



**Grangeegorman**  
Development Agency  
Gníomhaireacht Forbartha  
Ghráinseach Ghormáin

***STRATEGIC ENVIRONMENTAL ASSESSMENT***

***SEA STATEMENT***

***GRANGEGORMAN STRATEGIC PLAN 2011***

**September 2011**

<b>TABLE OF CONTENTS</b>	<b>Page</b>
<b>1.0 INTRODUCTION</b>	<b>1</b>
1.1 Terms of Reference	1
1.2 Strategic Environmental Assessment Definition	2
1.3 Legislative Context relevant to the SEA for the <i>Grangegorman Strategic Plan 2011</i>	2
1.4 Content of the SEA Statement for the Grangegorman Strategic Plan 2011	3
1.5 Implications of SEA for the Grangegorman Strategic Plan 2011	3
<b>2.0 HOW ENVIRONMENTAL CONSIDERATIONS HAVE BEEN INTEGRATED INTO THE <i>GRANGEGORMAN STRATEGIC PLAN 2011</i></b>	<b>4</b>
2.1 Consultation	4
2.2 Environmental Sensitivities, Baseline and Early Communication	4
2.3 Early Identification and Evaluation of Alternatives	5
2.4 Mitigation	7
<b>3.0 ENVIRONMENTAL REPORT AND SUBMISSIONS/OBSERVATIONS</b>	<b>13</b>
3.1 Introduction	13
3.2 SEA Screening Submissions	13
3.2.1 Acknowledgement letters received	13
3.2.2 Submissions/observations received	13
3.3 SEA Scoping Submissions	13
3.3.1 Acknowledgement letters received	14
3.3.2 Submissions/observations received	14
3.4 Grangegorman Draft Strategic Plan and SEA Environmental Report	15
<b>4.0 ALTERNATIVES AND THE STRATEGIC PLAN</b>	<b>17</b>
4.1 Introduction	17
4.1.1 Alternative 1: Refurbishment and reuse of buildings on site, to facilitate the limited transfer of some of DIT's functions to the Grangegorman Site	17
4.1.2 Alternative 2: Redevelopment of the Grangegorman Site to provide a new City Quarter incorporating DIT and HSE accommodation in accordance with their briefs and in addition the provision of community facilities	18
4.1.3 Alternative 3: Intensive redevelopment of the site to include DIT accommodation and HSE accommodation in accordance with their current briefs and in addition the provision of residential accommodation for 3,000 people in a high density, medium to high rise scheme	19

<b>TABLE OF CONTENTS (continued...)</b>		<b>Page</b>
4.2	Evaluation of the Alternative Scenarios	20
4.2.1	Alternative 1: Refurbishment and reuse of buildings on site, to facilitate the limited transfer of some of DIT's functions to the Grangegorman Site	20
4.2.2	Alternative 2: Redevelopment of the Grangegorman Site to provide a new City Quarter incorporating DIT and HSE accommodation in accordance with their briefs and in addition the provision of community facilities	21
4.2.3	Alternative 3: Intensive redevelopment of the site to include DIT accommodation and HSE accommodation in accordance with their current briefs and in addition the provision of residential accommodation for 3,000 people in a high density, medium to high rise scheme	22
4.3	Evaluation Against Strategic Environmental Objectives	24
4.4	Alternative 2 as preferred alternative	24
<b>5.0</b>	<b>MONITORING MEASURES</b>	<b>25</b>
5.1	Introduction	25
5.2	Indicators and Targets	26
5.3	Source of Data	26
5.4	Reporting	26
5.5	Responsibility	27

## 1.0 INTRODUCTION

### 1.1 Terms of Reference

This is the Strategic Environmental Assessment Statement of the *Grangegorman Strategic Plan 2011* Strategic Environmental Assessment.

The *Grangegorman Strategic Plan 2011* has been prepared by the Grangegorman Development Agency as required under Section 12 of the *Grangegorman Development Agency Act, 2005*. The Strategic Plan includes a comprehensive land use and architectural framework plan, a full delivery methodology for all construction into the future, the setting out of procurement mechanisms and allied funding, and a planning strategy which underpins efficient delivery of the redevelopment of the Grangegorman site.

The *Grangegorman Strategic Plan 2011* is subject to a Strategic Environmental Assessment (SEA) in accordance with the requirements under the SEA Directive (2001/42/EC) and the *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004*.

The SEA Process was carried out in tandem with the preparation of the *Grangegorman Strategic Plan 2011* and the following documents have been produced as part of this process:

**Table 1: Relevant Documents Produced**

No.	Title	Date
1.	Strategic Environmental Assessment Screening Report Preparation of Grangegorman Strategic Plan (April 2008).	6 <sup>th</sup> March 2008
2.	Board of the Grangegorman Development Agency agreed to undertake a SEA of the Grangegorman Strategic Plan in accordance with the <i>European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004</i> .	11 <sup>th</sup> April 2008
3.	Strategic Environmental Assessment Scoping Issues Papers Preparation of Grangegorman Strategic Plan (June 2008).	11 <sup>th</sup> June 2008
4.	SEA Environmental Report.	27 <sup>th</sup> September 2010
5.	Grangegorman Draft Strategic Plan 2010.	27 <sup>th</sup> September 2010
6.	Grangegorman Development Agency Report on Submissions arising from Statutory Consultation Process for Draft Strategic Plan 2010 and Associated Documents, including SEA Environmental Report.	11 <sup>th</sup> March 2011
7.	Board of the Grangegorman Development Agency agreed to implement Report on Submissions and adopt the Strategic Plan.	8 <sup>th</sup> February 2011
	Grangegorman Strategic Plan 2011	8 <sup>th</sup> February 2011
8.	SEA Statement.	August 2011

Source: Grangegorman Development Agency

The above documents are available for viewing on the Grangegorman Development Agency's website at [www.ggda.ie](http://www.ggda.ie) or alternatively at the offices of the Grangegorman Development Agency, St. Brendan's Hospital, Grangegorman, Dublin 7.

The Grangegorman Development Agency retained Tom Phillips + Associates to carry out the SEA of the *Grangegorman GDA Draft Strategic Plan 2010*. Specialist consultants were retained to provide specialist inputs within key specific environmental areas identified as required during the SEA Scoping. The full SEA Team is outlined in Table 2 below.

**Table 2: SEA Team**

No.	Company	Specialist Input
1.	Tom Phillips + Associates	SEA Project Manager; Principal Drafting and Editing; Population and Human Health Assessment
2.	Natura Environmental Consultants	Biodiversity, Flora & Fauna Assessment
3.	AWN Consulting	Air Quality Baseline Assessment
4.	Margaret Gowan & Co. Ltd.	Archaeological Assessment
5.	Howley Hayes Architects	Architectural Heritage Assessment
6.	Horgan Lynch Consulting Engineers	Soils; Water (Hydrology & Hydrogeology); Material Assets
7.	Faber Maunsell Consulting Engineers	Traffic and Transportation
8.	Mitchell & Associates	Landscape Assessment

## 1.2 Strategic Environmental Assessment Definition

SEA is a process for evaluating, at the earliest appropriate stage, the significant environmental impacts of a policy, plan or programme. The purpose is to ensure that the significant environmental consequences of plans and programmes are assessed both during their preparation and prior to their adoption. The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the proposed plan or programme and to be kept informed during the decision making process.

