

APPENDIX I - NON TECHNICAL SUMMARY

ENVIRONMENTAL REPORT

OF THE

VARIATION NO. 2 (SANDYFORD URBAN FRAMEWORK PLAN)

TO THE

DÚN LAOGHAIRE-RATHDOWN COUNTY DEVELOPMENT PLAN 2010-2016

for: Dún Laoghaire-Rathdown County Council

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SEPTEMBER 2011

Table of Contents

Section 1	Introduction and Terms of Reference	1
Section 2	The Variation	2
2.1	Content and Structure of the Plan	2
2.2	Purpose and Rationale for the Plan.....	2
2.3	Interactions with Relevant Policy, Plans or Programmes	2
Section 3	The Environmental Baseline.....	4
3.1	Introduction	4
3.2	Difficulties Encountered.....	4
3.3	Biodiversity and Flora and Fauna.....	4
3.4	Population and Human Health.....	7
3.5	Soil.....	8
3.6	Water	9
3.7	Material Assets	12
3.8	Air and Climatic Factors.....	14
3.9	Cultural Heritage	16
3.10	Landscape	18
3.11	Strategic Environmental Objectives	19
Section 4	Alternative Scenarios	20
4.1	Description of the Alternative Plan Scenarios.....	20
4.2	Evaluation of the Alternative Scenarios	23
4.3	The Selected Alternative Development Scenario	27
Section 5	Mitigation and Monitoring Measures	28
5.1	Mitigation.....	28
5.2	Monitoring	28

Section 1 Introduction and Terms of Reference

This is the Non-Technical Summary of the Environmental Report of Variation No. 2 (Sandyford Urban Framework Plan) to the Dún Laoghaire-Rathdown County Development Plan 2010-2016 Strategic Environmental Assessment (SEA). The purpose of the Environmental Report is to provide a clear understanding of the likely environmental consequences of decisions regarding the future accommodation of growth in Sandyford.

What is an SEA?

SEA is a systematic process of predicting and evaluating the likely environmental effects of implementing a proposed plan, or other strategic action, in order to ensure that these effects are appropriately addressed at the earliest appropriate stage of decision-making on a par with economic and social considerations.

Why is it needed?

The SEA has been carried out in order to comply with the provisions of the SEA Regulations and in order to improve planning and environmental management within Sandyford. The output of the process is an Environmental Report which should be read in conjunction with the Sandyford Urban Framework Plan (SUFP).

How does it work?

All of the main environmental issues in Sandyford were assembled and presented to the team who prepared the Variation. This helped them to devise a plan that protects whatever is sensitive in the environment. It also helped to identify wherever there are environmental problems in the area - so that these won't get any worse - and ideally the Plan tries to improve these.

To decide how best to make a plan that protects the environment as much as possible the planners examined alternative versions of the Plan. This helped to highlight the type of plans that are least likely to harm the environment.

What is included in the Environmental Report which accompanies the Variation?

The Environmental Report contains the following information:

- A description of the environment and the key environmental issues;
- A description and assessment of alternatives for the Variation/the Urban Framework Plan;
- An assessment of Urban Framework Plan policies and objectives; and,
- Mitigation measures which will aid compliance with important environmental protection legislation - e.g. the Water Framework Directive, the Habitats Directive - and which will avoid/reduce the environmental effects of implementing the Plan.

What happens at the end of the process?

On adoption of the Variation, a document referred to as the SEA Statement was prepared. The SEA Statement accompanies the Variation. It includes information on: how environmental considerations have been integrated into the Variation - highlighting the main changes to the Variation which resulted from the SEA process; how the Environmental Report and consultations were taken into account - summarising the key issues raised in consultations and in the Environmental Report indicating what action was taken in response; and the reasons for choosing the Variation in the light of the other alternatives, identifying the other alternatives considered, commenting on their potential effects and explaining why the Variation was selected.

Section 2 The Variation

2.1 Content and Structure of the Plan

The Variation consists of a written statement accompanied by a series of Maps and Drawings. The Maps now have a statutory basis within the County Development Plan. The Drawings are provided for reference and as guidance for development. The Urban Framework Plan is divided into 5 Sections as follows:

- Section 1- Introduction;
- Section 2 - Future Land Uses;
- Section 3 - Indicative Urban Form, Public Realm, Linkages and Building Height;
- Section 4 - Infrastructure; and,
- Section 5 - Phasing and Funding.

2.2 Purpose and Rationale for the Plan

The purpose of the Sandyford Urban Framework Plan is to set out the policies and objectives that, when implemented, will transform Sandyford Business Estates from a collection of disparate, poorly connected estates, to a co-ordinated, cohesive, business district. The rationale underpinning the Plan are:

- To promote and facilitate employment growth in Sandyford Business District recognising its status as a primary growth centre in the Economic Development Strategy of the Regional Planning Guidelines 2010-2022.
- To strengthen and enhance the structure and character of the urban form through appropriate sustainable land use zoning and guidance on typology, massing, scale, height, density of the built form and by promoting excellence in design of buildings and the spaces between them.
- To protect the residential amenity of adjoining areas and ensure that development in Sandyford Business District provides for its own infrastructural requirements.
- To encourage a diverse range of uses including employment based uses, retail and retail services, civic, cultural, leisure, health, educational and other services appropriate in scale commensurate with the role of Sandyford Business District as a 'Place' to work and live.
- To encourage a range of high quality new homes to promote choice and achieve a social mix.
- To create an environment, supported by key infrastructure and services that will attract business investment and provide for a range of employment opportunities.
- To create a hierarchy of public open spaces within Sandyford Business District providing high quality amenities and a variety of functions to serve both the resident and employee populations.
- To provide a network of 'green' routes and integrated streets linking the public open spaces, creating a legible and attractive environment for pedestrians and cyclists linking origins with destinations.
- To maximise the contribution of sustainable travel modes in meeting travel demand in accordance with Smarter Travel and to make a number of road improvements to cater for residual demand.

2.3 Interactions with Relevant Policy, Plans or Programmes

Dún Laoghaire-Rathdown County Development Plan 2010-2016

The Dún Laoghaire-Rathdown County Development Plan 2010-2016 provides for the preparation of an Urban Framework Plan for Sandyford. The Sandyford Urban Framework Plan will form part of the County Development Plan 2010-2016 by way of a Variation to the Plan. The policies and objectives of the County Development Plan shall apply when applications for planning permission are being considered within the Sandyford Urban Framework Plan boundary, where matters are not directly covered in the Urban Framework Plan itself. As part of the County Development Plan, the Urban Framework Plan will be nested

in a hierarchy of land use forward planning strategic actions. The Plan must comply with higher level strategic actions and will, in turn, constrain any lower level strategic actions.

National Development Plan 2007-2013

The National Development Plan 2007-2013 (NDP) is designed to underpin the development of a dynamic competitive economy over the period 2007 - 2013. It envisages a total investment of €184 billion over 7 years to 'secure the further transformation of our country socially and economically within an environmentally sustainable framework'. The NDP is designed to strengthen and improve the international competitiveness of the Country so as to support continued, but more balanced, economic and social development in line with the National Spatial Strategy.

National Spatial Strategy 2002-2020

The National Spatial Strategy 2002-2020 (NSS) is a 20-year planning framework for the entire Country to guide policies, programmes and investment. It seeks to promote a better balance of social, economic and physical development between the Regions. In order to promote sustainable development and allow for the public transport system to function more effectively - as promoted by the NSS - it is essential to consolidate the physical growth of Dún Laoghaire-Rathdown. Within the County this can be achieved through the development of greenfield lands and vacant, derelict and underutilised lands, in particular where they are in close proximity to public transport routes.

Sustainable Development: A Strategy for Ireland 1997

This Strategy provides a framework for the achievement of sustainable development at local level and calls on planning authorities to incorporate the principles of sustainability into Development Plans.

Regional Planning Guidelines for the Greater Dublin Area 2010-2022

Ireland is divided into eight regional forward planning regions, each with its own regional planning authority composed of Elected Members selected by the constituent local government councils. Regional planning authorities are required, under the Planning and Development (Regional Planning Guidelines) Regulations 2003 (SI No. 175 of 2003), to draw up regional planning guidelines (RPGs), long term strategic planning frameworks, for their relevant region. RPGs must have regard to the National Spatial Strategy. Dún Laoghaire-Rathdown is located within the Dublin Regional Planning Authority area for which the Regional Planning Guidelines 2010-2022 for the Greater Dublin Area (RPGs) have been prepared.

Transport 21 & Smarter Travel, A Sustainable Transport Future

Transport 21 is the capital investment framework for the transport system over the period 2006-2015. It addresses the twin challenges of past investment backlogs and continuing growth in transport demand. *Smarter Travel, A Sustainable Transport Future* is the new transport policy for Ireland for the period 2009-2020. The policy recognises the vital importance of continued investment in transport to ensure an efficient economy and continued social development, but it also sets out the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport.

Environmental Protection Objectives

The Variation is subject to a number of high level national, international, regional and county environmental protection policies and objectives, including those which have been identified as Strategic Environmental Objectives (see Section 3.11).

Examples of Environmental Protection Objectives include the aim of the EU Habitats Directive - which is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of Member States - and the purpose of the Water Framework Directive - which is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater which, among other things, prevents deterioration in the status of all water bodies and protects, enhances and restores all waters with the aim of achieving good status by 2015.

The Variation must be consistent with these objectives and implement them at local level in Sandyford. It is noted that any development at the Variation lands will have to comply with the environmental protection measures which have been already integrated into the Dún Laoghaire-Rathdown County Development Plan through the SEA of that Plan.

Section 3 The Environmental Baseline

3.1 Introduction

The environmental baseline of Sandyford is described in this section. This baseline together with the Strategic Environmental Objectives, which are outlined in Section 3.11, is used in order to identify, describe and evaluate the likely significant environmental effects of implementing the Urban Framework Plan and in order to determine appropriate monitoring measures.

The environmental baseline is described in line with the legislative requirements encompassing the following components – biodiversity, flora and fauna, population, human health, soil, water, air and climatic factors, material assets, cultural heritage, landscape and the interrelationship between these components.

Sandyford is located in the administrative area of Dún Laoghaire-Rathdown in County Dublin. The Plan area comprises approximately 190 hectares. The area is entirely urbanised with a variety of uses including commercial, industrial and residential. The Sandyford/Carysfort-Maretimo Stream flows through the Plan area, though it is mostly culverted.

3.2 Difficulties Encountered

3.2.1 Centralised Data Source

The lack of a centralised data source that could make all environmental baseline data for the County both readily available and in a consistent format posed a challenge to the SEA process. This difficulty is one which has been encountered while undertaking SEAs at local authorities across the Country and was overcome by investing time in the collection of data from various sources and through the use of Geographical Information Systems.

3.2.2 Baseline Data

In compliance with the SEA Directive and in order to describe the baseline (the current state of the environment) at Sandyford, data was collated from currently available, relevant environmental sources. In compliance with the European principle of subsidiarity, primary data collection will be undertaken by lower tier environmental assessments as relevant and appropriate. The most recent datasets are used by the assessment and limitations are noted.

3.3 Biodiversity and Flora and Fauna

3.3.1 Overview of the Habitats

Sandyford supports a range of semi-natural habitats and a number of plant and animal species. Green space, comprising mainly hedgerows, open space and wooded areas in the south east of the Plan area, consists of a variety of habitats and corridors which provide for the movement of wildlife. These areas are visible on the aerial photograph below.

There are no designated ecological sites within the Plan area. Fitzsimons Wood proposed National Heritage Area (pNHA) (Site Code: 001753) lies to the south west of the Plan area.

The results of a Habitat Mapping Survey carried out to Fossitt Level 2 are mapped below. Highly modified/non-native woodland and improved grassland are the most common habitats identified in the Sandyford area.

3.3.2 Existing Problems

Changes in land cover indicated by the CORINE data indicate that semi natural areas within the Plan area have been replaced by uses which generally include impermeable surfaces. These changes are also likely to result in losses of biodiversity and flora and fauna.

