



ENVIRONMENTAL IMPACT STATEMENT

VOLUME III APPENDICES

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DECEMBER 2007

TOBIN CONSULTING ENGINEERS



Appendix 1.1

Correspondence received from Consultees

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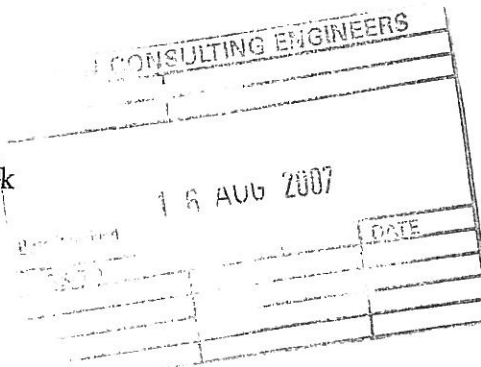


13th August 2007



THE DEPARTMENT OF
AGRICULTURE & FOOD
AN ROINN TALMHAÍOCHTA AGUS BIA

Ms Mairead Hogan,
Project Scientist
TOBIN Consulting Engineers,
Block 10-3
Blanchardstown Corporate Park
Dublin 15
Ireland.



Re: Proposals for the Development of a Materials Recovery Facility, at Ballycoolin, Co. Dublin.

Dear Ms Hogan,

I refer to your recent correspondence concerning proposals for the development of a materials recovery facility, at Ballycoolin, Co. Dublin. The Department of Agriculture and Food has no relevant information to offer that would be of assistance in the preparation of the environmental impact statement for the proposed facility.

However, the likely impact (if any) of the proposed facility on agricultural activities in the locality should be considered as part of the environment impact statement.

Aspects that warrant consideration include the following:

- The likely disruption of agricultural activities during the construction phase and when construction is complete
- Impact on water supplies (quality), during the construction phase and when the facility becomes operational (e.g. possible impacts of silt)
- Traffic impacts
- Impact on air quality (e.g. impact of dust generated)
- Impact of noise.

Yours Sincerely,

Rachel O'Carroll
P.P. Michael MacCarthy,
Environment Section,
Johnstown Castle,

Johnstown Castle Estate,
Co. Wexford, Ireland.

Eastát Chaisleán Bhaile Sheonach,
Chontae Loch Garman, Éire.

Tel: 053 9163400 Fax: 053 9142839

www.agriculture.gov.ie VAT.Reg. IE4773186Q



Tobin Consulting Engineers
 PROJECT NO. _____
 REF. NO. _____
 01 OCT 2007
 Date Received _____ DATE _____
 CASE NO. _____

24 September 2007

Ms Mairead Hogan
 Tobin Consulting Engineers
 Fairgreen House
 Fairgreen Road
 Galway

Materials Recovery Facility, Ballycoolin, County Dublin

Dear Ms ^{HOGAN} Tobin,

The Department of Agriculture, Fisheries and Food has no relevant information to offer that would be of assistance in the preparation of the environmental impact statement for the proposed materials recovery facility at Ballycoolin, Co. Dublin.

It is suggested that the likely impact (if any) of the proposed facility on agricultural activities in the locality be considered as part of the environmental impact statement. Aspects that could be considered include the following:

- The likely disruption of agricultural activities during the construction phase and when the facility becomes operational.
- Impact on water supplies (quality) during the construction phase and when the facility becomes operational (e.g. possible impacts of silt).
- Traffic impacts.
- Impact of air quality (e.g. impact of dust generated).
- Impact of noise.

Yours sincerely,

Sylvester Murphy

Sylvester Murphy
 Environment Section

Johnstown Castle Estate,
 Co. Wexford, Ireland.

Eastát Chaisleán Bhaile Sheonach,
 Chontae Loch Garman, Éire.

4th September 2007

Our Ref.: G2007/514

Tobin Consultant Engineers,
Block 10-3,
Blanchardstown Corporate Park,
Blanchardstown,
Dublin.

TOBIN CONSULTING ENGINEERS		
PROJECT NO:		
FILE REF:		
Date Received	10 SEP 2007	
PASS TO	ACTION BY	DATE

Re.: Materials Recovery Facility, Ballycoolin, Co. Dublin.

A Chara,

We refer to your request for our comments and observations in relation to the above-proposed development. Outlined below are the archaeological recommendations of the Department of the Environment, Heritage and Local Government.

Further to the letter sent by Tobin Consulting Engineers (3rd August 2007) it should be noted that the proposed recovery facility is large-scale in extent and located close to two sites of archaeological interest that are listed on the Record of Monuments and Places – Cappogue towerhouse site (RMP No. DU014-027--) and a habitation site (RMP No. DU014-028--).