## 1.3 Legislative Context relevant to the SEA for the *Grangegorman Strategic Plan 2011*

The EU Strategic Environmental Assessment (SEA) Directive (2001/42/EC) has a stated objective

*“to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment”.*

Directive 2001/42/EC (27<sup>th</sup> June 2001) of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment (referred to hereafter as the SEA Directive) introduced the requirement that SEA be carried out on plans and programmes which are prepared for a number of sectors, including that which would set the framework for development consent.

The SEA Directive was transposed into Irish Law through the *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004* (SI No. 435 of 2004), and the *Planning and Development (Strategic Environmental Assessment) Regulations 2004* (SI No. 436 of 2004). Both sets of regulations became operational on 21<sup>st</sup> July 2004.

The SEA Directive and the instruments transposing it into Irish Law require that after the adoption of a plan or programme, the plan or programme making authority (Grangegorman Development Agency) is required to make a Statement available to the public and the environmental authorities. This Statement is referred to as an SEA Statement<sup>1</sup>.

#### **1.4 Content of the SEA Statement for the Grangegorman Strategic Plan 2011**

In terms of Article 16(2)(b) of the *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004*, the SEA Statement is required to include information which summarises:

- How environmental considerations have been integrated into the plan or programme, or modification to a plan or programme?;
- How:
  - the environmental report;
  - submissions and observations made to the competent authority in response to the *Grangegorman GDA Draft Strategic Plan 2010* and associated documentation, including the SEA Environmental Report; and
  - any transboundary consultations (this is not relevant to this SEA process).

have been taken into account during the preparation of the plan or programme, or modification to a plan or programme?;

- The reasons for choosing the *Grangegorman Strategic Plan 2011* as adopted, in the light of the other reasonable alternatives dealt with; and
- The measures decided upon to monitor, the significant environmental effects of implementation of the *Grangegorman Strategic Plan 2011*.

#### **1.5 Implications of SEA for the Grangegorman Strategic Plan 2011**

As result of the aforementioned legislation, the *Grangegorman Strategic Plan 2011* was required to undergo SEA. The findings of the SEA were expressed in the SEA Environmental

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<sup>1</sup> Implementation of SEA Directive (2001/42/EC) Assessment of the Effects of Certain Plans or Programmes on the Environment Guidelines for Regional Authorities and Planning Authorities, November 2004

Report which accompanied the *Grangegorman Draft Strategic Plan 2010*. Various sections of the *Grangegorman Draft Strategic Plan 2010* include a set of aims and a set of objectives with some additional objectives incorporated in the *Grangegorman Strategic Plan 2011* in response to the consultation process.

At each stage of the process, the Grangegorman Development Agency Board took into account the findings of the SEA Environmental Report.

## **2.0 HOW ENVIRONMENTAL CONSIDERATIONS HAVE BEEN INTEGRATED INTO THE GRANGEGORMAN STRATEGIC PLAN 2011**

### **2.1 Consultation**

As part of the SEA process the Grangegorman Development Agency engaged in statutorily and additional non-statutorily required consultation. SEA Screening Notice was given to prescribed Environmental Authorities and non-statutory bodies prior to making a decision in relation to the requirements for SEA of the *Grangegorman Strategic Plan 2011*. Further consultation was required as part of the Scoping Stage of this SEA. In addition to these prescribed Environmental Authorities a number of other non-statutory agencies have been included in the consultation process for the SEA of the *Grangegorman Strategic Plan 2011*.

While Dublin City Council is not listed as a statutory Environmental Authority it was considered appropriate that it should be consulted, in light of the location of Grangegorman within the jurisdiction of Dublin City Council and the implications for the relevant *Dublin City Council Development Plan*.

In addition, a number of submissions/observations were made to *Grangegorman Draft Strategic Plan 2010* and accompanied documentation which included the SEA Environmental Report. Further information on these is provided under Section 3.0 of this SEA Statement.

### **2.2 Environmental Sensitivities, Baseline and Early Communication**

Environmental considerations were integrated into the *Grangegorman Draft Strategic Plan 2010* before it was placed on public display for the first time. Regular interaction meetings were held with the SEA Team, the Strategic Plan Team and the Masterplan Team together with members of staff of the Grangegorman Development Agency.

The scope of environmental issues to be dealt with by the SEA together with the level of detail to be addressed was broadly decided on after preliminary data collection initially outlined in the Scoping Issues Paper. An initial SEA workshop was held involving the entire SEA Team including a comprehensive review of the material to be included in this data collection.

Baseline Data provided an accurate description of the current state of the environment in Grangegorman. The environmental receptors identified during the Scoping process fulfilled the information requirements referred to in Schedule 2 of *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004*.

The Issues Paper, subsequently prepared, was circulated to the identified Environmental Authorities and the issues extended to take account of submissions received from these Authorities. In particular the EPA and the NRA (National Roads Authority) provided detailed input and advice in response to this consultation. These submissions were taken in to account in the final SEA Scoping Report. Further to this a Scoping Workshop was held with the SEA Specialist Team, members of staff of the GDA and Mr. Michael Owens of the EPA.

Data provided was current, available and relevant environmental information compiled by the various appropriate specialists within the SEA Team although some additional data was collected. Information gaps were identified and while not required under the relevant SEA legislation additional data was gathered to further inform the SEA. This specifically included information regarding existing conditions on air, noise, and bats on the Grangegorman site.

The following key strategic environmental issues were identified with relevance to the Grangegorman site:

- Architectural Heritage and the existing structures, building clusters and landscape features which will be impacted by the implementation of the Strategic Plan;
- Protected species of flora and fauna located on site with particular emphasis on bats;
- Traffic generation and the implications for noise and air quality as a result of the implementation of the Strategic Plan;
- Impacts on the urban landscape including visual impacts, overshadowing, loss of character, impact on scenic amenity etc.;
- Foul Drainage and the combined foul and surface water sewer system currently in place in Grangegorman; and
- The size and scale of the site indicating potential for archaeology.

### **2.3 Early Identification and Evaluation of Alternatives**

The *Grangegorman Development Agency Act, 2005* requires the preparation of a Strategic Plan for the Grangegorman site. This is provided to facilitate the development of a health and education campus to service the needs of DIT and the HSE. As such there is a statutory obligation on the Grangegorman Development Agency to prepare the Strategic Plan. Consequently the alternatives reviewed must fulfil the requirements of the *Grangegorman Development Agency Act, 2005* and be within the operational requirements of DIT and HSE.

A total of three alternative scenarios, relating generally to variations to the Masterplan element of the Strategic Plan, were identified and developed at an early stage through consideration of GDA's statutory requirements under the *Grangegorman Development Agency Act, 2005*. These alternatives were evaluated for their likely significant environmental effect (see Section 4). Table 3 below details the result of the Environmental Assessment of each of the Strategic Plan alternatives. Communication of the findings of this evaluation helped the Strategic Plan Team and Masterplan Team to make an informed choice as to which alternative to be developed into the *Grangegorman Draft Strategic Plan 2010*. Communication of this evaluation to the Grangegorman Development Agency Board through the SEA Environmental Report assisted it to make an informed choice regarding the adoption of the *Grangegorman Strategic Plan 2011*.



