F

Our Case Number: ABP-312606-22

An Bord Pleanála

Ezra Mac Manamon
Office of Public Works
South West Region Drainage Maintenance
Templemungret House
Mungret
Co. Limerick
V94 EK07

Date: 8th April 2022

Re: Wind farm development of 20 turbines with 110kV electrical substation and all related site works and ancillary development.
Townlands of Annagannihy, Aughinida, Ballynagree East, Ballynagree West, Bawnmore, Caherbaroul, Carrigagulla, Carrigduff, Clonavrick, Derryroe, Drishane More, Dromagh, Drominahilla, Dromskehy and other townlands, Co. Cork.

Dear Madam,

An Bord Pleanála has received your submission in relation to the above mentioned proposed development and will take it into consideration in its determination of the matter.

The Board will revert to you in due course in respect of this matter.

Please be advised that copies of all submissions / observations received in relation to the application will be made available for public inspection at the offices of Cork County Council and at the offices of An Bord Pleanála when they have been processed by the Board.

More detailed information in relation to strategic infrastructure development can be viewed on the Board's website: www.pleanala.ie.

If you have any queries in the meantime, please contact the undersigned officer of the Board.

Teil	**Tel**	(01) 858 8100
Glao Áitiúil	**LoCall**	1890 275 175
Facs	**Fax**	(01) 872 2684
Láithreán Gréasáin	**Website**	www.pleanala.ie
Ríomhphost	**Email**	bord@pleanala.ie

64 Sráid Maoilbhríde
Baile Átha Cliath 1
D01 V902

64 Marlborough Street
Dublin 1
D01 V902

Please quote the above mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

Kieran Somers
Executive Officer
Direct Line: 01-873 7250

PA09

Teil	**Tel**	(01) 858 8100
Glao Áitiúil	**LoCall**	1890 275 175
Facs	**Fax**	(01) 872 2684
Láithreán Gréasáin	**Website**	www.pleanala.ie
Ríomhphost	**Email**	bord@pleanala.ie

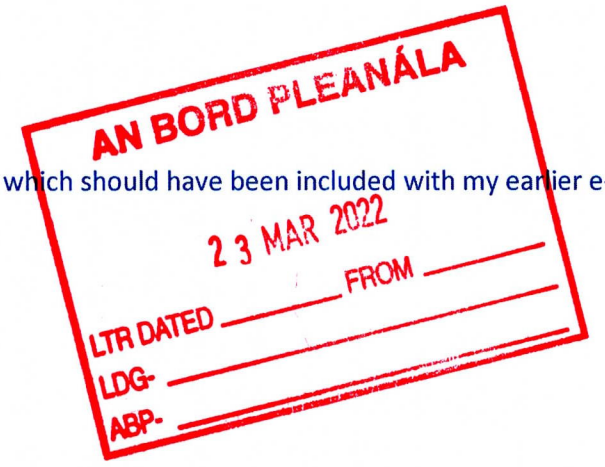
64 Sráid Maoilbhríde
Baile Átha Cliath 1
D01 V902

64 Marlborough Street
Dublin 1
D01 V902

Shaun McGee

From: Marion Coughlan <marion.coughlan@opw.ie>
Sent: Wednesday 23 March 2022 17:17
To: SIDS
Cc: Ezra MacManamon; Deirdre Maloney
Subject: FW: Observations on Planning Application 312606 - Ballinagree Wind Farm
Attachments: Observations on Planning Application 312606.pdf; Section 50 Brochure.pdf

Follow Up Flag: Follow up
Flag Status: Completed



Dear Sir/Madam,

Please also see copy of the OPW Section 50 Brochure which should have been included with my earlier e-mail.

Kind Regards,

Marion

Marion Coughlan
South-Western Drainage Maintenance & Construction

Oifig na nOibreacha Poiblí
Office of Public Works

Teach Theampall Mungairit, Mungairit, Co Luimnigh, V94 EK07
Templemungret House, Mungret, Co Limerick, V94 EK07

T +353 46 942 2101
https://gov.ie/opw

From: Marion Coughlan
Sent: Wednesday 23 March 2022 16:40
To: 'sids@pleanala.ie' <sids@pleanala.ie>
Cc: Ezra MacManamon <ezra.macmanamon@opw.ie>; Deirdre Maloney <deirdre.maloney@opw.ie>
Subject: Observations on Planning Application 312606 - Ballinagree Wind Farm

Dear Sir/Madam,

Please see attached observations in relation to Ballinagree Wind Farm. I would be grateful if you could acknowledge receipt of same.

Kind Regards,

Marion Coughlan

OPW Oifig na nOibreacha Poiblí Office of Public Works

OPW Ref: **37-2022**
Your Ref: **PA04.312606**

23rd March 2022

An Bord Pleanála
64 Marlborough Street
Dublin 1

The Proposed Ballinagree Wind Farm, Co. Cork

Dear Sir or Madam,

I refer to the above proposed windfarm, details of which were brought to the attention of this Office by Messrs Fehily Timoney in their letter of 27 January 2022 seeking comments or observations from this Office.

This Office is a prescribed body considered relevant by the Board.

Our comments below relate mainly to matters related to other Statutory Consents which might be required for parts of this development, namely consents under sections 47 and 50 of the Arterial Drainage Act of 1945, as amended. These consents are issued by the Commissioners of Public Works where appropriate.