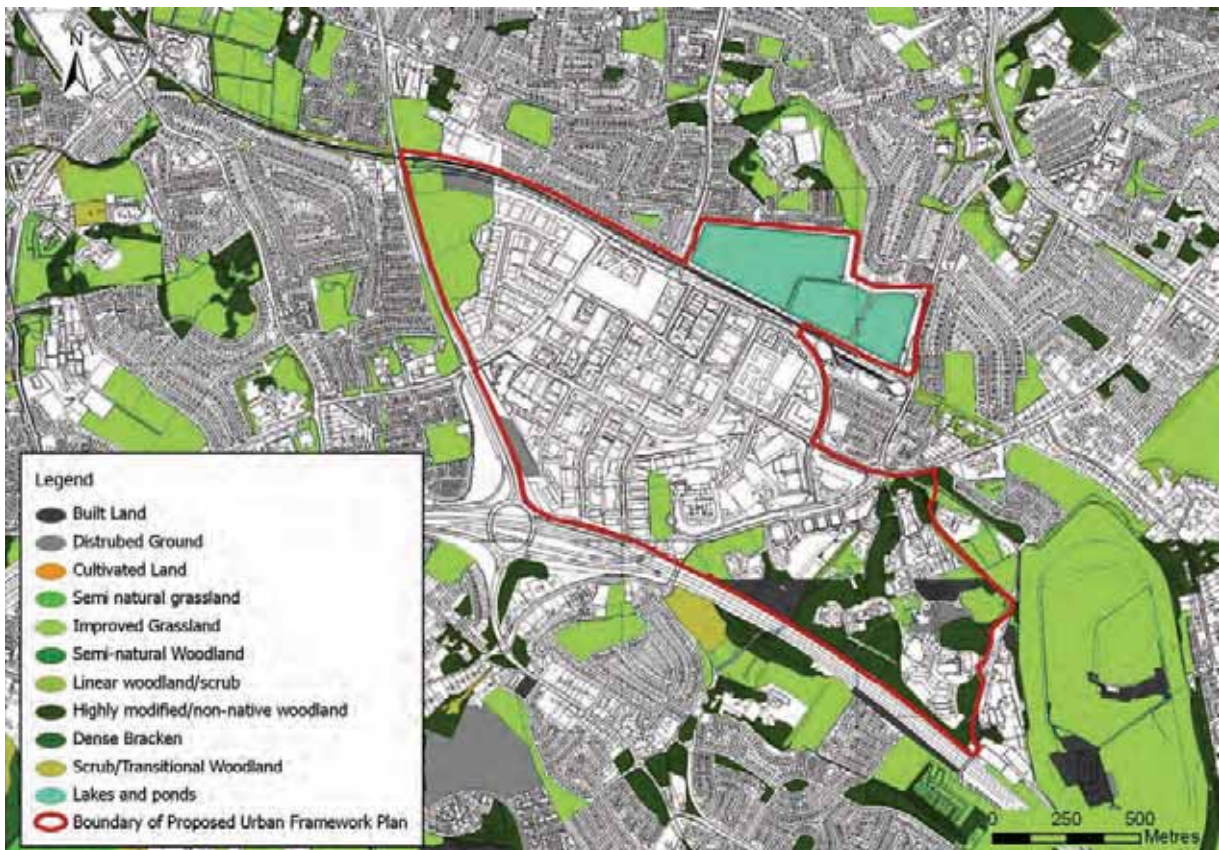
Aquatic flora and fauna is vulnerable to all forms of pollution. Any existing problems with regard to surface water quality in the Plan area (see Section 1.5 of the Environmental Report) are likely to be impacting upon aquatic biodiversity and flora and fauna.

With regard to terrestrial flora and fauna, all greenfield development in the area will cause an impact - the replacement of natural and semi natural habitats with artificial surfaces results in loss of flora and fauna and therefore adversely impacts upon this environmental component.



Aerial Photo of the Plan Area

Source: DLRCDP (unknown)



Habitat Mapping (Fossitt Level 2)

Source: White Young Green (2007)

3.3.3 Evolution of the Environment in the absence of a Development Plan

The SEA Directive requires that the Environmental Report includes a description of the likely evolution of the environment in the absence of the Variation.

In the absence of the Variation, the provisions of the current County Development Plan 2010-2016 would apply.

The likely significant environmental effects of a scenario whereby the Variation is not made and the provisions of the current County Development Plan 2010-2016 are applied are detailed under Section 7.3.1.1 of the Environmental Report.

3.4 Population and Human Health

3.4.1 Population¹

In the west of the Plan area, population is between 3,000-5,000 persons. The east of the Plan area has a population of between 6,500-13,925. Density in the Plan area in 2006 is mapped overleaf.

3.4.2 Human Health

Human health has the potential to be impacted upon by environmental vectors (i.e. environmental components such as air, water or soil through which contaminants or pollutants, which have the potential to cause harm, can be transported so that they come into contact with human beings). Hazards or nuisances to human health can arise as a result of exposure to these vectors arising from incompatible adjacent land uses for example. These factors have been considered with regard to the description of: the baseline of each environmental component; and the identification and evaluation of the likely significant environmental effects of implementing the Framework Plan and the alternatives.

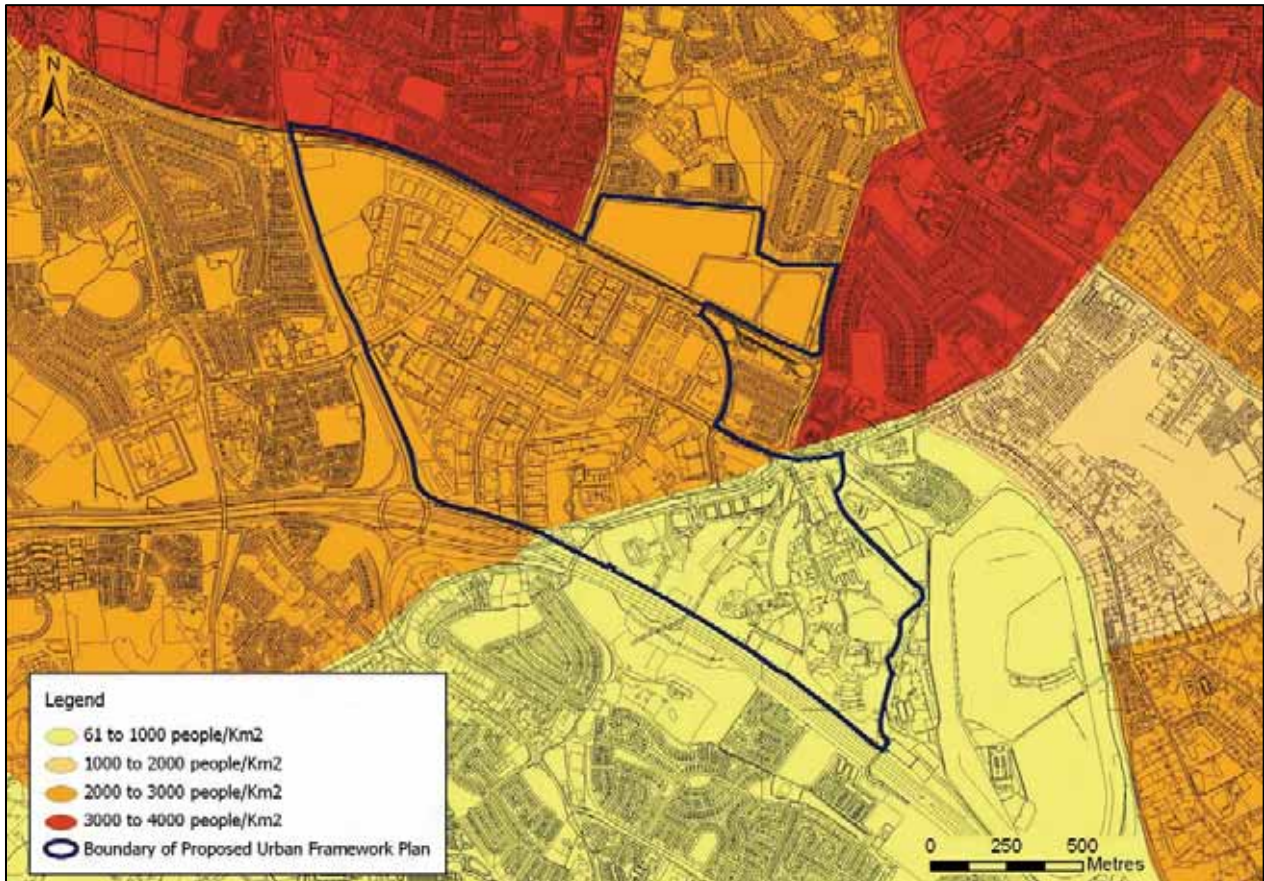
3.4.3 Existing Problems

Certain environmental vectors within the Plan area - such as air, water or soil - have the potential to transport and deposit contaminants or pollutants, which have the potential to cause harm and adversely impact upon the health of the area's population. Issues relevant to this potential in Sandyford are expanded upon in the following sections.

IPPC licensed facilities could be potential polluters to the Plan area if the facilities do not comply with their licenses.

Air quality as assessed by the EPA in the wider Dublin Conurbation Air Quality zone in which Sandyford is located is assessed as being currently good and meeting relevant standards. However local air quality issues may occur within and adjacent to the Variation lands e.g. traffic "hotspots" may give rise to a harsh sensory environment which may impact upon human health and localised PM10 and PM2.5 air pollution incidences is likely to occur when demolition/construction takes place.

¹ CSO (various) *Census 2006 Volume 1 - Population Classified by Area; Census 2002 Volume 1 - Population Classified by Area; Census 1996 Volume 1 - Population Classified by Area* Cork: CSO.



Population Density (2006)

Source: CSO (2007)

3.5 Soil

3.5.1 Introduction

Soil is the top layer of the earth's crust. It is formed by mineral particles, organic matter, water, air and living organisms.

Soil types, as classified by Teagasc in co-operation with the Forest Service, EPA and GSI², are mapped below.

The majority of the area has been developed and as a result, there is little soil remaining in the area.

Deep and shallow areas of well and poorly drained mineral soils can be found on the western Plan boundary and also in the east of the area.

