Contents

This booklet contains important safety advice. Please read the following before you start work:

Natural gas **characteristics and behaviour**

Characteristics

Natural gas is:

- a highly flammable gas;
- lighter than air and will rise when released;
- non toxic (but can suffocate in enclosed or confined spaces); and
- made up mostly of methane and has a smell added for safety purposes.

Behaviour

During an uncontrolled escape, natural gas will behave in the following ways:

- In open excavation, where there is a clear path to the atmosphere, natural gas will rise, dilute and disperse into the air
- If the path to the atmosphere is blocked, the gas will travel through soil, ducts, drains, sewers and voids. It can also follow the line of other buried utility services. This can lead to gas entering a building or other confined spaces, and may lead to a fire or explosion.

Note: Never cover a damaged gas main or service; or attempt to carry out a repair. Call 1850 20 50 50 immediately.

Risks of **damaging a gas pipe**

The risks of damaging a gas pipe can be classified as:

Highest Risk

Mechanical excavators pose the highest risk and "should not be used within 500 mm of a gas distribution pipe."
(HSA Code of Practice)

Mechanical excavators must not be used within 3 metres of a Transmission pipeline.

(Refer to Gas Networks Ireland Transmission Code of Practice)

High Risk

Hand held power tools should not be used directly over the line of a gas pipe, unless the gas pipe has been positively located by hand and a safe working distance has been established.

Use of handheld power tools is not permitted within 1.5 m of a Transmission pipeline.
(Refer to Gas Networks Ireland Transmission Code of Practice)

Damage to gas pipes from power tools presents a high risk to the operatives involved in the work.

Low Risk

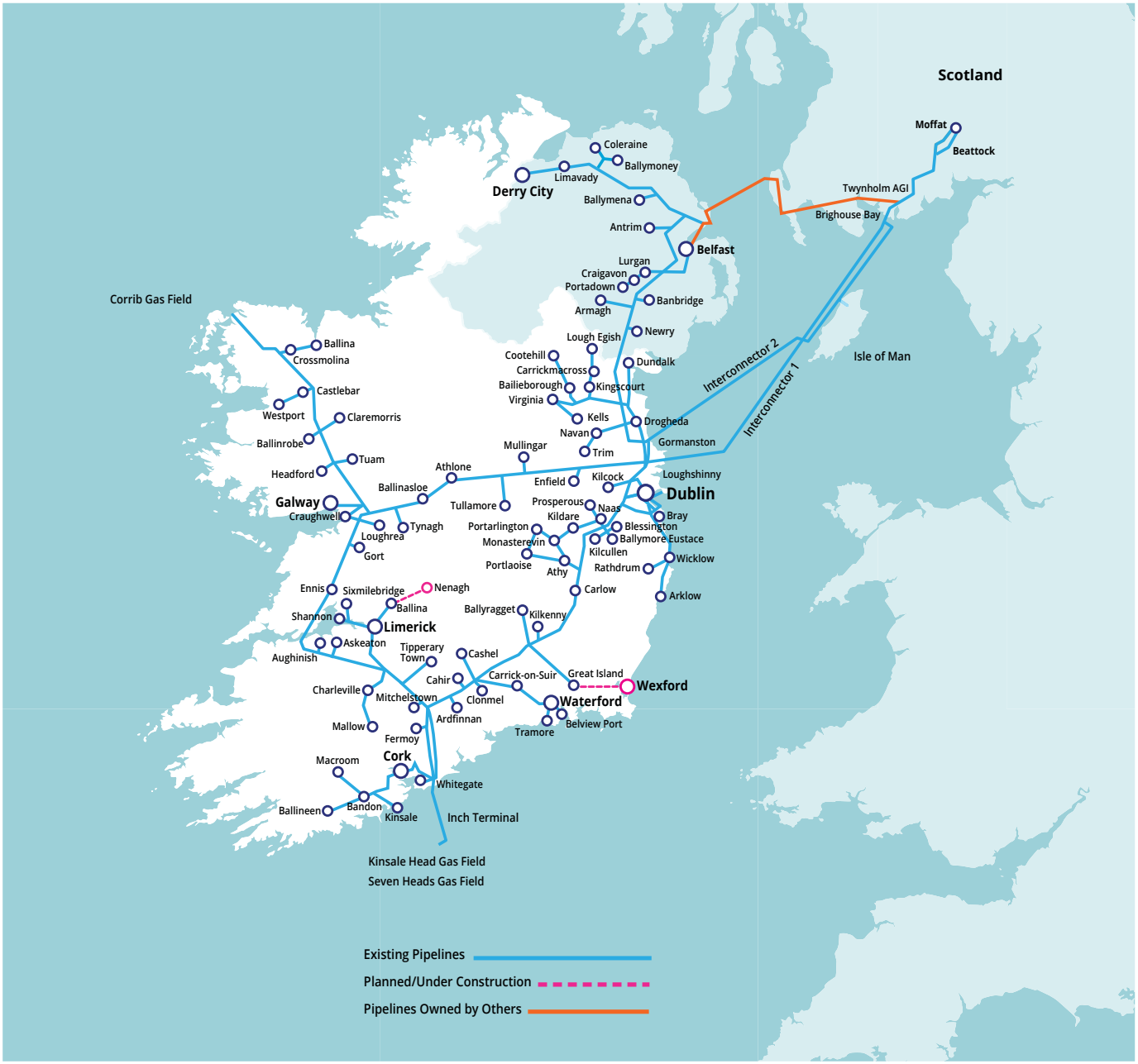
Hand digging using shovels and spades presents the lowest risk of damaging a gas pipe.

This is the method that should be used where the presence of gas pipes is suspected or close to a known gas pipe.

Risks from a **damaged gas pipe**

- Remember when gas escapes, or is released in an uncontrolled way; it can fuel a fire, give rise to an explosive atmosphere or cause asphyxiation.
- If you suspect there is a gas leak, immediately call Gas Networks Irelands' 24hr Emergency Service on **1850 20 50 50**.
- Gas can quickly fill underground cavities and travel into buildings through soil, or following the line of other buried utilities.
- Gas can only burn if exposed to an ignition source:
  - Do not turn electrical switches on or off
  - Do not operate any plant or equipment
  - Do not use naked flames or smoke
  - Do not use mobile phones in the vicinity.
- Move people away from, and upwind of, the affected area.
- If gas has entered a confined space or building:
  - Open doors and windows
  - Turn off the gas supply at the meter
  - Do not expose to an ignition source.

Gas Networks Ireland **transmission network**



Gas Networks Ireland transports gas in Ireland through a network of steel, polyethylene (PE) and cast/ductile iron pipes. The network operates at pressures between 20 mbar and 85 bar and is split between Transmission and Distribution pipelines.

The **Transmission** system is made up of steel pipes and operates from 7 bar to 85 bar.

The **Distribution** system is made up mostly of polyethylene and cast/ductile pipes and operates from 20 mbar to 7 bar.

The **network**

The network is made up of three elements:

- Transmission pipes
- Distribution pipes
- Pressure Regulating Installations

Transmission pipes

These are high pressure pipelines that transfer gas across the country. They are constructed from steel, with a black or concrete coating, and may have marker posts at intervals along their length, particularly at field boundaries and road crossings.

If a transmission pipeline is identified near intended excavations then work must not proceed until Gas Networks Ireland Transmission has been consulted on 1850 42 77 47.

Distribution pipes

These are medium or low pressure pipelines within urban areas. They are mainly constructed from Polyethylene (PE) and are predominantly yellow in colour, but may have brown or black stripes. There are two types – Mains and Services.

Mains gas pipes usually run parallel to property in the footpath, grass verge or road and range in size from 63 mm to 400 mm diameter.

Service gas pipes are connected to mains and run to a meter position at the property, and range in size from 20 mm to 63 mm diameter.

Note: There is a limited use of steel pipes in areas like bridges or where only shallow depths can be achieved.

There are still a small number of ductile and cast iron gas mains in use, ranging in size from 3 inch (75 mm) to 24 inch (600 mm) in diameter. (These mains are similar in appearance to metal water mains.) Steel and PE gas services are run from these metal mains to the meter location at each building.

These ductile and cast iron mains and services have been largely replaced with PE pipes. In urban areas a large number of redundant ductile or cast iron pipes are utilised as carrier pipes for new PE pipelines.

District Regulating Installation (DRI)

Pressure Regulating Installations

There are two types: Above Ground and Under Ground

Above Ground Installations (AGI) / District Regulating Installations (DRI)

An AGI/DRI is a fenced area containing a visible arrangement of pipework and ancillary equipment and will be clearly marked with Gas Networks Ireland signage.

Under Ground Installations (UGI /DRIug)

Gas Networks Ireland also have underground pressure regulating installations which have metal or concrete cover plates. There will be no visible arrangement of pipework etc, as this will be contained within the chamber.

If an AGI/DRI or UGI/DRIug is identified near intended works, then work must not proceed until Gas Networks Ireland has been consulted.

Gas Networks Ireland **construction methods**

Gas Networks Ireland use three main construction methods:

‘Dig’ Technique

Open Cut – installing pipe using standard trenching techniques. Pipe is laid with a sand or pea gravel surround and gas marker tape is laid above the sand.

‘No-Dig’ Techniques

Insertion – utilising existing metal gas mains / services as a carrier for new PE pipes. Inserted PE may be a close or loose fit. The carrier pipe is broken out at connection points, i.e. at pipe joints or where a gas service pipe is connected.

Moling/Directional Drilling – installing mains/ services where a ‘moling’ machine drills from one location to another pulling the pipe behind it using “no-dig” technology.

Note: Where pipe has been installed using “no-dig” techniques, the gas pipe will not have sand surround or marker tape.

Gas Networks Ireland construction – **depth of cover**

Typical service arrangement

New Mains – Normally 750 mm in roads and 600 mm in footpaths. (1.1 m in open fields)

New Services – 450 mm rising to 375 mm within 1.5 m of the building line. In some cases these depths are not achievable.

Service Connection

Note:

Older mains and services may have reduced cover.

Services and other connections are taken from the top of the main and will therefore have a reduced depth of cover.

Alteration since original installation – roads, footpaths and grass verges may have been altered since the gas main or service was laid and reduced the depth of cover.

Purge Points and Test Caps – Mains are laid with "purge points" and/or test caps at the ends. These may also rise above the top of the main.

Purge Point

Gas Valve Covers – Some gas services and mains have valves installed in the ground with surface boxes marked "GAS". Please ensure you do not remove or obstruct any gas valve covers.

Requesting **Gas Networks Ireland maps**

Gas Networks Ireland operates a **Dial Before You Dig** service to enable those involved in excavations to obtain natural gas network maps prior to starting work.

This service operates from 9am to 5.30pm, Monday to Friday.

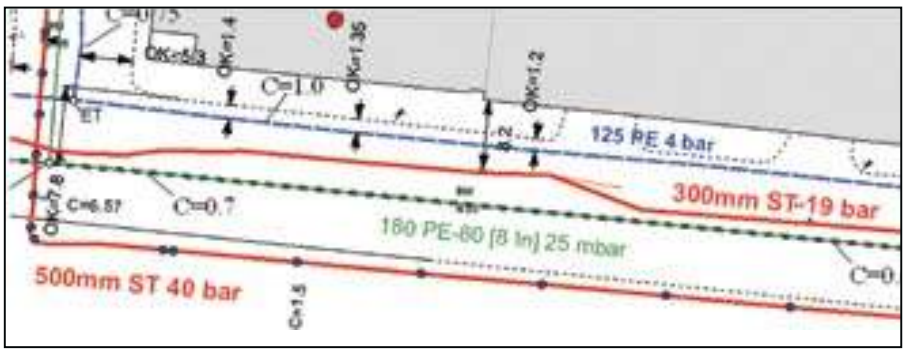
You can also email your enquiry to:
dig@gasnetworks.ie

Maps will be sent out by post or by email where appropriate. When you contact Gas Networks Ireland to request a map, ensure you give the precise location of the intended works. You may be required to give some information regarding the nature of the planned work, i.e. start date, any high risk activity, etc.

Ensure you have allowed enough time for the maps to be obtained and to organise for the pipe location to be marked out if transmission pipelines are involved.

Note: Typical turnaround for maps is five working days.

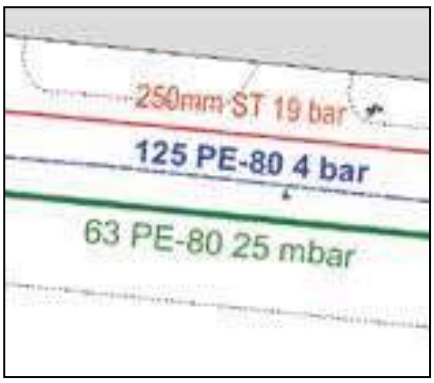
Organisers or planners of any work should ensure that the map is made available to personnel on-site.



Excerpt from a Gas Networks Ireland map.

Reading **Gas Networks Ireland maps**

Note: Natural Gas Network maps will only show mains and not services.
See page 16 for more information on service pipe locations.



The colour coding is as follows:

Red = Transmission Main*
= 7 to 85 bar.

Blue = Distribution Medium Pressure
= 100 mbar to 7 bar.

Green = Distribution Low Pressure
= up to 100 mbar.

Typical AGI

Pressure regulating installations are marked as:

DRI – District Regulating Installation (Above Ground)

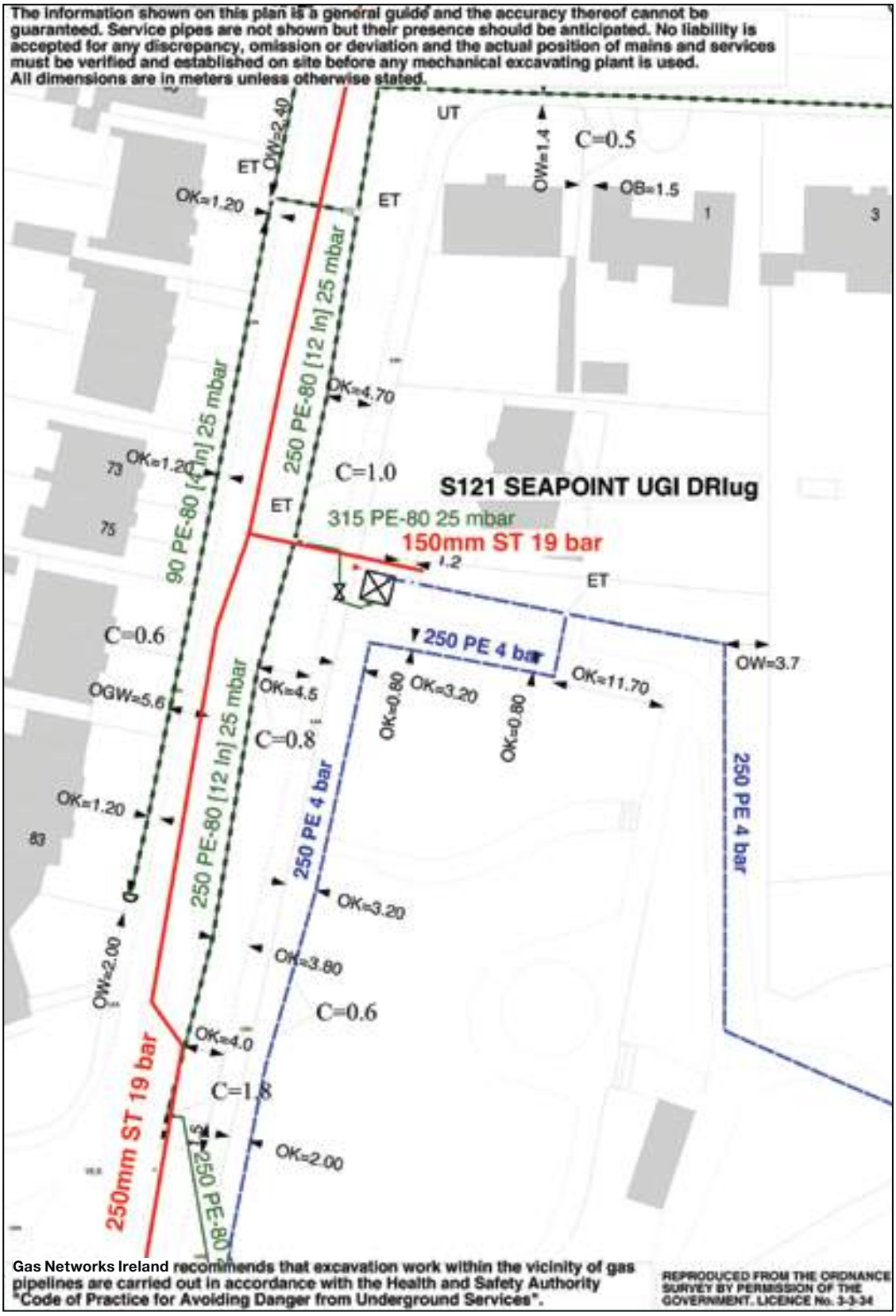
DRIug - District Regulating Installation (Under Ground)

UGI – Under Ground Installation

AGI – Above Ground Installation.