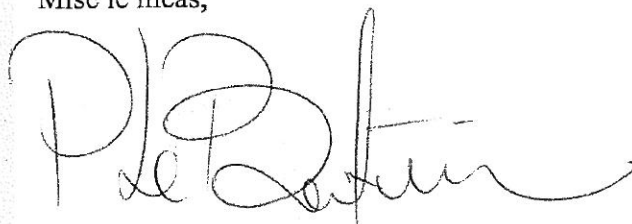
This Department recommends, therefore, that the Cultural Heritage section of the Environmental Impact Statement for the proposed development includes an archaeological assessment that should include a geophysical survey.

Please note that this Department is still assessing this development from a built heritage perspective and comments, if any, will follow in due course.

Thank you for your co-operation regarding this matter. Should you require any further advice or assistance, please contact this office at the following address.

The Manager,
Development Applications Unit,
Department of the Environment, Heritage and Local Government,
4th Floor, Dun Sceine,
Harcourt Lane,
Dublin 2.

Mise le meas,



Proinsias De B t in
Development Applications Unit

AN ROINN COMHSHADIL
OIDHREACHTA AGUS
RIALTAIS  ITI IL
DEPARTMENT OF THE
ENVIRONMENT, HERITAGE AND
LOCAL GOVERNMENT

D N SC INE
LANA FHEARCAIR
BAILE  THA CLIATH 2

D N SC INE
HARCOURT LANE
DUBLIN 2

Tel: +353 1 888 3109
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25th September 2007

Our Ref.: G2007/514



AN RINNAL COMHSHAOL

OIDHREACHTA AGUS

RIALTAIS ÁITIÚIL

DEPARTMENT OF

THE ENVIRONMENT, HERITAGE

AND LOCAL GOVERNMENT

Tobin Consulting Engineers,
Block 10-3,
Blanchardstown Corporate Park,
Dublin 15.

**Re.: Tobin - EIS for Proposed Waste Materials Recovery Facility, Ballycoolin,
Dublin 15.**

A Chara,

We refer to your request for our comments and observations in relation to the above-proposed waste recovery facility. Outlined below are the architectural recommendations of the Department of the Environment, Heritage and Local Government.

In scoping for Environmental Impact Assessment of the proposed development, it is recommended that its content should take into account the effect on the architectural heritage of the locality. The attached Appendix 1 is put forward to assist in taking the material asset of architectural heritage into account.

Please note that this proposed development is still being assessed from a nature conservation perspective and comments if any will follow in due course.

Thank you for your co-operation regarding this matter.

Is mise le meas,

Proinsias De Bátúin
Development Applications Unit

DÚN SCÉINE

LÁNA FHEARCAIR

BAILE ÁTHA CLIATH 2

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Ms. Mairéad Hogan
Project Scientist
TOBIN Consulting Engineers
Block 10-3
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W: www.epa.ie
LoCall: 1890 33 55 99

27th September 2007

Re: Materials Recovery Facility, Ballycoolin, Co. Dublin

Dear Ms. Hogan,

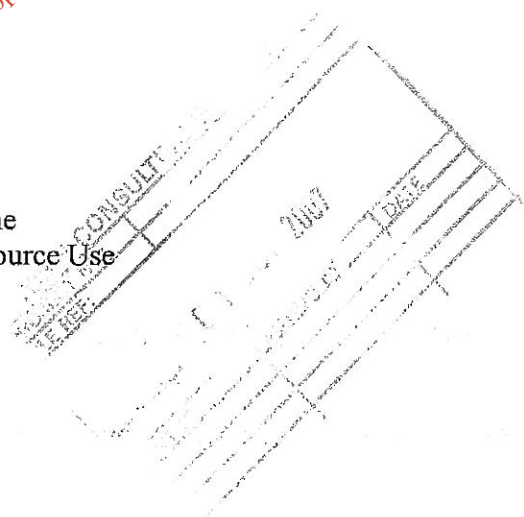
I refer to your letter regarding the above referenced site, and which was today passed to me for comment.

It is not possible from the information provided to determine whether or not a waste licence will be required for the activity.

Accordingly I cannot comment in any detail at this time.

