

# APPENDICES

# APPENDIX A

## Jose Alonso

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**From:** Jill Stewart [Jill.Stewart@failteireland.ie]  
**Sent:** 08 May 2012 15:05  
**To:** enviro  
**Subject:** Fáilte Ireland contact details & EIS and Tourism Guidelines  
**Attachments:** EIS and Tourism Guidelines 2011.doc

Dear Ms Maher,

I wish to acknowledge receipt of your recent letter to Fáilte Ireland in relation to Environmental Impact Statement for the Proposed Pedestrian Bridge, Kilkenny City.

I attach a copy of Fáilte Ireland Guidelines for the treatment of tourism in an EIS, which we recommend should be taken into account in preparing the EIS.

Please note change of address for Fáilte Ireland and send all future correspondence to Mr Paddy Mathews, Fáilte Ireland, 88-95 Amien Street, Dublin 1

Yours sincerely,

Jill Stewart

Jill Stewart  
Destinations Development  
Fáilte Ireland  
88-95 Amiens Street  
Dublin 1  
Tel: 01 8847202  
[Jill.Stewart@failteireland.ie](mailto:Jill.Stewart@failteireland.ie)  
[www.failteireland.ie](http://www.failteireland.ie)

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# Fáilte Ireland

National Tourism Development Authority

## Guidelines on the treatment of tourism in an Environmental Impact Statement

### **1. Introduction**

Tourism is a significant component of the Irish Economy – estimated to employ approximately 190,000 people – and contributing over €5.3 billion in spending to the economy in 2009. The environment is one of the main resources upon which this activity depends – so it is important that the EIS evaluates whether and how the interacting impacts of a project are likely to affect tourism resources.

The purpose of this short note is to provide guidance on how these impacts can be assessed through the existing EIA process. Undertaking an EIA is governed by the EIA Advice Notes published by the EPA. These Advice Notes contain detailed guidance on how to describe and evaluate the effects arising from a range of projects, including tourism projects.

These guidelines were written with the assistance of Conor Skehan, Head of Department of Environment and Planning, Dublin Institute of Technology.

## 2. Tourism and the Environment

There are two interactions between tourism and the environment.

1. Impacts caused by Tourism Projects
2. Impacts affecting Tourism (e.g. the quality of a destination or a tourism activity)

### Impacts caused by Tourism Projects

Tourism projects can give rise to effects on the environment. These are specifically dealt with under a number of Project Types in the Advice Notes, specifically:

#### 12 TOURISM AND LEISURE

- a. Ski-runs, ski-lifts and cable-cars where the length would exceed 500 metres and associated developments. Project Type 20
- b. Sea water marinas where the number of berths would exceed 300 and fresh water marinas where the number of berths would exceed 100. Project Type 10
- c. Holiday villages which would consist of more than 100 holiday homes outside built-up areas; hotel complexes outside built-up areas which would have an area of 20 hectares or more or an accommodation capacity exceeding 300 bedrooms. Project Type 28
- d. Permanent camp sites and caravan sites where the number of pitches would be greater than 100. Project Type 28
- e. Theme parks occupying an area greater than 5 hectares. Project Type 29

**Figure 1 The Advice Notes contain detailed descriptions on how to describe and evaluate the effects arising from a range of tourism projects.**

### Impacts affecting Tourism

Environmental effects of other projects on tourism are not specifically addressed in the Advice Notes. Taking account of the significance of tourism to the Irish economy a specialist topic of 'Tourism' has been prepared to facilitate a systematic evaluation of effects on this sector within the format laid down for other parts of the Environmental Impact Statement.

It is not intended that the assessment of effects on tourism should become a separate section of the Impact Statement, instead it is intended to become a specialist sub-section of the topic 'Human Beings' which is currently described in Section 2 of the Advice Notes

### **3. Tourism in the Existing Environment**

#### **Introduction**

Visitor attitude surveys reveal that the following factors – in order of priority – are the reasons that tourists visit and enjoy Ireland:

- Beautiful scenery
- Friendly & hospitable people
- Safe & Secure
- Easy, relaxed pace of life
- Unspoilt environment
- Nature, wildlife, flora
- Interesting history & culture
- Plenty of things to see and do
- Good range of natural attractions

It is noteworthy that over half of the factors listed are environmental and that all others are related to the way of life of the people. The following describes how these factors are considered within an EIS, set out under EIA topic headings, and how they interact with tourism.

#### *Beautiful scenery*

This is covered in the '*Landscape*' Section. Particular attention needs to be paid to effects on views from existing purpose-built tourism facilities, especially hotels, as well as views from touring routes and walking trails. It is important to note that there appears to be evidence that the visitor's expectations of 'beautiful' scenery does not exclude an admiration of new modern developments – such as windfarms – which appear to be seen as indicative of an modern, informed and responsible attitude to the environment.

#### *Friendly & hospitable people*

This is not an environmental factor though it is indirectly covered under the '*Human Beings*' section of the EIS. The principal factor is the ratio of visitors to residents. This is of less significance in areas with long-established patterns of tourism.

#### *Safe & Secure*

This is not an environmental issue – though some of the factors that are sometimes covered under the heading of '*Human Beings*' – such as social inclusion or poverty – can point to likely effects and interactions.

#### *Easy, relaxed pace of life*

This is not an environmental issue though it is partially covered under '*Human Beings*' – see comments above.

#### *Unspoilt environment*

This is covered under the sections dealing with '*Landscape*', '*Flora*' and '*Fauna*' and to a lesser extent under emissions to '*Water*' and '*Air*'. In some instances traffic congestion, especially in rural areas, can be an issue, this is usually covered within '*Material Assets*'.

#### *Nature, wildlife, flora*

This is principally covered under the headings of '*Flora*' and '*Fauna*' and to a lesser extent by '*Landscape*', '*Water*' and '*Air*'. The principal issues being to avoid any effects that might reduce the health or extent of the habitats. This can occur either directly, by impinging on the site, or indirectly, through emission, that can affect the natural resources, like clean water, which the habitat depends on. It also considers effect on physical access to and visibility of these sites. Occasionally there are concerns about the disturbance or wear and tear of visitor numbers to such sites.

#### *Interesting history & culture*

This is principally covered under '*Cultural Heritage*' and, to a lesser extent, under '*Human Beings*'. The principal issues being to avoid damage to sites and structures of cultural, historical, archaeological or architectural significance – and to their contexts or settings. It also considers effect on physical access to and visibility of these sites. Occasionally there are concerns about the wear and tear of visitor numbers to such sites.

#### *Plenty of things to see and do.*

This is not an environmental issue though it is partially covered by the '*Human Beings*' section, where the tourism resources of an area are described and assessed.

#### *Good range of natural attractions*

This is covered by the '*Landscape*', '*Flora*', '*Fauna*', and '*Cultural Heritage*' sections of the EIS.

## 4. Project factors affecting Tourism

### Introduction

Tourism can be affected both by the structures or emissions of new developments as well as by interactions between new activities and tourism activities – for example the effects of high volumes of heavy goods vehicles passing through hitherto quiet, scenic, rural areas. Tourism can be affected by a number of the characteristics of the new project such as:

- New Developments
  - Social Considerations
  - Land-uses and Activities
- 
- *New Developments* - will the development stimulate or suppress demand for additional tourism development in the area? If so, what type, how much and where? Marinas, golf courses, other major sporting facilities as well as theme parks and larger conference facilities can all stimulate the emergence of new accommodation, catering and leisure facilities often within an extensive area around a new primary visitor facility. Extensive urbanisation and large scale infrastructure as well as certain processing and extractive industries all have the potential to suppress demand for additional tourism – but usually only in the immediate locality of the new development. It should be noted however, that some types of new or improved large scale infrastructure – such as roads – can improve the visitor experience – by increasing safety and comfort or can convey a sense of environmental responsibility – such as wind turbines.
  - *Social Consideration* - will the development change patterns and types of activity and land use? Will it affect the demographics, economy or social dynamics of the locality?
  - *Land-use* - will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the tourism resources in the surrounding area?

### Existing Tourism

In the area likely to be affected by the proposed development, the following attributes of tourism, or the resources that sustain tourism, should be described under the following headings.

Note that the detailed description and analysis will usually be covered in the section dealing with the relevant environmental topic – such as '*Landscape*'. Only the relevant finding as to the likely significance to, or effect on, tourism needs to be summarised in this section.

### Context

Indicate the location of sensitive neighbouring tourism resources that are likely to be directly affected, and other premises which although located elsewhere, may be the subject of secondary impacts such as alteration of traffic flows or increased urban development. The following should be noted in particular:



- Hotels, conference centres, holiday accommodation – including holiday villages, holiday homes, and caravan parks.
- Visitor centres, Interpretive centres and theme parks
- Golf courses, adventure sport centres and other visitor sporting facilities
- Marinas and boating facilities
- Angling facilities
- Equestrian facilities
- Tourism-related specialist retailers and visitor facilities
- Historic and Cultural Sites
- Pedestrian, cycling, equestrian, vehicular and coach touring routes

Indicate the numbers of premises and visitors likely to be directly affected directly and indirectly.

Identify and quantify, where possible, their potential receptors of impacts, noting in particular transient populations, such as drivers, walkers, seasonal and other non-resident groups.

Describe any significant trends evident in the overall growth or decline of these numbers, or of any changes in the proportion of one type of activity relative to any other.

Indicate any commercial tourism activity which likely to be directly affected, with resultant environmental impacts.

### **Character**

Indicate the occupations, activities or interests of principal types of tourism in the area. – Where relevant, describe the specific environmental resources or attributes in the existing environment which each group uses or values; where relevant, indicate the time, duration or seasonality of any of those activities. For example describe the number of guides, boats and anglers who use a salmon fishery and the duration of the salmon season as well as the quantity and type of local accommodation that is believed to be used by the anglers.

### **Significance**

Indicate the significance of the principal tourism assets or activities likely to be affected. Refer to any existing formal or published designation or recognition of such significance. Where possible provide an estimate of the contribution of such tourism activities to the local economy. For instance refer to the number of annual visitors to a tourism attraction or to the grading of a hotel.

### **Sensitivity**

Describe any significant concerns, fears or opposition to the development known to exist among tourism interests. Identify, where possible, the particular aspect of the development which is of concern, together with the part of the existing tourism resource which may be threatened. For instance describe the extent of a potential visual intrusion onto a site of historic significance which is the main local tourist attraction.

## **5. Impacts on Tourism**

### **"Do Nothing" Impact;**

Describe how trends evident in the existing environment will continue and how these trends will affect tourism.

### **Predicted impact;**

- Describe the location, type, significance, magnitude/extent of the tourism activities or assets that are likely to be affected.
  
- Describe how the new development will affect the balance between long-established and new dwellers in an area and its affect on the cultural or linguistic distinctiveness of an area. For example describe the effect of a new multi-national population required for an international call-centre located in a Gaeltacht area.
  
- Describe how changes in patterns of employment, land use and economic activity arising from the proposed development will affect tourism, for example, illustrating how a new industrial development will diversify local employment opportunities thereby reducing the area's unsustainable over-reliance on seasonal tourism.
  
- Describe the consequences of change, referring to indirect, secondary and cumulative impacts on tourism; Examples can include describing how the new development may lead to a reduced assimilative capacity for traffic or water during the peak of the tourism season or how new urbanism combined with existing patterns of tourism may lead to unsustainable levels of pedestrian traffic through a sensitive habitat.
  
- Describe the potential for interaction between changes induced in tourism and other uses that may affect the environment – for instance increasing new tourism-related housing affecting water resources or structures
  
- Describe the worst case for tourism if all mitigation measures fail.

## 6. Mitigating adverse impact on Tourism

Describe the mitigation measures proposed to:

- *avoid* sensitive tourism resources – such as views, access, and amenity areas including habitats as well as historical or cultural sites and structures.
- *reduce* the exposure of sensitive resources to excessive environmental burdens arising from the development's emissions or volumes of traffic [pedestrian and vehicular], and/or losses of amenity arising from visually conspicuous elements of the development – for example by prioritizing visual screening of views from a hotel towards a quarry.
- *reduce* the adverse effects to tourism land uses and patterns of activities – especially through interactions arising from significant changes in the intensity of use or contrasts of character or appearance – for example by separating traffic routes for industrial and tourism traffic.
- *remedy* any unavoidable significant residual adverse effects on tourism resources or activities, for example by providing alternative access to tourism amenities – such as waterways or monuments.



**An Roinn**  
**Ealaíon, Oidhreachta agus Gaeltachta**  

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**Department of**  
**Arts, Heritage and the Gaeltacht**

14<sup>th</sup> June 2012

**Your Ref: E0877**

**Our Ref: G Pre000196/2012**

Siobhan Maher  
Malone O'Regan  
2B Richview Office Park  
Clonskeagh  
Dublin 14

**Re: Pre-Planning Ref. No. E0877 for a proposed pedestrian bridge by Malone O'Regan on behalf of Kilkenny County/Kilkenny Borough Council in Kilkenny City.**

A Chara,

I refer to your notification in relation to the above pre-planning application. Outlined below are the nature conservation recommendations/observations of the Department of Arts, Heritage and the Gaeltacht.

Having considered the case the Department of Arts Heritage and the Gaeltacht have no comments or objections to this proposal based on the documentation submitted.

Kindly forward a copy of any further information received and in the event of a planning application being lodged please forward same to the address below:

The Manager,  
Development Applications Unit,  
Department of Arts, Heritage and the Gaeltacht,  
Newtown Road,  
Wexford

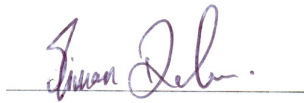
Alternatively, documentation associated with the above can be referred electronically to the DAU at the following address:

[manager.dau@ahg.gov.ie](mailto:manager.dau@ahg.gov.ie)

In addition, please acknowledge receipt of this letter (as required under the Planning and Development Regulations, 2001) and forward the relevant receipt to the above address.

Finally, the above observations and recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in his role as statutory consultee under the Planning and Development Act 2000, as amended.

Mise le meas,

A handwritten signature in blue ink, appearing to read "Simon Dolan", is written over a horizontal line.

Simon Dolan  
Development Applications Unit  
Ph: 053 9117377  
Email: [simon.dolan@ahg.gov.ie](mailto:simon.dolan@ahg.gov.ie)



**BirdWatchIreland**  
*protecting birds and biodiversity*

Unit 20 Block D  
Bullford Business Campus  
Kilcoole  
Co. Wicklow  
Ireland

t: +353 1 281 9878  
f: +353 1 281 0997  
e: info@birdwatchireland.ie  
w: birdwatchireland.ie

Patron  
Michael D. Higgins  
President of Ireland

Éarlamh  
Micheál D Ó hUiginn  
Uachtarán Na hÉireann

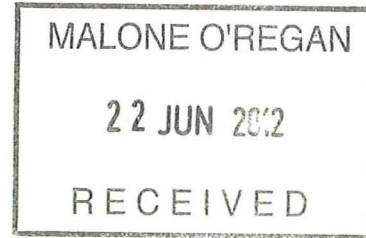
Ms. Siobhan Maher

Malone O'Regan Environmental Services Ltd

2B Richview Office Park

Clonskeagh

Dublin 14



21/06/2012  
Your ref E0877  
Our ref 12.503.KK

**E0877 - Re: Proposed Pedestrian Bridge, Kilkenny City - Nature Impact Screening and Natura Impact Statement**

Dear Ms. Maher,

Thank you for your correspondence of 01/05/2012 regarding the proposal detailed above.

We have a number of **significant concerns relating to the proposal detailed above given the potential impacts on wild birds of national and European importance**, in particular relating to River Nore SPA (Site Code: 004233) which is designated for the protection of Kingfisher.

**Potential impacts on wild bird interests at this location**

The River Nore is important for Kingfisher, which is listed as Annex I of the European Birds Directive. Accordingly it has been designated as a Special Protection Area. The section of the River Nore covered by the proposed works is adjacent to a 1km square where Kingfisher was recorded during a survey undertaken in 2010, and a nesting territory was estimated upstream of the proposed works based on this record as well as further records. Therefore, BirdWatch Ireland would be concerned about any works that are undertaken that would disturb birds during the nesting season or either remove or alter their nesting banks and required habitats, or that would alter the flow of the river in such a way that they would be prevented from foraging.

**Considerations of the NIS screening exercise**

Based on the information provided, it is our view that in carrying out an assessment of the proposed works the following should be included:

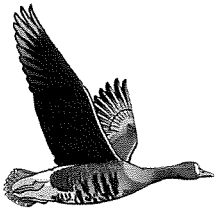
- the dynamic nature of river systems and habitat requirements and availability for Kingfisher in terms of breeding and wintering requirements.
- the 'cumulative or in-combination effects' is required in particular given the nature of the location
- the longer term species conservation requirements both within the designated sites and also in the wider countryside

Thank you once again for the opportunity to comment on this proposal, we would appreciate further notification of and/or details of the proposed works and associated conditions/measures in place to ensure impacts on Annex 1 species and their habitats are avoided.



Directors: J Cromie Chairman, K. O'Byrne, J O'Halloran, JB Peart, SP Roche, J. Wilson

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Registered in Ireland, no. 116468. Registered office: Unit 20, Block D, Bullford Business Campus, Kilcoole, Co.Wicklow, Ireland.



**BirdWatchIreland**  
*protecting birds and biodiversity*

Unit 20 Block D  
Bullford Business Campus  
Kilcoole  
Co. Wicklow  
Ireland

t: +353 1 281 9878  
f: +353 1 281 0997  
e: [info@birdwatchireland.ie](mailto:info@birdwatchireland.ie)  
w: [birdwatchireland.ie](http://birdwatchireland.ie)

Patron **Éarlamh**  
Michael D. Higgins Micheál D Ó hUiginn  
President of Ireland Uachtarán Na hÉireann

Yours sincerely,

Siobhán Egan

Senior Conservation Officer

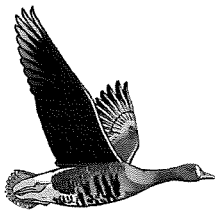
Policy & Advocacy Team

  
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**BirdWatchIreland**  
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Unit 20 Block D  
Bullford Business Campus  
Kilcoole  
Co. Wicklow  
Ireland

t: +353 1 281 9878  
f: +353 1 281 0997  
e: [info@birdwatchireland.ie](mailto:info@birdwatchireland.ie)  
w: [birdwatchireland.ie](http://birdwatchireland.ie)

Patron  
Michael D. Higgins  
President of Ireland

Éarlámh  
Micheál D Ó hUiginn  
Uachtarán Na hÉireann

## Annex 1

The importance of avoiding adverse impacts on wild birds in designated areas and in the wider countryside has been highlighted by the European Court of Justice ruling against Ireland in December 2007 for failing to fully implement the EU Birds Directive and EU Habitats Directive. As required under the EU Habitats Directive, adverse impacts on priority species (including Annex 1 species) need to be fully considered in the decision-making process. We recommend that potential adverse impacts of the proposal are fully considered, ensuring informed decision-making regarding the protection of wild birds. Established European case law has determined that proposals outside of designated areas may also have a significant effect on the interests of designated sites, and as such should be subject to robust assessment processes under Article 6(3) and 6(4) of the EU Habitats Directive that applies to the interests of both SPAs and SACs.

Of particular concern to us are potential adverse impacts on:

- Species listed on Annex 1 of the EU Birds Directive and migratory wetland bird species which are afforded particular protection in the wider countryside as well as in areas identified as Special Protection Areas.
- Red-listed and amber-listed bird species identified as Birds of Conservation Concern. *Lynas P, Newton S & Robinson JA (2007). The Status of Birds in Ireland: an analysis of conservation concern 2008 – 2013. Irish Birds (8).*
- Priority habitats for wild birds including uplands, wetlands, hedgerows, machair, coastal habitats, semi natural woodlands, and riparian habitats in addition to those habitats specified under Annex 1 of the EU Habitats Directive.
- Designated sites. Appropriate protection and buffering of sites identified as being important for wild birds and their habitat requirements is important so as to ensure that conservation objectives can be achieved.

Under the Habitats and Birds Directives, listed habitats and species are afforded special protection through the designation of sites and other means. Where designated sites, or the features for which they are designated, may be threatened by development, the competent authority must undertake an appropriate assessment under Article 6.3 of the Habitats Directive:

*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. ...the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned...*

In addition, Article 4.1 of the Bird Directives states:

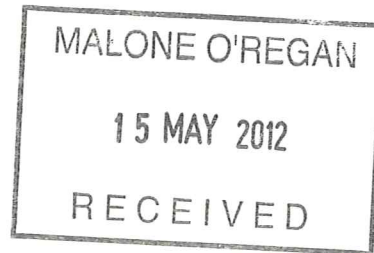
*The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution*

While Article 4.2 states:

Member states shall take similar measures for regularly occurring migratory species not listed in Annex I, bearing in mind their need for protection in the geographical sea and land area where this directive applies, as regards their breeding, moulting and wintering areas and staging posts along their migration routes.



8<sup>th</sup> May 2012.



Ms. Siobhan Maher,  
Malone O'Regan,  
2B Richview Office Park,  
Clonskeagh,  
Dublin 14.

**PROPOSED PEDESTRIAN BRIDGE AT KILKENNY CITY  
YOUR REF EO877**

Dear Ms. Maher,

I refer to your letter dated 1<sup>st</sup> inst. Subject to what follows, Inland Fisheries Ireland (IFI) has no objection to the development as proposed.

Projects such as that for which an EIR is in preparation, involving construction adjacent to and with the possibility of discharge to the surface water sewer network adjacent to the site and thence to surface waters, or directly to surface waters, have the potential to significantly impact on the aquatic environment and fisheries resource if they are not carried out in an environmentally sensitive manner. In this regard, I would be obliged if account of the following would also be taken in the preparation of the EIR and ultimately, in the event of planning permission being sought and granted, during the construction phase of the project.

Uncured concrete can kill fish and macro invertebrates by altering the pH of the receiving waters. When cast in place concrete is required, all work must be done in the dry and effectively isolated from any water that may directly or indirectly enter surface water sewers or surface waters themselves for a period sufficient to cure the concrete.

One of the potential impacts during the construction phase of the proposed development is the discharge of silt laden waters to surface water sewers, and thence to surface waters, or directly to surface waters from newly developed areas within the site at which earth moving and excavation works are on-going. Silt can damage river bed habitat areas, and juvenile fish species are particularly sensitive to siltation of gill structures. Similarly, plant and macro invertebrate communities can literally be blanketed over, and eliminated. It is essential to incorporate best practices into construction methods and strategies to minimise discharge of silt and suspended solids to water.

All oils and fuels used to service plant and machinery during the construction phase should be stored in secure bunded areas, and particular care and attention taken during refuelling and maintenance operations on such plant and equipment. Where site works involve the discharge of drainage waters, either to surface water sewers, or directly to surface waters, temporary oil interceptor facilities should be installed and maintained.

Finally, as you will be aware, in recent years, there have been a number of significant discoveries of what are generally termed invasive species in Irish waters. In many instances these unfortunately are likely to have long term adverse impacts on native flora and fauna. Drilling equipment and construction plant and vehicles including boats, ropes, buoys, diving and water safety equipment, etc. likely to be used during bridge construction may potentially have been used in waters containing invasive species. This has not it appears being considered as an issue or impact to be dealt with in the EIR, and notwithstanding the fact that there are to be no in stream works, it is of critical importance than same be addressed. High pressure steam cleaning is one of the methods considered acceptable so as to prevent the spread of hazardous invasive species and pathogens. Further detailed information on invasive species and bio-security is available at [www.fisheriesireland.ie/Invasive-Species](http://www.fisheriesireland.ie/Invasive-Species).

I trust these observations will be of assistance.

Thank you for giving us advance notice of the proposed development.

Yours sincerely,



Patrick Kilfeather  
Senior Fisheries Environmental Officer

**From:** [Sophie Preteseille](#)  
**To:** [enviro](#)  
**Subject:** FAO Siobhan Maher - Proposed pedestrian bridge, Kilkenny City  
**Date:** 18 July 2012 17:20:53

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**Ref: E0877**

**GSI Ref.: 12/51**

**Re. Proposed pedestrian bridge, Kilkenny City**

Dear Ms Maher,

With reference to your letter of the 1<sup>st</sup> May in relation to the proposed pedestrian bridge in Kilkenny City, I apologise for the late submission for the Environmental Impact Report.

On behalf of the Geological Survey of Ireland "Heritage and Planning Programme", there are no geological heritage sites in the vicinity of the proposed pedestrian bridge. The closest site of geological interest "Archersgrove quarry" lies at (251900, 154800), at about 1.7km southwards.

For reference, the audit of geological heritage sites for Co. Kilkenny was carried out in 2007. The report and shapefile are available for download on GSI website at:

<http://www.gsi.ie/Programmes/Heritage+and+Planning/County+Geological+Sites+Audits/Kilkenny.htm>

For other projects in other counties, please note that other completed audits of geological heritage sites can be accessed at:

<http://www.gsi.ie/Programmes/Heritage+and+Planning/County+Geological+Sites+Audits/>

Yours sincerely,  
Sophie Pr teseille

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Sophie Pr teseille  
Geologist  
Heritage and Planning Programme

Geological Survey of Ireland  
Beggars Bush  
Haddington Road  
Dublin 4  
Ireland

T. +353 (0)1 678 2741

Geological Survey of Ireland: [www.gsi.ie](http://www.gsi.ie)  
GSI Webmapping: [www.gsi.ie/Mapping.htm](http://www.gsi.ie/Mapping.htm)  
County Geological Sites Audits: [www.gsi.ie/Programmes/Heritage+and+Planning/County+Geological+Sites+Audits/](http://www.gsi.ie/Programmes/Heritage+and+Planning/County+Geological+Sites+Audits/)  
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URS  
Received  
20/03/2012

**Address: URS Ireland Ltd.**

**Date: 16-Mar-12**

**Re ESB Networks: John's Quay**

**Our Ref: 2012/03/16-030**

**Dear Eoin Greene**

I thank you for your recent enquiry regarding networks at the above location. Enclosed are drawings indicating the approximate location of ESB underground (UG) cables and overhead (OH) lines.

**ESB makes no representation that the drawings accurately show the location of ESB cables. We have enclosed booklets called 'Avoidance Of Electrical Hazards When Digging' and also 'Avoiding Danger from Overhead Electricity Lines'. Please read carefully.**

If works don't commence before or continue beyond 6 weeks following the date of issue, then you must obtain an updated map. Each new job requires a new map. It is imperative that before any works commence you first locate and trace the routes of all electric cables by using appropriate locator equipment (in both power and radio modes).