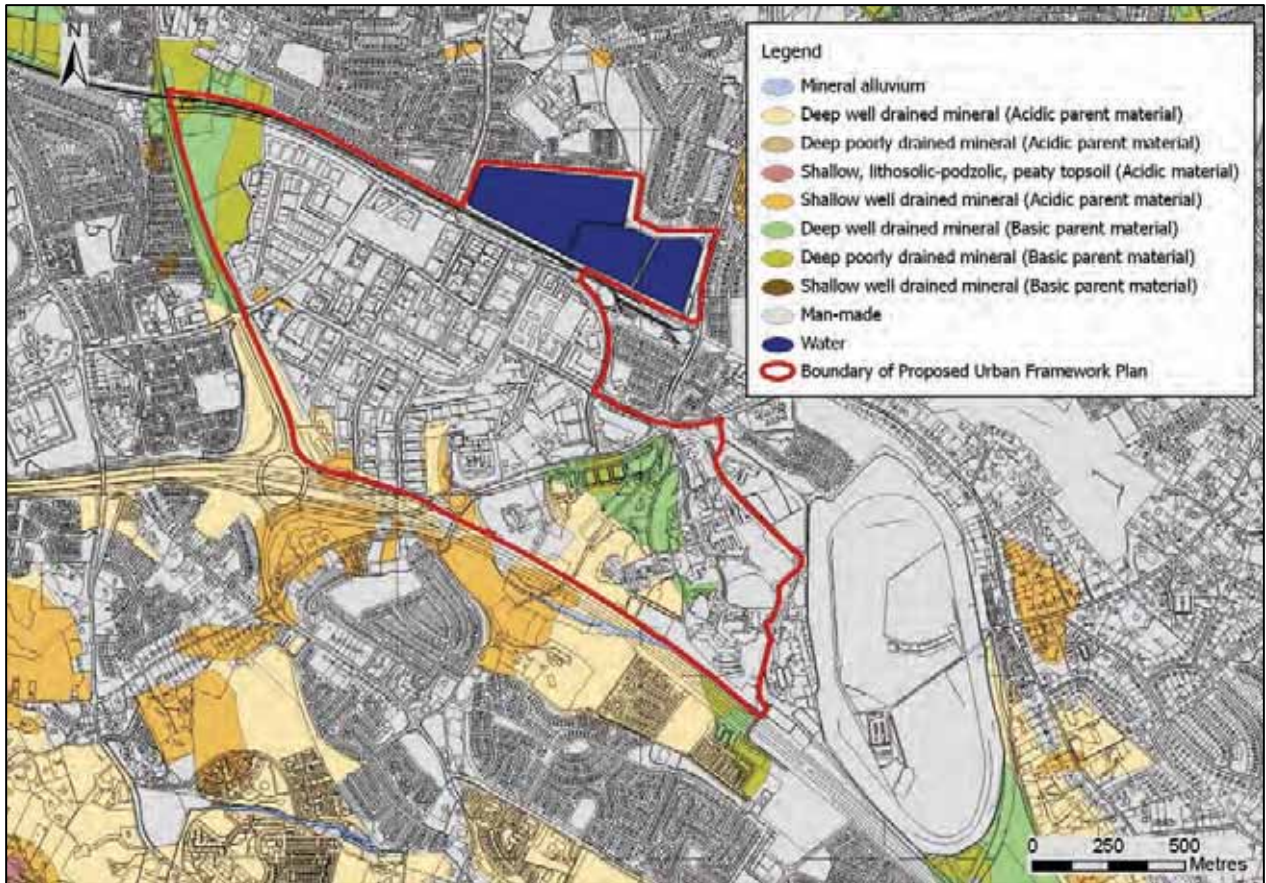
3.5.2 Geology and Mineral Sites

The underlying geology of the area comprises five classifications of rock. Calp, a variety of limestone can be found to the north west of the Plan area. The remaining area, including the Plan area is underlain by igneous formations.

3.5.3 Existing Problems relating to Soil

There are no existing problems relating to soil in the area.

² Teagasc, GSI, Forest Service & EPA (2006) *Soils and Subsoils Class* Dublin: DEHLG



Soil Types

Source: Teagasc in co-operation with the Forest Service, EPA and GSI (2006)

3.6 Water

3.6.1 Introduction

The Sandyford/Carysfort-Maretimo Stream flows through Sandyford although it is culverted for most of the Plan area except for a small stretch at the reservoir as mapped below. The Plan area falls with the catchment of the Loughlinstown River.

3.6.2 Potential Pressures on Water Quality

Human activities, if not properly managed, can cause deterioration in water quality. Pressures exerted by human activities include the following:

- sewage and other effluents discharged to waters from point sources, e.g. pipes from treatment plants;
- discharges arising from diffuse or dispersed activities on land;
- abstractions from waters; and,
- structural alterations to water bodies.

3.6.3 The Water Framework Directive

Since 2000, Water Management in the EU has been directed by the Water Framework Directive 2000/60/EC (WFD). The WFD requires that all Member States implement the necessary measures to prevent deterioration of the status of all waters - surface, ground, estuarine and coastal - and protect, enhance and restore all waters with the aim of achieving "good status" by 2015. All public bodies are

required to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and improve polluted water bodies to good status by 2015.

3.6.4 River Basin Districts and Water Bodies

For the purpose of implementing the WFD, Ireland has been divided into eight river basin districts or areas of land that are drained by a large river or number of rivers and the adjacent estuarine / coastal areas. The management of water resources will be on these river basin districts. The Sandyford area falls within the Eastern River Basin District.

Within each river basin district - for the purpose of assessment, reporting and management - water has been divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies.

The Local Authorities located in the RBDs have prepared draft River Basin Management Plans which are due to be adopted in the coming months. The Management Plans will provide objectives for river basins in order to implement the requirements of the WFD to help protect and improve all waters in the RBDs. The Plan for the ERBD has now been adopted by all the constituent Councils.

3.6.5 Surface Water

Surface water in the Plan area includes the small stream which flows through the south west of the Plan area and the reservoirs in the north of the Plan area. It is noted that the EPA do not monitor water quality in the vicinity of the Plan area.

3.6.5.1 WFD Surface Water Status

The WFD defines "surface water status" as the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status. Thus, to achieve "good surface water status" both the ecological status and the chemical status of a surface water body need to be at least "good".

Within the Plan area, the status of the surface water is moderate. To the east of the site surface water status reduces to poor. The area that appears unclassified is part of a coastal catchment, the status of which is moderate.

3.6.6 Groundwater

3.6.7 Introduction

Groundwater is stored in the void spaces in underground layers of rock, or aquifers. These aquifers are permeable, allowing both the infiltration of water from the soils above them and the yielding of water to surface and coastal waters.

3.6.7.1 WFD Groundwater Status

For groundwater bodies, the approach to classification is different from that for surface water. For each body of groundwater, both the chemical status and the quantitative must be determined. Both have to be classed as either "good" or "poor". The WFD sets out a series of criteria that must be met for a body to be classed as good chemical and quantitative status. Groundwater underlying the Plan area is classified as being of Good Status.

3.6.7.2 Aquifer Vulnerability

The Geological Survey of Ireland (GSI) rates aquifers according to their vulnerability to pollution. Aquifer vulnerability refers to the ease with which pollutants of various kinds can enter underground water.

Within the Plan area, only an interim study has taken place and so the vulnerability is classified as *High to Low*. To the south west of the Plan area, aquifers are rated as *Extreme* and *Extreme (Karst/Surface Rock)* along with other localised areas throughout the area.

3.6.7.3 Aquifer Productivity

The GSI rates aquifers based on the hydrogeological characteristics and on the value of the groundwater resource. Ireland's entire land surface is divided into nine aquifer categories, seven of which occur in Sandyford.

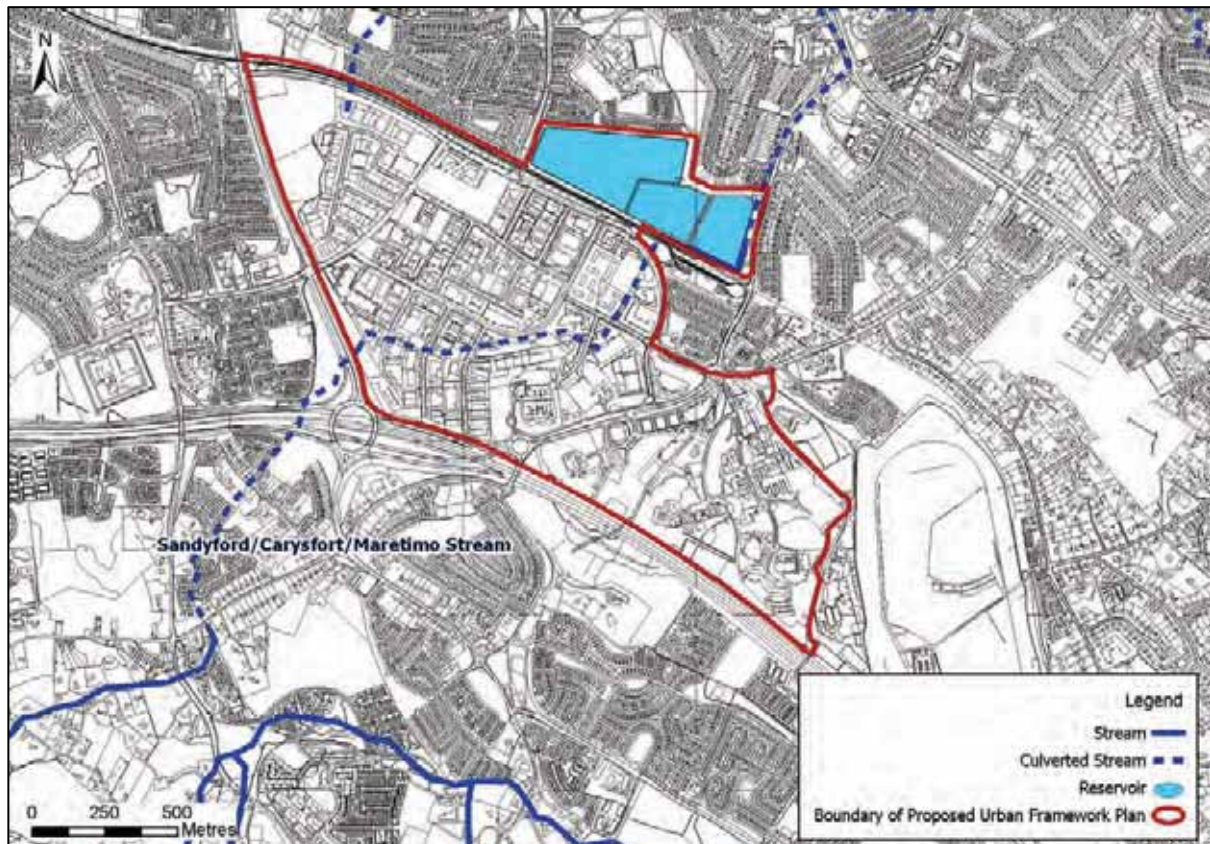
3.6.8 Register of Protected Areas

In addition to risk assessments, the WFD requires that Registers of Protected Areas (RPAs) are compiled for a number water bodies or part of water bodies which must have extra controls on their quality by virtue of how their waters are used by people and by wildlife.

In Ireland, waters intended for human consumption are protected under the Drinking Water Regulations (S.I. 439/2000). The actual protected areas for drinking water are not outlined within these Regulations, so the protected area for drinking waters is represented by the water body from which the water is abstracted, be it groundwater, river or lake. All groundwater underlying the area is listed on the RPA for Drinking Water Groundwater.

3.6.9 Existing Problems

The WFD water status to the west of the Plan area is currently "poor".



Surface Waters in Sandyford

Source: DLRCC (2010)

3.7 Material Assets

3.7.1 Waste Water

3.7.1.1 Relevant Legislation

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive. The Directive aims to protect the environment from the adverse effects of the wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the environment. The Regulations stipulate that sewage treatment facilities are in place in all towns by 2005. The treatment of wastewater is also relevant to the Water Framework Directive which requires all public bodies, including Dún Laoghaire-Rathdown County Council, to coordinate their policies and operations so as to maintain the good status of water bodies which are currently unpolluted and bring polluted water bodies up to good status by 2015 (see Section 3.6 *Water*).

3.7.1.2 Current Capacity and Demand and Future Upgrades

All waste water arising from the Plan area is treated at the Ringsend Waste Water Treatment Plant which is operated by Dublin City Council. This plant frequently operates above its design capacity.

The Sandyford and Stillorgan Foul Drainage Study 2007 recommended a significant amount of new and upgraded foul and combined sewer infrastructure (see Section 3.7.2.5).

3.7.2 Flooding

The Greater Dublin Strategic Drainage Study was commissioned in 2001 by Dublin City, Fingal, South Dublin, Dún Laoghaire-Rathdown and the adjacent catchments in Meath, Kildare and Wicklow.

This regional study identified a flood risk downstream of Sandyford – in the vicinity of the Lower Kilmacud Road and significant surcharging (i.e. near flooding) elsewhere. The GSDS did not, however, allow for the significant development that was occurring in the Sandyford Business Estates.

Dún Laoghaire Rathdown County Council Water Services Section commissioned a more comprehensive and detailed drainage study in 2007 to assess the performance of the existing foul drainage system in the Sandyford and Stillorgan areas and to identify the capacity of the network to accommodate future projected growth.

The Sandyford Stillorgan Foul Drainage Study 2008 provided a comprehensive analysis of the performance of the existing drainage system and set out future infrastructure requirements for the catchment.

