Appendix 6 Water Body Report

OPW *National Flood Hazard Mapping*

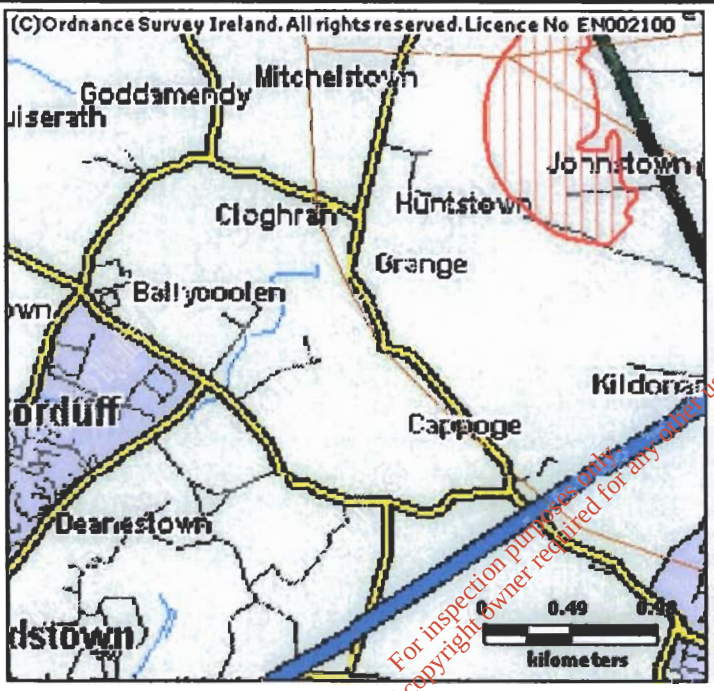
Summary Local Area Report

This Flood Report summarises all flood events within 2.5 kilometres of the map centre.

The map centre is in:

County: Dublin

NGR: O 100 407



Map Scale 1:40,449

Map Legend	
	Flood Points
	Multiple / Recurring Flood Points
	Areas Flooded
	Hydrometric Stations
	Rivers
	Lakes
	River Catchment Areas
	Land Commission *
	Drainage Districts *
	Benefiting Lands *

* Important: These maps do not indicate flood hazard or flood extent. Thier purpose and scope is explained in the Glossary.

2 Results

1. Tolka November 2002
Start Date: 13/Nov/2002
County: Meath, Dublin
Flood Quality Code:1

Additional Information: Photos (126) Reports (9) Videos (3) Press Archive (13) More Mapped Information

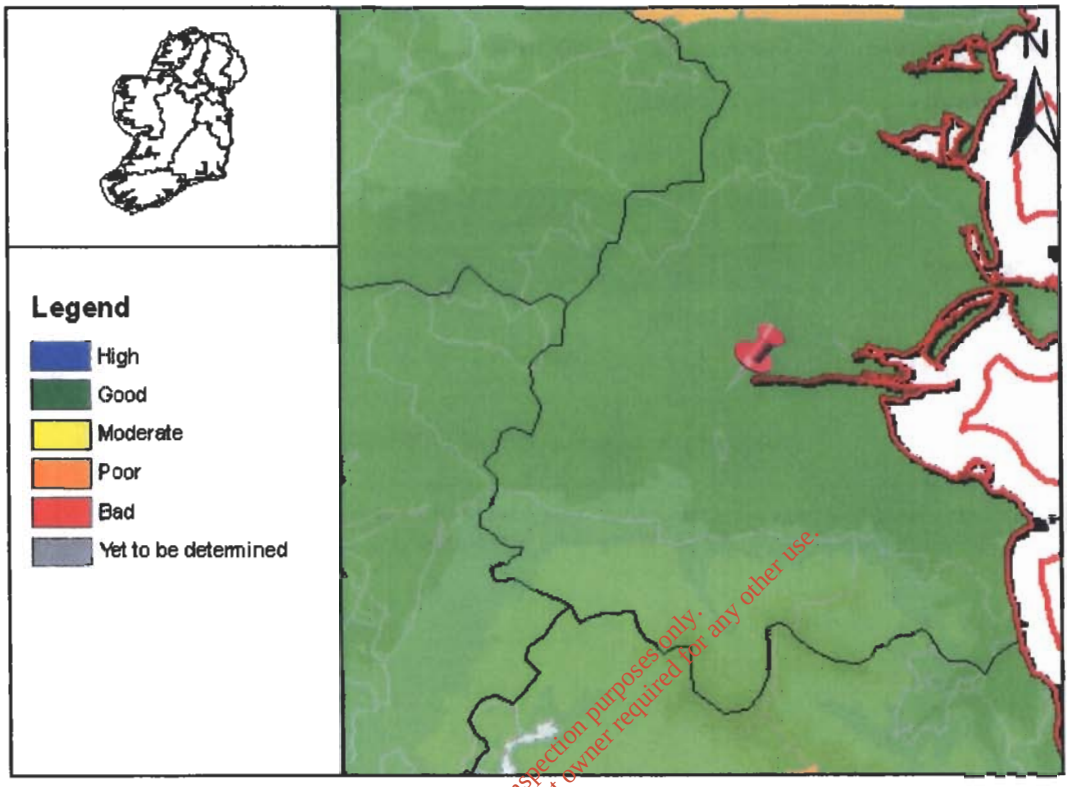
2. Kilshane Cross Nov 2002
Start Date: 13/Nov/2002
County: Dublin
Flood Quality Code:4

Additional Information: Reports (2) More Mapped Information

Report Produced: 03-Dec-2013 12:14

water matters
'Our Plan'

Full Report for Waterbody Dublin Urban



River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The WaterMaps viewer is an integral part of the River Basin Management Plan and provides access to information at individual waterbody level and at Water Management Unit level for all the River Basin Districts in Ireland.

The following report provides summary plan information about the selected waterbody (indicated by the pin in the map above) relating to its status, risks, objectives, and measures proposed to retain status where this is adequate, or improve it where necessary. Waterbodies can relate to surface waters (these include rivers, lakes, estuaries [transitional waters], and coastal waters), or to groundwaters. Other relevant information not included in this report can be viewed using the WaterMaps viewer, including areas listed in the Register of Protected Areas.

You will find brief notes at the bottom of some of the individual report sheets that will help you in interpreting the information presented. More detailed information can be obtained in relation to all aspects of the RBMPs at www.wfdireland.ie.

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Summary Information:

Water Management Unit:	N/A
WaterBody Category:	Groundwater Waterbody
WaterBody Name:	Dublin Urban
WaterBody Code:	IE_EA_G_005
Overall Status:	Good
Overall Objective:	Protect
Overall Risk:	1a At Risk
Heavily Modified:	No

Report data based upon final RBMP, 2009-2015.

The information provided above is a summary of the principal findings related to the selected waterbody. Further details and explanation of individual elements of the report are outlined in the following pages.

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Chemical and Quantitative Status Report

Water Management Unit:	N/A
WaterBody Category:	Groundwater Waterbody
WaterBody Name:	Dublin Urban
WaterBody Code:	IE_EA_G_005
Overall Status Result:	Good
Heavily Modified:	No

	Status Element Description	Result
	Status information	
INS	Status associated with saline intrusion into groundwater	N/A
DWS	Status associated with exceedances of water quality above specific standards	N/A
DS	Chemical status of groundwater due to pressure from diffuse sources of pollution	N/A
CLS	Chemical status of groundwater due to pressure from contaminated soil or land.	N/A
MS	Chemical status of groundwater due to pressure from mine sites (active or closed).	N/A
UAS	Chemical status of groundwater due to pressures from urban areas	N/A
GWS	General groundwater quality status	N/A
RPS	Status associated with MRP loading to rivers	N/A
TNS	Status associated with nitrate loading to transitional and coastal waters	N/A
SWS	Overall status associated with nutrient loadings to rivers and transitional and coastal waters	N/A
SQS	Status associated with dependant surface water quantitative status	N/A
GDS	Groundwater dependant terrestrial ecosystems status	N/A
QSO	Quantitative status overall	Good
CSO	Chemical status overall	Good
OS	Overall status	Good

GS -HC : Good status High Confidence
GS- LC : Good status Low Confidence
n/a - not assessed

Status
By 'Status' we mean the condition of the water in the waterbody. It is defined by its chemical status and quantitative status, whichever is worse. Groundwaters are ranked in one of 2 status classes: Good or Poor.

You can read more about status and how it is measured in our RBMP Document Library at www.wfdireland.ie (Directory 15 Status).

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Risk Report

Water Management Unit: N/A

WaterBody Category: Groundwater Waterbody

WaterBody Name: Dublin Urban

WaterBody Code: IE_EA_G_005

Overall Risk Result: 1a At Risk

Heavily Modified: No

	Risk Test Description	Risk
	Groundwater Dependent Terrestrial Ecosystems	
TE	GWDTE Risk	N/A
	Groundwater Quality	
DIF	Diffuse Elements (General) Risk	N/A
DW	Drinking Waters Risk	N/A
INT	Intrusions Risk	N/A
WB	Water Balance Risk	N/A
	Groundwater Quality (General)	
GQ	General Groundwater Quality Risk	N/A
	Groundwater Quality (Point Risk)	
CL	Contaminated Land Risk	N/A
LF	Landfill Risk	N/A
MI	Mine Risk	N/A
QY	Quarry Risk	N/A
UR	Urban Risk	N/A
UW	UWWT Risk	N/A
	GW Diffuse Risk Sources	
WB3	Mobile Nutrients (NO3)	N/A
WB4	Mobile Chemicals	N/A
WB5	Clustered OSWTSs and leaking urban sewerage systems	N/A
	GW Hydrology	
WB1	Water balance - Abstraction	N/A
WB2	Abstraction - Intrusion	N/A

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

	GW Point Risk Sources		
WB10	Risk from Point sources of pollution - Contaminated Land		N/A
WB11	Risk from Point sources of pollution - Trade Effluent Discharges		N/A
WB12	Risk from Point sources of pollution - Urban Wastewater Discharges		N/A
WB6	Risk from Point sources of pollution - Mines		N/A
WB7	Risk from Point sources of pollution - Quarries		N/A
WB8	Risk from Point sources of pollution - Landfills		N/A
WB9	Risk from Point sources of pollution - Oil Industry Infrastructure		N/A
	Overall Risk		
RA	Groundwater Overall - Worst Case		N/A
	Risk information		
CLR	Contaminated land risk	1a	At Risk
DR	Risk of groundwater due to pressure from diffuse sources of pollution	2a	Probably Not At Risk
DWR	Risk associated with exceedances of water quality above specific standards	2b	Not At Risk
GDR	Groundwater dependant terrestrial ecosystems risk	1b	Probably At Risk
GWR	General groundwater quality risk	1a	At Risk
INR	Risk associated with saline intrusion into groundwater	2b	Not At Risk
LR	Risk due to landfills sites/old closed dump sites	2b	Not At Risk
MR	Mines risk	2b	Not At Risk
NULL	Diffuse nitrates from agriculture risk		N/A
QR	Risk due to quarries	2b	Not At Risk
RA	Revised risk assessment	1a	At Risk
RPR	Risk associated with MRP loading to rivers	2b	Not At Risk
SQR	Risk associated with dependant surface water quantitative status	2b	Not At Risk
SWR	Overall risk associated with nutrient loadings to rivers and transitional and coastal waters	2a	Probably Not At Risk
TNR	Risk associated with nitrate loading to transitional and coastal waters	2a	Probably Not At Risk
UAR	Risk of groundwater due to pressures from urban areas	1a	At Risk
UWR	Risk due to direct discharges of urban wastewater	2b	Not At Risk

Risk
By 'risk' we mean the risk that a waterbody will not achieve good ecological or good chemical status/potential at least by 2015. To examine risk the various pressures acting on the waterbody were identified along with any evidence of impact on water status. Depending on the extent of the pressure and its potential for impact, and the amount of information available, the risk to the water body was placed in one of four categories: 1a at risk; 1b probably at risk; 2a probably not at risk; 2b not at risk. Note that '2008' after the risk category means that the risk assessment was revised in 2008. All other risks were determined as part of an earlier risk assessment in 2005.

You can read more about risk assessment in our 'WFD Risk Assessment Update' document in the RBMP document library, and other documents at www.wfdireland.ie (Directory 31 Risk Assessments).

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Objectives Report

Water Management Unit: N/A

WaterBody Category: Groundwater Waterbody

WaterBody Name: Dublin Urban

WaterBody Code: IE_EA_G_005

Overall Objective: Protect

Heavily Modified: No

	Objectives Description	Result
	Objectives information	
OB1	Prevent deterioration objective	No Status
OB2	Restore at least good status objective	No Status
OB3	Reduce chemical pollution objective	No Status
OB4	Protected areas objective	Protect
OBO	Overall objectives - objective	Protect

Extended timescales
Extended timescales have been set for certain waters due to technical, economic, environmental or recovery constraints. Extended timescales are usually of one planning cycle (6 years, to 2021) but in some cases are two planning cycles (to 2027).

Objectives
In general, we are required to ensure that our waters achieve at least good status/potential by 2015, and that their status does not deteriorate. Having identified the status of waters (this is given earlier in this report), the next stage is to set objectives for waters. Objectives consider waters that require protection from deterioration as well as waters that require restoration and the timescales needed for recovery. Four default objectives have been set initially:-

Prevent Deterioration
Restore Good Status
Reduce Chemical Pollution
Achieve Protected Areas Objectives

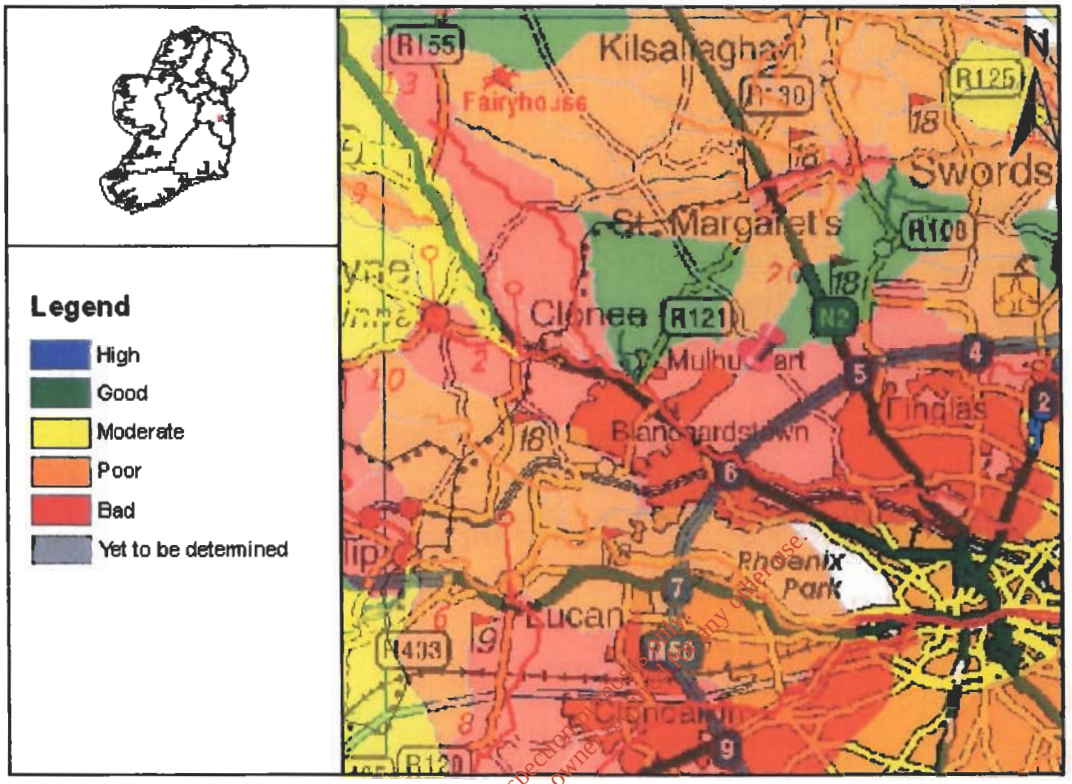
These objectives have been refined based on the measures available to achieve them, the latter's likely effectiveness, and consideration of cost-effective combinations of measures. Where it is considered necessary extended deadlines have been set for achieving objectives in 2021 or 2027.

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Full Report for Waterbody Tolka Lower



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Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Summary Information:

Water Management Unit:	IE_EA_Tolka
WaterBody Category:	River Waterbody
WaterBody Name:	Tolka Lower
WaterBody Code:	IE_EA_09_1868
Overall Status:	Bad
Overall Objective:	Restore_2027
Overall Risk:	1a At Risk
Heavily Modified:	No

Report data based upon final RBMP, 2009-2015.

The information provided above is a summary of the principal findings related to the selected waterbody. Further details and explanation of individual elements of the report are outlined in the following pages.

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Status Report

Water Management Unit:	IE_EA_Tolka
WaterBody Category:	River Waterbody
WaterBody Name:	Tolka Lower
WaterBody Code:	IE_EA_09_1868
Overall Status Result:	Bad
Heavily Modified:	No

	Status Element Description	Result
	Status information	
Q	Macroinvertebrate status	Bad
PC	General physico-chemical status	Moderate
FPQ	Freshwater Pearl Mussel / Macroinvertebrate status	N/A
DIA	Diatoms status	N/A
HYM	Hydromorphology status	N/A
FIS	Fish status	Poor
SP	Specific Pollutants status (SP)	N/A
ES	Overall ecological status	Bad
CS	Overall chemical status (PAS)	n/a
EXT	Extrapolated status	N/A
MON	Monitored water body	YES
DON	Donor water bodies	N/A

n/a - not assessed

Status
By 'Status' we mean the condition of the water in the waterbody. It is defined by its chemical status and its ecological status, whichever is worse. Waters are ranked in one of 5 status classes: High, Good, Moderate, Poor, Bad. However, not all waterbodies have been monitored, and in such cases the status of a similar nearby waterbody has been used (extrapolated) to assign status. If this has been done the first line of the status report shows the code of the waterbody used to extrapolate.

You can read more about status and how it is measured in our RBMP Document Library at www.wfdireland.ie (Directory 15 Status).

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'our Plan'

Risk Report

Water Management Unit: IE_EA_Tolka

WaterBody Category: River Waterbody

WaterBody Name: Tolka Lower

WaterBody Code: IE_EA_09_1868

Overall Risk Result: 1a At Risk

Heavily Modified: No

	Risk Test Description		Risk
	Diffuse Risk Sources		
RD1	EPA diffuse model (2008)	1a	At Risk
RD2a	Road Wash - Soluble Copper	2a	Probably Not At Risk
RD2b	Road Wash - Total Zinc	2a	Probably Not At Risk
RD2c	Road Wash - Total Hydrocarbons	1b	Probably At Risk
RD3	Railways	2b	Not At Risk
RD4a	Forestry - Acidification (2008)	2b	Not At Risk
RD4b	Forestry - Suspended Solids (2008)	2b	Not At Risk
RD4c	Forestry - Eutrophication (2008)	2a	Probably Not At Risk
RD5	Overall Unsewered (2008)	2b	Not At Risk
RD5a	Unsewered Areas - Pathogens (2008)	2a	Probably Not At Risk
RD5b	Unsewered Phosphorus (2008)	2b	Not At Risk
RD6a	Arable	2b	Not At Risk
RD6b	Sheep Dip	2b	Not At Risk
RD6c	Forestry - Dangerous Substances	2b	Not At Risk
RDO	Diffuse Overall -Worst Case (2008)	1a	At Risk
	Hydrology		
RHY1	Water balance - Abstraction	2b	Not At Risk
	Morphological Risk Sources		
RM1	Channelisation (2008)		Not At Risk
RM2	Embankments (2008)		Not At Risk
RM3	Impoundments		Not At Risk
RM4	Water Regulation		Not At Risk
RM5	Intensive Landuse		N/A
RMO	Morphology Overall - Worst Case (2008)		Not At Risk
	Overall Risk		
RA	Rivers Overall - Worst Case (2008)	1a	At Risk

Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

	Point Risk Sources		
RP1	WWTPs (2008)		Not At Risk
RP2	CSOs	1a	At Risk
RP3	IPPCs (2008)		Not At Risk
RP4	Section 4s (2008)		Not At Risk
RP5	WTPs/Mines/Quarries/Landfills		N/A
RPO	Overall Risk from Point Sources - Worst Case (2008)	1a	At Risk
	Q Value		
Q	EPA Q rating and Margaritifera Assessment		N/A
	Q/RDI or Point/Diffuse		
QPD	Q class/EPA Diffuse Model or worst case of Point and Diffuse (2008)	1a	At Risk
	Rivers Direct Impacts		
RDI1	Rivers Direct Impacts - Dangerous Substances		N/A

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Date Reported to Europe:July 2010

Date Report Created 03/12/2013

water matters
'Our Plan'

Objectives Report

Water Management Unit:	IE_EA_Tolka
WaterBody Category:	River Waterbody
WaterBody Name:	Tolka Lower
WaterBody Code:	IE_EA_09_1868
Overall Objective:	Restore_2027
Heavily Modified:	No

	Objectives Description	Result
	Objectives information	
OB1	Prevent deterioration objective	No Status
OB2	Restore at least good status objective	Restore_2027
OB3	Reduce chemical pollution objective	No Status
OB4	Protected areas objective	No Status
OB5	Northern Ireland Environment Agency objective	No Status
OBO	Overall objectives	Restore_2027

Extended timescales
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Date Reported to Europe:July 2010

Date Report Created 03/12/2013

Appendix 7 Ecology

NATURA IMPACT STATEMENT

STAGE 1 SCREENING

PROPOSED EXPANSION

OF

MATERIALS RECOVERY FACILITY

CAPPAGH ROAD

FINGLAS

DUBLIN 11

Prepared For: -

PANDA Waste Services,
Cappogue,
Finglas,
Dublin 11

Prepared By: -
O' Callaghan Moran & Associates,
Granary House,
Rutland Street,
Cork.

December 2012

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PAGE

1. INTRODUCTION

Nurendale Ltd, trading as PANDA Waste Services (PAND) intends to apply to Fingal County Council for planning permission to construct and operate a new waste processing building, increase the amount of waste accepted and extend the waste acceptance and operational hours at its Materials Recovery Facility (MRF) at Cappagh Road, Finglas, Dublin 11.

The European Union (EU) Habitats Directive (92/43/EC) and the EU Birds Directive (2009/147/EC) identify designated areas (Special Areas of Conservation (SAC) and Special Protection Areas (SPA) respectively) that are collectively known as Natura 2000 Sites. The Habitats Directive, which is implemented under the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No 477 of 2011), requires an "appropriate assessment" of the potential impacts any proposed development that may have an impact on the conservation objectives of any Natura 2000 site.

Article 6(3) of the Directive stipulates that *any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but likely to have a significant effect thereon...shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*

Guidance documents issued by Department of Environment, Heritage and Local Government and the National Parks and Wildlife Services recommend that the assessment be completed in a series of Stages, which comprise:

Stage 1: Screening

The purpose of this Stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, alone and in combination with other plans or projects, could have significant effects on a Natura 2000 site in respect of the site's conservation objectives.

Stage 2: Appropriate Assessment

This Stage is required if the Stage 1 Screening exercise identifies that the project is likely to have a significant impacts on a Natura 2000 site.

Stage 3 : Assessment of Alternative Solutions.

If Stage 2 determines that the project will have an adverse impact upon the integrity of a Natura 2000 site, despite the implementation of mitigation measures, it must be objectively concluded that no alternative solutions exist before the plan can proceed.

Stage 4 : Compensatory Measures:

Where no alternative solutions are feasible and where adverse impacts remain but imperative reasons of overriding public interest require the implementation of a project an assessment of compensatory measures that will effectively offset the damage to the Natura site 2000 is required.

PANDA commissioned O'Callaghan Moran & Associates (OCM) to complete a Stage 1 Screening to determine the effects of the proposed development on the nearby Natura 2000 sites.

1.1 Methodology

The Stage 1 Screening was based on a site inspection and the scope of the proposed development. It was conducted in accordance with the guidance presented in the "Assessment of Plans and Projects significantly affecting Natura 2000 sites, Methodological Guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC" (2001); The Department of Environment, Heritage and Local Government (2009, revised February 2010) Appropriate Assessment of Plans and Projects in Ireland and the National Parks and Wildlife Services (2010) Circular NPW 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.

2. DESCRIPTION OF PROJECT

2.1 Facility Overview

The facility, which opened in 2006, operates under planning permission issued by Fingal County Council and a Waste Licence (W0104-02) issued by the Environmental Protection Agency (Agency). These authorise the construction of three main processing buildings Building A1 (Construction and Demolition (C&D) and Commercial and Industrial (C&I) waste), B1 (Dry Recyclables) and B2 (Cardboard & Plastics) and the processing of 200,000 tonnes of waste annually.

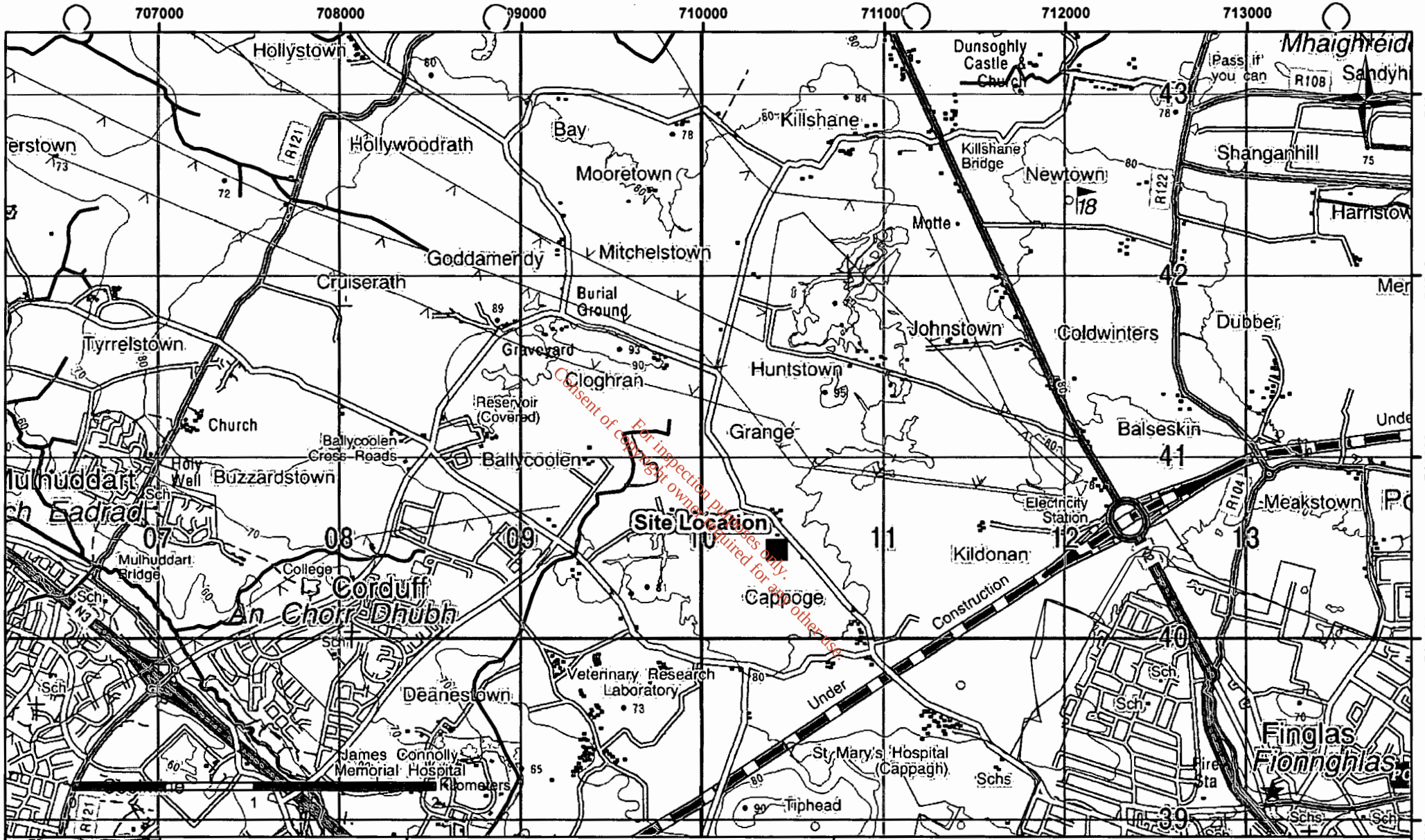
Building A1 has been constructed and is currently used for the recovery of C& D and C&I wastes. Construction works have begun on Buildings B1 and B2. Current operational hours are 8.00 to 18.00 Monday to Friday. For security purposes the yard area lighting remains on during the hours of darkness.

The planning permission and Licence restricts the amount of waste that can be accepted annually to 200,000 tonnes and does not allow the acceptance of mixed municipal solid waste, which includes household residual waste and food waste.

PANDA intends to apply for planning permission for a change of use to allow the acceptance of the household residual waste and food waste, increase the amount of waste accepted annually to 250,000 tonnes annually, and construct a new waste processing building and extend the operational hours. A separate application to revise the Waste Licence will be submitted to the Agency.

2.2 Site Location

The site is located on the Cappagh Road, approximately 2.5km South West of Dublin Airport, as shown on Figure 2.1. The lands to the south are occupied by the Stadium Business Park, to the east, across the Cappagh Road, is Huntstown Quarry.



O'Callaghan Moran & Associates.
Granary House, Rutland Street,
Cork, Ireland.
Tel. (021) 4321521 Fax. (022) 4321522
email: info@ocallaghanmoran.com

CLIENT

Panda

TITLE

Site Location

Details

Site_Location

Rivers

Figure 2..1

To the north is Millennium Business Park and to the west are undeveloped lands that are zoned for commercial use. There are no significant aquatic habitats within 500m of the site boundary.

2.3 Site Layout

The site encompasses 2.31 ha and, when the current construction works are complete, will be occupied by three main waste recovery buildings (Building A1, Buildings B1 and B2), Administration / Electrical Substation, concrete paved yards, weighbridge, foul and surface water drainage systems, an acoustic wall along the south eastern boundary and a palisade security fence.

2.4 Site Operations

Building A1 is currently used to process construction and demolition (C&D) waste and commercial and industrial (C&I) waste. Building B1 will handle mixed household and commercial dry recyclable wastes, (mixed paper, plastic, cardboard, food and drink cans etc). Building B2 will handle clean paper and cardboard (newsprint, magazines, office paper, cardboard packaging) from publishers and book printers, offices, supermarkets and shops.

Approximately 80 people are employed at the facility. These include a Facility Manager, weighbridge clerk, machine operators, general operatives and the collection vehicle drivers and operatives, including the household waste collection staff. The current operational hours are 8am to 8pm Monday to Friday and 8am to 4pm on Saturday.

Water is obtained from the mains supply. Waste water from the toilets and canteen is collected and stored in an underground tank before being sent for treatment at the Ringsend sewage treatment plant.

Rainwater is collected and channelled to an underground storage tank in the south of the site, after passing through a Class 1 Full Retention Oil Interceptor. The size of the tank is designed

to store rainfall from a 1 in 100 year event on the entire site. From the tank the water passes to the surface water drain serving the Stadium Business Park, which adjoins the site's southern boundary. The flow from the tank to the drain is limited to 6 litres/second to minimise the risk of flooding outside the site.

