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Dublin City Council has prepared a non statutory masterplan to guide the regeneration of O' Devaney Gardens. The preparation of this masterplan ensures that Phase 1A of the re-development is not a development planned in isolation.

The masterplan has facilitated an analysis of the local area including (i) an audit of existing community facilities, (ii) analysis of its social and economic character, (iii) analysis of strengths and weaknesses, (iv) identification of potential synergies with other local character areas both existing and emerging and (v) analysis of the urban form and inherent character of the local area. The re-development proposals for the estate are therefore informed by this masterplan process. The regeneration project should respond to the local context and special character of the neighbourhood adjoining the estate. This principle is important to promote integration and assist the project in delivering change and renewal for the wider locality.

Through the masterplan, all phases are expected to be co-ordinated to create an integrated, legible and cohesive mixed use and mixed tenure urban development that restores the social, economic and physical character of the street in accordance with the Dublin City Development Plan 2011-2017 zoning objective.

Phase 1A of the regeneration project for O' Devaney Gardens consists of 110 residential units arranged in four distinct blocks (A-D). The blocks relate to the character of the site boundaries and also the future character where enclosure of a tree lined boulevard and enclosure of a neighbourhood park are important design objectives.

Blocks A and B are located to the west side of the proposed boulevard. They will be located on an existing cleared site. Block A is comprised of thirteen terraced house units in total. Block B is comprised of forty two units in total of which 20 +are communal accessed apartment types and 22 are own door accessed house types.

Block C is a 2- 4 storey block located on the east side of the main boulevard. Block C has a location context enclosing the east side of the new neighbourhood park. The block is four storeys in height where it addresses the park and contains 6 live work units at ground level, 7 apartments at first and second floor and 6 apartments at third floor.

Block D is a terrace of sixteen two storey three bedroom houses adjoining the rear garden boundaries of terraced houses fronting Ashford Street and Thor Place. Owing to the changing shape of the boundary line, the terrace is curved in its form with a change in house type in the centre of the terrace to complete the turn and maintain the terrace profile.

Phase 1A of the proposed development is envisaged as part of a ten year regeneration programme for the entire site. Phase 1A is the first step to signal the beginning of the regeneration programme.

Each successive phase of the masterplan will be subject to its own planning permission and process.

However, the purpose of masterplan is to provide an appropriate level of guidance for co-ordination between all phases and to ensure the successful integration of each phase, and its character, with the overall regeneration of the estate and adjoining area.

The masterplan includes design guidance across all phases, particular in relation to phasing, land use, public space, movement, height and block layout. Using these parameters, it is possible to assess the likely cumulative impact of Phase 1A in the context of future development and the total regeneration vision for the estate.

5.0 ALTERNATIVES CONSIDERED

The proposed regeneration project is site specific and seeks social, physical and economic renewal of the entire estate and inclusive of 1.5 acres of the former St Bricin's site now in the control of DCC. This represents the site of the PPP rejuvenation project.

Phase 1A is proposed on that part of the site already cleared and prepared for re-development works including Part VIII of the Planning and Development Regulations 2001 permission to demolish all remaining blocks on the north end of the site. This is in the interests of removing empty units and under occupied blocks which would otherwise become targets for anti social behaviour and give rise to security concerns for remaining residents.

Re-developing the north section of the site first also provides the optimal opportunities to integrate a new design with the established street patterns adjoining the site and facilitate construction whilst protecting residents in the remaining blocks at the south end from associated impacts.

The re-development project represents sustainable infill development of a higher quality development on a brownfield site.

The location for Phase 1A was therefore the most logical and appropriate location. There were no other alternative sites examined.

Chapter 2 of the EIS describes the evolution of the scheme design, from the initial masterplan concept to the Phase 1 design for which development is now sought. The advantages and disadvantages to each alternative considered is described and the process whereby the subject design was reached is explained.

Incorporating feedback from the community into the scheme and using the EIS preparation as a tool to test the environmental impacts of designs considered has been an integral part of the design evolution process.

6.0 PLANNING POLICY CONTEXT

This chapter of the EIS was compiled by John Spain Associates, Planning and Development Consultants, and outlines the planning and development context for the proposed development.