Mitigation measures which arose from the evaluation and which were integrated into the *Grangegorman Strategic Plan 2011* are detailed under Section 2.4 of this SEA Statement.

**Table 3: Assessment of the Strategic Plan Alternatives**

Environmental Objective	Alternative 1: Low Intensity Development	Alternative 2: Medium Intensity Development plus Community Facilities	Alternative 3: High Intensity Development with Commercial Gain
Protect and enhance biodiversity, flora and fauna on the Grangegorman Site	+	0	-
Enhance the overall socio-economic profile and economic attractiveness of the Grangegorman Development Area	0	++	++
Improve the quality of life for the community based on the provision of accessible employment, recreational, educational, medical and other facilities.	-	++	--
Provide, maintain and improve access to public open space	--	0	-
Preserve and enhance the natural and historic landscape features within the Grangegorman site	+	0	--
Retain existing good quality trees	+	0	-
Limit adverse impacts on air quality and in particular traffic generated emissions	-	0	-
Limit adverse impacts on climate through use of sustainable energy sources	0	+	-
Protect, conserve and enhance the architectural heritage on the Grangegorman site.	+	0	-
Identify, protect and conserve or document the archaeological heritage on the Grangegorman site in accordance with Best Practice Principles.	+	0	-
Provision of separate foul and surface water drainage to service the Grangegorman Area.	-	+	+
Provision for the reuse, recycling and conservation of water.	0	+	0

Key	Very Positive	Positive	Neutral	Negative	Very Negative	Uncertain
	++	+	0	-	--	?

## 2.4 Mitigation

Mitigation measures have been identified as part of the SEA process to prevent, reduce and as fully as possible, offset any significant adverse impacts on the environment expected as a result of implementing the *Grangegorman Strategic Plan 2011*.

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, mitigation measures are devised to lessen or offset these effects. Mitigation measures can be described as those that; avoid effects; reduce the magnitude or extent, probability and/or severity of effects; repair effects after they have occurred; and compensate for potential negative impacts by providing environmental benefits elsewhere.

These mitigation measures were integrated into the *Grangegorman Strategic Plan 2011* in order to comply with various statutory requirements, statutory consultees and to have regard to submissions/observations received during the public consultation process. While the assessment of the *Grangegorman Draft Strategic Plan 2010* against the environmental objectives is on the whole positive, the SEA process did identify that certain actions are necessary to mitigate anticipated or potential negative environmental impacts, and the Grangegorman Development Agency proactively integrated a number of measures into the *Grangegorman Strategic Plan 2011* which also provide for the integration of environmental considerations into the plan and mitigation of potential effects.

These have been devised in relation to the following environmental receptors:

- Biodiversity, flora and fauna;
- Population and human health;
- Landscape;
- Air quality and climatic
- Material assets - infrastructure;
- Cultural heritage - archaeology; and
- Cultural heritage - architecture.

Table 4 below outlines the Environmental Objective and Likely Significant Effect, if unmitigated, of implementing the *Grangegorman Strategic Plan 2011* together with mitigation measures which have been integrated into the Strategic Plan. The reference codes identified are those which accompany the relevant updated measures in both the *Grangegorman Strategic Plan 2011* and Section 8 and Section 9 of the SEA Environmental Report, including Assessment Matrix enclosed as Appendix A to the SEA Environmental Report.

**Table 4: Environmental Objective and Mitigation Reference**

Environmental Objective	Mitigation Reference
<p><b>Biodiversity, fauna and flora:</b></p> <p>Protect and enhance biodiversity, flora and fauna on the Grangegorman Site.</p> <p><b>Likely Significant Effect:</b></p> <p>Impact on protected species of flora and fauna located on site with particular emphasis on bats.</p>	<p><b>Design Objective 10:</b></p> <p>GDA will seek to retain a substantial majority of the existing mature trees of quality and will implement a comprehensive planting programme of native species to effect a high quality sylvan public realm.</p>
<p><b>Population and human health:</b></p> <p>Enhance the overall socio-economic profile and economic attractiveness of the Grangegorman Development Area.</p> <p>Improve the quality of life for the community based on the provision of accessible employment, recreational, educational, medical and other facilities.</p> <p>Provide, maintain and improve access to public open space.</p>	<p><b>Consultation Objective 1:</b></p> <p>GDA will utilise a many-stranded consultation framework for disseminating comprehensive current information on the project and for identifying and addressing the needs and concerns of all stakeholders. Key features of this framework will be regular meetings of the Consultative Group, communication with the many registered groups, meetings with groups and individuals, the availability of a dedicated Communications Officer within the GDA and close liaison with the appropriate public bodies.</p> <p><b>Consultation Objective 2:</b></p> <p>GDA will operate its Consultation Principles throughout the Project to ensure a consistently high level of maintained public consultation.</p> <p><b>Access Objective 4:</b></p> <p>The GDA will support the principles of universal/inclusive access in line with Dublin City Development Plan 2011-2017.</p> <p><b>Amenity Objective 5:</b></p> <p>GDA will work with DIT and consult with community groups to develop an appropriate operational regime to facilitate access by the community (particularly</p>

	<p>schools), existing user organisations, and HSE residential clients to indoor and outdoor sports and recreation amenities which are similar to existing levels of access.</p> <p><b>Estate Management Objective 2:</b></p> <p>The GDA will assist DIT in creating a Campus Liaison committee. This committee will build on DIT's existing relationship with the community and will assist in the campus community interface. It will be made up of DIT staff, Student Union members, the HSE, local community representatives, local schools, community organisations, the Gardai and others as issues determine.</p> <p><b>Socio Economic Objective 10:</b></p> <p>The GDA will explore means of prioritising job opportunities for people with disabilities during construction and operation phases.</p>
<p><b>Landscape:</b></p> <p>Preserve and enhance the natural and historic landscape features within the Grangegorman site.</p> <p>Retention of existing good quality trees.</p> <p><b>Likely Significant Effect:</b></p> <p>Impacts on the urban landscape including visual impacts, overshadowing, loss of character, impact on scenic amenity etc.</p>	<p><b>Conservation Aim 1:</b></p> <p>To establish and articulate the historical, social, urban and architectural values of Grangegorman and to ensure these are suitably incorporated within the overall development.</p> <p><b>Design Aim 3:</b></p> <p>To relate the design of the Quarter to the existing neighbourhood character and to the strategic objectives of Dublin City Council for local area development.</p> <p><b>Design Objective 3:</b></p> <p>GDA will establish a lighting strategy for the Quarter to ensure that the ambient light, sense of place and architectural impacts are optimised.</p> <p><b>Design Objective 4:</b></p> <p>GDA will establish a signage and way-finding strategy</p>