Before using a mechanical excavator, ONLY MANUAL means should be employed to prove the location of ESB cables. Even where manual excavation is used, extreme caution must always be exercised, as failure to do so could result in serious injury or electrocution. Under no circumstances should iron bars be used during manual excavation. Careful Hand Digging of Trial Holes using 'HSA Code of Practice for Avoiding Danger from Buried Services' should be used for accurate cable location and prior to using a mechanical excavator in the vicinity of electrical cables. See H.S.A. Code of Practice publication "Avoiding Danger From Underground Services" for further guidelines

Please note that, if during excavation, damage or interference occurs to our cables, causing damage to any property, injury or death to any person or loss of supply to any customers, ESB may at its discretion serve a STOP WORK Notice, and notify the relevant Health and Safety Authority immediately. The user will also be liable to reimburse the ESB on a full indemnity basis, The full costs, expenses and damages arising (directly or indirectly) as a result. It is essential before excavating in the vicinity of ESB cables that the ESB Network Controller in the area you are working in is contacted.

ESB will extend every assistance in indicating the route of the cables and arrangements can be made by contacting the relevant ESB office. ESB cannot, however, accept responsibility for the absence or incorrect position of any particular cable on ESB's records and drawings supplied. Please note that a charge may be made where a movement of networks is required, and/or where ESB provide staff outside of normal working hours.

Please ensure that all contractors and their personnel involved in excavations have been furnished with this map. If further copies are required please contact us at the number below.

Yours faithfully,

---

**Fergus Grimes  
Central Site,  
ESB Networks,  
Osprey House,  
Lower Grand Canal St.,  
Dublin 2.**

**Phone: +353 1 7027257**

**Re: Supply of DISTRIBUTION Digital or Hardcopy Data**

Eoin Greene  
 URS Ltd.  
 6-8 Harcourt Road  
 Dublin 2  
 E-mail: eoin.green@urs.com  
 Telephone no.01 4155100

Issue Date: 20/03/12

Prepared by: DK  
 Location of works: Kilkenny City

B2 Arena Road  
 Sandyford Business Park  
 Dublin 18  
 Ireland  
 T +353 1 602 1354  
 F +353 1 602 1375  
 W www.bordgais.ie

Dear Sir,

As requested in your letter of the 15/03/12, I attach a **DWG file** of the information requested. Please note the distribution network information provided in the attached file is a general guide and the accuracy thereof cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability is accepted for any discrepancy, omission or deviation and the actual position of mains and services must be verified and established on site before any mechanical excavating plant is used. The information is supplied without prejudice and in the event of any proposed excavation taking place, hard copy drawings should be requested from Bord Gais Eireann.

Please refer to Bord Gais Networks “Safety Advice” booklet attached. This booklet contains important safety advice which should be read before any work commences.

Bord Gais Networks recommends that excavation work within the vicinity of gas pipelines are carried out in accordance with the Health and Safety Authority “Code of Practice for Avoiding Danger from Underground Services”.

***Type of Work:***

- Development Projects
- Planning Applications
- Utility Works
- Property Conveyance
- Watercourses/canals/drainage
- Mineral Extraction
- Excavations Non-Utility
- Roads
- Others

***Enclosures***

- Distribution Networks Disclaimer
- Safety Advice Booklet DO-SQ-IS-002: Rev1
- H.S.A. Code of Practice Reference
- Transmission Networks Disclaimer
- Transmission Code of Practice BGE/WI/48 (Rev 2)

Yours faithfully

Declan Kelly

---

GIS/CAD Technician  
 Bord Gáis Networks

**From:** [Donncha O'Sullivan](#)  
**To:** [enviro](#)  
**Cc:** [distribution DBYD](#)  
**Subject:** Proposed Pedestrian Bridge Kilkenny City. Attn: Siobhán Maher  
**Date:** 14 May 2012 12:17:55

---

Siobhán,

There isn't any Gas Transmission infrastructure in the vicinity of the proposed bridgeworks.

There is however some Gas Distribution stuff in the vicinity. Please contact [DistributionDBYD@bge.ie](mailto:DistributionDBYD@bge.ie) for information on same.

Regards,

**Donncha**

*You are reminded that all work in the vicinity of Bord Gáis Pipelines and Installations must be completed in accordance with the current editions of the Health & Safety Authority publications, 'Code of Practice For Avoiding Danger From Underground Services' and 'Guide to Safety in Excavations'. Both of these are available free of charge from the Health and Safety Authority, 1890 28 93 89, or at [www.hsa.ie](http://www.hsa.ie).*

**Donncha Ó Sullivan BE CEng MIEI**  
**Development Liaison Engineer**  
**Bord Gáis Networks**

T 021-453 4613  
F 021-453 4318  
M 087 – 982 2437

[www.bordgais.ie/networks](http://www.bordgais.ie/networks)



---

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**From:** [adam.szymanski@bt.com](mailto:adam.szymanski@bt.com) on behalf of [gis.ireland@bt.com](mailto:gis.ireland@bt.com)  
**To:** [Eoin Greene](#)  
**Subject:** URS Ireland - BT Services for Kilkenny City Pedestrian Bridge - 26-03-2012  
**Date:** 26 March 2012 15:28:33

---

Hi Eoin,

Thank you for your enquiry regarding our network. There is no BT Ireland network at this location according to our records. This information is believed to be correct. There may also be items of BT Ireland network of which no record is held.

It is essential that you contact the BT Ireland Management Centre (NMC)(014326555) as soon as possible, so that we can extend every assistance in locating the route of the network.

Please note that your company will be liable for the full cost of repairs if any damage is caused to our network during works being carried out.

Please send all future enquiries regarding our network to [gis.ireland@bt.com](mailto:gis.ireland@bt.com) .

Kind Regards,  
Adam Szymanski

BT Ireland | Block C, Dundrum Business Park, Dublin 14. | E: [gis.ireland@bt.com](mailto:gis.ireland@bt.com) | tel: 014326479

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Think before you print! Consider the environment before printing this email!

**Jose Alonso**

---

**From:** FKeoghan@eircom.ie  
**Sent:** 08 May 2012 10:16  
**To:** enviro  
**Cc:** Maherp@eircom.ie; BbFitzpatrick@eircom.ie; BCooke@eircom.ie  
**Subject:** TSK-122709 Letter from Malone O'Regan re Proposed Pedestrian Bridge, Kilkenny City 1 May 2012  
**Attachments:** TSK-122709\_2.pdf; TSK-122709\_1.pdf; Eircom\_Legend.PDF; ATT00001..txt

eircom Ltd. - Click Before You Dig Service,

Dear Siobhan Maher,

Thank you for your request for information regarding eircom plant at : Proposed Pedestrian Bridge, Kilkenny City

Your reference number for this request is: TSK-122709

We now have a new process for requesting existing eircom Plant information. This is called the eircom "Click Before You Dig Service".

It can be accessed via the Internet at <http://cbyd.eircom.ie> .  
This link can be added to your favourites or saved to your Desktop.  
If you are a first time user then "click" on Create Account and follow the instructions.

Note ; this is the most efficient method to receive eircom plant information on a small to medium scale.  
All large scale requests which involve multiple maps should be emailed to [pdbureau@eircom.ie](mailto:pdbureau@eircom.ie) and will be processed accordingly.

Any enquiries regarding this request should be forwarded to <mailto:pdbureau@eircom.ie>

**Legal Disclaimer:**

The information given is compiled from records and is believed to be correct. There may however be departures from the course (s) and depth (s) shown or indicated. There may also be items of eircom plant of which no record is held. The Click before you dig service is an information service only and is designed to assist those undertaking underground excavations to do so in a safe manner and in a manner which avoids unnecessary damage to eircom underground cables.

It should be noted, however that the primary onus to locate eircom cables rests with the person or undertaker who carries out the excavation, using means including but not limited to the digging of trial holes at regular intervals to ascertain the actual depth of the eircom cables or by use of electronic cable detection equipment for example a "cat and jenny". The information is therefore given without prejudice to the legal rights of eircom Limited to compensation should eircom plant be damaged.

<mailto:pdbureau@eircom.ie>

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Registered Office - 1 Heuston South Quarter, St. John's Road, Dublin 8.  
\*\*\*\*\*



## Aisling Walsh

---

**From:** Paul Grufferty [PGrufferty@upc.ie]  
**Sent:** 03 May 2012 15:24  
**To:** Eoin Greene  
**Cc:** Darren Mulhearn  
**Subject:** FW: UPC Ref: Q064562  
**Attachments:** Kilkenny Pedestrian bridge.pdf

**Follow Up Flag:** Follow Up  
**Flag Status:** Flagged

Eoin

I refer to your letter of 15<sup>th</sup> March about the above location. I confirm that there are no existing UPC services adjacent to the above locations. (see your drawing attached)

There may be old network not on our computer records adjacent to the above location. Therefore, it would be appreciated if the Area Manager for the location concerned Darren Mulhearn was contacted before commencement of work. He may be reached at 086 6693971.

WHILST THE INFORMATION GIVEN IS BELIEVED TO BE CORRECT NO WARRANTY IS MADE AS TO ITS ACCURACY. THIS INFORMATION MUST NOT BE RELIED UPON IN THE EVENT OF EXCAVATION OR OTHER WORKS CARRIED OUT IN THE SITE AREA. NO LIABILITY OF ANY KIND WHATSOEVER IS ACCEPTED BY UPC, ITS SERVANTS OR AGENTS FOR ANY ERROR OR OMISSION IN RESPECT OF INFORMATION CONTAINED WITHIN THIS COMMUNICATION. THE ACTUAL POSITION OF UNDERGROUND SERVICES MUST BE VERIFIED AND ESTABLISHED ON SITE BEFORE ANY MECHANICAL PLANT IS USED.

Regards,

- - -

Paul Grufferty,  
Plant Protection Officer,  
Civil Operations,  
UPC,  
John F Connelly Road,  
Churchfields,  
Cork.  
t +353 (0)21 2392379  
f +353 (0)21 2392371  
m +353 (0)86 8187981  
[pgrufferty@upc.ie](mailto:pgrufferty@upc.ie)  
[www.upc.ie](http://www.upc.ie)

---

**From:** Louis Whelan  
**Sent:** 26 March 2012 17:06  
**To:** Paul Grufferty  
**Subject:** RE:

Hi Paul,

Please find attached the query for Kilkenny Pedestrian Bridge.

Regards.

## Aisling Walsh

---

**From:** Harford, James, VF-IE [James.Harford@vodafone.com]  
**Sent:** 15 March 2012 12:37  
**To:** Eoin Greene  
**Subject:** RE: KCPB - VODAFONE Services Search

Eoin,

Vodafone have no services located in the vicinity of the proposed bridge location as defined on the drawings.

Kind Regards

James Harford  
Property Manager  
Access Networks

Mobile: +353 87 239 1105  
Fax: +353 1 203 7602  
E-mail: [james.harford@vodafone.com](mailto:james.harford@vodafone.com)

**Vodafone. The home of the Smartphone.**

Vodafone Ireland Limited  
Site Address: MountainView, Leopardstown, Dublin 18.  
Registered in Ireland No. 326967

Please note that this correspondence and any attached documents are subject to Contract / Contract Denied, without prejudice and subject to the grant of relevant statutory consents.

---

**From:** Eoin Greene [<mailto:Eoin.Greene@Urs.com>]  
**Sent:** 15 March 2012 12:09  
**To:** Harford, James, VF-IE  
**Subject:** KCPB - VODAFONE Services Search

Our Ref: 47061456/EG/05-10  
Date: 15<sup>th</sup> March 2012

Dear James,

### **Kilkenny City Pedestrian Bridge – Services Search**

URS Ireland Limited has been appointed by Kilkenny County Council as the consulting engineers for the design of the above pedestrian bridge in Kilkenny City.

We require details of any of your services that are located in the vicinity of the proposed bridge location as defined on the enclosed drawings, 47061456/SK/04 Services Search Study Area.

Please send us copies of your record drawings showing the as-built locations of your services where they may be affected by the construction of this scheme. We also require information on the depths or levels of buried services where this information is available. If information can be provided electronically (e.g. ACAD, PDF, or GIS formats) and referenced to national grid co-ordinates it would be much appreciated.

## Aisling Walsh

---

**From:** Gerard Higgins [Gerard.Higgins@kilkennycoco.ie]  
**Sent:** 22 March 2012 16:39  
**To:** Eoin Greene  
**Cc:** Michael Murphy  
**Subject:** Pedestrian Bridge over River Nore Kilkenny  
**Attachments:** Watermains.pdf; DrainageEastBank.pdf; DrainageWestBank.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Eoin,  
Details attached

Regards,  
Gerry Higgins,  
Water Services.

---

### Household Charge - Funding Local Services

Avoid interest and penalties by registering and paying for your household charge before 31st march on [www.householdcharge.ie](http://www.householdcharge.ie)

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# APPENDIX B

# **KILKENNY CENTRAL ACCESS SCHEME**

## **BASELINE AQUATIC ECOLOGY SURVEY**

### **FINAL REPORT**

**25<sup>th</sup> October 2010**



Conservation Services, Tullaha, Glenflesk, Killarney, Co. Kerry  
Tel/Fax 064 30130 e-mail [cs@conservation-services.ie](mailto:cs@conservation-services.ie)

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# 1. METHODOLOGY

## 1.1 SELECTION OF WATERBODIES AND SITES FOR ASSESSMENT

### 1.1.1 WATERBODIES FOR ASSESSMENT

Locations at which the proposed KCAS would have potential impacts on the River Nore (cSAC) and its tributary the Breagagh River were identified on the 1:50,000 *Discovery Series* Ordnance Survey Map 67 and on drawings of the proposed route alignment provided by Malone O'Regan. As the 1:50,000 map generally includes streams/drains which are too small to be useful salmonid habitat, and as general guidelines are presented for procedures at any watercourse crossing, the survey is adequate to ensure that all measures necessary to prevent significant impacts are identified. Potentially affected water bodies and potential impact locations are shown on Map 1.

Since the field assessment was carried out the length of the proposed KCAS has been significantly reduced. Sections of the Breagagh River which would have been crossed by the scheme as originally proposed are no longer proposed to be crossed. The ecological assessment of the Breagagh River upstream of the now potentially affected section are nevertheless included in the present report as they provide useful and relevant background information.

### 1.1.2 BIOLOGICAL SAMPLING SITES

The following sampling sites were established for biological assessment of the potentially affected waters (see Map 2):

|                | <b>Sampling Site</b> | <b>Grid Reference</b> |
|----------------|----------------------|-----------------------|
| River Nore     | N-A                  | S5060 5642            |
|                | N-B                  | S5068 5631            |
| Breagagh River | B-A                  | S4946 5599            |
|                | B-B                  | S4970 5618            |
|                | B-C                  | S4991 5608            |
|                | B-D                  | S5045 5630            |

## 1.2 HABITAT ASSESSMENT

Habitat assessment at and for 1km downstream of each of the potential stream/river impact locations was carried out on 23<sup>rd</sup> & 25<sup>th</sup> October 2006 and 28<sup>th</sup> May 2007. Each stream/river habitat section was rated as habitat for the different life stages of salmonid fish based on the following features and more detailed criteria outlined in Section 1.2.1 below.

1. Stream width and depth.
2. Substrate type, listing substrate fractions in order of dominance, i.e. large rocks, cobble, gravel, sand, mud etc.

3. Flow type, listing percentage of riffle, glide and pool in the sampling area.
4. Dominant bankside vegetation, listing the main species overhanging the stream.
5. Estimated degree of shade of the sampling site by bankside vegetation.

In the River Nore each habitat section was also rated as habitat for lamprey based on features 1-5 listed above and more detailed criteria outlined in section 1.2.2 below.

The rating of the sections as habitat for these species is on a scale of None/ Poor/ Fair/ Good/ Very Good/ Excellent. This rating assesses the physical suitability of the habitat; the presence/absence/density of the species in question will also depend on present and historical water quality and accessibility of the section to these species. A rating of "none" indicates that the ecologist carrying out the assessment regards it as impossible that the watercourse could support the species in question in the relevant life stage. A rating of "None - Poor" indicates that it is regarded as possible but extremely unlikely that the stream could support the species in the relevant life stage. Locations for identification of habitat sections were recorded as Irish Grid References using a GPS. To illustrate the habitat quality photographs were taken using a digital camera.

### **1.2.1 CRITERIA USED FOR ASSESSMENT OF SALMONID HABITAT QUALITY**

Habitat quality for in-stream invertebrate and plant communities, and for fish, and riparian birds and mammals, is primarily a function of 'naturalness' and diversity. The more diverse the stream habitat in terms of substrate, flow rate, depth, riparian vegetation, light conditions etc., the richer the biological community is likely to be, and the more suitable it is likely to be for salmonid fish (trout and salmon).

Assessment of the quality of salmonid spawning habitat, nursery habitat and adult habitat is based on personal expertise developed over a period of 16 years of electrofishing and on published information such as the following:

- i. Favourable locations for salmon spawning are likely to occur where the gradient of a river is 3% or less (Mills 1989).
- ii. Preferred current velocity for spawning is within the range 25–90 cm s<sup>-1</sup>, with a water depth in the range 17–76 cm (Hendry & Cragg-Hine 1997).
- iii. Typical spawning sites are the transitional areas between pool and riffle where flow is accelerating and depth decreasing, where gravel of suitable coarseness is present and interstices are kept clean by up-welling flow (Peterson 1978, Bjorn & Reiser 1991).



- iv. Salmon fry and parr occupy shallow, fast-flowing water with a moderately coarse substrate with cover (Symons & Heland 1978, Baglinière & Champigneulle 1986).
- v. Deep or slow-moving water, particularly when associated with a sand or silt substrate, does not support resident juvenile salmonids (Wankowski & Thorpe 1979, Baglinière & Champigneulle 1986).
- vi. Suitable cover for juveniles includes areas of deep water, surface turbulence, loose substrate, large rocks and other submerged obstructions, undercut banks, overhanging vegetation, woody debris lodged in the channel, and aquatic vegetation (Heggenes 1990; Bjorn & Reiser 1991; Haury *et al.* 1995).
- vii. The juxtaposition of habitat types is also important. The proximity of juvenile habitat to spawning gravels may be significant to their utilisation. In addition, adults require holding pools immediately downstream of spawning gravels in which they can congregate prior to spawning. Cover for adult salmon waiting to migrate or spawn can be provided by overhanging vegetation, undercut banks, submerged vegetation, submerged objects such as logs and rocks, floating debris, deep water and surface turbulence (Bjorn & Reiser 1991).
- viii. Bjorn & Reiser (1991) suggest that proximity of cover to spawning areas may be a factor in the selection of spawning sites by some salmonid species.

### **1.2.2 CRITERIA USED FOR ASSESSMENT OF LAMPREY HABITAT QUALITY**

Lamprey habitat preferences change with the stages of their life cycle. They show a preference for gravel-dominated substratum for spawning. After hatching the larvae swim or are washed downstream by the current to areas of sandy silt in still or slow flowing water where they burrow and spend the next few years in tunnels. Lampreys therefore require mainly silt and sand dominated substratum for nursery habitat. Other important environmental characteristics for optimal ammocoete habitat are shallow waters with low water velocity, and the presence of organic detritus and/or plant material. Sub-optimal habitat supporting only a few individuals may consist of a few square centimetres of suitable silt in an open, comparatively high-velocity, boulder-strewn streambed. Spate rivers, with high flow velocities, tend to support fewer ammocoetes because they contain smaller areas of stable sediment (Maitland 2003).

### **1.3 INVERTEBRATE BIODIVERSITY ASSESSMENT AND BIOLOGICAL WATER QUALITY ASSESSMENT**

Field work was carried out on 23<sup>rd</sup> & 25<sup>th</sup> October 2006 and 28<sup>th</sup> May 2007. Biological sampling sites are shown on Map 2.

### 1.3.1 RIVER NORE

Invertebrates were sampled on transects across the width of the Nore at the proposed road crossing point (Site N-A) and at a location c.100m downstream (Site N-B).

Sampling of the transects consisted of sweep net sampling of the shallow waters and marginal aquatic vegetation on each side of the river. Samples were also taken from a boat at close intervals across the width of the river using a long handled sweep net sampler. A minimum of 5 such samples were taken at each transect. Samples from each transect were pooled to provide an adequate representation of the invertebrate community.

Each of the two composite samples was retained in a large plastic bag at the sampling site. Sample processing and preservation was carried out under laboratory conditions within 24 hours of sampling. Mud was removed from each sample by sieving under running water through a 500 $\mu$  sieve. Sieved samples were then live sorted for 60 minutes in a white plastic sorting tray under a bench lamp (ISO 5667-3:1994) and if necessary using a magnifying lens. Macroinvertebrates were stored in 70% alcohol. Using high and low per binocular microscopes the macroinvertebrates were identified to the lowest practicable taxonomic level, i.e:

- Tricladida (species)
- Nematoda (no further)
- Oligochaeta (species or genus)
- Hirudinea (species)
- Mollusca (species or genus)
- Hydracarina (no further)
- Malacostraca (species)
- Ephemeroptera (species)
- Plecoptera (species)
- Hemiptera (species)
- Trichoptera (species)
- Chironomidae (species or genus)
- Other Diptera (species or family)
- Coleoptera (species or genus)

Taxonomic keys used are listed at the end of the reference section of this report. Abundance ratings and ecological notes for each invertebrate taxon are presented. The invertebrate community in each sample is rated on the basis of water quality indicators, biodiversity, and presence of rare or unusual species. EPA Q-values are calculated for each sample. All samples have been preserved and archived.

### 1.3.2 BREAGAGH RIVER

A five-minute kick and stone wash sample was taken at each of the four sampling sites on the Breagagh River (ISO 7828:1985). The samples were retained in a large plastic bag at the sampling site. Sample processing and

preservation was carried out under laboratory conditions within 24 hours of sampling. Mud was removed from the samples by sieving under running water through a 500 $\mu$  sieve. The sieved samples were then live sorted for 30 minutes in a white plastic sorting tray under a bench lamp (ISO 5667-3:1994). Macroinvertebrates were stored in 70% alcohol. Preserved invertebrates were identified to the level required for the EPA Q-rating method (Clabby *et al*, 2005) using high-power and low-power binocular microscopes when necessary. The preserved samples were archived for future examination or verification. Based on the relative abundance of indicator species, a biotic index (Q-rating) was determined for the site in accordance with the biological assessment procedure used by the Environmental Protection Agency (Clabby *et al* 2005) and more detailed unpublished methodology (McGarrigle, Clabby and Lucey pers. comm.)

## **1.4 AQUATIC PLANT ASSESSMENT**

### **1.4.1 RIVER NORE**

Plants were sampled on two transects across the width of the River Nore at Sites N-A and N-B. At each transect plant species presence and relative abundance was established using a double headed rake sampler deployed from a boat. Total plant cover was noted and expressed on a qualitative % scale. Plant samples were placed in marked bags and identified fresh under laboratory conditions. Each plant species identified is ranked according to its relative abundance in the sample. Filamentous algae in the samples were preserved and identified to the lowest practicable taxonomic level (usually genus).

### **1.4.2 BREAGAGH RIVER**

Instream vegetation was assessed at Sites B-A to B-D. Plant species occurring were listed, and their percentage coverage of the stream bottom at the sampling site estimated.

## 2 BASELINE ASSESSMENT

### 2.1 RIVER NORE

#### 2.1.1 HABITAT ASSESSMENT

Habitat Sections are shown on Map 3. Photographs are presented in Appendix 3.

##### Habitat Section N(i) – Nore Main Channel

|                                  |   |
|----------------------------------|---|
| <b>Location</b>                  | S5060 5642 to S5116 5579  |
| <b>Length</b>                    | c.1km   |
| <b>Description</b>               | Wide deep muddy glide (water turbid). Banks mostly stone and stone wall with a short section of trees on the right hand bank just upstream of the weir. |
| <b>Photograph Number</b>         | 1 - 11  |
| <b>Salmonid Adult Habitat</b>    | Fair  |
| <b>Salmonid Nursery Habitat</b>  | None – Poor   |
| <b>Salmonid Spawning Habitat</b> | None - Poor   |
| <b>Lamprey Nursery</b>           | Poor – Fair   |
| <b>Lamprey Spawning</b>          | None - Poor   |

Dr J. King of Central Fisheries Board (now Inland Fisheries Ireland), who carried out lamprey surveys on the Nore for the flood relief scheme, describes the proposed crossing location and the river downstream as follows: *“The crossing is at the upstream end of what is an impounded segment of channel – the water backs up all the way from Ormond Weir below the castle. This area has been heavily excavated and deepened during the flood scheme.”* *“Following scheme completion this downstream area though the city is again impounded, is very deep – with deepening here as part of the scheme design and is not rated as being of ‘quality’ fisheries habitat as it is a long deep uniform glide/pool.”* Dr King further stated that the proposed crossing location was not *“seen as significant as habitat for juvenile lamprey during the CFB studies for OPW on lamprey in the context of the floods relief scheme.”*

##### Habitat Section N(ii) – Nore Main Channel

|                                 |   |
|---------------------------------|---|
| <b>Location</b>                 | S5116 5579 to S5156 5570  |
| <b>Length</b>                   | c.750m  |
| <b>Description</b>              | Deep glide with Riffle and run just downstream of the weirs. Bankside willow alder and sycamore well developed. |
| <b>Photograph Number</b>        | 12 - 14   |
| <b>Salmonid Adult Habitat</b>   | Good  |
| <b>Salmonid Nursery Habitat</b> | Poor – Fair*  |

|                                  |              |
|----------------------------------|--------------|
| <b>Salmonid Spawning Habitat</b> | Fair*        |
| <b>Lamprey Nursery</b>           | Poor – Fair* |
| <b>Lamprey Spawning</b>          | Fair*        |

\*Tentative assessment as water turbid.

**Habitat Section N(iii) - Mill Race**

|                                  |   |
|----------------------------------|---|
| <b>Location</b>                  | S5116 5579 to S5158 5563                    |
| <b>Length</b>                    | C.500m                                      |
| <b>Description</b>               | Mostly muddy glide well shaded by sycamore. |
| <b>Photograph Number</b>         | 15 - 17                                     |
| <b>Salmonid Adult Habitat</b>    | Poor  |
| <b>Salmonid Nursery Habitat</b>  | Poor – Fair*                                |
| <b>Salmonid Spawning Habitat</b> | Poor - Fair*                                |
| <b>Lamprey Nursery</b>           | Fair  |
| <b>Lamprey Spawning</b>          | Poor - Fair*                                |

\*Tentative assessment as water turbid.