A significant amount of new and upgraded foul and combined sewer infrastructure was recommended by the study.

A consultant was appointed in June 2010 for the design of the major pipeline works and the design is currently underway.

Downstream of the District a flood alleviation project (The Carysfort Maretimo Stream Improvement Scheme) is under construction.

3.7.3 Drinking Water

3.7.3.1 Drinking Water Quality

Compliance with the drinking water requirements is determined by comparing the results of analyses submitted by water suppliers to the standard for 48 parameters specified in the European Communities (Drinking Water) Regulations (No. 2), 2007. To ensure that these standards are met, each water supply must be monitored on a regular basis.

The Ballyboden supply supplies water to the Sandyford Reservoir which in turn provides water to approximately half of the Plan area. This supply is operated by Dublin City Council and has been identified on the RAL with the primary reason of concern given as: "EPA Audit Observation - Treatment and Management Issues".

3.7.3.2 Status of Water Supply in Sandyford

Due to a number of shortcomings in the water supply system in the area, the Sandyford High Level Scheme was undertaken. This included the construction of the Stillorgan and Sandyford Hall Pumping Stations, two reservoirs, control buildings and approximately 7km of water mains. The scheme provides sufficient reservoir capacity to permit considerable additional development in the SUIP area.

Watermains linking the new reservoirs and supply zones are currently adequate and have some spare capacity. However increased capacity watermains, which will include a motorway crossing, will be required before significant additional development is undertaken between the south side of Blackthorn Road. and the M50. Standard development levies may be adequate to fund these alterations but further investigation will be required to determine cost and required programme. Until the larger watermains are installed, new large scale developments may be required to take a portion of their water requirements at off-peak times. Local watermains within the Plan area may need to be altered depending on local factors.

3.7.4 Waste

Ballyogan Landfill Facility and Recycling Park is situated to the south of the Plan area. Ballyogan operated as a landfill until March 2005 when the principal activity shifted to the Baling Station where waste was baled and transported off-site for disposal at Arthurstown Landfill, Kill, Co. Kildare. Recycling facilities are provided for members of the public at the Civic Recycling Facility (CRF) within the Recycling Park, under the operation of Greenstar.

3.7.5 Vehicular Circulation

The Sandyford area is well serviced by a network of various transportation modes including a good network of public transport.

The M50 abuts the southern boundary and the N11 lies in to the east, in close proximity. A number of bus routes serve the area.

The Green Luas line runs along the northern Plan boundary. Sandyford Luas stop has recently been upgraded to facilitate the operation of the Luas Green Line extension to Cherrywood.

A Transportation Strategy has been drawn up for the Plan area. The Strategy summarises the conclusions and key elements proposed by previous studies carried out for Sandyford and outlines in detail the methodology, analysis and conclusions drawn from the most recent study work by the Transportation Department. The current proposals and progress made to date with their implementation are also detailed. The overall process was intended to inform the development of the Sandyford Urban Framework Plan.

Proposals include a quality bus corridor within the Plan area which will further increase access to sustainable transport for the area. It is noted that the Luas line which is marked as being "under construction" has been completed and is now open.

3.7.6 Existing Problems

The waste water treatment plant at Ringsend is operating currently operating at capacity and water quality in the Bay is of a relatively high standard, illustrated by the Blue Flag award held by Dollymount beach (2010).

3.8 Air and Climatic Factors

3.8.1 Ambient Air Quality

In order to protect human health, vegetation and ecosystems, EU Directives set down air quality standards in Ireland and the other Member States for a wide variety of pollutants. The EU Directives include details regarding how ambient air quality should be monitored, assessed and managed.

Dún Laoghaire Rathdown County Council have adopted "The Air Quality Management Plan for the Dublin Region, 2008-2010" under the provisions of the Air Pollution Act.

In order to comply with the directives mentioned above, the EPA measures the levels of a number of atmospheric pollutants. For the purposes of monitoring in Ireland, four zones are defined in the Air Quality Standards Regulations 2002 (SI No. 271 of 2002). The main areas defined in each zone are:

- Zone A: Dublin Conurbation.
- Zone B: Cork Conurbation.
- Zone C: 21 Other cities and large towns comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Sandymount, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee and Dundalk.
- Zone D: Rural Ireland, i.e. the remainder of the State - small towns and rural areas of the country - excluding Zones A, B and C.

The Plan area falls within Zone A, as mapped below. In this area, Zone A is also a Coal Restricted Area. Zone D is visible in the south west of the Plan area. Air quality in both Zone A and Zone D is currently good.

Two air quality monitoring sites are visible on the map below, an old site at Pottery Road and a current monitoring site Glenegeary Road.

3.8.2 Potential Point Sources of Emissions to Air

3.8.2.1 IPPC Licensed Facilities

There is one IPPC licensed facility in the Plan area and two to the east. Within the Plan area, Flight Group Ltd. is licensed for the manufacture or use of coating materials in processes with a capacity to make or use at least 10 tonnes per year of organic solvents, and powder coating manufacture with a capacity to produce at least 50 tonnes per year.

3.8.3 Noise

Noise is unwanted sound. It can seriously harm human health and interfere with daily activities at school, at work, at home and during leisure time. Areas within the Plan area which are commonly affected by noise are urban areas and areas along roadsides.

Generally, the main noise source in the Plan area is from traffic. Streets in low lying areas that have high traffic counts as well as enclosing taller buildings are likely to have harsh sensory environments with regard to noise levels with regard to this source. As mentioned below, traffic hotspots, such as intersections, are likely to have higher noise levels.

Traffic noise alone is harming today the health of almost every third European³. *Traffic hotspots* are likely to have elevated levels of air pollution and noise due to traffic congestion compared to surrounding rural areas. These hotspots are located along the main road routes - especially at intersections - and provide for a harsh sensory environment which may impact upon human health.

³ World Health Organization Regional Office for Europe (2003) *Technical meeting on exposure-response relationships of noise on health 19-21 September 2002* Bonn, Germany Bonn: WHO

3.8.3.1 Noise Mapping

As required by the EU Directive 2002/49/EC relating to The Assessment and Management of Environmental Noise, (known as the 'END' Directive) which was transposed into Irish law by the Environmental Noise Regulations, SI number 140 of 2006, an Action Plan was drafted in July 2008.

The Action Plan is aimed at managing Environmental Noise and was prepared jointly by all of the four local authorities in the Dublin Agglomeration: Dublin City Council, Fingal County Council, South Dublin County Council and Dún Laoghaire-Rathdown County Council, being the designated authorities under article 7 of the Environmental Noise Regulations 2006 to do so.

Noise mapping was required to be carried out as part of the Action Plan. The 'Noise Maps' show colour coded areas in the Dublin Agglomeration based on sound levels, in 5 bands. These rise in 5 decibels. The Night time band starts at 50 decibels and the 24 Hour band starts at 55 decibels.

The EU Directive and the Irish regulations do not give an indication as to what level of 'noise' is acceptable. This is left to each member state. At this point in time, Ireland does not have any statutory limit values, as is the case for air pollution.

3.8.4 Climatic Factors

3.8.4.1 Climate Change

In order to reduce greenhouse gas emissions the internationally agreed Kyoto Protocol established emissions reduction targets for developing countries. Ireland's emission target for greenhouse gases is to limit the increase in their combined emissions during the five-year period 2008-2012 to 13 per cent above 1990 levels.

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. The release of greenhouse gases into the atmosphere as a result of human activities adds to natural climate variability by increasing the naturally occurring greenhouse effect. This greenhouse effect occurs in the atmosphere and is caused by greenhouse gases which exist naturally in the atmosphere. The greenhouse gases retain the radiation which is released from the earth as a result of heating by the sun. This retention maintains a global temperature which is suitable for ecosystems and life.

Climate change is not limited to changes in temperatures or weather - it can also mean changes in the occurrence of extreme and unstable weather conditions, storms and floods, droughts and coastal erosion.

3.8.4.2 Potential Effects of Changed Climate

The EPA's 'Climate Change: Regional Climate Model Predictions for Ireland' (2005)⁴ report provides an analysis of future Irish climate conditions for the period 2021-2060 based on the outputs from a new regional climate modelling facility located in Met Éireann.

As increased temperatures will lead to greater amounts of water vapour in the atmosphere and an accelerated global water cycle, it is reasonable to expect that river catchment areas will be exposed to a greater risk of flooding. The increase in winter precipitation will be likely to produce a significant increase in the more intense discharge episodes, raising the risk of future flooding.

The report identifies that although it is not possible to comment on changes in flood magnitude and frequency, the increase in winter runoff indicated for many parts of the west of the country, especially under the scenario for the period 2061-2090, is likely to have significant implications. River flooding tends to be more common during the wetter winter months when soils are near saturation and can be exacerbated in coastal areas when interactions occur between high tides and high flows. Many of the rivers draining upland areas have a rapid or "flashy" response to rainfall enhanced by rising topography.

⁴ Community Climate Change Consortium for Ireland (2005) *Environmental RTDI Programme 2000-2006 Climate Change: Regional Climate Model Predictions for Ireland (2001-CD-C4-M2) Final Report* Wexford: Environmental Protection Agency

Steep slopes and thin soils favour rapid flow pathways and water is rapidly transmitted to the channel network especially in urbanised catchments with extensive areas of impermeable surfaces.

3.8.5 Existing Problems

Traffic hotspots within the Plan area are likely to have elevated levels of air pollution and noise due to traffic congestion.

Localised air pollution incidences with regard to PM10 and PM2.5 and noise pollution are both likely to occur when demolition/construction takes place - especially in relation to PM10 if suppression techniques are not introduced - and when traffic is queuing for long periods of time.

Ireland's current emissions are exceeding targets agreed in the peer review of Ireland's 2006 submission to the United Nations Framework Convention on Climate Change. It is unlikely that Ireland will meet these targets and it is likely therefore that financial penalties will be incurred. Transport related emissions continue to be the dominant growth sector.

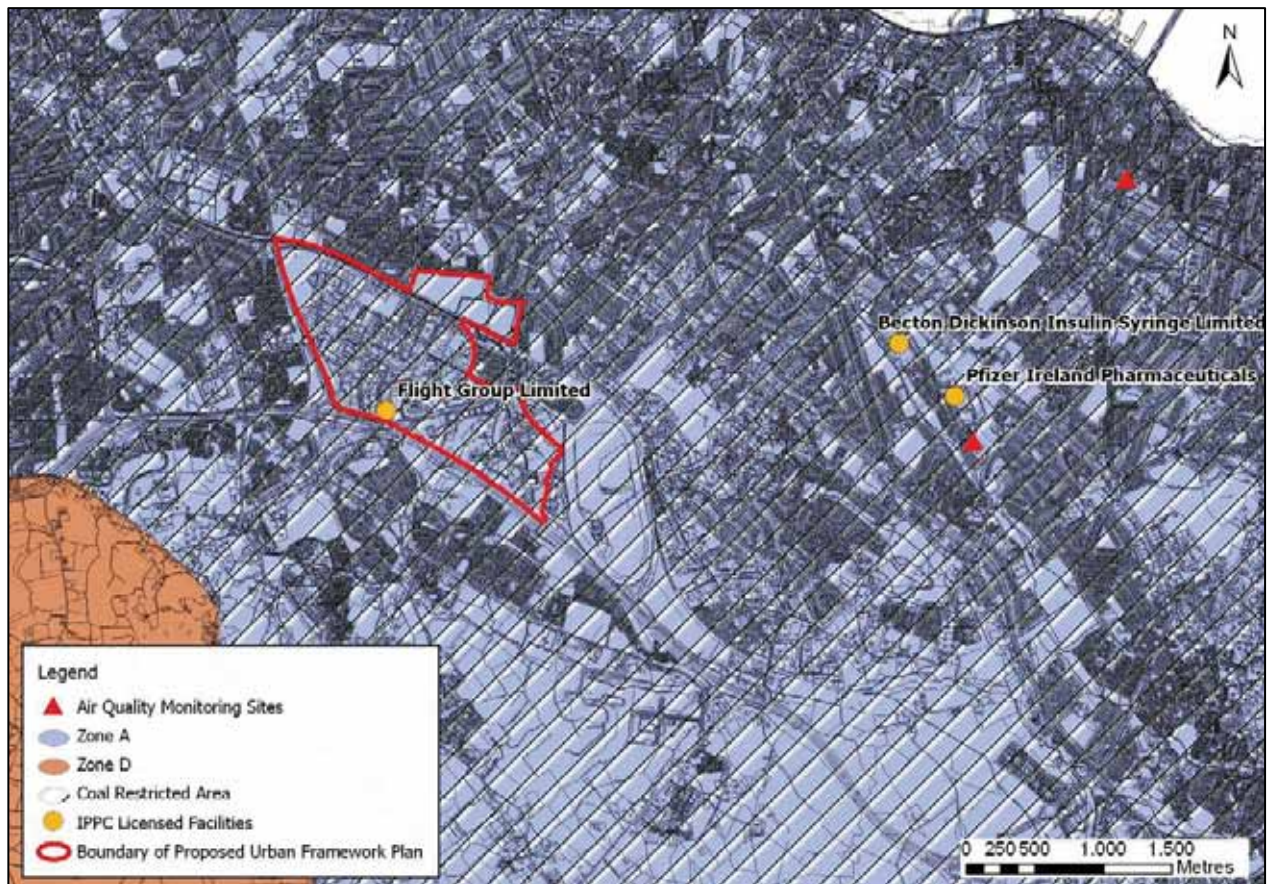


Figure 3.1 Air Quality Zones, Monitoring Sites, Coal Restriction Areas and IPPC licenses