	<p>to facilitate legibility, internal navigation and sense of place.</p> <p><b>Design objective 11.</b></p> <p>The GDA will carry out an assessment of the impact the proposed development may have on neighbouring properties utilising 'BRE Digest 209:Site Layout Planning for Daylight and Sunlight' as guidance and will address the findings of the assessment in the SDZ Draft Planning Scheme, including potentially reducing heights as appropriate, in order to minimise any serious adverse impact that may arise from the development. Further studies will be carried out at the more detailed building design stage to optimise sunlight and daylight penetration.</p> <p><b>Design Objective 12:</b></p> <p>The GDA will comply with Dublin City Development Plan 2011- 2017 with regard to height and density of development.</p>
<p><b>Air quality:</b></p> <p>Limit adverse impacts on air quality and in particular traffic generated emissions.</p> <p>Limit adverse impacts on climate through use of sustainable energy sources.</p> <p><b>Likely Significant Effect:</b></p> <p>Traffic generation and the implications for noise and air quality as a result of the implementation of the Strategic Plan.</p>	<p><b>Movement Aim 1:</b></p> <p>To ensure the provision of the necessary infrastructure and services to facilitate the maximum usage of sustainable modes of transport, such as walking, cycling and public transport.</p> <p><b>Movement Objective 2:</b></p> <p>GDA will develop a Mobility Management Plan for the Quarter and a comprehensive review of local traffic impacts and mitigation measures. The Mobility Management Plan will seek to minimise private car dependency.</p> <p><b>Movement Objective 4:</b></p> <p>GDA will seek to procure within the development a limited provision of formal car-parking space for users and visitors to the Quarter generally underground and distributed to mitigate junction impacts. A limited regime of managed on-street parking will be further appraised with a view to</p>

	<p>facilitating events and sports in particular and providing surface animation and passive supervision in non-peak periods. Parking capacity will not exceed that determined by the Mobility Management Plan.</p> <p><b>Movement Objective 8:</b></p> <p>The GDA will undertake a Transport Impact Assessment to consider possible impacts and develop appropriate solutions with relevant bodies.</p> <p><b>Movement Objective 9:</b></p> <p>The GDA will prioritise parking for people with disabilities and cars forming part of a pooling or sharing scheme.</p>
<p><b>Material assets - infrastructure:</b></p> <p>Provision of separate foul and surface water drainage to service the Grangegorman Area.</p> <p>Provision for the reuse, recycling and conservation of water.</p> <p><b>Likely Significant Effect:</b></p> <p>Foul Drainage and the combined foul and surface water sewer system currently in place in Grangegorman.</p>	<p><b>Site Engineering and Infrastructure Objective 4:</b></p> <p>GDA will ensure all site drainage systems are built to meet SUDS (Sustainable Urban Drainage Systems) standards and in all respects meet the requirements of Dublin City Council Drainage Divisions standards and 'Code of Practice'.</p> <p><b>Site Engineering and Infrastructure Objective 5:</b></p> <p>GDA will ensure that the site water supply network is built to Dublin City Council Water Division Standard for New Watermains in Private Property.</p> <p><b>Site Engineering and Infrastructure Objective 6:</b></p> <p>GDA will ensure the implementation of sustainable water use strategies and measures for each building development.</p> <p><b>Site Engineering and Infrastructure Objective 7:</b></p> <p>The GDA will work closely with Dublin City Council in the design of adequate water services infrastructure to serve the quarter.</p>
<p><b>Cultural heritage – archaeology:</b></p>	<p><b>Conservation Objective 2:</b></p>

<p>Identify, protect and conserve or document the archaeological heritage on the Grangegorman site in accordance with Best Practice Principles.</p> <p><b>Likely Significant Effect:</b></p> <p>The undisturbed nature of the site indicating potential for archaeology.</p>	<p>The GDA will seek to minimise intervention in the boundary wall so far as is practicable and consistent with achieving the Vision of a new and open quarter.</p> <p><b>Arts and Culture objective 3:</b></p> <p>The GDA will recognise and have regard to the Irish language as an important cultural aspect of the project and the Grangegorman site.</p> <p><b>Arts and Culture objective 4:</b></p> <p>The GDA will recognise and have regard to the cultural and historic aspects of the site, including sports.</p>
<p><b>Cultural heritage - architecture:</b></p> <p>Protect, conserve and enhance the architectural heritage on the Grangegorman site.</p> <p><b>Likely Significant Effect:</b></p> <p>Architectural Heritage and the existing structures, building clusters and landscape features which will be impacted by the implementation of the Strategic Plan.</p>	<p><b>Conservation Aim 2:</b></p> <p>To integrate the historic structures of significance within the site in a manner which ensures that they contribute to the generation of spaces and places in terms of both physical layout and character and to protect and conserve these for future generations.</p> <p><b>Conservation Objective 3:</b></p> <p>GDA will seek to identify uses for the retained historic buildings which are compatible with their spatial layout, which will ensure full and useful occupancy and which will allow this important heritage to make a dynamic contribution to the cultural and functional character of this evolving urban quarter.</p> <p><b>Conservation Objective 5:</b></p> <p>The physical relationship between new development and existing Protected Structures will be carefully considered so that the intrinsic qualities of the Protected Structures are respected in a new setting of quality urban design and public realm.</p>

### **3.0 ENVIRONMENTAL REPORT AND SUBMISSIONS/OBSERVATIONS**

#### **3.1 Introduction**

This section deals with how the Environmental Report and Submissions/Observations made to Grangegorman Development Agency on the *Grangegorman Draft Strategic Plan 2010* and SEA Environmental Report and SEA process have been taken into account during the preparation of the *Grangegorman Strategic Plan 2011*.

#### **3.2 SEA Screening Submissions**

The Grangegorman Development Agency received 15 no. submissions / observations in response to the SEA Screening Notice of which 6 no. were letters of acknowledgement only.

##### **3.2.1 Acknowledgement letters received**

6 no. letters of acknowledgement were received, i.e. from Minister for the Environment, Heritage and Local Government; An Bord Pleanála; Minister for Communications, Energy and Natural Resources; Minister for Education and Science; Minister for Transport; and National Roads Authority.

##### **3.2.2 Submissions/observations received**

8 no. submissions/observations were received, i.e. from Department for Communications, Energy and Natural Resources; Department of the Environment, Heritage and Local Government; Environmental Protection Agency (x2); Dublin City Council; Railway Safety Commission; National Roads Authority; Dublin Transportation Office; and EBS Networks. These submissions/observations ranged from acknowledging the approach taken by the Grangegorman Development Agency to undertake the SEA process to those making preliminary comments on the scope of the SEA process.

#### **3.3 SEA Scoping Submissions**

The scope of environmental issues to be dealt with by the SEA, together with the level of detail to be addressed, was broadly decided on after preliminary data collection initially outlined in the Scoping Issues Paper. An initial SEA workshop was held involving the entire SEA Team including a comprehensive review of the material to be included in this data collection.

The Issues Papers, subsequently prepared, were circulated to the identified Environmental Authorities and the issues extended to take account of submissions received from these Authorities.



### **3.3.1 Acknowledgement letters received**

4 no. letters of acknowledgement was received, i.e. from An Bord Pleanála; Minister for the Environment, Heritage and Local Government; Department for Education and Science; and Minister for Communications, Energy and Natural Resources.

### **3.3.2 Submissions/observations received**

4 no. submissions/observations were received, i.e. from Department for Communications, Energy and Natural Resources; Department of the Environment, Heritage and Local Government; National Roads Authority; and Environmental Protection Agency. In particular the National Roads Authority and Environmental Protection Agency provided detailed input and advice in response to this consultation. These submissions, including those from National Parks and Wildlife Services and the Department of the Environment, Heritage and Local Government relating to the Appropriate Assessment, were taken into account in the final SEA Scoping Report. Further to this a Scoping Workshop was held with the SEA Specialist Team, members of staff of the GDA and a representative of the EPA.