## 2.1.2 BIOLOGICAL WATER QUALITY ASSESSMENT

### SITE N-A

The macroinvertebrate fauna recorded at the site merit a Q-rating of Q2-3 indicating moderately polluted conditions.

| INDICATOR GROUP                                 | TAXON                                 | Number |
|---|---------------------------------------|--------|
| <b>Group A</b> - Very Pollution Sensitive       | None Recorded                         |        |
|   |                                       |        |
| <b>Group B</b> - Moderately Pollution Sensitive | Sericostomatidae                      | 2      |
|   |                                       |        |
| <b>Group C</b> - Moderately Pollution Tolerant  | <i>Piscicola geometra</i>             | 3      |
|   | <i>Potamopyrgus antipodarum</i>       | 7      |
|   | <i>Valvata piscinalis</i>             | 3      |
|   | <i>Gammarus duebeni</i>               | 4      |
|   | Hydracarina                           | 3      |
|   | Dytiscidae                            | 9      |
|   | Haliplidae                            | 4      |
|   | Chironomidae (ex. <i>Chironomus</i> ) | 118    |
|   |                                       |        |
| <b>Group D</b> - Very Pollution Tolerant        | Erpobdellidae                         | 14     |
|   | <i>Helobdella stagnalis</i>           | 5      |
|   | <i>Lymnaea peregra</i>                | 2      |
|   | Sphaeriidae                           | 10     |
|   | Sialidae                              | 3      |
|   |                                       |        |
| <b>Group E</b> - Most Pollution Tolerant        | Tubificidae                           | 35     |
|   | <i>Chironomus sp.</i>                 | 56     |
|   |                                       |        |
| Not assigned to any indicator group             | Lumbriculidae                         | 16     |
|   | Ceratopogonidae                       | 1      |

## SITE N-B

The macroinvertebrate fauna recorded at the site merit a Q-rating of Q2-3 indicating moderately polluted conditions (verging on seriously polluted).

| INDICATOR GROUP                                 | TAXON                                 | Number |
|---|---------------------------------------|--------|
| <b>Group A</b> - Very Pollution Sensitive       | None Recorded                         |        |
|   |                                       |        |
| <b>Group B</b> - Moderately Pollution Sensitive | Sericostomatidae                      | 1      |
|   |                                       |        |
| <b>Group C</b> - Moderately Pollution Tolerant  | <i>Piscicola geometra</i>             | 1      |
|   | Planorbiidae                          | 1      |
|   | <i>Potamopyrgus antipodarum</i>       | 10     |
|   | <i>Gammarus duebeni</i>               | 1      |
|   | Hydracarina                           | c.50   |
|   | Caenidae                              | 5      |
|   | Haliplidae                            | 2      |
|   | Chironomidae (ex. <i>Chironomus</i> ) | 12     |
|   |                                       |        |
| <b>Group D</b> - Very Pollution Tolerant        | Erpobdellidae                         | 3      |
|   | <i>Lymnaea peregra</i>                | 11     |
|   | Sphaeriidae                           | 5      |
|   | <i>Asellus aquaticus</i>              | 44     |
|   | Sialidae                              | 1      |
|   |                                       |        |
| <b>Group E</b> - Most Pollution Tolerant        | Tubificidae                           | 48     |
|   | <i>Chironomus sp.</i>                 | c.350  |
|   |                                       |        |
| Not assigned to any indicator group             | <i>Lumbriculus sp.</i>                | 15     |
|   | Ceratopogonidae                       | 1      |

EPA biological water quality monitoring data for the River Nore are presented in Appendix 2.

### 2.1.3 INVERTEBRATE BIODIVERSITY

A total of 27 invertebrate taxa were recorded between the two sampling locations, representing a fair species richness and invertebrate biodiversity; no rare or unusual species were recorded. Full invertebrate data, including numbers recorded and notes on ecology and distribution of the species recorded, are included in Appendix 4.

Four segmented worm (Oligochaeta) taxa were recorded: *Lumbriculus variegatus* and immature specimens of *Limnodrilus* were common at both sites; small numbers of immature specimens of *Tubifex tubifex/Potamothrix hammoniensis* were recorded, and a single specimen of *Psammoryctides*

*barbatus*. Three leech species were recorded; *Erpobdella octoculata*, *Helobdella stagnalis* and *Piscicola geometra*. *E. octoculata* was common at Site N-A; otherwise leeches were present in small numbers. Four snail species (Gastropoda) were recorded; *Lymnaea peregra* and *Potamopyrgus antipodarum* at both sites, small numbers of *Valvata piscinalis* at site N-A, and a single specimen of *Planorbis planorbis* at site N-B. Bivalves of the family Sphaeriidae were also present at both sites.

Small numbers of water mites (Hydracarina) were recorded at site N-A; they were abundant at site N-B. The shrimp (Amphipoda) species *Gammarus duebeni* was present in small numbers at N-A and a single specimen was recorded at N-B. The isopod *Asellus aquaticus* was recorded in good numbers at Site N-B.

One mayfly species (Ephemeroptera), *Caenis luctuosa*, was recorded in small numbers at site N-B. Small numbers of the alder fly *Sialis lutaria* were recorded. One species of caddis fly (Trichoptera), *Sericostoma personatum*, was recorded in small numbers.

A single specimen of biting midge larvae (Ceratopogonidae) was recorded at each site. Five non-biting midge (Chironomidae) taxa were recorded at the two sampling locations. *Microtendipes* sp. was abundant and *Chironomus* sp. common at N-A; at N-B, *Chironomus* sp. was abundant. The remaining three taxa, *Macropelopia* sp., *Polypedilum* sp. and *Stictochironomus* sp., were recorded in small numbers or as single specimens. Three beetle (Coleoptera) species, *Brychius elevatus*, *Haliphus lineatocollis* and *Nebrioporus depressus*, were recorded at site N-A; at N-B, a single larva of the family Haliplidae was recorded.

#### 2.1.4 AQUATIC PLANTS

Aquatic plants were poorly developed at both transect sites probably due to channel works during the flood relief scheme.

|                             | Site 1 | Site 2 |
|-----------------------------|--------|--------|
| Photograph No.              | 1 & 2  | 3 & 4  |
| <i>Glyceria fluitans</i>    | <5%    |        |
| <i>Phalaris arundinacea</i> | <5%    |        |
| <i>Mentha</i> sp.           | <5%    |        |
| <i>Sparganium erectum</i>   |        | <5%    |

#### 2.1.5 FISH

Whereas the river at the proposed crossing point and for 1km downstream is “not rated as being of ‘quality’ fisheries habitat as it is a long deep uniform glide/pool” (J. King Central Fisheries Board pers. comm.) it is nevertheless an important river corridor for upstream and downstream migration of salmon and lamprey.



### 2.1.6 ECOLOGICAL VALUE

The potentially affected section of river is within the Barrow and Nore candidate Special Area of Conservation (cSAC). Whereas salmonid habitat between the proposed crossing point and the weir c.1km downstream constitutes salmonid habitat of mediocre quality and has poor water quality, it is nevertheless an important river corridor for upstream and downstream migration of salmon and lamprey, both of which are protected as Habitats Directive Annex II species within the cSAC.

Marginal silts suitable as lamprey nursery habitat are of limited extent in the potentially affected section of river; nevertheless juvenile River/Brook Lamprey (*Lampetra* sp.) were recorded during the invertebrate survey at the proposed crossing location (Site N-A) and c.100m downstream (Site N-B).

No crayfish were recorded during the invertebrate survey at Sites N-A and N-B. Habitat at and for 1km downstream of the proposed new road crossing is of poor quality for crayfish. Crayfish were not recorded in this section of river during the survey carried out for the Kilkenny flood relief scheme (J. Conroy NPWS pers. comm.). Given the poor habitat, poor water quality and apparent absence during the present and previous surveys, it appears unlikely that crayfish are present in the potentially affected section of river.

On the basis of its status as a cSAC and on the basis of the presence of lamprey and migrating salmon, the potentially affected waters are classified as of international importance.

## 2.2 BREAGAGH RIVER

The Breagagh River rises c.15km to the south west of Kilkenny and joins the River Nore just downstream of the proposed new road crossing in Kilkenny city.

### 2.2.1 HABITAT ASSESSMENT

Habitat Sections are shown on Map 3. Photographs are presented in Appendix 3.

#### Section B(i)

|                                  |   |
|----------------------------------|---|
| <b>Location</b>                  | From the road bridge at Grid Ref. S4951 5586 to a small concrete weir at Grid Ref. S4963 56167  |
| <b>Length</b>                    | c. 400m   |
| <b>Description</b>               | The Breagagh in this section is mostly slow-flowing over a stony substratum, with occasional short stretches of riffle. Shade is moderate. Filamentous algae coat most of the riverbed. At Grid Ref. S4949 5595, evidence of domestic sewage discharge was seen, downstream of a pipe entering the river. |
| <b>Photograph Number</b>         | 18 & 19   |
| <b>Salmonid Adult Habitat</b>    | Poor-Fair   |
| <b>Salmonid Nursery Habitat</b>  | Fair  |
| <b>Salmonid Spawning Habitat</b> | Fair  |

**Section B(ii)**

|                                  |  |
|----------------------------------|--|
| <b>Location</b>                  | From downstream of the concrete weir at Grid Ref. S4963 56167 to the road bridge at Grid Ref. S5010 5612   |
| <b>Length</b>                    | c. 510m  |
| <b>Description</b>               | The river channel is slightly wider and deeper than upstream. The flow type is similar to that of Habitat Section 1, with short stretches of faster riffle interspersed among longer slow-flowing stretches. Shade is mostly moderate. In the deeper parts, there is a layer of mud and plant debris. Trout were seen in this section. |
| <b>Photograph Number</b>         | 20 - 22  |
| <b>Salmonid Adult Habitat</b>    | Poor – Fair  |
| <b>Salmonid Nursery Habitat</b>  | Fair   |
| <b>Salmonid Spawning Habitat</b> | Fair   |

**Section B(iii)**

|                                  |   |
|----------------------------------|---|
| <b>Location</b>                  | From road bridge at Grid Ref. S5010 5612 to Grid Ref. S5049 5631,   |
| <b>Length</b>                    | c. 400m   |
| <b>Description</b>               | The banksides are walled and the flow is mostly fast, over a stony substratum, with occasional areas of pool and glide. Many trout were seen in this section. |
| <b>Photograph Number</b>         | 23 - 26   |
| <b>Salmonid Adult Habitat</b>    | Good  |
| <b>Salmonid Nursery Habitat</b>  | Very Good   |
| <b>Salmonid Spawning Habitat</b> | Good  |

**Section B(iv) - Section adjacent to the Proposed Central Access Scheme**

|                                  |   |
|----------------------------------|---|
| <b>Location</b>                  | From Grid Ref. S5049 5631 to the confluence with the River Nore at Grid Ref. S5071 5635 |
| <b>Length</b>                    | c. 220m   |
| <b>Description</b>               | Slower flow over rock gabions.  |
| <b>Photograph Number</b>         | 27  |
| <b>Salmonid Adult Habitat</b>    | Fair  |
| <b>Salmonid Nursery Habitat</b>  | Poor - Fair   |
| <b>Salmonid Spawning Habitat</b> | Poor  |

## 2.2.2 BIOLOGICAL WATER QUALITY ASSESSEMENT

EPA biological monitoring data for the Breaghagh River are tabulated in Appendix 2. The EPA monitoring reveals long-term moderate pollution at the sites monitored. Biological sampling sites for the present survey are shown on Map 2.

### SITE B-A

The macroinvertebrate fauna recorded at the site merit a Q-rating of Q2-3 indicating moderately polluted conditions.

| INDICATOR GROUP                                 | TAXON                                 | Number |
|---|---------------------------------------|--------|
| <b>Group A</b> - Very Pollution Sensitive       | None Recorded                         |        |
| <b>Group B</b> - Moderately Pollution Sensitive | None recorded                         |        |
| <b>Group C</b> - Moderately Pollution Tolerant  | <i>Gammarus duebeni</i>               | 17     |
|   | Hydracarina                           | 15     |
|   | Dytiscidae                            | 1      |
|   | Chironomidae (ex. <i>Chironomus</i> ) | 11     |
|   | Tipulidae                             | 1      |
| <b>Group D</b> - Very Pollution Tolerant        | <i>Asellus aquaticus</i>              | 18     |
| <b>Group E</b> - Most Pollution Tolerant        | Tubificidae                           | 2      |
|   | <i>Chironomus sp.</i>                 | c.90   |

### SITE B-B

The macroinvertebrate fauna recorded at the site merit a Q-rating of Q3 indicating moderately polluted conditions.

| INDICATOR GROUP                                 | TAXON                                 | Number |
|---|---------------------------------------|--------|
| <b>Group A</b> - Very Pollution Sensitive       | None Recorded                         |        |
| <b>Group B</b> - Moderately Pollution Sensitive | Goeridae                              | 1      |
|   | Sericostomatidae                      | 8      |
| <b>Group C</b> - Moderately Pollution Tolerant  | <i>Piscicola geometra</i>             | 2      |
|   | <i>Gammarus duebeni</i>               | 34     |
|   | Hydracarina                           | 1      |
|   | Limnephilidae                         | 11     |
|   | Chironomidae (ex. <i>Chironomus</i> ) | 16     |
|   | Simuliidae                            | 3      |
|   | Tipulidae                             | 1      |

|  |                             |   |
|--|-----------------------------|---|
|  |                             |   |
| <b>Group D - Very Pollution Tolerant</b> | Erpobdellidae               | 1 |
|  | <i>Helobdella stagnalis</i> | 1 |
|  | <i>Asellus aquaticus</i>    | 3 |
|  |                             |   |
| <b>Group E - Most Pollution Tolerant</b> | Tubificidae                 | 1 |
|  |                             |   |
| Not assigned to any indicator group      | Lumbricidae                 | 1 |
|  | <i>Styiodrilus sp.</i>      | 3 |
|  | Ceratopogonidae             | 1 |

EPA biological water quality monitoring data for the River Breaghagh are presented in Appendix 2.

### SITE B-C

The macroinvertebrate fauna recorded at the site merit a Q-rating of Q3 indicating moderately polluted conditions.

| INDICATOR GROUP                                 | TAXON                                 | Number |
|---|---------------------------------------|--------|
| <b>Group A - Very Pollution Sensitive</b>       | None Recorded                         |        |
|   |                                       |        |
| <b>Group B - Moderately Pollution Sensitive</b> | Goeridae                              | 4      |
|   | Sericostomatidae                      | 2      |
|   |                                       |        |
| <b>Group C - Moderately Pollution Tolerant</b>  | <i>Piscicola geometra</i>             | 1      |
|   | <i>Ancylus fluviatilis</i>            | 1      |
|   | <i>Gammarus duebeni</i>               | c.140  |
|   | Ephemereididae                        | 1      |
|   | Glossosomatidae                       | 3      |
|   | Rhyacophilidae                        | 1      |
|   | Polycentropodidae                     | 15     |
|   | Elmidae                               | 2      |
|   | Chironomidae (ex. <i>Chironomus</i> ) | 9      |
|   | Simuliidae                            | 1      |
|   |                                       |        |
| <b>Group D - Very Pollution Tolerant</b>        | <i>Asellus aquaticus</i>              | 6      |
|   |                                       |        |
| <b>Group E - Most Pollution Tolerant</b>        | None recorded                         |        |
|   |                                       |        |
| Not assigned to any indicator group             | <i>Styiodrilus sp.</i>                | 2      |
|   | Ceratopogonidae                       | 1      |

**SITE B-D**

The macroinvertebrate fauna recorded at the site merit a Q-rating of Q3 indicating moderately polluted conditions.

| <b>INDICATOR GROUP</b>                   | <b>TAXON</b>                          | <b>NUMBER</b> |
|--|---------------------------------------|---------------|
| A - Very Pollution Sensitive             | None Recorded                         |               |
|  |                                       |               |
| B - Moderately Pollution Sensitive       | None Recorded                         |               |
|  |                                       |               |
| C - Moderately Pollution Tolerant        | Planorbidae                           | 3             |
|  | <i>Ancylus fluviatilis</i>            | 2             |
|  | <i>Gammarus duebeni</i>               | 68            |
|  | <i>Baetis rhodani</i>                 | 27            |
|  | Caenidae                              | 3             |
|  | Ephemerellidae                        | 59            |
|  | Rhyacophilidae                        | 2             |
|  | Hydropsychidae                        | 4             |
|  | Polycentropodidae                     | 1             |
|  | Simuliidae                            | 71            |
|  | Chironomidae (ex. <i>Chironomus</i> ) | 12            |
|  |                                       |               |
| D - Very Pollution Tolerant              | <i>Asellus sp.</i>                    | 3             |
|  |                                       |               |
| E - Most Pollution Tolerant              | None recorded                         |               |
|  |                                       |               |
| Taxa not assigned to any Indicator Group | Naididae                              | 2             |
|  | Lumbriculidae                         | 2             |
|  | Ceratopogonidae                       | 1             |

### **2.2.3 FISH**

In May 2006 a 1km section of the Breaghagh River was assessed upstream of the section assessed in the present report (Conservation Services 2006). This section was found to be moderately polluted and to have mediocre salmonid habitat and a very low density of brown trout. This pattern is echoed in the section assessed in the present survey, with the exception of a c. 0.5km section within Kilkenny City (Habitat Section B(iii)) where the river constitutes good habitat for adult and juvenile salmonids and very good salmonid spawning habitat. Large numbers of brown trout were seen in this section, and it is possible that salmon also spawn in this section of river. The Breaghagh river within Kilkenny city is therefore a significant salmonid nursery stream for the River Nore. The section of the river potentially affected by the proposed KCAS is however heavily altered habitat with gabion rock baskets forming the river bottom. The habitat here constitutes fair adult salmonid habitat, poor–fair salmonid nursery habitat and poor salmonid spawning habitat.

### **2.2.4 ECOLOGICAL IMPORTANCE**

In a crayfish and lamprey survey carried out by Conservation Services in the Breaghagh River c.2km upstream of the proposed KCAS in 2006, juvenile lamprey (*Lampetra* sp.) were recorded in small numbers, but no crayfish were recorded. Though the section of river potentially affected by the proposed KCAS constitutes degraded habitat of mediocre value for salmonids it is likely that lamprey occur and possible that juvenile salmon occur in the section. Both species are listed in Annex II of the Habitats Directive and are qualifying interests of the adjacent cSAC. On this basis the potentially affected section of the Breaghagh River is classified as of county importance.

### 2.3 SUMMARY OF EXISTING ENVIRONMENT AT AND DOWNSTREAM OF EACH POTENTIAL IMPACT LOCATION

| Location  | Q-rating | Pollution Status in Vicinity of Potential Impact Location | Salmonid Habitat |                            | Protected Species Annex II Species Salmonid Species                                 |  | Importance Rating   |
|-----------|----------|---|------------------|----------------------------|---|--|---|
|           |          |   | At Impact Point  | Best within 1km Downstream | At Impact Point   | Within 1km Downstream                                    |   |
| <b>N1</b> | Q2-3     | Moderately polluted                                       | Fair             | Fair - Good                | Lamprey ( <i>Lampetra</i> sp.)<br>Salmon,<br>Brown Trout                            | Lamprey ( <i>Lampetra</i> sp.)<br>Salmon,<br>Brown Trout | International Importance  |
| <b>B1</b> | Q3       | Moderately Polluted                                       | Fair             | Good                       | Brown Trout<br>(present)<br>Lamprey<br>(probably present) &<br>Salmon<br>(possible) | Lamprey ( <i>Lampetra</i> sp.)<br>Salmon,<br>Brown Trout | Breagagh River County Importance ;<br>River Nore International Importance |



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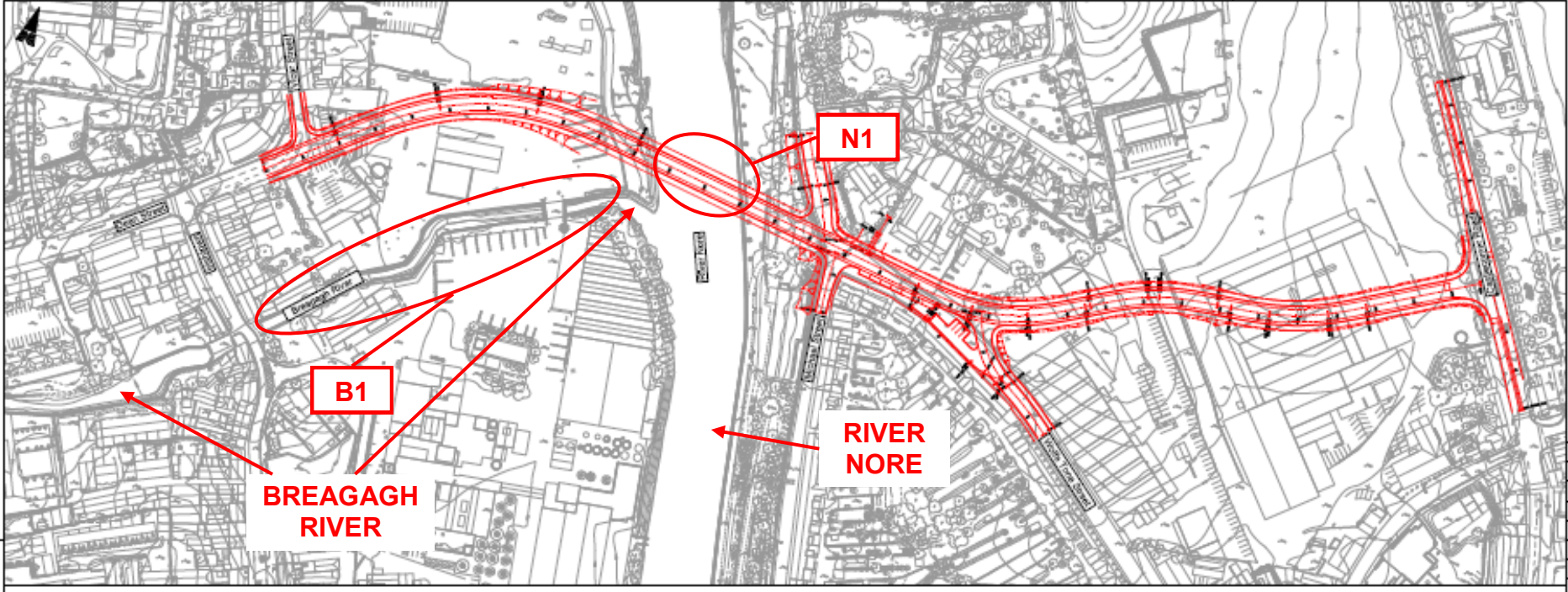
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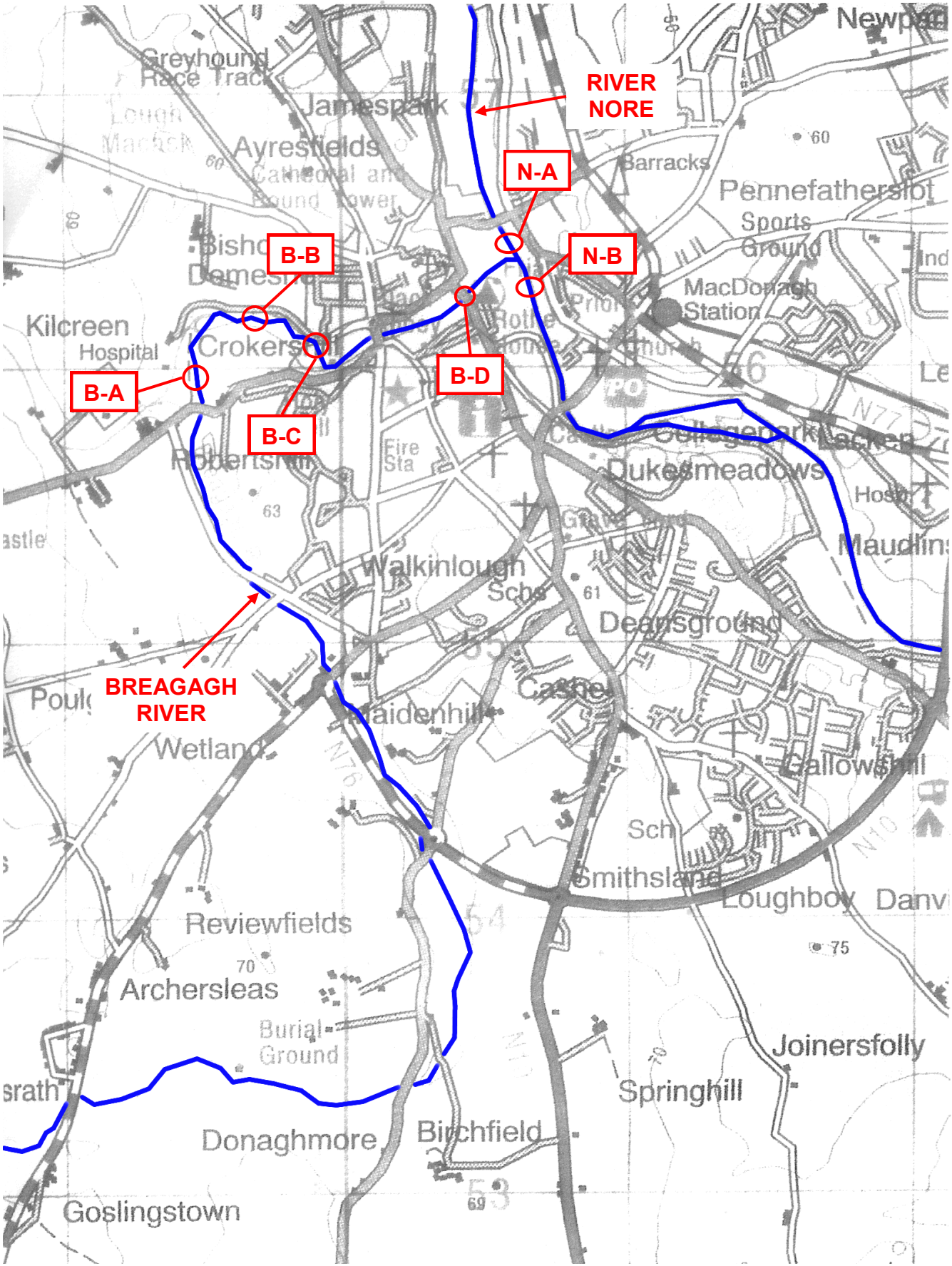
## **APPENDIX 1**