2.5 Proposed Development

The development will include;

- Construction of Building A 2(2,030m^2) to the southeast of Building A1;
- Provision of odour control abatement system to Building A1;
- Relocating the portacabin offices and canteen, and
- Construction of Weighbridge Office (?m^2).
- Moving existing C&D and C&I processing from Building A1 into Building A2,and
- Handling household residual waste and food waste in Building A1.
- Waste acceptance between 06.00 to 23.00 and waste operations between 07.00 to 20.00 hours

3. NATURA 2000 SITES

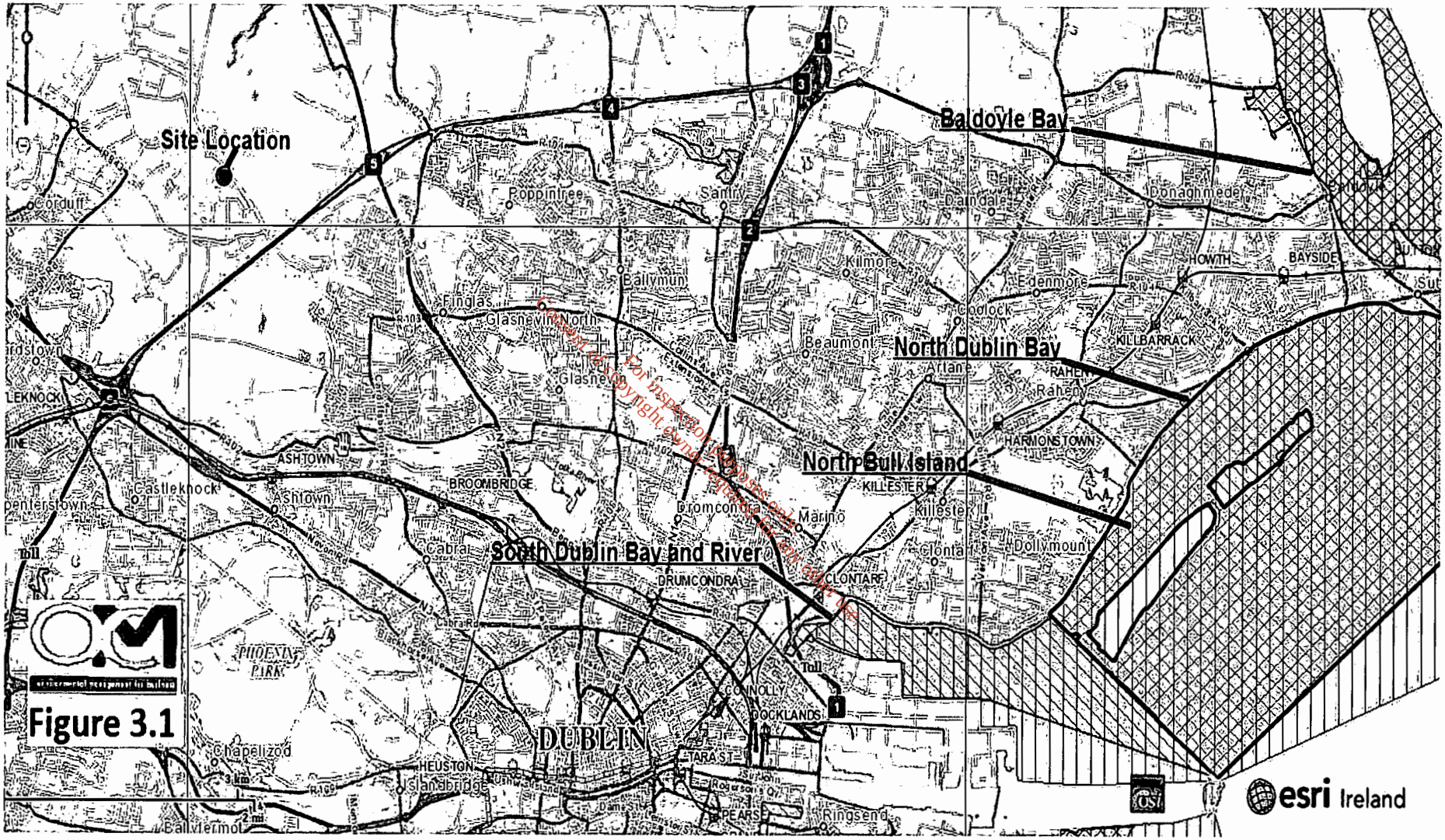
A list of designated Natura 2000 sites within 12 km of the facility is given in Table 3.1 and all are to the east of the site in Dublin Bay, as shown on Figure 3.1

Table 3 1. Natura 2000 Sites Potentially Affected by the Project

Site	Code	Distance
SAC		
Baldoyle Bay SAC		>10km
South Dublin Bay SAC	000210	>10km
North Dublin Bay SAC	000206	>10km
SPA		
South Dublin Bay and Tolka River Estuary SPA	004024	>10km
North Bull Island SPA	004006	>10km
Baldoyle Bay SPA	004016	>10km

SACs are selected for the conservation and protection of habitats listed on Annex I and species (other than birds) listed on Annex II of the Habitats Directive, and their habitats. The habitats on Annex I require special conservation measures.

SPAs are selected for the conservation and protection of bird species listed on Annex I of the Birds Directive and regularly occurring migratory species, and their habitats, particularly wetlands.



3.1 Conservation Objectives

A statement of Conservation Objectives is prepared for each designated site which identifies the qualifying interests or conservation features. The Conservation Objectives are intended to ensure that the relevant habitats and species present on a site are maintained, and where necessary restored, at a Favourable Conservation Status.

Favourable Conservation Status of a habitat, as defined in 2011 Birds and Natural Habitats Regulations, is when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Conservation Status of a species is when:

- The Favourable population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats,
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

3.1 South Dublin Bay SAC

This site lies south of the River Liffey and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats, a habitat listed on Annex I of the E.U. Habitats Directive. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion gates. The Site Synopsis that lists the full Qualifying Interests are in Appendix 1 and the information is summarised below.

Qualifying Interests

The South Dublin Bay SAC is selected for the following habitat listed in Annex 1 of the Habitats Directive: Mudflats and Sandflats not covered by seawater at low tide.

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the Mudflats and Sandflats. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.2 North Dublin Bay SAC

This Site covers the inner part of north Dublin Bay with, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island, which is the focal point, is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5 km in length and is up to 1 km wide in places. A Site Synopsis for the SAC that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

The North Dublin Bay SAC is selected for the following habitats listed in Annex 1 of the Habitats Directive: Mudflats and Sandflats not covered by seawater at low tide; Annual vegetation of drift lines: Salicornia and other annuals colonizing mud and sand: Spartina swards; Atlantic salt meadows; Petalwort; Mediterranean salt meadows; Embryonic shifting dunes; Shifting dunes along the shoreline with Ammophila arenaria (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes) and Humid dune slacks/

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the habitats for which the SAC has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.3 North Bull Island SPA

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling , Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull, Wetlands & Waterbirds.

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the species for which the SPA has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.4 South Dublin Bay and River Tolka Estuary SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

The island shelters two intertidal lagoons which are divided by a solid causeway. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. The north lagoon has an area known as the "*Salicornia* flat", which is dominated by *Salicornia dolichostachya*, a pioneer Glasswort species, and covers about 25 ha. Tassel Weed (*Ruppia maritima)* occurs in this area, along with some Eelgrass (*Zostera angustifolia*). Eelgrass (*Z. noltii*) also occurs in Sutton Creek. Cordgrass (*Spartina anglica*) occurs in places but its growth is controlled by management. Green algal mats (*Enteromorpha* spp., *Ulva lactuca*) cover large areas of the flats during summer. These sediments have a rich macrofauna, with high densities of Lugworms (*Arenicola marina*) in parts of the north lagoon. Mussels (*Mytilus edulis*) occur in places, along with bivalves such as *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. The small gastropod *Hydrobia ulvae* occurs in high densities in places, while the crustaceans *Corophium volutator* and *Carcinus maenas* are common. The sediments on the seaward side of North Bull Island are mostly sands. The site extends below the low spring tide mark to include an area of the sublittoral zone.

Three Rare plant species legally protected under the Flora Protection Order 1987 have been recorded on the North Bull Island. These are Lesser Centaury (*Centaurium pulchellum*), Hemp Nettle (*Galeopsis angustifolia*) and Meadow Saxifrage (*Saxifraga granulata*). Two further species listed as threatened in the Red Data Book, Wild Sage (*Salvia verbenaca*) and Spring Vetch (*Vicia lathyroides*), have also been recorded. A rare liverwort, *Petalophyllum ralfsii,* was first recorded from the North Bull Island in 1874 and has recently been confirmed as being still present there. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. The North Bull is the only known extant site for the species in Ireland away from the western seaboard.

North Dublin Bay is of international importance for waterfowl. During the 1994/95 to 1996/97 period the following species occurred in internationally important numbers (figures are average maxima): Brent Geese 2,333; Knot 4,423; Bar-tailed Godwit 1,586. A further 14 species occurred in nationally important concentrations - Shelduck 1505; Wigeon 1,166; Teal 1,512; Pintail 334; Shoveler 239; Oystercatcher 2,190; Ringed Plover 346; Grey Plover 816; Sanderling 357; Dunlin 6,238; Black-tailed Godwit 156; Curlew 1,193; Turnstone 197 and Redshank 1,175. Some of these species frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes (mostly Brent Goose, Oystercatcher, Ringed Plover, Sanderling, Dunlin).

The tip of the North Bull Island is a traditional nesting site for Little Tern. A high total of 88 pairs nested in 1987. However, nesting attempts have not been successful since the early 1990s. Ringed Plover, Shelduck, Mallard, Skylark, Meadow Pipit and Stonechat also nest. A well-known population of Irish Hare is resident on the island

The invertebrates of the North Bull Island have been studied and the island has been shown to contain at least seven species of regional or national importance in Ireland (Orders Diptera, Hymenoptera, Hemiptera).

The main landuses of this site are amenity activities and nature conservation. The North Bull Island is the main recreational beach in Co Dublin and is used throughout the year. Much of the land surface of the island is taken up by two golf courses. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site.

This site is an excellent example of a coastal site with all the main habitats represented. The holds good examples of ten habitats that are listed on Annex I of the E.U. Habitats Directive; one of these is listed with priority status. Several of the wintering bird species have populations of international importance, while some of the invertebrates are of national importance. The site contains a numbers of rare and scarce plants including some which are legally protected. Its proximity to the capital city makes North Dublin Bay an excellent site for educational studies and research.

23.11.1999

SITE SYNOPSIS

SITE NAME: BALDOYLE BAY

SITE CODE: 000199

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth, Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the bay. The site contains four habitats listed on Annex I of the EU Habitats directive: *Salicornia* mud, Mediterranean salt meadows, Atlantic salt meadows and Tidal mudflats.

Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*).

The sediments have a typical macrofauna, with Lugworm (*Arenicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod *Hydrobia ulvae* occurs in the muddy areas, along with the crustacean *Corophium volutator*.

Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as Glasswort (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here. Portmarnock Spit formerly had a well-developed sand dune system but this has been largely replaced by golf courses and is mostly excluded from the site. A few dune hills are still intact at Portmarnock Point, and there are small dune hills east of Cush Point and below the Claremont Hotel. These are mostly dominated by Marram (*Ammophila arenaria*), though Lyme-grass (*Leymus arenarius*) is also found.

The site includes a brackish marsh along the Mayne River. Soils here have a high organic content and are poorly drained, and some pools occur. Rushes (*Juncus* spp.) and salt tolerant species such as Common Scurvygrass (*Cochleria officinalis*) and Greater Sea-spurrey (*Spergularia media*) are typical of this area. Knotted Hedge-parsley (*Torilis nodosa*), a scarce plant in eastern Ireland, has been recorded here, along with Brackish Water-crowfoot (*Ranunculus baudotti*), a species of brackish pools and ditches which has declined in most places due to habitat loss.

Two plant species, legally protected under the Flora (Protection) Order, 1999, occur in the Mayne marsh: Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*).

Baldoyle Bay is an important bird site for wintering waterfowl and the inner part of the estuary is a Special Protection Area under the EU Birds Directive as well as being a Statutory Nature Reserve. Internationally important numbers of Pale-bellied Brent Geese (418) and nationally important numbers of two Annex I Birds Directive species - Golden Pover (1,900) and Bar-tailed Godwit (283) - have been recorded. Four other species also reached nationally important numbers: Shelduck (147), Pintail (26), Grey Plover (148) and Ringed Plover (218) - all figures are average peaks for four winters 1994/95 to 1997/1998. Breeding wetland birds at the site include Shelduck, Mallard and Ringed Plover. Small numbers of Little Tern, a species listed on Annex I of the EU Birds Directive, have bred on a few occasions at Portmarnock Point but not since 1991.

Because the area surrounding Baldoyle Bay is densely populated, the main threats to the site include visitor pressure, disturbance to wildfowl and dumping. In particular, the dumping of spoil onto the foreshore presents a threat to the value of the site.

Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the EU Habitats Directive and has two legally protected plant species. The site is also an important bird area and part of it is a Special Protection Area under the EU Birds Directive, as well as being a Statutory Nature Reserve. It supports internationally important numbers of Brent Geese and nationally important numbers of six other species including two Annex I Birds Directive species.

15.2.2000

NATURA IMPACT STATEMENT

STAGE 1 SCREENING

PROPOSED EXPANSION

OF

MATERIALS RECOVERY FACILITY

CAPPAGH ROAD

FINGLAS

DUBLIN 11

Prepared For: -

PANDA Waste Services,
Cappogue,
Finglas,
Dublin 11

Prepared By: -
O' Callaghan Moran & Associates,
Granary House,
Rutland Street,
Cork.

December 2012

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1. INTRODUCTION

Nurendale Ltd, trading as PANDA Waste Services (PAND) intends to apply to Fingal County Council for planning permission to construct and operate a new waste processing building, increase the amount of waste accepted and extend the waste acceptance and operational hours at its Materials Recovery Facility (MRF) at Cappagh Road, Finglas, Dublin 11.

The European Union (EU) Habitats Directive (92/43/EC) and the EU Birds Directive (2009/147/EC) identify designated areas (Special Areas of Conservation (SAC) and Special Protection Areas (SPA) respectively) that are collectively known as Natura 2000 Sites. The Habitats Directive, which is implemented under the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No 477 of 2011), requires an "appropriate assessment" of the potential impacts any proposed development that may have an impact on the conservation objectives of any Natura 2000 site.

Article 6(3) of the Directive stipulates that *any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but likely to have a significant effect thereon...shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*

Guidance documents issued by Department of Environment, Heritage and Local Government and the National Parks and Wildlife Services recommend that the assessment be completed in a series of Stages, which comprise:

Stage 1: Screening

The purpose of this Stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, alone and in combination with other plans or projects, could have significant effects on a Natura 2000 site in respect of the site's conservation objectives.

Stage 2: Appropriate Assessment

This Stage is required if the Stage 1 Screening exercise identifies that the project is likely to have a significant impacts on a Natura 2000 site.

Stage 3 : Assessment of Alternative Solutions.

If Stage 2 determines that the project will have an adverse impact upon the integrity of a Natura 2000 site, despite the implementation of mitigation measures, it must be objectively concluded that no alternative solutions exist before the plan can proceed.

Stage 4 : Compensatory Measures:

Where no alternative solutions are feasible and where adverse impacts remain but imperative reasons of overriding public interest require the implementation of a project an assessment of compensatory measures that will effectively offset the damage to the Natura site 2000 is required.

PANDA commissioned O'Callaghan Moran & Associates (OCM) to complete a Stage 1 Screening to determine the effects of the proposed development on the nearby Natura 2000 sites.

1.1 Methodology

The Stage 1 Screening was based on a site inspection and the scope of the proposed development. It was conducted in accordance with the guidance presented in the "Assessment of Plans and Projects significantly affecting Natura 2000 sites, Methodological Guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC" (2001); The Department of Environment, Heritage and Local Government (2009, revised February 2010) Appropriate Assessment of Plans and Projects in Ireland and the National Parks and Wildlife Services (2010) Circular NPW 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.

2. DESCRIPTION OF PROJECT

2.1 Facility Overview

The facility, which opened in 2006, operates under planning permission issued by Fingal County Council and a Waste Licence (W0104-02) issued by the Environmental Protection Agency (Agency). These authorise the construction of three main processing buildings Building A1 (Construction and Demolition (C&D) and Commercial and Industrial (C&I) waste), B1 (Dry Recyclables) and B2 (Cardboard & Plastics) and the processing of 200,000 tonnes of waste annually.

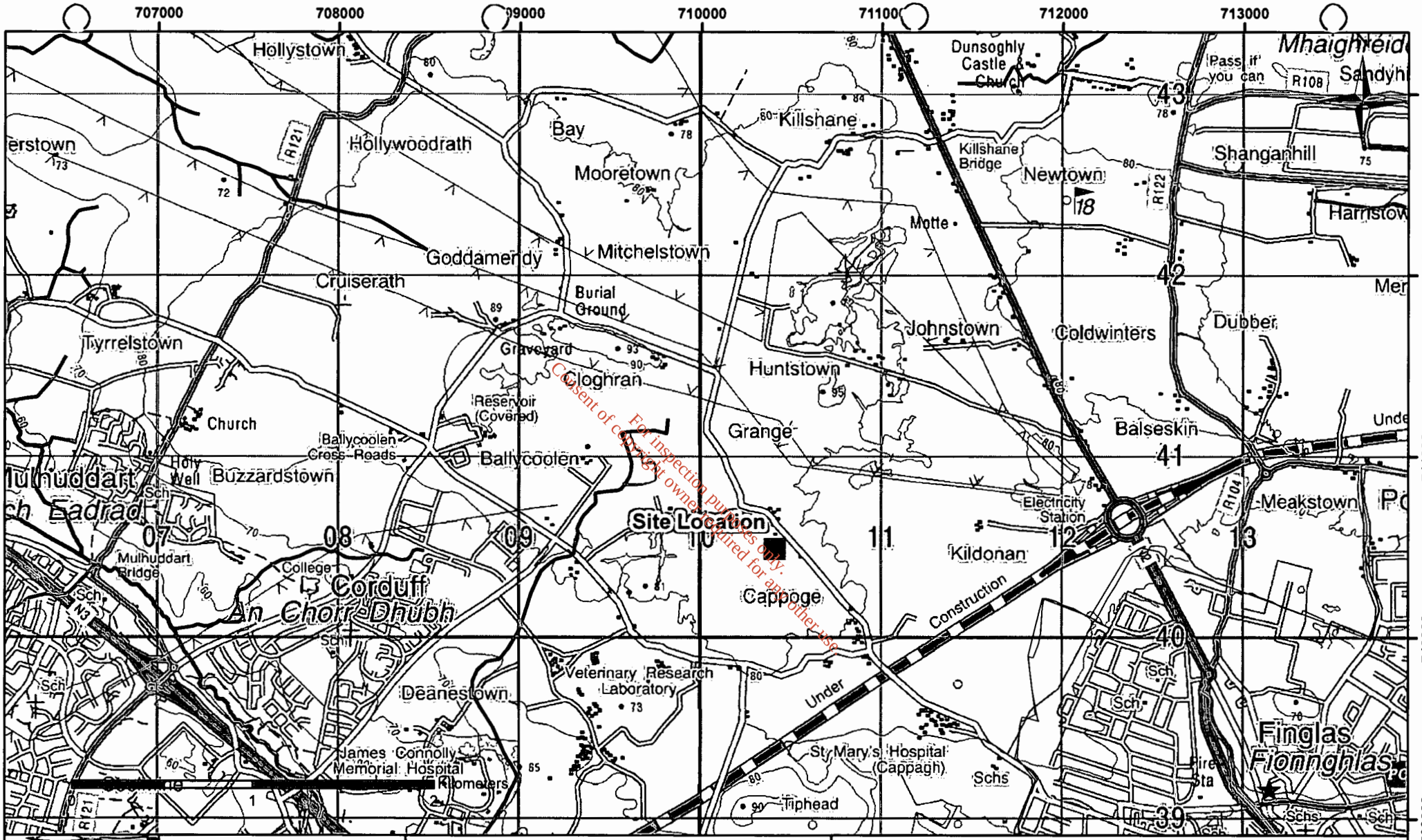
Building A1 has been constructed and is currently used for the recovery of C& D and C&I wastes. Construction works have begun on Buildings B1 and B2. Current operational hours are 8.00 to 18.00 Monday to Friday. For security purposes the yard area lighting remains on during the hours of darkness.

The planning permission and Licence restricts the amount of waste that can be accepted annually to 200,000 tonnes and does not allow the acceptance of mixed municipal solid waste, which includes household residual waste and food waste.

PANDA intends to apply for planning permission for a change of use to allow the acceptance of the household residual waste and food waste, increase the amount of waste accepted annually to 250,000 tonnes annually, and construct a new waste processing building and extend the operational hours. A separate application to revise the Waste Licence will be submitted to the Agency.

2.2 Site Location

The site is located on the Cappagh Road, approximately 2.5km South West of Dublin Airport, as shown on Figure 2.1. The lands to the south are occupied by the Stadium Business Park, to the east, across the Cappagh Road, is Huntstown Quarry.



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Tel. (021) 4321521 Fax. (022) 4321522
email: info@ocallaghanmoran.com

CLIENT

Panda

TITLE

Site Location

Details

Site_Location

Rivers

Figure 2..1

To the north is Millennium Business Park and to the west are undeveloped lands that are zoned for commercial use. There are no significant aquatic habitats within 500m of the site boundary.

2.3 Site Layout

The site encompasses 2.31 ha and, when the current construction works are complete, will be occupied by three main waste recovery buildings (Building A1, Buildings B1 and B2), Administration / Electrical Substation, concrete paved yards, weighbridge, foul and surface water drainage systems, an acoustic wall along the south eastern boundary and a palisade security fence.

2.4 Site Operations

Building A1 is currently used to process construction and demolition (C&D) waste and commercial and industrial (C&I) waste. Building B1 will handle mixed household and commercial dry recyclable wastes, (mixed paper, plastic, cardboard, food and drink cans etc). Building B2 will handle clean paper and cardboard (newsprint, magazines, office paper, cardboard packaging) from publishers and book printers, offices, supermarkets and shops.

Approximately 80 people are employed at the facility. These include a Facility Manager, weighbridge clerk, machine operators, general operatives and the collection vehicle drivers and operatives, including the household waste collection staff. The current operational hours are 8am to 8pm Monday to Friday and 8am to 4pm on Saturday.

Water is obtained from the mains supply. Waste water from the toilets and canteen is collected and stored in an underground tank before being sent for treatment at the Ringsend sewage treatment plant.

Rainwater is collected and channelled to an underground storage tank in the south of the site, after passing through a Class 1 Full Retention Oil Interceptor. The size of the tank is designed

to store rainfall from a 1 in 100 year event on the entire site. From the tank the water passes to the surface water drain serving the Stadium Business Park, which adjoins the site's southern boundary. The flow from the tank to the drain is limited to 6 litres/second to minimise the risk of flooding outside the site.

2.5 Proposed Development

The development will include;

- Construction of Building A 2(2,030m^2) to the southeast of Building A1;
- Provision of odour control abatement system to Building A1;
- Relocating the portacabin offices and canteen, and
- Construction of Weighbridge Office (?m^2).
- Moving existing C&D and C&I processing from Building A1 into Building A2,and
- Handling household residual waste and food waste in Building A1.
- Waste acceptance between 06.00 to 23.00 and waste operations between 07.00 to 20.00 hours

3. NATURA 2000 SITES

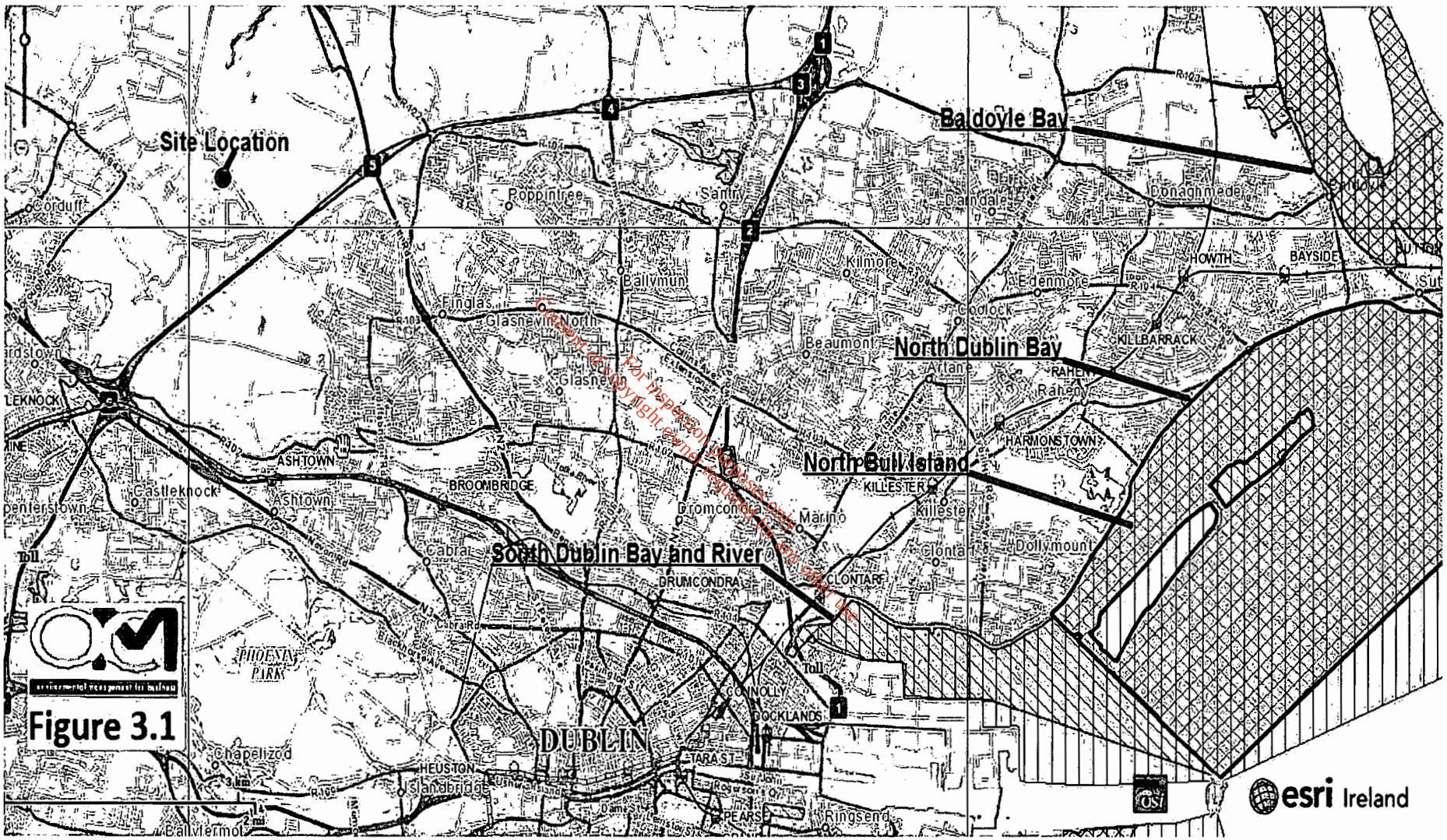
A list of designated Natura 2000 sites within 12 km of the facility is given in Table 3.1 and all are to the east of the site in Dublin Bay, as shown on Figure 3.1

Table 3 1. Natura 2000 Sites Potentially Affected by the Project

Site	Code	Distance
SAC		
Baldoyle Bay SAC		>10km
South Dublin Bay SAC	000210	>10km
North Dublin Bay SAC	000206	>10km
SPA		
South Dublin Bay and Tolka River Estuary SPA	004024	>10km
North Bull Island SPA	004006	>10km
Baldoyle Bay SPA	004016	>10km

SACs are selected for the conservation and protection of habitats listed on Annex I and species (other than birds) listed on Annex II of the Habitats Directive, and their habitats. The habitats on Annex I require special conservation measures.

SPAs are selected for the conservation and protection of bird species listed on Annex I of the Birds Directive and regularly occurring migratory species, and their habitats, particularly wetlands.



3.1 Conservation Objectives

A statement of Conservation Objectives is prepared for each designated site which identifies the qualifying interests or conservation features. The Conservation Objectives are intended to ensure that the relevant habitats and species present on a site are maintained, and where necessary restored, at a Favourable Conservation Status.

Favourable Conservation Status of a habitat, as defined in 2011 Birds and Natural Habitats Regulations, is when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Conservation Status of a species is when:

- The Favourable population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats,
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

3.1 South Dublin Bay SAC

This site lies south of the River Liffey and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats, a habitat listed on Annex I of the E.U. Habitats Directive. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion gates. The Site Synopsis that lists the full Qualifying Interests are in Appendix 1 and the information is summarised below.

Qualifying Interests

The South Dublin Bay SAC is selected for the following habitat listed in Annex 1 of the Habitats Directive: Mudflats and Sandflats not covered by seawater at low tide.

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the Mudflats and Sandflats. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.2 North Dublin Bay SAC

This Site covers the inner part of north Dublin Bay with, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island, which is the focal point, is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5 km in length and is up to 1 km wide in places. A Site Synopsis for the SAC that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

The North Dublin Bay SAC is selected for the following habitats listed in Annex 1 of the Habitats Directive: Mudflats and Sandflats not covered by seawater at low tide; Annual vegetation of drift lines: Salicornia and other annuals colonizing mud and sand: Spartina swards; Atlantic salt meadows; Petalwort; Mediterranean salt meadows; Embryonic shifting dunes; Shifting dunes along the shoreline with Ammophila arenaria (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes) and Humid dune slacks/

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the habitats for which the SAC has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.3 North Bull Island SPA

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling , Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull, Wetlands & Waterbirds.

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the species for which the SPA has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.4 South Dublin Bay and River Tolka Estuary SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Light-bellied Brent Goose, Ringed Plover, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling , Dunlin, Bar-tailed Godwit, Redshank, Black Headed Gull, Roseate Tern, Common Tern, Arctic Tern, Wetlands & Waterbirds

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the species for which the SPA has been selected The Statement of the Conservation Objectives for the site is in Appendix 2.

3.5 Baldoyle Bay SPA

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth. It is a tidal estuarine bay protected from the open sea by a large sand dune system. Two small rivers, the Mayne and the Sluice, flow into the inner part of the estuary.

Baldoyle Bay is of high ornithological importance for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. It supports an internationally important population of Pale-bellied Brent Geese, and has a further seven species with nationally important populations. The inner estuarine section is a Statutory Nature Reserve and is also designated as a wetland of international importance under the Ramsar Convention. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Brent Goose, Shelduck, Ringed Plover, Golden Plover, Grey Plover and Bar-tailed Godwit. Wetlands.

Conservation Objectives

The conservation objectives are to maintain the favorable conservation conditions of the qualifying interest for which the SPA has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.1 Baldoyle Bay SAC

Baldoyle Bay SAC overlap with the Baldoyle Bay SPA and extends from just below Portmarnock village to the west pier at Howth. It is a tidal estuarine bay protected from the open sea by a large sand dune system. Two small rivers, the Mayne and the Sluice, flow into the inner part of the estuary. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1. Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the EU Habitats Directive and has two legally protected plant species

Qualifying Interests

- Mudflats and sandflats not covered by seawater at low tide
- Salicornia and other annuals colonizing mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Mediterranean salt meadows (*Juncetalia maritimi*
- Borrer's Saltmarsh-grass (*Puccinellia fasciculata*), and
- Meadow Barley (*Hordeum secalinum*).

Conservation Objectives

The conservation objectives are to maintain the favorable conservation conditions of the qualifying interest for which the SAC has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

4. LIKELY EFFECTS

4.1 Setting

The facility is not located in or adjacent to a Natura 2000 Site and the closest sites are more than 10km to the east of the facility.

4.2 Proposed Development

The proposed development includes the construction of a new building in an area that otherwise would be paved with concrete. The changes to the operational hours will extend the period when noise emissions occur. Excessive noise has the potential to cause disturbance to species in designated sites. The yard area lighting remains on during the hours of darkness as a security measure, therefore the extension of the operational hours will not change the lighting regime.