#### ***Department for Communications, Energy and Natural Resources***

The Department for Communications, Energy and Natural Resources' submission covered a number of topics, including:

- Protection of Water Quality and fisheries status of receiving waters;
- Waste water treatment plant capacity;
- Inland water morphology and aquatic habitats;
- Reduction or diversion of water flows due to alteration in land use patterns; and
- Biodiversity.

#### ***Department of the Environment, Heritage and Local Government***

The Department of the Environment, Heritage and Local Government's submission covered the following topics.

- Biodiversity, fauna and flora (Giant Hogweed, Japanese Knotweed and bats);

#### ***National Roads Authority; and Environmental Protection Agency***

The National Roads Authority's submission was generalised, referencing details not associated with Strategic Environmental Assessment, but Environmental Impact Assessments and included the following topic:

- Locations and impacts of existing and future national road schemes and projects;
- Impacts on human beings;
- Noise;

- Preparation of a Transport and Traffic Assessment; and
- Visual impacts from existing and proposed national roads.

### ***Environmental Protection Agency***

The Environmental Protection Agency's submission covered the following topics:

- Water supply and conservation;
- Wastewater and the waste water treatment plant capacity;
- Sustainable energy use;
- Biodiversity - protected species;
- Construction and demolition waste;
- Surface water management and drainage;
- Brownfield development and contaminated land;
- Cultural Heritage (Architecture);
- Archaeological Heritage;
- Views and prospects;
- Consultation;
- Sustainable modes of transport;
- Biodiversity, fauna and flora (alien species); and
- Scoping Workshop.

### **3.4 Grangegorman Draft Strategic Plan and SEA Environmental Report**

The *Grangegorman Draft Strategic Plan 2010* and SEA Environmental Report were placed on public display and the closing date for receipt of submissions/observations was Tuesday, 7<sup>th</sup> December 2010.

55 no. submissions/observations were received on the Grangegorman Draft Strategic Plan and SEA Environmental Report while they were on public display. Information contained in these submissions/observations was taken into account by the Strategic Plan Team, SEA Team and Appropriate Assessment Team and informed the adopted Strategic Plan and SEA Environmental Report. The submissions / observations resulted in the following amendments to the Strategic Plan:

The inclusion of the following new **Design Objectives**:

- 11.** The GDA will carry out an assessment of the impact the proposed development may have on neighbouring properties utilising 'BRE Digest 209:Site Layout Planning for Daylight and Sunlight' as guidance and will address the findings of the assessment in the SDZ Draft Planning Scheme, including potentially reducing heights as appropriate, in order to minimise any serious adverse impact that may arise from the development. Further studies will be carried out at the more detailed building design stage to optimise sunlight and daylight penetration.
- 12.** The GDA will comply with Dublin City Development Plan 2011- 2017 with regard to height and density of development.

The inclusion of the following new **Conservation Objective**:

5. The physical relationship between new development and existing Protected Structures will be carefully considered so that the intrinsic qualities of the Protected Structures are respected in a new setting of quality urban design and public realm.

The amendment of the following new **Movement Objective** to read as follows:

1. GDA will work with Dublin Bus, Bus Éireann, The National Transport Authority, Irish Rail, RPA, Dublin City Council and other key transportation bodies to secure the optimum provision of public transportation connectivity and service for the Quarter and surrounding community and in particular to achieve an inter-modal transport hub at Broadstone Gate.

The inclusion of the following new **Movement Objective**:

8. The GDA will undertake a Transport Impact Assessment to consider possible impacts and develop appropriate solutions with relevant bodies.
9. The GDA will prioritise parking for people with disabilities and cars forming part of a pooling or sharing scheme.

The inclusion of the following new **Site Engineering and Infrastructure Objective**:

7. The GDA will work closely with Dublin City Council in the design of adequate water services infrastructure to serve the quarter.

The inclusion of the following new **Access Objective**:

4. The GDA will support the principles of universal/inclusive access in line with Dublin City development Plan 2011-2017.

The amendment of the following new **Amenity Objective** to read as follows:

5. GDA will work with DIT and consult with community groups to develop an appropriate operational regime to facilitate access by the community (particularly schools), existing user organisations, and HSE residential clients to indoor and outdoor sports and recreation amenities which are similar to existing levels of access.

The inclusion of the following new **Arts and Culture Objectives**:

3. The GDA will recognise and have regard to the Irish language as an important cultural aspect of the project and the Grangegorman site.
4. The GDA will recognise and have regard to the cultural and historic aspects of the site, including sports.

The inclusion of the following new **Estate Management Objective**:

2. The GDA will assist DIT in creating a Campus Liaison committee. This committee will build on DIT's existing relationship with the community and will assist in the campus community interface. It will be made up of DIT staff, Student Union members, the HSE, local community representatives, local schools, community organisations, the Gardai and others as issues determine.

On adoption of the *Grangegorman Strategic Plan 2011* and accompanying SEA Environmental Report, the Grangegorman Board took into account the findings of the SEA Environmental Report.

#### **4.0 ALTERNATIVES AND THE STRATEGIC PLAN**

##### **4.1 Introduction**

The environmental consequences of three "*reasonable alternatives taking into account the objectives and geographical scope of the alternatives selected*" were examined.

The three alternatives described are as follows:

1. Refurbishment and reuse of buildings currently on site, to facilitate the limited transfer of some of DIT's functions to the Grangegorman Site;
2. Redevelopment of the Grangegorman Site to provide a new city Quarter incorporating DIT and HSE accommodation in accordance with their briefs and in addition the provision of community and recreational facilities open to the local population; and
3. Intensive redevelopment of the site to include DIT accommodation and HSE accommodation in accordance with their current briefs and in addition the provision of residential accommodation for 3,000 people in a high density, medium to high rise scheme.

##### **4.1.1 *Alternative 1: Refurbishment and reuse of buildings on site, to facilitate the limited transfer of some of DIT's functions to the Grangegorman Site***

This initial scenario would provide for the refurbishment of, and minor amendments and extensions to the existing buildings located on the Grangegorman site to incorporate limited educational and health facilities on the campus. This would involve the upgrading of the

existing buildings, both protected structures and buildings with no protection status, and retrofitting these buildings to meet some of the needs of DIT and HSE. The following are the key elements of this development strategy:

- HSE to continue the current level of service on site with a limited potential to expand;
- Transfer of a small amount of DIT's existing educational facilities to the site;
- Limited potential for sports facilities;
- Existing single site entrance with limited permeability;
- Low intensity of development not conducive to the development of public transport facilities and as such, due to extensive areas of surface car parking on the site, will facilitate the use of the private car as the primary form of transport;
- It is unlikely that existing buildings could be refurbished to the standards required in terms of patient experience, maintenance, clinical services, and energy consumption and sustainability.
- Additional capital and energy costs of renovating the current accommodation to allow it to meet fire, health and safety standards would be higher than that of the new development option;
- Develop and improve the facilities to enable a healthcare model to be implemented in line with best practices;
- Renovation of the existing mental healthcare facilities would be on a ward by ward basis;
- Not sufficient scope to renovate and redevelop the current accommodation to allow it to meet the strategic objectives of the project;
- The refurbished accommodation may not provide the optimum facilities for mental healthcare patients;
- Ward by ward refurbishment and redevelopment would result in prolonged disturbance to residents of the site and HSE administrative employees;
- Heritage listing of some of the occupied buildings places additional limitations and cost on the refurbishment.