** If you obtain a natural gas network map that shows a **red** Transmission main in the area of the proposed works, consultation with Gas Networks Ireland **must** take place **before** starting works. Gas Networks Ireland will advise you on the safety measures required and will arrange for the exact location of the pipe to be marked out on site.*

Reading **Gas Networks Ireland maps**



Example of a Gas Networks Ireland map

Abbreviations

OK = Kerb, Curb
ORE = Road Edge
ORB = Rail Base
OB = Building
OW = Wall
OF = Fence
ODW = Dividing Wall
OGW = Garden Wall
RD = Road
BR = Branch
RED = Reducer
C = Cover to top of pipe
LH = Left Hand
RH= Right Hand
SWP = Sweep
CNR = Corner
S = South
N = North
E = East
W = West
No. = Number
Ctr = Centre
CL = Centre Line
Trans = Transition
DIV = Dividing
PK = Park
Conn = Connection
Opp = Opposite
Cplg = Coupling

Gas **services**

Typical service arrangement

Service rise cover

Natural gas services are not normally identified on network maps, but their presence should be assumed. Services will normally, but not always, run at right angles from the main to the meter point.

To assist in determining the approximate position of gas services ensure you:

- Obtain a natural gas network map to identify the position of the gas main
- Complete a site survey looking for gas meter boxes/cabinets, house entry points, service risers and gas valve covers
- Older buildings may have no visible signs of a service, as the service may run directly into the building underground, with the meter fitted internally. In these cases a check should be made inside the building to identify the meter position.

Note: Ensure you utilise safe digging practices to locate the exact position of gas services.

Domestic meter box

Six meter cabinet

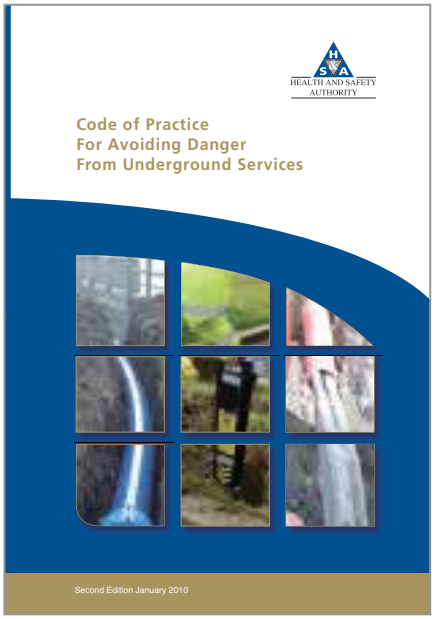
Purpose built multi-meter house (apartment complex).

Safe systems of work

Safe systems of work, as recommended by HSA should be employed on all projects.

Guidance on this can be found in the:

HSA: Code of Practice for Avoiding Danger from Underground Services.



Available from HSA website: **hsa.ie**

A safe system of work will include the following elements:

- Planning
- Obtaining and using utility maps
- Identifying pipes/services
- Safe digging practices.

- Explosives must not be used within 30 m of any gas pipe, (400 m for Transmission Pipelines), without prior consultation with Gas Networks Ireland.
- Piling, directional drilling or boring must not take place within 15 m of a gas pipe unless Gas Networks Ireland has been consulted.
- Extra care should be exercised when performing 'hot work' (such as welding) where a gaseous atmosphere could exist. If this potential exists Gas Networks Ireland must be consulted.

Contact Gas Networks Ireland: 1850 20 06 94

Safe systems of work

Planning

- Early contact should be made with Gas Networks Ireland to obtain a Natural Gas Network map.
  Dial Before You Dig 1850 42 77 47
- Work involving piling, demolition, directional drilling, use of explosives or 'hot works' should be mentioned, as this may necessitate a site visit from Gas Networks Ireland personnel.
- Ensure you have allowed enough time to obtain the maps.

Maps

- Gas Networks Ireland will issue maps as outlined in this booklet. It is imperative that these maps are available for the operatives on-site for the duration of any works.
  The responsible person should ensure that operatives on-site understand the maps.

Identifying Pipes

- Steel, cast iron and ductile Iron gas pipes can usually be traced using a conventional pipe/cable locating device set to "R" (Radio) mode.
- Polyethylene mains and services cannot be traced using conventional devices, so it is essential that maps are used and site surveys for meter boxes, valve covers, service risers, reinstatement scarring and other signs are completed.
- During the progress of works ensure no gas valve covers or markers are covered over.
- The position of gas mains and services should be marked out as they are located.

Note: Transmission pipelines must be marked out by a Gas Networks Ireland inspector.

Safe systems of work

Safe digging practices:

- As per the HSA Code of Practice, gas mains and services should be located by digging trial holes by hand. Mechanical excavators should not be used within 500 mm of any gas main.
  Mechanical excavators MUST NOT be used within 3 m of a Transmission pipeline.
  (Refer to Gas Networks Ireland Transmission Code of Practice)
- Never use hand held power tools directly over gas pipes unless precautions to prevent damage have been made and the pipe has been positively located.
  Use of handheld power tools is not permitted within 1.5 m of a Transmission pipeline.
  (Refer to Gas Networks Ireland Transmission Code of Practice)
- Do not leave a polyethylene gas pipe exposed
- Provide adequate support for any gas pipe uncovered during the work
- Report any damage, no matter how minor it may appear, to **1850 20 50 50**
- If you have any concerns regarding safety around gas pipes contact Gas Networks Ireland for advice on **1850 20 06 94**.

What to do if a gas pipeline is damaged

(or if you smell gas in the area)

- Do not turn any electrical switches on or off, e.g. ignition switches
- Do not operate any plant or equipment
- Move people away from, and upwind of, the affected area. Restrict employee and public access to the affected area
- Prevent smoking, the use of naked flames, the use of mobile phones and other ignition sources in the vicinity of the leak
- Report the leak/damage immediately to:
  Gas Networks Ireland 24hr Emergency Service on 1850 20 50 50
- Provide accurate information on your location and the nature of the incident
- Do not attempt to repair the damage
- Do not cover up a damaged main or service, this may lead to the gas travelling through soil, ducts, sewers, chambers or voids and potentially building up inside a premises or confined space
- Do not turn off any gas valves in the road or footpath, (you may be causing further problems by doing so)
- Assist Gas Networks Ireland emergency personnel as required
- Remember any damage to gas pipes, even if the pipe does not appear to be leaking, must be reported to Gas Networks Ireland.

If you smell gas call

1850 20 50 50

24hr emergency service

Gas Networks Ireland contacts

The main contact numbers for Gas Networks Ireland are

24hr Emergency Service
1850 20 50 50

24 hours, 7 days a week

Dial Before You Dig
1850 42 77 47

Monday to Friday 9am – 5.30pm

General Enquiries
1850 200 694

Monday to Friday 8am – 8pm
Saturday 9am – 5.30pm

gasnetworks.ie

For “Dial Before You Dig” posters or stickers for your workplace call: **1850 20 06 94**

Other useful publications

HSA: Code of Practice for Avoiding Danger from Underground Services

HSA: Guide to Safety in Excavations

both are available free of charge from:
Health and Safety Authority on **1890 289 389**
www.hsa.ie

ESB Networks: Avoidance of Electrical Hazards When Digging

available free of charge from:
ESB Networks on **1850 37 27 57**
esb.ie/esbnetworks

Gas Networks Ireland

The main contact details for Gas Networks Ireland are:

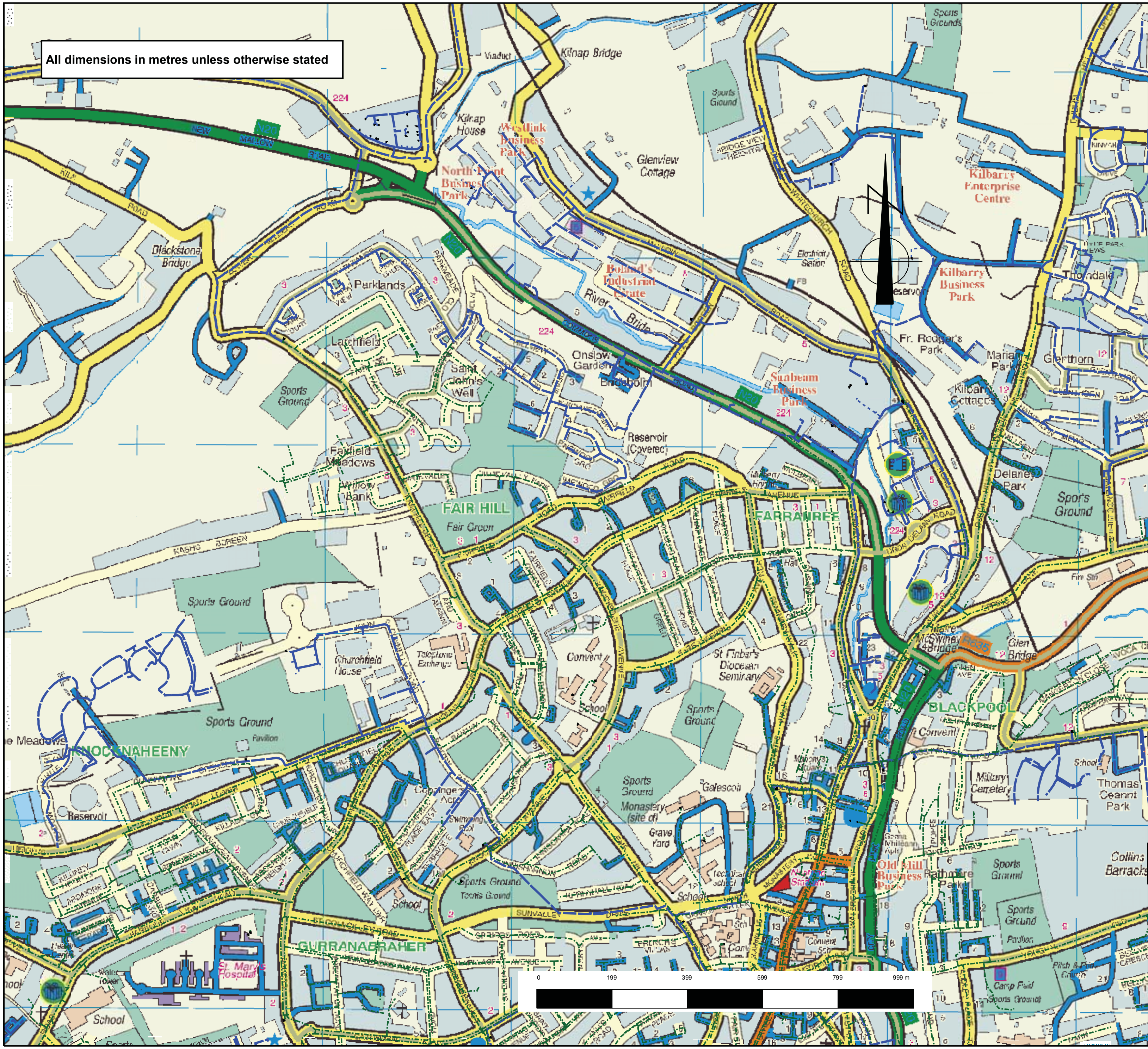
General Enquiries
1850 200 694

24hr Emergency Service
1850 20 50 50

networksinfo@gasnetworks.ie

gasnetworks.ie

25602/12/14



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1964 Ordnance Survey Ireland, year
(The year to use is the date of publication)

High Pressure transmission pipelines are shown in red. Gas network information is provided as a general guide. Ervia trading as Gas Networks Ireland [GNI] (formerly Bord Gáis Networks) cannot guarantee its accuracy and it should not be relied upon for accurate distance or depth of cover measurements. If a transmission pipeline is identified within 10m of any intended excavations then work must not proceed before GNI has been consulted. The true location and depth of a transmission pipeline must be verified on site by a representative of GNI. A representative can be contacted through 1850 427 747. GNI does not accept any responsibility or liability to you in respect of any discrepancy, omission or deviation of the actual location of pipelines from the drawings provided.

Damaging a gas pipe can result in serious injury or death. Failure to carry out appropriate investigations to establish the exact locations of gas pipelines is an offence. Failure to comply with the HSA 'Code of Practice for Avoiding Danger from Underground Services' may be used in evidence in the prosecution of an offence.

Distribution Network: Gas network information is provided as a general guide. Ervia trading as Gas Networks Ireland [GNI] (formerly Bord Gáis Networks) cannot guarantee its accuracy and it should not be relied upon for accurate distance or depth of cover measurements. The exact location and depth of gas pipes must be verified on site by hand digging trial holes along the route of the pipe. Service pipes are not generally shown but their presence should always be anticipated. GNI does not accept any responsibility or liability to you in respect of any discrepancy, omission or deviation of the actual location of pipelines from the drawings provided.

CAP/OPP/1	Note
TT	Tee
C=0.6	Cover
250 PE (12	Distribution Pipe Annotation
1530	LoadMAN Analysis Node
63 PE 25 m	Service Pipe Annotation
90 PE (4	Distribution Pipe Annotation
C=0.7	Cover
747	LoadMAN Analysis Node
ET	Tee
(4 In)	Abandoned Pipe Annotation
	dimensioning
	End Cap
	Syphon
	Tee
	Reducer, Known Location
	Valve, Open
	LoadMAN Analysis Node
	Valve, Open
	Joint
	Reducer, Presumed Location
	Syphon
	Transition
	End Cap
	Reducer, Known Location
	Tee
	LoadMAN Analysis Node
	DCPP, Baymont
	DCPP, Compaq
	Pipe Cross Over, Distribution Pipes
	Cover
	Pipe Cross Over, Distribution Pipes
	Cover
	Field Reference Note, Dark Blue
	Field Reference Note, Dark Green
	Service Pipe
	Distribution Pipe
	Distribution Pipe
	Note
	Tee
	Cover
	Distribution Pipe Leader Line
	Service Pipe Leader Line
	Distribution Pipe Leader Line

	Cover
	Tee
	Abandoned Pipe, Vacant
	Abandoned Pipe, Inserted
	drafting_lines
	drafting_lines
	Building
	Building, U
	Building, P
Telephone	IOS 1000 Text
Bank	IOS 1000 Text
Ward Bdy	IOS 1000 Text
30.6	IOS 1000 Text
500	IOS 1000 Text
107	IOS 1000 Text
	IOS 1000 Feature

Scale: 1:10000

Design Department - CORK

Gas Networks Ireland

GAS TRANSMISSION NETWORK INFORMATION

Issue:	MKOS - GNI/DLE/2711		
Location:	Cork City Blackpool / Bride		
Plot Date:	09/10/15	Contact:	021-453 4562
Plotted by:	D O'S	Scale:	1:10000

John Staunton

From: eralcentra centra eralcentra hotmail.com
Sent: 20 October 2015 1:36
To: John Staunton OPW E era
Sub ect: Fwd: To John Staunton

Begin orarded message:

> **From:** eralcentra centra eralcentra otmail.com
> **Date:** 20 October 2015 1:33:3 IS
> **To:** er buckley eralcentra otmail.com
> **Subject: To John Staunton**
>
> o on Staunton
> McCarty Keille O'Sullian Ltd.
>
> Dear on
> ank you or te EI Scoping document re Blackpool. e Blackpool lood Committee met on te 13/10/'15 to discuss same. ere as unanimous support or your approac e ould like to tank bot te OP and McCarty Keille O'Sullian or taking on board so many o te concerns e pressed by our local Group. ere ere a e uestions tat ere raised at our meeting and I ould be grateul i you could raise tem it te OP and come back to me.
>
> 1.Is te ras Screen by Dulu sel cleaning
>
> 2. at is te purpose o te pumping station in Orc ard Court
>
> 3. at is te capacity o te ne cul ert as te current capacity is 26 cubic metres per second at erlands Lane
>
> 4.Is it possible to lood your model it rain all o 30/6/'12 and so us te e ect
>
> im OBrien as emigrated to Spain so you can delete im rom your data base.
> Please orard all urter in ormation to myse
> eremy Buckley

Secretary
Blackpool □lood Group
Email □eralcentra□ □otmail.com

Mick Moriarty
C□airman
Blackpool □lood Group
6a Great □ illiam O'Brien S□
Blackpool
Cork

□ours Sincerely□
□er Buckley.