Yours sincerely,

PP Clancey Beene
Dr. Jonathan Derham
Senior Inspector
Environmental Licensing Programme
Office of Climate, Licensing & Resource Use





Mrs. Mairéad Hogan
Project Scientist
TOBIN Consulting Engineers
Block 10 - 3
Blanchardstown Corporate Park
Dublin 15, Ireland

TOBIN CONSULTING ENGINEERS		
DATE	RESPONSIBLE	DATE
1 AUG 2007		

17th August 2007

Environment Department
P.O. Box 174,
County Hall,
Swords,
Fingal,
Co. Dublin

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01 890 6270
Email
envserv@fingalcoco.ie
www.fingalcoco.ie

RE: Materials Recovery Facility, Ballycoolin, County Dublin

Dear Mrs. Mairéad Hogan

With reference to your enquiry about additional documents, which are required and connected with Environmental Impact Statement for new development, attached from your letter date on the 3rd of August, we wish to inform you as follows.

On account of magnitude of planning development (aggregated floor area in excess of 1,250m²) developer should additionally submit Project of Construction & Demolition Waste Management Plan (C&DWMP). It is intend of the project of C&DWMP to control quantity of generated waste and managed them properly during the course of construction projects. Furthermore, the management of C&D waste should reflect the waste management hierarchy, with waste prevention and minimisation being the first priority succeeded by reuse and recycling.

The project of C&D Waste Management Plan has to provide overall framework for the management of all waste arising on the site (including surplus materials). It is important to give specific data about type of waste generated (including description and EWC Codes for construction and demolition waste) and predict (estimate) quantity and quality of waste materials arising during realisation stage. C&DWMP should including proposal of management and propositions to minimise, reuse and recycling of C&D waste. Specific data about quantity of reuse, recycling and waste disposal every type of generated waste is desire, if it possible. Additionally C&DWMP should containing same information about methods of separation and storage of recyclable materials, including descriptions of methods. In case of waste disposal, particular data about their type, quality and details of waste service contractor are requirement.





The above is according with "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects" NCDWC on behalf of the Department Environment, issue on the July 2006 and connecting with Planning and Development Act, 2000 (section 34(4)(l)) and the Waste Management Act 1996 and the 2001 Waste Management (Amendment) Act.

Yours Sincerely,

Marta Zmysłowska
Executive Engineer
Environment Department
Tel: 01-890 5657
Fax: 01-890 6271
marta.zmyslowska@fingalcoco.ie

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9th August 2007

Ms Mairead Hogan
Project Scientist
Tobin Consulting Engineers
Block 10
3 Blanchardstown Corporate Park
Dublin 15

Transportation Department
Postal Address
P.O. Box 174,
County Hall,
Swords,
Fingal,
Co. Dublin

An Roinn Iompair
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Áras an Chontae,
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Contae Átha Cliath

Office Address
Fingal County Council
Grove Road
Blanchardstown
Dublin 15

Telephone
01 890 5850
01 890 5844
Facsimile
01 890 6711
Email
roads@fingalcoco.ie
www.fingalcoco.ie

RE: Proposed Materials Recovery Facility, Ballycoolin

Dear Mairead,

I acknowledge receipt of your letter dated 3rd August 2007, received in this office on 8th August 2007 re the above.

The normal pre-planning consultation procedure is available to you on this project. You should contact Mr Garry O'Brien, Senior Engineer, Transportation Department or Mr Sean McGrath Senior Executive Engineer to arrange the necessary consultation.

This department will not be making a written submission to you in advance of an August 31st deadline. In the meantime if we can be of any further practical assistance please do not hesitate to contact us.

Michael Lorigan,
Director of Services,
Transportation.

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TOBIN CONSULTING ENGINEERS	
PROJECT NO:	
FILE REF:	
Date Received	13 AUG 2007
PASS TO	
DATE	



Suirbhéireacht Gheolaíochta Éireann
Tor an Bhacaigh
Bóthar Haddington
Baile Átha Cliath 4

Mairéad Hogan
TOBIN Consulting Engineers
Block 10-3
Blanchardstown Corporate Park
Dublin 15

TOBIN CONSULTING ENGINEERS	
PROJECT NO:	
TE REF:	
GSI	
19 SEP 2007	
Date Received	DATE

Geological Survey of Ireland
Beggars Bush
Haddington Road
Dublin 4

Irish Geological Heritage Section
Tel: 01-6782837/Fax 01-6782559
Email: sarah.gatley@gsi.ie
http://www.gsi.ie

18th September 2007

Re: Materials Recovery Facility, Ballycoolin, County Dublin

Dear Mairéad,

With reference to your letter of the 3rd August 2007, concerning the above scheme, there are no geological heritage sites currently on our database that lie within or near the area.