#### **4.1.2 *Alternative 2: Redevelopment of the Grangegorman Site to provide a new City Quarter incorporating DIT and HSE accommodation in accordance with their briefs and in addition the provision of community facilities***

Alternative 2 is to provide for the creation of a new urban quarter within Dublin's north inner city which integrates a state of the art higher education campus for DIT with equally well designed health facilities for the HSE to meet the needs of a large urban population. Alternative 2 is the only option that allows DIT to fully implement its Mission Plan and achieve its objectives with respect to:

- Creating a consistent quality environment for all its students and staff;
- Enable DIT to grow its activity across learning and teaching, research and technology transfer to the level that it requires;
- Broadening the student base of DIT to increase student numbers and greater representation from areas such as mature students, second chance education, and students from economically disadvantaged backgrounds;
- Providing opportunities to develop DIT's international student population in particular by being able to provide campus accommodation;

- Capitalising on the significant time and resources expended to date in creating a modular pedagogy which underpins a student-centred ethos by promoting access and participation, e-learning, distance learning, part-time education and CPD. This will lead to enhanced curriculum reform;
- Bring together its research activity and through cross disciplinary interaction develop this activity;
- Facilitating the clustering of activity currently spread across DIT such as a single science provision in terms of laboratories, a single ICT provision, co-location of related areas that are currently separated such as printing and digital media, food science and nutrition etc.;
- Bringing resources together to cluster and share around such areas as student services and administration and in the process improving service with similar levels of resources;
- Promoting operational efficiency through removing duplication in areas such as libraries, administration and modular provision;
- Enhance technology transfer by bringing all industry- facing activities together and co-locating these with academic, research and science park activities;
- Creating a better experience for students by enhancing the learning environment but also by providing spaces where interaction and dialogue can be promoted while creating sporting and recreational facilities and student accommodation on campus;
- Enabling DIT to put in place facilities that will assist in creating 3rd stream income that will encourage greater levels of self-funding in the future;
- Drawing from across the DIT facilities and resources in the arts and cultural areas in order to create a real cultural centre to underpin its educational activities while supporting the wider community;
- Creating a real resource to support the Dublin region and the north inner city in particular and in the process contributing to very significant urban regeneration;
- Would provide DIT with sufficient capacity to develop all of the non-core facilities necessary to allow DIT to fulfil its full potential;
- This proposal embraces the city around the site through the creation of new entrances and links to the surrounding area opening up a previously walled in space to provide permeability and access to all;
- The new quarter will contain a network of green spaces and paths together with state of the art indoor and outdoor sports facilities;
- New primary school city branch library;
- Retailing facilities such as coffee shops, bookshops, retail outlets and student accommodation are interwoven throughout the site to create an animated quarter and living campus; and
- A major 'Cultural Hub' will also be created to build on DIT's activities in the visual and performing arts, and in the process create a destination in its own right.

**4.1.3 Alternative 3: Intensive redevelopment of the site to include DIT accommodation and HSE accommodation in accordance with their current briefs and in addition the provision of residential accommodation for 3,000 people in a high density, medium to high rise scheme**

Alternative 3 will involve the preparation of a *Draft Planning Scheme* which will provide accommodation for all the facilities outlined as required for DIT and HSE in their briefs to the GDA and provided for in Alternative 2. However, in addition to this, it is proposed to intensify development on the site and incorporate a significant residential element making

provision for a population of 3,000 people together with the student and social accommodation provided for in Alternative 2.

## **4.2 Evaluation of the Alternative Scenarios**

This section summarises the evaluation of the Alternative Scenarios which is found in Section 7 of the SEA Environmental Report. Alternatives were assessed against each environmental objective and summarised in Table 3 under 2.3 Early Identification and Evaluation of Alternatives, of this SEA Statement, as well as Table 7.1 set out in Chapter 7 of the SEA Environmental Report.

### **4.2.1 *Alternative 1: Refurbishment and reuse of buildings on site, to facilitate the limited transfer of some of DIT's functions to the Grangegorman Site***

#### **Biodiversity, Fauna and Flora**

- Preservation of much of the existing flora (including all sound trees) and fauna on the Grangegorman site;
- Invasive plant species will also be retained and may spread; and
- Implications for any bat species due to refurbishment and restore of all buildings.

#### **Population and Human Health**

- No changes in their overall economic standing or quality of life; and
- The Grangegorman site will remain generally inaccessible to the local population.

#### **Landscape**

- Overall positive impact with all structures on site being retained.

#### **Air Quality**

- Increase in traffic movements to and from the Grangegorman site due to not achieving critical mass justifying the introduction of new public transport facilities.

#### **Climatic Factors**

- A neutral impact on climate with no significant new energy demands; and
- Refurbishment of the existing buildings will make it hard to achieve modern energy conservation standards.

### **Cultural Heritage – Architecture**

- Overall positive impact as all existing structures and buildings on site will be retained in their current form; and
- Positive impact on the architectural heritage where few new buildings will be developed provided that all restoration and retrofitting of buildings is carried out in accordance with architectural conservation guidelines.

### **Cultural Heritage - Archaeological Heritage**

- Significant scope to conserve and retain all archaeological material on site; and
- Little disturbance of previously undiscovered archaeological remains.

### **Material Assets - Infrastructure**

- Scale of development will not justify the cost of providing a separate foul and surface water sewerage system; and
- A net increase in the volume of waste water entering the treatment system.

#### **4.2.2 *Alternative 2: Redevelopment of the Grangegorman Site to provide a new City Quarter incorporating DIT and HSE accommodation in accordance with their briefs and in addition the provision of community facilities***

### **Biodiversity, Fauna and Flora**

- Improve the ecology and biodiversity on site including the removal of the invasive plant species.

### **Population and Human Health**

- New student population will involve a period of adaption for the local population;
- Opportunity for local employment and complementary economic activities; and
- Substantial new and additional community services (i.e. primary school, library, open space, etc.).

### **Landscape**

- New urban landscape; and
- Preserving a substantial area of existing quality landscaped open space.



### **Air Quality**

- Increased demand for public transport;
- Achieving critical mass justifying the introduction of new public transport facilities; and
- Transport modal shift from private car to public transport.

### **Climatic Factors**

- Sustainable approach to energy use; and
- Reduction in the level of greenhouse gas emissions.

### **Cultural Heritage – Architecture**

- Drawn or photographic recording and possible reuse of elements of materials;
- Preservation, restoration and reuse of buildings of architectural merit;
- External building lines and maximum and minimum heights have been determined; and
- Set of criteria developed to avoid serious negative visual impact of development.

### **Cultural Heritage - Archaeological Heritage**

- Appropriate mitigation measures are imposed in accordance with best practice in this area;
- Potential for some impacts on any previously undiscovered archaeological remains on site; and
- Archaeological remains found on the site during the redevelopment will be appropriately dealt with.

### **Material Assets - Infrastructure**

- Separate foul and surface water sewerage system;
- Conservation of water;
- Significant reduction in demand for wastewater volume treatment; and
- Surface water volume removed from the treatment plant.