Cc E□era McMannimon

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Mr. John Staunton
McCarthy Kevinlle O'Sullivan Ltd
Planning & Environmental Consultants
Block 1, G.F.S.C.
Moneenageisha Road
Galway.

20 October 2015 TII 15-93245

Re: River Bride (Blackpool) Drainage Scheme

Dear Mr. Staunton,

Please note for future EIA Scoping referrals; the National Roads Authority and the Railway Procurement Agency (RPA) have been merged to form Transport Infrastructure Ireland (TII). The establishment of TII was confirmed by Mr Paschal Donohoe, T.D., Minister for Transport, Tourism & Sport, under the Roads Act, 2015, with effect from 1 August, 2015. Under Section 13 of the Roads Act, Transport Infrastructure Ireland is the name by which the National Roads Authority describes itself for operational purposes.

TII continues to be a prescribed body and statutory consultee for the purposes of the Planning & Development Acts, 2000 (as amended), and Planning & Development Regulations, 2001 – 2015.

TII would welcome all referrals and correspondence concerning planning related issues to be sent to Land Use Planning Unit, TII, Parkgate Business Centre, Parkgate St., Dublin 8, D08 YFF1.

In relation to the EIA Scoping referral, TII wishes to advise that it is not in a position to engage directly with planning applicants in respect to proposed developments. TII will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidelines as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012). Regard should also be had to other relevant guidance and circulars available at www.TII.ie.

In relation to EIS Scoping, the issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

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

Parkgate Business Centre,
Parkgate Street,
Dublin 8, Ireland

www.tii.ie
info@tii.ie
+353 (01) 646 3600
+353 (01) 646 3601

With respect to any Drainage Scheme, the recommendations indicated below provide only general guidance in relation to matters which may affect the National Road Network and may form part of your scoping and scheme preparation.

The scheme promoter/developer should have regard, *inter alia*, to the following;

- Consultations should be had with the relevant Local Authority/Regional Design Office with regard to locations of existing and future national road schemes in the area; N22/N20/N8 Cork Northern Ring Road.

- Although some national road schemes may currently be suspended pending the availability of funding for further progress, it is considered good practice to address impact or relationship with the relevant national road schemes in the proposed drainage scheme.

- The developer should assess impacts on existing national roads. The Authority would be specifically concerned as to potential significant impacts of development on the national road network (i.e. N20, national primary road) in the vicinity and/or downstream of any proposed works.

- In the interests of maintaining the safety and standard of the national road network, the EIS should identify the methods/techniques proposed for any works traversing/in proximity to the national road network, in particular any works that might affect existing structures on the national road network; early consultation with the NRA is recommended.

- In particular due to the potential for structures that may be required in the scheme to have an impact on the national road network, the developer is reminded of the requirements of NRA BD 2 - Technical Approval of Road Structures on Motorways and Other National Roads for structures. This Standard specifies the procedures to be followed in order to obtain Technical Acceptance for structures on motorway and other national road schemes and for the submission of as built records. The procedures cover the design of all road structures, including bridges, tunnels, subways, culverts, buried corrugated steel structures, retaining walls, reinforced earth structures, gantries, environmental noise barriers and temporary structures under or over motorways or other roads carrying public traffic.

  The Technical Acceptance requirements, if any, for the assessment, alteration, modification, strengthening and repair of all road structures (national roads) shall be agreed with the Bridge Management Section of TII.

- The developer should have regard to any Environmental Impact Statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should in particular have regard to any potential cumulative impacts.

- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA DMRB and the NRA Manual of Contract Documents for Road Works.

- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006).

- The EIS should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)).

- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines and best practice, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. The Authority's Traffic and Transport Assessment Guidelines (2014) should be referred to in this regard. Please also have regard to Section 2.2 of the Guidelines which address circumstances where sub-threshold TTA may be required.

- The designers are asked to consult the National Roads Authority's DMRB *Road Safety Audit* (NRA HD 19) to determine whether a Road Safety Audit is required.

- In relation to potential need for haul routes, the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route and all structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load that might be proposed.

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

I hope that the above comments are of use in your continuing process.

Yours sincerely,

Michael McCormack
Policy Adviser (Planning)

**Note: In accordance with the provisions of section 13 of the Roads Act 2015, Transport Infrastructure Ireland (TII) is the operational name of the National Roads Authority with effect from 1 August, 2015.*

Oifig an Aire Post, Fiontar agus Nuálaíochta
Office of the Minister for Jobs, Enterprise and Innovation

Our Ref: **151687/MIN**

6 October, 2015

Mr. John Staunton
McCarthy Keville O'Sullivan Ltd.
Planning and Environmental Consultants
Block 1, G.F.S.C.
Moneenageisha Road
County Galway

Dear Mr. Staunton,

I wish to acknowledge receipt of your recent correspondence to the Minister for Jobs, Enterprise and Innovation, Mr Richard Bruton T.D., regarding the River Bride (Blackpool) Drainage Scheme - EIA Scoping.

I will bring your correspondence to the Minister's attention at the earliest opportunity.

Yours sincerely,

Therese Walsh
THERESE WALSH
PRIVATE SECRETARY

Sráid Chill Dara, Baile Átha Cliath 2, Éire • Kildare Street, Dublin 2, Ireland
T: + 353 1 631 2172 / 1890 220 222 • F: + 353 1 631 2815 • www.djei.ie • minister@djei.ie

Appendix 2C
Public Information Day No.1 & 2 – Brochure

What Happens Next?

All comments received in response to this Public Information Event will be considered by the OPW and will be taken into account in the preparation of the first stage in the Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool And Ballyvolane) Environmental Impact Assessment and the Engineering Study.

The Environmental Impact Assessment and Engineering Study for the Lower Lee (Cork City) Flood Relief Scheme will be delivered in the following Stages:

Environmental Impact Assessment			Engineering Study	
Stage I	Part 1	Constraints Study (*this stage*)	Stage I	Scheme Development
	Part 2	Screening for Appropriate Assessment		Data Gathering and Surveying
Stage II	Part 1	Environmental Assessment of Viable Options		Hydrology Study & Hydraulic Modelling
	Part 2	Appropriate Assessment		Site Investigations
Stage III		Environmental Impact Statement		Flood Risk Assessments
Stage IV		Public Exhibition		Flood Risk Management Options
				Cost Benefit Analysis
				Selection of Preferred Option
				Flood Risk Management Plan
			Stage II	Public Exhibition
			Stage III	Detailed Design
			Stage IV	Construction

Your Opportunity to Take Part

The Office of Public Works wishes to consider all viewpoints in relation to the Study Area being examined. This is your opportunity to take part at the early stages of the planning of the Flood Relief Scheme. Time spent communicating your views to the Office of Public Works is appreciated.

The general public and all interested parties are invited to give their opinions on the Study Area. Please examine the Study Area shown overleaf and let your views be known by either completing the enclosed questionnaire or writing to the address below, giving your comments. Your opinion will be appreciated and given full consideration.

Completed questionnaires may be handed in at the exhibition or posted to the address below using the stamped and addressed envelope provided, by **Friday** 26th July 2013.

Further Information

All queries, questionnaires and comments in relation to this project can be addressed to:

Contact Name: Brian Keville
Contact Title: Project Manager
McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants
Block 1, G.F.S.C., Moneenageisha Road,
Galway

Tel: +353 (091) 735611
Fax: +353 (091) 771279
Email: bkeville@mccarthykos.ie

OPW
The Office of Public Works
Oifig na nOibreacha Poiblí

Lower Lee (Cork City) Flood Relief Scheme

(Including Blackpool And Ballyvolane)

ARUP
JBA consulting
McCarthy Keville O'Sullivan
RYAN HANLEY

Public Consultation

July 2013

Ryan Hanley in association with McCarthy Keville O'Sullivan has been appointed by the Office of Public Works to carry out an Environmental Assessment of the proposed Lower Lee (Cork City) Flood Relief Scheme.

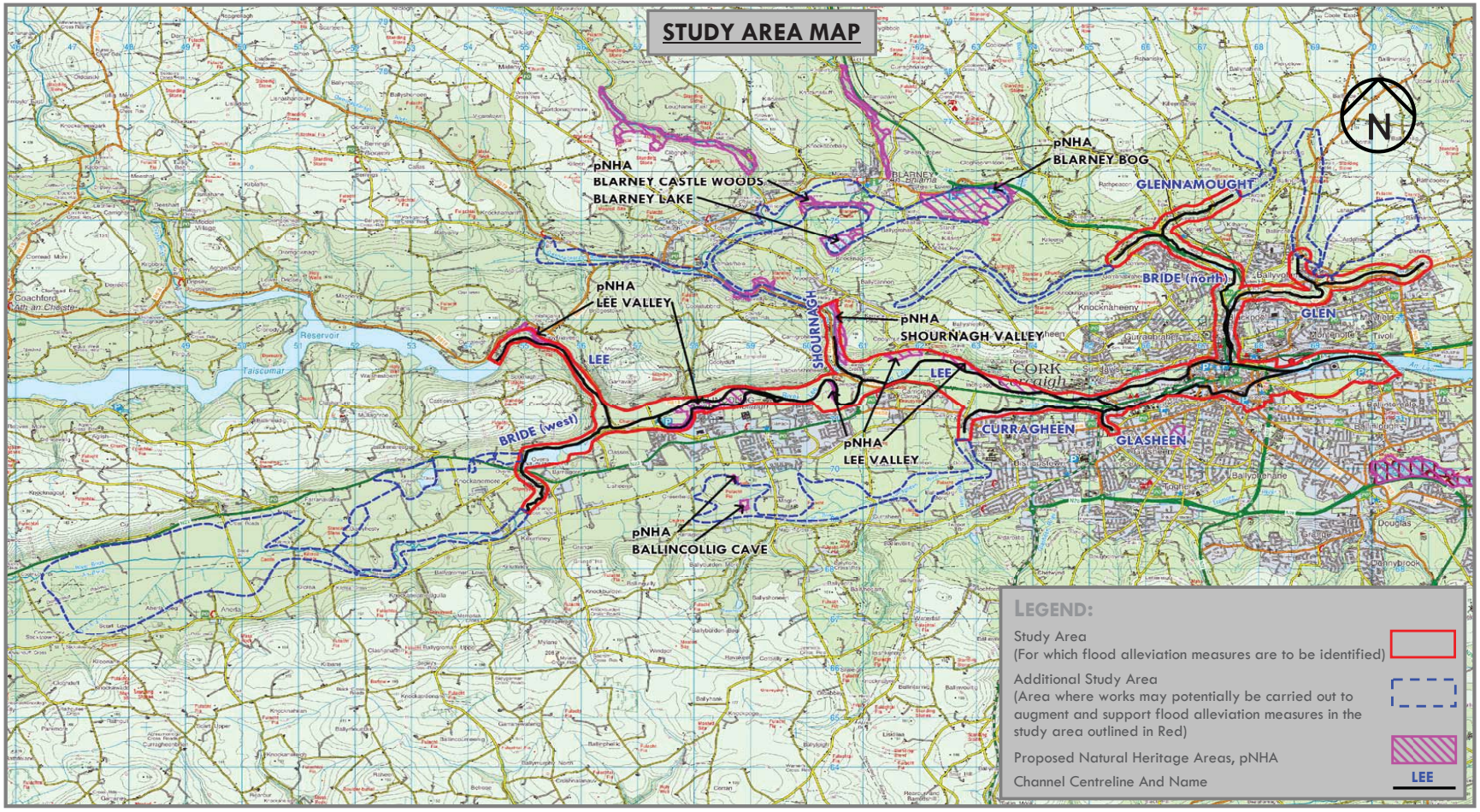
This is the first public consultation; its objective is to seek initial views from the public in relation to the key issues that the study should address, and highlight points of local importance that may constrain the design of potential flood alleviation measures.

Purpose of the Project

The purpose of the Lower Lee (Cork City) Flood Relief Scheme is to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme to alleviate flooding in Cork City, based on preferred options already identified in the Lee CFRAM Study. The Blackpool and Ballyvolane areas on the River Bride (north) will also be assessed for flood relief measures as part of the Flood Relief Scheme.

Current Position

Following on from the Lee CFRAMS and the publication of the draft CFRMP, the next stage is the commencement of the Lower Lee Flood Relief Scheme. The first phase of the scheme is the identification of a study area and the preparation of a Constraints Study as part of the Environmental Impact Assessment for the scheme. The Study Areas for the project are shown on the map above outlined in red and blue.



What is a Constraints Study?

A Constraints study identifies the key environmental issues in a study area which may be impacted upon by possible flood alleviation measures and/ or which may impose constraints on the viability and/ or design of these measures.

Engineering Study

An Engineering Study is being advanced in parallel with the Environmental Assessment of the Flood Relief Scheme.

The range of engineering measures typically considered for possible flood alleviation schemes in an Engineering Study include, but are not limited to those listed in the box to the right.

It is not possible at this stage to define the number of scheme options that will require study, although a typical Engineering Study of this nature will identify between three and five viable options.

Potential Flood Alleviation Measures (non exhaustive list)

a) Do Nothing (i.e., implement no new flood alleviation measures)
b) Non-Structural Measures (e.g. flood warning system or individual property protection)
c) Relocation of Properties and/or infrastructure
d) Reconstruction of Properties and/or infrastructure to a higher level
e) Flow Diversion (e.g. river diversion or flood flow bypass channel)
f) Flow Reduction (e.g. upstream catchment management or flood storage)
g) Flood Containment through Construction of Flood Defences
h) Increase Conveyance of Channel (upstream and/or through and/or downstream of the town)
i) Sediment Deposition and Possible Sediment Traps
j) Pump storm waters from behind flood defences
k) For Lower Lee specifically, works to facilitate a revised operating regime for Carrigadrohid and Inniscarra dams for the purposes of flood risk management

What Happens Next?

All comments received in response to this Public Information Event will be considered by the OPW and will be taken into account in progressing to the next stage in the Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool And Ballyvolane) Environmental Impact Assessment and the Engineering Study.

The Environmental Impact Assessment and Engineering Study for the Lower Lee (Cork City) Flood Relief Scheme will be delivered in the following Stages:

Environmental Impact Assessment			Engineering Study	
Stage I	Part 1	Constraints Study (*complete*)	Stage I	Scheme Development (*complete*)
	Part 2	Screening for Appropriate Assessment (*complete*)		Data Gathering and Surveying (*complete*)
Stage II	Part 1	Environmental Assessment of Viable Options (*next stage*)		Hydrology Study & Hydraulic Modelling (*complete*)
	Part 2	Appropriate Assessment (*next stage*)		Site Investigations (*complete*)
Stage III		Environmental Impact Statement		Flood Risk Assessments (*complete*)
Stage IV		Public Exhibition		Flood Risk Management Options (*complete*)
				Cost Benefit Analysis
				Selection of Preferred Option
				Flood Risk Management Plan
			Stage II	Public Exhibition
			Stage III	Detailed Design
			Stage IV	Construction

Your Opportunity to Take Part

The Office of Public Works wishes to consider all viewpoints in relation to the Emerging Preferred Option being proposed. This is your opportunity to take part and make your view and comments known as the Emerging Preferred Option is developed further and before final preferred options is selected. Time spent communicating your views to the Office of Public Works is appreciated.