The only potential pathway between the site and a Natura 2000 Site is the surface water discharge to the storm sewer that serves the Stadium Business Park and outfalls to the River Tolka. The Tolka Estuary is part of the South Dublin Bay and River Tolka Estuary SPA

4.3 Potential Impacts

Activities with the potential to impact on surface water and groundwater quality include:

- Run-off from open yard areas, that may be contaminated with silt and small amounts of oil from leaks from road vehicles and mobile site plant,
- Spills and leaks of oil, and
- Firewater run-off.

4.4 Mitigation Measures

4.4.1 Construction Stage

Relatively small volumes of potential polluting substances, for example diesel, lubricating and hydraulic oil, will be stored on site during the construction stage. The Construction Management Plan, which will be prepared before construction works begin, will specify how substances with the potential to adversely affect water quality, for example oil, will be stored and handled in a manner that minimises the risk of accidental spills or leaks. These measures will include bunding of all oil storage tanks and drums used by the building contractor and the provision of spill containment and absorption kits.

4.4.2 Operational Stage

The mitigation measures already applied at the facility include:

- The provision of a surface water drainage system that collects run-off from the paved open yards and directs it to a silt trap and Class 1 Oil Interceptor;
- The provision of a storm water attenuation tank that can accommodate a 1:100 year storm event;
- The provision of a shut of device on the outfall from the attenuation tank that can be closed in the event of an incident at the site that has the potential to contaminate surface water run-off;
- The provision and maintenance and integrity testing of spill containment infrastructure;
- The routine inspection of the surface water and foul water drainage systems and emptying of the wastewater storage tank;
- The regular cleaning of the paved open yards and emptying of the silt trap and interceptor, and

- The routine monitoring of the quality of the surface water emission from the site, which will identify any deterioration in quality and ensure the appropriate corrective actions are taken.

4.5 Assessment of Impacts

The proposed development will not result in any new emission to surface water, will not be a new source of wastewater and does not involve any significant alterations to the surface water and foul water drainage systems. Therefore there will be no change in the quality of the run-off from the site. All run-off will continue to pass through the silt trap and oil interceptor.

Effective mitigation measures are in place to deal with once off incidents that have the potential to cause surface water contamination.

Point and diffuse sources of water pollution, noise and artificial lighting in an urban/commercial setting can be cumulative pressure on the conservation interests of a designated site.

Given the nature of the development and the distance between the site and the only SAC with from the Natura 2000 Sites, the proposed development will not have any perceptible effect on any of the Conservation Objectives for the Natura 2000 Sites.

5. SCREENING CONCLUSION & STATEMENT

The proposed development will not result in any new or additional emission/disturbance that could present a significant risk to the Conservation Objectives of any of the Natura 2000 Sites within 12km of the plant. Therefore Stage 2 Appropriate Assessment is not required.

APPENDIX 1

SITE SYNOPSIS

SITE NAME: SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA

SITE CODE: 004024

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.

In the south bay, the intertidal flats extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Enteromorpha* spp. and *Ulva lactuca*) are distributed throughout the area at a low density. The macro-invertebrate fauna is well-developed, and is characterised by annelids such as Lugworm (*Arenicola marina*), *Nephthys* spp. and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotrophic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex – all counts for wintering waterbirds are mean peaks for the five year period 1995/96-99/2000. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there. An internationally important population of Light-bellied Brent Goose (525) occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at Merrion.

Light-bellied Brent Goose is also known to feed on the grassland at Poolbeg. The site supports nationally important numbers of a further nine species: Oystercatcher (1,263), Ringed Plover (161), Golden Plover (1,452), Grey Plover (183), Knot (1,151), Sanderling (349), Dunlin (2,753), Bar-tailed Godwit (866) and Redshank (713). Other species occurring in smaller numbers include Great Crested Grebe (21), Curlew (397) and Turnstone (75).

South Dublin Bay is a significant site for wintering gulls, especially Black-headed Gull (3,040), but also Common Gull (330) and Herring Gull (348). Mediterranean Gull is also recorded from here, occurring through much of the year, but especially in late winter/spring and again in late summer into winter.

Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the site. Small numbers of Common Tern and Arctic Tern were recorded nesting on this dolphin in the 1980s. A survey of the dolphin in 1999 recorded Common Tern nesting here in nationally important numbers (194 pairs). This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007.

The south bay is an important tern roost in the autumn (mostly late July to September). Birds also use the Dalkey Islands to the south. The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. More than 10,000 terns have been recorded, consisting of Common, Arctic and Roseate terns.

The wintering birds within this site are now well-monitored. More survey, however, is required on the wintering gulls and the autumn terns.

Booterstown Marsh supports an important population of Borrer's Saltmarsh-grass (*Puccinellia fasciculata*), a rare, Red Data Book species that is listed on the Flora (Protection) Order, 1999.

The South Dublin Bay and River Tolka Estuary SPA is of international importance for Light-bellied Brent Goose and of national importance for nine other waterfowl species. As an autumn tern roost, it is also of international importance. Furthermore, the site supports a nationally important colony of Common Tern. All of the tern species using the site are listed on Annex I of the E.U. Birds Directive, as are Bar-tailed Godwit and Mediterranean Gull.

1.5.2008

The island shelters two intertidal lagoons which are divided by a solid causeway. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. The north lagoon has an area known as the "*Salicornia* flat", which is dominated by *Salicornia dolichostachya*, a pioneer Glasswort species, and covers about 25 ha. Tassel Weed (*Ruppia maritima)* occurs in this area, along with some Eelgrass (*Zostera angustifolia*). Eelgrass (*Z. noltii*) also occurs in Sutton Creek. Cordgrass (*Spartina anglica*) occurs in places but its growth is controlled by management. Green algal mats (*Enteromorpha* spp., *Ulva lactuca*) cover large areas of the flats during summer. These sediments have a rich macrofauna, with high densities of Lugworms (*Arenicola marina*) in parts of the north lagoon. Mussels (*Mytilus edulis*) occur in places, along with bivalves such as *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. The small gastropod *Hydrobia ulvae* occurs in high densities in places, while the crustaceans *Corophium volutator* and *Carcinus maenas* are common. The sediments on the seaward side of North Bull Island are mostly sands. The site extends below the low spring tide mark to include an area of the sublittoral zone.

Three Rare plant species legally protected under the Flora Protection Order 1987 have been recorded on the North Bull Island. These are Lesser Centaury (*Centaurium pulchellum*), Hemp Nettle (*Galeopsis angustifolia*) and Meadow Saxifrage (*Saxifraga granulata*). Two further species listed as threatened in the Red Data Book, Wild Sage (*Salvia verbenaca*) and Spring Vetch (*Vicia lathyroides*), have also been recorded. A rare liverwort, *Petalophyllum ralfsii*, was first recorded from the North Bull Island in 1874 and has recently been confirmed as being still present there. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. The North Bull is the only known extant site for the species in Ireland away from the western seaboard.

North Dublin Bay is of international importance for waterfowl. During the 1994/95 to 1996/97 period the following species occurred in internationally important numbers (figures are average maxima): Brent Geese 2,333; Knot 4,423; Bar-tailed Godwit 1,586. A further 14 species occurred in nationally important concentrations - Shelduck 1505; Wigeon 1,166; Teal 1,512; Pintail 334; Shoveler 239; Oystercatcher 2,190; Ringed Plover 346; Grey Plover 816; Sanderling 357; Dunlin 6,238; Black-tailed Godwit 156; Curlew 1,193; Turnstone 197 and Redshank 1,175. Some of these species frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes (mostly Brent Goose, Oystercatcher, Ringed Plover, Sanderling, Dunlin).

The tip of the North Bull Island is a traditional nesting site for Little Tern. A high total of 88 pairs nested in 1987. However, nesting attempts have not been successful since the early 1990s. Ringed Plover, Shelduck, Mallard, Skylark, Meadow Pipit and Stonechat also nest. A well-known population of Irish Hare is resident on the island

The invertebrates of the North Bull Island have been studied and the island has been shown to contain at least seven species of regional or national importance in Ireland (Orders Diptera, Hymenoptera, Hemiptera).

The main landuses of this site are amenity activities and nature conservation. The North Bull Island is the main recreational beach in Co Dublin and is used throughout the year. Much of the land surface of the island is taken up by two golf courses. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site.

This site is an excellent example of a coastal site with all the main habitats represented. The holds good examples of ten habitats that are listed on Annex I of the E.U. Habitats Directive; one of these is listed with priority status. Several of the wintering bird species have populations of international importance, while some of the invertebrates are of national importance. The site contains a numbers of rare and scarce plants including some which are legally protected. Its proximity to the capital city makes North Dublin Bay an excellent site for educational studies and research.

23.11.1999

SITE SYNOPSIS

SITE NAME: BALDOYLE BAY

SITE CODE: 000199

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth, Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the bay. The site contains four habitats listed on Annex I of the EU Habitats directive: *Salicornia* mud, Mediterranean salt meadows, Atlantic salt meadows and Tidal mudflats.

Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*).

The sediments have a typical macrofauna, with Lugworm (*Arenicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod *Hydrobia ulvae* occurs in the muddy areas, along with the crustacean *Corophium volutator*.

Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as Glasswort (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here. Portmarnock Spit formerly had a well-developed sand dune system but this has been largely replaced by golf courses and is mostly excluded from the site. A few dune hills are still intact at Portmarnock Point, and there are small dune hills east of Cush Point and below the Claremont Hotel. These are mostly dominated by Marram (*Ammophila arenaria*), though Lyme-grass (*Leymus arenarius*) is also found.

The site includes a brackish marsh along the Mayne River. Soils here have a high organic content and are poorly drained, and some pools occur. Rushes (*Juncus* spp.) and salt tolerant species such as Common Scurvygrass (*Cochleria officinalis*) and Greater Sea-spurrey (*Spergularia media*) are typical of this area. Knotted Hedge-parsley (*Torilis nodosa*), a scarce plant in eastern Ireland, has been recorded here, along with Brackish Water-crowfoot (*Ranunculus baudotti*), a species of brackish pools and ditches which has declined in most places due to habitat loss.

Two plant species, legally protected under the Flora (Protection) Order, 1999, occur in the Mayne marsh: Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*).

Baldoyle Bay is an important bird site for wintering waterfowl and the inner part of the estuary is a Special Protection Area under the EU Birds Directive as well as being a Statutory Nature Reserve. Internationally important numbers of Pale-bellied Brent Geese (418) and nationally important numbers of two Annex I Birds Directive species - Golden Pover (1,900) and Bar-tailed Godwit (283) - have been recorded. Four other species also reached nationally important numbers: Shelduck (147), Pintail (26), Grey Plover (148) and Ringed Plover (218) - all figures are average peaks for four winters 1994/95 to 1997/1998. Breeding wetland birds at the site include Shelduck, Mallard and Ringed Plover. Small numbers of Little Tern, a species listed on Annex I of the EU Birds Directive, have bred on a few occasions at Portmarnock Point but not since 1991.

Because the area surrounding Baldoyle Bay is densely populated, the main threats to the site include visitor pressure, disturbance to wildfowl and dumping. In particular, the dumping of spoil onto the foreshore presents a threat to the value of the site.

Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the EU Habitats Directive and has two legally protected plant species. The site is also an important bird area and part of it is a Special Protection Area under the EU Birds Directive, as well as being a Statutory Nature Reserve. It supports internationally important numbers of Brent Geese and nationally important numbers of six other species including two Annex I Birds Directive species.

15.2.2000

NATURA IMPACT STATEMENT

STAGE 1 SCREENING

PROPOSED EXPANSION

OF

MATERIALS RECOVERY FACILITY

CAPPAGH ROAD

FINGLAS

DUBLIN 11

Prepared For: -

PANDA Waste Services,
Cappogue,
Finglas,
Dublin 11

Prepared By: -
O' Callaghan Moran & Associates,
Granary House,
Rutland Street,
Cork.

December 2012

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1. INTRODUCTION

Nurendale Ltd, trading as PANDA Waste Services (PAND) intends to apply to Fingal County Council for planning permission to construct and operate a new waste processing building, increase the amount of waste accepted and extend the waste acceptance and operational hours at its Materials Recovery Facility (MRF) at Cappagh Road, Finglas, Dublin 11.

The European Union (EU) Habitats Directive (92/43/EC) and the EU Birds Directive (2009/147/EC) identify designated areas (Special Areas of Conservation (SAC) and Special Protection Areas (SPA) respectively) that are collectively known as Natura 2000 Sites. The Habitats Directive, which is implemented under the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No 477 of 2011), requires an "appropriate assessment" of the potential impacts any proposed development that may have an impact on the conservation objectives of any Natura 2000 site.

Article 6(3) of the Directive stipulates that *any plan or project not directly connected with or necessary to the management of a Natura 2000 site, but likely to have a significant effect thereon...shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.*

Guidance documents issued by Department of Environment, Heritage and Local Government and the National Parks and Wildlife Services recommend that the assessment be completed in a series of Stages, which comprise:

Stage 1: Screening

The purpose of this Stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, alone and in combination with other plans or projects, could have significant effects on a Natura 2000 site in respect of the site's conservation objectives.

Stage 2: Appropriate Assessment

This Stage is required if the Stage 1 Screening exercise identifies that the project is likely to have a significant impacts on a Natura 2000 site.

Stage 3 : Assessment of Alternative Solutions.

If Stage 2 determines that the project will have an adverse impact upon the integrity of a Natura 2000 site, despite the implementation of mitigation measures, it must be objectively concluded that no alternative solutions exist before the plan can proceed.

Stage 4 : Compensatory Measures:

Where no alternative solutions are feasible and where adverse impacts remain but imperative reasons of overriding public interest require the implementation of a project an assessment of compensatory measures that will effectively offset the damage to the Natura site 2000 is required.

PANDA commissioned O'Callaghan Moran & Associates (OCM) to complete a Stage 1 Screening to determine the effects of the proposed development on the nearby Natura 2000 sites.

1.1 Methodology

The Stage 1 Screening was based on a site inspection and the scope of the proposed development. It was conducted in accordance with the guidance presented in the "Assessment of Plans and Projects significantly affecting Natura 2000 sites, Methodological Guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC" (2001); The Department of Environment, Heritage and Local Government (2009, revised February 2010) Appropriate Assessment of Plans and Projects in Ireland and the National Parks and Wildlife Services (2010) Circular NPW 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.

2. DESCRIPTION OF PROJECT

2.1 Facility Overview

The facility, which opened in 2006, operates under planning permission issued by Fingal County Council and a Waste Licence (W0104-02) issued by the Environmental Protection Agency (Agency). These authorise the construction of three main processing buildings Building A1 (Construction and Demolition (C&D) and Commercial and Industrial (C&I) waste), B1 (Dry Recyclables) and B2 (Cardboard & Plastics) and the processing of 200,000 tonnes of waste annually.

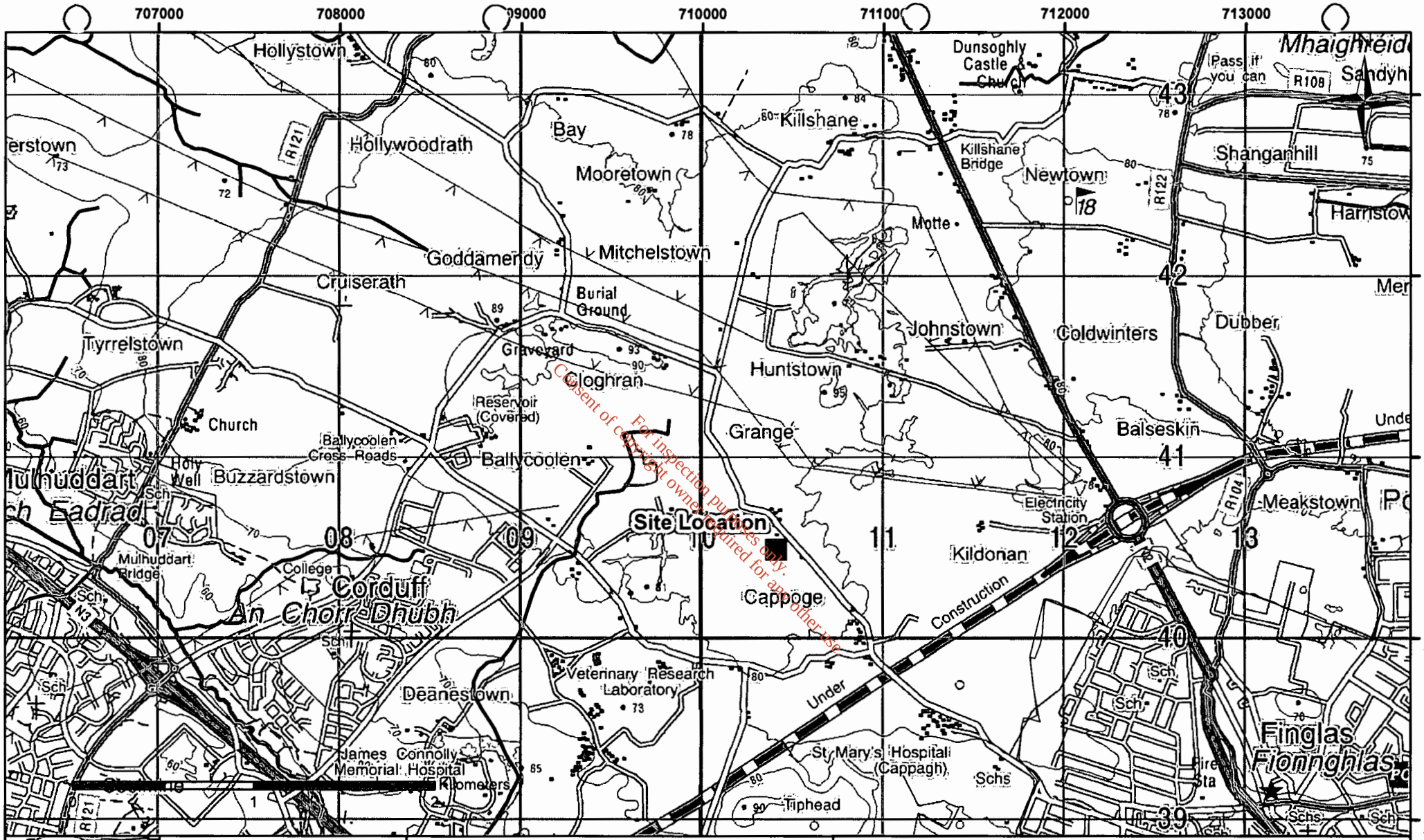
Building A1 has been constructed and is currently used for the recovery of C& D and C&I wastes. Construction works have begun on Buildings B1 and B2. Current operational hours are 8.00 to 18.00 Monday to Friday. For security purposes the yard area lighting remains on during the hours of darkness.

The planning permission and Licence restricts the amount of waste that can be accepted annually to 200,000 tonnes and does not allow the acceptance of mixed municipal solid waste, which includes household residual waste and food waste.

PANDA intends to apply for planning permission for a change of use to allow the acceptance of the household residual waste and food waste, increase the amount of waste accepted annually to 250,000 tonnes annually, and construct a new waste processing building and extend the operational hours. A separate application to revise the Waste Licence will be submitted to the Agency.

2.2 Site Location

The site is located on the Cappagh Road, approximately 2.5km South West of Dublin Airport, as shown on Figure 2.1. The lands to the south are occupied by the Stadium Business Park, to the east, across the Cappagh Road, is Huntstown Quarry.



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CLIENT

Panda

TITLE

Site Location

Details

Site_Location

Rivers

Figure 2..1

To the north is Millennium Business Park and to the west are undeveloped lands that are zoned for commercial use. There are no significant aquatic habitats within 500m of the site boundary.

2.3 Site Layout

The site encompasses 2.31 ha and, when the current construction works are complete, will be occupied by three main waste recovery buildings (Building A1, Buildings B1 and B2), Administration / Electrical Substation, concrete paved yards, weighbridge, foul and surface water drainage systems, an acoustic wall along the south eastern boundary and a palisade security fence.

2.4 Site Operations

Building A1 is currently used to process construction and demolition (C&D) waste and commercial and industrial (C&I) waste. Building B1 will handle mixed household and commercial dry recyclable wastes, (mixed paper, plastic, cardboard, food and drink cans etc). Building B2 will handle clean paper and cardboard (newsprint, magazines, office paper, cardboard packaging) from publishers and book printers, offices, supermarkets and shops.

Approximately 80 people are employed at the facility. These include a Facility Manager, weighbridge clerk, machine operators, general operatives and the collection vehicle drivers and operatives, including the household waste collection staff. The current operational hours are 8am to 8pm Monday to Friday and 8am to 4pm on Saturday.

Water is obtained from the mains supply. Waste water from the toilets and canteen is collected and stored in an underground tank before being sent for treatment at the Ringsend sewage treatment plant.

Rainwater is collected and channelled to an underground storage tank in the south of the site, after passing through a Class 1 Full Retention Oil Interceptor. The size of the tank is designed

to store rainfall from a 1 in 100 year event on the entire site. From the tank the water passes to the surface water drain serving the Stadium Business Park, which adjoins the site's southern boundary. The flow from the tank to the drain is limited to 6 litres/second to minimise the risk of flooding outside the site.

2.5 Proposed Development

The development will include;

- Construction of Building A 2(2,030m^2) to the southeast of Building A1;
- Provision of odour control abatement system to Building A1;
- Relocating the portacabin offices and canteen, and
- Construction of Weighbridge Office (2m^2)
- Moving existing C&D and C&I processing from Building A1 into Building A2,and
- Handling household residual waste and food waste in Building A1.
- Waste acceptance between 06.00 to 23.00 and waste operations between 07.00 to 20.00 hours

3. NATURA 2000 SITES

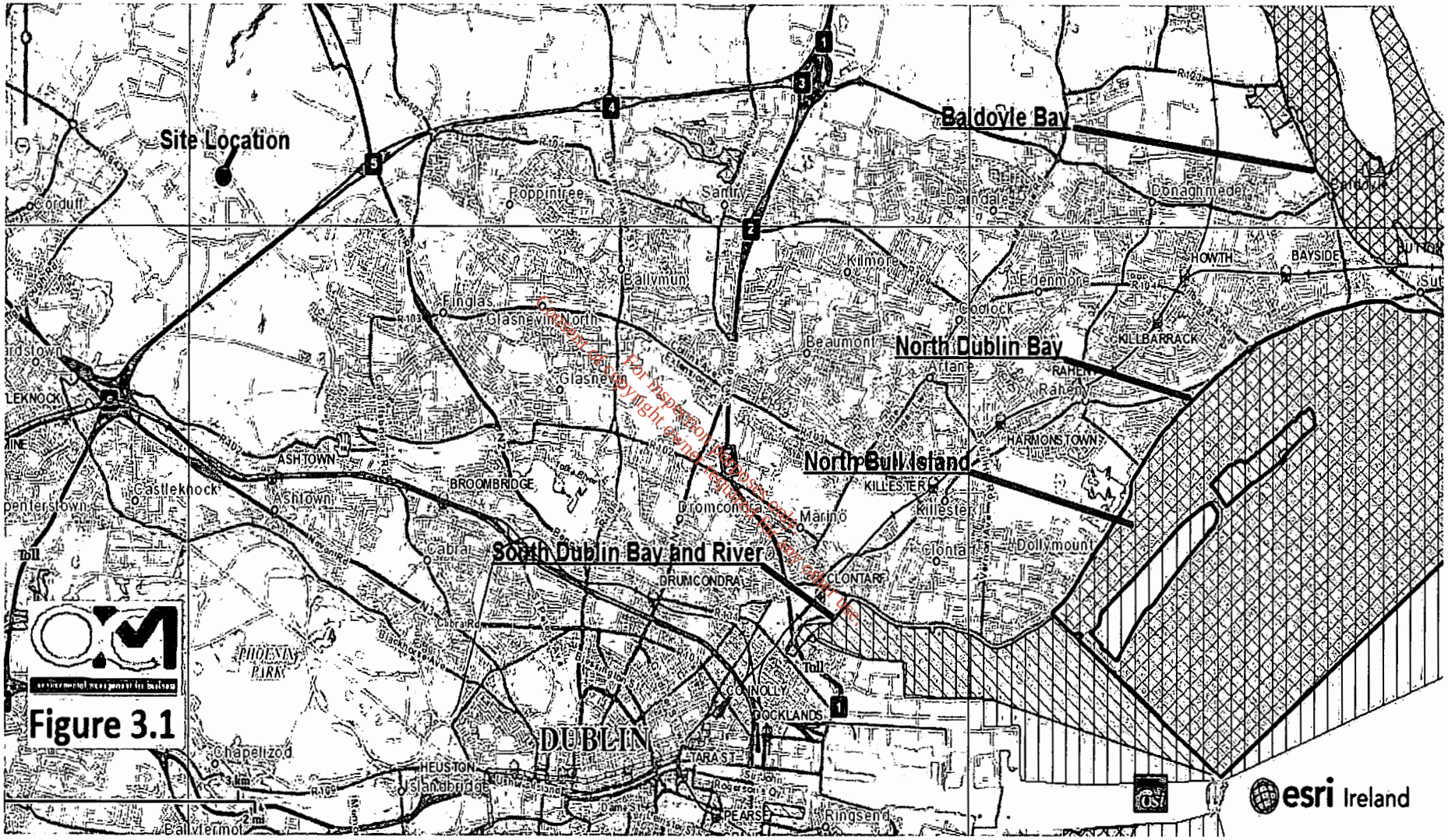
A list of designated Natura 2000 sites within 12 km of the facility is given in Table 3.1 and all are to the east of the site in Dublin Bay, as shown on Figure 3.1

Table 3 1. Natura 2000 Sites Potentially Affected by the Project

Site	Code	Distance
SAC		
Baldoyle Bay SAC		>10km
South Dublin Bay SAC	000210	>10km
North Dublin Bay SAC	000206	>10km
SPA		
South Dublin Bay and Tolka River Estuary SPA	004024	>10km
North Bull Island SPA	004006	>10km
Baldoyle Bay SPA	004016	>10km

SACs are selected for the conservation and protection of habitats listed on Annex I and species (other than birds) listed on Annex II of the Habitats Directive, and their habitats. The habitats on Annex I require special conservation measures.

SPAs are selected for the conservation and protection of bird species listed on Annex I of the Birds Directive and regularly occurring migratory species, and their habitats, particularly wetlands.



3.1 Conservation Objectives

A statement of Conservation Objectives is prepared for each designated site which identifies the qualifying interests or conservation features. The Conservation Objectives are intended to ensure that the relevant habitats and species present on a site are maintained, and where necessary restored, at a Favourable Conservation Status.

Favourable Conservation Status of a habitat, as defined in 2011 Birds and Natural Habitats Regulations, is when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Conservation Status of a species is when:

- The Favourable population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats,
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

3.1 South Dublin Bay SAC

This site lies south of the River Liffey and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats, a habitat listed on Annex I of the E.U. Habitats Directive. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion gates. The Site Synopsis that lists the full Qualifying Interests are in Appendix 1 and the information is summarised below.

Qualifying Interests

The South Dublin Bay SAC is selected for the following habitat listed in Annex 1 of the Habitats Directive: Mudflats and Sandflats not covered by seawater at low tide.

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the Mudflats and Sandflats. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.2 North Dublin Bay SAC

This Site covers the inner part of north Dublin Bay with, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head. The North Bull Island, which is the focal point, is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5 km in length and is up to 1 km wide in places. A Site Synopsis for the SAC that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

The North Dublin Bay SAC is selected for the following habitats listed in Annex 1 of the Habitats Directive: Mudflats and Sandflats not covered by seawater at low tide; Annual vegetation of drift lines: Salicornia and other annuals colonizing mud and sand: Spartina swards; Atlantic salt meadows; Petalwort; Mediterranean salt meadows; Embryonic shifting dunes; Shifting dunes along the shoreline with Ammophila arenaria (white dunes); Fixed coastal dunes with herbaceous vegetation (grey dunes) and Humid dune slacks/

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the habitats for which the SAC has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.3 North Bull Island SPA

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling , Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull, Wetlands & Waterbirds.

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the species for which the SPA has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.4 South Dublin Bay and River Tolka Estuary SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Light-bellied Brent Goose, Ringed Plover, Oystercatcher, Golden Plover, Grey Plover, Knot, Sanderling , Dunlin, Bar-tailed Godwit, Redshank, Black Headed Gull, Roseate Tern, Common Tern, Arctic Tern, Wetlands & Waterbirds

Conservation Objectives

The conservation objectives are to maintain or restore the favorable conservation condition of the species for which the SPA has been selected The Statement of the Conservation Objectives for the site is in Appendix 2.

3.5 Baldoyle Bay SPA

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth. It is a tidal estuarine bay protected from the open sea by a large sand dune system. Two small rivers, the Mayne and the Sluice, flow into the inner part of the estuary.

Baldoyle Bay is of high ornithological importance for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. It supports an internationally important population of Pale-bellied Brent Geese, and has a further seven species with nationally important populations. The inner estuarine section is a Statutory Nature Reserve and is also designated as a wetland of international importance under the Ramsar Convention. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1 and the information is summarised below.

Qualifying Interests

Brent Goose, Shelduck, Ringed Plover, Golden Plover, Grey Plover and Bar-tailed Godwit. Wetlands.

Conservation Objectives

The conservation objectives are to maintain the favorable conservation conditions of the qualifying interest for which the SPA has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

3.1 Baldoyle Bay SAC

Baldoyle Bay SAC overlap with the Baldoyle Bay SPA and extends from just below Portmarnock village to the west pier at Howth. It is a tidal estuarine bay protected from the open sea by a large sand dune system. Two small rivers, the Mayne and the Sluice, flow into the inner part of the estuary. A Site Synopsis that lists the full Qualifying Interests is in Appendix 1. Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the EU Habitats Directive and has two legally protected plant species

Qualifying Interests

- Mudflats and sandflats not covered by seawater at low tide
- Salicornia and other annuals colonizing mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Mediterranean salt meadows (*Juncetalia maritimi*
- Borrer's Saltmarsh-grass (*Puccinellia fasciculata*), and
- Meadow Barley (*Hordeum secalinum*).

Conservation Objectives

The conservation objectives are to maintain the favorable conservation conditions of the qualifying interest for which the SAC has been selected. The Statement of the Conservation Objectives for the site is in Appendix 2.

4. LIKELY EFFECTS

4.1 Setting

The facility is not located in or adjacent to a Natura 2000 Site and the closest sites are more than 10km to the east of the facility.

4.2 Proposed Development

The proposed development includes the construction of a new building in an area that otherwise would be paved with concrete. The changes to the operational hours will extend the period when noise emissions occur. Excessive noise has the potential to cause disturbance to species in designated sites. The yard area lighting remains on during the hours of darkness as a security measure, therefore the extension of the operational hours will not change the lighting regime.

The only potential pathway between the site and a Natura 2000 Site is the surface water discharge to the storm sewer that serves the Stadium Business Park and outfalls to the River Tolka. The Tolka Estuary is part of the South Dublin Bay and River Tolka Estuary SPA

4.3 Potential Impacts

Activities with the potential to impact on surface water and groundwater quality include:

- Run-off from open yard areas, that may be contaminated with silt and small amounts of oil from leaks from road vehicles and mobile site plant,
- Spills and leaks of oil, and
- Firewater run-off.

4.4 Mitigation Measures

4.4.1 Construction Stage

Relatively small volumes of potential polluting substances, for example diesel, lubricating and hydraulic oil, will be stored on site during the construction stage. The Construction Management Plan, which will be prepared before construction works begin, will specify how substances with the potential to adversely affect water quality, for example oil, will be stored and handled in a manner that minimises the risk of accidental spills or leaks. These measures will include bunding of all oil storage tanks and drums used by the building contractor and the provision of spill containment and absorption kits.