#### **4.2.3 *Alternative 3: Intensive redevelopment of the site to include DIT accommodation and HSE accommodation in accordance with their current briefs and in addition the provision of residential accommodation for 3,000 people in a high density, medium to high rise scheme***

### **Biodiversity, Fauna and Flora**

- Removal of most of the green space and many of the mature trees.

### **Population and Human Health**

- Increase in the economic profile of the local population;
- Substantial opportunity for local employment and complementary economic activities; and
- Reduction in the quality of life as the growth in residential and office accommodation would not be matched with an appropriate compensating public space/amenity provision.

### **Landscape**

- Introduction of higher rise, and high density development; and
- Loss of the open space currently on site.

### **Air Quality**

- Significant residential element which will demand additional car parking facilities; and
- Large demand for public transport resulting in overcrowding; and
- Demand for additional public transport resulting in negative impact on air quality.

### **Climatic Factors**

- High demand on energy; and
- Design constraints due to spatial orientation to maximise energy efficiency.

### **Cultural Heritage – Architecture**

- Construction of a residential scheme, for commercial purposes;
- Accommodation for up to 3,000 people in addition to the accommodation requirements of the HSE and DIT; and
- High density, high rise approach with little potential to offset negative impacts on the architectural heritage.

### **Cultural Heritage - Archaeological Heritage**

- Additional excavation of the site;
- Additional basement car parking;
- Majority of the site footprint would be developed; and
- Mitigation measures are imposed in accordance with best practice in this area.

### **Material Assets - Infrastructure**

- Separate foul and surface water sewerage system;

- Conservation of water;
- Higher volumes of residential waste water increasing demand load for wastewater volume treatment; and
- Surface water volume removed from the treatment plant.

#### 4.3 Evaluation Against Strategic Environmental Objectives

Table 7.1 of the Environmental Report sets out the evaluation of the alternative scenarios against the Strategic Environmental Objectives. Table 4 below represents a summary of the findings and it is apparent from this assessment that Alternative 2 has an overall positive outcome in terms of the environmental assessment carried out as part of this SEA, in particular with respect to the positive impacts on the socio-economic profile and quality of life for local residents and the national community.

**Table 4: Summary of Strategic Plan Alternatives Evaluated Against Strategic Environmental Objectives**

Alternative	Very Positive	Positive	Neutral	Negative	Very Negative	Uncertain
	++	+	0	-	--	?
1. Low Intensity Development)	0	5	3	3	1	0
2. Medium Intensity Development plus Community Facilities	2	3	7	0	0	0
3. High Intensity Development with Commercial Gain	1	1	1	6	2	0

#### 4.4 Alternative 2 as preferred alternative

A total of three alternative scenarios, relating generally to variations to the Masterplan element of the Strategic Plan, were evaluated, having regard, inter alia to their environmental consequences measured against the Strategic Environmental Objectives as described above and in Chapter 7 of the Environmental Report. They were identified and developed at an early stage through consideration of GDA's statutory requirements under the *Grangegorman Development Agency Act, 2005*.

The Alternative scenario which emerged from the Strategic Plan preparation process, selected by the SEA Team and Strategic Plan Team, and adopted as the *Grangegorman Strategic Plan 2011* by the Grangegorman Development Agency Board is Alternative 2 (Medium Intensity Development plus Community Facilities).

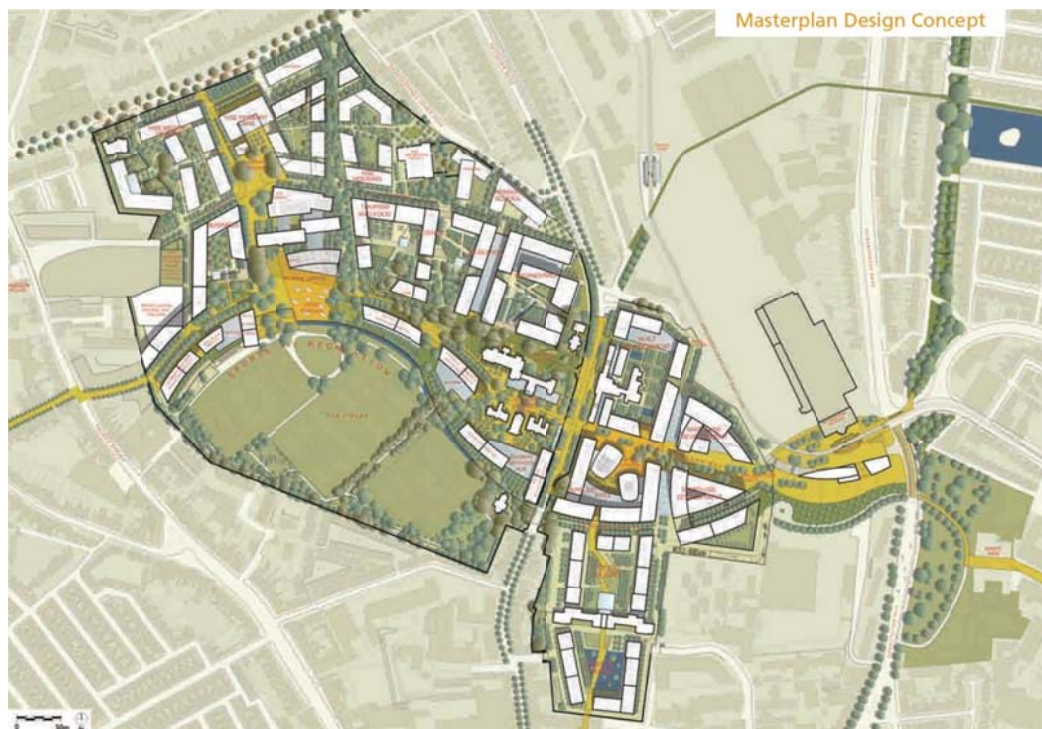
It is apparent from the assessment that Alternative 2 has an overall positive outcome in terms of the environmental assessment carried out as part of this SEA and in particular with respect to the positive impacts on the socio-economic profile and quality of life for local residents and the national community. As such this option, when subjected to appropriate mitigation measures, has been identified as the preferred development scenario for

Grangegorman and informed the development proposals contained in the *Grangegorman Draft Planning Scheme*.

Alternative 2 was selected by the SEA Team and Strategic Plan Team to be developed into the *Grangegorman Draft Planning Scheme*, and adopted by the Grangegorman Development Agency Board as the *Grangegorman Strategic Plan 2011*, having regard to both:

- The environmental effects which were identified by the Strategic Environmental Assessment; and
- Planning - which includes social, economic, physical and cultural effects.

**Figure 1: Master Plan Design Concept**



Source: *Grangegorman Strategic Plan 2011*

## 5.0 MONITORING MEASURES

### 5.1 Introduction

The SEA Directive requires that the significant environmental effects of the implementation of the *Grangegorman Strategic Plan 2011* are monitored. SEA Monitoring allows the actual impacts of the strategic action to be tested against those that were predicted, major problems to be identified and dealt with, and environment/ sustainability baseline information to be gathered for future strategic actions. It helps to ensure that the proposed mitigation measures are carried out, and facilitates the identification of unforeseen adverse effects at early stage, permitting appropriate remedial action in a timely fashion.