The general public and all interested parties are invited to give their opinions on the Emerging Preferred Options. Please examine the details of the Emerging Preferred Options shown overleaf, on display at the Public Information Day, and online on the project website (www.lowerleefrs.ie) and let your views be known by either completing the enclosed comment sheet or writing to or emailing the address below, giving your comments. Your opinion will be appreciated and given full consideration.

Completed comment sheets may be handed in at the exhibition or posted to the address below, by Friday 29th August 2014.

Further Information

All queries and comments in relation to this project can be addressed to:

Contact Name: Brian Keville
Contact Title: Project Manager
McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants
Block 1, G.F.S.C., Moneenageisha Road,
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Tel: +353 (091) 735611
Fax: +353 (091) 771279
Email: bkeville@mccarthykos.ie

OPW
The Office of Public Works
Oifig na nOibreacha Poiblí

Lower Lee (Cork City) Flood Relief Scheme

(Including Blackpool And Ballyvolane)

ARUP
JBA consulting
McCarthy Keville O'Sullivan
RYAN HANLEY

Emerging Preferred Options

Public Consultation

July 2014

Introduction

Ryan Hanley in association with McCarthy Keville O'Sullivan, has been appointed by the Office of Public Works to carry out an Environmental Assessment of the proposed Lower Lee (Cork City) Flood Relief Scheme. The series of measures and options that will make up the proposed flood relief scheme are being developed as part of an Engineering Study being conducted by ARUP and JBA Consulting.

This is the second public consultation on the proposed flood relief scheme, and its objective is to inform the public and stakeholders of the progress made since the project commenced, and outline the emerging preferred options for alleviating flooding in the Lower Lee, including Blackpool and Ballyvolane.

Purpose of the Project

The purpose of the Lower Lee (Cork City) Flood Relief Scheme is to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme to alleviate flooding in Cork City, based on preferred options already identified in the Lee CFRAM Study. The Blackpool and Ballyvolane areas on the River Bride (north) are also being assessed for flood relief measures as part of the Flood Relief Scheme.

Constraints Study Update

A Constraints Study, identifying the key environmental issues in a study area that may be impacted upon by possible flood alleviation measures and/or which may impose constraints on the viability and/or design of these measures has also now been finalised, and is available on the project website (www.lowerleefrs.ie).

Emerging Preferred Options

An ongoing project Engineering Study being advanced in parallel with the Environmental Assessment of the Flood Relief Scheme, has now identified Emerging Preferred Options for the Lower Lee, Blackpool and Ballyvolane. The Options are listed in the boxes to the right, for each section of the study area.

Examples of Proposed Measures – Before And After Views

Existing view looking south over boardwalk at end of Grand Parade towards Sullivan's Quay

Existing view looking northwest from Lavitt's Quay towards Christy Ring Bridge

Existing view from Cork College of Commerce on Union Quay looking north towards pedestrian bridge

Proposed view of flood defence walls doubling as public seating with "tilt-up" or demountable flood barriers to fill gaps

Proposed view of new quay defence wall and solid bridge parapet

Proposed view of new flood defence walls to be closed off with flood gates when necessary

Lower Lee - Emerging Preferred Option

a) Detailed Flood Forecasting System
b) Flood Warning System (public alerts)
c) Further Optimised Dam Operating Procedures
d) Creation of Upstream Washlands
e) Local Conveyance Improvements and Direct Defences at Inniscarra Bridge
f) Local Defences at Inchagaggin
g) Flow Reduction Structure on South Channel
h) Direct Defences on Curaheen, Glasheen, North & South Channels
i) Flood Gates (at some footbridges and boardwalk locations)
j) Possible Raising of Vincent's Pedestrian Bridge & Cornmarker Street Footbridge
k) Localised Surface Water Pumps

Blackpool - Emerging Preferred Option

a) Channel Clearance and Maintenance
b) Direct Defences from Upstream of Northpoint Business Park to Fitz's Boreen
c) Replacement of some Bridges at Dulux and Fitz's Boreen
d) Sedimentation Area at Dulux
e) Flood Defence Walls at Orchard Court
f) Removal of Pedestrian Bridge & Replacement of Road Bridge at Orchard Court
g) Replacement/Upgrading of Culvert between Orchard Court & Blackpool Church
h) Infilling of Open Channel Section at Blackpool Church
i) Cleaning & Sealing of Culvert Downstream of B'pool Church
j) Realignment of Bride/Glin/Kiln Culvert at Madden's Buildings
k) Localised Surface Water Pumps

Ballyvolane - Emerging Preferred Option

a) Replacement of Existing Trashscreen
b) Management of Residual Overland Flood Risk
   i. Re-grading of Ballyhooley Road in vicinity of Mervue Lawn
   ii. Re-grading of access road into Mervue Lawn
   iii. Removal of boundary wall to northeast of Kempton Park
   iv. Re-grading of Kempton Park
   v. Creation of new swale to east of Leeds Park and Park Court
   vi. Replacement of manhole covers with slotted gratings

Appendix 2D
Public Information Day No.1 & 2 – Questionnaire

Landscape & Visual Amenity

Comment:

Angling, Tourism & Recreation

Comment:

Other

Comment:

The Office of Public Works (OPW) undertakes to hold any information provided to it by individuals or others on a confidential basis, subject to the OPW's obligations under law, including the Freedom of Information Act. If, for any reason, it is intended that information provided to the OPW should not be disclosed due to the sensitive nature of such information, it is incumbent on the person or body supplying the information to make clear this wish and to specify the reasons for the information's sensitivity. The OPW will consult with any individual or body so supplying sensitive information before making a decision on any freedom of information request received.

THANK YOU FOR YOUR CO-OPERATION

LOWER LEE (CORK CITY) FLOOD RELIEF SCHEME (INCLUDING BLACKPOOL AND BALLYVOLANE)

PUBLIC CONSULTATION NO.1 - CONSTRAINTS STUDY QUESTIONNAIRE

(Please complete this questionnaire and return to Brian Keville, McCarthy Keville O'Sullivan, Block 1 GFSC, Moneenageisha Road, Galway or bkeville@mccarthykos.ie by Friday 26th July 2013)

1. Name *(optional)*: _____

   Address: _____

   _____

   _____

   Phone *(optional)*: _____ Email *(optional)*: _____

2. Are you aware of the Lee Catchment Flood Risk Assessment and Management Study, CFRAMS and its findings or recommendations? Yes ☐ No ☐

3. Do you own, rent or occupy a property within the study area being considered? Yes ☐ No ☐

4. Address of property (if different from home address)

   _____

5. Have you had any personal experience of flooding? Yes ☐ No ☐

6. If yes, please give date(s): Most recent _____

   Previous _____

   Previous _____

7. Type of property flooded:

Residential	☐	Retail	☐
Office	☐	Workshop	☐
Open Space	☐	Other	☐

   If other, please describe: _____

8. Approximate maximum depth of flooding: _____

9. Source of Flooding:

Directly from River/ Stream	☐
From Drains	☐
Overground flow (surface water)	☐

10. Do you have photographs of flooding? Yes ☐ No ☐

11. If you do, may the OPW have permission to use them? Yes ☐ No ☐

    Note: Photographs will be collected at a later date

12. Have you put in place measures to prevent or reduce the impact of flooding? Yes ☐ No ☐

If so, please describe:

13. Please indicate, in order of preference, your preferred flood defence works:
(please score from 1-11 as appropriate)

No Works (Do Nothing)		Non-Structural Measures (e.g. flood warning system or individual property protection)	
Relocation of Properties and/or infrastructure		Reconstruction of Properties and/or infrastructure to a higher level	
Flow Diversion (e.g. river diversion or flood flow bypass channel)		For Lower Lee specifically, Works to facilitate a revised operating regime for Carrigadrohid and Inniscarra dams for the purposes of flood risk management	
Flood Containment through Construction of Flood Defences		Increase Conveyance of Channel (upstream and/or through and/or downstream of the town)	
Sediment Deposition and Possible Sediment Traps		Pump storm waters from behind flood defences	
Flow Reduction (e.g. upstream catchment management or flood storage)			

14. How do you think the issue of flooding can be resolved?

15. In your opinion, how important are the following environmental constraints to the proposed Flood Relief Scheme for Cork City? *(please tick appropriate boxes)*

Issue	Very Important	Important	Moderately Important	Of Little Importance	Unimportant
Flora and Fauna	☐	☐	☐	☐	☐
Local Fisheries	☐	☐	☐	☐	☐
Habitats	☐	☐	☐	☐	☐
Water Quality	☐	☐	☐	☐	☐
Architectural and Cultural Heritage	☐	☐	☐	☐	☐
Landscape and Visual Amenity	☐	☐	☐	☐	☐
Angling, Tourism & Recreation	☐	☐	☐	☐	☐

If you have any comments relating to the proposed scheme or the constraints, please record them here:

Flora and Fauna

Comment:

Local Fisheries

Comment:

Habitats

Comment:

Water Quality

Comment:

Architectural & Cultural Heritage

Comment:

LOWER LEE (CORK CITY) FLOOD RELIEF SCHEME

(INCLUDING BLACKPOOL AND BALLYVOLANE)

PUBLIC CONSULTATION NO.2 – EMERGING OPTIONS COMMENT SHEET

(Please complete this comment form and return to Brian Keville, McCarthy Keville O' Sullivan, Block 1 GFSC, Moneenageisha Road, Galway or bkeville@mccarthykos.ie by Friday 29th August 2014).

Name (optional): _____

Address: _____

_____

_____

Phone (optional): _____ Email (optional): _____

Questions:

1. Did you attend the first Public Information Day held on 19th July 2013? Yes ☐ No ☐
2. How did you hear about today's Public Information Day? _____

   _____
3. What part of the study area have you a particular interest in? _____

   _____
4. Have you any personal experience of flooding? Yes ☐ No ☐
5. If yes, please give date(s):

   Most recent _____

   Previous _____

   Previous _____
6. Type of property flooded:

Residential	☐	Retail	☐
Office	☐	Workshop	☐
Open Space	☐	Other	☐

If other, please describe: _____

Having reviewed the details of the emerging preferred options, we would appreciate your comments:

Are there any other flood alleviation options or measures you would suggest should be considered?

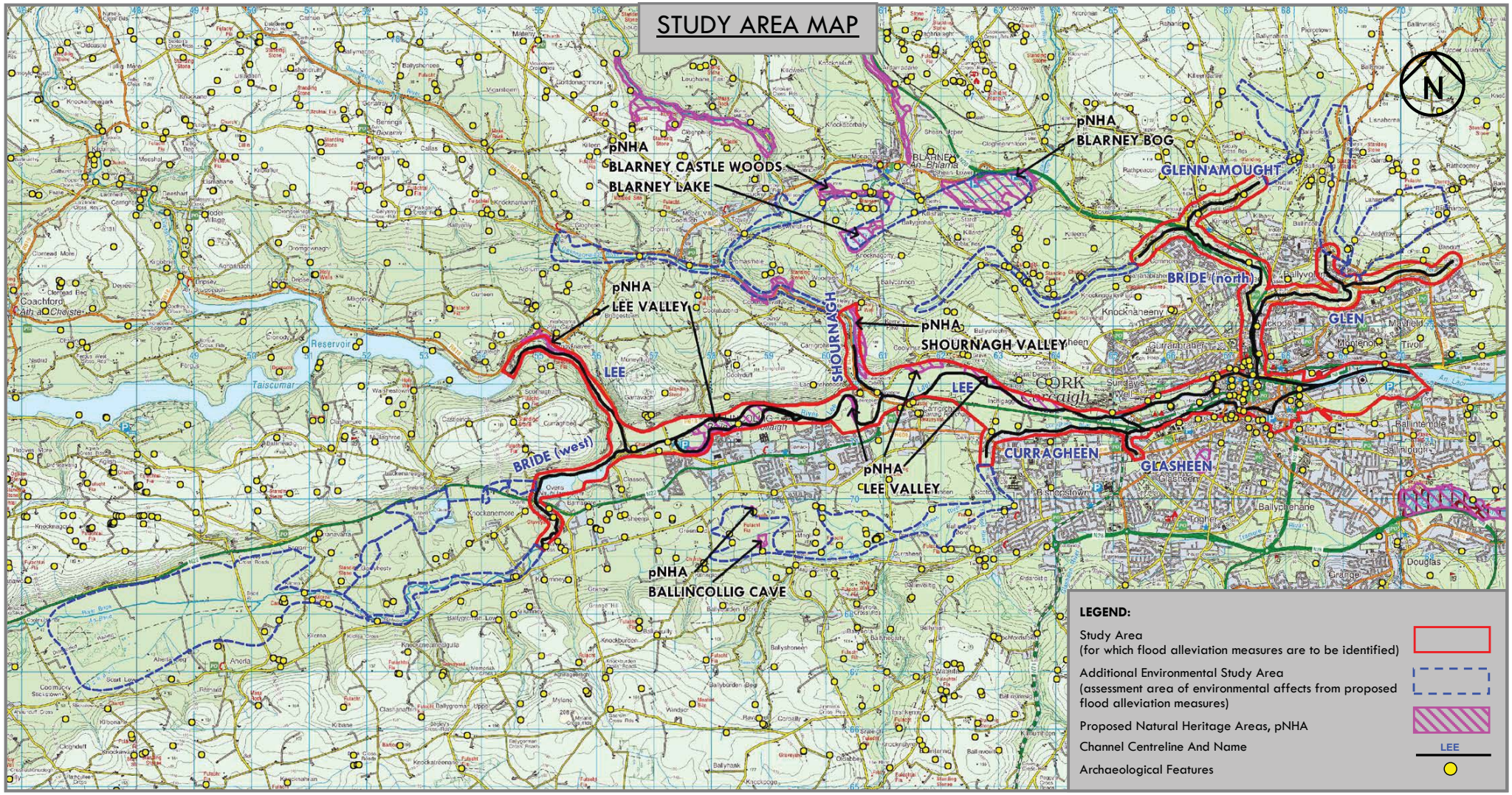
Further comment can be made through the project website at www.lowerleefrs.ie. All information on display will be available on the website. Alternatively please send further comments by email or post to Brian Keville, McCarthy Keville O' Sullivan, Block 1 GFSC, Moneenageisha Road, Galway or bkeville@mccarthykos.ie.

The Office of Public Works (OPW) undertakes to hold any information provided to it by individuals or others on a confidential basis, subject to the OPW's obligations under law, including the Freedom of Information Act. If, for any reason, it is intended that information provided to the OPW should not be disclosed due to the sensitive nature of such information, it is incumbent on the person or body supplying the information to make clear this wish and to specify the reasons for the information's sensitivity. The OPW will consult with any individual or body so supplying sensitive information before making a decision on any freedom of information request received.

THANK YOU FOR YOUR CO-OPERATION

Appendix 2E
Public Information Day No.1 & 2 – Exhibition Posters

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)



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The Office of Public Works
Oifig na nOibreacha Poiblí

ARUP

JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Constraints Study

A Constraints Study is currently being undertaken by the project Environmental Consultants. The purpose of the Constraints Study is to determine and document the constraints that may inform the selection and design of the proposed Flood Alleviation Measures.