4.4.2 Operational Stage

The mitigation measures already applied at the facility include:

- The provision of a surface water drainage system that collects run-off from the paved open yards and directs it to a silt trap and Class 1 Oil Interceptor;
- The provision of a storm water attenuation tank that can accommodate a 1:100 year storm event;
- The provision of a shut of device on the outfall from the attenuation tank that can be closed in the event of an incident at the site that has the potential to contaminate surface water run-off;
- The provision and maintenance and integrity testing of spill containment infrastructure;
- The routine inspection of the surface water and foul water drainage systems and emptying of the wastewater storage tank;
- The regular cleaning of the paved open yards and emptying of the silt trap and interceptor, and

- The routine monitoring of the quality of the surface water emission from the site, which will identify any deterioration in quality and ensure the appropriate corrective actions are taken.

4.5 Assessment of Impacts

The proposed development will not result in any new emission to surface water, will not be a new source of wastewater and does not involve any significant alterations to the surface water and foul water drainage systems. Therefore there will be no change in the quality of the run-off from the site. All run-off will continue to pass through the silt trap and oil interceptor.

Effective mitigation measures are in place to deal with once off incidents that have the potential to cause surface water contamination.

Point and diffuse sources of water pollution, noise and artificial lighting in an urban/commercial setting can be cumulative pressure on the conservation interests of a designated site.

Given the nature of the development and the distance between the site and the only SAC with from the Natura 2000 Sites, the proposed development will not have any perceptible effect on any of the Conservation Objectives for the Natura 2000 Sites.

5. SCREENING CONCLUSION & STATEMENT

The proposed development will not result in any new or additional emission/disturbance that could present a significant risk to the Conservation Objectives of any of the Natura 2000 Sites within 12km of the plant. Therefore Stage 2 Appropriate Assessment is not required.

APPENDIX 1

SITE SYNOPSIS

SITE NAME: SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA

SITE CODE: 004024

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.

In the south bay, the intertidal flats extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Enteromorpha* spp. and *Ulva lactuca*) are distributed throughout the area at a low density. The macro-invertebrate fauna is well-developed, and is characterised by annelids such as Lugworm (*Arenicola marina*), *Nephthys* spp. and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotrophic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex – all counts for wintering waterbirds are mean peaks for the five year period 1995/96-99/2000. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there. An internationally important population of Light-bellied Brent Goose (525) occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at Merrion.

Light-bellied Brent Goose is also known to feed on the grassland at Poolbeg. The site supports nationally important numbers of a further nine species: Oystercatcher (1,263), Ringed Plover (161), Golden Plover (1,452), Grey Plover (183), Knot (1,151), Sanderling (349), Dunlin (2,753), Bar-tailed Godwit (866) and Redshank (713). Other species occurring in smaller numbers include Great Crested Grebe (21), Curlew (397) and Turnstone (75).

South Dublin Bay is a significant site for wintering gulls, especially Black-headed Gull (3,040), but also Common Gull (330) and Herring Gull (348). Mediterranean Gull is also recorded from here, occurring through much of the year, but especially in late winter/spring and again in late summer into winter.

Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the site. Small numbers of Common Tern and Arctic Tern were recorded nesting on this dolphin in the 1980s. A survey of the dolphin in 1999 recorded Common Tern nesting here in nationally important numbers (194 pairs). This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007.

The south bay is an important tern roost in the autumn (mostly late July to September). Birds also use the Dalkey Islands to the south. The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. More than 10,000 terns have been recorded, consisting of Common, Arctic and Roseate terns.

The wintering birds within this site are now well-monitored. More survey, however, is required on the wintering gulls and the autumn terns.

Booterstown Marsh supports an important population of Borrer's Saltmarsh-grass (*Puccinellia fasciculata*), a rare, Red Data Book species that is listed on the Flora (Protection) Order, 1999.

The South Dublin Bay and River Tolka Estuary SPA is of international importance for Light-bellied Brent Goose and of national importance for nine other waterfowl species. As an autumn tern roost, it is also of international importance. Furthermore, the site supports a nationally important colony of Common Tern. All of the tern species using the site are listed on Annex I of the E.U. Birds Directive, as are Bar-tailed Godwit and Mediterranean Gull.

1.5.2008

SITE SYNOPSIS

SITE NAME: BALDOYLE BAY SPA

SITE CODE: 004016

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth, Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the inner part of the estuary.

Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*). The sediments have a typical macrofauna, with Lugworm (*Arenicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod Laver Spire-shell (*Hydrobia ulvae*) occurs in the muddy areas, along with the crustacean *Corophium volutator*. Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as Glasswort (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here.

Baldoyle Bay is of high ornithological importance for wintering waterfowl, providing good quality feeding areas and roost sites for an excellent diversity of waterfowl species. It supports an internationally important population of Pale-bellied Brent Geese (726), and has a further seven species with nationally important populations (all figures are average peaks for the five winters 1995/96 to 1999/2000): Great Crested Grebe (42), Shelduck (147), Pintail (22), Ringed Plover (221), Golden Plover (1810), Grey Plover (200) and Bar-tailed Godwit (353). The occurrence of Golden Plover and Bar-tailed Godwit is of particular note as these species are listed on Annex I of the E.U. Birds Directive. Other species which occur in significant numbers include Teal (124), Mallard (48), Common Scoter (61), Oystercatcher (531), Lapwing (480), Knot (115), Dunlin 879), Black-tailed Godwit (72), Curlew (96), Redshank (224), Greenshank (11) and Turnstone (43).

Regular breeding birds include Shelduck, Mallard and Ringed Plover. In autumn, passage migrants such as Curlew Sandpiper, Spotted Redshank and Green Sandpiper are regular in small numbers.

Baldoyle Bay SPA is of high conservation importance, with an internationally important population of Brent Geese and nationally important populations of a further seven species, including two which are listed on Annex I of the E.U. Birds Directive. The inner estuarine section is a Statutory Nature Reserve and is also designated as a wetland of international importance under the Ramsar Convention. The site is a

candidate Special Area of Conservation under the E.U. Habitats Directive. The main threat to the birds is disturbance as it is located in a densely populated area.

27.2.2003

SITE SYNOPSIS

SITE NAME: NORTH BULL ISLAND SPA

SITE CODE: 004006

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5 km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses.

A well-developed and dynamic dune system stretches along the seaward side of the island. Various types of dunes occur, from fixed dune grassland to pioneer communities on foredunes. Marram Grass (*Ammophila arenaria*) is dominant on the outer dune ridges. Species of the fixed dunes include Wild Pansy (*Viola tricolor*), Kidney Vetch (*Anthyllis vulneraria*), Bird's-foot Trefoil (*Lotus corniculatus*), Pyramidal Orchid (*Anacamptis pyramidalis*) and, in places, the scarce Bee Orchid (*Ophrys apifera*). A feature of the dune system is a large dune slack with a rich flora, usually referred to as the 'Alder Marsh' because of the presence of Alder (*Alnus glutinosa*) trees. The water table is very near the surface and is only slightly brackish. Sea Rush (*Juncus maritimus*) is the dominant species, with Meadowsweet (*Filipendula ulmaria*) and Devil's-bit Scabious (*Succisa pratensis*) being frequent. The orchid flora is notably diverse in this area.

Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. On the lower marsh, Glasswort (*Salicornia europaea*), Common Saltmarsh-grass (*Puccinellia maritima*), Annual Sea-blite (*Suaeda maritima*) and Greater Sea-spurrey (*Spergularia media*) are the main species. Higher up in the middle marsh Sea Plantain (*Plantago maritima*), Sea Aster (*Aster tripolium*), Sea Arrowgrass (*Triglochin maritima*) and Thrift (*Armeria maritima*) appear. Above the mark of the normal high tide, species such as Common Scurvygrass (*Cochlearia officinalis*) and Sea Milkwort (*Glaux maritima*) are found, while on the extreme upper marsh, Sea Rush and Saltmarsh Rush (*Juncus gerardi*) are dominant.

The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterfowl. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. Tasselweed (*Ruppia maritima*) and small amounts of Eelgrass (*Zostera* spp.) are found in the lagoons. Common Cord-grass (*Spartina anglica*) occurs in places. Green algal mats (*Enteromorpha* spp., *Ulva lactuca*) are a feature of the flats during summer. These sediments have a rich macro-invertebrate fauna, with high densities of Lugworm (*Arenicola marina*) and Ragworm (*Hediste diversicolor*). Mussels (*Mytilus edulis*) occur in places, along with bivalves such as *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. The small gastropod *Hydrobia ulvae*

occurs in high densities in places, while the crustaceans *Corophium volutator* and *Carcinus maenas* are common. The sediments on the seaward side of North Bull Island are mostly sands and support species such as Lugworm and the Sand Mason (*Lanice conchilega*). The site includes a substantial area of the shallow marine bay waters.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Shelduck, Teal, Pintail, Shoveler, Oystercatcher, Ringed Plover, Golden Plover, Grey Plover, Knot, Sanderling, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Turnstone and Black-headed Gull. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. It also qualifies for international importance as the numbers of three species exceed the international threshold – Light-bellied Brent Goose (1,548), Black-tailed Godwit (367) and Bar-tailed Godwit (1,529) (all waterfowl figures given are average maxima for the five winters 1995/96 to 1999/00). The site is the top site in the country for both of these species. A further 14 species have populations of national importance – Shelduck (1,259), Teal (953), Pintail (233), Shoveler (141), Oystercatcher (1,784), Ringed Plover (139), Golden Plover (1,741), Grey Plover (517), Knot (2,623), Sanderling (141), Dunlin (3,926), Curlew (937), Redshank (1,431) and Turnstone (157). The populations of Pintail and Knot are of particular note as they comprise more than 10% of the respective national totals. Species such as Grey Heron, Cormorant, Wigeon, Goldeneye, Red-breasted Merganser and Greenshank are regular in winter in numbers of regional or local importance. Gulls are a feature of the site during winter, especially Black-headed Gull (2,196). Common Gull (332) and Herring Gull (331) also occur here. While some of the birds also frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes, the majority remain within the site for much of the winter. The wintering bird populations have been monitored more or less continuously since the late 1960s and the site is now surveyed each winter as part of the larger Dublin Bay complex.

The North Bull Island SPA is a regular site for passage waders, especially Ruff, Curlew Sandpiper and Spotted Redshank. These are mostly observed in single figures in autumn but occasionally in spring or winter.

The site formerly had an important colony of Little Tern but breeding has not occurred in recent years. Several pairs of Ringed Plover breed, along with Shelduck in some years. Breeding passerines include Skylark, Meadow Pipit, Stonechat and Reed Bunting. The island is a regular wintering site for Short-eared Owl, with up to 5 present in some winters.

The site has five Red Data Book vascular plant species, four rare bryophyte species, and is nationally important for three insect species. The rare liverwort, *Petalophyllum*

ralfsii, was first recorded from the North Bull Island in 1874 and its presence here has recently been re-confirmed. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. A well-known population of Irish Hare is resident on the island

The main landuses of this site are amenity activities and nature conservation. The North Bull Island is one of the main recreational beaches in Co. Dublin and is used throughout the year. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrounding intertidal flats. North Bull Island is also a Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site. Much of the SPA is also a candidate Special Area of Conservation. The site is used regularly for educational purposes and there is a manned interpretative centre on the island.

The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is of international importance on account of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. Also of significance is the regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit, but also Ruff and Short-eared Owl.

22.5.2008

SITE SYNOPSIS

SITE NAME : NORTH DUBLIN BAY

SITE CODE : 000206

This site covers the inner part of north Dublin Bay, the seaward boundary extending from the Bull Wall lighthouse across to the Martello Tower at Howth Head.

The North Bull Island is the focal point of this site. The island is a sandy spit which formed after the building of the South Wall and Bull Wall in the 18th and 19th centuries. It now extends for about 5 km in length and is up to 1 km wide in places. A well-developed and dynamic dune system stretches along the seaward side of the island. Various types of dunes occur, from fixed dune grassland to pioneer communities on foredunes. Marram Grass (*Ammophila arenaria*) is dominant on the outer dune ridges, with Lyme Grass (*Leymus arenarius*) and Sea Couchgrass (*Elymus farctus*) on the foredunes. Behind the first dune ridge, plant diversity increases with the appearance of such species as Wild Pansy (*Viola tricolor*), Kidney Vetch (*Anthyllis vulneraria*), Bird's-foot Trefoil (*Lotus corniculatus*), Rest Harrow (*Ononis repens*), Yellow Rattle (*Rhinanthus minor*) and Pyramidal Orchid (*Anacamptis pyramidalis*). In these grassy areas and slacks, the scarce Bee Orchid (*Ophrys apifera*) occurs.

About 1 km from the tip of the island, a large dune slack with a rich flora occurs, usually referred to as the 'Alder Marsh' because of the presence of Alder trees (*Alnus* spp). The water table is very near the surface and is only slightly brackish. Saltmarsh Rush (*Juncus maritimus*) is the dominant species, with Meadow Sweet (*Filipendula ulmaria*) and Devil's-bit (*Succisa pratensis*) being frequent. The orchid flora is notable and includes Marsh Helleborine (*Epipactis palustris*), Common Twayblade (*Listera ovata*), Autumn Lady's-tresses (*Spiranthes spiralis*) and Marsh orchids (*Dactylorhiza* spp.)

Saltmarsh extends along the length of the landward side of the island. The edge of the marsh is marked by an eroding edge which varies from 20 cm to 60 cm high. The marsh can be zoned into different levels according to the vegetation types present. On the lower marsh, Glasswort (*Salicornia europaea*), Saltmarsh Grass (*Puccinellia maritima*), Annual Sea-blite (*Suaeda maritima*) and Greater Sea-spurrey (*Spergularia media*) are the main species. Higher up in the middle marsh Sea Plantain (*Plantago maritima*), Sea Aster (*Aster tripolium*), Sea Arrowgrass (*Triglochin maritima*) and Sea Pink (*Armeria maritima*) appear. Above the mark of the normal high tide, species such as Scurvy Grass (*Cochlearia officinalis*) and Sea Milkwort (*Glaux maritima*) are found, while on the extreme upper marsh, Sea Rushes (*Juncus maritimus* and *J. gerardii*) are dominant. Towards the tip of the island, the saltmarsh grades naturally into fixed dune vegetation.

The island shelters two intertidal lagoons which are divided by a solid causeway. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. The north lagoon has an area known as the "*Salicornia* flat", which is dominated by *Salicornia dolichostachya*, a pioneer Glasswort species, and covers about 25 ha. Tassel Weed (*Ruppia maritima)* occurs in this area, along with some Eelgrass (*Zostera angustifolia*). Eelgrass (*Z. noltii*) also occurs in Sutton Creek. Cordgrass (*Spartina anglica*) occurs in places but its growth is controlled by management. Green algal mats (*Enteromorpha* spp., *Ulva lactuca*) cover large areas of the flats during summer. These sediments have a rich macrofauna, with high densities of Lugworms (*Arenicola marina*) in parts of the north lagoon. Mussels (*Mytilus edulis*) occur in places, along with bivalves such as *Cerastoderma edule*, *Macoma balthica* and *Scrobicularia plana*. The small gastropod *Hydrobia ulvae* occurs in high densities in places, while the crustaceans *Corophium volutator* and *Carcinus maenas* are common. The sediments on the seaward side of North Bull Island are mostly sands. The site extends below the low spring tide mark to include an area of the sublittoral zone.

Three Rare plant species legally protected under the Flora Protection Order 1987 have been recorded on the North Bull Island. These are Lesser Centaury (*Centaurium pulchellum*), Hemp Nettle (*Galeopsis angustifolia*) and Meadow Saxifrage (*Saxifraga granulata*). Two further species listed as threatened in the Red Data Book, Wild Sage (*Salvia verbenaca*) and Spring Vetch (*Vicia lathyroides*), have also been recorded. A rare liverwort, *Petalophyllum ralfsii,* was first recorded from the North Bull Island in 1874 and has recently been confirmed as being still present there. This species is of high conservation value as it is listed on Annex II of the E.U. Habitats Directive. The North Bull is the only known extant site for the species in Ireland away from the western seaboard.

North Dublin Bay is of international importance for waterfowl. During the 1994/95 to 1996/97 period the following species occurred in internationally important numbers (figures are average maxima): Brent Geese 2,333; Knot 4,423; Bar-tailed Godwit 1,586. A further 14 species occurred in nationally important concentrations - Shelduck 1505; Wigeon 1,166; Teal 1,512; Pintail 334; Shoveler 239; Oystercatcher 2,190; Ringed Plover 346; Grey Plover 816; Sanderling 357; Dunlin 6,238; Black-tailed Godwit 156; Curlew 1,193; Turnstone 197 and Redshank 1,175. Some of these species frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes (mostly Brent Goose, Oystercatcher, Ringed Plover, Sanderling, Dunlin).

The tip of the North Bull Island is a traditional nesting site for Little Tern. A high total of 88 pairs nested in 1987. However, nesting attempts have not been successful since the early 1990s. Ringed Plover, Shelduck, Mallard, Skylark, Meadow Pipit and Stonechat also nest. A well-known population of Irish Hare is resident on the island

The invertebrates of the North Bull Island have been studied and the island has been shown to contain at least seven species of regional or national importance in Ireland (Orders Diptera, Hymenoptera, Hemiptera).

The main landuses of this site are amenity activities and nature conservation. The North Bull Island is the main recreational beach in Co Dublin and is used throughout the year. Much of the land surface of the island is taken up by two golf courses. Two separate Statutory Nature Reserves cover much of the island east of the Bull Wall and the surrrounding intertidal flats. The site is used regularly for educational purposes. North Bull Island has been designated a Special Protection Area under the E.U. Birds Directive and it is also a statutory Wildfowl Sanctuary, a Ramsar Convention site, a Biogenetic Reserve, a Biosphere Reserve and a Special Area Amenity Order site.

This site is an excellent example of a coastal site with all the main habitats represented. The holds good examples of ten habitats that are listed on Annex I of the E.U. Habitats Directive; one of these is listed with priority status. Several of the wintering bird species have populations of international importance, while some of the invertebrates are of national importance. The site contains a numbers of rare and scarce plants including some which are legally protected. Its proximity to the capital city makes North Dublin Bay an excellent site for educational studies and research.

23.11.1999

SITE SYNOPSIS

SITE NAME: BALDOYLE BAY

SITE CODE: 000199

Baldoyle Bay extends from just below Portmarnock village to the west pier at Howth, Co. Dublin. It is a tidal estuarine bay protected from the open sea by a large sand-dune system. Two small rivers, the Mayne and the Sluice, flow into the bay. The site contains four habitats listed on Annex I of the EU Habitats directive: *Salicornia* mud, Mediterranean salt meadows, Atlantic salt meadows and Tidal mudflats.

Large areas of intertidal flats are exposed at low tide. These are mostly sands but grade to muds in the inner sheltered parts of the estuary. Extensive areas of Common Cord-grass (*Spartina anglica*) occur in the inner estuary. Both the Narrow-leaved Eelgrass (*Zostera angustifolia*) and the Dwarf Eelgrass (*Z. noltii*) are also found here. During summer, the sandflats of the sheltered areas are covered by mats of green algae (*Enteromorpha* spp. and *Ulva lactuca*).

The sediments have a typical macrofauna, with Lugworm (*Arenicola marina*) dominating the sandy flats. The tubeworm *Lanice conchilega* is present in high densities at the low tide mark and the small gastropod *Hydrobia ulvae* occurs in the muddy areas, along with the crustacean *Corophium volutator*.

Areas of saltmarsh occur near Portmarnock Bridge and at Portmarnock Point, with narrow strips along other parts of the estuary. Species such as Glasswort (*Salicornia* spp.), Sea-purslane (*Halimione portulacoides*), Sea Plantain (*Plantago maritima*) and Sea Rush (*Juncus maritimus*) are found here. Portmarnock Spit formerly had a well-developed sand dune system but this has been largely replaced by golf courses and is mostly excluded from the site. A few dune hills are still intact at Portmarnock Point, and there are small dune hills east of Cush Point and below the Claremont Hotel. These are mostly dominated by Marram (*Ammophila arenaria*), though Lyme-grass (*Leymus arenarius*) is also found.

The site includes a brackish marsh along the Mayne River. Soils here have a high organic content and are poorly drained, and some pools occur. Rushes (*Juncus* spp.) and salt tolerant species such as Common Scurvygrass (*Cochleria officinalis*) and Greater Sea-spurrey (*Spergularia media*) are typical of this area. Knotted Hedge-parsley (*Torilis nodosa*), a scarce plant in eastern Ireland, has been recorded here, along with Brackish Water-crowfoot (*Ranunculus baudotti*), a species of brackish pools and ditches which has declined in most places due to habitat loss.

Two plant species, legally protected under the Flora (Protection) Order, 1999, occur in the Mayne marsh: Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*).

Baldoyle Bay is an important bird site for wintering waterfowl and the inner part of the estuary is a Special Protection Area under the EU Birds Directive as well as being a Statutory Nature Reserve. Internationally important numbers of Pale-bellied Brent Geese (418) and nationally important numbers of two Annex I Birds Directive species - Golden Pover (1,900) and Bar-tailed Godwit (283) - have been recorded. Four other species also reached nationally important numbers: Shelduck (147), Pintail (26), Grey Plover (148) and Ringed Plover (218) - all figures are average peaks for four winters 1994/95 to 1997/1998. Breeding wetland birds at the site include Shelduck, Mallard and Ringed Plover. Small numbers of Little Tern, a species listed on Annex I of the EU Birds Directive, have bred on a few occasions at Portmarnock Point but not since 1991.

Because the area surrounding Baldoyle Bay is densely populated, the main threats to the site include visitor pressure, disturbance to wildfowl and dumping. In particular, the dumping of spoil onto the foreshore presents a threat to the value of the site.

Baldoyle Bay is a fine example of an estuarine system. It contains four habitats listed on Annex I of the EU Habitats Directive and has two legally protected plant species. The site is also an important bird area and part of it is a Special Protection Area under the EU Birds Directive, as well as being a Statutory Nature Reserve. It supports internationally important numbers of Brent Geese and nationally important numbers of six other species including two Annex I Birds Directive species.

15.2.2000

APPENDIX 2

APPENDIX 2

Conservation Objectives for South Dublin Bay and River Tolka Estuary SPA [004024]

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Branta bernicla hrota	[wintering]
Haematopus ostralegus	[wintering]
Charadrius hiaticula	[wintering]
Pluvialis squatarola	[wintering]
Calidris canutus	[wintering]
Calidris alba	[wintering]
Calidris alpina	[wintering]
Limosa lapponica	[wintering]
Tringa totanus	[wintering]
Chroicocephalus ridibundus	[wintering]
Sterna dougallii	[passage]
Sterna hirundo	[breeding + passage]
Sterna paradisaea	[passage]
Wetlands	[]

Citation:

NPWS (2011) Conservation objectives for South Dublin Bay and River Tolka Estuary SPA [004024]. Generic Version 4.0. Department of Arts, Heritage & the Gaeltacht.

For more information please go to: www.npws.ie/protectedsites/conservationmanagementplanning

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National Parks and Wildlife Service

Conservation Objectives Series

Baldoyle Bay SPA 004016

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Citation:

NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

Series Editor: Rebecca Jeffrey
ISSN 2009-4086

Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

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- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

** Indicates a priority habitat under the Habitats Directive*

004016	Baldoyle Bay SPA
A046	Brent Goose *Branta bernicla hrota*
A048	Shelduck *Tadorna tadorna*
A137	Ringed Plover *Charadrius hiaticula*
A140	Golden Plover *Pluvialis apricaria*
A141	Grey Plover *Pluvialis squatarola*
A157	Bar-tailed Godwit *Limosa lapponica*
A999	Wetlands

Please note that this SPA overlaps with Baldoyle Bay SAC (000199). See map 2. The conservation objectives for this site should be used in conjunction with those for the overlapping SAC as appropriate.

Supporting documents, relevant reports & publications

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

Year : 2012

Title : Baldoyle Bay SPA (site code 4016) Conservation Objectives Supporting Document V1

Author : NPWS

Series : Unpublished report to NPWS

A046 **Brent Goose *Branta bernicla hrota***

To maintain the favourable conservation condition of Light-bellied Brent Goose in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Waterbird population trends are presented in part four of the conservation objectives supporting document
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing and intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

A048 Shelduck *Tadorna tadorna*

To maintain the favourable conservation condition of Shelduck in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Waterbird population trends are presented in part four of the conservation objectives supporting document
Distribution	Range, timing and intensity of areas	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

A137 Ringed Plover *Charadrius hiaticula*

To maintain the favourable conservation condition of Ringed Plover in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trends are presented in part four of the conservation objectives supporting document
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by ringed plover, other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

A140 Golden Plover *Pluvialis apricaria*

To maintain the favourable conservation condition of Golden Plover in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trends are presented in part four of the conservation objectives supporting document
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by golden plover, other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

A141 Grey Plover *Pluvialis squatarola*

To maintain the favourable conservation condition of Grey Plover in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trends are presented in part four of the conservation objectives supporting document
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by grey plover, other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

A157 Bar-tailed Godwit *Limosa lapponica*

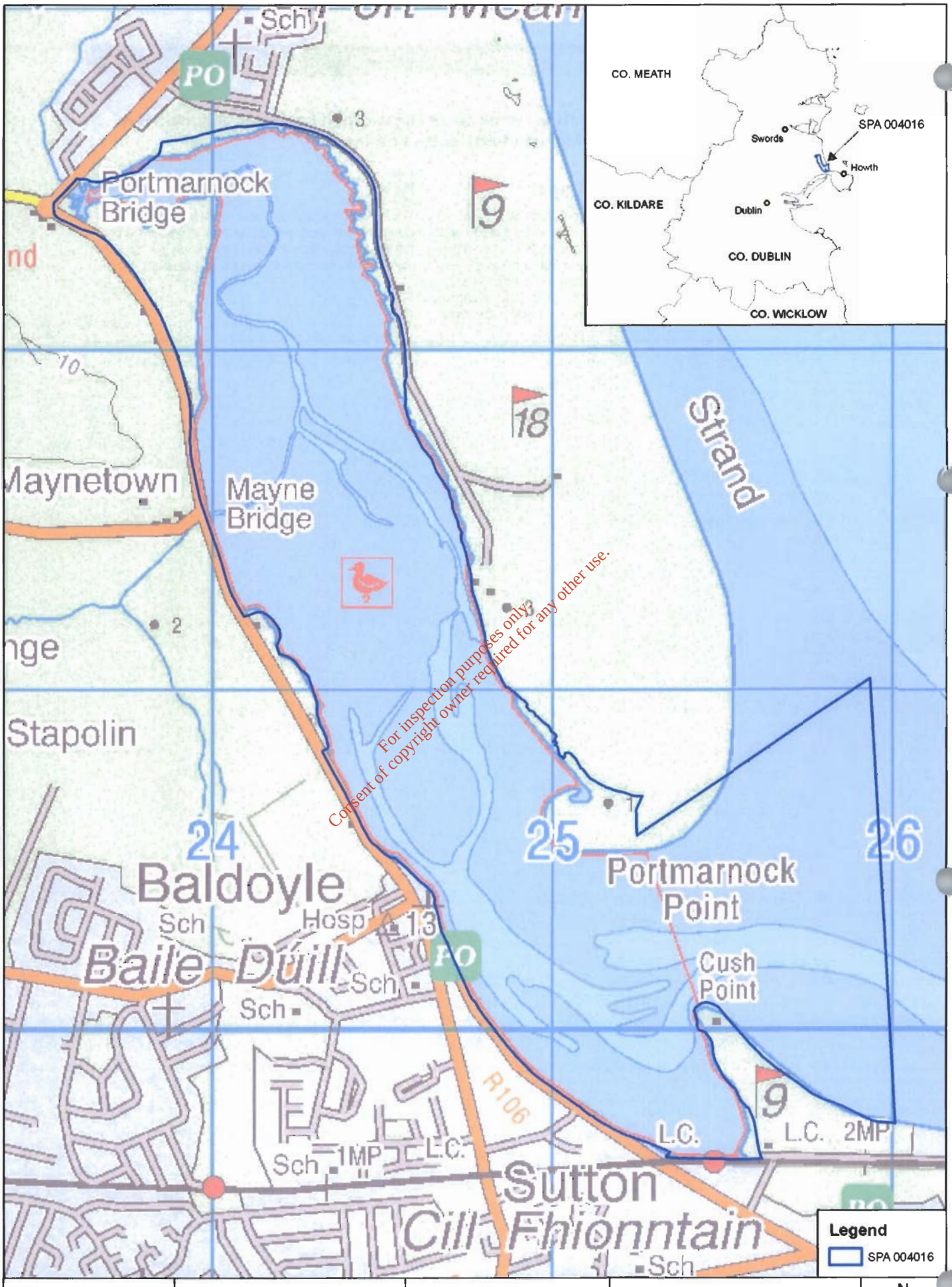
To maintain the favourable conservation condition of Bar-tailed Godwit in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Population trends are presented in part four of the conservation objectives supporting document
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by bar-tailed godwit, other than that occurring from natural patterns of variation	Waterbird distribution from the 2011/2012 waterbird survey programme is discussed in part five of the conservation objectives supporting document

A999 Wetlands

To maintain the favourable conservation condition of the wetland habitat in Baldoyle Bay SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 263ha, other than that occurring from natural patterns of variation	The wetland habitat area was estimated as 263ha using OSi data and relevant orthophotographs. For further information see part three of the conservation objectives supporting document



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Department of Arts, Heritage and the Gaeltacht

MAP 1:
BALDOYLE BAY SPA
CONSERVATION OBJECTIVES
SPA DESIGNATION

Map to be read in conjunction with the NPWS Conservation Objectives Document

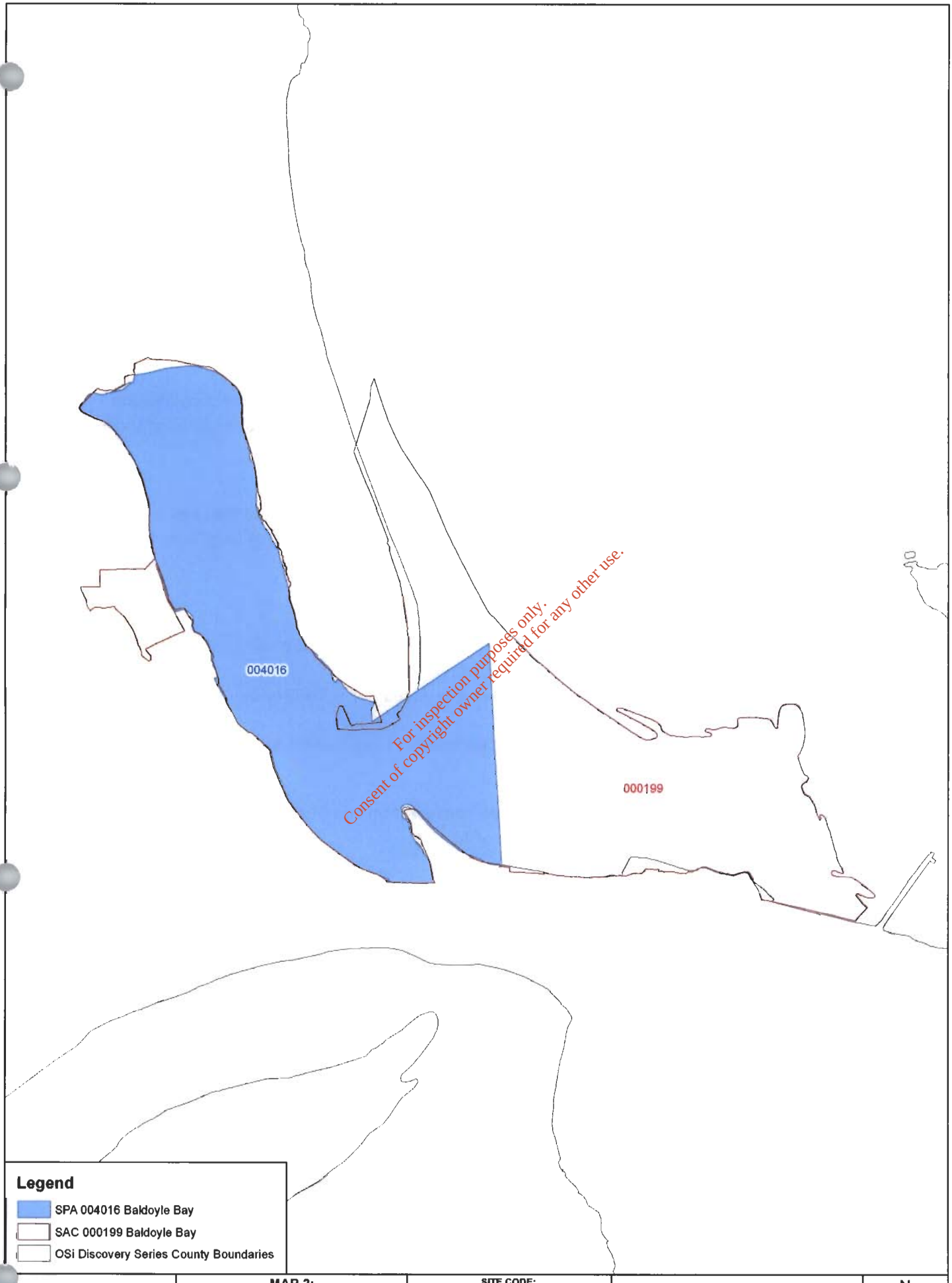
SITE CODE:
SPA 004016 Version 1.04

0 250 500 m

The mapped boundaries are of an indicative and general nature only.
Boundaries of designated areas are subject to revision.
Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059208).
Nil ana teorainneacha ar na learscaileanna ach nod garshuiomhach ginearálta.
Féadfar athbhreithnithe a dheanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéireachta Ordanáis le cead ón Rialtas (Ceadúnas Uimh. EN 0059208)

N

Map Version 1
Date: Nov 2012



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Department of Arts, Heritage and the Gaeltacht

MAP 2:
BALDOYLE BAY SPA
CONSERVATION OBJECTIVES
ADJOINING / OVERLAPPING DESIGNATIONS

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SPA 004016 Version 1.04
SAC 000199 Version 1.02

0 0.5 1 km

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059208).
Níl sna teorainneacha ar na hardaitheanna ach nod garsiúlmhach ginearálta. Féadfar athbhreithniú a dhéanamh ar theorainneacha na gceantar comhartha. Macasamhail d'ábhar na Suirbhéireachta Ordanáis le cead ón Rialtas (Ceadúnas Uimh. EN 0059208)

N

Map Version 1
Date: Nov 2012

Conservation Objectives for North Bull Island SPA [004006]

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

◆ *Branta bernicla hrota*	[wintering]
◆ *Tadorna tadorna*	[wintering]
◆ *Anas crecca*	[wintering]
◆ *Anas acuta*	[wintering]
◆ *Anas clypeata*	[wintering]
◆ *Haematopus ostralegus*	[wintering]
◆ *Pluvialis apricaria*	[wintering]
◆ *Pluvialis squatarola*	[wintering]
◆ *Calidris canutus*	[wintering]
◆ *Calidris alba*	[wintering]
◆ *Calidris alpina*	[wintering]
◆ *Limosa limosa*	[wintering]
◆ *Limosa lapponica*	[wintering]
◆ *Numenius arquata*	[wintering]
◆ *Tringa totanus*	[wintering]

Citation:
NPWS (2011) Conservation objectives for North Bull Island SPA [004006]. Generic Version 4.0. Department of Arts, Heritage & the Gaeltacht.