The following national, regional and local planning policy documents were reviewed:

- National Development Plan 2007-2013;
- National Spatial Strategy 2002;
- Implementing the National Spatial Strategy: 2010 – Update and Outlook;
- Transport 21;
- The National Sustainable Development Strategy (1997);
- Sustainable Urban Housing: Design Standards for New Apartments (2007);
- Sustainable Residential Development in Urban Areas (Draft, 2008)
- Delivering Homes, Sustaining Communities – Statement on Housing Policy (2005);
- Quality Housing in Sustainable Communities – Best Practice Guidelines for Delivering Homes, Sustaining Communities (2007);
- Childcare Facilities: Guidelines for Planning Authorities (2001);

- Retail Planning Guidelines for Planning Authorities (2000);
- Regional Planning Guidelines for the Greater Dublin Area 2010 – 2022;
- Retail Planning Strategy for the Greater Dublin Area 2001 - 2011
- Draft Retail Strategy for the Greater Dublin Area 2008 - 2016
- Dublin City Development Plan 2005 – 2011;
- Draft Dublin City Development Plan 2011 – 2017;
- Draft Planning Scheme / Planning Framework for Grangegorman;
- Heuston and Environs Draft Framework Development Plan

The relevant provisions of each of these planning policy documents is outlined with reference to the proposed development.

7.0 ENVIRONMENTAL ASSESSMENT OF THE PROPOSED SCHEME

7.1 Human Beings

This chapter of the EIS was prepared by John Spain Associates, *Planning & Development Consultants*, in consultation with Dublin City Council.

Human Beings is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'.

This chapter of the EIS document has been prepared with reference to the specific criteria set out in the Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002) and the Advice Notes On Current Practice (in preparation of Environmental Impact Statements) (EPA 2003).

A site visit was undertaken to appraise the location and likely and significant potential impact upon human receptors. Published reference documents such as Central Statistics Office Census data, the Regional Planning Guidelines for Greater Dublin

Area and Dublin City Development were also examined.

The most up to date data from the 2002 and 2006 Census of Population was utilised in relation to population projections. The baseline environment was examined in terms of population, employment, social class, land use, settlement patterns, economic activity and educational attainment.

During construction phase, notwithstanding the implementation of remedial and mitigation measures, there will be some minor temporary residual impacts on Human Beings most likely with respect to nuisance caused by construction activities.

It is anticipated that subject to the careful implementation of the remedial and mitigation measures proposed throughout this EIS document, any adverse likely and significant environmental impacts will be avoided. Positive impacts are likely to arise out of a temporary increase in local employment and economic activity.

The operational phase will not result in any material change in the predominant residential use of the site. However, the future occupants of the site will benefit from enhanced commercial, retail, community and open space facilities, in addition to high quality residential units built in accordance with the guidelines in 'Sustainable Residential Developments in Urban Areas (May 2009)' and the requirements set out in the Dublin City Development Plan 2005 – 2011.

It is therefore considered that the operational phase will display a long term beneficial impact for local residents and future occupiers of the subject site through the rejuvenation of the area and the consolidation of this city centre location.

A series of mitigation measures are included in the EIS to ensure that negative impacts are unlikely to be significant.

7.2 Traffic and Transportation

The existing road and traffic conditions in the vicinity of the proposed development site were reviewed and traffic surveys were carried out at critical road links and junctions in the vicinity of the site that covered the morning and evening periods from which the existing AM and PM peak periods could be identified. A review of existing and proposed public transport in the vicinity of the application site was also undertaken.

From a review of the Dublin City Council phasing for this regeneration project it is expected that this proposed development would be complete by 2017.

A comparative assessment of the traffic associated with the historic residential units at O'Devaney Gardens and the proposed regenerated area was undertaken using the TRICS 2010(b) database.

Capacity assessments were undertaken at critical junctions in the vicinity of the application site at future years including traffic growth on the adjacent road network and development traffic. The results indicate that these junctions can operate within capacity and can accommodate the traffic associated with the proposed development and possible future developments.

In addition, considering the development's proximity to efficient public transport links and the limited traffic associated with the proposed development it is evident that the proposed regeneration development would have a negligible impact on surrounding road links junctions.

Comment was also provided in relation to the likely construction traffic and haul routes associated with this regeneration project.