In addition to this, monitoring can also play an important role in assessing whether the *Grangegorman Strategic Plan 2011* is achieving its environmental objectives and targets, whether these need to be re-examined, and whether the proposed mitigation measures are being implemented.

## 5.2 Indicators and Targets

Monitoring is based around the indicators which were developed through collaboration between the members of the SEA Team earlier in the SEA Process and detailed in Chapter 5 of the SEA Environmental Report. These '*Indicators*' act as representative examples of environmental data and indicators allow quantitative measures of trends and progress over time relating to the Strategic Environmental Objectives used in the evaluation.

Focus will be given to indicators which are relevant to the likely significant environmental effects of implementing the *Grangegorman Strategic Plan 2011* and existing monitoring arrangements will be used in order to monitor the selected indicators. '*Targets*' have been established for each of the objectives which set thresholds and limits for each environmental receptor.

Table 5 below shows the indicators and targets which have been selected with regard to the monitoring of the *Grangegorman Strategic Plan 2011*. These are also outline in Table 10.1 of the SEA Environmental Report. The Grangegorman Development Agency will be responsible for collating the monitoring data and will be responsible for preparing a Monitoring Report and implementing any corrective measures where required.

## 5.3 Source of Data

The Monitoring Programme shall highlight instances where environmental indicators have become redundant and are no longer required or where gaps in information arise and additional/replacement Indicators are required. All data proposed in the Indicators are readily available and will be collected as part of the process of implementing the *Grangegorman Strategic Plan 2011* in any case. As such it is not proposed to impose excessive data collection which is unnecessary to achieve an environmentally sound Strategic Plan.

Existing monitoring sources exist for each of the indicators and include those maintained by Grangegorman Development Agency, Dublin City Council and other relevant authorities including the EPA, National Parks and Wildlife Services, CSO, etc.

Where significant adverse environmental effects, including positive, negative, cumulative and indirect, are likely to occur as a result of the implementation of strategies, plans and programmes outlined in the *Grangegorman Strategic Plan 2011*, such should be identified, recorded and should feed into the monitoring evaluation.

## 5.4 Reporting

An annual monitoring evaluation report on the effects of implementing the *Grangegorman Strategic Plan 2011* will be prepared, and issued to Grangegorman Development Agency Board Members, outlining the progress achieved in securing the objectives as set out in the *Grangegorman Strategic Plan 2011*.

## **5.5 Responsibility**

Grangegorman Development Agency is responsible for collating existing relevant monitored data, the preparation of preliminary and final monitoring evaluation reports, the publication of these reports and, if necessary, the carrying out of corrective action.

**Table 5 Summary of Proposed Monitoring Programme for Strategic Plan**

<b>Environmental Objective</b>	<b>What to Monitor (Indicator)</b>	<b>Source of Data</b>	<b>Frequency of Monitoring</b>	<b>Targets</b>
<b>Protect and enhance biodiversity, flora and fauna on the Grangegorman Site</b>	Areas of new ecological linked green areas within the Grangegorman site.	GDA	Annual	The management of an area of green space in a manner which promotes a diversity of interdependent habitats and species.
	Eradication of invasive alien species (i.e. giant hogweed and Japanese knotweed) currently on site and avoidance of the introduction of other invasive species to the Grangegorman Site.	GDA	Every two years	Reduction or removal of all alien species from the site.
	Identification of habitats of protected species and in particular bats and minimise interference with these habitats	GDA	Annual	Bat surveys carried out prior to development on site and where roosting sites are impacted alternative roosting sites such as bat boxes to be provided.
<b>Enhance the overall socio economic profile and economic attractiveness of the Grangegorman Development Area</b>	Principal economic status; levels of educational attainment at local and national level; and unemployment levels.	Central Statistics Office / GDA	Annual	Provide improved employment opportunities, during both the construction and operational phases.  Increase economic activity within the general Grangegorman Area.
<b>Improve the quality of life for the community based on the provision of accessible employment, recreational, educational, medical and other facilities</b>	Levels of employment creation; access to medical, educational and recreational facilities; and improvements in educational standards at a national level.	Central Statistics Office / GDA	Annual	Increase undergraduate and post graduate student numbers at DIT.  Provide access to educational and health facilities for communities.
<b>Provide, maintain and improve access to public open space.</b>	Area of public open space provided in the redevelopment of Grangegorman Provision of areas of public open space accessible to all.	GDA	On-going	The provision of adequate open space which is accessible to all.

Environmental Objective	What to Monitor (Indicator)	Source of Data	Frequency of Monitoring	Targets
Preserve and enhance the natural and historic landscape features within the Grangegorman site.	Number or percentage of natural and historic landscape features preserved.	GDA	On-going	The preservation of as many natural and historic landscape features as possible, where appropriate, and their integration into the landscape proposal for the site.
Retention of existing good quality trees	Percentage of existing good quality trees retained.	GDA	Annual	Retention of as many good quality existing trees on site as possible and where appropriate, including the transplanting of existing good quality trees to other locations around the site.
Limit adverse impacts on air quality and in particular traffic generated emissions.	Length of cycle routes and numbers of cycle parking spaces provided.	GDA	On-going	Air quality should not exceed the limit values provided in the Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002).
	An accessible public transport network.	GDA	Annual	Provision of a supply of car parking spaces below the amount demanded in order to reduce the numbers of private cars brought on to site.
	No. of car parking spaces provided	GDA	On-going	A Mobility Management Plan developed for the site which will seek to minimise private car dependency.
Limit adverse impacts on climate through use of sustainable energy sources	Preparation of an Energy management regime for the site which will incorporate renewable energies. Central energy centre for the site (including a CHP plant) to be developed.	GDA	Annual	Optimum building energy ratings to be achieved for residential and non-residential units.



Environmental Objective	What to Monitor (Indicator)	Source of Data	Frequency of Monitoring	Targets
<b>Protect, conserve and enhance the architectural heritage on the Grangegorman site.</b>	Numbers of protected structures retained on site	GDA/ DCC	On-going	No adverse impact on all protected structures on site.
	Conservation Plan prepared for each protected structure and their curtilage.	GDA	On-going	Inclusion of a <i>Conservation Plan</i> with planning applications where relevant, including a detailed fabric survey that will set out strategies for each of the protected structures and their curtilages.
	Number of historic structures with appropriate new uses reflecting the historic nature of these buildings	GDA	Annual	The provision of appropriate and sustainable uses for each historic structure.
<b>Identify, protect and conserve or document the archaeological heritage on the Grangegorman site in accordance with Best Practice Principles.</b>	<p>Number of archaeological features identified;</p> <p>Numbers of archaeological features preserved.</p> <p>Numbers of archaeological features recorded.</p>	GDA / DCC	Annual	Archaeological features identified on site to be preserved where possible or appropriately documented where removal is required in accordance with best practice.
<b>Provision of separate foul and surface water drainage to service the Grangegorman Area.</b>	Construction of new surface water sewer connecting with the closest existing surface water line at Smithfield Plaza.	GDA / DCC	On-going	Establishment of appropriate surface water drainage system for separate foul and surface water drainage.
<b>Provision for the reuse, recycling and conservation of water.</b>	Provision of grey water recycling, infiltration and filtration systems, retention ponds and swales within the site.	GDA	Annual	Implementation of SUDS (sustainable urban drainage systems).