### **MAPS**

**MAP 1 POTENTIAL IMPACT LOCATIONS**

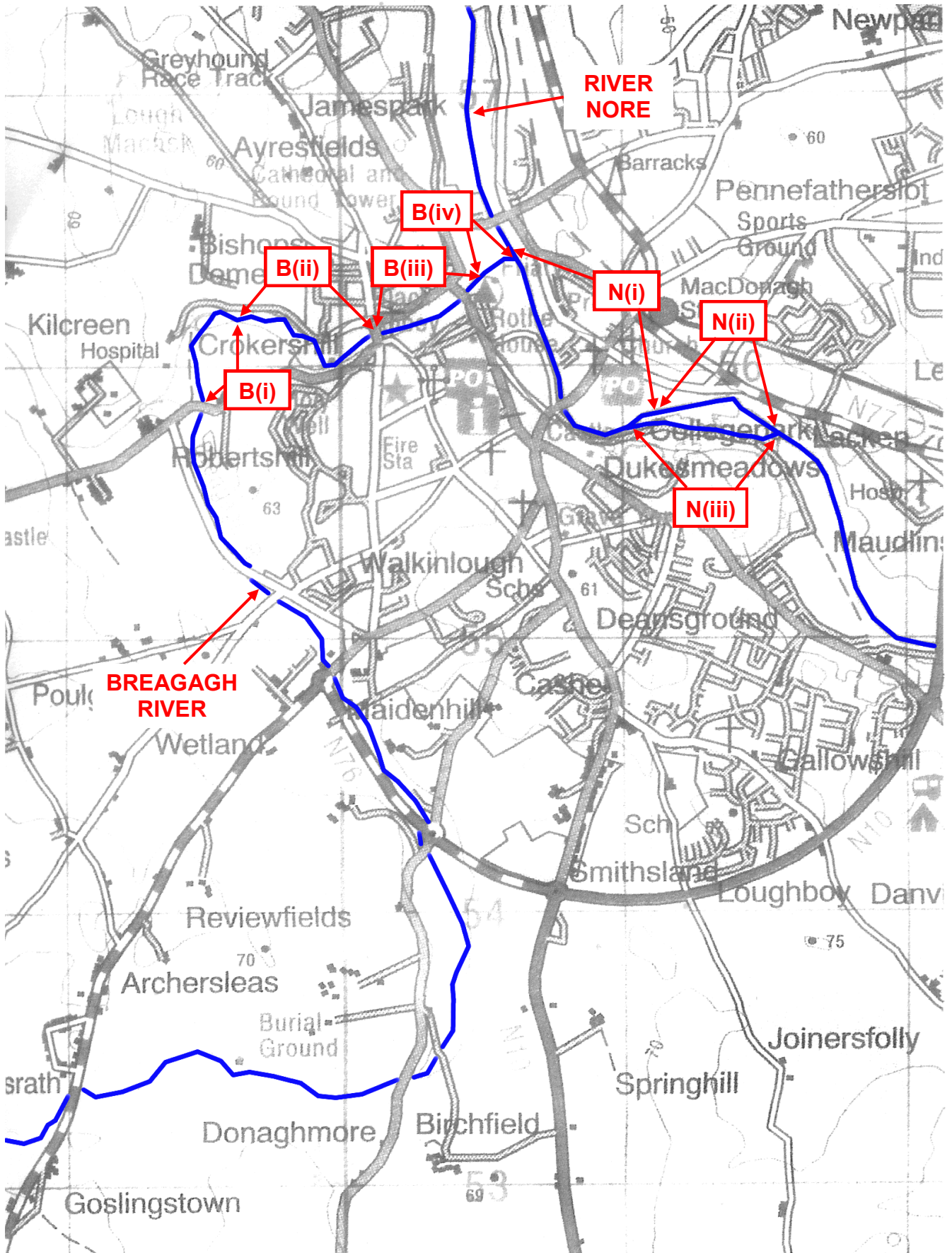


**MAP 2 LOCATION OF BIOLOGICAL ASSESSMENT SITES**  
Locations shown are approximate; for exact locations, see Grid References in text



### MAP 3 HABITAT SECTIONS

Locations shown are approximate; for exact locations, see Grid References in text





## **APPENDIX 2**

### **EPA MONITORING DATA:**

River and Code : **NORE**  
 Tributary of : Barrow/Nore/Suir Estuary  
 OS Grid Ref : S 706 306

**15/N/01**  
 OS Catchment No: 184

| Sampling Stations |                                   | Biological Quality Ratings (Q Values) |      |      |      |      |      |      |      |      |      |      |      |
|-------------------|-----------------------------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|
| No.               | Location                          | 1971                                  | 1975 | 1979 | 1981 | 1984 | 1987 | 1991 | 1995 | 1998 | 2001 | 2004 | 2007 |
| 0030              | Br SW of Clonakenny               | -                                     | -    | -    | -    | -    | -    | -    | 3    | 4    | 3    | 4    | -    |
| 0080              | Nore Br                           | -                                     | -    | -    | -    | -    | -    | 3-4  | 3-4  | 3-4  | 3-4  | 3-4  | 4    |
| 0100              | Currageunneen Bridge              | -                                     | -    | 4-5  | 4-5  | 4    | 4    | 4    | -    | -    | -    | -    | -    |
| 0200              | Nore Bridge- S.E. of Roscrea      | -                                     | -    | 3    | 4    | 3-4  | 3-4  | 4    | 3    | 3-4  | 3-4  | 3-4  | -    |
| 0300              | Quaker's Bridge                   | 5                                     | 4-5  | 4    | 4    | 4    | 3-4  | 3-4  | 3-4  | 3-4  | 3-4  | 3-4  | 3-4  |
| 0400              | New Bridge (WNW Borris-in-Ossory) | 5                                     | 5    | 4-5  | -    | 3-4  | 3-4  | 4    | 4    | 3-4  | 3-4  | 3-4  | -    |
| 0500              | Bridge S. of Coolrain             | 4-5                                   | 4-5  | 4-5  | -    | -    | 4    | -    | 4    | 4    | 4    | 4    | 4    |
| 0580              | Danganroe Br                      | -                                     | -    | -    | -    | -    | -    | -    | 3-4  | 3-4  | 4    | 4    | -    |
| 0600              | Castletown: New Road Bridge       | 5                                     | 4-5  | 5    | -    | 4-5  | 4-5  | 4    | -    | -    | -    | -    | -    |
| 0700              | Bridge near Kilbricken House      | -                                     | -    | 4    | -    | 3-4  | 4    | 4    | 4    | 3-4  | 4    | 3-4  | 3-4  |
| 0800              | New Bridge                        | 5                                     | 5    | 4-5  | -    | 4    | 4    | 4    | -    | -    | -    | -    | -    |
| 0900              | Poorman's Bridge                  | -                                     | -    | -    | -    | 4    | 4-5  | 4    | 4    | 3-4  | 3-4  | 3-4  | 4    |
| 1000              | Waterloo Bridge                   | 5                                     | 5    | 5    | -    | 4    | 4    | 4    | -    | -    | -    | -    | 4    |
| 1100              | Watercastle Bridge                | 5                                     | 5    | 4-5  | -    | 4    | 4    | 4-5  | 3-4  | 3-4  | 4    | 4    | 4    |
| 1300              | Tallyho Bridge                    | 4-5                                   | 4-5  | 4-5  | -    | 4    | 4    | 4    | 3-4  | 4    | 4-5  | 4-5  | 4    |
| 1450              | Br in Ballyragget                 | 5                                     | 4-5  | 4    | 4    | 4    | 3-4  | 3-4  | 3-4  | 4    | 3-4  | 3-4  | 3-4  |
| 1500              | 1.5 km d/s Ballyragget            | 4-5                                   | 4    | 3-4  | 4    | 3-4  | 3-4  | 3-4  | -    | -    | -    | -    | -    |
| 1600              | Lismaine Bridge                   | 5                                     | 5    | 3-4  | 4    | 3-4  | 4    | 4    | 3-4  | 4    | 4    | 4    | -    |
| 1700              | Threecastles Bridge               | -                                     | -    | 4    | -    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    |
| 1800              | 1 km u/s Green's Bridge           | 5                                     | 4-5  | 5    | -    | 5    | 5    | 4    | 4    | 4-5  | 4    | 4    | 4    |
| 1900              | Kilkenny: St John's Bridge        | -                                     | -    | -    | -    | 2-3  | 4-5  | 4    | 3-4  | -    | -    | -    | -    |
| 1950              | Fennessy's Mill (Ossory Br)       | 3-4                                   | 3    | -    | -    | 2-3  | 4    | 3-4  | 3-4  | 3-4  | 3-4  | 3-4* | 3-4  |
| 2000              | N.E. of Warrington                | -                                     | -    | 3    | 3-4  | 3-4  | 4    | 4    | 3    | 3-4  | 3    | 3-4  | 3    |
| 2100              | Bennettsbridge                    | -                                     | -    | 4    | -    | 3-4  | 3-4  | 4    | 4    | -    | -    | -    | -    |
| 2120              | 1 km d/s Bennettsbridge           | -                                     | -    | 4    | -    | 3-4  | 3-4  | 4    | 4    | 4    | 3-4  | 3-4  | -    |
| 2200              | Ballylinch Bridge                 | -                                     | -    | 4    | -    | 3-4  | 4    | 4    | 3-4  | 3-4  | 3-4  | 3-4  | 4    |
| 2305              | Thomastown Bridge (LHS)           | 4-5                                   | 4-5  | 3-4  | 3    | 3    | 2    | 2    | 2    | 3    | 2    | 3-4  | 2    |
| 2310              | Thomastown Bridge (RHS)           | 4-5                                   | 4-5  | 3-4  | 4    | 3-4  | 3-4  | 3-4  | 3-4  | 3-4  | 3-4  | 3    | 4    |
| 2320              | 1 km d/s Thomastown Br            | -                                     | -    | -    | -    | -    | -    | -    | 3    | 3-4  | 3-4  | 3    | 3    |
| 2400              | Brownsbarn Bridge                 | -                                     | -    | 4    | 4    | 4    | 4    | 3-4  | 3-4  | 4    | 4    | 3-4  | 3-4  |

River and Code: **BREAGAGH (KILKENNY)**

**15/B/02**

Tributary of : Nore

OS Catchment No: 184

OS Grid Ref : S 506 564

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Sampling Stations

Biological Quality Ratings (Q Values)

| No.  | Location                 | 1989 | 1991 | 1995 | 1998 | 2001 | 2005 | 2007 |
|------|--------------------------|------|------|------|------|------|------|------|
|      |                          |      |      |      |      |      |      |      |
| 0080 | Bridge N.W. of Aughtanny | 3    | -    | 3    | 3-4  | 3    | 3    | 3    |
| 0350 | Brewery Bridge           | 2-3  | 2-3  | 3    | 3    | 3    | 3    | 3    |

**APPENDIX 3**  
**PHOTOGRAPHS**



**Plate 1** - Habitat Section N(i) Nore Main Channel



**Plate 2** - Habitat Section N(i) Nore Main Channel



**Plate 3** - Habitat Section N(i) Nore Main Channel



**Plate 4** - Habitat Section N(i) Nore Main Channel



**Plate 5** - Habitat Section N(i) Nore Main Channel



**Plate 6** - Habitat Section N(i) Nore Main Channel



**Plate 7** - Habitat Section N(i) Nore Main Channel



**Plate 8** - Habitat Section N(i) Nore Main Channel



**Plate 9** - Habitat Section N(i) Nore Main Channel



**Plate 10** - Habitat Section N(i) Nore Main Channel



**Plate 11** - Habitat Section N(i) Nore Main Channel



**Plate 12** - Habitat Section N(ii) Nore Main Channel



**Plate 13** - Habitat Section N(ii) Nore Main Channel



**Plate 14** - Habitat Section N(ii) Nore Main Channel



**Plate 15** - Habitat Section N(ii) Nore Main Channel



**Plate 16** - Habitat Section N(iii) Mill Race



**Plate 17** - Habitat Section N(iii) Mill Race



**Plate 18** - Habitat Section B (i) Breagagh River



**Plate 19** - Habitat Section B (i) Breagagh River



**Plate 20** - Habitat Section B (ii) Breagagh River



**Plate 21** - Habitat Section B (ii) Breagagh River



**Plate 22** - Habitat Section B (ii) Breagagh River



**Plate 23** - Habitat Section B (iii) Breagagh River



**Plate 24** - Habitat Section B (iii) Breagagh River





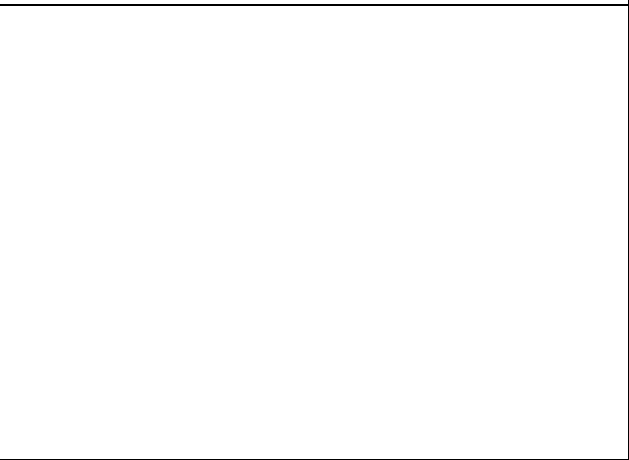
**Plate 25** - Habitat Section B (iii) Breagagh River



**Plate 26** - Habitat Section B (iii) Breagagh River



**Plate 27** - Habitat Section B (iii) Breagagh River



## **APPENDIX 4**

**RIVER NORE:**

**INVERTEBRATE SPECIES LIST AND NUMBERS RECORDED WITH  
NOTES ON ECOLOGY AND DISTRIBUTION**

**(Notes taken from keys and distribution guides given in References)**

**EPA Indicator Groups for River Water Quality** (From McGarrigle et al, 2002)

|         |                                |
|---------|--------------------------------|
| Group A | Very pollution sensitive       |
| Group B | Moderately pollution sensitive |
| Group C | Moderately pollution tolerant  |
| Group D | Very Pollution tolerant        |
| Group E | Most pollution tolerant        |
| -       | Not assigned to a group        |

|  | N-A | N-B | Group | Ecology and Distribution in Freshwater   |
|--|-----|-----|-------|--|
| <b>Oligochaeta (Segmented worms)</b>                             |     |     |       |  |
| <i>Limnodrilus sp. (immature)</i>                                | 22  | 47  | E     | Common and abundant in many habitats.  |
| <i>Lumbriculus variegatus</i>                                    | 10  | 15  | -     | Common in a variety of habitats  |
| <i>Psammoryctides barbatus</i>                                   | 1   |     | E     | Common and frequent; rivers and ponds, occasionally where polluted                               |
| <i>Tubifex tubifex/Potamothrix hammoniensis group (immature)</i> | 6   | 1   | E     | Both species are common and abundant.  |
|  |     |     |       |  |
| <b>Hirudinea (Leeches)</b>                                       |     |     |       |  |
| <i>Erpobdella octoculata/testacea (small specimens)</i>          | 4   | 3   | D     | Common in many habitats  |
| <i>Erpobdella octoculata</i>                                     | 10  |     | D     |  |
| <i>Helobdella stagnalis</i>                                      | 5   |     | D     | Common in many habitats  |
| <i>Piscicola geometra</i>  | 3   | 1   | C     | Fish parasite; common in many habitats   |
|  |     |     |       |  |
| <b>Gastropoda (Snails and limpets)</b>                           |     |     |       |  |
| <i>Lymnaea peregra</i>   | 2   | 11  | D     | Probably the commonest water snail in Europe, occurring in a wide variety of habitats            |
| <i>Planorbis planorbis</i>                                       |     | 1   | C     | Common   |
| <i>Potamopyrgus antipodarum</i>                                  | 7   | 10  | C     | Common, often very abundant in many habitats   |
| <i>Valvata piscinalis</i>  | 3   |     | C     | Commonly found in still or slow-flowing waters, with a preference for muddy or silty substrates. |
|  |     |     |       |  |

|                                       | N-A | N-B  | Group | Ecology and Distribution in Freshwater  |
|---------------------------------------|-----|------|-------|---|
| <b>Bivalvia (Freshwater Mussels)</b>  |     |      |       |   |
| Sphaeriidae                           | 11  | 5    | D     | Common in many habitats   |
|                                       |     |      |       |   |
| <b>Hydracarina (Water mites)</b>      | 3   | c.50 | C     | Common in many habitats   |
|                                       |     |      |       |   |
| <b>Amphipoda (Freshwater shrimps)</b> |     |      |       |   |
| <i>Gammarus duebeni</i>               | 4   | 1    | C     | Common in Ireland in a wide range of habitats   |
|                                       |     |      |       |   |
| <b>Isopoda (Water slaters)</b>        |     |      |       |   |
| <i>Asellus aquaticus</i>              |     | 44   | D     | Common in still or slow-flowing waters amongst bottom debris  |
|                                       |     |      |       |   |
| <b>Ephemeroptera (Mayflies)</b>       |     |      |       |   |
| <i>Caenis luctuosa</i>                |     | 5    | C     | Common in rivers, lakes and ponds, especially amongst silt trapped between gravel and stones        |
|                                       |     |      |       |   |
| <b>Megaloptera (Alder flies)</b>      |     |      |       |   |
| <i>Sialis lutaria</i>                 | 3   | 1    | D     | Common in ponds, lakes and sluggish parts of streams and rivers where there is an abundance of silt |
|                                       |     |      |       |   |
| <b>Trichoptera (Caddis flies)</b>     |     |      |       |   |
| <i>Sericostoma personatum</i>         | 2   | 1    | B     | Common on stony substrates.   |
|                                       |     |      |       |   |

|   | N-A       | N-B       | Group | Ecology and Distribution in Freshwater  |
|---|-----------|-----------|-------|---|
| <b>Ceratopogonidae (Biting midges)</b>  | 1         | 1         | -     | Common in a variety of habitats.  |
|   |           |           |       |   |
| <b>Chironomidae (Non-biting midges)</b> |           |           |       |   |
| <i>Chironomus sp.</i>                   | 56        | c.350     | E     | Common, preferring muddy substrata of standing or slow-flowing waters. Often abundant in organically polluted waters. |
| <i>Macropelopia sp.</i>                 |           | 1         | C     | Found in fine sediments in cool waters.   |
| <i>Microtendipes sp.</i>                | 117       | 7         | C     | Found in sediments and submerged mosses.  |
| <i>Polypedilum sp.</i>                  |           | 1         | C     | Common in a variety of habitats.  |
| <i>Stictochironomus sp.</i>             | 1         | 3         | C     | Found in lakes, streams and slow-flowing rivers   |
|   |           |           |       |   |
| <b>Coleoptera (Beetles)</b>             |           |           |       |   |
| <i>Brychius elevatus</i>                | 2         |           | C     | Common in running water and wave-washed lakeshores  |
| Halipidae (larvae)                      | 1         | 1         | C     |   |
| <i>Halipus lineatocollis</i>            | 1         |           | C     | Common in slow flowing water  |
| <i>Nebrioporus depressus</i>            | 9         |           | C     | Common in lakes and rivers.   |
|   |           |           |       |   |
|   |           |           |       |   |
| <b>Number of Taxa</b>                   | <b>22</b> | <b>22</b> |       |   |

**APPENDIX 5**

**RIVER BARROW AND RIVER NORE cSAC  
SITE SYNOPSIS (002162)**

## SITE SYNOPSIS

**SITE NAME: RIVER BARROW AND RIVER NORE**

**SITE CODE: 002162**

This site consists of the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlinton, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King’s Rivers on the Nore. Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also runs through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore.

The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern.

Good examples of Alluvial Forest are seen at Rathsnagadan, Murphy’s of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Grey Willow (*S. cinerea*), Crack Willow (*S. fragilis*), Osier (*S. viminalis*), with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Angelica (*Angelica sylvestris*), Thin-spiked Wood-sedge (*Carex strigosa*), Pendulous Sedge (*C. pendula*), Meadowsweet (*Filipendula ulmaria*), Valerian (*Valeriana officinalis*) and the Red Data Book species Nettle-leaved Bellflower (*Campanula trachelium*). Three rare invertebrates have been recorded in this habitat at Murphy’s of the River. These are: *Neoscia obliqua* (Diptera: Syrphidae), *Tetanocera freyi* (Diptera: Sciomyzidae) and *Dictya umbrarum* (Diptera: Sciomyzidae).



A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the EU Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, *Cratoneuron commutatum* var. *commutatum* and *Eucladium verticillatum*, have been recorded.

The best examples of old Oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the sixteenth century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved Bellflower and the moss *Leucodon sciuroides*. It has a typical bird fauna including Jay, Long-eared Owl and Raven. A rare invertebrate, *Mitostoma chrysomelas*, occurs in Abbeyleix and only two other sites in the country. Two flies *Chrysogaster virescens* and *Hybomitra muhlfeldi* also occur. The rare Myxomycete fungus, *Licea minima* has been recorded from woodland at Abbeyleix.

Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by Oak (*Quercus* spp.), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Birch (*Betula pubescens*) with some Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*). All the trees are regenerating through a cover of Bramble (*Rubus fruticosus* agg.), Foxglove (*Digitalis purpurea*) Wood Rush (*Luzula sylvatica*) and Broad Buckler-fern (*Dryopteris dilatata*).

On the steeply sloping banks of the River Nore about 5 km west of New Ross, in County Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of a relatively undisturbed, relict Oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown a small, mature Oak-dominant woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (*Vaccinium myrtillus*), Heather (*Calluna vulgaris*), Hard Fern (*Blechnum spicant*), Cow-wheat (*Melampyrum* spp.) and Bracken (*Pteridium aquilinum*).

Borris Demesne contains a very good example of a semi-natural broad-leaved woodland in very good condition. There is quite a high degree of natural re-generation of Oak and Ash through the woodland. At the northern end of the estate Oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly Oak species. The woods have a well established understorey of Holly (*Ilex aquifolium*), and the herb layer is

varied, with Brambles abundant. Whitebeam (*Sorbus devoniensis*) has also been recorded.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the flood-plain of the river is intact. Characteristic species of the habitat include Meadowsweet (*Filipendula ulmaria*), Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*). Indian Balsam (*Impatiens glandulifera*), an introduced and invasive species, is abundant in places.

Floating River Vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include Water Starworts (*Callitriche* spp.), Canadian Pondweed (*Elodea canadensis*), Bulbous Rush (*Juncus bulbosus*), Milfoil (*Myriophyllum* spp.), *Potamogeton x nitens*, Broad-leaved Pondweed (*P. natans*), Fennel Pondweed (*P. pectinatus*), Perfoliated Pondweed (*P. perfoliatus*) and Crowfoots (*Ranunculus* spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry Heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken (*Pteridium aquilinum*) and Gorse (*Ulex europaeus*) species with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (*Galium saxatile*), Foxglove (*Digitalis purpurea*), Common Sorrel (*Rumex acetosa*) and Bent Grass (*Agrostis stolonifera*). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (*Orobanche rapum-genistae*) has been recorded. Where rocky outcrops are shown on the maps Bilberry (*Vaccinium myrtillus*) and Wood Rush (*Luzula sylvatica*) are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of Clover species including the legally protected Clustered Clover (*Trifolium glomeratum*) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (*Sedum anglicum*), Sheep's-bit (*Jasione montana*) and Wild Madder (*Rubia peregrina*). These rocks also support good lichen and moss assemblages with *Ramalina subfarinacea* and *Hedwigia ciliata*.

Dry Heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (*Molinia caerulea*) with Heather (*Calluna vulgaris*), Tormentil (*Potentilla erecta*), Carnation Sedge (*Carex panicea*) and Bell Heather (*Erica cinerea*).

Saltmeadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (*Phragmites*) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank;

Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*) (Flora Protection Order, 1987) are found. The very rare Divided Sedge (*Carex divisa*) is also found. Sea Rush (*Juncus maritimus*) is also present. Other plants recorded and associated with salt meadows include Sea Aster (*Aster tripolium*), Sea Thrift (*Armeria maritima*), Sea Couch (*Elymus pycnanthus*), Spear-leaved Orache (*Atriplex prostrata*), Lesser Sea-spurrey (*Spergularia marina*), Sea Arrowgrass (*Triglochin maritima*) and Sea Plantain (*Plantago maritima*).

*Salicornia* and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include *Arenicola marina*, *Nephtys hombergii*, *Scoloplos armiger*, *Lanice conchilega* and *Cerastoderma edule*.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (*Carex* spp.), Meadowsweet, Willowherb (*Epilobium* spp.) and rushes (*Juncus* spp.). Wet woodland also occurs. This area supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

The dunes which fringe the strand at Duncannon are dominated by Marram grass (*Ammophila arenaria*) towards the sea. Other species present include Wild Sage (*Salvia verbenaca*), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift (*Armeria maritima*), Rock Samphire (*Crithmum maritimum*) and Buck's-horn Plantain (*Plantago coronopus*).

Other habitats which occur throughout the site include wet grassland, marsh, reed swamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (*Trichomanes speciosum*), Divided Sedge (*Carex*

*divisa*), Clustered Clover (*Trifolium glomeratum*), Basil Thyme (*Acinos arvensis*), Hemp nettle (*Galeopsis angustifolia*), Borrer's Saltmarsh Grass (*Puccinellia fasciculata*), Meadow Barley (*Hordeum secalinum*), Opposite-leaved Pondweed (*Groenlandia densa*), Autumn Crocus (*Colchicum autumnale*), Wild Sage (*Salvia verbenaca*), Nettle-leaved Bellflower (*Campanula trachelium*), Saw-wort (*Serratula tinctoria*), Bird Cherry (*Prunus padus*), Blue Fleabane (*Erigeron acer*), Fly Orchid (*Ophrys insectifera*), Broomrape (*Orobanche hederæ*) and Greater Broomrape (*Orobanche rapum-genistæ*). Of these the first nine are protected under the Flora Protection Order 1999. Divided Sedge (*Carex divisa*) was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge (*Carex strigosa*), Field Garlic (*Allium oleraceum*) and Summer Snowflake (*Leucojum aestivum*). Six rare lichens, indicators of ancient woodland, are found including *Lobaria laetevirens* and *L. pulmonaria*. The rare moss *Leucodon sciuroides* also occurs.

The site is very important for the presence of a number of EU Habitats Directive Annex II animal species including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), three Lamprey species - Sea (*Petromyzon marinus*), Brook (*Lampetra planeri*) and River (*Lampetra fluviatilis*), the marsh snail *Vertigo moulinsiana* and Otter (*Lutra lutra*). This is the only site in the world for the hard water form of the Pearl Mussel *M. m. durrovensis* and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat (*Myotis daubentoni*), Badger (*Meles meles*), Irish Hare (*Lepus timidus hibernicus*) and Frog (*Rana temporaria*). The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater Mussel species, *Anodonta anatina* and *A. cygnea*.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country.

Landuse at the site consists mainly of agricultural activities – many intensive, principally grazing and silage production. Slurry is spread over much of this area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support





many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.



Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Pearl Mussel which is limited to a 10 km stretch of the Nore, add further interest to this site.