For your information, the Geological Survey of Ireland (GSI) is in partnership with the National Parks and Wildlife Service (NPWS) of the Department of Environment, Heritage and Local Government to identify and select important geological and geomorphological sites throughout the country for designation as NHAs (Natural Heritage Areas). This is being addressed under 16 different geological themes. For each theme a larger number of sites from which to make the NHA selection are being examined, in order to identify the most significant scientifically. Our criterion of designating the minimum number of sites to exemplify the theme means that many sites of national importance are not selected as the very best examples. However, a second tier of County Geological Sites (CGS) (as per the National Heritage Plan) means that many of these can be included in County Development Plans and receive a measure of recognition and protection through inclusion in the planning system. Please note that we are still in the process of finalizing these proposed sites.

Should development go ahead (all other factors considered), GSI would much appreciate a copy of reports detailing any site investigations carried out. The data would be added to GSI's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector.

GSI would also request notification of ground excavations, etc. undertaken that might provide good geological exposures for our examination. This would allow recording, fossil or rock sample collecting and gathering of new data in order to enhance our understanding of the area.

Should any significant bedrock cuttings be created, we would ask that they be designed to remain visible as rock exposure rather than covered with soil and vegetated.

I hope that these comments are of assistance, and if the GSI can be of any further help, please contact me.

Kind regards,

Bernadette Mockler

Bernadette Mockler

/On behalf
Dr Sarah Gatley
Senior Geologist, Head IGH Programme

Ms. Mairead Hogan
Project Scientist
Tobin Consulting Engineers
Block 10-3
Blanchardstown Corporate Park
Dublin 15

St. Martin's House / Waterloo Road / Dublin 4
Tel: +353 1 660 2511 / Fax: +353 1 668 0009

Date 27th August 2007

File Ref.

EDMS 56694

Page Ref.

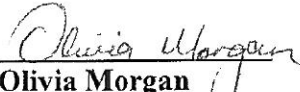
Re: Material Recovery Facility, Ballycoolin, Co. Dublin

Dear Mr. Hogan

I wish to acknowledge receipt of your letter of 3rd August 2007 regarding the above.

The matter is receiving attention and a further letter will issue as soon as possible.

Yours sincerely


Olivia Morgan
Programme Division

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TOBIN CONSULTING ENGINEERS		
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Date Received	30 AUG 2007	
PASS TO	ACTION BY	DATE

Ms. Mairead Hogan
Project Scientist
Tobin Consulting Engineers
Block 10-3
Blanchardstown Corporate Park
Dublin 15

TOBIN CONSULTING ENGINEERS		
PROJECT NO.	CLIENT	DATE
11.172		
St. Martin's House / Waterloo Road / Dublin 4		
Tel: +353 1 660 2511 / Fax: +353 1 668 0009		
Date Received	14 SEP 2007	
CLASS ID	ACCOUNT NO	DATE

Date: 12th September 2007

NRA07-56694

Re: Materials Recovery Facility, Ballycoolin, County Dublin

Dear Ms. Hogan,

Thank you for your letter of 3rd August 2007 regarding the above.

The Authority wishes to advise that it is not in a position to engage directly with prospective planning applicants in respect to proposed developments. The Authority will endeavour to consider and respond to planning applications referred to it by given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by the Authority in making such submissions or comments will seek to uphold official policy and guidelines as outlined in our Circular 6/2006 "Policy Statement on Development Management and Access to National Roads" and other relevant circulars, which are available at www.nra.ie. The issuing of this correspondence is provided as best practice guidance only and does not prejudice the NRA's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

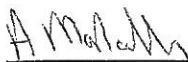
With respect to Environmental Impact Statement scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIS for proposals, which may affect the National Roads Network. The developer should have regard, inter alia, to the following:

- Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes.
- The developer should have regard to any Environmental Impact Statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should in particular have regard to any potential cumulative impacts.
- In relation to quarry developments the EIS should:
 - address whether blasting and the associated vibration has the potential to affect any of the bridge structures, or indeed the road structure itself, current or proposed;

- undertake an assessment as to whether 'fly-rock' associated with blasting could affect road safety;
- The EIS should address the impacts of dust generated by activities on roads including:
 - The soiling of roads from dust generated from both the development activity and vehicles traveling to and from the site;
 - Whether such soiling may increase the risk of accidents; and,
 - The affect such soiling and runoff will have on the existing road drainage system.
- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA DMRB and the NRA Manual of Contract Documents for Road Works.
- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA's Environmental Assessment and Construction Guidelines, including the Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (National Roads Authority, 2006);
- The EIS should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see Guidelines for the Treatment of Noise and Vibration in National Road Schemes (1st Rev., National Roads Authority, 2004));
- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines and best practice;
- The designers are asked to consult the National Roads Authority's Road Safety Audit Guidelines (NRA HA 42/04) and Road Safety Audit (NRA HD 19/04) to determine whether a Road Safety Audit is required;
- As the construction of a large impermeable area has the potential to generate greater runoff with an earlier runoff peak, the Authority would ask that mitigation measures be investigated to ameliorate this and, where appropriate, that consideration of the use of pollution control devices be considered;
- The developer should assess visual impacts from the existing and proposed national road.
- The EIS should have regard to the likely significant impacts the development may have on the human beings due to the proximity to the national route.