Primary Constraints

A range of constraints are being considered under the following categories:

- **Flora and Fauna**
- **Fisheries**
- **Habitats**
- **Water uality**
- **Archaeological, Architectural and Cultural Heritage**
- **Landscape and Visual Amenity**
- **Angling, Tourism and Recreational Use**
- **Flood Related Socio Economic and Social Issues**

OPW The Office of Public Works Oifig na nOibreacha Poiblí

ARUP

JBA consulting

McCarthy Keville O'Sullivan Planning & Environmental Consultants

RYAN HANLEY Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Public Involvement

Consultation will be undertaken throughout the process to ensure that the views of the public and other stakeholders are taken into account.

The purpose of this initial Information Gathering Day is to:

- Provide information about the Objectives of the Scheme
- Outline the Design and Statutory Process
- Provide an Opportunity for Comment at a preliminary stage
- Gather information about Environmental Constraints
- Obtain other information relevant to the Scheme

Following this initial public consultation, there will be further opportunities for involvement through attendance at future information days, when updates on the scheme progress will be presented. A questionnaire is available for you to complete and return with your own comments.

Members of the project teams are present today to answer any questions you have, or take note of any relevant information.

Planning & Environmental Consultants

Consulting Engineers

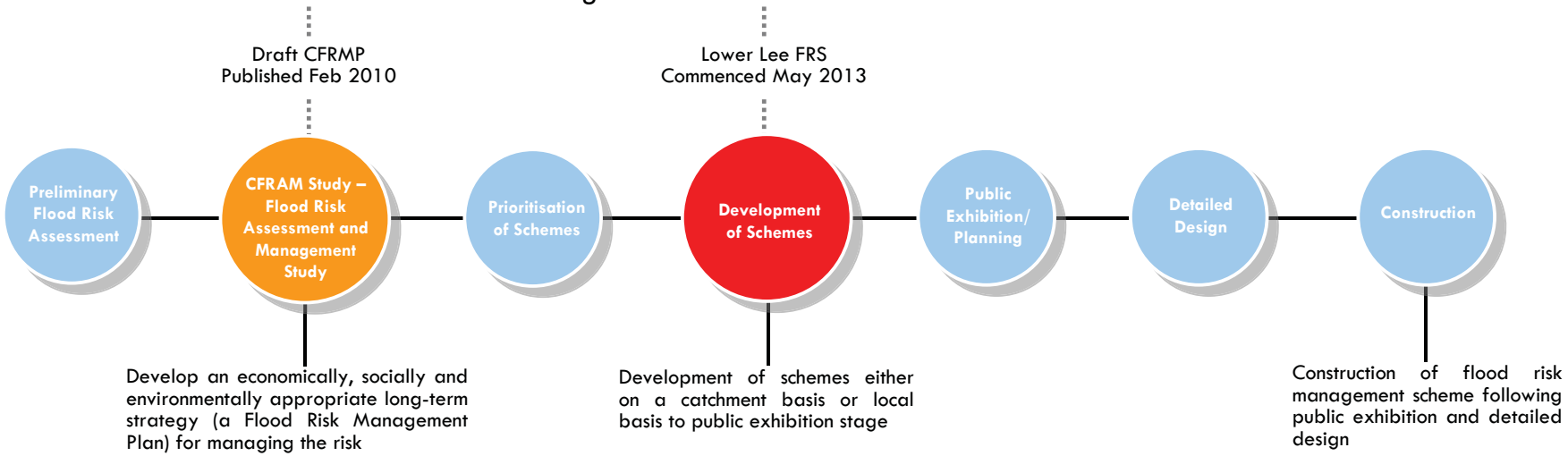
Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Scheme Ob ectives Overview

The Office of Public Works, OPW have carried out a Catchment Flood Risk Assessment and Management (CFRAM) Study for the Lee Catchment. From this study, the draft Catchment Flood Risk Management Plan, published in February 2010, set out a range of potential flood risk management options for particular areas within the catchment including the Lower Lee (Cork City).

The OPW has now commissioned Engineering and Environmental Studies to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme, based on the preferred option from the Lee CFRAM Study. A report will be prepared describing the findings of the Engineering Study, which will include a description of the measures and scheme options assessed and the justification for its selection.

The Project Team includes a Design Team made up of consulting engineers, the OPW, Cork City Council and Cork County Council in addition to the Environmental Team. A study area has been identified and the initial stages of the Lower Lee flood relief scheme have commenced, including Constraints Study and Preliminary Design Surveys. An Indicative Flow chart showing the process from inception through to construction for a flood relief scheme is shown on the figure below:



Consulting Engineers

Planning & Environmental Consultants

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Formal Public Exhibition Process

Once a preferred Flood Relief Scheme has been determined and an outline design completed, the OPW will formally publicly exhibit the proposed scheme in accordance with the Arterial Drainage Acts.

This statutory process includes a four week Public Exhibition, during which the plans and particulars of the proposed scheme will be put on Public Display.

Representatives of the Project Team will attend the Public Exhibition on various dates to explain the scheme to members of the public and to address queries.

Copies of the EIS for the scheme will be available to the public during this time.

Members of the public will be invited to submit written observations which will be considered and responded to.

An Exhibition Report, including all observations received will be sent to the Minister for Public Expenditure and Reform before formal approval of the Scheme.

OPW
The Office of Public Works
Oifig na nOibreacha Poiblí

ARUP

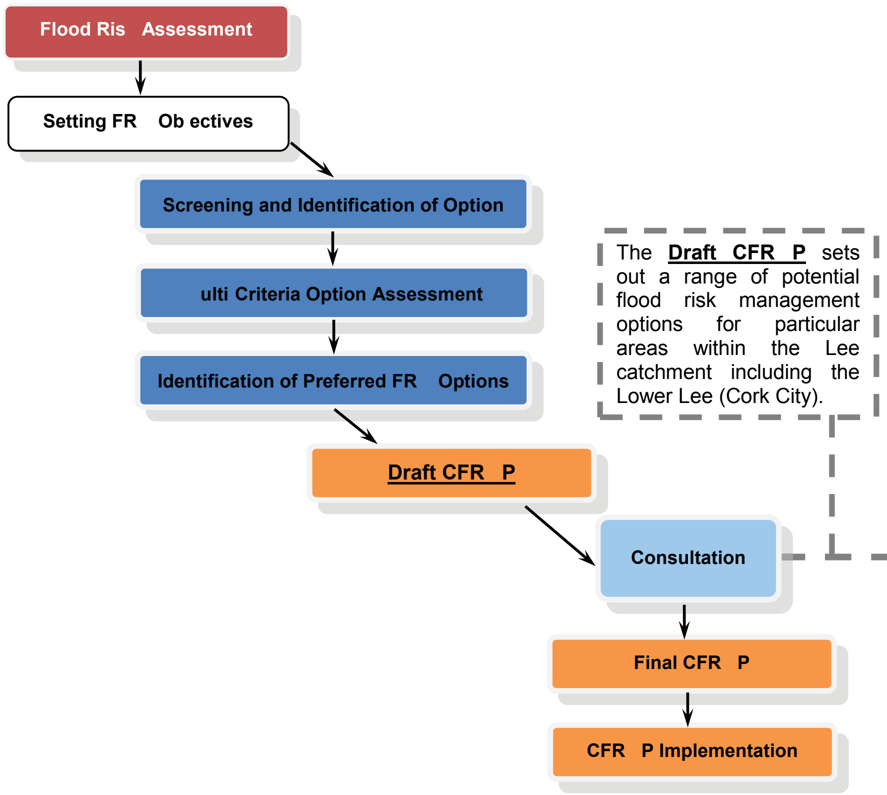
JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme

CFR P Process

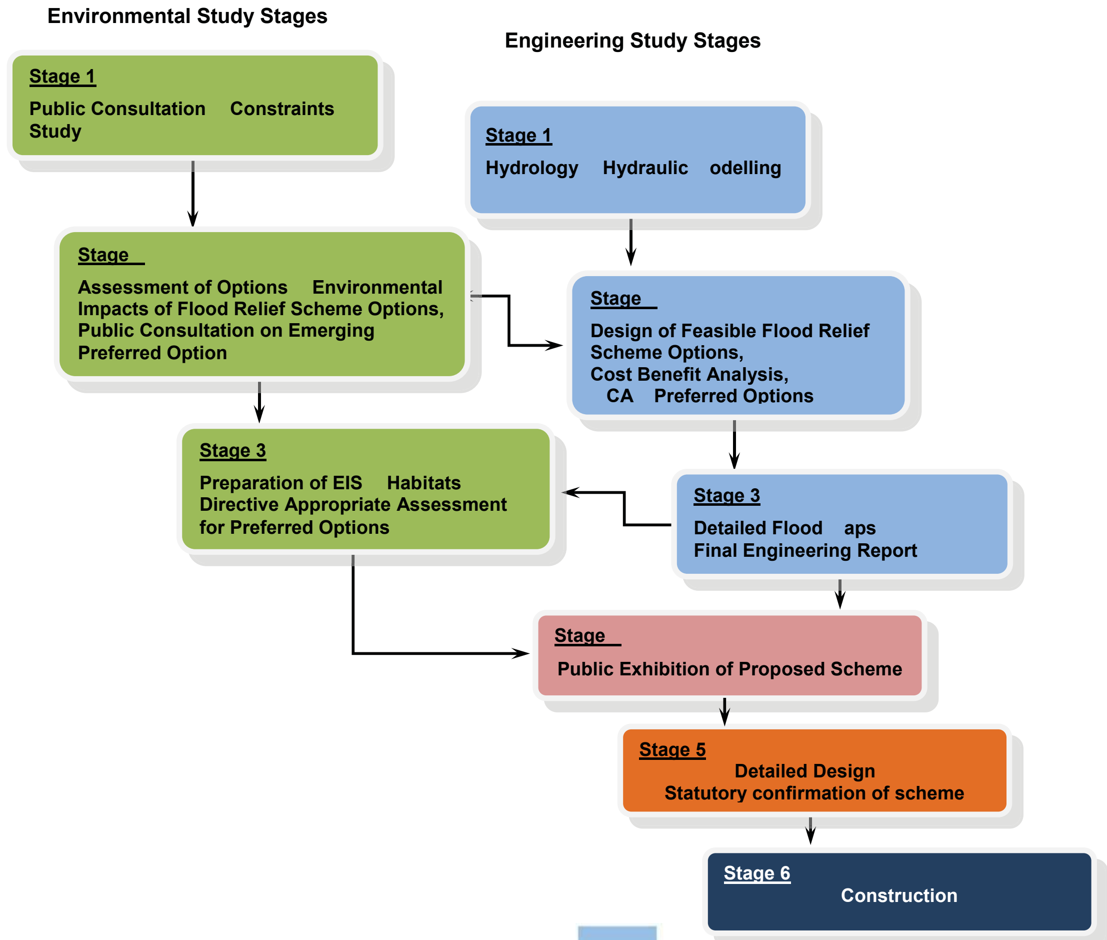


Lower Lee (Cor City) Flood Relief Scheme (Including Blac pool Ballyvolane)

The Office of Public Works has employed consulting engineering companies to undertake an Engineering Study of the flooding problems along the Lower Lee downstream of Inniscarra reservoir to Cork City and on the River Bride in the Blackpool and Ballyvolane areas in Cork.

The chart below shows how the Lower Lee (Cork City) Flood Relief Scheme follows on from the Lee CFRAMS and details the interaction between the Environmental Study Stages and the Engineering Study Stages for the Scheme.

Lower Lee (Cor City) Flood Relief Scheme Process



Lee Catchment Flood Ris Assessment and anagement Study (Lee CFRA S)

Catchment Flood Risk Assessment and Management Studies (CFRAMS) and their product - Catchment Flood Risk Management Plans (CFRMP) - are at the core of this new national policy for flood risk management and the strategy for its implementation.

The Lee CFRAM Study was the first pilot CFRAM Study for the new Flood Risk Assessment and Management Programme. The **CFR P Process** chart above shows how the range of potential flood risk management options identified in the draft CFRMP (for the Lower Lee) progress to the Lower Lee (Cork City) Flood Relief Scheme as part of the overall **Lee CFRA S**.

OPW The Office of Public Works Oifig na nOibreacha Poiblí

ARUP

JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY Consulting Engineers

Lower Lee (Cork City) Flood Relief Scheme

History of Flooding in Cor City

The rish Times aturday o em er age

THE IRISH TIMES

STORM AND FLOODS.

GREAT DAMAGE IN THE PROVINCES.

ENORMOUS DAMAGE IN CORK.

Accompanied by torrential rains, a storm has been sweeping over Cork for the past twenty-four hours, and up to 10 a.m. yesterday the gale, which was from the south-east, blew with hurricane force. It caused enormous damage to property, and has been the worst storm experienced there for twenty years. To the west of the city the River Lee overflowed its banks to a depth in some places of six feet, and, sweeping with great force over the grazing lands which lie on either bank, carried away horses, cattle, and sheep, notwithstanding the efforts of the owners to save them. University College football grounds were covered with four feet of water, and here a number of sheep are stated to have been lost. The caretaker's house was severely flooded. Indeed, the valley of the Lee extending westwards was one huge lake. The Cork and Muskerry Railway, which traverses this district, was inundated to a depth of several feet, and the train service had to be suspended yesterday, with great inconvenience to the public. The Cork cricket grounds upon the Mardyke were swept by the tide early in the morning, and the waters rose with such rapidity that the residents of the pavilion were considered in danger, and a pleasure boat manned by local gentlemen went to their assistance, and rescued them. Houses on the Mardyke Walk and Western road suffered flooding to the extent of from three to four feet. The Fitzgerald Park was also under water. The district of Blackpool, which is low-lying, was ravaged by the floods, which ran down some of the streets like a fair-sized river, and so bad was the flooding that bread van drivers had in places to deliver their bread on the top of poles into the upper windows of the flooded houses. On St. Patrick's Bridge and other bridges which span the north channel, hundreds of people stood watching the flood as it brought down dead cattle and tree trunks. The river steamer Roslellan, of Cork, Blackrock, and Passage Railway Co., was torn from its moorings at Merchant's quay and dashed against the city railway bridge, sustaining serious damage. It afterwards ran aground lower down the river.

The great floods in Cork reached their climax at nine o'clock last night, when the water rose to five feet in the vicinity of the courthouse and to four and five feet in the western and northern districts. The river presented a wonderful spectacle as the enormous volume of water surged down, with waves seven feet high and the torrent breaking itself against the houses on either bank of the river. People gathered on the bridges were perturbed to see a sealed coffin with a breastplate tossed about in the torrent, and a Cork undertaker gave it as his opinion that it had been washed out of the Inniscarra graveyard.

Courtesy
The rish Times

Irish Examiner

(re iously the Cork aminer) riday ening o em er The Late readful lood

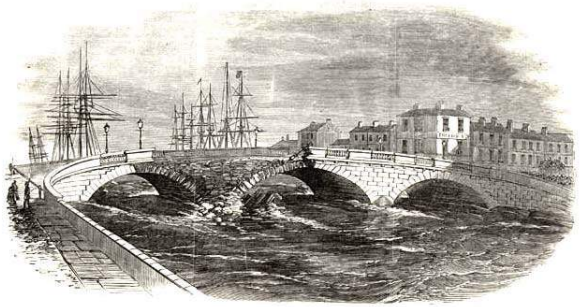
CONSIDERABLE doubt still exists as to the number of persons who lost their lives by the sad accident on Patrick's Bridge, but the general opinion is that the number did not exceed seven or eight. Amongst those who fell in was a tradesman named Murphy, who struck out manfully and was fortunately rescued some distance below the Custom House.

In the latter part of the day, the gate-house or lodge of the Munster Model farm at Inchigaggin was carried away and conveyed down the Western Road but it subsequently floated to Parliament Bridge where it was picked up and removed to the Constabulary station in Dunbar Street.

The house which fell down in Fishamble Lane was one in the occupation of a person named Hingston. The inhabitants fortunately perceived the danger that impended over them in time to escape with their lives into the next house and no accident happened beyond the destruction of whatever property the house contained.

In a short time, the house in which they took refuge was threatened with the same fate that had befallen the adjoining tenement, but the Officers of the Courthouse procured a boat into which the parties got and were then conveyed to the Courthouse. They were placed in the Grand Jury Room and were supplied with fire, provisions and every other comfort that their miserable circumstances required.