It has been identified within this TIA that the level of impact the proposed development is likely to have on the adjacent road network would be negligible.

7.3 Cultural Heritage (Archaeology)

This chapter was prepared by Roseanne Meenan and relates to archaeology and forms part of the assessment of the cultural heritage.

The site was visited in February 2010. The following sources were consulted:

- Record of Monuments and Places, Dublin;
- Historic mapping;
- Local history sources.

It is unlikely that there will be a negative impact on the Recorded Monuments in the vicinity of the site as they are removed in the landscape. If archaeological material had survived on the footprint of the development site, it would have been badly damaged or destroyed when the flats were being constructed. It appears that the strip of land currently owned by the Department of Defence may not have been built on and archaeological material may survive there.

As:-

- (i) The development site does not lie within an RMP area nor a zone of archaeological significance
- (ii) There are no recorded monuments on the site
- (iii) Study of historic mapping did not produce evidence to suggest the possible survival of archaeological material
- (iv) Construction of the flat complex would have caused a great deal of ground disturbance, destroying archaeological material that might have survived up to the 1950s

It is not recommended that archaeological testing or monitoring be carried out during reconstruction on the footprint of the O'Devaney Gardens flats. Should, however, anything of archaeological interest be found during ground disturbance, the Department of the Environment, Heritage and Local Government, the National Museum and the City Archaeologist, Dublin City Council should be notified.

It is recommended that an archaeological assessment, including geophysical survey and test trenching, be carried out on the strip of land acquired from the Department of Defence prior to commencement of development. Full excavation may subsequently be necessary, depending on the recommendations of the planning authority and the Department of the Environment, Heritage and Local Government

The impact of the development cannot be definitively predicted as it is not known if archaeological material survives on the site. Such material may survive on the strip of land currently owned by the Department of Defence. If, however, the mitigation measures described above are observed, a negative impact will be minimised.

7.4 Cultural Heritage (Architecture)

This chapter of the EIS was prepared by Dublin City Council's conservation department in order to identify likely significant impacts of the proposed residential development on the architectural heritage of O' Devaney Gardens, its environs and the wider city.

A desktop survey using documentary and cartographic references of the architectural heritage within the area of the proposed development site and its adjacent precinct was carried out.

Dublin City Council's Record of Protected Structures is the principal source for identifying architectural heritage and protected structures in the vicinity of the site. Historic maps and local reference books were also consulted.

At present the residential units on site are partly occupied, partly boarded up. The open space is uninviting. In a 'do-nothing' scenario the empty site and run down blocks continue to deteriorate and to have a significant negative impact on the environs of the site and its cultural heritage.

The present boundaries and circulation pattern remains unaltered and no impact occurs to view or vistas, vehicular or pedestrian traffic.

The proposed development has the potential to halt the relentless decline of an inner city council development and provide for the overall renewal and rejuvenation of this site. It has been designed in close consultation with the community, and it is predicted that the impact of the scheme will be positive due to the quality of its public realm improvements, the high standard of its new accommodation and the high levels of private spaces.

The new residential units, expressed in a contemporary architectural idiom, will be a considerable improvement of the present empty spaces associated with the blocks, in a densely grained part of the city.

The importance of context has been addressed in the size, scale, and massing of the proposed development with an evident importance placed on scale. The proposed layout has responded to the architectural context of traditional tight urban grain that exists between Aughrim Street and the Phoenix Park. The Dublin Artisans Dwellings generally turn their back on the site and it is proposed to integrate three streets into the scheme by attaching terraced houses to existing buildings.

The heights of the new buildings are low, four storey buildings are generally limited to the centre of the site. The distribution of heights has been carefully considered with regard to their impact on adjacent dwelling houses.

There will be extensive planting in the newly formed 'Boulevard' and in the public park.

The design objective of the residential accommodation reflects the commitment, standards and ethos of DCC to provide innovative housing units to the highest spatial standards, contextual consciousness, energy efficiency and overall sustainability.

The design of the neighbourhood park shall incorporate a view to the south west towards the Wellington Monument for place making and identity within the site.

As the masterplan principles for future Phase 2 is an indicative proposal for guidance, it should be a requirement that the urban design details for future buildings should address ways to maintain a view towards the Wellington Monument for good place making and identity on site.