Source: EPA (2009)

3.9 Cultural Heritage

3.9.1 Introduction

Heritage, by definition, means inherited properties, inherited characteristics and anything transmitted by past ages and ancestors. It covers everything, from objects and buildings to the environment. Cultural heritage includes physical buildings, structures and objects, complete or in part, which have been left on the landscape by previous and indeed current generations.

3.9.1.1 Record of Monuments and Places

The term 'monument' includes all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes. All monuments in existence before 1700 A.D. are automatically considered to be historic monuments within the meaning of the Acts.

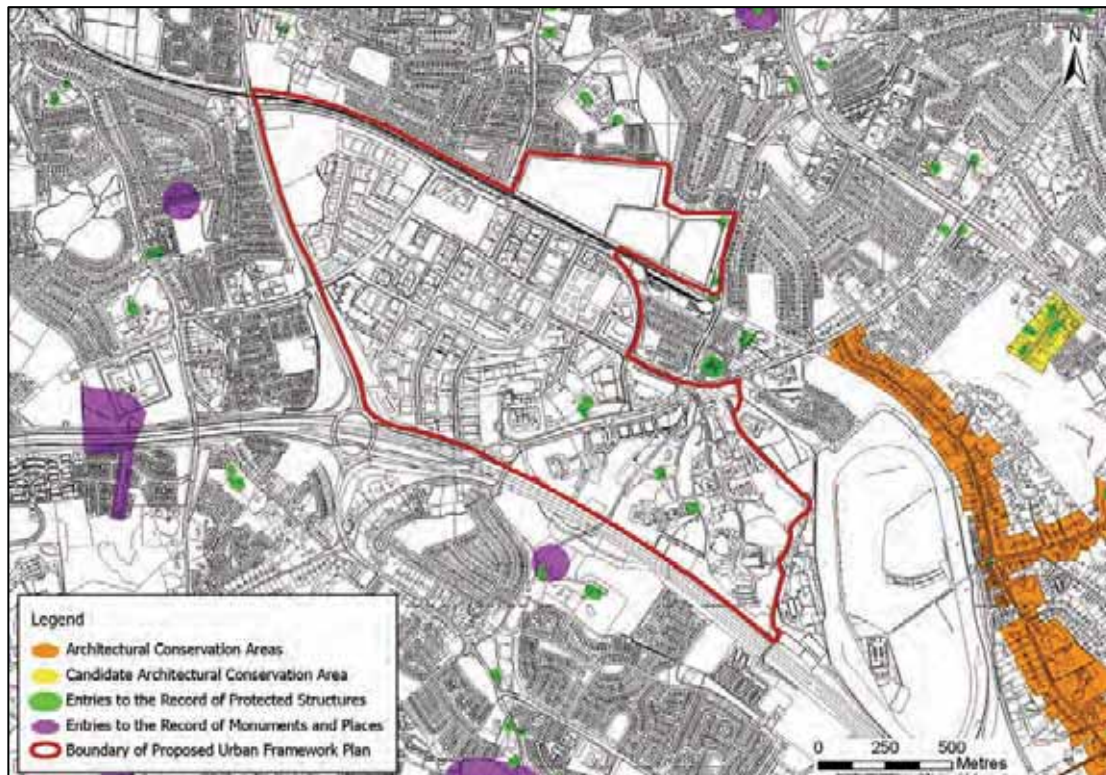
A church and a graveyard lie to the north of the Plan area. In the Townland of Murphystown to the south of the Plan area there is a Fulacht Fia, burial ground and a castle. The location of these monuments is mapped below.

3.9.1.2 Record of Protected Structures

Protected Structures are defined as structures, or parts of structures that are of special interest from an architectural, historical, archaeological, artistic, cultural, scientific, social or technical point of view. Structures listed on the Record of Protected structures are mapped below, there are five structures within the Plan area and a number in the vicinity.

3.9.2 Existing Environmental Problems

Threats to cultural heritage might include the cumulative accommodation of large scale development in the Plan area, development which involves material alteration or additions to protected structures, brownfield development and development on sites adjoining protected monuments, places or structures.



Entries to the Record of Monuments and Places, Entries to the Record of Protected Structures and Architectural Conservation Areas

Source: DLRCDP (2010-2016)

3.10 Landscape

3.10.1 Introduction

The landscape of the Plan area is mostly urban interspersed with a number of open spaces. It is a fairly level area comprising six very separate areas with distinctly different built forms that are at different stages of development. The east of the Plan area is less built-up than the Business and Industrial Estates in the west of the Plan area. Lands to the south of the Plan area begin to rise into the uplands.

3.10.2 Landscape Character Areas

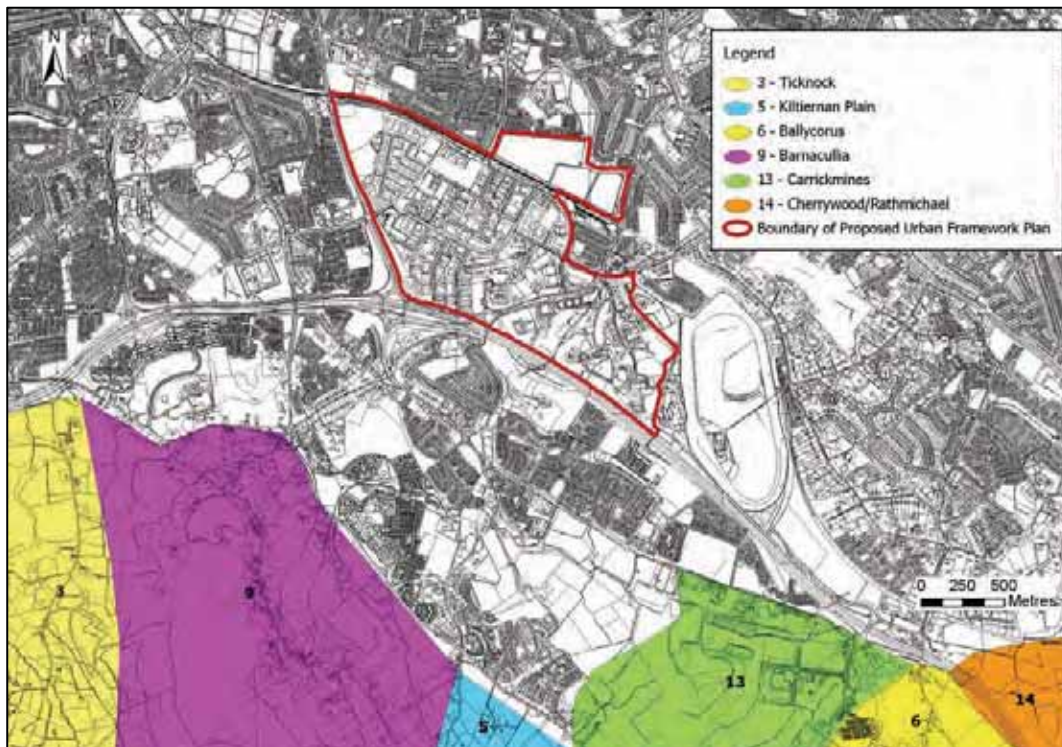
The Landscape Character Assessment for Dún Laoghaire-Rathdown divides the County into thirteen Landscape Character Areas. A description of each Landscape Character Area and principles for development for each are detailed. Landscape Character Areas lying to the south of Sandyford are Ticknock Road, Kiltiernan Plain, Ballychorus, Barnacullia, Carrickmines, Cherrywood/Rathmichael. These are visible on the following map.

3.10.3 High Amenity Zones

These areas consist of landscapes of special value where inappropriate development would contribute to a significant diminution of the landscape setting of the Plan area. These areas include the Glencullen Valley, Glendoo Valley and Kilmashogue Valley. The areas adjacent to the High Amenity areas are also sensitive landscapes as development in these areas may affect directly or indirectly the quality of the High Amenity areas. A High Amenity Area lies to the south west of the Plan area.

3.10.4 Existing Landscape Problems

There are no current issues relating to Landscape in Sandyford. There are no landscape units, views or prospects which have a recognised county, national, European Union, international protection status within or adjacent to the area.



Landscape Character Areas

Source: DLRCDP (2010-2016)

3.11 Strategic Environmental Objectives

Based on an understanding of the existing environment a number of Strategic Environmental Objectives (SEOs) were developed in order to facilitate the evaluation of the Variation and its alternatives and provisions. Strategic Environmental Objectives (SEOs) are methodological measures which are developed from international, national, regional and county policies which generally govern environmental protection objectives and against which the environmental effects of the Variation and the alternatives can be tested. The SEOs are used as standards against which the provisions of the Variation can be evaluated in order to help identify areas in which significant adverse impacts are likely to occur, if unmitigated against.

SEO Topic	SEO
Biodiversity and Flora and Fauna	To ensure compliance with the Habitats Directive with regard to the protection of Natura 2000 Sites and habitats and species listed under Annexes I and II of the Directive
Biodiversity and Flora and Fauna	To ensure compliance with Article 10 of the Habitats Directive with regard to the protection of corridors and areas of habitat which are important at the local Sandyford level for wild fauna and flora and essential for the migration, dispersal and genetic exchange of wild species
Human Health	To protect human health from hazards or nuisances arising from exposure to incompatible landuses
Brownfield Development	Maximise the sustainable re-use of brownfield lands, and maximise the use of the existing built environment rather than developing greenfield lands
Surface Water Status	To maintain and improve, where possible, the status of surface waters
Ground Water Status	To prevent pollution and contamination of ground water
Flood Risk	To manage areas that are currently at risk of flooding or are likely to pose a significant flood risk in the future
Waste Water Treatment	To serve new development with appropriate waste water treatment
Drinking Water Provision	To serve new development with drinking water that is both wholesome and clean
Transport related Emissions	To reduce travel related greenhouse emissions to air
Transport Mode	To encourage modal change from car to more sustainable forms of transport
Archaeological Heritage	To protect the archaeological heritage of the Variation lands including entries to the Record of Monuments and Places and/or their context
Architectural Heritage	To preserve and protect the special interest and character of the architectural heritage of the Variation lands
Landscape	To minimise significant adverse impacts on the landscape, especially with regard to the views and amenity of existing developments within and adjacent to the Variation lands

Section 4 Alternative Scenarios

4.1 Description of the Alternative Plan Scenarios

One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative scenarios for accommodating future growth at the Variation lands in Sandyford.