In rescuing them from their perilous situation and removing them to the Courthouse — Constable Carey exerted himself with great courage and activity and narrowly escaped with his life. He was carried away by the force of the water as far as Broad Lane and was in imminent danger of being swept into the river when a gingle man reached him the handle of his whip and thereby rescued him.



THE calamitous inundation of which we gave intelligence in our publication of Wednesday has from the City at least subsided, and the waters have returned to their usual course, leaving still however, a rapid and dangerous fresh in the river.

This flood, the largest that has been ever known in this city, since the year 1769, it is needless to say, resulted from the enormous rains which fell during the last month.

From the meteorological observations of Mr Humphreys, of the Cork Institution, which we publish in another part of the paper, it will be seen that the number of wet days out of the preceding month amounted to the very large number of 23, and the rain in inches reached an enormous quantity.

On Tuesday evening, a portion of the city was flooded, but chiefly the low grounds such as the Mardyke and the City Park, and of course little alarm of apprehension was excited as such occurrences have been very common. But before this had subsided, another inundation followed, which soon caused feelings of a very different character to be excited.

Towards the morning of Wednesday, the river which had hitherto borne a turbid and angry appearance, but which at the approach of winter caused little surprise, soon rose to a height that caused some alarm to those living in the neighbourhood of the Western Road, the Mardyke, and the lower part of Sunday's Well, but that feeling was not at all shared by those living further in towards the city.

Before eight o'clock, the water below Wellington Bridge, which for a long time previously had overflowed its banks, now rose steadily, higher and higher, until the water formed in a tremendous stream across the fields and found an access for itself in the Western Road and Mardyke, which became like the bed of a torrent and swept along in an eastward direction until all parts between those and North Gate Bridge were completely covered.

The main stream came right down along Great George's Street, which by 10 o'clock was hopelessly flooded — hence through the Parade along Patrick Street and the South Mall, until, by 12 o'clock, the whole flat of the city was submerged.

At the time the flood came first into the city, the condition of North Gate Bridge, whose construction and the number of small arches by which the rush of water through it is impeded has been so often condensed, began to excite serious apprehension, and certainly, by any spectator it would be supposed that no apprehension was too great.

The river, which makes a bend in Grenville Place, from that rushes upon a considerable slope down to that with tremendous velocity, and some idea of its appearance may be formed from the fact, that while on the eastern of lower side the water did not reach to within eight feet of the top of the arch, on the other side it was completely covered and the form of the waters actually springing over the parapets.

Below the bridge, the waters, which came through it in a fall of five or six feet, leaped and roared in enormous waves, and rushed through the channel at a rate whose rapidity was tremendous. At an early hour chains accordingly were placed across the North bridge to prevent further traffic upon it, as it was considered dangerous to human life to permit cars of passengers upon it.

But the danger came where it was least expected, and the surprise that was felt through the city nearly equalled the horror with which the intelligence was heard of the breaking of Patrick's Bridge and the sacrifices of eleven human lives.

The fall of Patrick's Bridge of course compelled the necessity of allowing traffic to be resumed, but cautiously on North Bridge.

At 12 o'clock, the appearance of the western portion of the city from the heights above was that of a broad and disturbed lake. For miles along the course of the river its natural bed

THE baths known as Welstead's were the first to suffer, the whole of the wooden erections there having been borne away along the Western Road, and not a vestige left to mark where they stood.

The inhabitants of the houses along the Mardyke, were for the entire day, confine to upper stories, as the lower portion were filled with water, which in some cases reached the fearful height of nine feet, actually touching the drawing room floors.

Along the high hedge which separated Mr Heath's garden from the Mardyke there can be yet seen straw and vegetable matter, deposited on the tops by the subsiding of the water which had rolled above it. But a deposit of a rather more extraordinary character was made in Mr Heath's garden in the shape of a 20 ton sand barge, which was buried into the middle of it by the force of the flood.

This matter may indeed be accounted on exceedingly fortunate circumstances, for had the lighter been carried down the channel of the river, in all human probability it would have smashed the piers of North-bridge, or else acted as a dam to the terrific stream, and forced the waters in a more fearful deluge through the city.

The little street which joins the Mardyke with the Western Road was flooded at an early hour, so much so that at 10 o'clock a gentleman requiring to leave his home had to mount on the top of a gingle from the window of his drawing room and progress from the lower part being completely barred by the progress of the flood.

Owing to the enormous rapidity with which the water rushed through the streets, the depth of the water in places of nearly the same elevation varied considerably. On Grenville place it averaged about four feet. Great damage was done to shopkeepers, particularly to those in the grocery trade, their goods being particularly liable to being spoiled by the action of water.

At present it is impossible to arrive at anything resembling a just calculation or estimate of the damage done. but taking into account the injuries to public and private property in and about the city it is believed that it will exceed £80,000.

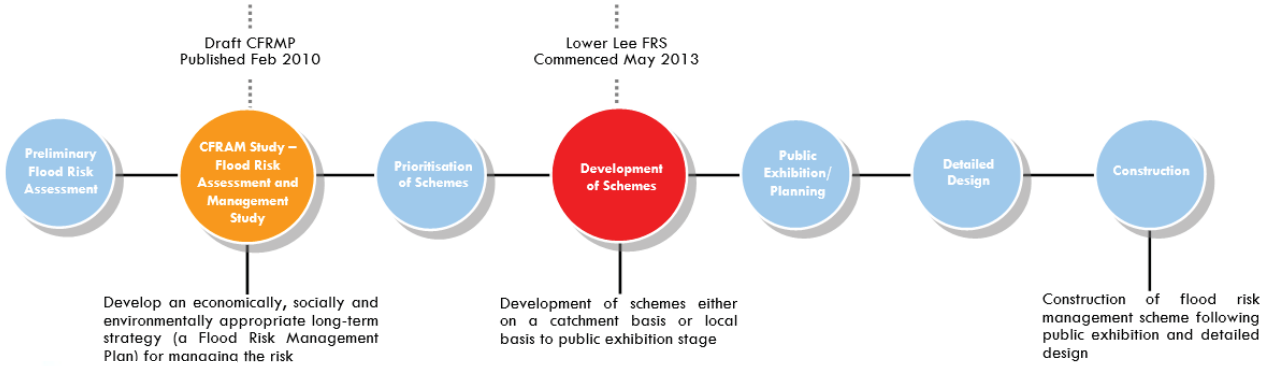
Courtesy rish aminer

Planning & Environmental Consultants

Lower Lee (Cork City) Flood Relief Scheme (Including Blackpool and Ballyvolane)

Scheme Objectives & Overview

- The Office of Public Works (OPW) has carried out a Catchment Flood Risk Assessment and Management (CFRAM) Study for the Lee Catchment. From this study, the Draft Catchment Flood Risk Management Plan, published in February 2010, set out a range of potential flood risk management options for particular areas within the catchment including the Lower Lee (Cork City).
- The OPW has now commissioned Engineering and Environmental Studies to assess and develop a viable, cost-effective and sustainable Flood Relief Scheme, building on the preferred option from the Lee CFRAM Study.
- The Project Team includes a Steering Group made up of the OPW, Cork City Council and Cork County Council, the ESB in addition to the engineering and environmental consultants.
- A broad study area was initially identified. The project has since progressed through a constraints study, hydrological and hydraulic analysis, preliminary geotechnical investigations and is currently at the options assessment stage.
- The process of identifying the preferred scheme includes a detailed assessment of a range of flood risk management measures to determine their technical, economic, social and environmental viability.
- An Indicative Flow chart showing the process from inception through to construction for a flood relief scheme is shown to the right:



OPW
The Office of Public Works
Oifig na nOibreacha Poibli

ARUP

JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Public Consultation

Public Information Day No.1

17th July 2013

Purpose of project set out

Constraints study explained

Overview of potential outcomes provided

Your views were sought

What has happened since?

Constraints Study

Hydrology and Hydraulic Modelling

Assessment of Viable Options

Preliminary Geotechnical Investigations

Emerging Preferred Options

Public Information Day No.2

29th July 2014

Progress update

A chance to have your views heard on the emerging preferred options

What happens next?

Scheme Review

Production of Scheme Documentation

Appropriate Assessment

Environmental Impact Assessment

Public Exhibition

Four week exhibition

(Dates yet to be announced)

A third chance to have your views heard

And then?

Scheme Refinement

Detailed Design

Detailed Geotechnical Investigations

Confirmation of Scheme

Your views taken on board

OPW
The Office of Public Works
Oifig na nOibreacha Poibli

ARUP

JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Constraints Study

- The Constraints Study for the scheme was completed following the initial public consultation, taking into account your views.
- The purpose of a Constraints Study is to identify the key environmental issues in a study area which might be impacted by possible flood alleviation measures and/ or which may impose constraints on the viability and/ or design of these measures.
- The design constraints identified include the requirement to maintain traffic and pedestrian links across the River Lee in addition to local amenity and angling areas, minimise disruption to residents and businesses, protect the various landscape types in the study area and also protect archaeological, architectural and cultural heritage sites. Ecological constraints include the importance of the River Lee and banks as a habitat. Other constraints include the protection of water quality and material assets in the study area.
- A copy of the full Constraints Study Report is available to download from the project website www.lowerleefrs.ie.

OPW
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ARUP

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McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Option Development

Flood Risk Management Options Considered at Preliminary Assessment	Options Brought Forward for Detailed Assessment	Emerging Preferred Options
• Do Nothing • Non-Structural Measures (e.g. flood warning system or individual property protection) • Relocation of Properties and/or infrastructure • Reconstruction of Properties and/or infrastructure to a higher level • Flow Diversion (e.g. river diversion or flood flow bypass channel) • Flow Reduction (e.g. upstream catchment management or flood storage) • Flood Containment through construction of Flood Defences • Increase Conveyance of Channel (upstream and/ or through and/or downstream of the town)	• Flood defences • Flood forecasting system • Channel widening • Bridge modifications/ Removal of obstructions from channel • In-channel flow regulation • Modified operation of Inishcarra Dam • Upstream flood storage/ washlands • Local conveyance improvements • Flood early warning system	River Lee (Inishcarra to Cork City) Blackpool Ballyvolane

Options assessed using Technical, Social, Environmental & Economic Criteria

OPW
The Office of Public Works
Oifig na nOibreacha Poiblí

ARUP

JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Formal Public Exhibition Process

- Once a preferred Flood Relief Scheme has been determined and an outline design completed, the OPW will seek consent for the proposed scheme in accordance with the provisions of the Arterial Drainage Act.
- This statutory process includes a four week Public Exhibition, during which the plans and particulars of the proposed scheme will be put on Public Display.
- Representatives of the Project Team will attend the Public Exhibition on various dates to explain the scheme to members of the public and to address queries.
- Copies of the EIS for the scheme will be available for sale to the public during this time.
- Members of the public will be invited to submit written observations which will be considered and responded to.
- An Exhibition Report, including all observations received will be sent to the Minister for Public Expenditure and Reform before formal approval of the Scheme.

OPW
The Office of Public Works
Oifig na nOibreacha Poibli

ARUP

JBA consulting

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

RYAN HANLEY
Consulting Engineers

Appendix 2F
EIS Scoping Document Distribution List 2015

Scoping distribution list for 2015 Scoping

	Name	Surname	Position/section	Body
1				An Comhairle Ealaion (The Arts Council)
2				An Taisce - The National Trust for Ireland
3				Bat Conservation Ireland
4			General Manager	Birdwatch Ireland
5	Tadhg	O'Leary		Blackpool Flood Action Group
6	Noreen	Lynch		Blackpool Historical Society
7	Jeremy	Buckley	Chairperson	Blackpool Traders Association
8				Coillte Teoranta
9				Cork Business Association
10				Cork Chamber of Commerce
11			Environment Section	Cork City Council
12			Planning Section	Cork City Council
13			Water Services Section	Cork City Council
48	John Kenneth	Sheehan		Cork City Council
49	Noel	O'Flynn		Cork City Council
50	Lil	O'Donnell		Cork City Council
51	Mick	Barry		Cork City Council
52	Thomas	Gould		Cork City Council
14	Tim	Lucey	County Manager	Cork County Council
15	Declan	Daly	Divisional Manager	Cork County Council
16	Maurice	Manning	Director of Services	Cork County Council
17	David	Keane	County Engineer	Cork County Council
18	Tom	O'Sullivan	Communications Officer	Cork County Council
19				Cork Historical & Archaeological Society
20			The Manager	Department of Arts, Heritage & the Gaeltacht
21				Department of Agriculture, Food & the Marine
22				Department of Communications, Energy & Natural Resources
23				Department of Jobs, Enterprise & Innovation
24				Department of the Environment, Community & Local Government
25				Eircom
26				Environmental Protection Agency (EPA)
27				ESB Networks Ltd.
28				Failte Ireland
29	Mark	Twomey		Forest Service (Dept of Agriculture, Fisheries & The Marine)
30				Gas Networks Ireland
31				Geological Survey of Ireland
32				Health & Safety Authority
33			Archaeology Section	Heritage Unit, Cork County Council

34				HSE Southern Regional Health Forum
35	Michael	McPartland	Senior Fisheries Environmental Officer	Inland Fisheries Ireland
36				Irish Farmers Association (Cork Region)
37	Katherine	Walshe	Regional Operations Manager	Irish Water
38	Brian	Sharkey		Irish Water
39				National Monuments Service
40				National Museum of Ireland
41				National Roads Authority
42				Office of Public Works
43				Port of Cork
44				South West Regional Authority
45				Southern River Basin District Office
46				The Heritage Council
47				Waterways Ireland

Scoping distribution list for 2017 Scoping

Name	Surname	Position/section	Body
			An Taisce - The National Trust for Ireland
Tadhg	O'Leary		Blackpool Flood Action Group
Jeremy	Buckley	Chairperson	Blackpool Traders Association
		Environment Section	Cork City Council
		Planning Section	Cork City Council
		Water Services Section	Cork City Council
John	Sheehan		Cork City Council
Kenneth Noel	O'Flynn		Cork City Council
Lil	O'Donnell		Cork City Council
Mick	Barry		Cork City Council
Thomas	Gould		Cork City Council
Ann	Doherty	Chief Executive	Cork City Council
Tim	Lucey	Chief Executive	Cork County Council
Declan	Daly	Divisional Manager	Cork County Council
Maurice	Manning	Director of Services	Cork County Council
David	Keane	County Engineer	Cork County Council
Tom	O'Sullivan	Communications Officer	Cork County Council
		The Manager	Department of Culture, Heritage & the Gaeltacht
			Department of Agriculture, Food & the Marine
			Department of Communications, Climate Action and Environment
			Department of Business, Enterprise & Innovation
			Department of the Housing, Planning, Community & Local Government
			Environmental Protection Agency (EPA)
			ESB Networks Ltd.
			Gas Networks Ireland
			Geological Survey of Ireland
			Health & Safety Authority
			HSE Southern Regional Health Forum
Michael	McPartland	Senior Fisheries Environmental Officer	Inland Fisheries Ireland
Katherine	Walshe	Regional Operations Manager	Irish Water
			National Roads Authority
Chris	□oody		

Appendix 2G
Scoping Document & Cover Letters

RYAN HANLEY
Consulting Engineers

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

Consultee Name
Address

□□th □eptem□er □□□□ **Our Ref:** □□□□□□a

Re: River Bride (Blac pool) Drainage Scheme EIA Scoping

□ Chara□

□yan □anley□in association with □cCarthy □e□ille □□ulli□an□ha□e □een appointed □y the □ffice of □u□lic □orks to carry out an □n□ironmental □mpact □ssessment of the proposed □i□er □ride (□lackpool) □rainage □cheme. □ollowing the initial □u□lic Consultation and □nformation □athering □□ent□more detailed sur□eys and modelling of the □i□er □ride and □lackpool area ha□e □een completed and a Constraints □tudy identifying key en□ironmental issues was prepared. This information was su□se□uently used to identify and analyse a num□er of drainage options as part of the proposed □cheme and a preferred option has □een identified and preliminary pu□lic consultation on the scheme has □een undertaken.