7.5 Flora & Fauna

This section of the EIS has been prepared by Niamh Roche.

In the summer of 2009 a flora and fauna survey and bat survey were carried out at a site proposed for redevelopment at O'Devaney Gardens, Stoneybatter, Dublin. Weather during the surveys was warm and dry. The site was walked and all native and naturalised plants were identified to species level where possible. Vegetation types were assessed and assigned to categories according to the Heritage Council habitat classification system.

The site was carefully searched for signs of mammal activity. Signs of mammal activity include tracks, scats, discarded prey items, burrows or resting places. A bat survey using bat detectors was carried out on a mild night in August 2009. Birds were identified to species level.

The site consists of amenity grassland, dry meadow, buildings and artificial surfaces habitat, recolonising bare ground, tree lines and some scrub. Around buildings and artificial surfaces, few plant species were present excepting occasional prostrate annuals such as procumbent pearlwort and knotweed. Areas of amenity grassland include various grass species such as perennial rye grass, and some broadleaved herbs including broad plantain and dandelion. At locations where buildings have been demolished there is a recently developed dry meadow with grasses and various broadleaved herbs such as

phacelia, crimson clover and poppy. An area of rank grassland and scrub inside the former St Bricin's Hospital grounds includes buddleja, thistles, broad dock, various grasses and nettles.

No plants or habitats of conservation importance were discovered during the summer survey.

A limited number of bird species were recorded on the site. Songbirds present during the surveys included blackbirds, goldfinches and house sparrows. Wild birds are protected under the Wildlife Act. Three bat species were observed in flight on the site, mainly along the tree line between the former St Bricin's Hospital boundary and O'Devaney Gardens. No bat roosts were confirmed from the site.

None of the habitats found on the site are of conservation concern in a national or regional context. Bats were the most highly protected faunal species present. Various recommendations are made to mitigate any potential negative impacts of the proposed development and to ensure connectivity and foraging habitat can be retained for these protected species.

The closest conservation designated sites are the Royal and Grand Canal proposed Natural Heritage Areas. Parts of Dublin Bay within a 10km radius of the site are designated Special Areas of Conservation and Special Protection Areas due to the presence of a number of rare and important habitats and species. The O'Devaney Gardens site does not bound any of these conservation designated sites, however, and the proposed development at the site is unlikely to impact on them. An accompanying Appropriate Assessment investigates the potential impacts of the present proposed development on the SACs and SPAs.

7.6 Soils, Water, Hydrology and Hydrogeology

This chapter of the EIS document has been prepared by DBFL Consulting Engineers, and addresses the drift and solid geology associated with the site. It looks at natural water bodies carrying surface water including streams, rivers and lakes

(hydrology). It also looks at groundwater, shallow and deep, (hydrogeology) and where applicable estuarine waters and marine waters which may be affected by the proposed development.

The assessment of the potential impact of the proposed development on the geology and water bodies was carried out according to the methodology specified by the EPA and the specific criteria set out in the Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002) and the Advice Notes On Current Practice (in preparation of Environmental Impact Statements) (EPA 2003).

A series of mitigation measures are included in the EIS to ensure that negative impacts are unlikely to be significant.

The residual impact on the soils, geology, hydrology and hydrogeology linked to the site will be minimal. These mitigation measures will address issues such as minimising disturbance of soils, management of temporary storage of soil on site, disposal of soil and measures to minimise any possible groundwater contamination.

Although no specific monitoring will be required as part of the proposed development it is envisaged that EPA Monitoring will continue in the area through the life of the development in respect of water quality and ground water.

7.7 Air Quality & Climate

Byrne Environmental Consulting Ltd have assessed the potential air quality and climatic impacts that the proposed redevelopment of the O'Devaney Gardens complex may have on the receiving environment during the demolition, construction and operational phases of the proposed redevelopment project. The assessment includes a comprehensive description of the existing air quality in the vicinity of the subject site, a description and assessment of how construction activities and the operation of the development may impact existing air quality, the

mitigation measures that will be implemented to control and minimise the impact that the development may have on local ambient air quality and finally to demonstrate how the development shall be constructed and operated in an environmentally sustainable manner.