4.1.1 Alternative Scenario 1: *Do Nothing (Retention of Current CDP Provisions)*

Alternative Scenario 1: *Do Nothing* (see Figure 4.1) involves the retention of the current Dún Laoghaire-Rathdown County Development Plan (CDP) 2010-2016 provisions. There is a requirement in the CDP to prepare an Urban Framework Plan for Sandyford however there is no requirement to vary the CDP to include such a Plan, therefore this is a realistic alternative.

The current CDP generally provides for an E-Zoning Objective - 'To provide for economic development and employment' - across the Variation lands, including the Sandyford Business Estate.

The CDP also provides for smaller areas of 'A' Zoning - 'To protect and/or improve residential amenity' - and 'F' Zoning - 'To preserve and provide for open space with ancillary active recreational amenities' - at the Variation lands.

4.1.2 Alternative Scenario 2: *Draft Sandyford Urban Framework Plan 2007*

Alternative Scenario 2: *Draft Sandyford Urban Framework Plan 2007* (see Figure 4.2) involves the making of a Variation to the County Development Plan which consists of a Draft Sandyford Urban Framework Plan which was prepared in July 2007.

The 2007 Draft Urban Framework Plan provides for edge/peripheral development which is significantly greater than Scenarios 1 or 3, and:

- Identifies central focal points (hearts) in order to achieve a sense of place;
- Incorporates existing permitted and constructed development;
- Seeks to enhance the overall physical environment of the Sandyford Business Estate;
- Seeks to achieve an urban form and improve the legibility of the Sandyford Business Estate; and,
- Provides for planned public open space.

The 2007 Urban Framework Plan includes an approach to building height with central areas having a benchmark height of 8 storeys (with 1 additional storey of occupied roof space) and other areas having a benchmark height of 6 storeys (with 1 additional storey of occupied roof space). Along the edges of the scenario area and along streets within, building height is either 8 storeys (with 2 additional storeys of occupied roof space) or 6 storeys (with 1 additional storey of occupied roof space). This scenario includes:

- 1 central regional landmark building up to 32 storeys;
- 5 district landmark buildings up to 24 storeys;
- 9 district landmark buildings up to 18 storeys; and,
- 11 local landmark buildings up to 14 storeys.

4.1.3 Alternative Scenario 3: *Centred Development (Variation No. 2 [Sandyford Urban Framework Plan])*

Alternative Scenario 3: *Centred Development* (see Figure 4.3) provides for the direction of the greatest extent of development towards the centre of the existing built up Sandyford Business Estate, in close proximity to the area's Luas transport node. It identifies a quantum of development for the Sandyford area having regard to potential infrastructure constraints, the realistic capacity to address these constraints and the likely costs associated with same. Particular attention is given to the areas of transport infrastructure, water and drainage services, social infrastructure, (including educational facilities) and recreation/amenity facilities.

Scenario 3 provides a relatively fine-grain analysis and guidance on densities, plot ratios and quantum of development to be accommodated into the future on a site-by-site basis.

This Scenario proposes building height limits that have been established through an assessment of location and character of an area and proposed land use. The proposed building height limit generally ranges from 6 storeys to 3 storeys along Blackthorn Avenue and within the centre of the Plan area, with a limit of 9 storeys proposed for one plot within the centre and heights up to 17 stories proposed for other plots. Proposed height limits along the edges of the Plan area generally range from 2 to 3 storeys. The scenario allows for the design of buildings or elements of buildings to exceed the building height limit at one location.

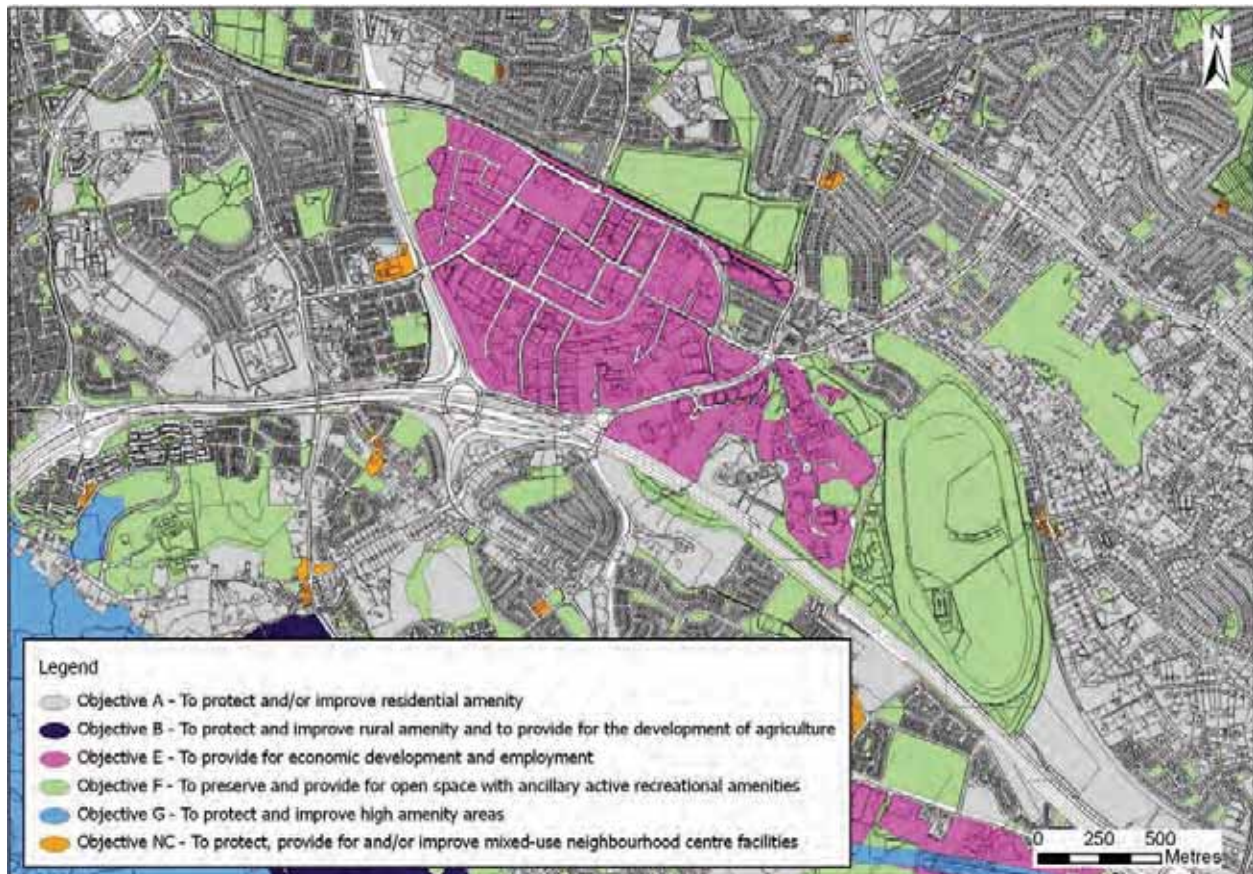


Figure 4.1 Alternative Scenario 1: *Do Nothing (Retention of Current CDP Provisions)*