For more information please go to: www.npws.ie/protectedsites/conservationmanagementplanning

- *Arenaria interpres* [wintering]
- *Chroicocephalus ridibundus* [wintering]
- Wetlands []

Citation:
NPWS (2011) Conservation objectives for North Bull Island SPA [004006]. Generic Version 4.0. Department of Arts, Heritage & the Gaeltacht.

For more information please go to: www.npws.ie/protectedsites/conservationmanagementplanning

Conservation Objectives for North Dublin Bay SAC [000206]

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

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Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective: To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

- [1140] Mudflats and sandflats not covered by seawater at low tide
- [1210] Annual vegetation of drift lines
- [1310] *Salicornia* and other annuals colonizing mud and sand
- [1330] Atlantic salt meadows (*Glauco-Puccinellietalia* maritimae)
- [1395] *Petalophyllum ralfsii*
- [1410] Mediterranean salt meadows (*Juncetalia maritimi*)
- [2110] Embryonic shifting dunes
- [2120] Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")
- [2130] * Fixed coastal dunes with herbaceous vegetation ("grey dunes")
- [2190] Humid dune slacks

Citation:

NPWS (2011) Conservation objectives for North Dublin Bay SAC [000206]. Generic Version 3.0. Department of Arts, Heritage & the Gaeltacht.

For more information please go to: www.npws.ie/protectedsites/conservationmanagementplanning

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National Parks and Wildlife Service

Conservation Objectives Series

Baldoyle Bay SAC 000199

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Introduction

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

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A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

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Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
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The favourable conservation status of a species is achieved when:

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- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Notes/Guidelines:

1. The targets given in these conservation objectives are based on best available information at the time of writing. As more information becomes available, targets for attributes may change. These will be updated periodically, as necessary.
2. An appropriate assessment based on these conservation objectives will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out. It is essential that the date and version are included when objectives are cited.
3. Assessments cannot consider an attribute in isolation from the others listed for that habitat or species, or for other habitats and species listed for that site. A plan or project with an apparently small impact on one attribute may have a significant impact on another.
4. Please note that the maps included in this document do not necessarily show the entire extent of the habitats and species for which the site is listed. This should be borne in mind when appropriate assessments are being carried out.
5. When using these objectives, it is essential that the relevant backing/supporting documents are consulted, particularly where instructed in the targets or notes for a particular attribute.

Qualifying Interests

**** Indicates a priority habitat under the Habitats Directive***

000199	Baldoyle Bay SAC
1140	Mudflats and sandflats not covered by seawater at low tide
1310	Salicornia and other annuals colonizing mud and sand
1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
1410	Mediterranean salt meadows (*Juncetalia maritimi*)

Please note that this SAC overlaps with Baldoyle Bay SPA (004016). See map 2. The conservation objectives for this site should be used in conjunction with those for the overlapping SPA as appropriate.

Supporting documents, relevant reports & publications (listed by date)

Supporting documents, NPWS reports and publications are available for download from: www.npws.ie/Publications

Title: Intertidal Benthic Survey Baldoyle Bay SAC and Baldoyle Bay SPA
Year: 2012
Author: MERC; ERM
Series: Unpublished Report to NPWS & MI

Title: Baldoyle Bay SAC (000199). Conservation objectives supporting document - marine habitats [Version 1]
Year: 2012
Author: NPWS
Series: Unpublished Report to NPWS

Title: Baldoyle Bay SAC (000199). Conservation objectives supporting document - coastal habitats [Version 1]
Year: 2012
Author: NPWS
Series: Unpublished Report to NPWS

Title: Saltmarsh Monitoring Report 2007-2008
Year: 2009
Author: McCorry, M.; Ryle, T.
Series: Unpublished Report to NPWS

Title: Coastal Monitoring Project 2004-2006
Year: 2009
Author: Ryle, T.; Murray, A.; Connolly, C.; Swann, M.
Series: Unpublished Report to NPWS

Title: A Survey of Intertidal Mudflats and Sandflats in Ireland
Year: 2007
Author: Aquatic Services Unit
Series: Unpublished Report

Title: Saltmarsh Monitoring Report 2006
Year: 2007
Author: McCorry, M.
Series: Unpublished Report to NPWS

Spatial data sources

Year:	Interpolated 2012
Title:	Intertidal surveys 2007, 2010
GIS operations:	Polygon feature classes from marine community types base data sub-divided based on interpolation of marine survey data. Expert opinion used as necessary to resolve any issues arising
Used for:	Marine community types, 1140 (maps 3 and 4)
Year:	2005
Title:	OSi Discovery series vector data
GIS operations:	High water mark (HWM) and low water mark (LWM) polyline feature classes converted into polygon feature classes and combined; EU Annex I Saltmarsh and Coastal data erased out if present
Used for:	Marine community types base data (map 4)
Year:	Revision 2010
Title:	Saltmarsh Monitoring Project 2007-2008. Version 1
GIS operations:	QIs selected; clipped to SAC boundary; overlapping regions with Coastal CO data investigated and resolved with expert opinion used
Used for:	1310, 1330, 1410 (map 5)

1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated as 409ha using OSi data
Community distribution	Hectares	Conserve the following community types in a natural condition: Fine sand dominated by *Angulus tenuis* community complex; and Estuarine sandy mud with *Pygospio elegans* and *Tubificoides benedii* community complex. See map 4	Habitat structure was elucidated from intertidal surveys undertaken in 2007 (Aquafact, 2007) and 2010 (MERC and ERM, 2012). See marine habitats supporting document for further information

1310 Salicornia and other annuals colonizing mud and sand

To maintain the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Baldoyle - 0.383ha. See map 5	Based on data from Saltmarsh Monitoring Project (SMP) (McCorry, 2007). Habitat recorded at one sub-sites surveyed and mapped, giving a total estimated area of 0.38ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 5 for known distribution	Based on data from McCorry (2007). This habitat was more extensive in the past. *Salicarnia* is an annual species, so its distribution can vary significantly from year to year. See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	Based on data from McCorry (2007). Sediment supply is particularly important for this pioneer saltmarsh community, as the distribution of this habitat depends on accretion rates. At Baldoyle there are some signs of erosion of the saltmarsh in the mid part and south-eastern corner of the estuary. Accretion has occurred at the lower end of Portmarnock spit. See coastal habitats backing document for further details
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	Based on data from McCorry (2007). Creeks deliver sediment throughout saltmarsh system. See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	Based on date from McCorry (2007). This pioneer saltmarsh community requires regular tidal inundation. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from McCorry (2007). See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimeters	Maintain structural variation within sward	Based on data from McCorry (2007). Saltmarshes at Baldoyle are not grazed by livestock and have a diverse sward structure. See coastal habitats supporting document for further details
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated	Based on data from McCorry (2007). See coastal habitats supporting document for further details

1310 Salicornia and other annuals colonizing mud and sand

To maintain the favourable conservation condition of *Salicornia* and other annuals colonizing mud and sand in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: typical species and sub-communities	Percentage cover	Maintain the presence of species-poor communities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	Based on data from McCorry (2007). See coastal habitats supporting document for further details
Vegetation structure: negative indicator species-*Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	Based on data from McCorry (2007). Spartina swards occur extensively throughout the Baldoyle sub-site. Additional clumps of cordgrass are present within the *Salicornia* flats, although at low cover values. See coastal habitats supporting document for further details

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

To maintain the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Baldoyle - 11.98ha. See map 5	Based on data from the Saltmarsh Monitoring Project (McCorry, 2007). One sub-site supporting Atlantic salt meadow was mapped giving a total estimated area of 11.98ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 5 for known distribution	Based on data from McCorry (2007). No indications of any loss in extent of ASM at Baldoyle. See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	Based on data from McCorry (2007). There are some small areas of erosion in places and these may have been exacerbated by infilling and sea defence measures (sea wall). See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure to develop, subject to natural processes, including erosion and succession	Based on data from McCorry (2007). The largest area of ASM at Baldoyle has a well developed creek and pan structure. The other parts have a poorly developed structure. See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from McCorry (2007). At Baldoyle there are transitions to sanddune habitats as well as transitional mosaics within the saltmarsh habitats. See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimeters	Maintain structural variation within sward	Based on data from McCorry (2007). The saltmarshes around Baldoyle are not grazed by livestock allowing a diverse sward structure to develop. See coastal habitats supporting document for further details
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of the area outside of the creeks vegetated	See coastal habitats supporting document for further details

1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

To maintain the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub-communities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	Based on data from McCorry (2007). Species of local distictiveness at Baldoyle include the Red Data Book species, Borrer's saltmarsh-grass (*Puccinellia fasciculata*) and meadow barley (*Hordeum secalinum*). The locally rare species rock lavender (*Limonium binervosum*) was also recorded at Baldoyle. See coastal habitats supporting document for further details
Vegetation structure: negative indicator species-*Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	Based on data from McCorry (2007). *Spartina* occurs extensively at Baldoyle bay. See coastal habitats supporting document for further details

1410 Mediterranean salt meadows (*Juncetalia maritimi*)

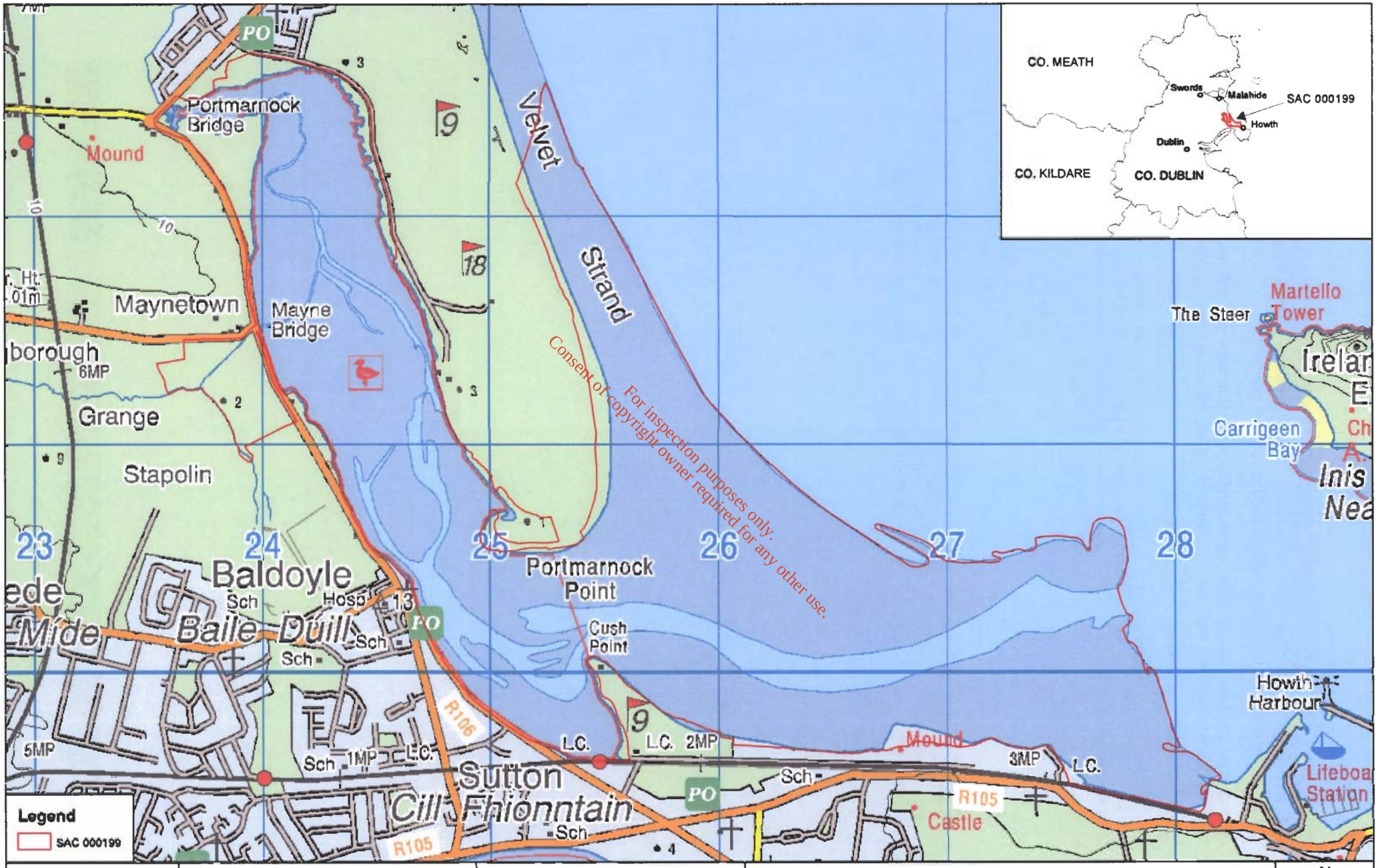
To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

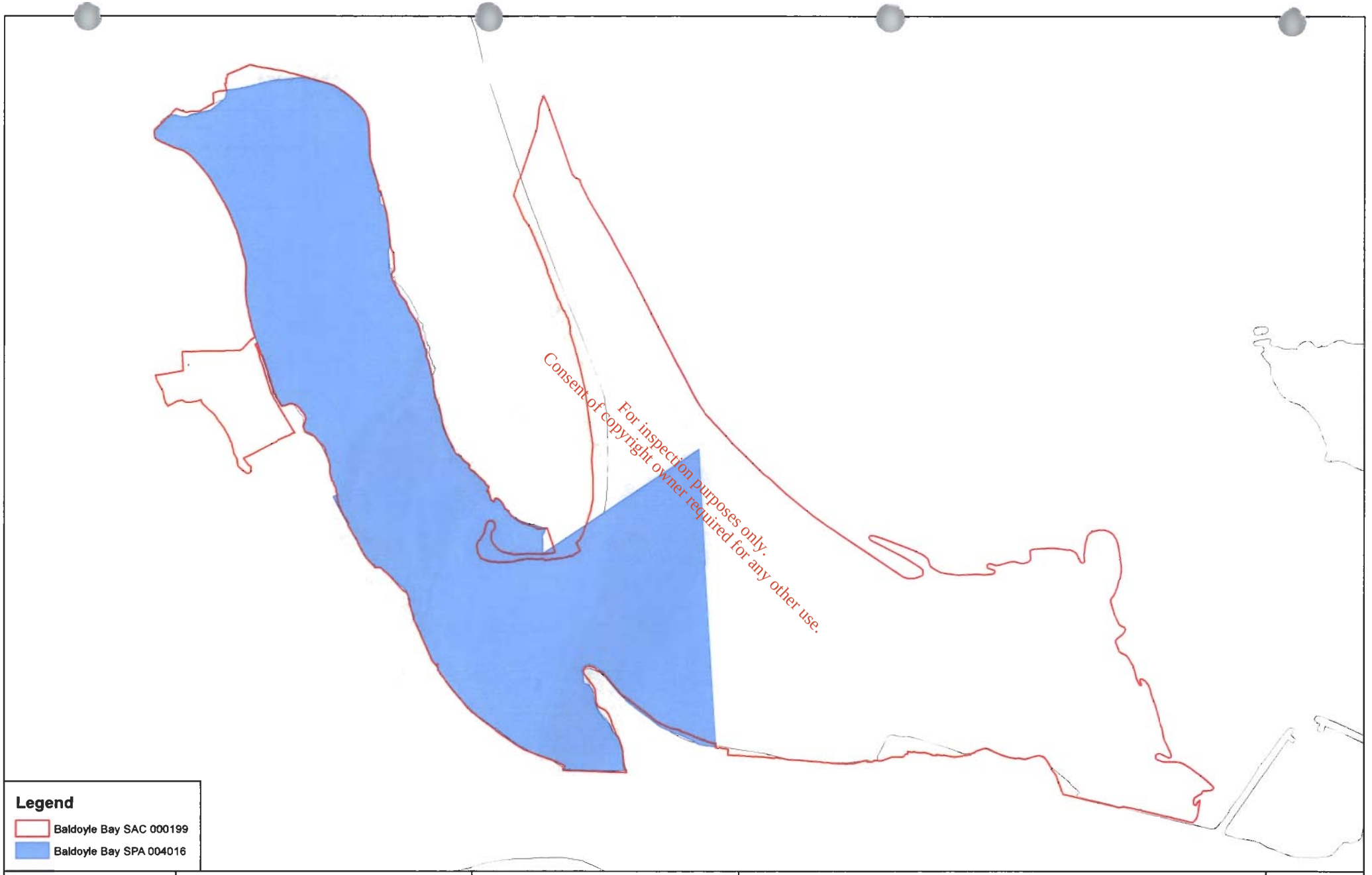
Attribute	Measure	Target	Notes
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site mapped: Baldoyle - 2.64ha. See map 5	Based on data from the Saltmarsh Monitoring Project (McCorry, 2007). One sub-site that supports Mediterranean Salt Meadow was mapped, giving a total estimated area of 2.64ha. NB further unsurveyed areas maybe present within the site. See coastal habitats supporting document for further details
Habitat distribution	Occurrence	No decline, or change in habitat distribution, subject to natural processes. See map 5 for known distribution	See coastal habitats supporting document for further details
Physical structure: sediment supply	Presence/ absence of physical barriers	Maintain natural circulation of sediments and organic matter, without any physical obstructions	Based on data from McCorry (2007). There are some indications that the area of brackish marsh at Mayne including the MSM community has decreased. Older maps show that the brackish vegetation was more extensive in the recent past. See coastal habitats supporting document for further details
Physical structure: creeks and pans	Occurrence	Maintain creek and pan structure, subject to natural processes, including erosion and succession	Based on data from the Saltmarsh Monitoring Project (McCorry, 2007). The MSM at Baldoyle has a poorly developed topography. See coastal habitats supporting document for further details
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime	Mediterranean salt meadow is found high up in the saltmarsh but requires occasional tidal inundation. See coastal habitats supporting document for further details
Vegetation structure: zonation	Occurrence	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession	Based on data from McCorry (2007). At Baldoyle there are transitions to sand dune habitats as well as transitional mosaics within the saltmarsh habitats. See coastal habitats supporting document for further details
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within the sward	Based on data from McCorry (2007). The saltmarshes around Baldoyle are not grazed by livestock allowing a diverse sward structure to develop. See coastal habitats supporting document for further details
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of the area outside of the creeks vegetated	Based on data from McCorry (2007). See coastal habitats supporting document for further details

1410 Mediterranean salt meadows (*Juncetalia maritimi*)

To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Baldoyle Bay SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: typical species	Percentage cover	Maintain range of sub-communities with typical species listed in the Saltmarsh Monitoring Project (McCorry and Ryle, 2009)	Based on data from McCorry (2007). Species of local distictiveness at Baldoyle include the Red Data Book species, Borrer's saltmarsh-grass (*Puccinellia fasciculata*) and meadow barley (*Hordeum secalinum*). The locally rare species rock lavender (*Limonium binervosum*) was also recorded at Baldoyle. See coastal habitats supporting document for further details
Vegetation structure: negative indicator species-*Spartina anglica*	Hectares	No significant expansion of common cordgrass (*Spartina anglica*), with an annual spread of less than 1%	Based on data from McCorry (2007). *Spartina* occurs extensively at Baldoyle bay. See coastal habitats supporting document for further details





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Department of Arts, Heritage and the Gaeltacht

MAP 2:
BALDOYLE BAY SAC
CONSERVATION OBJECTIVES
ADJOINING / OVERLAPPING
DESIGNATIONS

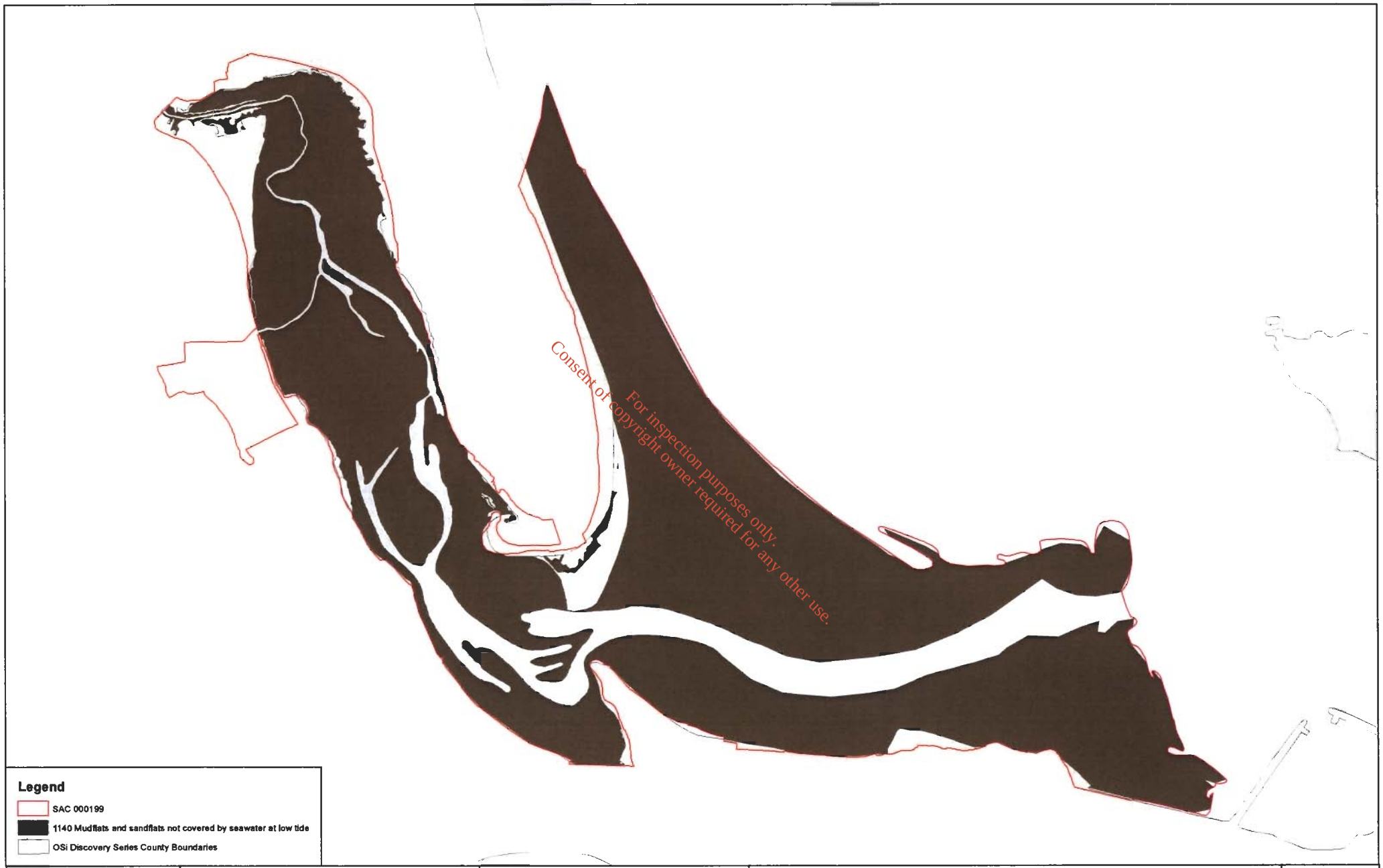
Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 000199 CO. DUBLIN; version 1.2

0 0.2 0.4 0.6 0.8 1 km

N

Map Version 1
Date: October 2012



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Department of Arts, Heritage and the Gaeltacht

MAP 3:
BALDOYLE BAY SAC
CONSERVATION OBJECTIVES
TIDAL MUDFLATS AND SANDFLATS

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 000199 CO. DUBLIN; version 1.2

0 0.2 0.4 0.6 0.8 1 km

N

Map Version 1
Dr[illegible]ctober 2012

An Roinn Ealaíon, Oidhreachta agus Gaeltachta
Department of Arts, Heritage and the Gaeltacht

MAP 4:
BALDOYLE BAY SAC
CONSERVATION OBJECTIVES
MARINE COMMUNITY TYPES

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 000199 CO. DUBLIN; version 1.2

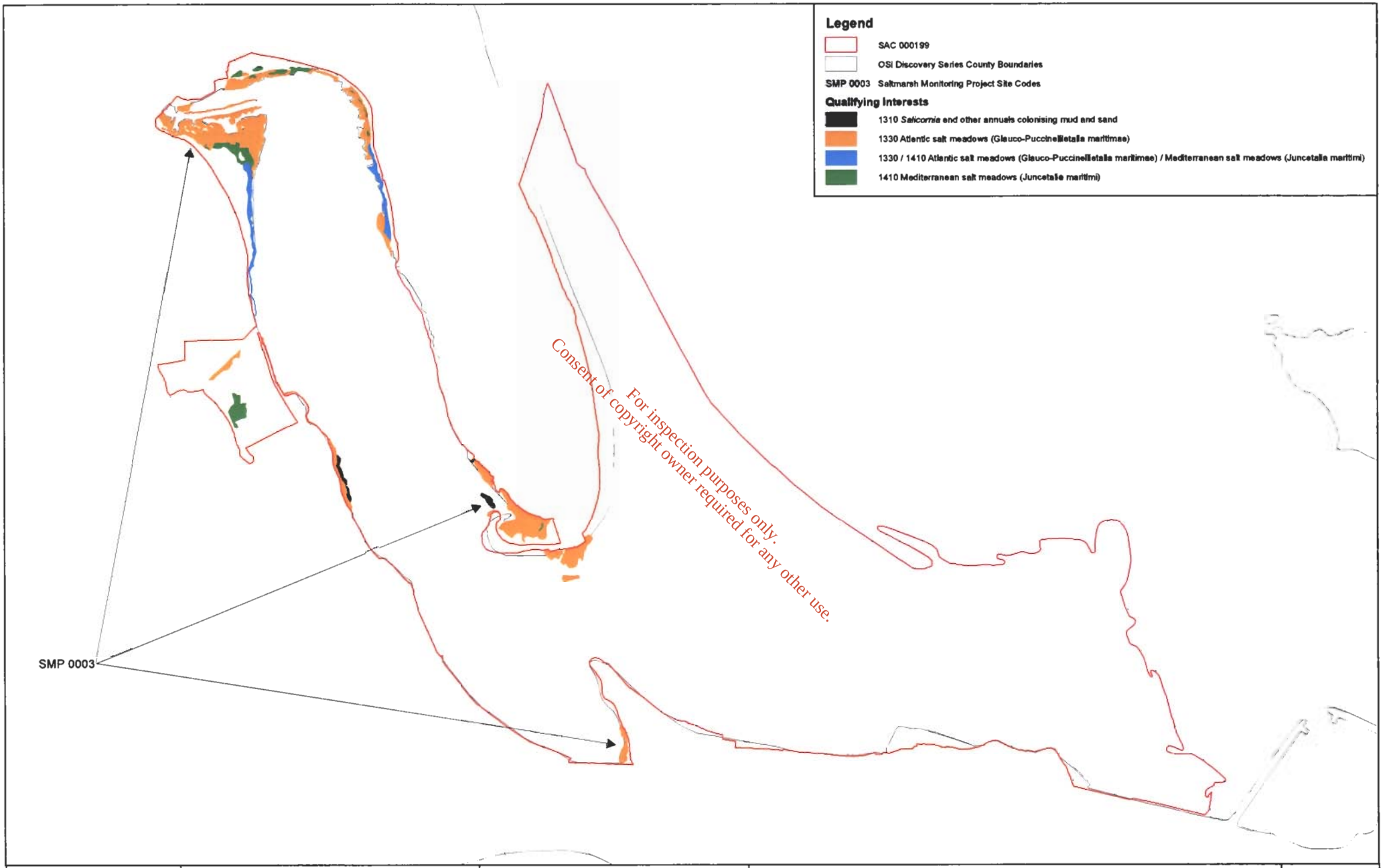
0 0.2 0.4 0.6 0.8 1 km

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059208).