The demolition and construction phases have the potential to generate fugitive dust emissions, however these emissions will be controlled by appropriate mitigation techniques and through the implementation of a construction phase air quality management and monitoring plan throughout the duration of the construction phase.

The operational phase the development will see the operation of modern, well insulated thermally efficient residential units which will have a positive impact on existing local ambient air quality. The design of the proposed new residential units shall include energy saving strategies and energy efficiency shall be achieved by implementing sustainable design features into the buildings therefore it is concluded that national air quality standards shall not be adversely affected, thus ensuring that the potential for adverse impacts on human health is negligible.

The proposed development does not include the construction of any large structures which may impact on the local micro climate by means of shadowing effects or wind sheer effects, therefore the proposed development will not to have an adverse impact on shading or temperature profiles at the nearest residential properties or on the local receiving environment in the vicinity of the redevelopment site boundaries.

7.8 Noise & Vibration

Byrne Environmental Consulting Ltd has assessed the potential noise and vibrational impacts that the proposed redevelopment of the O'Devaney Gardens complex may have on the receiving environment during the construction and operational phases of the proposed development. The assessment includes a comprehensive description of the existing

ambient baseline noise climate in the vicinity of the subject site, a description of how construction activities may impact the ambient noise climate and finally, the mitigation measures that shall be implemented to control and minimise the impact that the development may have on ambient noise levels and to demonstrate how the development shall be designed in an environmentally sustainable manner to provide adequate noise insulation in residential units from external noise sources and internal noise from adjoining residential units.

Ambient noise levels shall temporarily increase during the demolition and construction phases, however noise levels shall be controlled and minimised through the implementation of noise and vibration mitigation measures and by the implementation of a Construction Phase Noise Management Plan.

All residential units shall be designed and constructed to provide a high degree of acoustic privacy between adjoining units and to ensure that they are acoustically insulated to minimise the intrusion of external environmental noise including road traffic and public transport noise.

The operational phase of the redeveloped site will have a positive impact on the existing ambient environment and on the residents of O'Devaney Gardens.

7.9 Landscape and Visual Impact

This chapter of the EIS has been prepared by Kennett Consulting Ltd., Chartered Landscape Architects, who specialise in visual impact assessment and landscape masterplanning. This chapter is supported by a series of photomontages which provide an illustration of the proposed development.

This chapter of the EIS document has been carried out in accordance with the Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002) and Advice Notes On Current

Practice (in preparation of Environmental Impact Statements) (EPA 2003).

An initial desk study was undertaken to establish an understanding of the site and surroundings, its planning history and context and to make an initial assessment of the likely visual envelope i.e. areas from which the site might be seen. Reference was made to a number of publications, including Adopted and Draft Development Plans for Dublin and Dublin City Council's "Report of the Special Housing Task Force" 2008.

The site and surroundings were the subject of a field surveys during 2009 and 2010, examining the nature of the local topography, vegetation, the river and the built environment, considering the contribution that each component makes to local landscape character, and exploring the potential for views of the subject site from the surrounding area. A representative selection of key vantage points were identified and photographed, and will be used in support of this written assessment.

This chapter sets out a series of mitigation measures for the design phase, construction phase and operational phase. The design phase mitigation measures describe how the design development has taken account of the predicted visual impact of the proposed development.

The assessment concludes the following:

On account of the screening afforded by the surrounding urban fabric, impacts of the proposed development upon urban landscape character and visual amenity will be principally confined to the residential areas surrounding the proposed development site. The visual envelope within which visual impacts are likely to occur extends no further than Infirmary Road to the southwest, Oxmantown Road to the northeast, properties on the south side of North Circular Road properties at Montpellier Park to the south.

There are no long-term construction-stage impacts anticipated. The completed development is likely to

have a highly positive impact upon local landscape character. Ageing sub-standard residential accommodation and inadequate public/communal open space will have been removed, resulting in a significant positive impact upon landscape character and visual amenity.

A new urban framework of streets and buildings will have been established on the site, providing a natural extension to the surrounding residential areas, improving legibility and accessibility. Buildings heights and arrangements will respect the local urban fabric, avoiding abrupt changes of height and creating integrated and completed 'blocks' of housing. This consolidation of the urban fabric will have a highly positive impact upon local urban landscape character for the long-term.