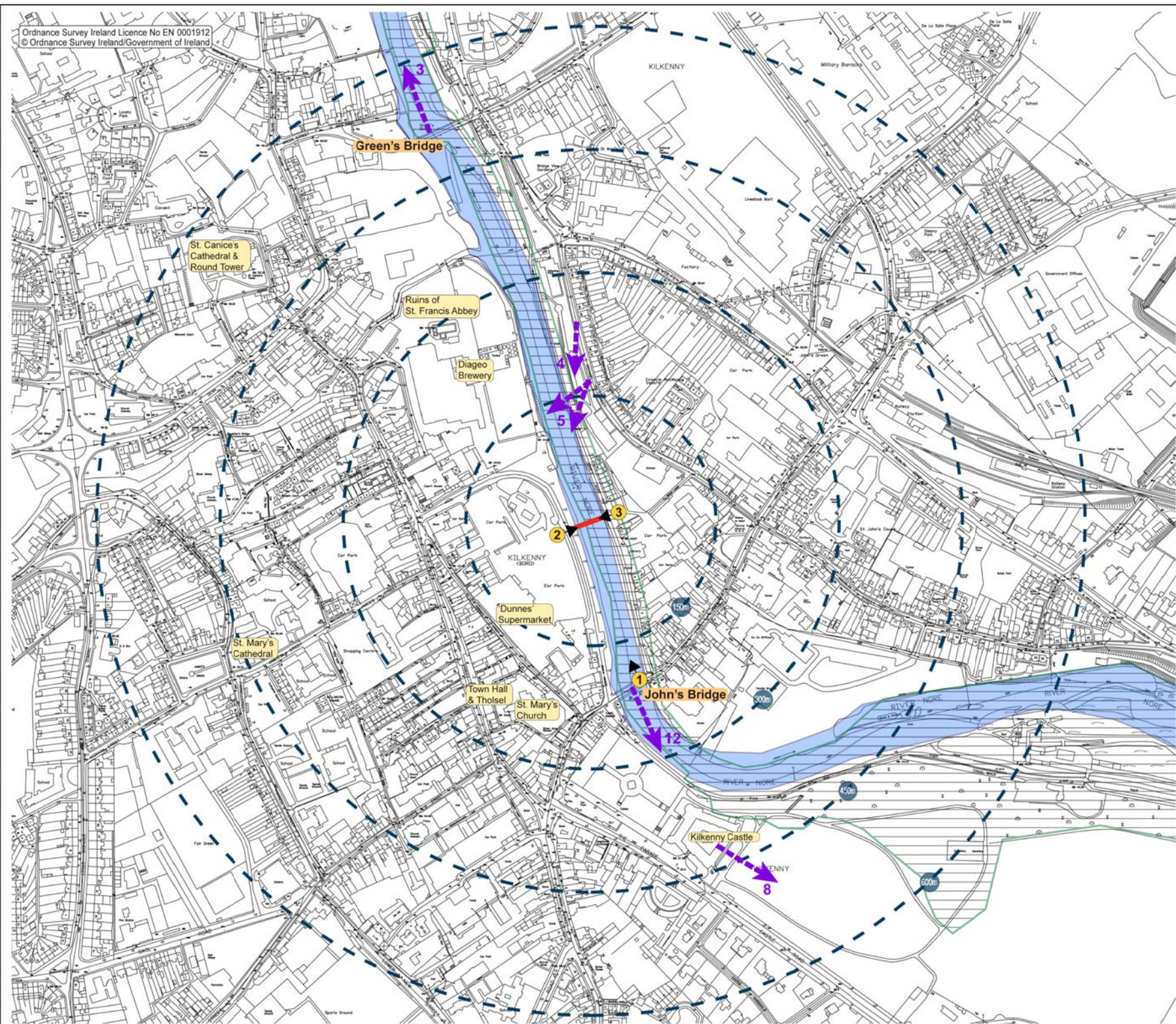
# APPENDIX C

### KEY

-  Photomontage Location
-  Proposed location of pedestrian bridge
-  Study Area
-  Protected Views and Prospects within the study area and as listed in Kilkenny City & Environs Development Plan 2008-2014

### Planning/Nature Conservation Designations according to National Parks and Wildlife Service

-  Special Protection Area (SPA) 004233 - River Nore
-  Special Area of Conservation (SAC) 002162 - River Barrow and River Nore



**URS**  
 URS Ireland Limited  
 410411 G House  
 78 Funchess Road  
 Sandyford  
 Dublin 18  
 Tel: 00353 1 2933 200  
 Fax: 00353 1 2933 201  
 www.ursglobal.com

PROPOSED PEDESTRIAN BRIDGE,  
 KILKENNY CITY,  
 CO. KILKENNY

DESIGNATIONS AND  
 PHOTOMONTAGE LOCATIONS



Existing view



Proposed view

## Photomontage 1

View north, northwest from John's Bridge

Date photo taken: 06.02.2008  
 Time photo taken: 2:31pm  
 Viewpoint location: E50805 N55877  
 Viewpoint elevation: 47m  
 Height of camera above ground: 1.6m  
 Arc of view: 36.2 deg.  
 Recommended viewing distance: 30-50cm

PROPOSED PEDESTRIAN BRIDGE, KILKENNY CITY, CO. KILKENNY  
 PHOTOMONTAGES

October 2012







Existing view



Proposed view

## Photomontage 2

View northeast from Bateman's Quay

Date photo taken: 26.06.2012  
 Time photo taken: 17:25 PM  
 Viewpoint location: E50709 N56046  
 Viewpoint elevation: 47m  
 Height of camera above ground: 1.6m  
 Arc of view: 36.2 deg.  
 Recommended viewing distance: 30-50cm

PROPOSED PEDESTRIAN BRIDGE, KILKENNY CITY, CO. KILKENNY  
 PHOTOMONTAGES  
 October 2012





Existing view



Proposed view

### Photomontage 3

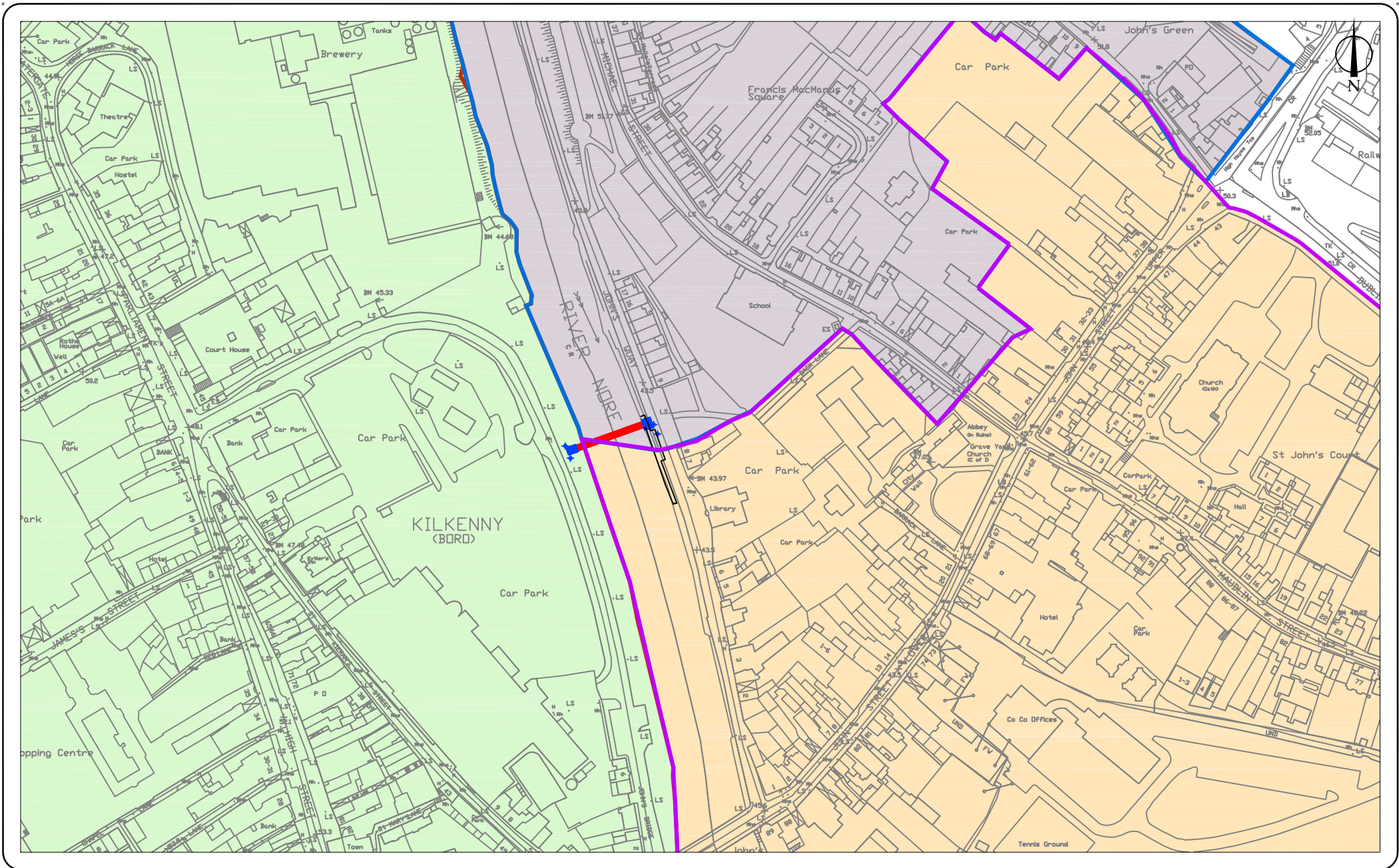
View south, southwest across John's Quay from within the small pocket park connecting to Black Lane

Date photo taken: 26.06.2012  
 Time photo taken: 6:00pm  
 Viewpoint location: E50778 N56069  
 Viewpoint elevation: 49m  
 Height of camera above ground: 1.6m  
 Arc of view: 36.2 deg.  
 Recommended viewing distance: 30-50cm





PROPOSED PEDESTRIAN BRIDGE, KILKENNY CITY, CO. KILKENNY  
 PHOTOMONTAGES  
 October 2012



# APPENDIX D



**Title**  
 General location map showing conservation areas

- Notes**
-  John Street Conservation Area
  -  City Centre Conservation Area
  -  Michael Street Conservation Area
  -  Proposed Pedestrian Bridge

**Job/Exc No.**  
 1576-12-100

**Date**  
 Nov 12

**Compiled by**  
 GW

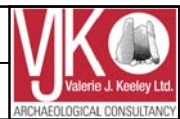
**Scale**  
 1:2500

**CAD reference**  
 R:Assess.dwg

**Drawing No.**  
 Figure 1

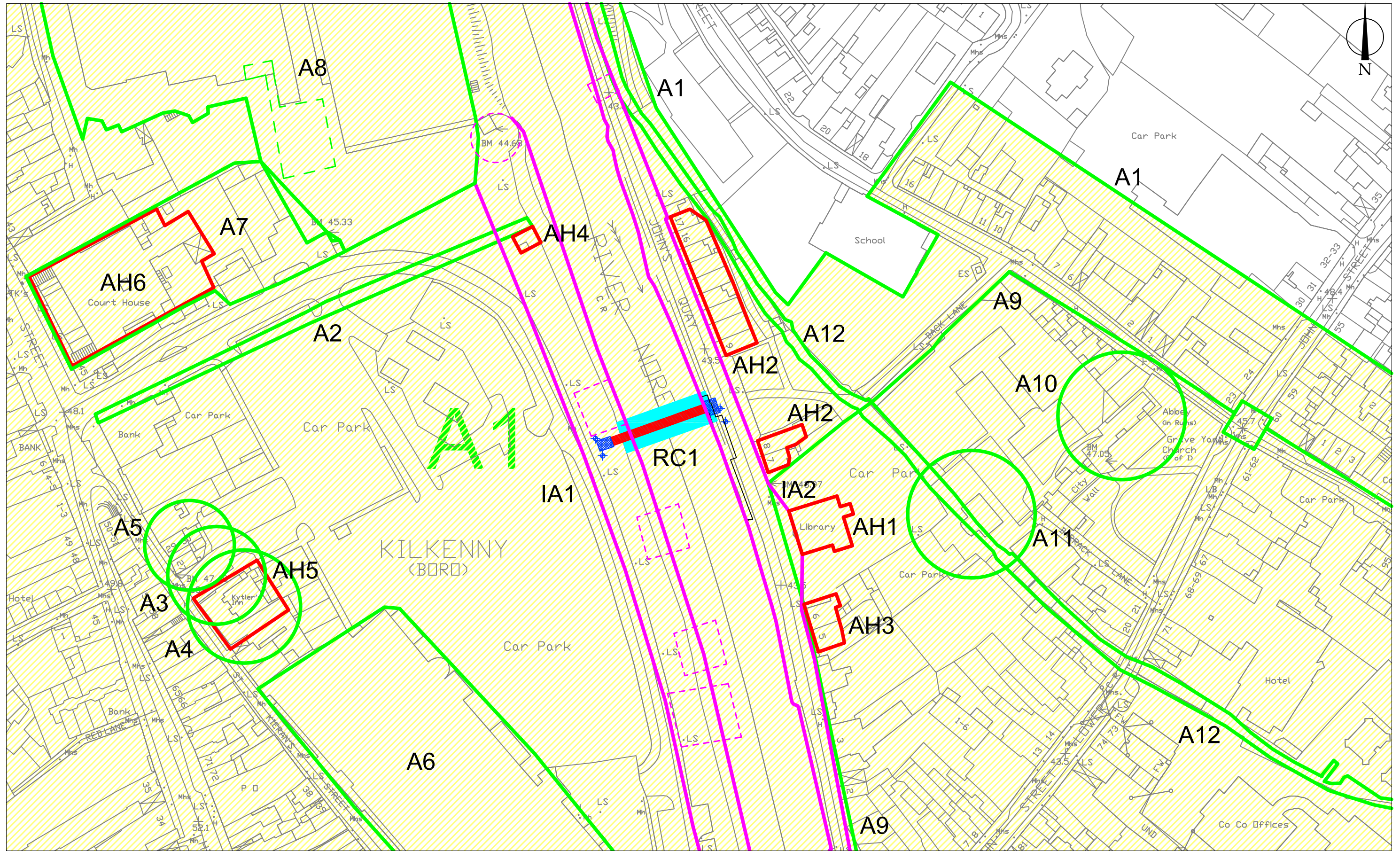
**Client**  
 Kilkenny County Council

**Project**  
 Kilkenny Pedestrian Bridge



Brehon House  
 Kilkenny Road  
 Castletomer  
 Co. Kilkenny.

Tel: (+353) 056 4440236  
 Fax: (+353) 056 4440237  
 Email: vjk@vjk.ie  
 Website: www.vjk.ie



**Title**  
Location of Archaeological, Industrial/Cultural Heritage and Architectural Heritage Sites.

- Notes**
- Industrial/Cultural Heritage Site
  - Architectural Heritage Site
  - Archaeological Site
  - Proposed Pedestrian Bridge
  - Zone of Archaeological Potential (Site A1)
  - River Crossing

**Job/Exc No.**  
1576-12-100

**Compiled by**  
GW

**CAD reference**  
R:Assess.dwg

**Client**  
Kilkenny County Council

**Date**  
Nov 12

**Scale**  
1:1250

**Drawing No.**  
Figure 2

**Project**  
Kilkenny Pedestrian Bridge



Brehon House  
Kilkenny Road  
Castlecomer  
Co. Kilkenny.

Tel: (+353) 056 4440236  
Fax: (+353) 056 4440237  
Email: vjk@vjk.ie  
Website: www.vjk.ie

## APPENDIX 1

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## APPENDIX 2

### Catalogue of Artefacts Discovered within the Study Area

| FIND DETAILS  | LOCATION                             | REFERENCE                        |
|---|--------------------------------------|----------------------------------|
| Sandstone armorial shield   | 47 Maudlin Street                    | RH 82/19                         |
| Carved stone fragment of 16th century effigial tomb   | 47 Michael Street                    | RH 75/1                          |
| Baptismal font  | Rear of Kyteler's Inn, Kieran Street | KM 27.7.1889                     |
| Iron buckles, animal bones (red deer), coins of Philip and Mary, Elizabeth and George II.   | Beneath John's bridge                | Graves 1871                      |
| Medieval buckle   | Field at Kilkenny College            | NMI 1959:759                     |
| Five skeletons  | John Street                          | KM 28.6.1856                     |
| '_Old iron buckles', '_animal bones', Elizabeth I coin, Philip and Mary coin, George II coin, worn coin. Drawing of arch of section of 1763 bridge. | John's bridge                        | Graves 1871                      |
| Graveslabs built into fabric of John's Bridge   | John's Bridge                        | KM 26.8.1871                     |
| Trade tokens  | Kilkenny                             | JRSAI 1870a                      |
| '_Very heavy round ball'  | Maudlin Street                       | RH 76/5                          |
| Cromwellian token   | Maudlin street                       | JRSAI 1869a                      |
| Key   | Maudlin Street                       | JRSAI 1879                       |
| Cloister capital '_found at garage premises of Messrs. Cody, Michael Street, Kilkenny'  | Michael Street                       | RH 76/16                         |
| Chair from Parliament House   | Parliament House                     | Bassett 1884, 45-9; Corlett 2008 |
| Pillar of oak removed in 1861, from the basement of the Old Parliament House  | Parliament Street                    | Bassett 1884, 45                 |

| FIND DETAILS   | LOCATION                | REFERENCE          |
|--|-------------------------|--------------------|
| Carved finial stone found in 1971 _buried in the rear portion of No.5 the Parade’. | Rear of No.5 the Parade | RH 71/15           |
| Holy water stoup   | St. Francis Abbey       | Bassett 1884, 45-9 |
| _ancient tobacco pipe’   | St. Francis’ Abbey      | KM 5.7.1856        |
| Floor tile   | St. Francis’ Abbey      | JRSAI 1869b        |
| Oak _putlog’   | St. Francis’ Abbey      | KM 21.5.1890       |

Table of artefacts from Kilkenny city recorded in the Journal of the Royal Society of Antiquaries of Ireland (JRSAI), historical newspaper accounts (KM, KJ), the catalogue of the Kilkenny Archaeological Society museum (RH) and the topographical files of the National Museum of Ireland (NMI) and donated to and/or reported to the Kilkenny Archaeological Society/Royal Society of Antiquaries 1849-1910 6. (SOURCE: www.kkap.ie)

**APPENDIX 3**  
**Recent Archaeological Investigations in Study Area, Gardens Townland Kilkenny City**

| Location  | Licence #            | Year & Ref.          | Findings  | Director/ Company                             |
|---|----------------------|----------------------|---|---|
| <b>Bateman Quay</b>                               |                      |                      |   |   |
| Bateman Quay,<br>River Nore (NOR-9)               | 01E0554<br>(01E0036) | 2001:0695            | <i>Excavation:</i> Pleasure House , Jetty – multiple phases, L18 <sup>th</sup> /e19 <sup>th</sup> Century. Two phases of riverside activity dating from the mid-17 <sup>th</sup> /early 18 <sup>th</sup> century and the later 18 <sup>th</sup> /early 19 <sup>th</sup> century respectively. Both phases seem to relate to private moorings for domestic use rather than an industrial purpose. Finds included reused 16 <sup>th</sup> century cut stone, metal moorings, ceramic and pottery.   | Paul Stevens,<br>Margaret Gowen &<br>Co. Ltd. |
| Bateman Quay/<br>River Nore (NOR-6)               | 01E0555<br>(01E0036) | 2001:0696, 2002:1003 | <i>Testing &amp; Excavation:</i> for River Nore (Kilkenny City) Drainage Scheme revealed the curvi-linear river wall abutted by adjacent late 18 <sup>th</sup> century Pleasure House. Wall was completely removed by development. The river wall was constructed on oak piles and abutted the pleasure house. The curved wall replaced an earlier, straight river wall, contemporary with the construction of the pleasure house. The curving wall was built to enclose a semicircular, protruding viewing platform associated with the pleasure house and dated to the late 18 <sup>th</sup> or early 19 <sup>th</sup> century. The pleasure house showed social division, even within a single building: an elaborate upper room, with a partially surviving ornate plaster ceiling, and a hidden utilitarian basement for servants. No earlier fabric was revealed, and the line of the medieval riverbank appeared to be at least 7m further back from the current river's edge and outside the development area.  | Paul Stevens,<br>Margaret Gowen &<br>Co. Ltd. |
| Bateman Quay/<br>River Nore (BQ-1 &<br>2; NOR-23) | 01E1166              | 2002:1004            | <i>Monitoring/Excavation:</i> River Nore (Kilkenny City) Drainage Scheme: Four phases from the late 17 <sup>th</sup> –late 19 <sup>th</sup> century. Phase 1 was an E–W-oriented limestone rubble garden wall, running to the river, with foundations built into the riverbank in late 17 <sup>th</sup> or the early 18 <sup>th</sup> century. Abutting the southern face of the garden wall was a dump of domestic refuse (Phase 2), which produced a high concentration of late 17 <sup>th</sup> - and early 18 <sup>th</sup> -century wine onion bottles (some complete), clay pipe and pottery. Phase 3: a short limestone rubble wall angled obliquely to the Phase 1 wall and represented the truncated remains of the 'Pleasure Ho[use]' shown on the first-edition OS map (1839–41). Phase 4 represented an abortive attempt to build a square riverside structure, which abutted the northern face of the garden wall and dates to between 1872 and 1900. This structure was open to the river and measured c. 3.4m square. The western entrance to this structure within the wall would have required the demolition of the Phase 2 pleasure house. However, the structure was built with inadequate foundations, resulting in a dramatic crack in the northern wall and subsidence into the river. | Paul Stevens,<br>Margaret Gowen &<br>Co. Ltd. |

| Location   | Licence #     | Year & Ref. | Findings   | Director/ Company                      |
|--|---------------|-------------|--|--|
| Bateman Quay/<br>River Nore (NOR-10)   | 01E0303       | 2001:0717   | <i>Excavation:</i> River Nore (Kilkenny City) Drainage Scheme: A stone jetty feature on Bateman's Quay comprised the dilapidated remnants of an 18th/19th-century structure that consisted of a series of stone steps leading down to the water's edge from a small paved area. The paving was concealed under modern overburden that was put down during construction of the current riverbank area. Within the river, a mass of short timber posts was arrayed around the foot of the steps and presumably supported a small platform.   | Niall Brady, ADCO                      |
| Tynan's Bridge House, John's Bridge  | 99E0024       | 1999:0445   | <i>Testing:</i> Rear of Tynan's Pub, Bateman Quay/John's Bridge, consisted of three parallel, linear test-trenches opened by hand, revealed no archaeological deposits or soils.   | Paul Stevens, Margaret Gowen & Co. Ltd |
| <b>John's Quay</b>   |               |             |  |  |
| John's Barrack Lane/Carnegie Library<br>Carpark/Evans House/John's Bridge Street | 01E0109       | 2001:0703   | <i>Monitoring:</i> installation of broadband cables in Kilkenny City. Barrack Lane produced evidence of truncated and disarticulated human bone fragments, together with one broken decorated stone and a possible truncated wall foundation. Remnants of cobbling were found outside the front of Evans Home, which also contained several cut stone fragments associated with St John's Priory. The possible wall footing was located at the Evans House end of Barrack Lane close to the existing arch and appeared to run at right angles to the line of the lane.   | John Channing                          |
| Kilkenny, between Green's Bridge and John's Bridge                               | 04E0057       | 2004:0892   | <i>Monitoring:</i> Broadband installation, between Green's Bridge and John's Bridge, but existing service routes and even disused culverts used where possible, so archaeological material only found at High Street and behind the Carnegie Library. The surfaces of several walls were exposed, some later, such as those probably associated with rebuilding of John's Bridge in Canal Square, and others earlier, found in the grounds of Evans Home. This part of the site had been specifically associated with a horse barrack, built to support the infantry barrack, constructed in 1780. A possibly medieval wall was exposed, but not damaged, in Barrack Lane, which may pertain to earlier boundaries or outbuildings of John's Priory. | Orla Scully                            |
| 6 John's Quay, Prior's Orchard   | Na            | 1990:077    | <i>Testing:</i> behind the walled concrete yard frontage of 6 John's Quay, consists of a. Area was open ground during the 18th century and the name 'Prior's Orchard', if original, suggests that the site functioned as an orchard in the Middle Ages. Three cuttings were opened and excavated to natural. No medieval structures or material were uncovered. The site was open ground down to the end of the Middle ages.   | Heather King                           |
| <b>John St.</b>  |               |             |  |  |
| Barrack Lane/ Back Lane, John Street Lower                                       | E4109<br>C414 | Na          | <i>Testing:</i> (2010) Multiple test trenching of the Evans Home / 18th C infantry barracks complex, took place in advance of Butler Gallery development. Testing revealed rubble from the earlier barracks building & possible post-medieval and earlier soils, evidence for the mill-race. No evidence for the town wall revealed.<br><i>Testing:</i> (2011) Single test trench & extensive buildings survey of Back Lane/Evans Home complex, in advance of Butler Gallery development. Testing consisted one test wall pit alongside the exterior   | Clare Walsh, ArchTect Ltd              |