Ní sna teorainneacha ar na léarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbhreithnithe a déanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'ábhar na Suirbhéarachta Ordonáis le cead ón Rialtas (Ceadunas Uimh. EN 0059208)

N

Map Version 1
Date: October 2012



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Department of Arts, Heritage and the Gaeltacht

MAP 5:
BALDOYLE BAY SAC
CONSERVATION OBJECTIVES
SALTMARSH HABITATS

Map to be read in conjunction with the NPWS Conservation Objectives Document.

SITE CODE:
SAC 000199 CO. DUBLIN; version 1.2

0 0.2 0.4 0.6 0.8 1 km

The mapped boundaries are of an indicative and general nature only. Boundaries of designated areas are subject to revision. Reproduced from Ordnance Survey material by permission of the Government (Permit number EN 0059208).

Ní sna teorainneacha ar na tíarscáileanna ach nod garshuíomhach ginearálta. Féadfar athbhreithniú a dhéanamh ar theorainneacha na gceantar comharthaithe. Macasamhail d'athar na Suirbhéireachta Ordonáis le cead ón Rialtas (Ceadúnas Uimh. EN 0059208)

N

Map Version 1
Dated October 2012

Appendix 8 Odour Impact Assessment

ODOUR & ENVIRONMENTAL ENGINEERING CONSULTANTS

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DESKTOP ODOUR IMPACT ASSESSMENT OF PROPOSED ODOUR CONTROL SYSTEM TO BE INSTALLED IN PANDA WASTE SERVICES LTD, CAPPAGH RD, FINGLAS, DUBLIN 11

PERFORMED BY ODOUR MONITORING IRELAND ON BEHALF OF PANDA WASTE SERVICES LTD

REFERENCE NUMBER:	2013958(1)
ATTENTION:	Mr. Des Crinion
PREPARED BY:	Dr. Brian Sheridan
DATE:	21st Nov 2013
DOCUMENT VERSION:	Document Ver.001
Licence:	W00261-01

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This document is submitted as supporting information for a EIS chapter.

Respectively submitted,

Brian Sheridan B.Sc. M.Sc. (Agr) Ph.D (Eng).

For and on behalf of Odour Monitoring Ireland™

Document Amendment Record

Client: ***Panda Waste Services Ltd***

Project: Desktop odour impact assessment of proposed odour control system to be installed in Panda Waste Services Ltd, Cappagh Rd, Finglas, Dublin 11.

Project Number: 2013958(1)			**Document Reference:** Desktop odour impact assessment of proposed odour control system to be installed in Panda Waste Services Ltd, Cappagh Rd, Finglas, Dublin 11.		
2013958(1)	Document for review	JWC	BAS	JWC	21/11/2013
Revision	**Purpose/Description**	**Originated**	**Checked**	**Authorised**	**Date**

Executive summary

Odour Monitoring Ireland was commissioned by Panda Waste Services Ltd to perform a desktop odour impact assessment of the proposed odour control system to be installed on the waste transfer station to be located in Panda Waste Services, Cappagh Rd, Finglas, Dublin 11. Details and specifics describing the odour control system are contained in supporting information provided by the client.

The main aims of the study were to assess if the proposed odour control system would minimise odour impact in the vicinity of the proposed facility.

This document will provide information on the following:

- The expected odour treatment levels including the expected odour emission concentration from the proposed odour control system.
- Odour dispersion modelling of emissions from the stack and projected ground level concentrations as a result of operating the odour control system.

It was concluded from the study that:

- The proposed odour control system will treat approximately 45,936 m^3 [odourous air]/hr.
- The maximum proposed odour emission rate expected from the odour control system will be 5,903 Ou_E/s with a maximum odour concentration of 460 Ou_E/m^3 in the exhaust gas.
- Following detailed dispersion modelling assessment using AERMOD Prime (12060), all GLC's predicted at receptor locations at or beyond the facility boundary will be less than 1.50 Ou_E/m^3 at the 98th percentile of hourly averages over 5 years of screened hourly sequential meteorological data.

1. Introduction and scope

1.1 Introduction

Odour Monitoring Ireland was commissioned by Panda Waste Services Ltd to perform a desktop odour impact assessment of the proposed odour control system to be located in Panda Waste Services, Cappagh Rd, Finglas, Dublin 11.

This document presents the materials and methods, results, discussion of results, conclusions gathered throughout this desktop study.

The results conclude that the proposed odour control system will be adequate in minimising odours at or beyond the facility boundary with all predicted ground level concentrations of odour less than 1.50 Ou_E/m^3 at the 98^{th} percentile of hourly averages for 5 years of screened data.

1.2 Scope of the work

The main aims of the study were as follows:

- Provide data on the expected odour treatment levels including the expected odour emission concentration from the odour control system.
- To perform an odour dispersion modelling assessment to illustrate that the odour treatment system will not result in an odour impact at or beyond the boundary of the facility.

2. Materials and methods

2.1 Odour emission rate calculation

The odour emission rate calculation was performed using data gathered from information supplied by the client.

The total volume of air to be treated in the proposed odour control system is 45,936 m^3/hr or 12.76 m^3/s.

The guaranteed exhaust odour threshold concentration to be achieved on the odour control system exhaust is less than or equal to 460 Ou_E/m^3.

The building will be sealed to an integrity / building envelope leakage of less than or equal to 2 m^3/m^3/hr. Based on this value, the maximum extraction rate required to maintain the building under negative pressure is 8,720 m^3/hr (leakage rate by the total building envelope surface area).

The total volume of the building is 22,968 m^3 void volume. Based on an overriding requirement for comfort conditions inside the building for workers, the total extraction rate will be 45,936 m^3/hr thereby providing 2 AC/hr.

This is in excess of the building leakage rate so negative pressure will be maintained on the building envelope which in turn will prevent odour leakage from the building under a wind pressure in excess of 50 Pa minimum.

The maximum total odour emission rate as a result of operating the odour control system will be 5,903 Ou_E/s (Volume flow rate by the guaranteed odour threshold concentration).

2.2 Dispersion modelling

Any material discharged into the atmosphere is carried along by the wind and diluted by the turbulence, which is always present in the atmosphere. This dispersion process has the effect of producing a plume of polluted air that is roughly cone shaped with the apex towards the source and can be mathematically described by the Gaussian equation (Carney and Dodd, 1989). Atmospheric dispersion modelling has been applied to the assessment and control of odours for many years, originally using Gaussian form ISC (Industrial Source Complex) (Keddie et al., 1980) and more recently utilising advanced boundary-layer physics models such as ADMS (Atmospheric Dispersion Modelling Software) and AERMOD. Once the odour emission rate from the source is known, $Ou_E\ s^{-1}$, the impact on the vicinity can be estimated.

These models can be applied to facilities in three different ways:

1. To assess the dispersion of odours and to correlate with complaints;
2. To estimate which source is causing greatest impact;
3. In a "reverse" mode, to estimate the maximum odour emissions which can be permitted from a site in order to prevent odour complaints occurring (Zannetti, 1990; McIntyre et al., 2000; Sheridan, 2002).

In this latter mode, models can be employed to predetermine the amount of abatement required to prevent odour complaints, therefore reducing capital investment in abatement technologies (Sheridan et al., 2001).

2.3 Meteorological Data

Five years worth of hourly sequential meteorology data representative of the area will be used for the operation of Aermod Prime. This will allow for the determination of the worst-case scenario for the overall impact of odour emissions from the facility on the surrounding vicinity.

Odour Monitoring Ireland currently has licensed met data for the existing site. Dublin Airport 2002 to 2006 inclusive was used.

2.4 Terrain Data

There are no topographical features in the vicinity of the facility with the surrounding terrain relatively flat and less than half the actual stack height. Based on this, simple terrain prevails and therefore no topographical data was included in the model. Building wakes affects were accounted for within the dispersion modelling assessment through the use of the Prime algorithm.

2.5 Dispersion models used

For this study BREEZE AERMOD Prime (12060) was used.

2.5.1 AERMOD Prime

The AERMOD model was developed through a formal collaboration between the American Meteorological Society (AMS) and U.S. Environmental Protection Agency (U.S. EPA). AERMOD is a Gaussian plume model and replaced the ISC3 model in demonstrating compliance with the National Ambient Air Quality Standards (Porter et al., 2003) AERMIC (USEPA and AMS working group) is emphasizing development of a platform that includes air turbulence structure, scaling, and concepts; treatment of both surface and elevated sources; and simple and complex terrain. The modelling platform system has three main components: AERMOD, which is the air dispersion model; AERMET, a meteorological data pre-processor; and AERMAP, a terrain data pre-processor (Cora and Hung, 2003).

AERMOD is a Gaussian steady-state model which was developed with the main intention of superseding ISCST3 (NZME, 2002). The AERMOD modeling system is a significant departure from ISCST3 in that it is based on a theoretical understanding of the atmosphere rather than depend on empirical derived values. The dispersion environment is characterized by turbulence theory that defines convective (daytime) and stable (nocturnal) boundary layers instead of the stability categories in ISCST3. Dispersion coefficients derived from turbulence theories are not based on sampling data or a specific averaging period. AERMOD was especially designed to support the U.S. EPA's regulatory modeling programs (Porter at al., 2003)

Special features of AERMOD include its ability to treat the vertical in-homogeneity of the planetary boundary layer, special treatment of surface releases, irregularly-shaped area sources, a three plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base (Curran et al., 2006). A treatment of dispersion in the presence of intermediate and complex terrain is used that improves on that currently in use in ISCST3 and other models, yet without the complexity of the Complex Terrain Dispersion Model-Plus (CTDMPLUS) (Diosey et al., 2002).

2.6 Model assumptions

The approach adopted in this assessment is considered a worst-case investigation in respect of emissions to the atmosphere from the proposed scheduled emission point to be located within the operational plant. These predictions are therefore most likely to overestimate the GLC's that may actually occur for each modelled scenario. The assumptions are summarised and include:

1. All emissions were assumed to occur at maximum potential emission concentration and mass emission rates for each scenario and were assumed to occur for 100% of an operating year, simultaneously.

2. Five years of hourly sequential meteorological data from Dublin airport inclusive was used in the modelling screen which will provide statistical significant results in terms of the short and long term assessment. The worst case year 2004 was used for data analysis; this is in keeping with guidance presented in Environment Agency and Irish EPA publications. In addition, AERMOD incorporates a meteorological pre-processor AERMET PRO. The AERMET PRO meteorological pre-processor requires the input of surface characteristics, including surface roughness (z0), Bowen Ratio and Albedo by sector and season, as well as hourly observations of wind speed, wind direction, cloud cover, and temperature. The values of Albedo, Bowen Ratio and surface roughness depend on land-use type (e.g., urban, cultivated land etc.) and vary with seasons and wind direction. The assessment of appropriate land-use type was carried out to a distance of 10km from the meteorological station for Bowen Ratio and Albedo and to a distance of 1km for surface roughness in line with USEPA recommendations.
3. AERMOD Prime (12060) dispersion modelling was utilised throughout the assessment in order to provide the most conservative dispersion estimates;
4. All building wake affects were assessed within the dispersion model and taken into account within the assessment;
5. All receptors were established at normal breathing height of 1.8 m above ground level.

2.7 Odour impact criteria

An odour impact criterion of less than or equal 1.50 Ou_E m^{-3} at the 98th percentile was used for the odour impact assessment criterion in this instance.

3. Results

This section will present the results obtained during the survey.

3.1 Emission point characteristics and Dispersion modelling results

Table 3.1 presents the overall exhaust stream and source characteristics used within the dispersion modelling assessment. This data is inputted into the dispersion model whereby maximum downwind ground level concentrations (GLC's) of odour are predicted for 5 years of screened hourly sequential meteorological data (Dublin 2002 to 2006 inclusive). The 11.9 metre high recycling buildings throughout the site were incorporated into the dispersion model in order to take into account any building wake affects. Maximum ground level concentrations of odours are presented in tabular format in *Table 3.2*.

Table 3.1. Overall exhaust stream characteristics of odour control system located in Panda Waste Services Ltd and input data for dispersion model.

Identity	Exhaust stack characteristics for A2-1
X coordinate (m)	310481.7
Y coordinate (m)	240472.7
Stack base level (m)	2
Average outlet odour concentration for A2-1 (Ou_E/m^3)	460
Average Volumetric airflow rate for A2-1 (m^3/s)	12.76
Average Odour emission rate for A2-1 (Ou_E/s)	5,903
Average Exhaust air stream temperature (K)	293
Stack height for A2-1 (m)	14
Diameter of exit area for A2-1 (m)	1.0
Exit area for A2-1 (m^2)	0.7855
Efflux velocity A2-1 (m/s)	16.25
Breathing level of sensitive receptors (m)	1.80
Recycling building height above ground level (m)	2

Table 3.2 illustrates comparison of the predicted ground level concentrations and the proposed limit ground level concentration at the 98th percentile of hourly averages at or beyond the boundary of the facility. As can be observed, the predicted ground level concentrations are within the proposed limit values. In addition, *Appendix I* illustrate the odour contours generated by the dispersion model for the 98th percentile of hourly averages for 5 years of screened hourly sequential meteorological data.

Table 3.2. Predicted ground level concentrations using AERMOD Prime dispersion model.

Model used	Maximum GLC at the 98th percentile value at or beyond the facility boundary (Ou_E/m^3)	Limit values
AERMOD Prime (12060)	1.20	≤1.50 Ou_E m^{-3} at the 98th percentile

In addition to *Table 3.2*, odour contour plots are presented in *Appendix I* in order to allow visual interpretation of odour plume spread.

As can be observed the predicted maximum ground level concentrations of odour in the vicinity of the facility are in compliance with the odour impact criterion of less than or equal to 1.50 Ou_E/m^3 at the 98th percentile of hourly averages for 5 years of screened meteorological data.

4. Discussion of results

This section will describe the results obtained during the study.

4.1 Operational parameters

- The odour control system will treat approximately 45,936 Nm^3 [odourous air]/hr.

4.2 Odour emission rate of odour control system

- The average odour emission rate from the odour control system will be no greater than 5,903 Ou_E/s.
- The system will be expected to achieve an odour removal efficiency of between 75% to 85%.
- There is no predicted odour impact from the odour control system exhaust stack with all ground level odour concentrations less than 1.20 Ou_E/m^3 at the 98th percentile of hourly averages over 5 years of screened hourly sequential meteorological data.

5. Conclusions

The following conclusions were drawn:

1. The odour emission rate calculation was performed using data gathered from information provided by the client.
2. The total volume of air to be treated in the proposed odour control system was 45,936 m^3/hr or 12.76 m^3/s.
3. The guaranteed exhaust odour threshold concentration to be achieved on the odour control system exhaust is less than or equal to 460 Ou_E/m^3.
4. The building will be sealed to an integrity / building envelope leakage of less than or equal to 2 $m^3/m^3/hr$. Based on this value, the maximum extraction rate required to maintain the building under negative pressure is 8,720 m^3/hr (leakage rate by the total building envelope surface area).
5. The total volume of the building is 22,968 m^3 void volume. Based on an overriding requirement for comfort conditions inside the building for workers, the total extraction rate will be 45,936 m^3/hr thereby providing 2 AC/hr.
6. This is in excess of the building leakage rate so negative pressure will be maintained on the building envelope which in turn will prevent odour leakage from the building under a wind pressure in excess of 50 Pa minimum.
7. The maximum total odour emission rate as a result of operating the odour control system will be 5,903 Ou_E/s (Volume flow rate by the guaranteed odour threshold concentration).
8. The system will be expected to achieve an odour removal efficiency of between 75% to 85%.
9. There is no predicted odour impact from the odour control system exhaust stack with all ground level odour concentrations less than 1.20 Ou_E/m^3 at the 98th percentile of hourly averages over 5 years of screened hourly sequential meteorological data.

6. *Appendix I* – Desktop Odour Contour plots for the proposed odour control system to be installed in Panda Waste Services Ltd

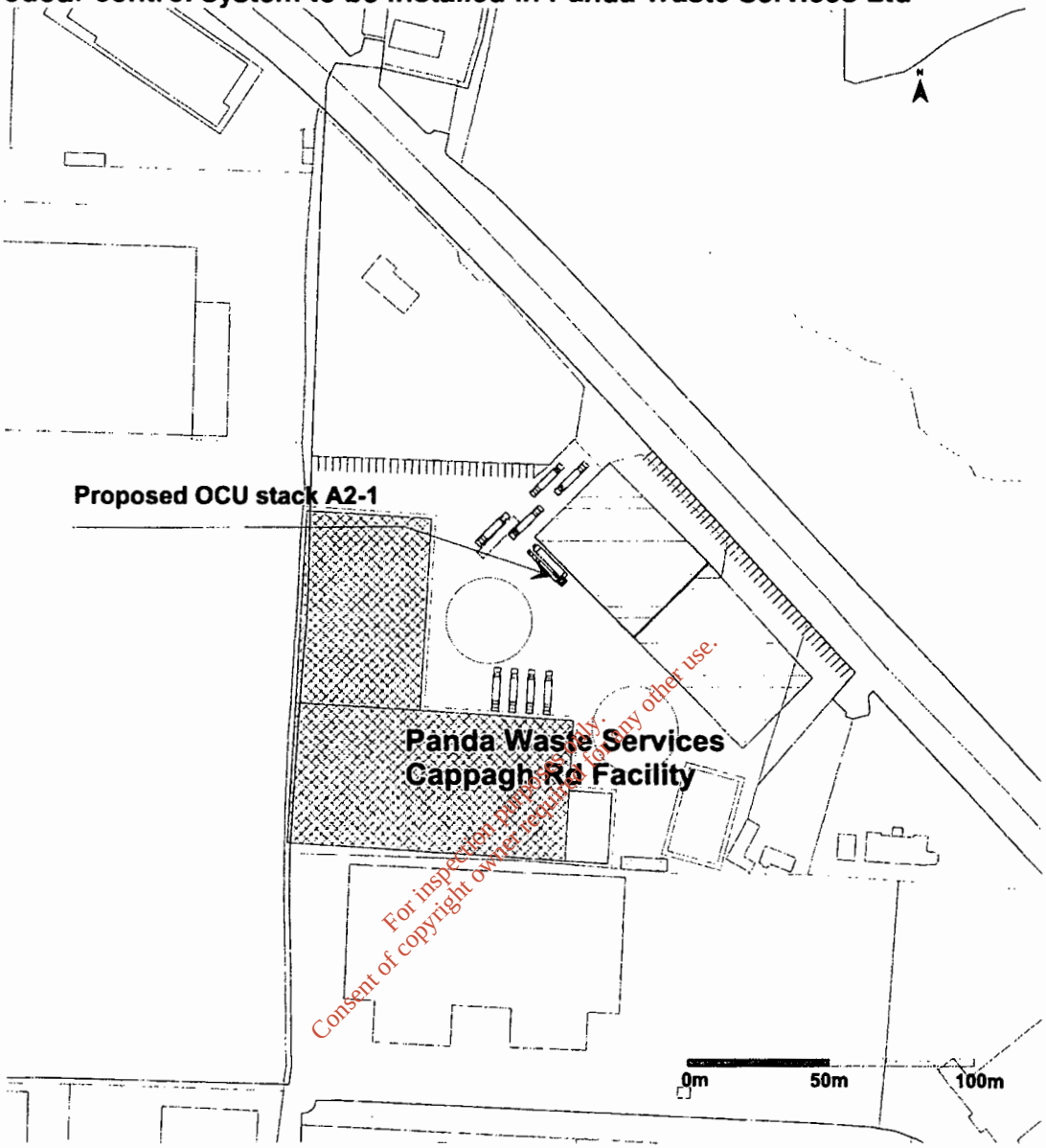

Figure 6.1. Schematic of Panda Waste Services site location and odour control stack location (•).

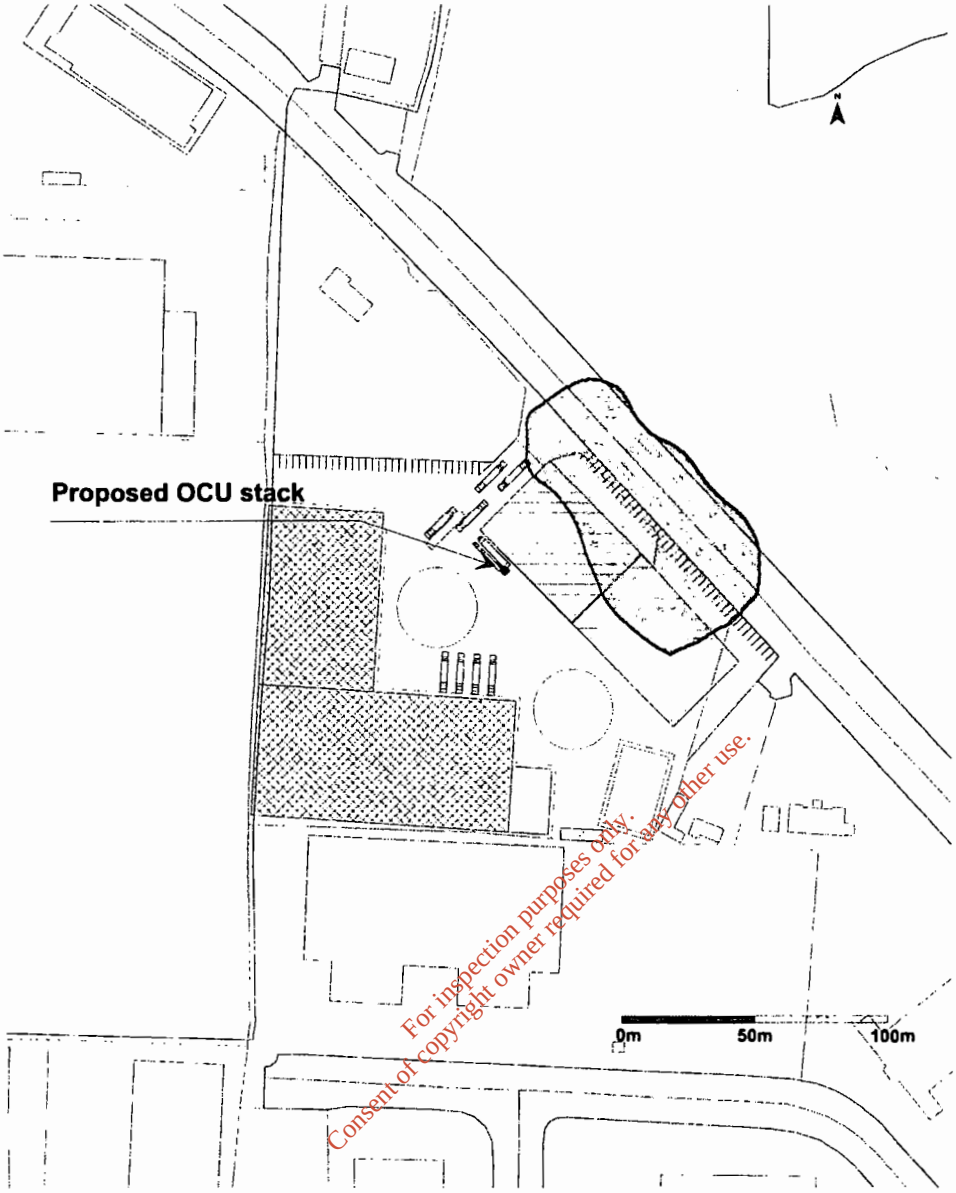

Figure 6.2. Predicted odour emission contribution of odour control unit operation for AERMOD Prime dispersion model for an odour concentration of less than or equal to 0.90 $Ou_E\ m^{-3}$ (▬▬) at the 98th percentile of hourly averages for 5 years of screened hourly sequential meteorological data (Worst case year 2004).

Appendix 9 Noise Impact Assessment

N & V

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Noise & Vibration Consultants Ltd

Reg No: IE 8298170M
Principal: Brendan O'Reilly MSc ISEE SFA EAA

NOISE EIS REPORT

Prepared For: Panda Waste

Extension to Existing Waste Facility at Cappagh Road

Report Prepared by: Brendan O'Reilly, Noise & Vibration Consultants Ltd
(December 2013)

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1 Noise

1.1 Introduction

This report deals with the potential noise emission impacts associated with a proposed extension to the existing materials recycling facility at Cappagh Rd, Finglas, Co. Dublin. Panda currently have permission to operate three main processing buildings; A1 construction and demolition waste (C & D), B1 commercial and industrial waste (C & I) and B2 (Dry Recyclables). The aforementioned facilities involve the collection and processing of 200,000 tonnes of waste annually.

Building A1 has been constructed and is currently used for the recovery of up to 50,000 tonnes per annum of C & D and C & I wastes. Construction works have commenced on Building B1 which will process household and commercial dry recyclables, while Building B2 will process source segregated and mixed cardboard and plastics. It is proposed to transfer the activity currently associated with Building A1 to Building A2.

The current planning permit and waste licence specifies the hours of acceptance and operation as 08.00 to 20.00 hrs Monday to Friday and 08.00 to 16.00hrs on Saturday.

The current proposal is to construct a new building (Building A2 adjacent to Building A1 which will accept process and transfer segregated residual household waste (black bin) and accept and transfer source segregated food waste (brown bin). This proposal seeks to increase the overall permitted tonnage from 200,000 tonnes to 250,000 tonnes annually. It is proposed to change the waste acceptance hours to 06.00 and 23.00 hrs Monday to Friday and operation hours to 07.00 to 22.00hrs Monday to Saturday.

The purpose of this study is to:

- establish existing noise levels in the environs surrounding the proposed development prior to the proposed activity
- project the noise levels generated by construction and completed development
- specify mitigating measures where deemed necessary

Acoustic Terminology

Sound is simply the pressure oscillations that reach our ears. These are characterised by their amplitude, measured in decibels (dB), and their frequency, measured in Hertz (Hz). Noise is unwanted or undesirable sound, it does not accumulate in the environment and is normally localised. Environmental noise is normally assessed in terms of A-weighted decibels, dB(A), where the A weighted filter in the measuring device elicits a response which provides a good correlation with the human ear. The criteria for environmental noise control are of annoyance or nuisance rather than damage. In general a noise level is liable to provoke a complaint whenever its level exceeds by a certain margin the pre-existing noise level or when it attains an absolute level. A change in noise level of 2 dB(A) is 'barely perceptible', while an increase in noise level of 10 dB(A) is perceived as a twofold increase in loudness.

2.0 The Receiving Environment

2.1 Baseline Noise Survey

A noise survey was carried out at locations along the perimeter of the existing facility and close to the nearest residents in the environs of the proposed development. Continuous monitoring was undertaken over a period from 28th to 30th November 2011. Weather was dry during the survey with average wind speeds less than 3m/s. The following conditions were adhered to in undertaking the survey:

- Measurement of ambient noise levels was undertaken during varied weather conditions using instruments of Type 1 specification.
- Monitoring locations were selected to coincide with local residences.
- Measurements were undertaken during weekday and weekend periods.
- The survey was carried out in accordance with ISO 1996 Part 1 (Description and Measurement of Environmental Noise - Part 1: Basic Quantities and Procedures)

Instrumentation Used

The following instrumentation was used in the baseline survey:

- Two Larson Davis 812 Precision Integrating Sound Level Analyser/Data logger
- One Larson Davis 831 Precision Integrating Sound Level Analyser/Data logger
- Wind Shields Type: Double Skinned Windscreen.
- Calibration Type: Larson Davis Precision Acoustic Calibrator Model CA 250.

Measurement Procedure

Noise monitoring was carried out at four locations (see figure in Appendix) using environmental noise analysers with data logging facilities set on real time, the logged data was downloaded via a personal computer using computer software. The measurement location was as follows;

N1: Located at 15m from road edge as shown on map, close to ANSL1
AN2: Located in corner of site as shown on map
AN3: Located 40m from road edge as shown on map
ANSL2: Located at entrance to derelict house

At monitoring location the microphone was located at 1.5m above ground level and away from reflecting surfaces. All acoustic instrumentation was calibrated before and after each survey and the drift of calibration was less than 0.2dB (calibration level 114 dB at 250 Hz).

2.2 Results of Noise Survey

The existing noise levels were established during a period of continuous monitoring at a location along the boundary of the road traffic noise dominates the local environment. The complete dataset from the baseline study is given in the Appendix. A summary of the 30 minute intervals (mean values) measurements are given in Table 2.1 below.

Table 2.1 Baseline noise levels mean values – 30 minute interval data

		Day-time			Night-time		
Location	Date	Leq	L10	L90	Leq	L10	L90
N1	28th - 29th Nov'13	61.2	65	42.9	53.3	48	36.8
	29th - 30th Nov'13	63.5	67.6	48.8	51.4	47.2	37.6
	30th Nov'13	59.9	63.5	43.7			
ANSL2	28th Nov'13	67.6	67.8	52.6			
AN1	28th - 29th Nov'13	49.2	50.5	45.7	47.1	48.1	43.2
	29th - 30th Nov'13	54.2	56.3	49	44.8	45.3	40.9
	30th Nov'13	51.3	53.6	45.3			
AN2	28th - 29th Nov'13	55.5	57.3	47.1	47.9	48.6	43.3
	29th - 30th Nov'13	59.2	60.3	51.3	56.9	53	42.6
	30th Nov'13	60.4	62.3	51.4			

Note Levels quoted are for mean (arithmetic average) for specified periods
Day-time is 07.00 to 22.00 hrs, night-time is 22.00 to 07.00 hrs

3.0 Characteristics of Proposal

The current activity associated with building A1 will be transferred to building A2. The main noise sources in the proposed development (shredder, trommel screen, conveyor, grab, forklift and front-end loaders) will be contained inside building A1. The fans for the odour control system /negative pressure will be housed outside existing building A1. A yard sweeper will operate inside and outside the building for periods. The noise levels associated with this development will be from construction of Building A2 and the operation of new plant in Building A1. There will be an increase in traffic flow generated on the local road network from the completed development.

4.0 Potential Impacts of the Proposal

The proposed development consists of:

- construction of building A2
- the operation of the new activity in Building A1
- road traffic generated from activity associated with Building A1

Noise Limits

For outdoor noise at residential properties the basic criterion for night-time is normally less than 45 dB(A), while the day-time criterion is normally less than 55 dB(A). Local Authorities throughout Ireland and the EPA through their Licensing apply the aforementioned limits. The existing facility has a waste licence and the aforementioned limits are set under conditions by the EPA. These are:

- night-time (22.00 to 08.00 hrs) 30 minute Leq limit of 45 dB(A)
- day-time (08.00 to 22.00 hrs) 30 minute Leq limit of 55 dB(A) and,

'There should be no clearly audible tonal component or impulsive component in the noise emission from activity at any noise sensitive location'.

For this proposal the existing noise limits are proposed with night-time from 22.00 to 07.00hrs and day-time from 07.00hrs to 22.00hrs. The dominant noise at the nearest NSL's is road traffic noise and as can be seen from the baseline noise survey data there should be a negligible noise impact due to a 07.00hrs start of operation activity inside the buildings.

4.1 Typical Construction Noise Sources and Noise Levels

Leq measurements were taken of construction noise sources at other sites within the country at 20m from the geometric centre of activity when the equipment was in continuous operating mode. Noise levels of these noise sources are given in Table 4.1 and were as follows:

Table 4.1 Noise levels from construction activity at 20m

Noise Source	Noise Level Leq 1 hour
Readymix truck	70 dB(A)
Large Excavator	73 dB(A)
Vibratory Roller	68 dB(A)
Dump truck	71 dB(A)

4.2 Calculation and Prediction of Construction Noise

Methodology

The predicted noise levels generated by construction activity (or indeed any noise source) at a particular location can be calculated according to the following formula:

$$Lp2 = Lp1 + \Delta L\psi - \Sigma\Delta L \text{ where,}$$

Lp2 = Sound Pressure level in decibels at Residence.

Lp1 = Sound pressure level in decibels at 20 metres.