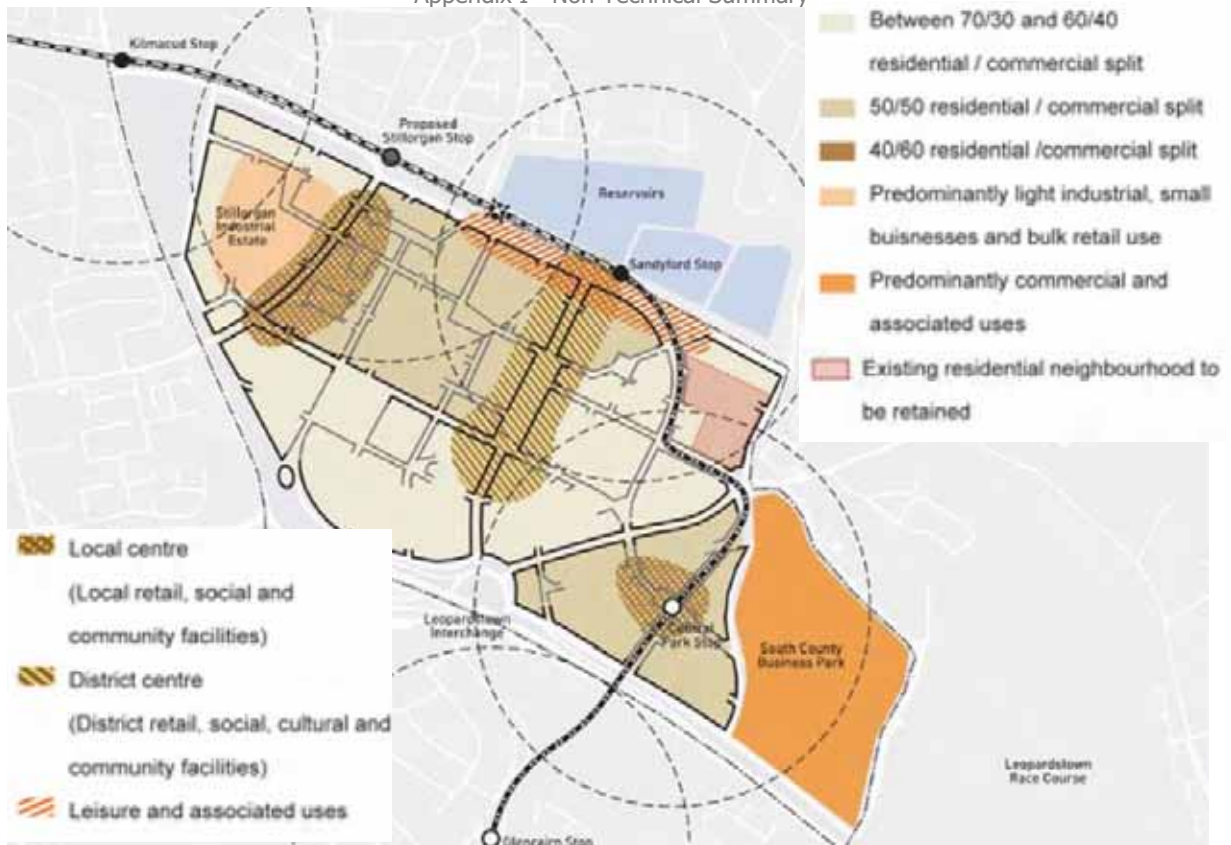


Figure 4.2 Alternative Scenario 2: Draft Sandyford Urban Framework Plan 2007

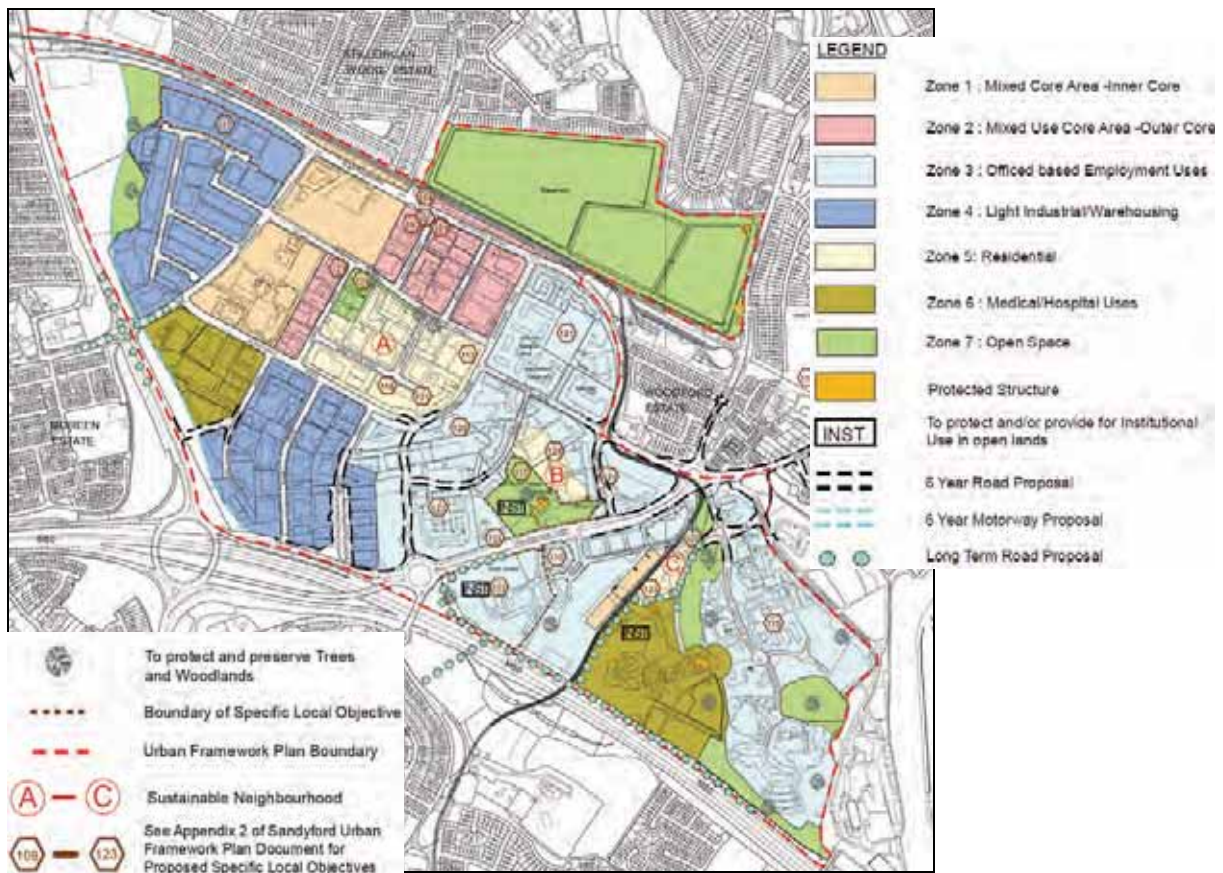


Figure 4.3 Alternative Scenario 3: Centred Development (Variation No. 2 [Sandyford Urban Framework Plan])

4.2 Evaluation of the Alternative Scenarios

4.2.1 Methodology

This section summarises the evaluation of the Alternative Scenarios which is found in Section 7 of the Environmental Report. Scenarios are evaluated in a succinct and focused way for both planning and environmental impacts against both the existing environment and the Strategic Environmental Objectives (both of which are summarised within Section 3).

4.2.2 Alternative Scenario 1: *Do Nothing (Retention of Current CDP Provisions)*

4.2.2.1 Environmental Effects

Smarter Travel Effects

The current CDP generally provides for an E-Zoning Objective - 'To provide for economic development and employment' - across the Variation lands, new developments will be located within this area, subject to market demand. Sites around the edge of the E-Zoned area would be more likely to be developed as there would be no specific direction within this area and development would be market-led. Also, the assessment of individual planning applications on a site by site basis would be likely to lead to an extent of fragmented developments which lack connectivity.

Consequently, maximising the uptake in smarter, more sustainable modes of transport would be significantly less likely to be achieved than would be the case under Scenario 3 *Centred Development*. Maximising this uptake would contribute towards the protection of human health (air and noise) and help to minimise:

- energy usage for transport;
- travel related emissions to air; and,
- increases in car dependency.

Positive effects would occur nonetheless, to an extent; some of the new development in Sandyford could better utilise sustainable transport modes than development located within the more rural parts of the County or in other suburbs.

Water and Drainage Services Effects

Unlike Scenario 3, Scenario 1 would not provide for the consideration of infrastructural capacity needs for the Sandyford area as a whole with capacity needs being considered on an application by application basis therefore making the occurrence of capacity exceedences or deficiencies more likely.

Any exceedences in abstractions of water which would compromise the ability of water bodies to meet legislative requirements and any exceedences in water services and drainage infrastructure capacity could affect water resources and biodiversity and flora and fauna beyond the Variation lands.

Local Habitats, Open Space and Existing Residential Areas

There would be potential for adverse effects on local habitats however an amount of protection would be provided through the F Zoning Objective - 'To preserve and provide for open space with ancillary active recreational amenities' - which applies to most of such areas.

Existing residential and open space areas would be likely to largely remain unchanged due to the application of A Zoning - 'To protect and/or improve residential amenity' - and F Zoning - 'To preserve

and provide for open space with ancillary active recreational amenities' at these lands. Depending on the height of new buildings which are developed, residential amenity could be impacted upon.

Other Effects

The construction of individual/multiple developments has the potential to give rise to significant adverse effects on architectural heritage, archaeological heritage, water resources and human health (air and noise) within or adjacent to the Variation lands.

4.2.2.2 Planning Effects

Pro's

- General E-Zoning: 'To provide for economic development and employment', will remain on the majority of the lands within the Sandyford Business Estates.

Constraints

- No consideration or assessment of the transboundary effects of individual or groups of projects within the Sandyford Business Estate on the rest of the County in terms of environmental impacts arising from the development of individual or groups of sites as well as economic, social and infrastructural impacts.
- No current or future quantum of development calculated making it difficult to plan for the provision of infrastructure, especially social infrastructure (open space, education facilities etc.) - development is therefore not planned in tandem with vital infrastructure.
- Development would be market/developer led and not plan led.
- No vision or clarity with regard to a future goal for the development of the Sandyford Business Estates, which leads to an uncertain future and in turn, a lack of market confidence in the area. This may discourage future investment in the Sandyford Business Estates.
- No guidance with regard to the scale and form of future development.
- Development will continue to be assessed on a site by site basis, leading to isolated fragmented developments which lack connectivity and fail to provide a clear legible urban structure.

4.2.3 Alternative Scenario 2: *Draft Sandyford Urban Framework Plan 2007*

4.2.3.1 Environmental Effects

Smarter Travel Effects

This Scenario provides for edge/peripheral development which is significantly greater than Scenarios 1 and 3. Led by the market, the peripheral sites, away from public transport nodes, would be likely to be developed. Trip generation by private car would be likely to increase, placing more strain on existing road infrastructure including the M50 Motorway. Consequently, maximising the uptake in smarter, more sustainable modes of transport would be significantly less likely to be achieved than would be the case under Scenario 3 *Centred Development*. Maximising this uptake would contribute towards the protection of human health (air and noise) and help to minimise:

- energy usage for transport;
- travel related emissions to air; and,
- increases in car dependency.

Positive effects would occur nonetheless, as other provisions of this Scenario seek to enhance the physical environment of the Business Estate for cyclists and pedestrians as well as improving the legibility of the Estate and incorporating permitted and constructed development. Arising from this, the scenario could contribute towards efforts to maximising the uptake in smarter, more sustainable modes of transport and associated effects.

Water and Drainage Services Effects

Unlike Scenario 3, Scenario 2 would not provide for the consideration of infrastructural capacity needs for the Sandyford area as a whole with capacity needs being considered on an application by application basis therefore making the occurrence of capacity exceedences or deficiencies more likely.

Any exceedences in abstractions of water which would compromise the ability of water bodies to meet legislative requirements and any exceedences in water services and drainage infrastructure capacity could affect water resources and biodiversity and flora and fauna beyond the Variation lands.

Local Habitats, Open Space and Existing Residential Areas

Under this Scenario, along the edges of the Variation area and along streets within, building height is either 8 storeys (with 2 additional storeys of occupied roof space) or 6 storeys (with 1 additional storey of occupied roof space) while a number of landmark buildings are provided for, the largest of which is to 32 storeys. This approach to building height would be likely to result in adverse residual impacts upon residential amenity within and adjacent to the Variation lands. The approach would also be likely to affect the skyline of the wider City.

This scenario would provide for planned public open space although new development at the periphery of the Variation area would have the potential to adversely affect local habitats and result in losses to open space.

4.2.3.2 Planning Effects

Pro's

- The Plan is specific to the area.
- Presents a vision for the future development of the area therefore providing certainty and market confidence in the future of the Sandyford Business Estates.
- Identifies central focal points (hearts) in order to achieve a sense of place.
- Existing permitted and constructed development has been incorporated into the Plan.
- Seeks to enhance the overall physical environment of the Sandyford Business Estate for residents, workers, visitors, cyclists and pedestrians.
- Seeks to achieve an urban form and improve the legibility of the Sandyford Business Estate.
- Provides for planned public open space.

Constraints -

- No consideration or assessment of the transboundary effects of individual or groups of projects within the Sandyford Business Estate on the rest of the County in terms of environmental impacts arising from the development of individual or groups of sites as well as economic, social and infrastructural impacts.
- No current or future quantum of development calculated making it difficult to plan for the provision of infrastructure especially social infrastructure (open space, education facilities etc.).
- No existing infrastructural constraints assessment or assessment of future infrastructural needs.
- Details of the plan are not site specific and would be difficult to implement at Development Management Stage.
- No clear rationale with regard to the proposed layout of the plan area.
- No definition with regard to meaning of 'mixed use' development or 'commercial' development. Proposed vision may result in the over dilution of the industrial function of the Sandyford Business Estate.
- Open space identified does not address the issue of deliverability.

4.2.4 Alternative Scenario 3: *Centred Development (Variation No. 2 [Sandyford Urban Framework Plan])*

4.2.4.1 Environmental Effects

Smarter Travel Effects

This scenario provides for the direction of the greatest proportion of development towards the centre of the existing built up Sandyford Business Estate, in close proximity to the area's Luas transport node. The Luas line currently serves populations between Sandyford and St. Stephen's Green in the city centre and is being extended to serve populations between Sandyford and Cherrywood/Bride's Glen.

This Scenario also seeks to enhance the physical environment of the Business Estate for cyclists and pedestrians as well as improving the legibility of the Estate and incorporating permitted and constructed development. Consequently, this Scenario would be likely to - on both a local and county level - contribute towards and significantly beneficially affect:

- the achievement of a modal change towards smarter travel;
- increasing the proportion of the population travelling by public transport or cycling or walking;
- avoiding unnecessary use of the capacity of the M50 Motorway;
- minimising energy usage for transport;
- minimising travel related emissions to air;
- reducing increases in car dependency; and,
- protecting human health (air and noise).

Water and Drainage Services Effects

Scenario 3 would provide for the consideration of infrastructural capacity needs for the Sandyford area as a whole therefore making the occurrence of capacity exceedences or deficiencies less likely.

Any exceedences in abstractions of water which would compromise the ability of water bodies to meet legislative requirements and any exceedences in water services and drainage infrastructure capacity could affect water resources and biodiversity and flora and fauna beyond the Variation lands. However, such exceedences would be least likely under this Scenario.

Local Habitats, Open Space and Existing Residential Areas

This scenario would contribute towards the protection of residential amenity by:

- Directing most development towards the existing built up Sandyford Business Estate and towards the centre of this area; and,
- Proposing building height limits that have been established through an assessment of location, character and proposed land use, with limits along the edges of the Plan area generally ranging from 2 to 3 storeys.

This scenario preserves a route corridor for the Dublin Eastern Bypass in the north west of the Variation area at the parklands at St. Benildus. Development of the Bypass through the corridor would lead to a significant loss of open space.

This scenario positively impacts upon the provision of open space by zoning lands at South County Business Park and the Burton Hall Campus as Open Space; these locations would be zoned under Scenario 1 - *Do Nothing (Retention of Current CDP Provisions)* with objectives that could be more likely to favour new built development.

Local habitats would be generally protected under this Scenario through:

- the direction of the greatest extent of development towards sites within – and closest to the centre of - the existing, built up Sandyford Business Estate area; and,

- the application of Open Space zoning objectives and local habitat protection objectives.