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive thus site and development specific issues should be addressed in accordance with best practise.

Yours sincerely



Annamarie McNally
Programme Administrator

TOBIN CONSULTING ENGINEERS		
PROJECT		
FILE NO:		
22 AUG 2007		
Data Received		
PASS TO	FUNCTION	DATE



Mairéad Hogan,
Project Scientist,
Tobin Consulting Engineers,
Block 10 – 3,
Blanchardstown Corporate Park,
Dublin 15.

Parkgate Business Centre,
Parkgate Street,
Dublin 8, Ireland.

Gníomhaireacht
um Fháil Iarnróid

Ionad Ghnó Gheata na Páirce,
Sráid Gheata na Páirce,
Baile Átha Cliath 8, Éire.

Fón +353 1 646 3400
Facs +353 1 646 3401

www.rpa.ie

Our Ref: MWTOR200807

Your Ref:

August 20, 2007

Re: Materials Recovery Facility, Ballycoolin, County Dublin.

Dear Mairéad,

I refer to your letter to me of the 3rd August with respect to the above. I would like to thank you for informing us of your plans to prepare an EIS to inform the planning of the proposed development as set out in your letter and enclosed map.

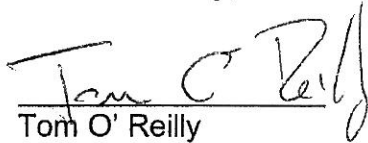
As you may be aware RPA is progressing the route identification and Railway Order process for Metro West, an orbital metro line announced by the Minister for Transport as an element of the Transport 21 initiative in 2005. You may also be aware that RPA have recently selected the preferred route corridor for Metro West and I enclose an indicative route map and route description for your consideration.

RPA is now progressing the alignment design of the route with a view to fixing the exact location of the track, stops, depot and other infrastructure. To this end we have been working closely with the local authorities and developers in the area to secure an agreed and defined route. The map you have provided suggests the site is located at or close to Premier Business Park, current proposed by Harcourt Development. This is however unclear from the map provided and I would be grateful if you could forward to us more detail on the proposal.

Of key concern to RPA, and of relevance to the EIS you now wish to prepare, will be the impact (positive and negative) this site could have on Metro West during its construction and in an operational phase and how any such impacts can be mitigated (where relevant). Of particular concern will be how traffic generated as a result of the development will interact with Metro West services which are planned to run adjacent to the realigned Ballycoolin Road.

In order however for RPA to make an informed comment and to provide you with useful and relevant input, I would be grateful for any more detailed information you could provide include a more comprehensive site map and layout. RPA is at your disposal to discuss this a would be happy to meet with you to discuss in more detail

Yours sincerely,


Tom O' Reilly
Transport Planning Manager

C.C. Anne Lillis, Brian Quirke – RPA
Stewart Logan - FCC

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Appendix 4.1

Map showing locations of Planning Applications

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Appendix 4.1

F07/0343

Full Development Description

(1) The construction of 6 No. 'incubator'/light industrial/warehouse/ units - Unit 61, (Block G) @ 143 sq m, Unit 10 (Block C) Units 31 and 47 (Block E) Unit 60 (Block G) each @ 3/5 480 sq M, Unit 71 (Block H) @ 175 sq M - these units were originally included in planning application reg ref F05A/1363 but were omitted at Additional Information stage. Unit 61 is unamended, all other units are reduced in size from the original application, and all are located at the end of Blocks previously granted permission (2) 2 No. ESB Sub Station/Switchrooms (3) 1 No. Security Building at the entrance to the site plus associated security barriers. (4) Increase in size of Block B (units 1 to 9), of 951 sq m (105.6 sq m per unit), change of unit type from type A to type D (new) (5) Increase in size of units 66 - 70, Block H, of 54.4 sq m each, total 272 sq m. (6) Minor modifications to site layout & increased No. of car parking spaces. All on a site area of 7.186 ha. Cappoge Castle, a protected structure, is located on this site. The overall development is granted permission under Planning permission reg. ref F05A/1363.