$\Delta L\psi$ = correction for direction effects in a horizontal plane,

$\Sigma\Delta L = \Delta Ld + \Delta La + \Delta Lr + \Delta Ls + \Delta Lv + \Delta Lg + \Delta Lw$, and where,

ΔLd = geometric spreading (spherical radiation) and is calculated according to:

$\Delta Ld = 20 \log_{10} (d1/d2)$, where, d1 is the residence distance in metres, while d2 is 20 metres.

ΔLa = air absorption

ΔLr = reflection and diffraction

ΔLs = screening

ΔLv = vegetation

ΔLg = ground absorption

ΔLw = wind gradients

The attenuation effects due to air absorption, reflection, refraction and vegetation is small within distances of 100m and in the predictive calculation the attenuation from these factors is assumed to be zero at such distance. The other attenuating factors (geometric spreading,

screening) have been taken accounted for in the proposed development. The predicted levels are given in Table 4.2

Table 4.2 Predicted noise levels at key locations from construction activity

Receiver Position	Predicted Maximum Levels L_{AeqT} - 1 hour dB(A)	Predicted Typical Levels L_{AeqT} - 1 hour dB(A)
ANSL1	59.9	<50
ANSL2	57.9	<50

Note: A 3m high wall which is located between the construction source will reduce the noise emissions at ANSL1 locations by more than 10dBA. The maximum Leq noise levels will pertain for short periods (less than two-week equivalent at any location for the entire project), while typical noise levels are for a period in excess of 50% of the total construction period.

Commentary

All construction will be carried out in accordance with BS 5228: Part 1: 2009[1]. All construction traffic to be used on site should have effective well-maintained silencers. Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery and limiting the hours of site activities that are likely to give high noise level emissions. Where possible the contractor will be instructed to use the least noisy equipment. With efficient use of well maintained mobile equipment considerably lower noise levels (3-6 dB(A)) than those predicted can be attained. The Project Engineer will closely supervise all construction activity. Construction activity due to its nature is a temporary activity and thus any impacts will be short term. All construction works will be carried out during daytime periods.

4.3 Noise Impacts from Operation of Extension to Facility

The main noise sources associated with Building A1 are inside a building structure. Table 4.3 gives the main noise sources and associated noise levels.

[1] Noise and Vibration Control on Construction and Open Sites BS5228- Part 1: 2009 *Code of Practice for Basic Information and Procedures for Noise Control*)

Table 4.3 Main noise sources and associated noise levels with Building A1

Item of Plant	Noise Level dBA @ 2m	Comment
Odour control fans 2 x25Kw	73	Fans will be houses inside
		acoustic enclosure
Shredder	90	Measurement inside building
Trommel screem	89	Measurement inside building
Transfer conveyor X 2	84	Measurement inside building
Front-end loader x 2	87	Measurement inside building
Forklift	85	Measurement inside building
Yardsweeper	80	
Grab	87	Measurement inside building

The items of plant listed in Table 4.3 at 2m equates to 95.1dBA equivalent with all plant operating together. The current operation (Grab, Front-end loader, Forklift) at 2m equates to 91.2dBA equivalent and is inaudible at ANSL1 and ANSL2 at less than 42 dBA.

Prediction of Operational noise

The predicted noise levels associated with the operation of Building A1 are given in Table 4.4 for day-time hours of operation (07.00 to 22.00hrs). The night-time hours of acceptance (22.00 to 23.00hrs and 06.00 to 07.00hrs). During night-time the waste acceptance activity will be restricted to vehicles exiting and entering the site.

In the prediction a transmission loss of 35 dBA by the superstructure (Building A1 and Building A2) was taken into consideration. The distance between Building A1 and NSL1 is just over 80m and there is a 3m high concrete wall between buildings A1, A2 and NSL1. Attenuation by distance and the barrier effect of the existing wall is calculated conservatively at 11dBA.

Table 4.4 Predicted noise levels from operation of Building A2 extension

Receiver Position	Day time L_{AeqT} - 30min dB(A)	Night time L_{AeqT} - 30min dB(A)
ANSL1	49.1	<45
AN1	52.5	<45
AN2	36.1	<45
ANSL2 (derelict)	37.0	<45

NB: Day-time operational hours 07.00 to 22.00 hrs and night-time 22.00 to 07.00hrs

Cumulative effects of other permitted buildings and associated activities

Table 4.5 gives a list of plant inside the already permitted buildings. The baler and air compressor is not considered as main noise sources.

Table 4.5 gives a list of the plant activity in permitted buildings.

Item of Plant	Building A1	Building B1	Building B2
	Existing		
Front-end loader	1	1	
Graps	1	1	1
Baler		2	2
Air compressor			1
Shredder		1	
Conveyor		2	2
Forklift	1	2	

The cumulative effects of the activity included in Table 4.5 will result in an increase in noise levels at ANSL1 and ANSL2 of less than 1.5dBA from that given in Table 4.4.

5.0 Road Traffic Impacts

Two separate short traffic counts with a noise survey at N1 which is located 15m from the Cappagh Rd gave figures as given in Table 4.6.

Table 4.6 Road traffic flow on Cappagh Road with resulting noise levels

Date	Time	Flow	dBA	No of HCV's	No of Panda
28th Nov'13	15.00 - 16.00hrs	384	63.9	26	6
30th Nov'13	16.00 -17.00hrs	351	63.7	24	7

The traffic flow in above table was approx. equal in both SE and NW directions. The rate of aircraft flyovers (or nearby flyovers) was approx. 8/hr.

When operating at current approved capacity (200,000tonnes/annum) the facility has the potential to generate 278 vehicles movement /day based on a working year of 272 days (08.00 to 20.00hrs). This equates to an average hourly HCV flow of 23. When operating at a proposed maximum 250,000 tonnes/annum, the facility has the capacity to generate 344 vehicles movement /day. This equates to average hourly HCV flow of 29.

Building A1 which has been constructed is currently used for recovery of 50,000 tonnes/annum of C & D and C & I waste. The current flow on the Cappagh Road includes the traffic generated from this activity and would equate to an average of 6 HCV's /hr.

The Building A1 activity which generates 6 HCV's /hr will be transferred to Building A2 and the new activity in Building A1 will also generate 6 HCV's /hr. The net result of the proposal will increase the HCV traffic flow from Panda by an average of 6 HCV's /hr.

There is a logarithmic relationship between road traffic flow and generated noise levels. The doubling of road traffic flow will typically increase the noise levels by 3dBA.

Using a current road average traffic flow of 384 veh/hr on the Cappagh Rd an increase of 6 HCV's would give a negligible noise increase.

Cumulative increase

Increasing the road traffic flow from the Panda facility from the current hourly average flow of 6HCV's/hr to 29 HCV's will result in an increase of 23HCV's /hr. If 1 HCV is assumed to generate the equivalent of 3 light vehicles, then the increase in road traffic on the Cappagh Rd becomes less than 20% equivalent. A less than 20% increase in road traffic will result in a noise level increase of less than 1dBA. The cumulative increase in noise levels from road traffic generated by the Panda waste facility will be negligible.

6.0 Ground Vibration

Ground vibration can be generated from construction traffic, light vehicles on the roadway and by construction activity. The level of ground vibration generated by the development will be below the threshold of perception (0.2-0.3mm/sec) at any residence

7.0 Mitigating Measures for Noise Control

The following mitigating measure is in place:

- A 3m high concrete wall is constructed along the SE boundary of the facility (between Building A2 and the nearest residence, a bungalow which is listed as NSL1 in existing licence).

The following mitigating measure will be in place:

- Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery, turn off equipment / plant when not in use.

- All extraction fans, openings for cooling units/vents to the outside of the main building (superstructure) will be acoustically treated (by acoustic louvers or alternative) so that noise emissions at the complex boundary will be less than 45 dB(A) at the neaerst residences (with no clearly audible tonal component).

- The housing envelope of Building A2 will have a concrete wall with a minimum height of 3m and minimum thickness of 225mm with a finished height and roof, of Kingspan cladding, or equivalent. (a concrete wall of mass per unit area of 430kg/m^2 (thickness of 195mm) will give an average transmission loss of 54 dB[2] while Kingspan cladding of 60mm thickness (18Kg/m^2) with no lining will give an sound average transmission loss of 25 dB).

- All doors (including the roller shutter doors) to the main building will be kept shut during operations.
- Any openings for cooling or forced ventilation will have acoustic louvers or equivalent fitted.
- Fans will be housed inside an enclosure and will be located in front of Building A1 and away from the nearest residence.
- There will be no openings on the side wall of Building A2 which is alongside the boundary of the nearest residence.

8.0 Assessment and Conclusion

The maximum noise levels predicted will occur during the construction phase of the development and will pertain for short periods only. The noise impact from the operation of the completed facility will have a negligible noise impact by day and by night at all NSL's.
The increase in road traffic from the completed development should be negligible at all NSL'S

[2] Encyclopaedia of Acoustics, Vol 3, Architectural Acoustics, M. J. Crocker (1997)

APPENDIX

Table 1 **Locn** **N1**

Model 812 Interval Report

From File: CAPP6.870 Mon 02Dec2013 22:41:59

Period = 00:30 (hh:mm)

Date	Time	Duration	Leq dBA	Lmin dBA	Lmax dBA	L1 dBA	L5 dBA	L10 dBA	L50 dBA	L90 dBA
28Nov2013	15:50:28	09:32.0	64.2	44	83.7	74.5	71.2	69.4	53.7	46.6
28Nov2013	16:00:00	30:00.0	64	43.1	79.7	72.9	70.5	69	57	47.6
28Nov2013	16:30:00	30:00.0	65	43	80.5	73.5	71	69.5	60.3	48.7
28Nov2013	17:00:00	30:00.0	65	41.7	76.5	72.9	70.7	69.4	61.2	48.2
28Nov2013	17:30:00	30:00.0	65	43.7	77.7	73.4	71	69.7	59.6	49.2
28Nov2013	18:00:00	30:00.0	63.2	40.7	77.7	72.7	69.9	68	55.2	46.3
28Nov2013	18:30:00	30:00.0	61.8	41.7	78	72.5	69.2	66.9	51.1	44.2
28Nov2013	19:00:00	30:00.0	61	37.7	79	72.5	68.7	65.5	48	41.2
28Nov2013	19:30:00	30:00.0	59.6	36.1	74.7	71.5	67.5	64	46.1	39
28Nov2013	20:00:00	30:00.0	59.1	35	76	71.7	66.7	61.7	42.7	36.8
28Nov2013	20:30:00	30:00.0	56.7	35.2	73.2	69.2	64.9	60	40.1	36.6
28Nov2013	21:00:00	30:00.0	57.2	35.2	73.9	70.7	64.9	57.8	39.3	37.1
28Nov2013	21:30:00	30:00.0	54.5	35.2	72.5	68.2	61.6	54.7	38.2	37
28Nov2013	22:00:00	30:00.0	54.8	34.7	73.4	69	60.7	54.7	38.7	36.2
28Nov2013	22:30:00	30:00.0	57.6	34.2	79.2	70.5	62.8	55.6	38.1	36
28Nov2013	23:00:00	30:00.0	52.7	33.7	73.4	67.4	55.6	47.8	37.2	35.5
28Nov2013	23:30:00	30:00.0	50.5	34	75.7	63.8	46.8	40.5	36.7	35.3
29Nov2013	00:00:00	30:00.0	47.5	33.2	71.9	59.6	43	40.7	37.1	35.1
29Nov2013	00:30:00	30:00.0	51.7	32.5	74.7	66	51.7	44.2	37	34.7
29Nov2013	01:00:00	30:00.0	51	31.5	75.2	64.2	45.5	37.6	34.8	33.2
29Nov2013	01:30:00	30:00.0	48.7	31.3	71.5	63.2	46.2	38.1	34.7	33.1
29Nov2013	02:00:00	30:00.0	55	31.5	81.2	68.9	51.2	40.5	35.2	33.2
29Nov2013	02:30:00	30:00.0	44.7	31.3	70.5	51.6	37.8	36.5	34.5	33.1
29Nov2013	03:00:00	30:00.0	48.2	31.8	74.7	59.7	43.7	40.2	36.6	34.5
29Nov2013	03:30:00	30:00.0	53	34	76	67.2	53.5	46.5	38.7	36.5
29Nov2013	04:00:00	30:00.0	50.7	33.8	77.2	63.7	46.8	43.3	39.2	36.7
29Nov2013	04:30:00	30:00.0	54.3	36.1	73.7	68.7	58.3	50.6	40.2	38.2
29Nov2013	05:00:00	30:00.0	55.8	36.7	76.2	70.5	59.5	52.2	40.7	38.6
29Nov2013	05:30:00	30:00.0	59.5	39.5	77.2	71.7	67.2	63.6	46.6	42.2
29Nov2013	06:00:00	30:00.0	62.1	41.5	85.2	72.9	68.7	65.9	51	44.7
29Nov2013	06:30:00	30:00.0	62	44.2	78.9	72.7	69	66.5	53.5	48.5
29Nov2013	07:00:00	30:00.0	64	45.3	81.5	74	71	69	57.2	48.5
29Nov2013	07:30:00	30:00.0	64.5	45.1	76.9	73.5	70.9	69.5	58.7	49.8
29Nov2013	08:00:00	30:00.0	65	45.8	77.4	73.5	71.2	69.5	60.2	51.2
29Nov2013	08:30:00	30:00.0	65.9	47.6	82.9	74.2	71.5	70	60.7	52.3
29Nov2013	09:00:00	30:00.0	66	48.3	76	73.9	71.9	70.5	62.2	52.3
29Nov2013	09:30:00	30:00.0	65.5	45.6	77.9	74.9	71.9	70.2	59.3	50.5
29Nov2013	10:00:00	30:00.0	64	45	76.5	73.5	71	69	56.7	48.5
29Nov2013	10:30:00	30:00.0	64.5	45.2	76.5	74	71.5	69.7	57.7	49.6
29Nov2013	11:00:00	30:00.0	64.5	46	82	74	71.2	69	57.5	49.5
29Nov2013	11:30:00	30:00.0	64.5	47.2	76.4	73.7	71	69.2	58.8	51.2
29Nov2013	12:00:00	30:00.0	64.9	47.8	78.5	74	71.2	69.5	59.1	51.7
29Nov2013	12:30:00	30:00.0	65.4	47.1	78.9	74.4	71.5	70	60.1	51.6
29Nov2013	13:00:00	30:00.0	65.2	46.3	78.4	73.5	71	69.7	60.8	51.7

29Nov2013	13:30:00	30:00.0	65	47.2	79.2	73.9	71.4	69.5	59.1	52
29Nov2013	14:00:00	30:00.0	64.7	46.8	77.9	74	71.2	69.4	58.5	51.5
29Nov2013	14:30:00	30:00.0	64.7	47.2	78.5	74.2	71	69.5	58.2	51
29Nov2013	15:00:00	30:00.0	65.2	46.1	84.5	74.7	71	69.4	59.2	51
29Nov2013	15:30:00	30:00.0	65.7	47.1	80.4	74.7	72	70.2	60.7	52
29Nov2013	16:00:00	30:00.0	64.7	47.7	76.9	73.5	70.7	69.4	59.6	51.7
29Nov2013	16:30:00	30:00.0	64.5	46.7	77	73	70.7	69.2	59.7	51.7
29Nov2013	17:00:00	30:00.0	65	47.1	78.5	72.9	70.5	69.2	61.6	53
29Nov2013	17:30:00	30:00.0	63.1	43.6	76.7	72.5	69.7	68	56.3	48.1
29Nov2013	18:00:00	30:00.0	63.5	43.6	78	73.5	70.2	68.2	56.2	48.1
29Nov2013	18:30:00	30:00.0	62.2	43.1	80	72.7	69.5	66.9	53.2	46
29Nov2013	19:00:00	30:00.0	61.7	41.7	87.4	72	67.9	64.7	50.6	44.1
29Nov2013	19:30:00	30:00.0	58.8	39	76	71.2	66.4	62.3	48.5	42.7
29Nov2013	20:00:00	30:00.0	59.2	38.8	76.4	71.2	66.7	62.6	45.2	41.2
29Nov2013	20:30:00	30:00.0	57.8	40	76	69.7	65.7	61.2	46.2	42.1
29Nov2013	21:00:00	30:00.0	57.3	38.7	78	70.5	63.5	57.7	43.7	40.7
29Nov2013	21:30:00	30:00.0	57.2	36.2	79.7	70.2	62.6	56.8	42.1	39.1
29Nov2013	22:00:00	30:00.0	57	36.1	74.7	70.7	63.7	58.1	41.7	38.6
29Nov2013	22:30:00	30:00.0	54.8	36.2	75.5	69	59.7	53.1	40.5	38.1
29Nov2013	23:00:00	30:00.0	52.7	35.2	75.5	67	50.3	43.8	39.7	37.6
29Nov2013	23:30:00	30:00.0	49.6	35.1	74.2	64.2	47.6	42.8	39.2	37.6
30Nov2013	00:00:00	30:00.0	52.2	35.6	75.5	66	55	48	39.7	38
30Nov2013	00:30:00	30:00.0	55.5	34	78.2	70	58.7	50.6	40.1	37.2
30Nov2013	01:00:00	30:00.0	43.2	34.2	68.7	49.5	43.8	42.6	39.2	36.8
30Nov2013	01:30:00	30:00.0	49.7	34.2	75.2	62	45.3	42	38.7	36.5
30Nov2013	02:00:00	30:00.0	39.2	33.8	54.7	44.1	41.7	40.8	38.6	36.6
30Nov2013	02:30:00	30:00.0	50.6	32.6	74.5	65.4	49.6	44.7	39.2	36.5
30Nov2013	03:00:00	30:00.0	45.8	33.2	72.9	50.1	41.7	40.8	38.6	35.7
30Nov2013	03:30:00	30:00.0	52.5	33.2	75.2	67.2	51.2	45	38.7	36.1
30Nov2013	04:00:00	30:00.0	53.1	33.3	77.7	66.7	50.6	44.2	38.5	36.5
30Nov2013	04:30:00	30:00.0	50.2	34.5	72.2	65.2	48.7	43.2	39	36.7
30Nov2013	05:00:00	30:00.0	50.7	33.2	73.9	64.2	46.5	41.7	38	36.2
30Nov2013	05:30:00	30:00.0	57	35.8	76.4	71.2	63.1	54.2	41.6	38.8
30Nov2013	06:00:00	30:00.0	53.8	37.5	73.5	68.5	57.7	53.7	43.3	40.6
30Nov2013	06:30:00	30:00.0	57.7	41.3	78.2	70	63.1	59.7	50.8	45.5
30Nov2013	07:00:00	30:00.0	58.8	43.2	77.7	71.2	65.5	61.1	50.2	45.3
30Nov2013	07:30:00	30:00.0	59.5	44.2	76.5	71.4	66.7	63	51.3	47.2
30Nov2013	08:00:00	30:00.0	61.6	44.5	76	73	68.9	66.2	53.5	48.5
30Nov2013	08:30:00	30:00.0	60.7	45.2	78.7	72.2	68	64.9	52.2	47.7
30Nov2013	09:00:00	30:00.0	60.7	45.6	75.7	72.5	68.5	64	52.3	49
30Nov2013	09:30:00	30:00.0	60	47.1	77	71.7	67	63.7	52.2	50
30Nov2013	10:00:00	30:00.0	61.1	48.2	78	72.2	68.9	65.2	53	50.2
30Nov2013	10:30:00	30:00.0	62.1	45.5	77.2	73.2	69.5	66.7	52.8	48.5
30Nov2013	11:00:00	30:00.0	61.5	44.6	75.2	72.5	68.5	65.9	54.1	48.7
30Nov2013	11:30:00	30:00.0	62	44.2	79.7	72.7	69.2	66.5	53.1	47.1
30Nov2013	12:00:00	30:00.0	62.2	40.8	75.4	72.7	69.9	67.4	52.7	44.8
30Nov2013	12:30:00	30:00.0	59.2	40.6	73.7	69.7	66	63.7	52.3	45
30Nov2013	13:00:00	30:00.0	55	40.2	70.9	64	60.5	58.7	51.3	46.2
30Nov2013	13:30:00	30:00.0	60.2	34.1	77.2	71.5	67.5	64.5	49.7	37
30Nov2013	14:00:00	30:00.0	62.6	34	88.5	71.7	68.5	66	50.7	36.8

30Nov2013	14:30:00	30:00.0	61	34.3	74	71.9	68.7	66	49.7	37.3
30Nov2013	15:00:00	30:00.0	60.7	34.8	78	71.5	67.5	65.2	49.8	39.6
30Nov2013	15:30:00	30:00.0	62.7	35.1	90.4	72	69	66	51.7	40.7
30Nov2013	16:00:00	30:00.0	63.1	43.6	74.7	72.6	69.9	68.2	56.4	48.2
30Nov2013	16:30:00	30:00.0	62.1	41.9	78.5	72.7	69.4	67.1	51.3	44.4
30Nov2013	17:00:00	30:00.0	62	42.9	79.1	72.5	69.3	66.7	53	45.7
30Nov2013	17:30:00	30:00.0	61.5	41.6	84.4	71.3	67.5	64.4	50.3	44
30Nov2013	18:00:00	30:00.0	58.2	39.1	75	71.2	66.4	62.3	48.5	42.5
30Nov2013	18:30:00	30:00.0	58.5	38.9	75.3	71	66.5	62.4	45.1	41.8
30Nov2013	19:00:00	30:00.0	57.7	40.1	74	69.3	65.4	61.3	46.1	42.3
30Nov2013	19:30:00	30:00.0	57.1	38.6	76.2	70.4	63.6	57.8	43.4	40.8
30Nov2013	20:00:00	30:00.0	57	36.1	77.8	70.1	62.7	56.7	42.3	39.3
30Nov2013	20:30:00	30:00.0	56.4	35	71.8	69.3	64.6	60.4	40.2	36.2
30Nov2013	21:00:00	30:00.0	56.3	37.9	76	70.6	63.2	57.4	43.6	40.3
30Nov2013	21:30:00	30:00.0	56.4	35.9	77.7	69.3	62.1	56.6	41.8	38.2

Table 3

Table 2 **Locn** **AN2**

Model 812 Interval Report

From File: CAPP8.870 Sun 01Dec2013 13:28:35

Period = 00:30 (hh:mm)

Date	Time	Duration	Leq dBA	Lmin dBA	Lmax dBA	L1 dBA	L5 dBA	L10 dBA	L50 dBA	L90 dBA
28Nov2013	16:00:00	30:00.0	55.1	47.5	73.5	62.8	59.6	57.8	53	49.7
28Nov2013	16:30:00	30:00.0	55.7	46.6	75.4	63.8	60.2	58.7	53.2	50.1
28Nov2013	17:00:00	30:00.0	53.7	46.3	66	60.7	58.2	56.7	52.1	48.7
28Nov2013	17:30:00	30:00.0	62	45.8	83.7	74.2	67.9	63.2	55.7	51.6
28Nov2013	18:00:00	30:00.0	62.1	49	86.7	74.7	65.5	61.2	54.6	51
28Nov2013	18:30:00	30:00.0	52.6	44.2	69.9	60.7	57.7	55.8	50.2	46.1
28Nov2013	19:00:00	30:00.0	53.5	41.8	72.2	63.7	59.2	56.7	48.6	45.2
28Nov2013	19:30:00	30:00.0	60.7	43.1	87.7	68.9	61.7	60.2	53.5	46
28Nov2013	20:00:00	30:00.0	53.7	41.7	81.7	61.7	57.7	55.6	47.8	44.2
28Nov2013	20:30:00	30:00.0	54.2	42.2	82.2	63.5	58.2	57.3	48	44.2
28Nov2013	21:00:00	30:00.0	53.8	42.3	79.5	63.6	55.3	52.6	45.7	44.1
28Nov2013	21:30:00	30:00.0	49.3	43.2	67.4	60.5	54	51.2	46	44.8
28Nov2013	22:00:00	30:00.0	52.7	41.5	80.4	61.8	55.2	51.3	44.7	43.2
28Nov2013	22:30:00	30:00.0	48.6	41.7	65.9	59.7	53.8	49.8	45.3	43.7
28Nov2013	23:00:00	30:00.0	45	41.3	58	51.6	48	46.1	44.2	43.1
28Nov2013	23:30:00	30:00.0	44	39.7	58.7	50.3	45.7	44.8	43.2	41.7
29Nov2013	00:00:00	30:00.0	42.2	38.7	55.6	48.7	44.2	43.3	41.5	40.2
29Nov2013	00:30:00	30:00.0	44.1	38	62.1	54.6	49.1	44.5	41.5	40
29Nov2013	01:00:00	30:00.0	42.1	37.7	57.3	50	43.7	42.7	41.1	39.5
29Nov2013	01:30:00	30:00.0	41.1	36.6	56.5	49.2	43.2	41.8	40.2	38.7
29Nov2013	02:00:00	30:00.0	43.3	37.7	62.2	54.3	44.1	42.7	40.7	39.3
29Nov2013	02:30:00	30:00.0	41.5	37.2	57.5	47.7	43.2	42.6	40.7	39.2
29Nov2013	03:00:00	30:00.0	45.6	37.5	77.7	51.7	45.6	43.7	41.1	39.3
29Nov2013	03:30:00	30:00.0	53.2	38.2	80	64	55	51.2	44.5	41.2
29Nov2013	04:00:00	30:00.0	47.2	40	67.5	57.5	51.5	47.7	43.1	41.6
29Nov2013	04:30:00	30:00.0	48.3	40.8	69.5	56.6	52.8	51.2	46.1	43.6
29Nov2013	05:00:00	30:00.0	49.1	42.2	65	58.8	54	51.3	46.3	45.1
29Nov2013	05:30:00	30:00.0	54.3	45.2	74.5	61.2	58.7	56.7	53.3	49.6
29Nov2013	06:00:00	30:00.0	60.1	54.2	77.5	67	63.7	62	59	56.3
29Nov2013	06:30:00	30:00.0	60	51	76.5	68.4	64.2	62.5	58.5	53.7
29Nov2013	07:00:00	30:00.0	59.2	51.7	80.2	70.5	62.2	60.5	55.8	53.5
29Nov2013	07:30:00	30:00.0	57.8	51	74.5	64.5	61.2	60	56.6	54.5
29Nov2013	08:00:00	30:00.0	57.3	51.1	75.5	64.2	60.8	59.6	56.1	53.6
29Nov2013	08:30:00	30:00.0	57.7	51.2	80.2	66	61.1	59.2	55.5	53.2
29Nov2013	09:00:00	30:00.0	57.5	50.2	73.5	64.7	61.6	60	55.8	53.2
29Nov2013	09:30:00	30:00.0	55.8	48.7	69.9	62.2	59.7	58.6	54.6	51.6
29Nov2013	10:00:00	30:00.0	55.7	50.5	69.7	62.3	59.3	58	54.6	52.3
29Nov2013	10:30:00	30:00.0	56	49.5	72.4	61.6	59	57.8	55.1	52.7
29Nov2013	11:00:00	30:00.0	57.6	50.6	76.2	66.5	62	60	55.1	52.7
29Nov2013	11:30:00	30:00.0	66.4	51.2	87	72.4	71.5	70.9	60.3	53.7
29Nov2013	12:00:00	30:00.0	62.2	51.7	75	71	69.5	66.7	58.3	55.5
29Nov2013	12:30:00	30:00.0	63.6	52.5	75.7	69.9	68.5	67.7	61.5	55.7
29Nov2013	13:00:00	30:00.0	61.5	53.1	82.5	68.5	65.5	64.7	59.1	55.7

29Nov2013	13:30:00	30:00.0	62.5	51.2	82	71.7	67.7	65	59.7	54.5
29Nov2013	14:00:00	30:00.0	58.7	48.8	82.2	67.9	62.2	60.5	55.7	52.2
29Nov2013	14:30:00	30:00.0	57	49.2	81.2	64	59.8	58.6	54.7	52.1
29Nov2013	15:00:00	30:00.0	57.6	48.7	81.9	65.7	62.2	60.7	54.3	51.2
29Nov2013	15:30:00	30:00.0	61.2	49.5	84.4	73	63.8	61.2	56.2	52.2
29Nov2013	16:00:00	30:00.0	59.2	49.3	87.7	65.5	62	60.5	57.3	53.3
29Nov2013	16:30:00	30:00.0	57.2	48.8	83.7	64.7	60.8	59.2	54.3	51.2
29Nov2013	17:00:00	30:00.0	57.6	49.1	84.7	64	60.5	58.8	54.7	51.3
29Nov2013	17:30:00	30:00.0	57.6	46.2	82.7	65.5	60	58.2	54.3	50.1
29Nov2013	18:00:00	30:00.0	57.6	47.8	84	65.5	61	59	53.3	50
29Nov2013	18:30:00	30:00.0	57.3	47.1	75.5	64	61	59.7	56.5	50.2
29Nov2013	19:00:00	30:00.0	59	44.8	85.2	71.7	61.5	59.1	51.7	47.3
29Nov2013	19:30:00	30:00.0	70	43.6	99.2	82	69.5	60.1	50.6	45.7
29Nov2013	20:00:00	30:00.0	68.9	43.3	95.2	82.7	63.3	59.2	47.8	45
29Nov2013	20:30:00	30:00.0	65.5	44.1	95.2	78.5	63.6	57.7	50.1	46.6
29Nov2013	21:00:00	30:00.0	52.8	42.8	70.2	62.7	57.7	55.7	49.5	45
29Nov2013	21:30:00	30:00.0	48.8	40.8	68.2	59.8	54.2	51.5	44.3	42.7
29Nov2013	22:00:00	30:00.0	50.7	39.8	74.7	62.6	55.6	52.2	44.5	42.3
29Nov2013	22:30:00	30:00.0	45.6	40	65.7	54.7	50.8	47.7	43.2	41.7
29Nov2013	23:00:00	30:00.0	44.7	40.2	60.7	53.8	46.7	45.5	43.6	42.2
29Nov2013	23:30:00	30:00.0	51.2	41.2	76.2	62	48.7	46.2	44.1	43
30Nov2013	00:00:00	30:00.0	55.7	41.5	79	71	55.7	50.2	44.2	42.8
30Nov2013	00:30:00	30:00.0	71.5	41.2	98	85.2	70.4	55.8	44.1	42.7
30Nov2013	01:00:00	30:00.0	82	39.8	100.7	95.2	89.5	85.2	43.8	41.2
30Nov2013	01:30:00	30:00.0	79.7	39.3	110	93	73.7	54	42.2	40.7
30Nov2013	02:00:00	30:00.0	74.9	40	99	89.5	76.5	53.3	42.6	41.2
30Nov2013	02:30:00	30:00.0	44.2	38.8	62.1	53.8	46.7	44.7	42.6	40.7
30Nov2013	03:00:00	30:00.0	41.6	37.5	56.5	46.1	43.6	42.7	40.8	39.2
30Nov2013	03:30:00	30:00.0	67.7	37	99.2	74.7	50.7	48.7	41.2	39.1
30Nov2013	04:00:00	30:00.0	49.3	47.1	62.2	54.7	50.6	49.8	48.8	48.1
30Nov2013	04:30:00	30:00.0	48.2	43.6	67.5	53.2	49.8	49.6	47.8	45.3
30Nov2013	05:00:00	30:00.0	48.7	43.2	67.2	58.7	57.6	46.8	45.1	44.2
30Nov2013	05:30:00	30:00.0	54	41.2	72.5	62.8	59.2	58.2	49.2	43.7
30Nov2013	06:00:00	30:00.0	58.3	41.2	74	66.7	65.7	64.9	45.1	42.7
30Nov2013	06:30:00	30:00.0	55.7	43.2	81.2	65	60.1	58.1	50.6	46.7
30Nov2013	07:00:00	30:00.0	53.7	45.7	76.5	62.3	58.8	56.8	50.7	47.6
30Nov2013	07:30:00	30:00.0	57.6	45.3	84.2	64.7	61.7	60.7	52.8	47.7
30Nov2013	08:00:00	30:00.0	58.2	45.3	82.9	65.7	61.2	60	56.2	50.1
30Nov2013	08:30:00	30:00.0	60	46.6	75	66.4	63.7	62.7	60	49.7
30Nov2013	09:00:00	30:00.0	70.2	59.2	79.7	78.7	77.5	70.9	69	61.6
30Nov2013	09:30:00	30:00.0	71.9	59.2	81.2	78.9	78.5	78.2	64.2	61.6
30Nov2013	10:00:00	30:00.0	59.6	49.2	69.5	65.2	64.4	63.7	56.3	52
30Nov2013	10:30:00	30:00.0	63.6	48.2	95.5	67.5	65.5	64.7	59.6	54.5
30Nov2013	11:00:00	30:00.0	66.5	51.7	91.4	78.9	70.2	65.9	61.8	58.3
30Nov2013	11:30:00	30:00.0	59.7	54	81.2	67.5	62.7	61	57.7	55.5
30Nov2013	12:00:00	30:00.0	57.6	46.2	76.2	65.2	60.8	59.7	56.3	53.1
30Nov2013	12:30:00	30:00.0	58.7	45.5	79	69	62	60.3	55.5	51
30Nov2013	13:00:00	30:00.0	58.7	38.8	84.5	71.5	57.8	55.1	48.2	42.8
30Nov2013	13:30:00	30:00.0	53.7	38.8	77.5	63	59	57.1	51	43.7
30Nov2013	14:00:00	30:00.0	56.2	37.5	83.2	67	59.8	57.2	48.1	42