| Location  | Licence # | Year & Ref. | Findings   | Director/ Company                                 |
|---|-----------|-------------|--|---|
|   |           |             | of the town wall in Back Lane, the pit could not be excavated beyond 1m depth. Evidence for an earlier wall was revealed 1.32m below ground level, but it was inconclusive whether this was medieval or the town wall.   |   |
| 2 & 3 John's Bridge                                     | 07E1097   | 2007:0964   | <i>Testing:</i> Rear of nos 2 and 3 John's Street, produced nothing of archaeological significance.  | Martin Doody                                      |
| Bridge House,<br>88-9 John Street                       | 95E0053   | 1995:169    | <i>Testing:</i> 13 trenches were excavated across the site of the Rivercourt Hotel at the rear of 84-89 John St. Lower. occupied by a cobbled yard, coach-house and stables and two gardens bounded by stone walls. Bridge House (No 88-9) incorporates an earlier late 16th century stone building in a fine 18th-century facade, but much of the fabric of the three other main walls is medieval to second-floor level. The test-trenching revealed no archaeological remains or soils in garden behind Bridge House. The southern boundary wall is not the late medieval wall and no evidence for the wall was located during the site assessment: the exact line of the medieval wall was not established. The cobbled yard covers the demolished remains of at least one red brick wall which probably dates to the 18th century. Of more significance is a second wall and associated cobbled surface 0.6m below the present cobbled surface which may date to the late medieval period. The demolished foundations occur in soils that are not rich in archaeological material (i.e. no habitation deposits were noted). | Margaret Gowen                                    |
| Bridge House,<br>85-9 John Street                       | 95E0053   | 1998:351    | <i>Testing:</i> Rear no. 85; a section of town wall was identified, 24m south of and parallel to John Street, was 0.43m wide and lined the western edge of a ditch. The wall was 0.19m deep on its western side and 1.7m deep on its eastern side, where it displayed a characteristic basal batter. The ditch outside the wall was 2.5m wide, 0.8m deep and cut into natural boulder clay. The basal 0.3m of the ditch was filled with poorly humified organic material, containing occasional fragments of red brick. A deposit of grey clay, 0.5m thick, sealed this. A thick mantle of demolition rubble made up of mortar, red brick and stone sealed all of the features in the trench.  | Edmund O'Donovan,<br>Margaret Gowen &<br>Co. Ltd. |
| Bridge House/<br>River Court Hotel,<br>85-9 John Street | 95E053ext | 1999:446    | <i>Monitoring:</i> (Tr.s I-VIII) c.11m to the rear of Bridge House Tr. I uncovered a possible fosse (large defensive ditch) of the town wall in section-measuring 3m+ in width & 3m in depth, truncated by early modern buildings. Tr. II a water pipe-trench under John Street in front of Matt the Millers pub revealed a medieval wall for a house aligned to an earlier bridge. Tr. III-VIII revealed early modern/late medieval cobbled courtyards, early modern walls and demolition rubble.   | Paul Stevens,<br>Margaret Gowen &<br>Co Ltd.      |
| 70-71 John Street                                       | 94E0057   | 1994:139    | <i>Testing:</i> Rear of no. 71, directly inside the town wall, revealed a garden soil, overlying the boulder clay subsoil. Features included two red-brick and masonry wall foundations, a stone-lintelled red-brick drain cut into subsoil and 5m of a very well-preserved cobbled surface some 400mm below present ground level. A few fragments of late post-medieval pottery were recovered. An examination of the boundary wall to the south of site along the line of the mill-race concluded than it formed part of a warehouse-type structure, possibly dating to the 18th or early 19th century   | Margaret Gowen                                    |
| County Hall,<br>Collegepark                             | 91E0091   | 1991:079    | <i>Testing:</i> Straddled the line of the town wall and trenches on the circuit revealed a limestone rubble wall 0.7m wide and 0.8m high, which was interpreted by the King as a boundary wall rather than a   | Heather King &<br>Bradley King                    |

| Location   | Licence # | Year & Ref.            | Findings  | Director/ Company                      |
|--|-----------|------------------------|---|--|
|  |           |                        | defensive feature. Test trenches within Collegepark revealed horticultural soils.   |  |
| Bridge House, John Street Lower  | 01E1212   | 2002:1019              | Two small test-trenches were excavated, and the excavation of a trench for underpinning a modern wall was monitored, in the basement of Bridge House. These revealed the internal spine wall and the original front wall of the late medieval building that formed the northern part of Bridge House. The top of layers of medieval river silt was revealed beneath the buildings. No finds were uncovered.   | Alan Hayden, ArchTech Ltd              |
| The Quays Pub, John Street Lower   | 02E0124   | 2002:1020              | Monitoring: Small test pit revealed nothing of archaeological significance revealed. Riverine silt and modern disturbance recorded.   | Alan Hayden, ArchTect Ltd              |
| <b>River Nore</b>  |           |                        |   |  |
| River Nore, (river-bed)<br>Dukesmeadows, Gardens, Roaches Pond to Newpark Lower. | 01E0551   | 2001:0715              | <i>Testing:</i> River Nore (Kilkenny City) Drainage Scheme: 21-mechanical dug test trenches were excavated within the river bed from downstream of Green's Bridge as far as Dukesmeadows. The results suggest that archaeological material is part of a matrix of very mobile and residual gravel within the riverbed. Where objects are recovered they are mixed in date and range from the prehistoric to the medieval period and to the very modern, even at depths of 2.5m below the riverbed surface. The range of artefacts recovered during testing included small to medium-sized metal (especially iron) objects, military munitions, pottery sherds, clay pipe fragments, animal bone, slag, glass, occasionally worked wood and an isolated Neolithic stone axe.   | Paul Stevens, Margaret Gowen & Co. Ltd |
| River Nore, Kilkenny City  | 00D0033   | 2000:0549<br>2000:0538 | <i>Underwater Testing:</i> River Nore (Kilkenny City) Drainage Scheme: Twenty-one sites and areas revealed medieval bridge remains at Green's Bridge and at John's Bridge in the centre of the city. At John's Bridge the underwater assessment identified the ruined remains of four stone piers and associated lengths of collapsed arch. Cutwaters faced with dressed stone were observed on the upstream sides. One of the piers retained its arch-springing. A single timber pile was identified. This bridge is also the remains of the bridge mapped by Rocque and subsequently destroyed by flooding. The underwater assessment was able to identify the base of the two piers for the 18th-century bridge that replaced the medieval John's Bridge. These are located immediately upstream of the medieval site, which lies under the existing bridge. | Niall Brady, ADCO                      |
| Gardens, Roaches Pond & Collegepark, Banks of River Nore                         | 00E0405   | 2000:0551              | <i>Testing:</i> River Nore (Kilkenny City) Drainage Scheme: (upstream & downstream of John's Bridge & Green's Bridge). Eight test-trenches were excavated along the length of the Nore. Trenches revealed topsoil over layers of silty sand, sand and sandy clay bearing modern and post-medieval material. River gravels were revealed at a depth of 2.2–3m+.  | Paul Stevens, Margaret Gowen & Co Ltd. |

| Location  | Licence #              | Year & Ref.                       | Findings   | Director/ Company   |
|---|------------------------|-----------------------------------|--|---|
| John's Bridge, River Nore                             | 02E0129,<br>01E0909    | 2001:0716, 2002:1017<br>2002:1024 | <i>Testing</i> River Nore (Kilkenny City) Drainage Scheme: Four underwater trenches were opened within the riverbed in locations that were inaccessible to machinery, two upstream and two downstream of John's Bridge. The trenches were opened across the river channel immediately downstream of the bridge. A pair of rapier foils were recovered, and various fragments of dislodged masonry from the ruined bridges were identified significant timber fragments of an early bridge under the current span of John's Bridge, Kilkenny. The area was investigated by manual excavation and the monitoring of machine-assisted excavation. The remains of an oak timber structure were discovered and excavated in situ. In addition to this, softwood uprights that relate to the bridge building after 1763 were recovered. An incised gravestone, numerous fragments of pottery and iron artefacts were recovered during the monitoring phase of the investigation. A number of 13th/14th-century grave slabs were reused in the pre-1763 bridge on the site. The earliest record of their presence in the river is 1618. St Mary's burial-ground is one of a number of possible locations suggested by Doyle for the origin of the tomb slabs. | Ian W. Doyle,<br>Margaret Gowen & Co. Ltd<br>Niall Brady & David McCullough, ADCO |
| Green's Bridge, River Nore (NOR-1)                    | 01E0236,<br>01E0236ext | 2001:0699,<br>2003:1010           | <i>Excavation:</i> River Nore (Kilkenny City) Drainage Scheme: Revealed a late medieval bridge abutment destroyed during the flood of 1763. Medieval features associated with the Great Bridge of Kilkenny and probably dating from the 1526 rebuilding of the bridge. Mitigation of the proposed development included the removal of a complete section of collapsed masonry, realignment of the western limit of left-bank bulk excavation and preservation in situ of the surviving bridge piers, which lie immediately below the formation depth of this development. However, it is also hoped that a redesigning of the proposed gabion wall can accommodate the preservation in situ of Pier 3 by use of narrower sheet piling layout, which will avoid the structure altogether.   | Paul Stevens & Ian Doyle Margaret Gowen & Co. Ltd.                                |
| Mill Island & Green's Bridge Weir, River Nore (NOR-2) | 01E0608                | 2001:0708,<br>2002:1021           | <i>Excavation:</i> River Nore (Kilkenny City) Drainage Scheme: Revealed a multi-phase industrial corn-milling complex and weir dating from the early 19th century, with limited evidence of earlier undated structures under both. Evidence for corn-grinding and metalworking has already been identified. A sizeable assemblage of industrial and early modern artefacts, machinery parts, timber and Tudor cut stone has been recovered to date, together with a full record of the fabric and archaeological deposits of the upper levels of this site. However, further work will be required in low-water summer conditions for complete resolution, in order to mitigate its scheduled removal as part of this development. It is hoped that dendrochronology samples can be retrieved from Green's Bridge Weir, and further artefactual and morphological study of this site will reveal the earliest phase(s) of the mill, possibly uncovering the source of the Tudor stone artefacts.   | Paul Stevens,<br>Margaret Gowen & Co. Ltd.  |



| Location                               | Licence # | Year & Ref.                                      | Findings  | Director/ Company                          |
|--|-----------|--|---|--|
| John's Bridge/ River Nore (NOR-11),    | 01E0980   | 2001:0704,<br>2001:0705; 2002;1017,<br>2002:1026 | <i>Excavation:</i> (2002) River Nore (Kilkenny City) Drainage Scheme: Underneath and adjacent to the existing John's Bridge. Remains of a late medieval bridge, which was swept away by a massive flood in 1763, directly underneath the existing bridge, an 18th-century masonry bridge were also found, immediately upstream of the existing bridge, constructed after the flood of 1763 and consisted of a three-arch masonry structure - removed in c. 1910 and replaced. Part of the abutment from the 18th-century bridge survives in a visible position on the eastern bank of the Nore. The two 18th-century masonry piers, which were spaced c. 14m apart, had upstream and downstream points or cutwaters. The remains of the bridge that was swept away in the flood of 1763, was composed of five to seven arches, collapsed remains of three masonry piers were revealed and excavated, as well as the debris from the collapsed superstructure of the bridge and the arched vaults. Wickerwork impressions from the matting used to construct and centre the vaults were evident in the mortar render of some of the masonry fragments. An interesting feature of the John's Bridge excavations has been the recovery of fragments of medieval grave-slabs from the bed of the river. These slabs were all found around the piers of the pre-1763 bridge and include two with Norman French inscriptions and one with a Latin inscription. Historical references indicate that the slabs were known to be in the river by 1618. Two collapsed post-and-wattle panels and stake alignments were also exposed on the west bank of the river. These have been provisionally interpreted as the remains of a fish-trap. A large collection of small finds was recovered from the excavations. These included medieval and post-medieval coins, post-medieval weaponry and domestic objects, a large assemblage of clay pipes, and medieval and post-medieval pottery. | Ian W. Doyle,<br>Margaret Gowen & Co. Ltd  |
| River Nore                             | 01E0909   | 2001:0716, 2002:1024                             | <i>Monitoring:</i> (2001-2002) River Nore (Kilkenny City) Drainage Scheme: river dredging recovered 2050 artefacts. Over half consisted of pottery of mostly 19 <sup>th</sup> and 20 <sup>th</sup> century date. Four percent of artefacts dated from the 12 <sup>th</sup> to 17 <sup>th</sup> centuries and a further 4 percent dated from the 17 <sup>th</sup> to 18 <sup>th</sup> centuries. Considerable quantity of artefactual material included a small quantity of Mesolithic flint, a small amount of medieval pottery and metalwork, and large quantities of late medieval stone architectural fragments. A large assemblage of post-medieval pottery and glass was also recovered.   | Ian W. Doyle,<br>Margaret Gowen & Co. Ltd. |
| River Nore: John's Quay & Collegepark, | 01E0821   | 2003:1021  | <i>Monitoring/excavations:</i> (2003) River Nore (Kilkenny City) Drainage Scheme: revealed archaeological material was uncovered at four locations along the left, or eastern, bank of the river. The remains included post-and-wattle fences adjacent to the swimming pool and Peace Park on John's Quay/Mayor's Walk, the remains of a circular stone tower downstream of John's Bridge in College Park, and the northern landfall of Ormonde Weir, also in College Park. As part of the river-widening works carried out on the eastern bank of the River Nore, a considerable amount of riverbank material was removed at College Park. This work revealed part of the weir that crossed the river from Ormonde mills.  | Ian W. Doyle,<br>Margaret Gowen & Co. Ltd  |
| High Town                              |           |  |   |  |

| Location  | Licence #                      | Year & Ref.                       | Findings  | Director/ Company                   |
|---|--------------------------------|-----------------------------------|---|-------------------------------------|
| 29-30, St. Kieran's Street                            | 04E1618                        | 2004:0901                         | <i>Testing:</i> Two trenches were opened to a depth of 2.3m and no archaeological finds or features were noted.   | Sheila Lane                         |
| 44-8 St Kieran's Street                               | 03E1204                        | 2003:1023<br>2006:1064            | <i>Testing:</i> (2003) Revealed 13th/14th century to 19th century deposits, c. 0.25m deep and consisted of a dark band of soil with wood, and relatively shallow, getting deeper towards St Kieran's Street. One test-pit at the street front confirmed the presence of a stone wall facing St Kieran's Street. This stone wall is probably the remains of the façade of buildings that formerly occupied the site and is highly likely to incorporate medieval fabric.   | Richard Clutterbuck                 |
| 44-48 St Kieran's Street                              | 06E0712                        | 2006:1065                         | <i>Excavations:</i> (2006) A series of medieval and post-medieval deposits, surfaces, quarrying pits and masonry were exposed. A post-medieval oven and the remains of the 19th-century terrace were also recorded. Significantly, a small amount of disarticulated human bone but no burials from the adjacent St Mary's Abbey was recovered.  | Clare Cotter,<br>CRDS Ltd.          |
| 44-48 Kieran Street                                   | 06E0712                        | 2008:715                          | <i>Excavation:</i> (2008) A series of medieval and post-medieval features including walls, slot-trenches, road surfaces, quarry and rubbish pits.   | Denis Shine,<br>CRDS Ltd            |
| St. Francis Abbey,<br>Guinness Brewery                | 95E0242,<br>98E0069<br>97E0099 | 1996:058,<br>1997:0105, 1998:0359 | <i>Testing/Monitoring:</i> (1995, 1997-1999) revealed organic deposit, of possible medieval date, sealed by fill and below the formation level of the new structures of post-medieval date, crossed through by services. Beneath these was an organic silt deposit found to continue into the extension area at the same depth.   | Edmond O'Donovan,<br>Margaret Gowen |
| <i>Kilkenny<br/>Courthouse,<br/>Parliament Street</i> | 07E0549<br>08E0462             | 2007:969<br>2008:718              | <i>Testing:</i> (2007). Five trenches revealed a grave of later 18th or 19th century date, and the possibility of additional burials in the same area. A black organic layer identified in all five trenches between 1.3m and 1.55m below the current ground level, and may represent late medieval or post-medieval open ground prior to development of this plot, over the medieval burgage plot to the east of Grace's Castle. A number of walls were also identified that appear to be post-medieval / early modern. A well was also identified.<br><i>Excavation:</i> (2008) Evidence for the long history of the site was revealed, producing over 4000 sherds of medieval pottery and 2000 sherds of post-medieval pottery; 500 pieces of preserved-wood (stakes & oak timbers from the wood-lined cesspits); eight wooden artefacts; coins, three brass artefacts, 226 iron artefacts, 30 bone artefacts, two copper-alloy objects with gold and 30 bone artefacts were excavated from the many features identified during the digging process. The site consisted of medieval domestic activity revealed as pits, wood-lined cesspits and plot boundaries/burgage plots (as shallow, long ditches) the early introduction of soil reclamation; 23 inhumations represented felons executed within the confines of the prison environment. | Maeve Saunderson,<br>ArchTech Ltd   |

**APPENDIX 4**

**Building Investigation Report**

**Historic Building Consultants**

# **KILKENNY CITY PEDESTRIAN BRIDGE**

## **BUILT HERITAGE ASSESSMENT**

**Historic Building Consultants  
Old Bawn  
Old Connaught  
Bray**

**Tel: 01 282 3508**

**2<sup>nd</sup> July 2012**

**526-01**

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## Summary

This report has been produced as an architectural heritage assessment of a proposed pedestrian bridge across the River Nore in Kilkenny City. It has been prepared by Rob Goodbody BA(mod), DipEnvPlanning, DipABRC, MA, MUBC, MIPI, MRTPI for Valerie J Keeley Ltd on behalf of their client, Kilkenny County Council.

The historical background shows that in historic times there was little or no development along the river frontages in the heart of the city. The first stretch of road along the river margin was the southern part of John's Quay, laid out in the 1760s, while this quay did not extend northwards to the site of the proposed bridge and beyond until the mid-19<sup>th</sup> century. On the western bank part of the land was laid out for markets in the mid-19<sup>th</sup> century, while the remainder continued as the back-lots of the properties in St. Kieran's Street.

The assessment of the site shows that the Carnegie Library and a Tea House on Bateman's Quay are the only protected structures within 100 metres of the proposed bridge. However, buildings that are not protected, but were included in the National Inventory of Architectural Heritage (NIAH), have also been taken into account as they are also considered to be of built heritage significance. Buildings of national significance, but close to the 100 metre distance have also been included, these being Kyteler's Inn and Kilkenny Courthouse. Account was also taken of any potential effect on John's Bridge, Green's Bridge and Kilkenny Castle, because of their importance as features on and adjacent to the river.

It is concluded that provided that the bridge design is for a low structure there would be no significant effect on the architectural heritage of Kilkenny.

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## **Methodology**

The built heritage assessment examines buildings and other structures in the vicinity of the proposed Kilkenny City Pedestrian Bridge and assesses the architectural significance of those structures with the anticipated effect of the bridge on their character. The emphasis is on structures still standing. Where a building or other structure has been destroyed it no longer has architectural significance on the landscape, though it may leave traces that fall within the ambit of the archaeological assessment. It may also have had an importance that remains through the historical record, though this is not of concern to the present task. For a structure to have architectural significance it need not survive intact and ruins, or even fragments of buildings may be of importance.

All structures of architectural heritage significance within a distance of 100 metres from the proposed bridge have been assessed in this report, while others at a greater distance have also been included where they have a particular connection with the river, or they are important in the vistas along the river.

The identification of buildings and structures to be assessed for impact was based in the first instance on an analysis of current Ordnance Survey maps. The potential for any building or other structure in the vicinity of the bridge to have special architectural significance was also gauged through examination of the following sources:

- Kilkenny City & Environs Development Plan 2008-2014
- Pre-Ordnance Survey map by John Rocque
- Ordnance Survey six-inch maps of 1839, 1841 and 1900

Any buildings on or close to the proposed bridge that were identified on the earlier Ordnance Survey maps were then checked against the current Ordnance Survey maps to ascertain which were still extant.

The area in the vicinity of the bridge was then walked to identify those structures noted in the desktop survey to assess them for their architectural quality. The possibility of finding structures of architectural significance not identified either from the desktop assessment was kept in mind during the site work and any potential additional structures were examined.

The entries in the Records of Protected Structures for Kilkenny and in the National Inventory of Architectural Heritage (NIAH) for Kilkenny were also checked.

The structures identified in the vicinity of the proposed bridge were examined to assess the potential effects of the proposed bridge and to consider potential for mitigation where necessary. In each case the structures identified are rated in

accordance with the system adopted the National Inventory of Architectural Heritage (NIAH) wherein a structure is rated as being of International, National, Regional or Local interest, or, if a structure is of no special interest, the NIAH includes a category of "Record only"<sup>1</sup>.

The definitions for each of these categories is as follows:

**International:**

Structures or sites of sufficient architectural heritage importance to be considered in an international context. Examples include St Fin Barre's Cathedral, Cork. These are exceptional structures that can be compared to and contrasted with the finest architectural heritage in other countries.

**National**

Structures or sites that make a significant contribution to the architectural heritage of Ireland. These are structures and sites that are considered to be of great architectural heritage significance in an Irish context. Examples include Ardnacrusha Power Station, Co. Clare; the Ford Factory, Cork; Carroll's Factory, Dundalk; Lismore Castle, Co. Waterford; Sligo Courthouse, Sligo; and Emo Court, Co. Laois.

**Regional**

Structures or sites that make a significant contribution to the architectural heritage within their region or area. They also stand in comparison with similar structures or sites in other regions or areas within Ireland. Examples would include many Georgian terraces; Nenagh Courthouse, Co. Tipperary; or the Bailey Lighthouse, Howth. Increasingly, structures that need to be protected include structures or sites that make a significant contribution to the architectural heritage within their own locality. Examples of these would include modest terraces and timber shopfronts.

**Local**

These are structures or sites of some vintage that make a contribution to the architectural heritage but may not merit being placed in the RPS separately. Such structures may have lost much of their original fabric.

**Record only**

These are structures or sites that are not deemed to have sufficient presence or inherent architectural or other importance at the time of recording to warrant a higher rating. It is acknowledged, however, that they might be considered further at a future time

The legislation relating to the protection of architectural heritage is set down in the Planning and Development Act 2000 and this defines architectural heritage as including structures which are of special interest under the headings of architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Wherever the phrase "special architectural interest" is used in this report it should be taken as including special interest in any one or more of these eight categories.

In this assessment each building or structure that is considered is assigned a rating in accordance with the NIAH system, or is stated to be not of special

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<sup>1</sup> National Inventory of Architectural Heritage *NIAH Handbook* edition June 2006 pp. 22-23



architectural interest. Where the rating is deemed to be higher than “Record only” the category of special interest is noted.

It should be noted that the term “special architectural interest” applies only in the context of this assessment of architectural heritage and does not imply that those buildings and other structures that are not considered to be of special architectural interest are in any way inferior or are of lower value.

## Historical background

Like most towns and cities, Kilkenny turned its back on its river. Until the latter half of the eighteenth century no roads or quays along the river edge and the only view from a public place were from St John's Bridge or Green's Bridge.



Figure 1: Detail of Rocque's map of Kilkenny, 1758

John Rocque's plan of Kilkenny, published in 1758, shows the city as it was in the mid-eighteenth century, with the land to the rear of buildings in what is now St. Kieran's Street extending all of the way back to the river. Similarly, on the eastern side of the Nore, Michael Street led through to Green's Bridge, but with no roads nearer to the water's edge other than a small lane leading off John Street Lower that met the river at right angles.

A new John's Bridge was built in 1763 on a slightly different alignment to the previous bridge, resulting in a double bend on the western bank between Rose Inn Street and the bridge. The short street that led along the river to facilitate this manoeuvre was continued on a short distance beyond the bridge and became known as John's Bridge. At around the same time John's Quay was laid out along the eastern bank of the river, extending about 120 metres northwards to the front of the houses now numbered 5 and 6 John's Quay.

It was not until the mid-19<sup>th</sup> century that the lands along the river to the north of this were opened up. John's Quay was extended northwards along the eastern bank in 1851, providing the potential for new development along one side of the new street. During the 19<sup>th</sup> century the lands on the western side gradually became more public, as a fish market established in 1811 was expanded with the addition of markets for other commodities, ultimately reaching the river and extending along a substantial part of the river bank to the north of the bridge site.

Building had taken place along the original short length of John's Quay in the 18<sup>th</sup> and early 19<sup>th</sup> centuries, with the construction of the house at number 2 John's Quay around the time that the street was laid out, while the present Home Rule Club was built a little later in the 1770s, and numbers 5 & 6 John's Quay in the 1830s.

New development did not occur immediately along the new stretch of John's Quay, and it was twenty years before the first building, a Turkish Bath house, was built, opening in 1873. Another fifteen years passed before the local council built nine houses at Parnell Terrace in 1888. The street frontage was completed in 1910 with the opening of the Carnegie Library.

In the twentieth century the Turkish baths at John's Quay were demolished and the site was laid out as open space. On the western side of the river the extensive markets between St. Kieran's Street and the river declined and went out of use and towards the end of the century were laid out as a parking area.

## **Baseline environmental study**

### **Statutory position**

#### **Record of Protected Structures**

No protected structures would be directly affected by the proposed bridge. There are two protected structures in the vicinity, the Carnegie Library on John's Quay being about 45 metres from the proposed site, and a Tea House on the western bank of the river is about 70 metres away. There are protected structures in St. Kieran's Street, backing towards the river, at a distance greater than 120 metres. John's Bridge crosses the river downstream at a distance of approximately 200 metres and Green's Bridge is at a distance of 500 metres upstream. Both are protected structures.

#### **Conservation Areas**

The bridge would span between two architectural conservation areas. The City Centre Architectural Conservation Area (ACA) abounds the river on the western bank, while the Michael Street ACA includes the eastern end of the bridge, and runs northwards along the river margin. Nearby to the south, the Michael Street ACA adjoins the John Street ACA.

#### **National Inventory of Architectural Heritage**

The National Inventory of Architectural Heritage has included Kilkenny City within its surveys and the results have been published. This includes the pair of semi-detached houses and terrace of nine houses known as Parnell Terrace, near to the bridge site on the eastern bank of the river. These are considered to have architectural and social heritage significance. The other buildings facing the river on John's Quay to the south of the proposed bridge site are also included in the survey. This includes the Carnegie Library, noted for its architectural, historical and social significance, a pair of semi-detached houses and two detached houses, each considered to have architectural heritage significance. All of these buildings have been rated as being of regional importance in the survey.

Other buildings at a further distance from the site of the proposed bridge are included in the survey, including John's Bridge, Green's Bridge and buildings in St. Kieran Street.

## **Building survey**

In the section below each structure, or group of structures is examined to assess whether it is of special interest as built heritage. This would include special interest for its architectural, historic, artistic, cultural, scientific, social or technical interest. This list of potential interests is derived from section 10(2)(f) of the Planning and Development Act, 2000, which sets down the obligation of a planning authority to include objectives for the protection of structures in its development plan. The list also includes special archaeological interest, but this is not included in this part of the Environmental Impact Assessment as it is considered in its own section.

Where a structure or group of structures is found to be of special interest this assessment includes an examination of the potential effects of proposed bridge on the structure or group of structures. In each of these cases the structure is given a number prefixed with "BH" for Built Heritage.

In each case the survey includes a brief description of the structure or group of structures, an approximate date of construction. In the case of the older structures the survey includes some background information about the structure to elaborate on the historical background given above.

The survey commences at on the eastern side of the River Nore, before examining the western side. Structures of particular significance on the river are then examined, with the vistas along the river that include buildings of architectural heritage significance. Where the structure is not deemed to be of interest the predicted impacts and the effects on the setting are given as "n/a", signifying "not applicable".

## Proposed site



*Plate 1: View northwards to site of proposed bridge from John's Bridge*

At present there are two river crossings on the Nore in the city of Kilkenny. Green's Bridge and John's Bridge are more than 700 metres apart, with no intermediate link between the city centre and the eastern bank of the river.