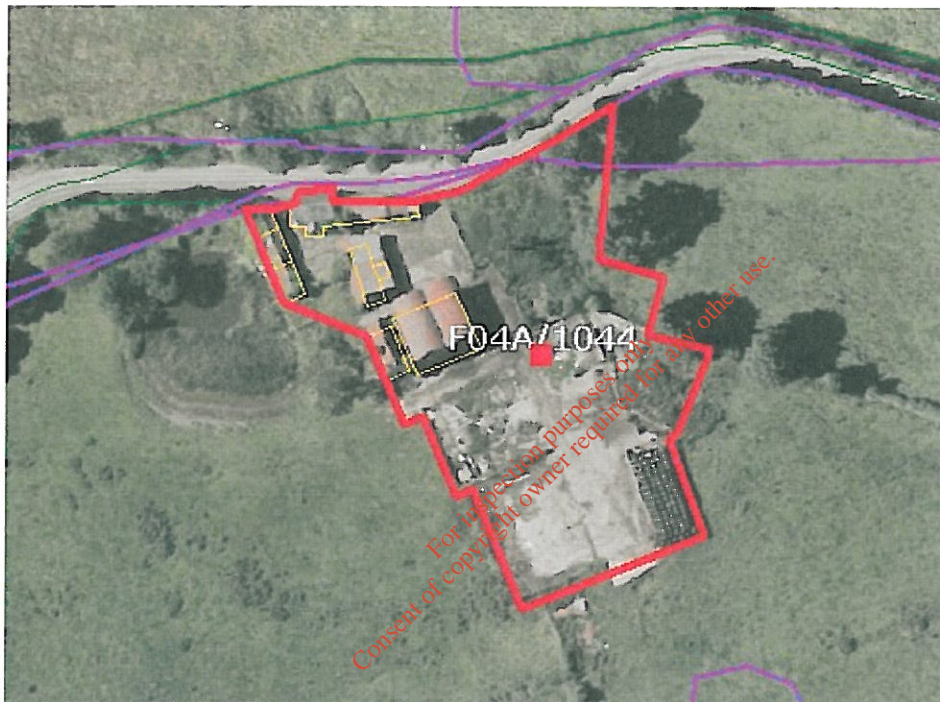
F05A/1263

Development to consist of (1) The construction of 71 no. 'incubator'/light industrial/warehouse units (60 x 143 sq m, 5 x 216 sq m, 6 x 515 sq m) in 7 terraced blocks of approx. 9.3 m high (total area of 12,750 sq m), (2) 1 no. 5 storey 'landmark' building incorporating 2 storey cafe 2 floors of meeting rooms and presentation suite (861 sq m), (3) 6 no. high bay semi-detached warehouses of 2,700 sq m each (in 3 blocks), approx. 16.5 m high (4) Associated landscaping and infrastructure works including access road via adjacent site and reservation for proposed Metro. Total proposed development area of approx. 32,275 sq m on a site area of 7.186 ha. Cappogue Castle, a protected structure, is located on this site



F04A/1044

Demolition of a two-storey dwelling and adjoining farm buildings, and the removal of a slurry pit. This work is to be carried out adjacent to the site of a protected structure, namely Cappoge Castle.