Table 3 **Locn** **AN1**

Model 831

Date	Time	Duration	LAeq	Lmin	Lmax	L1	L5	L10	L33	L50	L90
2013/11/28	16:06:20	00:23:39.4	52.3	45.0	81.4	60.2	55.4	52.9	48.7	48.0	46.8
2013/11/28	16:30:00	00:30:00.0	50.1	44.5	66.7	59.5	55.8	53.0	47.8	47.0	45.8
2013/11/28	17:00:00	00:30:00.0	49.1	45.0	65.5	57.9	53.4	50.8	47.7	47.2	46.3
2013/11/28	17:30:00	00:30:00.0	49.1	44.8	65.1	57.9	53.3	50.4	47.7	47.3	46.4
2013/11/28	18:00:00	00:30:00.0	49.8	44.0	66.5	58.8	55.1	52.5	47.7	47.2	46.0
2013/11/28	18:30:00	00:30:00.0	48.7	43.3	63.9	58.5	54.1	50.5	46.5	46.0	45.0
2013/11/28	19:00:00	00:30:00.0	49.5	43.9	68.4	60.6	54.2	50.3	46.7	46.2	45.2
2013/11/28	19:30:00	00:30:00.0	48.0	43.0	65.2	58.0	52.7	49.0	46.2	45.7	44.7
2013/11/28	20:00:00	00:30:00.0	48.3	43.0	64.4	58.1	52.2	48.4	46.8	46.3	45.4
2013/11/28	20:30:00	00:30:00.0	49.4	43.6	71.0	60.1	53.9	51.0	46.6	46.1	45.0
2013/11/28	21:00:00	00:30:00.0	48.0	44.1	65.2	56.9	50.7	48.1	47.1	46.6	45.5
2013/11/28	21:30:00	00:30:00.0	48.7	44.0	66.3	58.7	51.7	48.5	47.1	46.8	45.8
2013/11/28	22:00:00	00:30:00.0	48.0	42.0	66.9	58.7	51.4	48.0	45.8	45.3	43.9
2013/11/28	22:30:00	00:30:00.0	47.0	42.4	65.3	57.2	47.5	46.9	46.0	45.6	44.4
2013/11/28	23:00:00	00:30:00.0	45.0	41.9	53.6	47.7	46.6	46.2	45.3	44.9	43.7
2013/11/28	23:30:00	00:30:00.0	44.5	40.4	56.5	50.4	46.0	45.4	44.4	44.0	42.5
2013/11/29	00:00:00	00:30:00.0	42.5	38.9	56.8	45.9	44.4	43.8	42.6	42.1	40.9
2013/11/29	00:30:00	00:30:00.0	44.0	39.2	60.7	52.8	47.2	45.0	43.1	42.5	40.9
2013/11/29	01:00:00	00:30:00.0	43.3	39.0	58.7	49.8	46.6	44.6	42.7	42.2	40.8
2013/11/29	01:30:00	00:30:00.0	46.8	37.7	66.2	60.7	50.7	44.0	41.8	41.3	40.0
2013/11/29	02:00:00	00:30:00.0	41.9	38.7	47.2	44.7	43.4	42.9	42.1	41.7	40.6
2013/11/29	02:30:00	00:30:00.0	42.6	39.1	52.9	50.4	44.7	43.6	42.4	41.9	40.7
2013/11/29	03:00:00	00:30:00.0	45.5	38.5	61.7	53.7	49.9	48.2	44.8	43.6	40.6
2013/11/29	03:30:00	00:30:00.0	52.6	39.1	69.9	64.6	62.6	54.7	43.9	43.2	41.4
2013/11/29	04:00:00	00:30:00.0	48.1	40.2	62.8	57.1	56.0	50.3	45.6	44.0	42.4
2013/11/29	04:30:00	00:30:00.0	47.8	41.2	65.2	62.3	47.5	46.7	45.2	44.6	43.1
2013/11/29	05:00:00	00:30:00.0	46.6	42.6	62.5	51.7	48.7	48.0	46.3	45.7	44.5
2013/11/29	05:30:00	00:30:00.0	50.5	43.7	68.4	58.0	54.3	53.0	50.2	48.6	46.1
2013/11/29	06:00:00	00:30:00.0	54.5	47.1	71.7	64.2	58.6	56.4	53.1	52.1	49.8
2013/11/29	06:30:00	00:30:00.0	56.3	49.5	75.2	65.2	60.7	58.7	54.6	53.5	51.7
2013/11/29	07:00:00	00:30:00.0	56.8	49.7	77.6	64.6	60.0	58.4	54.8	53.7	52.0
2013/11/29	07:30:00	00:30:00.0	54.9	50.2	67.3	61.2	58.7	57.3	54.6	53.7	52.1
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2013/11/29	10:00:00	00:30:00.0	54.3	50.4	72.8	61.2	57.8	56.2	53.4	52.8	52.0
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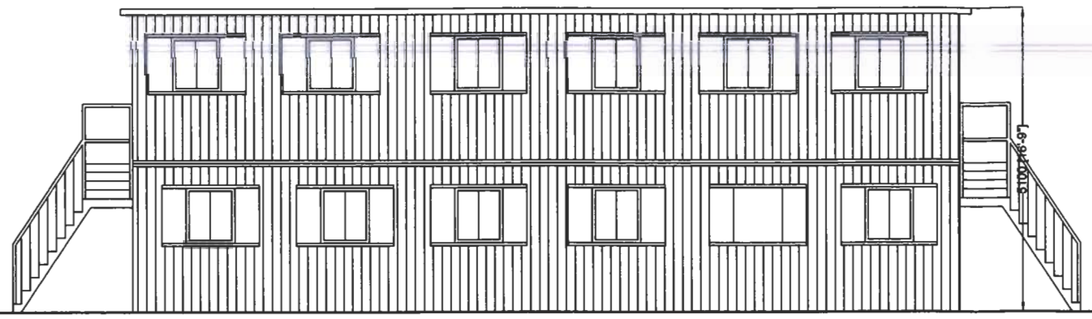
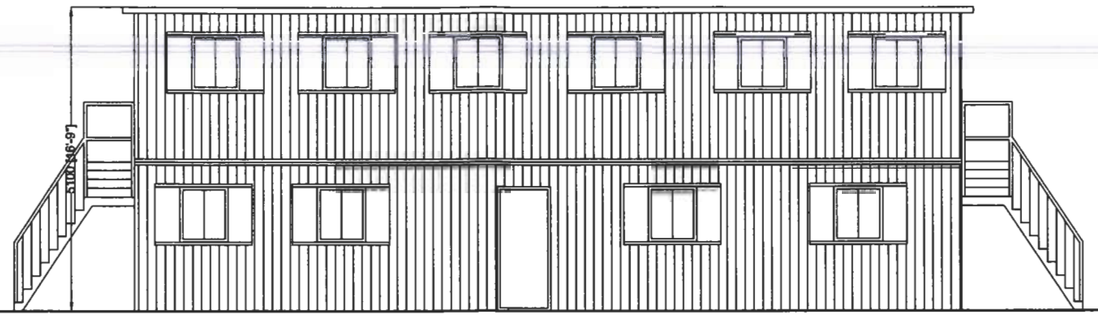
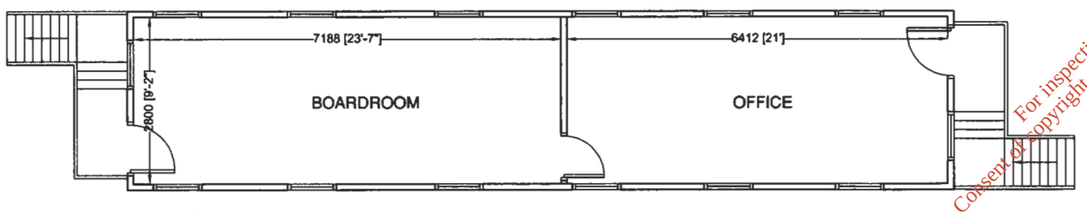
EXISTING OFFICE



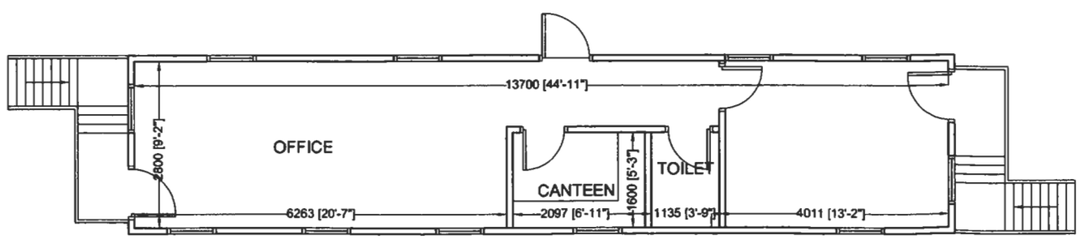
Front Elevation Scale 1:50



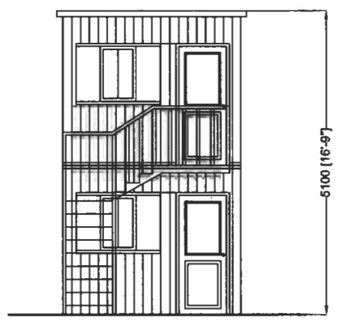
Rear Elevation Scale 1:50



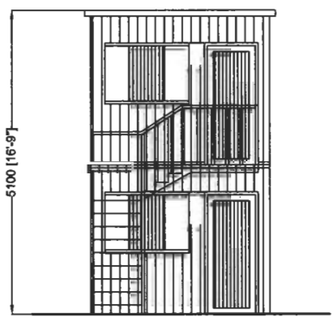
First Floor Plan Scale 1:50



Ground Floor Plan Scale 1:50



Side Elevation Scale 1:50



Side Elevation Scale 1:50

Floor Area:
Ground Floor Area: 38.3 sq.m
First Floor Area: 38.3 sqm
Total Floor Area: 76.6 sqm

PROJECT

We, Nurendale Ltd, intend to apply for permission for development at our existing Materials Recovery Facility at Cappagh Road, Cappoque, Finglas, Dublin 11. The development will consist of the construction of a new waste recovery building (2090m2), an increase in the amount of waste accepted annually from 200,000 tonnes to 250,000 tonnes and a change of use to allow the acceptance of municipal solid waste (including baling station, relocate weigh bridge, porta cabin offices, canteen and toilets. The development will require a revision of the Waste Licence granted by the Environmental Protection Agency. The application will be accompanied by an Environmental Impact Statement (EIS).

SBA

TITLE

PLANS & ELEVATIONS

FIGURED DIMENSIONS TO BE USED IN ALL CASES

DATE 06-12-2013 SCALE 1:50

DRW N.P. CHECKED

CAD FILE REF:

DNG SERIES

NUMBER 6417 (A1) REVISION

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North

Surface Water Scale: 1:500
OS No. Dublin 3130B

CAPPAGH ROAD

BUILDING GRANTED PERMISSION

(EXISTING)

PROPOSED

BUILDING GRANTED PERMISSION

CONNECT TO EXISTING SURFACE WATER PIPE

Underground Attenuation Tank

Bin Store Yard

PROJECT
We, Nurendale Ltd, intend to apply for permission for development at our existing Materials Recovery Facility at Cappagh Road, Cloghran, Dublin 11. The development will consist of the construction of a pre-waste recovery building (2830m2) to increase in the amount of waste accepted annually from 200,000 tonnes to 350,000 tonnes with a change of use from the acceptance of municipal solid waste to the handling of bring centre, reclaim yard, bulking, re-use cubes, canteen and toilets. The development will require a review of the IE Waste Licence granted by the Environmental Protection Agency. The application will be accompanied by an Environmental Impact Statement (EIS).

TITLE
SURFACE WATER LAYOUT

FIGURED DIMENSIONS TO BE USED IN ALL CASES
DATE 19-11-2013 SCALE 1:500
DRN ALP CHECKED
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NUMBER 6422 (A1) REVISION

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1100mN

1000mN

900mN

CAPPAGH ROAD

A1
(EXISTING)
Reg. Ref. F05A/1156

North

Site Survey Scale: 1:500
OS No. Dublin 3130B

PROJECT

We, Nurendale Ltd, intend to apply for permission for development at our existing Materials Recovery Facility at Cappagh Road, Dunsgore, Finglas, Dublin 11. The development will consist of the construction of a new waste recovery building (2030m2), an increase in the amount of waste accepted annually from 200,000 tonnes to 250,000 tonnes and a change of use to allow the acceptance of municipal solid waste including baling sacks, relocate weigh bridge, portacabin offices, canteen and toilets. The development will require a revision of the Waste Licence granted by the Environmental Protection Agency. The application will be accompanied by an Environmental Impact Statement (EIS).

TITLE

SITE SURVEY

FIGURED DIMENSIONS TO BE USED IN ALL CASES

DATE 19-11-2013 SCALE 1:500

DRN. KLP. CHECKED

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CAD FILE REF.

DWG. SERIES

NUMBER 6421 (A1) REVISION

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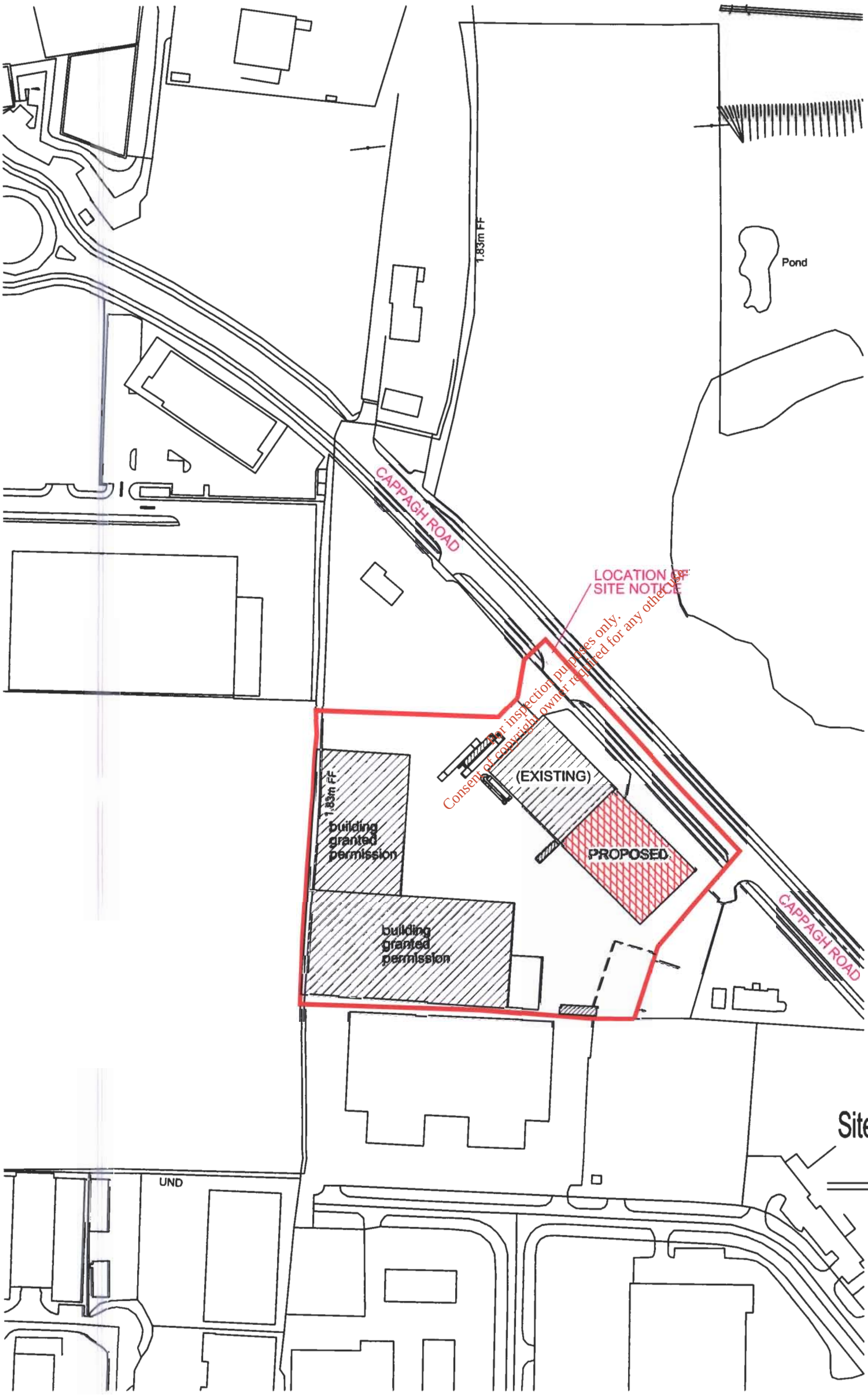

SITE EDGED RED

SITE AREA : 25284m²

North

Site Location Map Scale: 1:1000
OS No. Dublin 3130B

SITE LOCATION MAP

6419 (A3)

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SITE EDGED RED

SITE AREA : 25284m²

Cappagh Road

Location of site notice

Exit / Entrance to entire site

General waste to bailing and transfer facility

Weighbridge / Weighbridge office to be re-located

Existing Boundary

Building Granted Permission

Building Height 13.88m

A1
(EXISTING)
Reg. Ref. F05A/1156

B1
c. 2800 sqm
(Warehouse)
Dry Recycling
11.83m FF

Existing Boundary

OGU Emission Point

A2
(Warehouse)
C. 2030 sqm
(Proposed)

Proposed new material storage

Existing Boundary

B2
c. 4608 sqm (Warehouse)
Cardboard & Plastic Recycling

Underground Attenuation Tank

Bin Store Yard

ESB Sub Station

Cappagh Road

Building Granted Permission

North

Site Layout Map Scale: 1:1500
OS No. Dublin 3130B

PROJECT

We, Nurendale Ltd, intend to apply for permission for development at our existing Materials Recovery Facility at Cappagh Road, Cappagh, Finglas, Dublin 11. The development will consist of the construction of a new waste recovery building (2030m²), an increase in the amount of waste accepted annually from 200,000 tonnes to 250,000 tonnes and a change of use to allow the acceptance of municipal solid waste including bailing stations, telescopic weighbridge, porta cabin offices, canteen and toilets. The development will require a revision of the Waste Licence granted by the Environmental Protection Agency. The application will be accompanied by an Environmental Impact Statement (EIS).

TITLE

SITE LAYOUT MAP

FIGURED DIMENSIONS TO BE USED IN ALL CASES

DATE 19-11-2013 SCALE 1:500

DRN M.P. CHECKED

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CAD FILE REF:

DRG. SERIES

NUMBER 6418 (A1) REVISION

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email: sean@boylearchitects.ie

North

Landscape Map: 1:500
OS No. Dublin 3130B

SITE AREA : 25284m²

15 No.'s Tilia cordata 'greenspire'
18 / 20 (Lime)
Semi Mature

17 No.'s Tilia cordata 'greenspire'
18 / 20 (Lime)
Semi Mature
(Integrated Tree pits with rasim-bound aggregate surface)

A1
(EXISTING)
Reg. Ref. F05A/1156

A2
(Warehouse)
C. 2030 sqm
(Proposed)

Building Granted Permission

Building Granted Permission

CAPPAGH ROAD

PROJECT

We, Nurendale Ltd, intend to apply for permission for development at our existing Materials Recovery Facility at Cappagh Road, Coppogue, Finglas, Dublin 11. The development will consist of the construction of a new waste recovery building (2030m²), an increase in the amount of waste accepted annually from 200,000 tonnes to 260,000 tonnes and a change of use to allow the acceptance of municipal solid waste including refuse derived fuel. The application will be accompanied by an Environmental Impact Statement (EIS).

TITLE

LANDSCAPE MAP

FIGURED DIMENSIONS TO BE USED IN ALL CASES

DATE 19-11-2013 | SCALE 1:500

DRN JMP | CHECKED

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CAD FILE REF

DRG. SERIES

NUMBER 6420 (A1) | REVISION

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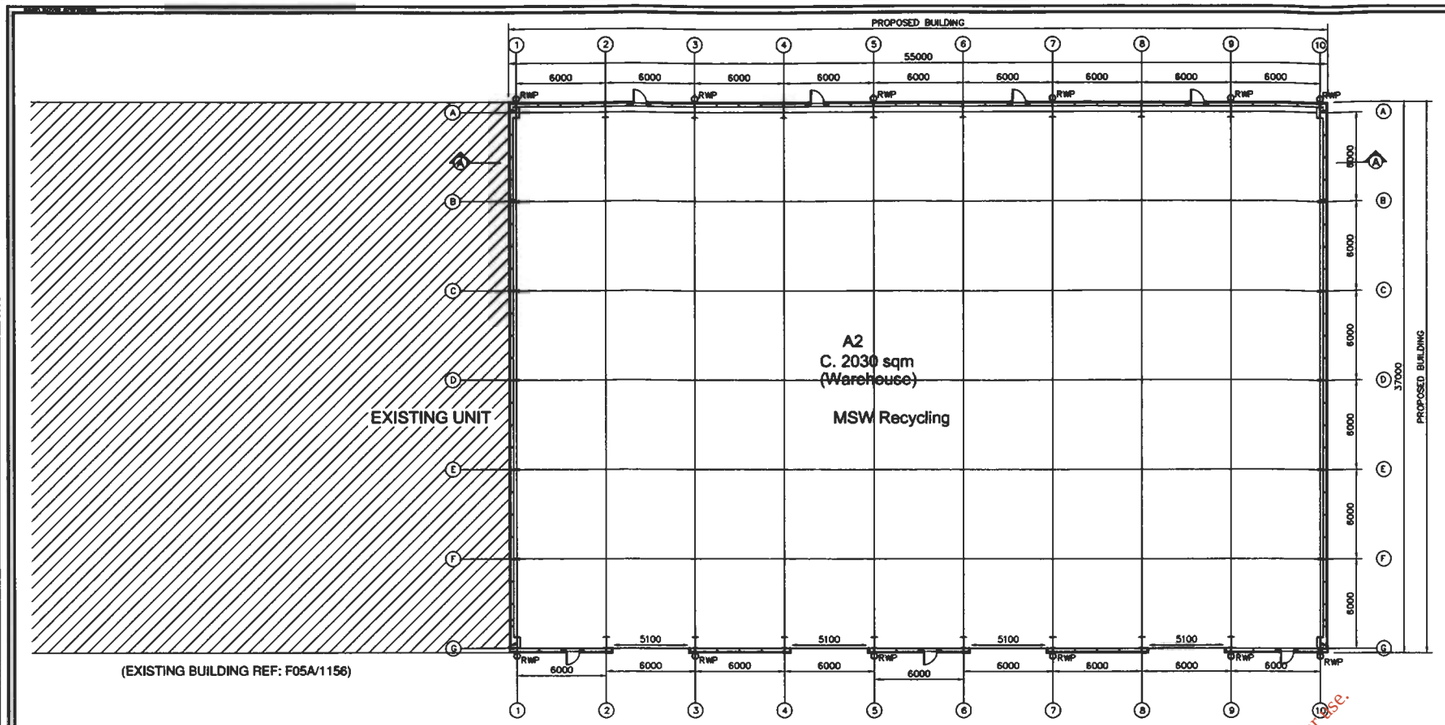
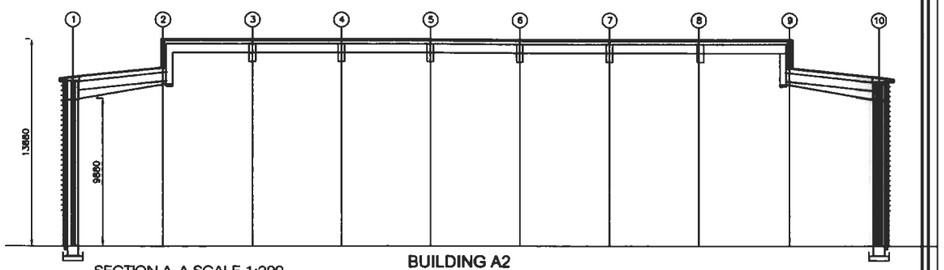
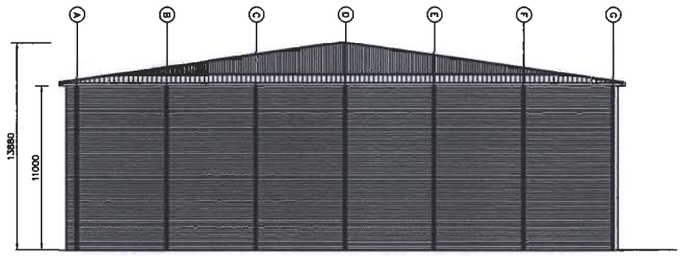


FLOOR PLAN OF WAREHOUSE BUILDING A2 SCALE 1:200

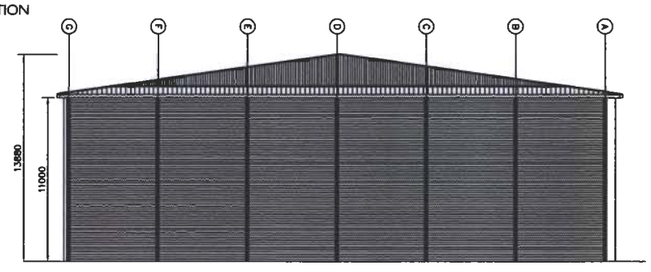


SECTION A-A SCALE 1:200

BUILDING A2



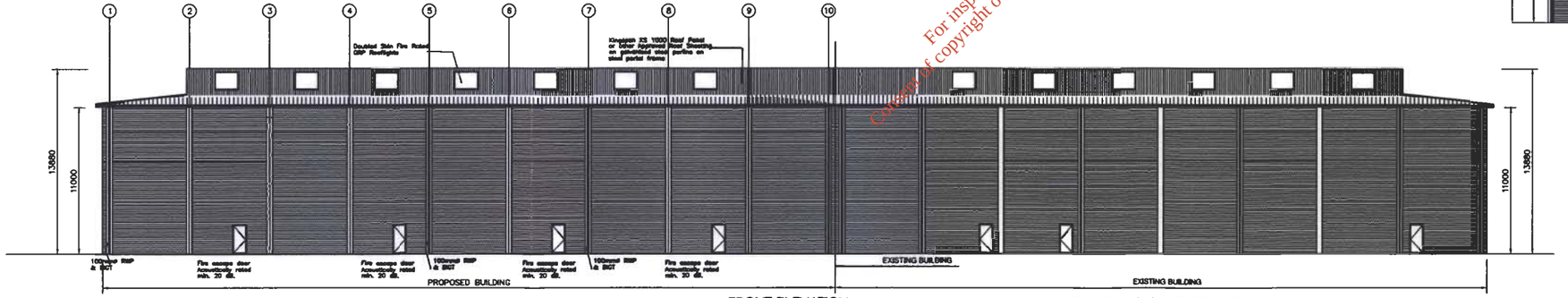
SIDE ELEVATION
NORTHWEST ELEVATION
BUILDING A2
SCALE 1:200



(BUTTING TO EXISTING BUILDING REF: F05A/1156)

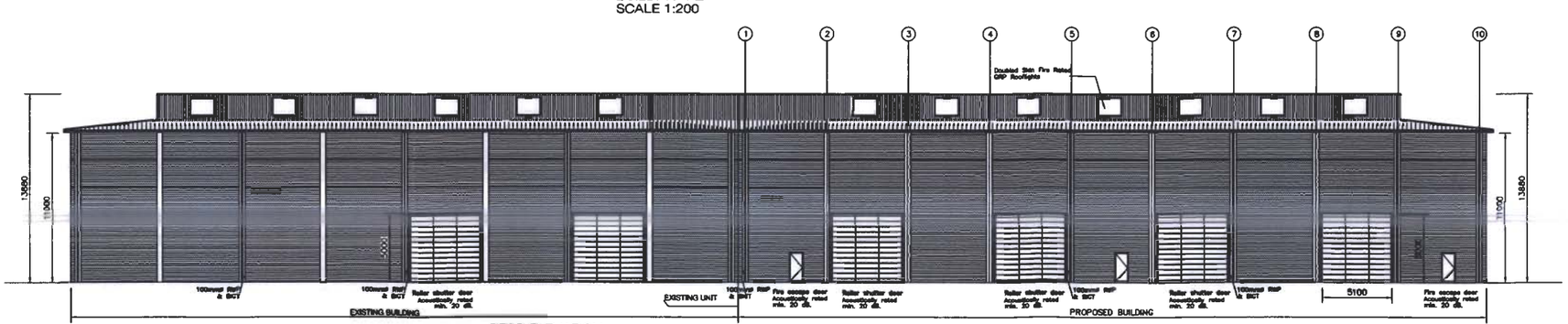
SIDE ELEVATION
NORTHWEST ELEVATION
BUILDING A2
SCALE 1:200

FLOOR AREA (BUILDING A2):
TOTAL FLOOR AREA: 2030 sq.m



FRONT ELEVATION
NORTHEAST ELEVATION
BUILDING A2
SCALE 1:200

(EXISTING BUILDING REF: F05A/1156)



(EXISTING BUILDING REF: F05A/1156)

REAR ELEVATION
SOUTHWEST ELEVATION
BUILDING A2
SCALE 1:200

PROJECT

We, Nurendale Ltd, intend to apply for permission for development at our existing Materials Recovery Facilty at Cappagh Road, Cappogue, Finglas, Dublin 11. The development will consist of the construction of a new waste recovery building (2030m2), an increase in the amount of waste accepted annually from 200,000 tonnes to 250,000 tonnes and a change of use to allow the acceptance of municipal solid waste including baling station, relocate weigh bridge, porta cabin offices, canteen and toilets. The development will require a revision of the Waste Licence granted by the Environmental Protection Agency. The application will be accompanied by an Environmental Impact Statement (EIS).

TITLE

PLANS & ELEVATIONS

FIGURED DIMENSIONS TO BE USED IN ALL CASES

DATE 19-04-2013	SCALE 1:200
DRN N.P.	CHECKED

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CAD FILE REF:	
DRG. SERIES	

NUMBER 6416 (A1) REVISION

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