The design of the preferred drainage option is □eing constraints□led□with a □iew to minimising en□ironmental impacts□and has □een informed □y the constraints study and pu□lic consultation to date. □s part of the □□ process□the pro□ect team would appreciate any comments that you might ha□e in relation to the proposed drainage scheme. □n order to facilitate this□a scoping pack pro□iding details of the proposed scheme is enclosed with this letter. □f you re□uire more details or ha□e any □ueries□please contact us. Comments can □e issued □y return to□

By Post to: **John Staunton,**
cCarthy Keville O Sullivan Ltd.
Bloc 1, GFSC, oneenageisha Road, Galway
or by email to: staunton@mccarthy os.ie

□ final pu□lic consultation e□ent will take place in □o□em□er□ following preparation of the □n□ironmental □mpact □tatement for the scheme□ where the pu□lic will □e gi□en a further opportunity to make o□ser□ations.

□ e would appreciate that you would forward this documentation to the most appropriate person within your organisation□if it has □een issued to you in error.

□ours sincerely□

□□□□□□□□□□□□□□□□□
□ohn □taunton □□c □h□□
□cCarthy □e□ille □□ulli□an Ltd.

Correspondence:

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Corina Colleran
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River Bride (Blackpool) Drainage Scheme

EIA Scoping Document

McCarthy Keville O'Sullivan
RYAN HANLEY
ARUP
JBA consulting

Table of Contents

1. Introduction and Background

1.1. Overview

The Office of Public Works (OPW) is progressing a proposed flood relief project for the Blackpool area of Cork City.

To-date, the project has been advanced as part of a larger Lower Lee (Cork City) Flood Relief Scheme. However, the River Bride (Blackpool) Drainage Scheme will now be progressed independently of the remainder of the Lower Lee scheme.

This project is a follow on project from the Lee Catchment Risk Assessment and Management Study (CFRAMS). The project will assess and develop a viable, cost-effective and sustainable Flood Relief Scheme to alleviate flooding in the Blackpool area on the River Bride (north) of Cork City, based on preferred options already identified in the Lee CFRAM Study.

Ryan Hanley in association with McCarthy Keville O'Sullivan has been appointed by the Office of Public Works as the Project Environmental Team to carry out an Environmental Impact Assessment of the proposed River Bride (Blackpool) Drainage Scheme.

ARUP and JBA Consulting have been appointed by the Office of Public Works as the Project Engineering Team to provide engineering services and develop the detailed proposals for the proposed River Bride (Blackpool) Drainage Scheme.

1.2. Location & Study Area

The study area for the Blackpool Flood Relief Project encompasses three major watercourses: the Bride (North), the Glenamought and the Glen. The total catchment area upstream of Blackpool Village is 41.7 km^2.

The Bride (North) rises in the townland of Ballycannon, near Healy's Bridge, before flowing in an easterly direction towards Cork City. The Glenamought River rises in Whitechurch and flows in a southerly direction before making an abrupt right-turn in the townland of Ballincrokig. The Bride (North) and the Glenamought meet each other in a culverted system at the North Point Business Park on the N20. The Glen River flows in a westerly direction from Mayfield, through the Glen River Park, before entering a culvert under Spring Lane. It then merges with the Bride (North) in a large culvert junction under Madden's Buildings, 100m downstream of Blackpool Church. Downstream of the confluence of the Bride (North) and the Glen, the watercourse has traditionally been known as the Kiln River. The Kiln River then discharges to the River Lee at Christy Ring Bridge.

The culverted system in Blackpool has been incrementally constructed since the early the 1980s as part of the Glen-Bride-Kiln River Improvement Scheme which was commissioned by Cork Corporation in 1981. The topography of the entire catchment varies between 188mOD at Whitechurch and 25mOD in the Blackpool river valley.

Figure 1-1 below shows the contributing rivers and catchments draining to Blackpool village that are within the study area for the River Bride (Blackpool) Drainage Scheme.

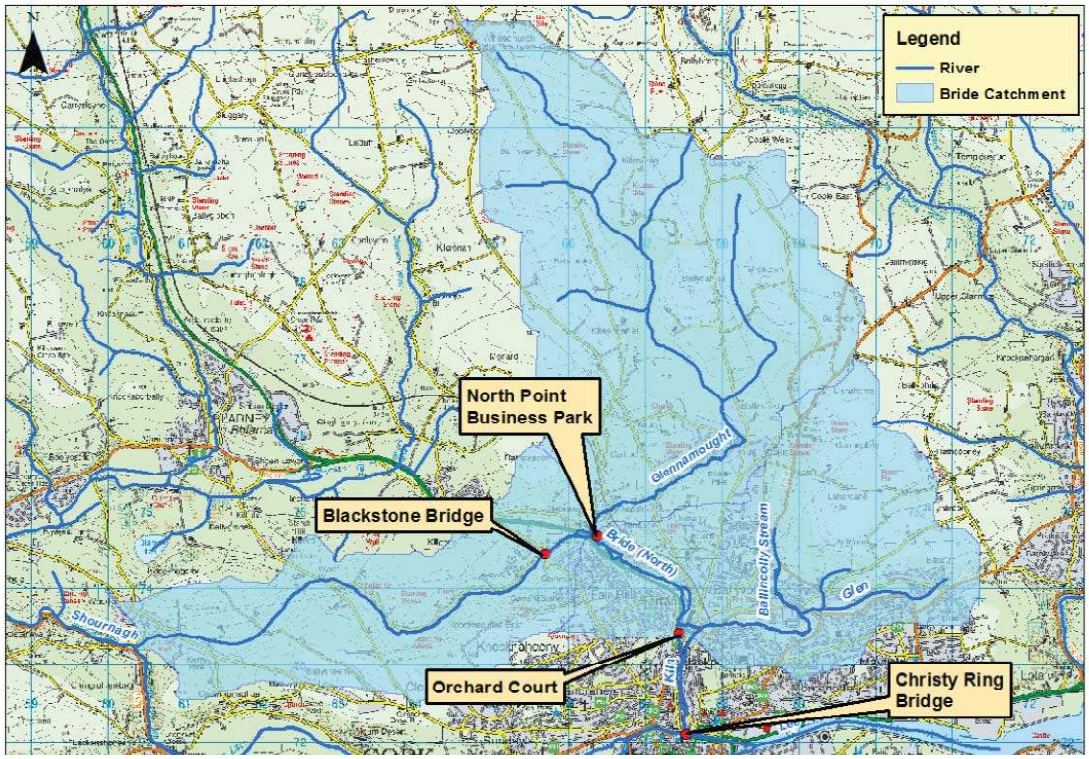


Figure 1-1 Study area catchment and rivers

1.3. Brief Flood History

There has been an extensive history of flooding in the Blackpool area of Cork City in recent years. Prior to the early 2000s, the primary source of flood risk came from the Glen River. However, in recent years this risk has transferred over to the Bride River. Figure 1-2 below summarises the flood history and illustrates the transition of risk between both watercourses.

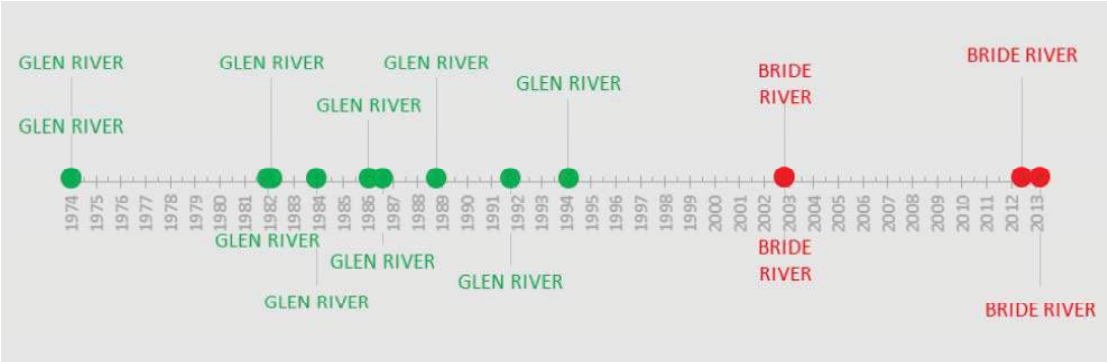


Figure 1-2 Timeline and source of recent flood events in Blackpool

1.4. Blackpool (Cork City) Flood Relief Scheme

The project has been progressed to-date by the Project Engineering and Environmental teams as follows:

- Review of published literature and site surveys;
- A Public Information Day (17th July 2013) attended by OPW, Cork City Council, Cork County Council and the Engineering and Environmental Teams;
- Preparation of a Constraints Study by the Environmental Team to inform Options Report, in advance of second Public Information Day
- A second Public Information Day (29th July 2014) attended by OPW, Cork City Council, Cork County Council and the Engineering and Environmental Teams;
- Preparation of an Options Report to assess all of the possible flood relief options that could be implemented in the study area and to outline the procedure for how the preferred option was developed and selected.

A number of options were considered under their technical, social, environmental and economic viability. On the basis of the preliminary assessment, five options were shortlisted for further consideration. These included those outlined in Table 1.1 below:

Table 1.1 Options Shortlisted for Detailed Consideration

Option	Brief Description
1	'Do-Minimum'.
2	Ballincrokig flood storage, combined with conveyance improvements and direct defences in Common's Road/Blackpool
3	Conveyance improvements and direct defences (with high walls in Orchard Court).
4	Conveyance improvements and direct defences (with culvert through Orchard Court).
5	Conveyance improvements & direct defences (culvert replacement from Orchard Court to Madden's Building).

The process for the selection of the preferred flood relief option is outlined below:

- An initial screening of a long list of possible flood risk management measures against a predetermined set of criteria, was carried out in order to determine their viability;
- A technical assessment of the viable flood risk management measures was undertaken;
- Potential flood relief options were developed using combinations of those flood risk management measures which were determined to be technically viable;
- These flood relief options were then subjected to economic, environmental, and multicriteria assessments, allowing preferred flood relief options to be selected.

Option 4 – Conveyance improvements and direct defences, with a culvert through Orchard Court, has been chosen as the preferred option following consideration of the Flood Risk Management Strategy Options. The Environmental Impacts associated with this option are currently being assessed.

The following sections of this report provides further information on the preferred option to statutory and non-statutory consultees as part of the EIA Scoping process.

2. Preferred Flood Relief Option – Flood Defences

The preferred flood relief option will require a combination of flood defence measures at specific locations and a rigorous and organised channel maintenance programme throughout the reach of the catchment.

2.1. Channel Maintenance

A rigorous and organised channel maintenance programme throughout the catchment's reach. The channel maintenance programme will include The Bride River from its confluence with the Glenamought River, down along the Kiln reach to its outfall into the River Lee, (approximately 3,470m). The maintenance programme also includes the predominantly culverted Brewery Branch reach of the Kiln River (approximately 825m). The channel maintenance programme will pay particular attention to locations where debris is likely to accumulate, such as at structures, sharp bends, culvert inlets etc.

2.2. Flood Defences

The flood defence works proposed as part of the preferred flood relief option include:

- Replacement of existing masonry bridges with new reinforced concrete bridges
- Replacement of existing pipe culverts with new reinforced concrete bridges
- Replacement of existing masonry arch bridges with new reinforced culvert
- Local repair/reconstruction of parapet walls
- Works to existing bridge parapets
- Flood embankments
- Flood defence walls
- Removal of sluice structure
- Provision of sedimentation trap
- Installation of trashscreen
- New culverted river section
- Removal of existing bridge and reinstatement of access over new culvert
- Replacement of existing culvert inlet
- Reconstruction of existing culvert junction to minimise head losses

The locations and extents of the proposed flood defence measures are outlined drawings attached as Appendix 1 to this Scoping Report. The proposals shown are indicative and subject to change associated with environmental assessment and detailed design and assessment.

2.3. Feature Descriptions

The design drawings in Appendix 1 contain brief descriptions of all of the proposed features along the river channel. To undertake the proposed works on site, some access will be required to adjacent lands, the extent of which can be seen in Appendix 2. The locations of each of the proposed works features are marked on the relevant drawing with a code, with the adjacent table providing a description for each code.

In the case of the sediment trap and winter channel features, the following text provides additional information.

Sediment Trap

It is proposed to construct a sediment trap at the upstream end of the Sunbeam Industrial estate. The purpose of the sediment trap is to capture fluvial sediments (primarily small cobble sized material), to help minimise the risk of large sediments settling in the Blackpool culvert system, which would reduce hydraulic capacity.

A sediment trap is an online pond which increases local width and depth of the channel and reduces flow velocity. This promotes the settlement of suspended solids, and the deposition of coarser bedload. Sediment traps require regular maintenance to remove sediment and will no longer function when full.

On this basis, the sediment trap would be sized within the region of approximately 15m wide x 30m long. It will most likely be constructed of reinforced concrete or sheet pile walls and a concrete floor. It will be constructed by excavating an area of the existing channel to make it wider and deeper. The inlet and outlet structures will have the same invert level and approximate dimensions as the existing channel in those locations, to minimise impact on upstream and downstream water levels. The bed level of the basin will be approximately 1.5m below the existing bed level. The exact dimensions and profile of the trap will need to be confirmed after detailed hydraulic analysis.

The sediment trap will also incorporate a ramp along the left bank to allow access for a JCB/excavator to remove accumulated sediment.

Winter Channel

A series of sharp bends in the Bride channel contribute to elevated flood levels along the Commons Road. This is because the water velocity is abruptly slowed at each of these bends. It is proposed to introduce a ‘winter channel’ to the existing channel to help with high flows by cutting a secondary flow route into the existing bank. In normal flow conditions, the river would be confined to the 'low-flow' or 'summer channel', however during periods of high flow the winter channel would provide additional capacity.

The winter channel will consist of an excavation of the right bank (looking downstream). The left bank will be undisturbed. The width of the cut will vary from 0m at the upstream/downstream ends, to maximum 7-10m at the apex of the river bend. The formation level of the cut will be at approximately 1.2m above the channel invert (approx. 18.7mOD). This will leave the existing low flow channel

substantially undisturbed apart from cutting back vegetation. The total length of the cutting will be approximately 50m on plan, measured along the bank line.

The slope of the new cutting will match the existing bank slope. The surface of the new cut slope will be covered with a biodegradable membrane, which will protect the exposed soil from erosion while vegetation is re-established over a number of months following the works.

RYAN HANLEY
Consulting Engineers

McCarthy Keville O'Sullivan
Planning & Environmental Consultants

Consultee Name

Address

9th October 2017 **Our Ref:** 121004a

Re: River Bride (Blac pool) Certified Drainage Scheme EIAR Scoping

A Chara,

Ryan Hanley, in association with McCarthy Keville O'Sullivan, have been appointed by the Office of Public Works to prepare an Environmental Impact Assessment Report (EIAR) of the proposed River Bride (Blackpool) Certified Drainage Scheme.

A scoping document was originally sent out to you regarding this project on July 21st 2015. Following this, an Environmental Im pact Statement was produced, and public exhibition was undertaken in November and December 2015. On the 16th May 2017, a new Environmental Impact Assessment Directive came into force (Directive 2014/52/EU) and in August 2017 the Environmental Protection Agency issued new draft Environmental Impact Assessment Report (EIAR) guidance. In light of this, a revised EIAR is being produced for the project. Part of this process is the completion of a scoping exercise, which this letter relates to.

Following the Public Information Days held in July 2013 and 2014 as part of the Lower Lee (Cork City) Flood Relief Scheme (including Blackpool and Ballyvol ane), and the subsequent public exhibition in November and December of 2015 for the River Bride (Blackpool) Certified Drainage Scheme it was found that the scheme would benefit from some minor additional works. The works already proposed and publicly exhibited as part of the River Brid e (Blackpool) Certified Drainage Scheme will remain unchanged. In addition to these, some further works, shown in Appendix 1 to this letter, are proposed in the area upstream of the previously exhibited scheme. These works will provide additional flood protection to vulnerable areas, increasing the potential beneficial impacts of the scheme.