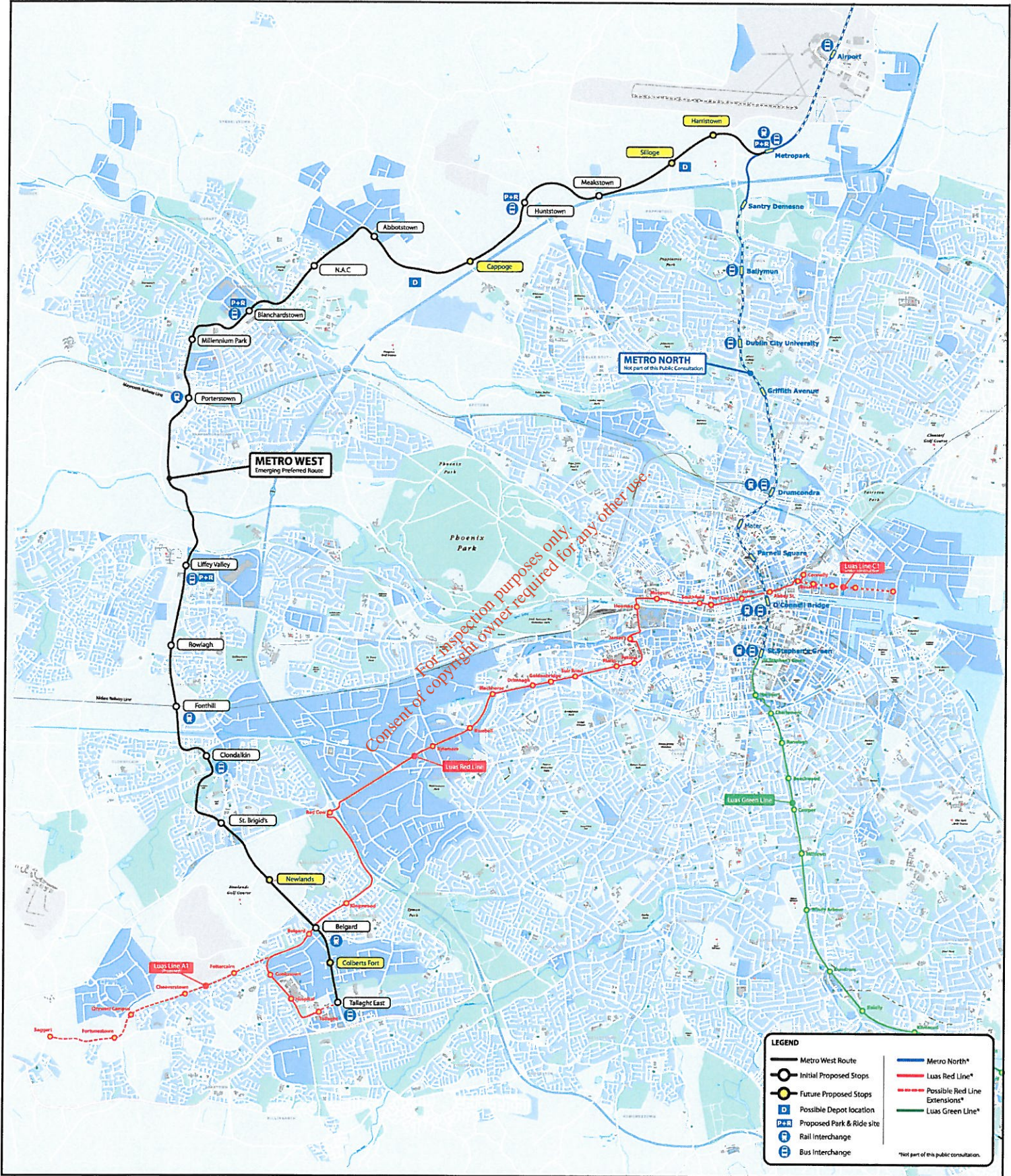
Appendix 4.2

An emerging preferred route for the Metro West

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METRO WEST

Emerging Preferred Route - July 2007



For further information:
 Web: www.rpa.ie
 E-mail: info@rpa.ie
 Freephone: 1800 67 64 64



Appendix 6.1

Criteria for assessing Site Evaluation (Ecology)

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Appendix 6.1 Criteria for assessing Site Evaluation

Rating Qualifying Criteria

A Internationally important

Sites designated (or qualifying for designation) as SAC* or SPA* under the EU Habitats or Birds Directives.

Undesignated sites containing good examples of Annex I priority habitats under the EU Habitats Directive.

Major salmon river fisheries.

Major salmonid (salmon, trout or char) lake fisheries.

B Nationally important

Sites or waters designated or proposed as an NHA* or statutory Nature Reserves.

Undesignated sites containing good examples of Annex I habitats (under EU Habitats Directive).

Undesignated sites containing significant numbers of resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive or species protected under the Wildlife (Amendment) Act 2000.

Major trout river fisheries.

Water bodies with major amenity fishery value.

Commercially important coarse fisheries.

C High value, locally important

Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or significant populations of locally rare species.

Small water bodies with known salmonid populations or with good potential salmonid habitat.

Sites containing any resident or regularly occurring populations of Annex II species under the EU Habitats Directive or Annex I species under the EU Birds Directive.

Large water bodies with some coarse fisheries value.

D Moderate value, locally important

Sites containing some semi-natural habitat or locally important for wildlife.

Small water bodies with some coarse fisheries value or some potential salmonid habitat.

Any water body with unpolluted water (Q-value rating 4-5).

E Low value, locally important

Artificial or highly modified habitats with low species diversity and low wildlife value.

Water bodies with no current fisheries value and no significant potential fisheries value.