The detailing of buildings will be complementary to the adjoining residential areas, adopting a contemporary style while incorporating traditional materials. Brick and tile are used extensively throughout the houses and apartments, with small amounts of render to live-work and residential units overlooking the central open space (refer to Figures 9.17 and 9.18). The proposed streetscapes will also adopt a relatively traditional character, with gardens walls and gates, quality pavements, kerbs, islands of street planting and occasional groups of street trees (refer to Figures 9.19 and 9.20). The impact upon landscape character will be highly positive and long-term.

7.10 Daylight and Sunlight

AUREA Consulting was appointed by Dublin City Council to carry out a study to analyse sunlight and daylight issues for the proposed development at O' Devaney Gardens as part of the Environmental Impact Statement. This assessment forms Chapter 13 of the EIS.

The analysis presented in this chapter is based on 3D models and CAD drawings of the existing development, proposed development and surrounding buildings, provided by Dublin City Council architects.

The reference methods for calculations were the 1991 BRE document 'Site layout planning for daylight and sunlight-a guide to good practice' by PJ Littlefair, and the BS 8206: Part 2: 1992 section 5.6 (Minimum values of average daylight factor in dwellings).

This chapter assesses (i) the sunlight and skylight impact on surrounding buildings, (ii) the sunlight access to proposed open space areas and (iii) daylight access to internal rooms in the proposed development. The analysis is based on a 'worst-case' scenario, meaning that those rooms examined are selected as having the potential to have the worst possible results.

This assessment concludes that:

- More than 90% of the open space areas within the development have access to some sunlight for 21st March, which represents an excellent sunlight access.
- The calculated internal daylight in rooms selected as 'worse case' scenarios within the development, have daylight access well above recommendations from BS 8206-2: 1992. All the selected rooms are on the ground floor. In the upper floors, as the amount of skylight obstructed by opposite buildings is reduced, internal daylight factors would further improve. Based on this, a good daylight access for all internal spaces in the development can be predicted.

Aurea Consulting has worked in conjunction with Dublin City Council architects in the design development in order to ensure that sunlight and daylight access is maximised, whilst also ensuring that the proposed Phase 1A development achieves its objectives in making the most appropriate use of this urban brownfield site.

7.11 Material Assets

Resources that are valued and that are intrinsic to specific places are called 'material assets'. They may be of either human or natural origin and the value may arise for economic, natural or cultural reasons.

A baseline assessment of material assets was undertaken largely drawing on desktop analysis and detailed survey work undertaken as part of the EIA process.

A series of mitigation measures are included in the EIS to ensure that negative impacts are unlikely to be significant.

With the benefits of green technology, renewable energy and energy efficient construction, the residual impact on the services network should be minimal. The new services network will be monitored by the relevant utility service provider.

Given that surface water from the development will be greatly reduced the residual impact will be beneficial to the existing combined sewer network.

By employing the use of grey water recycling and low water use technologies, the generated flows from additional occupation will be offset and the residual impact long term and low.

Again by utilising the benefits of rain water harvesting, grey water recycling and low water usage technologies; the increased occupancy load will be offset against the individual reductions in demand.

Ongoing water usage within the proposed development will be monitored by an overall area meters and individual development meters. Individual meters will also be provided at ground level for associated units.

The network as a whole is monitored by the local authority through district metered areas (DMAs) to which this development will remain part. Water

usage will be continually monitored to avoid waste, leakage etc.

8.0 INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

All environmental factors are inter-related to some extent. Interactions within the study area can be one-way interactions, two-way interactions and multiple-phase interactions which can be influenced by the proposed development.

The purpose of Chapter 15 of the EIS is to draw attention to significant interaction and interdependencies in the existing environment. This section has been prepared by John Spain Associates, Planning & Development Consultants, in consultation with the EIS specialist consultants, and deals with the likely interactions between effects predicted as a result of the proposed development. This is required by Part X of the Planning and Development Act 2000 and Schedules 5, 6 and 7 of the Planning and Development Regulations 2001.

A matrix of the interaction of environmental factors is presented. As demonstrated by the matrix, most inter-relationships are neutral in impact; however, certain inter-relationships are discussed further therein. All residual impacts are described with reference to the implementation of the mitigation measures described in this EIS document.