These additional flood relief works are designed with a view to minimising environmental impacts, and have been informed by the constraints study and public consultation to date. As part of the EIA process, the project team would welcome any comments that you might h ave in rel ation to the proposed revision to this flood relief project and the new EIAR which is being compiled for the project. Full details of the previously proposed, scoped and exhibited scheme can be fo und at www.blackpoolfrs.ie.

Correspondence:

McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants
Block 1, G.F.S.C.
Moneenageisha Road,
Galway

Tel: (091) 735611
Fax: (091) 771279

Brian Keville
Email: bkeville@mccarthykos.ie

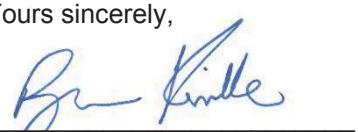
Jonathan Reid
Email: jonathanr@ryanhanley.ie

Your comments can be issued by return to:

John Staunton,
McCarthy Keville O'Sullivan Ltd. Block 1, GFSC, Moneenageisha Road, Galway

or by email to jstaunton@mccarthykos.ie

Yours sincerely,



Brian Keville B.Sc. (Env.)
McCarthy Keville O'Sullivan Ltd.

Appendix 2H
2017 EIAR Scoping Responses

Telephone response to Scoping from Ger Buckley – Blackpool Traders Assoc..

27th October 2017

Ger Buckley called the MKO office on the afternoon of the 27th October 2017, confirming that the Blackpool Traders Association would be making a submission regarding the project. He said they had dated photographs showing the extent of illegal dumping that is occurring on the Bride. They are in support of the project and wish to make the submission in support of it. They hope to have a submission made by the 10th November.

John Staunton

From: tadhg o leary <toleary@osheaspharmacy.com>
Sent: 31 October 2017 12:57
To: John Staunton
Subject: Fwd: ref 121004a

> Blackpool EIAR scoping
>
> dear John
>
> A quick note. myself and jer buckley are meeting thursday this week to complete a submission to you .
> You'll have a document Friday .
> it'll focus on why we think the scheme should proceed as is , photos etc .
>
> any questions give me a call on 0868579005
>
> hopefully that works with your deadlines etc ?
>
> Regards
>
> Tadhg o leary
>
> Sent from my iPhone

John Staunton

From: Tadhg O Leary <oleary109@gmail.com>
Sent: 04 November 2017 11:27
To: John Staunton
Cc: tadhg o leary
Subject: River Bride Certified Drainage Scheme EIAR Scoping Submission
Attachments: ryan hanley submission.pdf

A Chara,

I would like to make a submission, along with Jeremy Buckley, on the proposed drainage scheme. This submission will consist of photos of the section the River Bride that passes through Blackpool Village and supporting arguments in favor of the scheme going ahead as planned.
We are strongly in favor of the scheme.

here is the link to a selection of photos, we have more should they be of assistance.

https://drive.google.com/drive/folders/1N8N162sBwCZ1EthM0nKmLji2nA1a0XOW?usp=sharing

Please feel free to contact us if it is useful to elaborate on or clarify aspects of our submission.

Tadhg O Leary & Jeremy Buckley

Blackpool Flood Action Group

Re River Bride Certified Drainage Scheme EIAR

This document is written by Jeremy Buckley and Tadhg O Leary of Blackpool Bridge, Blackpool, Cork in support of the Blackpool Drainage Scheme as exhibited by the OPW.

We would like to argue in support of the scheme mentioned above. We would be happy to elaborate on our arguments given the opportunity. Our interest in the drainage scheme is borne of bitter experience, having been flooded several times in Blackpool in recent years. We are happy to host a visit, showing those responsible for completing the EIAR around the affected area.

See below images of flooding in 2002, 2010, 2012 and 2013


My Business :on the day
:on the day after

Dumping is a key factor in local flooding

We have amassed a large catalogue of photos and videos in recent years and we will include some of these to support our arguments here. We are happy to present more if asked. There are also videos on YouTube of 2012 and 2013 flooding events.

We have many photos taken of a section of the River Bride in Blackpool, at Orchard Court, over a period of five years between 2012- 2017. This section of the River Bride is used as a dumping ground for all manner of waste. After the flooding of 2012, and following the night time flooding of 2013, due to the impact on our businesses, we took it upon ourselves to inspect this section of river regularly. Our aim was to try to get debris choking the channel removed.

Sometimes Cork City Council removed debris for us, sometimes we removed it ourselves, in advance of signalled storms, heavy rainfall warning and where it was at immediate risk of entering the narrow underground culverts.

Flooding has been caused by debris blocking the screens across the river e.g flooding in 2013, and debris underground compromising the capacity of the culverts. Once underground this debris is very difficult to deal with, compromising the flow of the river in times of heavy rain.

In Autumn 2013 we, as members of the Blackpool Flood Action Group, conducted a survey of the downstream underground section, largely from a sense of frustration at lack of progress following the 2012 flooding. The Group then hosted a meeting for local residents, businesses and politicians where we presented photos of the underground culvert system to highlight how compromised the culvert were with rubbish. Capacity was severely compromised in places with large debris. See some photos below.

OPW and local public awareness campaigns

There was an open day in Blackpool hosted by the OPW exhibiting the detail of the proposed scheme. This was attended by circa three hundred people in Blackpool, all who were in support of the scheme. We were not aware locally of any objections at this stage.

This open day was highlighted in the local and regional press by the OPW.

Both of us had large posters in our shop windows, Jer conducted interviews on local radio, and posters were put up in all the local GP surgeries and around the village.

Please find a recording of Jer promoting the meeting on local radio attached.

We became aware of objections to the scheme when the OPW wrote to property owners locally. Some objectors felt they hadn't been made aware of the scheme. There were approximately thirty objections from residents on Commons Road.

Detail of Objections

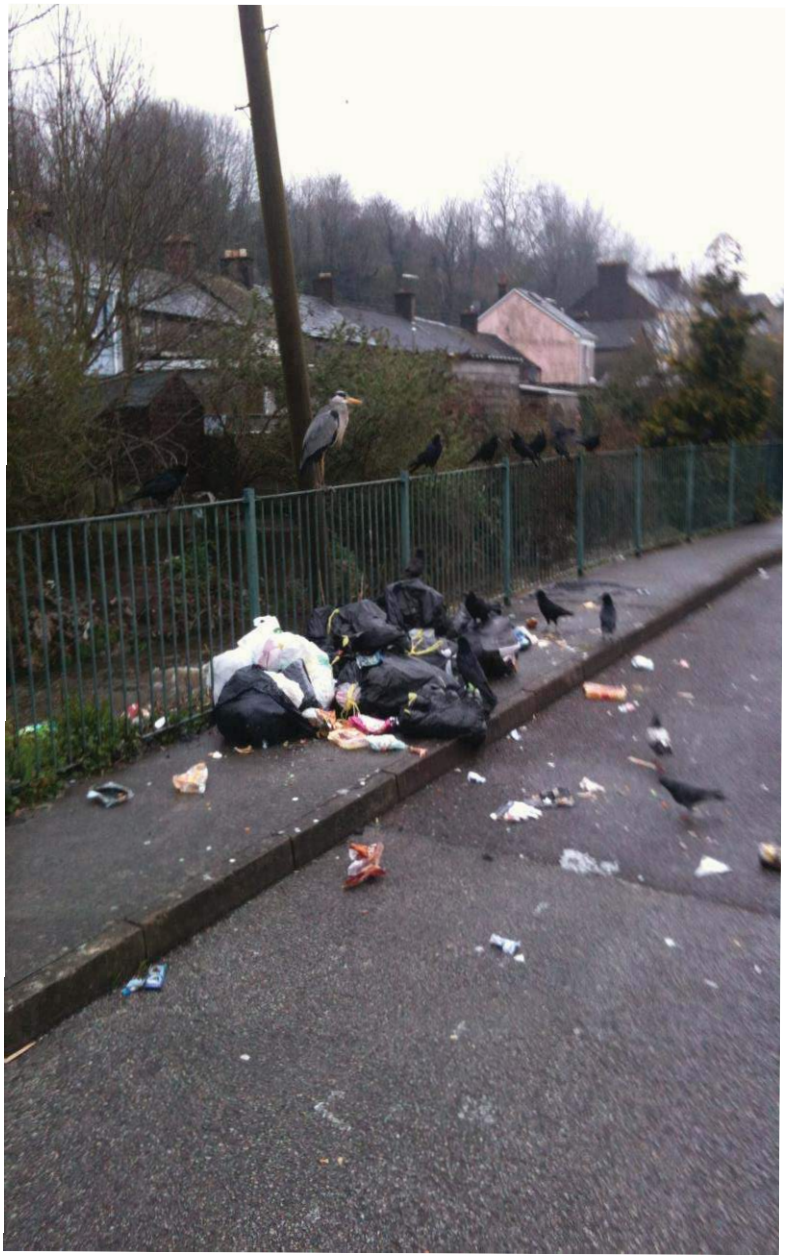
One of the objections cited was a decrease in security of the residential properties should the scheme proceed. Some residents felt that the River Bride provided additional security to the rear of their properties, acting, in effect, like a moat.

Over the past two years, we were made aware of three burglaries of these properties.

Currently some residents have no protection from the rear of their properties, some have fences, some have walls. Under the OPW proposal a proper wall would be constructed the whole way along the rear of these properties, see exhibited plans at www.blackpoolfrs.ie. We would argue that the plans would substantially improve the properties' security.

A further objection is the potential loss of visual amenity which objectors believe adds to the village and forms a habitat for some wildlife.

We would argue that the amount of dumping around the river in Orchard Court significantly damages the quality of the river environment. This section has such persistent dumping, over such a long period, as evidenced by photos attached, that it needs be culverted to protect the water quality and the wildlife.



This solution would prevent the water being continually polluted by the contents of black plastic bags, food waste, nappies, waste electrical, mattresses, shopping trollies, washing machines, gas cylinders, construction waste, and tractor tyres which have been found in the river. Again, we would refer you the photos attached.

When rubbish is dumped into the river it is largely irretrievable. If this short section was culverted at least the Cork City Council could deal with the waste appropriately.

Current Scenario in the Village and potential impact on the environment around the Village

The flooding in 2002 marked the beginning of a long period of decline in a once thriving village. Bank of Ireland, AIB, the post office and the GP surgery all left the village. Small businesses, for example Monica's Costume Hire, also shut down.

What would be perceived as the best retail premises in the village, 37/38 Thomas Davis Street, lay vacant and unused after the 2002 flooding until circa 2014.

In O Shea's Pharmacy, where Tadhg works, they have endured repeated destruction of medical records, key equipment, medicines, front of shop stock and fixtures and fittings. This has led to increased costs and the constant worry of running a business with no insurance. This is one of many businesses and residential properties who do not have flood insurance and face the same concerns.

Similarly, in Centra next door, the fridges and food stock have been repeated ruined. The businesses don't have insurance for these losses as insurance has been cancelled in the risk area. One cannot improve a premise in the current scenario. The lack of insurance leads to unexpected problems with banks, mortgages and investing in premises.

Impact of the proposed scheme in the village

We believe that the proposed OPW scheme will have a large social impact for local residents and make a positive difference to their quality of life.

The residents, mainly elderly, continuously worry about flooding in their homes. We are all aware that even modest rainfall has caused flooding in the past. Therefore, concerns are there constantly and are not restricted to rare weather events such as Storm Ophelia and Brian.

For example,

- In 2013 the cumulative rainfall was 40mm over 18 hrs and the max hourly rainfall was only 6mm.
- The 2010 event had 32 mm of rain over 13 hours and a max hourly rainfall of 4mm (*sourced from Cork airport Data @ 8km and taking cumulative to be the last time since it stopped raining)*

The area has the oldest population of any electoral ward in Cork City. They feel particularity at risk since the 2013 flooding which occurred at night. Tadhg, who works as a pharmacist in O'Shea's Pharmacy, regularly hears about the flooding fears and concerns of patients. Family are often summoned late at night by vulnerable residents to erect protective flood barriers. These are cast iron and the elderly find them difficult to manage themselves. The photo below shows a protective flood barrier. As can be seen it is not easily removable which could cause concern if there was a fire or a need to evacuate the house quickly.

.

OPW Scheme Impacts

Business & Residential Impact: We would expect that once the Scheme begins, Blackpool village will begin to rebuild. Businesses will return to replace those that left the flood risk area. Currently, there are many derelict housing units and vacant sites in the village. Employees in multinationals such as gaming company *World of Warcraft* and *Apple* which are located close by, regularly talk or a lack of accommodation in the area. The vacant housing units could be put to good use once the flooding risk is removed.

There are several bus routes passing through the village to and from the City centre. The village is in a busy corridor between the retail park and the heart of the city. The national broadband cable passes underneath Thomas Davis street so there in ample connectivity.

Environmental Impact: We argue that the OPW scheme as proposed will prevent pollution of the River Bride and improve the water quality by keeping dumped material out of the river. The Cork City Council can remove dumped material once it is not already in the river. Local council staff tell us that they don't go into the river so once the material is in the river it's much more difficult to deal with.

We argue that the current open section of river near Blackpool Bridge is not a good habitat for wildlife due to persistent dumping/fly tipping for years.

In summary, we believe the OPW Scheme, as exhibited, should proceed without further delay. We are available to expand on our submission and would welcome the opportunity to do so.

John Staunton

From: jeralcentra centra <jeralcentra@hotmail.com>
Sent: 05 November 2017 23:04
To: John Staunton
Cc: OPW Ezera
Subject: A 5Year Pictorial study 2012 to 2017 of the OPW proposed culverting of the River Bride in Blackpool Village
Attachments: file7.jpeg; file5.jpeg; file4.jpeg; file2.jpeg; file.jpeg; file6.jpeg; file3.jpeg; file8.jpeg; file1.jpeg

John,
I'd like to add this five year pictorial study to the submission we forwarded to you.I think it makes very compelling evidence that this small section of the river should be culvertied .
All these pictures are date encrypted if you need confirmation of any dates just give me a call.
Kind Regards,
Jer Buckley
087 6679640

Get Outlook for iOS

John Staunton

From: jeralcentra centra <jeralcentra@hotmail.com>
Sent: 05 November 2017 23:16
To: John Staunton
Cc: OPW Ezera
Subject: Re: A 5Year Pictorial study 2012 to 2017 of the OPW proposed culverting of the River Bride in Blackpool Village

This study has 57 pictures and the file is too big.I will print this off in hard copy and forward it to you.
Regards,
Jer

On 5 Nov 2017, at 23:04, jeralcentra centra <jeralcentra@hotmail.com> wrote:

> John,
> I'd like to add this five year pictorial study to the submission we forwarded to you.I think it makes very compelling evidence that this small section of the river should be culvertied .
> All these pictures are date encrypted if you need confirmation of any dates just give me a call.
> Kind Regards,
> Jer Buckley
> 087 6679640
>
> Get Outlook for iOS
>
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>
> <file1.jpeg>

John Staunton

From: jeralcentra centra <jeralcentra@hotmail.com>
Sent: 06 November 2017 22:33
To: John Staunton
Cc: OPW Ezera
Subject: A 5Year Pictorial study 2012 to 2017 of the OPW proposed culverting of the River Bride in Blackpool Village
Attachments: file.jpeg; file3.jpeg; file5.jpeg; file8.jpeg; file1.jpeg; file6.jpeg; file2.jpeg; file4.jpeg; file7.jpeg

John,
I'd like to add this five year pictorial study to the submission we forwarded to you.I think it makes very compelling evidence that this small section of the river should be culvertied .
All these pictures are date encrypted if you need confirmation of any dates just give me a call.
Kind Regards,
Jer Buckley
087 6679640

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2017


Evening Echo
Evening Echo, Monday, September 25, 2017
Residents urged to look after their estates
Roisin Burke
Paws awhile ... Elliot takes a rest