The site of the proposed pedestrian bridge is in the middle distance in the photograph above, approximately mid-point in the part of the river margin on the right that is at an angle to the rest. As noted above in the conservation context, there is one protected structure in the near vicinity of the proposed bridge site. Other buildings in the vicinity are included in the National Inventory of Architectural Heritage (NIAH), where they are considered to be of regional significance. It was also noted above that the entire area in the vicinity of the proposed bridge lies within the three architectural conservation areas (ACAs).

There are no buildings within the close vicinity of the proposed bridge site on the western side. Important structures such as Kyteler's Inn are set back at a significant distance from the bridge site.

The descriptions below consider the protected structure and the buildings included in the NIAH, within a distance of 100 metres from the site of the proposed bridge, to consider the potential effects on their character of the presence of a footbridge in the vicinity. The potential effect on the elements of architectural heritage at a greater distance is then examined, including the two existing bridges, Greens Bridge and John's Bridge, as well as any potential effect on the character and setting of Kilkenny Castle.

## Buildings in the vicinity

### AH-01: Carnegie Library



*Plate 2: Carnegie Library, John's Quay*

The Carnegie Library on John's Quay is the only protected structure in the immediate vicinity of the proposed bridge. It is a single-storey building with two gables to the front, separated by a projecting porch supported on Doric columns. The central feature is a cupola in the centre of the building.

|                                   |  |
|-----------------------------------|--|
| <b>Date of construction:</b>      | 1910   |
| <b>Protected structure?:</b>      | Yes  |
| <b>NIAH reference</b>             | 12000227   |
| <b>Special interest:</b>          | Architectural, Historical, Social  |
| <b>Special interest rating:</b>   | Regional   |
| <b>Land take for scheme:</b>      | None   |
| <b>Impacts on built heritage:</b> | No direct impact on library building or curtilage  |
| <b>Effects on setting:</b>        | The proposed bridge would be approximately 45 metres from the library building, on the opposite side of the road. There would be no significant effect on the setting. |
| <b>Mitigation required:</b>       | None.  |

**AH-02: Parnell Terrace***Plate 3: Parnell Terrace*

Parnell Terrace consists of nine two-storey houses divided into one pair of semi-detached and a terrace of seven. They are gable-ended and are faced with roughcast render, with red brick detailing to the window and door opens.

|                                   |  |
|-----------------------------------|--|
| <b>Date of construction:</b>      | 1888   |
| <b>Protected structure?:</b>      | No   |
| <b>NIAH reference</b>             | 12000228 and 12000247 to 12000256  |
| <b>Special interest:</b>          | Architectural, Social  |
| <b>Special interest rating:</b>   | Regional   |
| <b>Land take for scheme:</b>      | None   |
| <b>Impacts on built heritage:</b> | No direct impact on houses   |
| <b>Effects on setting:</b>        | The proposed bridge would be directly opposite the open area that lies between the semi-detached houses and the terrace of houses in Parnell Terrace. The presence of the bridge would not detract from the essential architectural character of this group of houses. |
| <b>Mitigation required:</b>       | None.  |



**AH-03: 5 and 6 John's Quay**

*Plate 4: 5 and 6 John's Quay*

The pair of semi-detached houses at 5 and 6 John's Quay are each two-bay and three-storey, with a gabled, slated roof. The houses have a pedimented double porch to the front.

|                                   |  |
|-----------------------------------|--|
| <b>Date of construction:</b>      | 1830s  |
| <b>Protected structure?:</b>      | No   |
| <b>NIAH reference</b>             | 12000225 and 12000226  |
| <b>Special interest:</b>          | Architectural, Social  |
| <b>Special interest rating:</b>   | Regional   |
| <b>Land take for scheme:</b>      | None   |
| <b>Impacts on built heritage:</b> | No direct impact on houses   |
| <b>Effects on setting:</b>        | The proposed bridge would be at a distance of about eighty metres to the nearest point of the houses. At that distance there would be no perceptible effect on the settings of the houses. |
| <b>Mitigation required:</b>       | None.  |

**AH-04: Tea house, Bateman's Quay**

*Plate 5: Tea House, seen from the river*

On the river's edge at the rear of Smithwick's Brewery, and at the edge of the former markets there is a small single-storey tea room. Positioned at an angle to the river, the building appears to have been designed to make the best of the view down the river to Kilkenny Castle.

|                                   |   |
|-----------------------------------|---|
| <b>Date of construction:</b>      | c1800   |
| <b>Protected structure?:</b>      | Yes   |
| <b>NIAH reference</b>             | 12000204  |
| <b>Special interest:</b>          | Architectural   |
| <b>Special interest rating:</b>   | Regional  |
| <b>Land take for scheme:</b>      | None  |
| <b>Impacts on built heritage:</b> | No direct impact  |
| <b>Effects on setting:</b>        | The proposed bridge would be at a distance of about 70 metres downstream from the tea house and directly in line with its view. Provided the bridge design is low there would be no interruption of the view of Kilkenny Castle, while the view of the river would be changed rather than eliminated. |
| <b>Mitigation required:</b>       | None.   |

**AH-05: Kyteler's Inn, St. Kieran Street**

*Plate 6: Rear of Kyteler's Inn, facing towards river*

Kyteler's Inn, in St. Kieran's Street, is a building complex of significance, and includes building fabric from the late 13<sup>th</sup> century to the present day. It is at a significant distance from the site of the proposed bridge, and its rear faces the river, with a group of later buildings behind the original structure.

|                                   |   |
|-----------------------------------|---|
| <b>Date of construction:</b>      | c1375 onwards   |
| <b>Protected structure?:</b>      | Yes   |
| <b>NIAH reference</b>             | 12000116  |
| <b>Special interest:</b>          | Architectural, Archaeological, Social, Historical   |
| <b>Special interest rating:</b>   | National  |
| <b>Land take for scheme:</b>      | None  |
| <b>Impacts on built heritage:</b> | No direct impact  |
| <b>Effects on setting:</b>        | The proposed bridge would be at a distance of about 125 metres from the rear of the inn complex. As the inn faces away from the bridge site, and has later structures between it and the river there would be no perceptible impact arising from the proposed bridge. |
| <b>Mitigation required:</b>       | None.   |

**AH-06: Courthouse, Parliament Street**



*Plate 7: Kilkenny Courthouse, Parliament Street*

On Parliament Street, but backing towards the river, the Kilkenny Courthouse is a late eighteenth century Neoclassical building of national significance.

|                                   |   |
|-----------------------------------|---|
| <b>Date of construction:</b>      | 1792  |
| <b>Protected structure?:</b>      | Yes   |
| <b>NIAH reference</b>             | 12000084  |
| <b>Special interest:</b>          | Architectural, Artistic, Archaeological, Historical, Social   |
| <b>Special interest rating:</b>   | National  |
| <b>Land take for scheme:</b>      | None  |
| <b>Impacts on built heritage:</b> | No direct impact  |
| <b>Effects on setting:</b>        | The courthouse complex is in excess of 120 metres from the proposed bridge site. Its focus is towards Parliament Street and there would be no significant change to its setting as a result of the bridge construction. |
| <b>Mitigation required:</b>       | None.   |

## Significant structures at a greater distance

### AH-07: John's Bridge



*Plate 8: John's Bridge, with site of proposed bridge visible through arch*

St. John's Bridge is on the site of a bridge that was destroyed in a flood in 1763, and adjacent to the site of the bridge that replaced it. The present bridge is an early example of a reinforced concrete bridge, and at the time of its construction had the greatest span of any such bridge in these islands.

|                                   |  |
|-----------------------------------|--|
| <b>Date of construction:</b>      | 1910   |
| <b>Protected structure?:</b>      | Yes  |
| <b>NIAH reference</b>             | 12000229   |
| <b>Special interest:</b>          | Architectural, Technical   |
| <b>Special interest rating:</b>   | Regional   |
| <b>Land take for scheme:</b>      | None   |
| <b>Impacts on built heritage:</b> | No direct impact on houses   |
| <b>Effects on setting:</b>        | The proposed bridge would be at a distance of about 200 metres to the nearest point of the bridge. There would be no adverse effect on the setting of John's Bridge, while new vistas of John's Bridge would be offered. |
| <b>Mitigation required:</b>       | None.  |

**AH-08: Green’s Bridge**



*Plate 9: Green’s Bridge*

Green’s Bridge was built in the 1760s to replace an earlier bridge that had been destroyed in a flood. It is one of several bridges on the Nore that were rebuilt at this time in a Palladian style, incorporating elements of classical architecture. The bridge has five arches in the river channel, each with a Gibbsian arch ring and with pedimented aedicules on the faces of the piers.

|                                   |   |
|-----------------------------------|---|
| <b>Date of construction:</b>      | 1766  |
| <b>Protected structure?:</b>      | Yes   |
| <b>NIAH reference</b>             | 12004007  |
| <b>Special interest:</b>          | Architectural, Technical  |
| <b>Special interest rating:</b>   | National  |
| <b>Land take for scheme:</b>      | None  |
| <b>Impacts on built heritage:</b> | No direct impact on houses  |
| <b>Effects on setting:</b>        | The proposed bridge would be at a distance of about 500 metres to the nearest point of Green’s Bridge. There would be no adverse effect on the setting of Green’s Bridge. |
| <b>Mitigation required:</b>       | None.   |

**AH-09: Kilkenny Castle**



*Plate 10: Kilkenny Castle and John's Bridge*

Kilkenny Castle is a medieval castle with substantial amounts of reconstruction over the centuries, particularly in the 1820s. It stands on a height above the river in a commanding position and presents an imposing backdrop to the view from the proposed bridge past John's Bridge. The photograph above shows the view from the river bank. The proposed bridge would open new vistas, without adverse effect on the character of the castle.

|                                   |  |
|-----------------------------------|--|
| <b>Date of construction:</b>      | Medieval with reconstruction in 1820s  |
| <b>Protected structure?:</b>      | Yes  |
| <b>NIAH reference</b>             | 12001066   |
| <b>Special interest:</b>          | Archaeological, Architectural, Artistic, Historic, Social, Technical   |
| <b>Special interest rating:</b>   | National   |
| <b>Land take for scheme:</b>      | None   |
| <b>Impacts on built heritage:</b> | No direct impact on castle or grounds  |
| <b>Effects on setting:</b>        | The proposed bridge would be at a distance of about 260 metres to the nearest point of the castle perimeter, and 360 metres from the castle building. There would be no adverse effect on the setting of the castle or its associated structures or grounds. |
| <b>Mitigation required:</b>       | None.  |

## **Vistas along the river**



*Plate 11: View upriver from John's Bridge towards Green's Bridge*

John's Bridge is in the heart of the city and has a significant footfall of pedestrians, as well as substantial amounts of traffic. The view upriver from the bridge is significant, and includes a number of architectural features. For the most part the view of the buildings addressed in this report would not be affected by the proposed bridge. The possible exceptions are the Tea House and Green's Bridge.

**Tea House:** The view of the Tea House from John's Bridge is not significant, and any potential interruption of the view would not be perceptible.

**Green's Bridge:** Only the easternmost end of Green's Bridge may be seen from John's Bridge, and it is not an obvious feature in the view. Any potential interruption to the view would not be significant.



*Plate 12: View of Green's Bridge from John's Bridge, photographed using a long lens*





*Plate 13: View of Kilkenny Castle from eastern end of Green's Bridge*

The view from the centre of Green's Bridge down the river does not take in any features of architectural significance. From the eastern end of the bridge there is a view that includes Kilkenny Castle on the skyline, with John's Bridge visible, but not prominent in the view. The photograph above was taken in winter when there was minimal interruption of the view caused by leaves on the trees. There is significantly less footfall over Green's Bridge than over John's Bridge, it being at a greater distance from the city centre.

Provided the profile of the proposed bridge is low there would be no significant effect on the view of features of architectural heritage significance as seen from Green's Bridge.

**Mitigation:** There is no mitigation required.

## Impacts

The findings of the above survey of the buildings and other structures on which there is a possible impact is summarised in Table 2 below. The table starts with the site number and location.

In each case the structure is given a rating as to its importance and, if higher than “Record only” the nature of its special interest is given. The rating definitions are in accordance with those given above. The special interest is based on the categories set down in the Planning and Development Act, 2000. While that Act gives no criteria for assigning a special interest to a structure, the National Inventory of Architectural Heritage (NIAH) offers guidelines to its field-workers<sup>2</sup>. This offers guidance by example rather than by definition, and is the system adopted for the present assessment. There are eight categories set down in the Act, viz. archaeological, architectural, historical, technical, cultural, scientific, social and artistic, and the guidance for each is as follows:

### Archaeological

It is to be noted that the NIAH is biased towards post-1700 structures. Structures that have archaeological features may be recorded, providing the archaeological features are incorporated within post-1700 elements. Industrial fabric is considered to have technical significance, and should only be attributed archaeological significance if the structure has pre-1700 features.

### Architectural

A structure may be considered of special architectural interest under the following criteria:

- An aspiration of aesthetic appeal to its design.
- Good quality or well executed architectural design
- The work of a known and distinguished architect, engineer, designer, craftsman
- Modest or vernacular structures may be considered to be of architectural interest, as they are part of the history of the built heritage of Ireland.
- Well designed decorative features, externally and/or internally

### Historical

A structure may be considered of special historical interest under the following criteria:

- A significant historical event associated with the structure

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<sup>2</sup> National Inventory of Architectural Heritage *NIAH Handbook* edition June 2006 pp. 16-21

- An association with a significant historical figure
- Has a known interesting and/or unusual change of use, e.g. a former workhouse now in use as a hotel
- A memorial to a historical event.

### **Technical**

A structure may be considered of special technical interest under the following criteria:

- Incorporates building materials of particular interest, i.e. the materials or the technology used for construction
- Incorporates innovative engineering design, e.g. bridges, canals or mill weirs
- A structure which has an architectural interest may also merit a technical interest due to the structural techniques used in its construction, e.g. a curvilinear glasshouse, early use of concrete, cast-iron prefabrication.
- Mechanical fixtures relating to a structure may be considered of technical significance.

### **Cultural**

A structure may be considered of special cultural interest under the following criteria:

- An association with a known fictitious character or event, e.g. Sandycove Martello Tower which featured in Ulysses.

### **Scientific**

A structure may be considered of special scientific interest under the following criteria:

- A structure or place which is considered to be an **extraordinary** or **pioneering** scientific or technical achievement in the Irish context, e.g. Mizen Head Bridge, Birr Telescope.

### **Social**

A structure may be considered of special social interest under the following criteria:

- A focal point of spiritual, political, national or other cultural sentiment to a group of people, e.g. a place of worship, a meeting point, assembly rooms.
- Developed or constructed by a community or organisation, e.g. the construction of the railways or the building of a church through the patronage of the local community
- Illustrates a particular lifestyle, philosophy, or social condition of the past, e.g. the hierarchical accommodation in a country house, philanthropic housing, vernacular structures.

### Artistic

A structure may be considered of special artistic interest under the following criteria:

- Work of a skilled craftsman or artist, e.g. plasterwork, wrought-iron work, carved elements or details, stained glass, stations of the cross.
- Well designed mass produced structures or elements may also be considered of artistic interest.

In the evaluation of the special interest of a structure it is possible for the structure to have a special interest under more than one of the above categories.

The impact is stated as being either Direct or Indirect and the level of this impact, insofar as it relates to the architectural heritage, is given in accordance with the following criteria:

**Table 1 - Definitions of level of impact**

| <b>Impact</b> | <b>Definition</b>  |
|---------------|--|
| Imperceptible | An impact capable of measurement but without noticeable consequences   |
| Slight        | An impact that causes noticeable changes in the character of the environment without affecting its sensitivities       |
| Moderate      | An impact that alters the character of the environment in a manner that is consistent with existing or emerging trends |
| Significant   | An impact which, by its character, magnitude, duration or intensity alters a significant aspect of the environment     |
| Profound      | An impact that obliterates sensitive characteristics   |

It should be noted that this assessment relates to architectural heritage and no comment is offered on effects on aspects such as property rights or effects on property that are not pertinent to architectural heritage.

Finally, the table states whether any mitigation measures are required to address the effects of the proposal. Where mitigation is required it is considered more fully in the following section.

Table 2 – Summary of impacts

| Site  | Location            | Rating   | Interest   | Impact | Level of impact | Mitigation required |
|-------|---------------------|----------|--|--------|-----------------|---------------------|
| AH-01 | Carnegie Library    | Regional | Architectural, Historical, Social                                      | None   | n/a             | None                |
| AH-02 | Parnell Terrace     | Regional | Architectural, Social  | None   | n/a             | None                |
| AH-03 | 5-6 John's Quay     | Regional | Architectural, Social  | None   | n/a             | None                |
| AH-04 | Tea House           | Regional | Architectural  | None   | n/a             | None                |
| AH-05 | Kytelery's Inn      | National | Architectural, Historical, Social, Archaeological                      | None   | n/a             | None                |
| AH-06 | Kilkenny Courthouse | National | Architectural, Artistic, Social, Historical, Archaeological            | None   | n/a             | None                |
| AH-07 | John's Bridge       | Regional | Architectural, Technical   | None   | n/a             | None                |
| AH-08 | Green's Bridge      | National | Architectural, Technical   | None   | n/a             | None                |
| AH-09 | Kilkenny Castle     | National | Architectural, Artistic, Social, Historical, Technical, Archaeological | None   | n/a             | None                |

### Do-Nothing Scenario

In the event of a Do-Nothing Scenario there would be no adverse effect on cultural heritage. All protected structures and other buildings of heritage significance considered in this study are outside the site of the proposed bridge and their future existence would not be affected by a decision to do nothing with the site. .

## Mitigation

No structures have been identified above as being affected by the proposed bridge to the extent that mitigation is required to protect or record the structure.

## Residual impacts

The extent of any residual impacts is summarised in table 3 below:

**Table 3 Summary of impacts on sites of Architectural interest following mitigation**

| Value of site | Significance of Impact |               |        |          |             |          |
|---------------|------------------------|---------------|--------|----------|-------------|----------|
|               | None                   | Imperceptible | Slight | Moderate | Significant | Profound |
| National      | 0                      | 0             | 0      | 0        | 0           | 0        |
| Regional      | 0                      | 0             | 0      | 0        | 0           | 0        |
| Local         | 0                      | 0             | 0      | 0        | 0           | 0        |
| Total         | 0                      | 0             | 0      | 0        | 0           | 0        |

## **Conclusion**

It is concluded that there are elements of the architectural heritage in the vicinity of the proposed bridge that are sensitive to the potential interruption of the view along the river. This includes the view of Kilkenny Castle and John's Bridge from the river bank in the Market Yard/Bateman's Quay area, the view from John's Bridge, and the view from the Tea House. It is not expected that the proposed bridge would have an adverse effect on these views provided the design of the bridge is such that it is low. Higher structures such as a cable-stayed bridge would create a new feature in the landscape, but would interrupt certain vistas of the architectural heritage of Kilkenny.

Provided the height of the bridge is kept moderate, it is concluded that the proposal would not have any adverse effect on the architectural heritage of the River Nore margins, or the wider Kilkenny City area.

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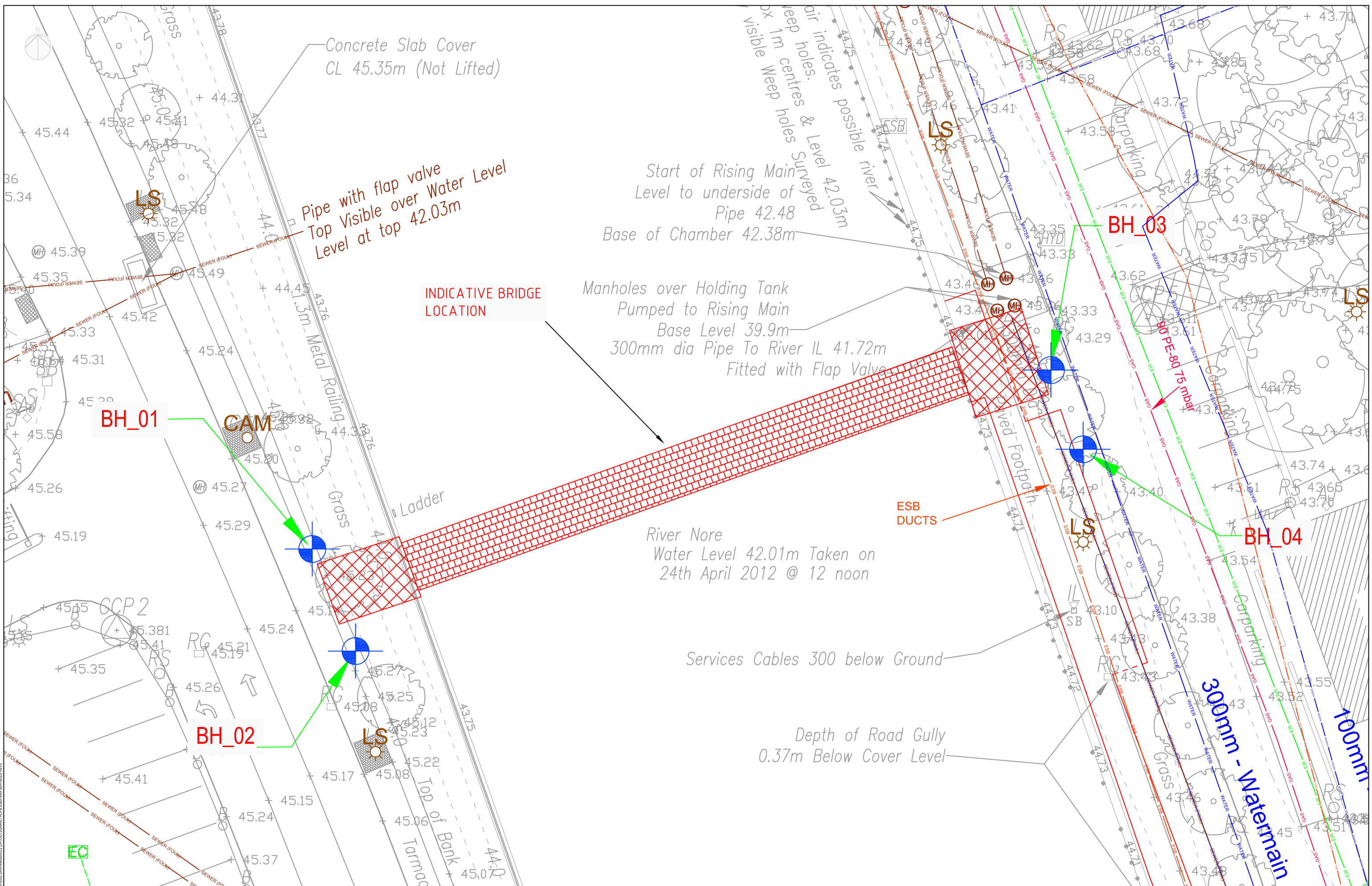
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# APPENDIX E



|                  |    |       |      |        |
|------------------|----|-------|------|--------|
| Revision Details | By | Check | Date | Suffix |
|                  |    |       |      |        |

NOTES  
 1. SERVICES LOCATIONS SHOWN ARE INDICATIVE ONLY. THE CONTRACTOR SHALL REFER TO SERVICE AUTHORITIES FOR ACCURATE LOCATION OF SERVICES ON SITE.

|                    |                             |                  |
|--------------------|-----------------------------|------------------|
| CONSTRUCTION RISKS | MAINTENANCE / CLEANING RISK | DEMOLITION RISKS |
|                    |                             |                  |

In addition to the hazards/risks normally associated with the types of work detailed on this drawing take note of above. It is assumed that all works on this drawing will be carried out by a competent contractor working, where appropriate, to an appropriate method statement.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

Purpose of issue  
**FOR INFORMATION**

Client  
 Kilkenny County Council  
 County Hall,  
 Kilkenny

Project Title  
**KILKENNY CITY PEDESTRIAN BRIDGE**

Drawing Title  
**EXISTING SERVICES INDICATIVE LOCATIONS**

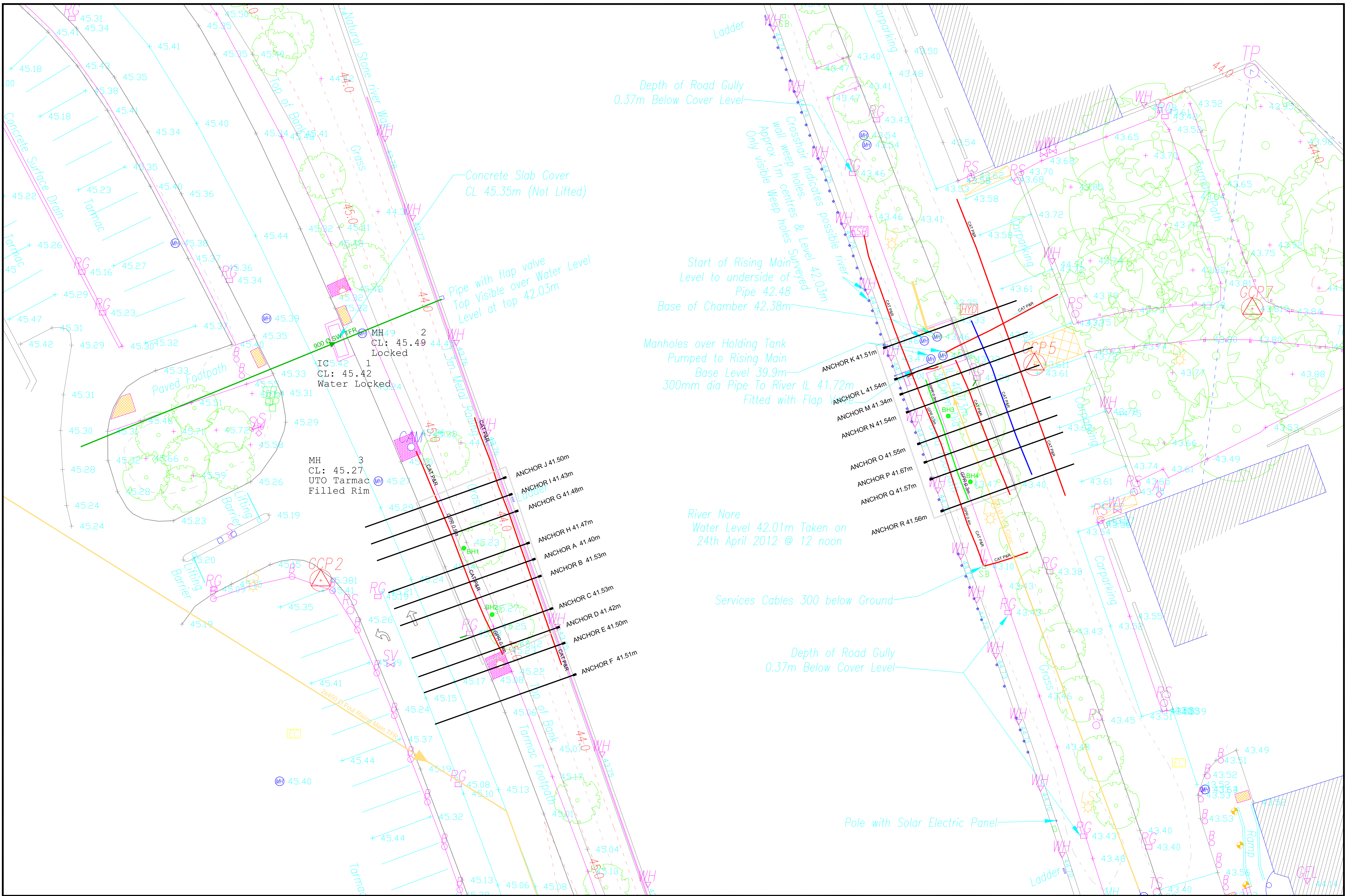
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|--------------------------------------|-------------|----------------|----------------|--------------------|
| Designed<br>EG                       | Drawn<br>EG | Checked<br>EG  | Approved<br>EG | Date<br>22/05/2012 |
| URS Internal Project No.<br>47061456 |             | Stability      |                |                    |
| Scale @ A1<br>1:100 & [1:200 at A3]  |             | Zone / Mileage |                |                    |