*SAC = Special Area of Conservation

SPA = Special Protection Area

NHA = Natural Heritage Area

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Appendix 6.2

Nature Conservation Designation Site Synopses (Ecology)

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Appendix 6.2. Nature Conservation Designation Site Synopses

SITE NAME: ROYAL CANAL

SITE CODE: 002103

The Royal Canal is a man-made waterway linking the River Liffey at Dublin to the River Shannon near Tarmonbarry. There is a branch line from Kiltashee to Longford Town. The canal NHA comprises the central channel and the banks on either side of it. The main water supply is from Lough Owel (also an NHA) via a feeder channel into the canal at Mullingar. The Royal Canal was closed to navigation in 1961. The section of canal west of Mullingar was allowed to dry out, and the eastern section silted up and became overgrown. Restoration began in 1988, and is still in progress.

A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland.

The hedgerow, although diverse, is dominated by Hawthorn (*Crataegus monogyna*). On the limestone soils of the midlands Spindle (*Euonymus europaeus*) and Guelder-rose (*Viburnum opulus*) are present.

The vegetation of the towpath is usually dominated by grass species. Crested Dog's-tail (*Cynosurus cristatus*), Quaking Grass (*Briza media*) and Sweet Vernal-grass (*Anthoxanthum odoratum*) are typical species of the calcareous grasslands of the midlands. Where the canal was built through a bog, soil (usually calcareous) was brought in to make the banks. The contrast between the calcicolous species of the towpath and the calcifuge species of the bog is very striking.

Otter spraints are found along the towpath, particularly where the canal passes over a river or stream.

The Rare and legally protected Opposite-leaved Pondweed (*Groenlandia densa*) (Flora Protection Order 1987) is present at one site in Dublin, between Locks 4 and 5. *Tolypella intricata* (a stonewort listed in the Red Data Book as being Vulnerable) is also in the Royal Canal in Dublin, the only site in Ireland where it is now found.

The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods.

SITE NAME: LIFFEY VALLEY

SITE CODE: 000128

The Liffey Valley site is situated along the River Liffey between Leixlip Bridge on the Kildare-Dublin border and downstream of the weir at Glenaulin, Palmerstown, Co. Dublin. The river meanders through low hills for much of its course through the site and forms the focus for the site itself. The Mill Race between Palmerstown and the weir at the Wren's Nest Public House is also included in the site.

The river is a Salmon (*Salmo salar*) river and there are a series of weirs along the river between Palmerstown and Leixlip. The water level in the Mill Race has dropped and the channel has been filled with vegetation in a number of areas as a result.

The main terrestrial habitat included within the site is mixed deciduous woodland on fertile, limey alluvium and boulder clay, in which Beech (*Fagus sylvaticus*) is dominant in some areas. Elsewhere Ash (*Fraxinus excelsior*) and Willow species (*Salix* spp.) are common and there are also some stands of Larch (*Larix*) and Scot's Pine (*Pinus sylvestris*). Toothwort (*Lathraea squamaria*) has been recorded on a number of tree species.

The ground flora commonly includes Ivy (*Hedera helix*), Primrose (*Primula vulgaris*), Violet species (*Viola* spp.), Lords-and-ladies (*Arum maculatum*) and Hart's-Tongue Fern (*Phyllitis scolopendrium*). These woodlands occur on both sides of the river and normally consist of old estate woodlands.

A wet marsh occurs on the strip of land between the Mill Race and the river east of the metal bridge and west of the paint factory. This marsh is fed by seepage from the Mill Race and plant species such as Bulrush (*Typha latifolia*), Marsh-marigold (*Caltha palustris*) and Sweet-grass (*Glyceria* spp.) occur here. This strip of land also has rough grassland which is not regularly grazed. Much of the river bank and the banks of the Mill Race are fringed with Willow (*Salix* spp.) and Alder (*Alnus glutinosa*).

The threatened Green Figwort (*Scrophularia umbrosa*), a species listed in the Irish Red Data Book, is recorded from a number of stations along the river within the site. This stretch of the river Liffey has the greatest number of recently recorded populations of this species in Ireland. The Rare and legally protected Hairy St. John's-Wort (*Hypericum hirsutum*) (Flora Protection Order 1987) has been recorded from woodlands in this site.

This species has only been recorded in Kildare and Dublin, at sites on the river Liffey, since 1970. The threatened Yellow Archangel (*Lamiastrum galeobdolon*), listed in the Irish Red Data Book, is also recorded from these woodlands.

The section of river within the site is used by canoeists. The West Link bridge spans the valley west of Palmerstown. Recent management of woodlands at Brooklawn and Quarryvale has cleared a lot of Laurel and undergrowth. Some mature Beech have been removed in this area.

This site is part of the Liffey Valley Special Amenity Areas Order 1990. The site is important because of the diversity of the habitats within the site, ranging from aquatic to terrestrial. A number of rare and threatened plant species have been recorded from the site.

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