Other Effects

The construction of individual/multiple developments has the potential to give rise to significant adverse effects on architectural heritage, archaeological heritage, water resources and human health (air and noise) within or adjacent to the Variation lands.

4.2.4.2 Planning Effects

Pro's

- The plan accords with National and Regional policies and guidelines.
- The plan accords with the hierarchies set out in the County Development Plan.
- The plan takes cognisance of the setting of the area and the existing built form.
- The plan provides clarity on the future form and role of the area.
- The plan provides clear policies and objectives on land uses that are specific to the future growth of the area
- The plan has been informed by detailed studies of infrastructure capacities so as to ensure that the area has the capacity to carry the level of development proposed.
- The infrastructure being proposed has been identified having taken into consideration best return for investment.
- The plan provides clear policies and objectives in regard to the future density of developments
- The plan provides clear policies and objectives on building height
- The phasing in the plan ensures the delivery of infrastructure in tandem with development
- The plan accords with the policies of sustainable development and provides for the coherent development of the area.
- The plan is based on a clear rationale that facilitates the review of the plan and its implementation.

Constraints

- The phasing of the plan will require co-operation from a number of landowners so as to be efficiently implemented.

4.3 The Selected Alternative Development Scenario

The Alternatives that were examined were produced and evaluated at an earlier - more embryonic - stage to facilitate the evaluation and selection of a Plan - having regard, *inter alia* to environmental consequences. The Alternative Scenario for the Variation which emerged from the Variation preparation process is Scenario 3 – this Scenario contributes towards the protection of the environment and conforms with high level planning objectives.

By complying with appropriate mitigation measures - including those which have been integrated into the Variation and those which are already in force through the existing County Development Plan - potential adverse environmental effects which could arise as a result of implementing this scenario would be likely to be avoided, reduced or offset.

Alternative Scenario 3 was chosen to be developed for the Variation by the planning team and put on public display and adopted by the Elected Members having regard to both:

1. The environmental effects which were identified by the Strategic Environmental Assessment; and,
2. Planning - including social and economic - effects.

Section 8 of the Environmental Report evaluates the policies and objectives which have been prepared to realise Scenario 3 (the selected Variation Scenario).

Section 5 Mitigation and Monitoring Measures

5.1 Mitigation

Mitigation measures are measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse impacts on the environment of implementing the Variation. Mitigation involves ameliorating significant negative effects. Where there are significant negative effects, consideration is given in the first instance to preventing such effects or, where this is not possible for stated reasons, to lessening or offsetting those effects. Mitigation measures can be roughly divided into those that: *avoid* effects; *reduce* the magnitude or extent, probability and/or severity of effects; *repair* effects after they have occurred, and; *compensate* for effects, balancing out negative impacts with other positive ones.

Likely significant beneficial effects of implementing the Variation have been and will be maximised and potential adverse effects have been and will be avoided, reduced or offset through:

- The consideration of alternatives for the Variation;
- Adherence to measures which have been integrated into the Variation; and,
- Adherence to relevant mitigation measures which are currently in force through the existing County Development Plan.

Overleaf is a summary table outlining how likely significant effects (if unmitigated) are linked to relevant mitigation measure(s) - which have been integrated into the Variation or which are already in force under the existing County Development Plan (CDP) (Policy LHB27) - and indicator(s) which will be used for monitoring.

5.2 Monitoring

The SEA Directive requires that the significant environmental effects of the implementation of plans and programmes are monitored. The Environmental Report puts forward proposals for monitoring the likely significant environmental effects of implementing the Variation. Monitoring enables, at an early stage, the identification of unforeseen adverse effects and the undertaking of appropriate remedial action. In addition to this, monitoring can also play an important role in assessing whether the Variation of the CDP is achieving environmental objectives and targets - measures which the Variation can help work towards - whether these need to be re-examined and whether the proposed mitigation measures are being implemented.

The Environmental Report identifies indicators - which allow quantitative measures of trends and progress in the environment over time. The indicators used are either the same or similar to those which are being used for monitoring the existing CDP.

A preliminary monitoring evaluation report on the effects of implementing the CDP is to be prepared to coincide with the Manager's report to the elected members on the progress achieved in securing CDP objectives within two years of the making of the plan (this Manager's report is required under section 15 of the Planning and Development Act 2000 as amended). This report should address the indicators set out below for the Sandyford Urban Framework Plan area to which the Variation relates.

The following summary table shows indicators⁵ which were selected for monitoring the various environmental components. Also identified on the table are the likely significant effects - if unmitigated - and corresponding mitigation measures.

⁵ Note that indicators are linked to the SEOs identified in Section 4 of the Environmental Report and they share the same codes e.g. SEO B1 is linked to Indicator B1.

Table 5.1 SEA Summary Table: Likely Significant Effects, Mitigation Measures and Indicators for Monitoring

No.	Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from Variation/the CDP	Primary Indicator(s) for Monitoring
1.	Increases in travel related greenhouse gas emissions, increases in car dependency, increases in transport related air and noise emissions - which relates to human health	<p>Integrated into the Variation:</p> <ul style="list-style-type: none"> • Overall strategy/provisions adopted by the SUIP • Height Policy SUIP3 and Objectives BH1, BH2 and BH3 • Public Realm Policy SUIP 4 and Objectives PR1, PR2, PR3, PR5, PR6, PR7 and PR8 • Way Finding Policy SUIP 5 and Objectives WF1, WF2 and WF3 • Infrastructure Policy SUIP6 • Multi Modal Transport Infrastructure Policy SUIP7 and Objectives TAM1 to TAM12, TAM14, TAM19 and TAM21 • Density Policy SUIP2 and Objectives DS1 to DS4 • Various Community Infrastructure provisions, including those relating to open space, community facilities and education • Phasing Objectives P1 and P6 • Funding Policy SUIP13 and Objective M1 • Specific Local Objectives 109 to 114 and 116 to 121 <p>Existing under CDP Policy LHB27:</p> <ul style="list-style-type: none"> • Transportation I 	<p>C1: Percentage of population working within the Variation lands travelling to work by public transport or non-mechanical means</p> <p>HH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors as identified by the Health Service Executive and Environmental Protection Agency</p>

No.	Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from Variation/the CDP	Primary Indicator(s) for Monitoring
2.	<p>Inadequate waste water treatment for new populations, inadequate drinking water supply for new populations, reduction in drinking water quality which would present a potential danger to human health. Consequent potential impacts upon biodiversity and the quality of water bodies.</p>	<p>Integrated into the Variation:</p> <ul style="list-style-type: none"> • Infrastructure Policy SUFF6 • Foul Drainage Objectives FD1 to FD3 • Water Supply Objectives WS1 & WS2 • Phasing Objectives P7 and P8 <p>Existing under CDP Policy LHB27:</p> <ul style="list-style-type: none"> • Waste Water I • Waste Water II • Waste Water III • Drinking Water I • Drinking Water II 	<p>M1i: Number of new developments granted permission which can be adequately served with waste water treatment over the lifetime of the County Development Plan</p> <p>M1ii: Preparation of a Water Services Strategic Plan - in compliance with the Water Services Act - for the functional area of the Council, which includes the Variation lands</p> <p>M2i: Number of non-compliances with the 48 parameters identified in the European Communities (Drinking Water) Regulations (No. 2) 2007 which present a potential danger to human health</p> <p>M2ii⁶: Preparation of a Water Services Strategic Plan - in compliance with the Water Services Act - for the functional area of the Council, which includes the Variation lands</p>
3.	<p>Flooding - also related to human health</p>	<p>Integrated into the Variation:</p> <ul style="list-style-type: none"> • Infrastructure Policy SUFF6 • Surface Water Objectives SWD1 and SWD2 • Public Realm Objective PR10 <p>Existing under CDP Policy LHB27:</p> <ul style="list-style-type: none"> • Flooding III • Flooding IV • Flooding V <p>See also No. 4. overleaf.</p>	<p>W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk</p>

⁶ Indicator and Target M2i are the same as Indicator and Target M1

No.	Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from Variation/the CDP	Primary Indicator(s) for Monitoring
4.	Loss of open space; resulting in impacts upon local habitats, ecological connectivity, residential amenity, cultural heritage and it's setting and flood risk (also related to human health)	<p>Integrated into the Variation:</p> <ul style="list-style-type: none"> • Open Space Objective F - Zone 7 - and Objectives F1 to F6 • Open Space Policy SUFP8 and Objectives OS1 to OS4 • Public Realm Objectives PR8 and PR9 • Phasing Objective P1 • Specific Local Objectives 115 and 121 <p>Existing under CDP Policy LHB27:</p> <ul style="list-style-type: none"> • Landscape • Biodiversity and Flora and Fauna IV 	<p>B2: Percentage loss of functional connectivity to corridors and areas of habitat which are important at the local Sandyford level without remediation as a result of implementation of the Variation</p> <p>L1: Number of avoidable significant adverse impacts on the views and amenity of existing developments within and adjacent to the Variation lands</p> <p>CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential - (and their context of the above within the surrounding landscape where relevant) protected</p> <p>CH2i: Percentage of entries to the Record of Protected Structures (and/or their context within the surrounding landscape where relevant) protected</p> <p>CH2ii: Number of additions to the Record of Protected Structures and the number of additional ACAs</p> <p>W3: Number of incompatible developments granted permission on lands which pose - or are likely to pose in the future - a significant flood risk</p>
5.	Failure to maximise the sustainable reuse of brownfield lands	Overall strategy/provisions adopted by the SUFP	S1: Area of brownfield lands developed at the Variation lands over the lifespan of the County Development Plan
6.	Loss of biodiversity with regard to Natura 2000 Sites and habitats and species listed under Annexes I and II of the Directive	<p>Existing under CDP Policy LHB27:</p> <ul style="list-style-type: none"> • Biodiversity and Flora and Fauna I • Biodiversity and Flora and Fauna II • Biodiversity and Flora and Fauna III 	B1: Conservation status of habitats and species as assessed under Article 17 of the Habitats Directive

No.	Likely Significant Effect, if unmitigated	Mitigation Measure Reference(s) from Variation/the CDP	Primary Indicator(s) for Monitoring
7.	Spatially concentrated deterioration in human health arising from exposure to incompatible land uses	Existing under CDP Policy LHB27: <ul style="list-style-type: none"> • Soil and Contamination I • Air and Noise I • Air and Noise II • Waste Management I See also No. 1, 2, 3 and 4 previous and No. 8 overleaf.	HH1: Occurrence (any) of a spatially concentrated deterioration in human health arising from environmental factors as identified by the Health Service Executive and Environmental Protection Agency
8.	Adverse impacts upon the quality of water bodies (rivers, lakes, transitional waters, coastal, ground waters)	Existing under CDP Policy LHB27: <ul style="list-style-type: none"> • Water Protection I • Water Protection II • Water Protection IV • Bathing Water I • Bathing Water II See also No. 2 previous.	W1i: Classification of Overall Status (comprised of ecological and chemical status) under the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (SI No. 272 of 2009) W2: Groundwater Quality Standards and Threshold Values under Directive 2006/118/EC
9.	Effects on archaeological heritage including entries to the Record of Monuments and Places	Existing under CDP Policy LHB27: <ul style="list-style-type: none"> • Cultural Heritage I • Cultural Heritage II See also No. 4 previous.	CH1: Percentage of entries to the Record of Monuments and Places - including Zones of Archaeological Potential - (and their context of the above within the surrounding landscape where relevant) protected
10.	Effects on architectural heritage including entries to the Records of Protected Structures and Architectural Conservation Areas	Existing under CDP Policy LHB27: <ul style="list-style-type: none"> • Cultural Heritage III • Cultural Heritage IV • Cultural Heritage V See also No. 4 previous.	CH2i: Percentage of entries to the Record of Protected Structures (and/or their context within the surrounding landscape where relevant) protected CH2ii: Number of additions to the Record of Protected Structures and the number of additional ACAs