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 Inagh Court  
 6-8 Harcourt Road  
 Dublin  
 01 415 5100  
 01 415 5101  
 www.ursglobal.com

Drawing Number  
**47061456 / SU / 001**

Rev  
**0**



Depth of Road Gully  
0.37m Below Cover Level

Concrete Slab Cover  
CL 45.35m (Not Lifted)

Pipe with flap valve  
Top Visible over Water Level  
Level at top 42.03m

Start of Rising Main  
Level to underside of  
Pipe 42.48  
Base of Chamber 42.38m

Manholes over Holding Tank  
Pumped to Rising Main  
Base Level 39.9m  
300mm dia Pipe To River IL 41.72m  
Fitted with Flap Valve

River Nore  
Water Level 42.01m Taken on  
24th April 2012 @ 12 noon

Services Cables 300 below Ground

Depth of Road Gully  
0.37m Below Cover Level

Pole with Solar Electric Panel

**Minerex**  
Geotechnical & Environmental  
Services  
Unit 16, Heywood Business Campus  
Heywood, Co. Kildare  
Tel: (011) 6110010  
Fax: (011) 6110033  
Email: info@minerex.ie  
Web: www.minerex.ie

CLIENT: Geotechnical & Environmental  
Services  
PROJECT: Kilkenny City Pedestrian Bridge  
Survey for Services and Gr. Anchors  
DRAWN: DA  
DATE: 27/07/2012  
MIX FILE: 16114\_Min-Eng  
STATUS: Draft

SCALE: 1:100 or A2  
PROJECT: S&I  
DRAWN: DA  
DATE: 27/07/2012  
MIX FILE: 16114\_Min-Eng  
STATUS: Draft

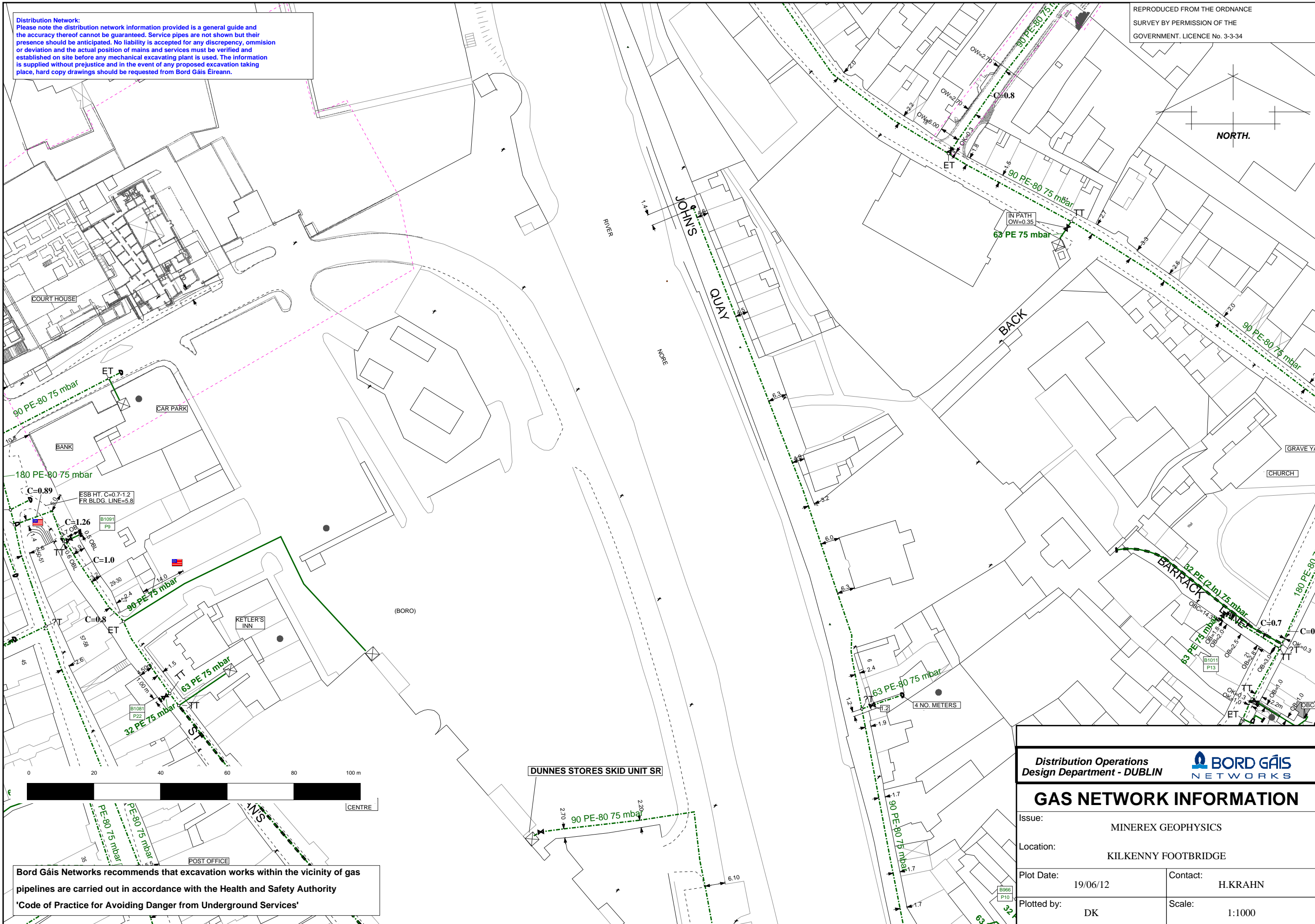
Legend:  
Electrical Cables  
Fire Drain  
Surface Water Drain  
Water Supply  
Flow Direction  
Survey Area Boundary  
Unknown Service/Object

CAT P&R CAT Power and Radio Response  
GPR 0.5m GPR Depth Estimate  
ANCHOR K 41.51m  
Visible Anchor Head  
Trace of Anchor from Drawings  
Elevation of the Anchor Head

BH1  
Proposed Bore Hole Location for Ground Investigation

**Distribution Network:**  
 Please note the distribution network information provided is a general guide and the accuracy thereof cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability is accepted for any discrepancy, omission or deviation and the actual position of mains and services must be verified and established on site before any mechanical excavating plant is used. The information is supplied without prejudice and in the event of any proposed excavation taking place, hard copy drawings should be requested from Bord Gáis Éireann.

REPRODUCED FROM THE ORDNANCE  
 SURVEY BY PERMISSION OF THE  
 GOVERNMENT. LICENCE No. 3-3-34



|   |                     |          |         |
|---|---------------------|----------|---------|
| Distribution Operations<br>Design Department - DUBLIN |                     |          |         |
| <b>GAS NETWORK INFORMATION</b>                        |                     |          |         |
| Issue:  | MINEREX GEOPHYSICS  |          |         |
| Location:   | KILKENNY FOOTBRIDGE |          |         |
| Plot Date:  | 19/06/12            | Contact: | H.KRAHN |
| Plotted by:   | DK                  | Scale:   | 1:1000  |



TITLE: 2012/03/16-030

COLOUR CODE:

- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
- GREEN - MV (10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV & 400V/230V) UNDERGROUND CABLE ROUTES

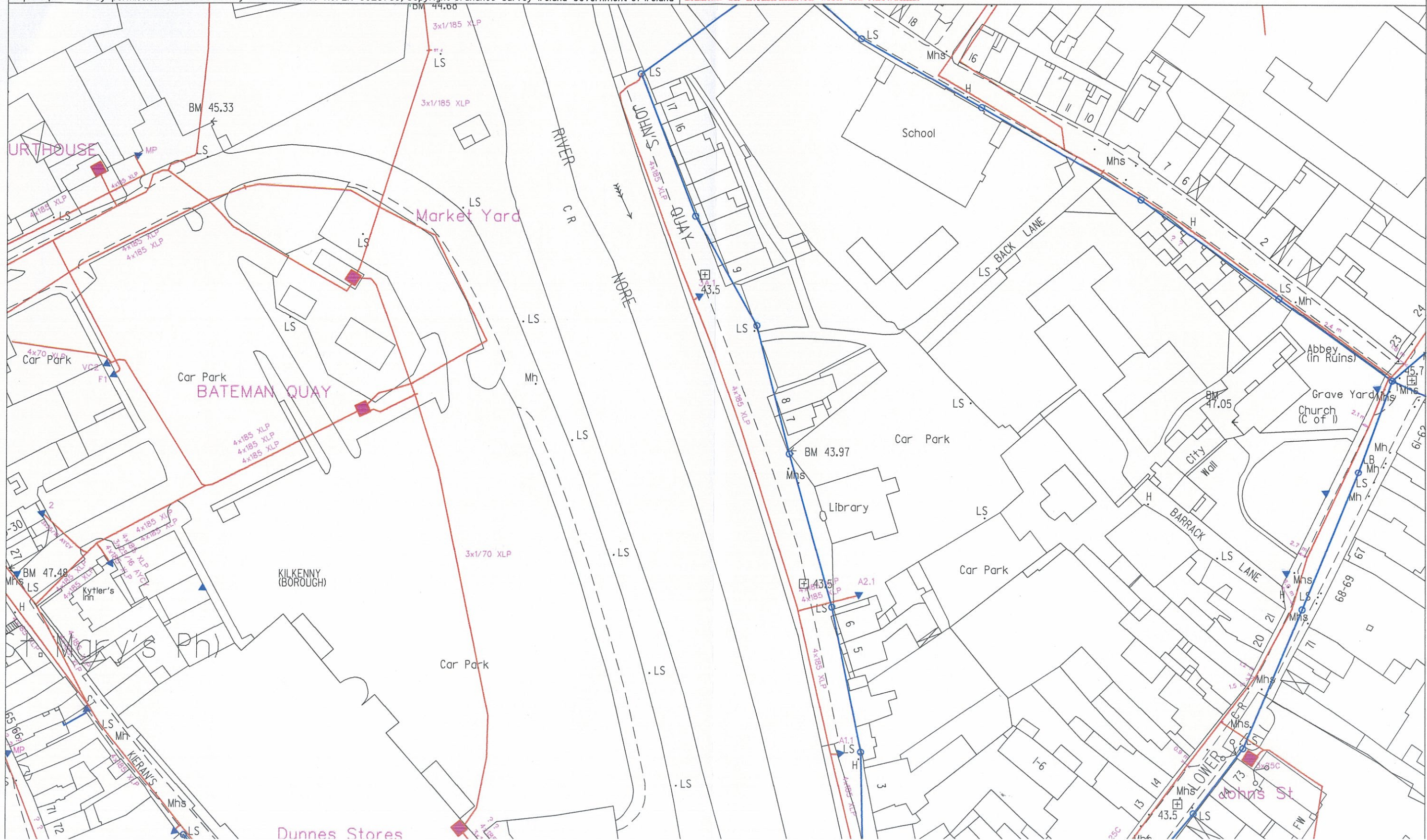
SCALE: 1: 1000  
DATE: 16-MAR-2012

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**WARNING**

THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB NETWORKS TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS MAP. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORYSHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON SITE USING:

(A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATOR EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY AND SHALL BEAR NO LIABILITY IN RELATION TO ANY DAMAGE, INJURY /DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.





TITLE: 2012/06/18-024

**WARNING**

THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB NETWORKS TRANSMISSION UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROJECT. THE ACCURACY OR COMPLETENESS OF THIS MAP. LOW VOLTAGE (230V/400V) SERVICE CABLES, STREET LIGHTS, LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED INFORMATION. THIS INFORMATION SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF CABLES SHOULD BE AND VERIFIED ON SITE USING:  
(A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATOR EQUIPMENT OPERATED IN BOTH DIRECTIONS. Holes using 'SAFE DIGGING PRACTICE'. REFER ALSO TO "HSA CODE OF PRACTICE FOR EXCAVATION". ESB TAKES NO RESPONSIBILITY AND SHALL BEAR NO LIABILITY IN RELATION TO ANY DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

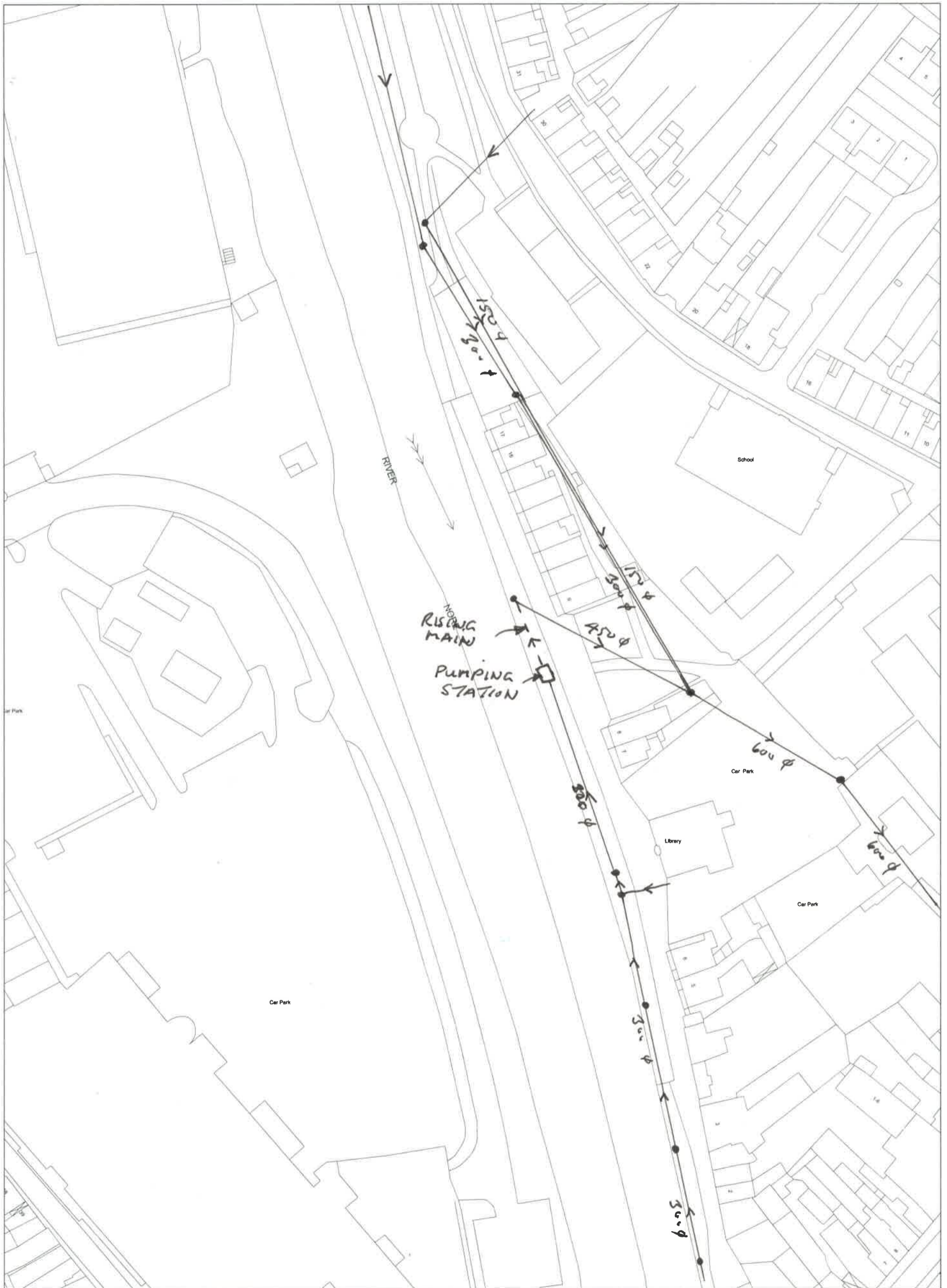
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- GREEN - MV (10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV & 400V/230V) UNDERGROUND CABLE ROUTES

SCALE: 1:500  
DATE: 18-JUN-2012

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22 Mar 2012

DRAINAGE EAST BANK

Scale 1: 1000



Court House

Car Park

Bank

Car Park

COMBINED PUMPING STATION

PIS

SLU

600φ RISING MAIN (CS)

RIVER

MORE

DRAINAGE WEST BANK

DUNNES

Car Park

Bank

Kylie's Inn

PLU

450φ RISING MAINS

225φ S

F/V

600φ

1080φ F/S

375φ BREWERY

600φ S

900φ S

900φ F/V

450φ S

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225φ F

450φ S

225φ F

450φ S

225φ F

50-51

29-30

27

57

58

59

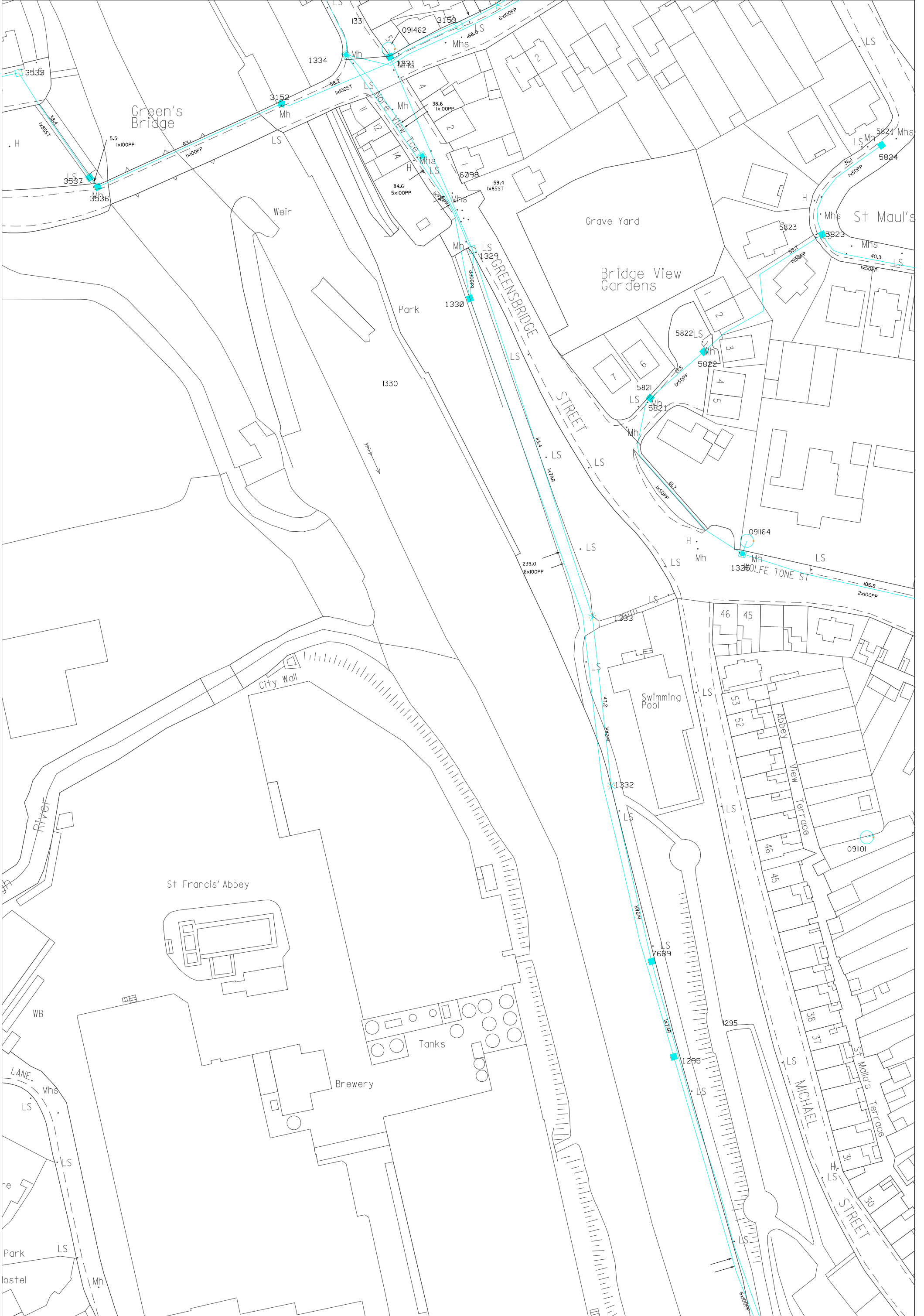
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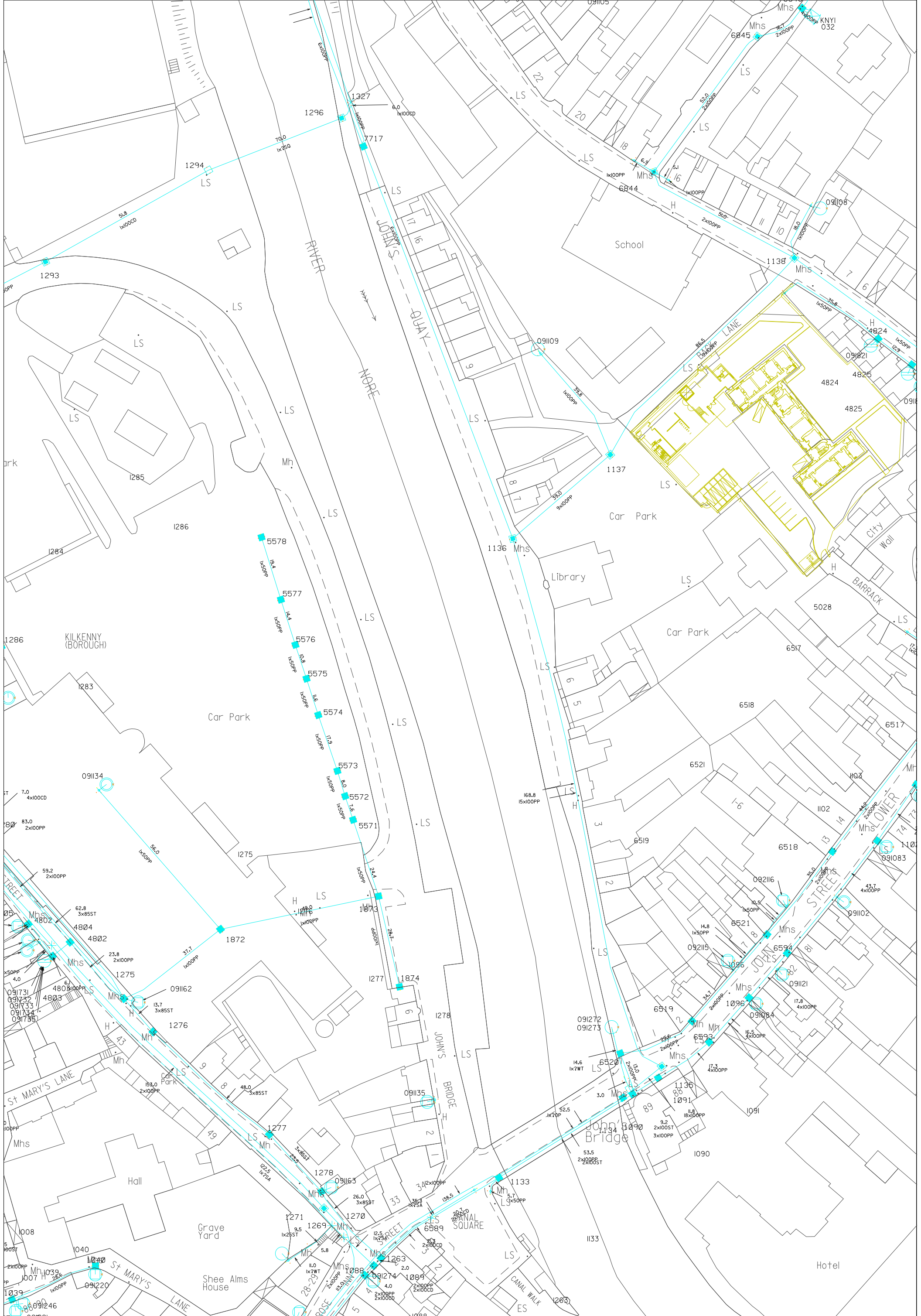
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












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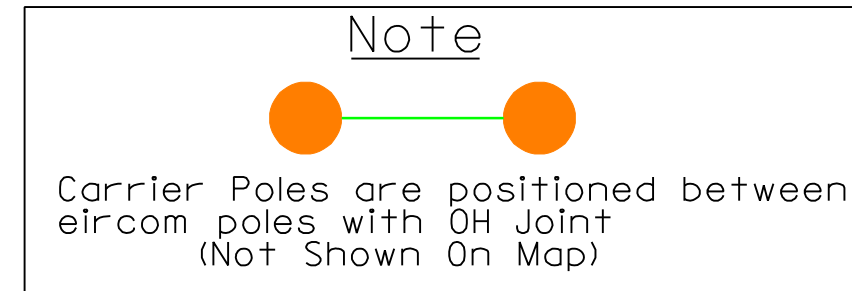




## Plant Records Legend

|   |                |  |                        |
|---|----------------|--|------------------------|
|    | Access Chamber |    | Distribution Point     |
|    | Manhole        |    | DP (External)          |
|    | Buried Box     |    | DP (Internal)          |
|  | Coupling       |  | DP Underground         |
|  | Duct Route     |  | Callpoint (Kiosk)      |
|  | CCP (Cabinet)  |  | Overhead Cable Route   |
|  | Exchange MDF   |  | Duct Termination Point |

 eircom Pole with OH Joint



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