It is noted that the documentation for the project includes a Flood Risk Assessment. We are generally not reviewing or commenting on the Flood Risk Assessment (FRA) for the Project, as this is a matter for the Board as the Planning Authority. However, there are some matters in the FRA which demand comment from this Office.

We would make the following comments.

1. It is noted that five new bridges and/or culverts are proposed to be constructed as part of this development. These will require consent from the Commissioners of Public Works. This is a requirement of Section 50 of the Arterial Drainage Act of 1945 as amended. It is noted that this is referred to in Section 10.5.4 of the EIAR. If additional new culverts or bridges (or modifications to any existing culverts or bridges) are identified as required to cross watercourses as part of the development these will also require Section 50 consent.
2. I attach a copy of our brochure on obtaining Section 50 consent for your information. Further information on the process including copies of the appropriate application form and brochure are available on our website at https://www.gov.ie/en/publication/957aa7-consent-requirements-constructionalteration-of-watercourse-infrastru/

Ionad Cothabhála Siltín Reigiún Thiar Theas, Teach Teampall Mungairit, Mungairit, Co. na Luimneach, V94 EK07
South West Region Drainage Maintenance, Templemungret House, Mungret, Co. Limerick, V94 EK07
T +353 61 227139 | info@opw.ie
www.opw.ie

3. Please note that, in the context of seeking consent under Section 50, the current required design standard for bridges or culverts is based on the flood with an annual exceedance probability of 1% (often referred to as the 1 in 100 year flood), increased by 20% to cater for the effects of climate change. Bridges or culverts are required to be able to convey this design flood without significantly altering the hydraulic characteristics of the watercourse – further details on this issue are available in the brochure and can be clarified depending on the circumstances of any particular proposed bridge or culvert.

4. You should be aware that a grant of Planning Permission by a Planning Authority for a development which contains bridges or culverts, or modifications to same, does not confer Section 50 consent on the applicant, nor does it absolve the applicant from the requirement to obtain such consent from the Commissioners.

5. Appendix 3.3 of the Environmental Impact Assessment Report (EIAR) highlights that, subject to a detailed site survey of existing culverts in the next phase of the project, some culverts may need to be replaced to facilitate the installation of the underground cabling for the grid connection route. If these culverts are on natural watercourses, Section 50 consent will be required for these potential culvert replacement works. It should be noted that the minimum clear opening size for a culvert, for Section 50 consent purposes is 900mm above the stream bed.

6. **Grid Connection Route**.
   (i) With regard to the proposed grid connection route that is indicated in the documentation, we note that this route crosses several watercourses. If the cable and ducting are to be buried in the road as they cross bridges over the watercourses, and there is no interference with the opening in the bridge spanning the watercourse, then there is no issue. This would be as indicated in 10.3.7 of the EIAR.
   (ii) Further to the previous point, a review of the proposed grid connection route on OSi historical 6 inch maps indicates the potential for additional watercourse crossings not already identified in the EIAR, e.g. between GCR-WCC2 and GCR-WCC3, GCR-WCC3 and GCR-WCC4, GCR-WCC6 and GCR-WCC5, GCR-WCC7 and GCR-WCC8, and GCR-WCC9 and GCR-WCC15. It is recommended that the watercourses indicated on historical OSi maps are reviewed on site to inform the detailed plans for the grid connection route watercourse crossings to be developed in the next phase of the project, so that any culverts or watercourse crossings are not interfered with accidentally. If it is proposed to interfere with the Hydraulic (flowing) opening of any of these culverts then the consent of the Commissioners would be required as indicated above.
   (iii) If it is proposed to pass the cable in its ducting through the opening of any bridge or culvert, this would be considered to be a modification of a bridge and it would require the consent of the Commissioners under Section 50 as mentioned above.
   (iv) Similarly, if it is proposed to carry the cable in its ducting across watercourses on new support structures spanning the watercourses, these should be treated as if they are bridges, and the consent of the Commissioners under Section 50 should be obtained.
   (v) If the cable and ducting is to be buried under the natural bed of the watercourses being crossed, (as indicated on Sheet Number 05843-DR-019 '*Horizontal Directional Drilling Culvert Crossing Detail*') Section 50 would not apply. In this circumstance we would recommend that the duct be buried a sufficient distance below the natural bed to allow for erosion and mobility of the stream bed.

7. In reference to the EIAR proposal for watercourse damming with flume pipes and/or diversion channels to facilitate dry instream works, note that damming the watercourse may be subject to consent under Section 47 of the Arterial Drainage Act of 1945 as amended.

Further consultation with this Office is recommended when the proposals for instream works are finalised. Note also if temporary pipes and/or culverts are proposed for diverting the watercourse these are also subject to Section 50 consent.

8. The flood risk assessment (FRA) in the EIAR has not been reviewed by this office and should be reviewed by the Board as the Planning Authority.

9. However, there are some statements made in the FRA which demand comment from this Office, as follows.
(i) It is noted that in Section 10.5.2, '*Flood Risk Identification*' it is indicated that the identification of flood zones has been carried out for the FRA by relying on the Preliminary Flood Risk Assessment (or PFRA). This is entirely in appropriate. The PFRA was carried out for the purpose stated in Section 10.5.2 (opening paragraph) and it should not be relied on for any other purpose including site specific flood risk assessments.
(ii) The identification of the proposed substation and other elements of the development as being in Flood Zone C, on the basis of the PFRA, is not valid, and a Site Specific flood risk assessment should be carried out to support this application.
(iii) The Board should consider if the calculation of Swale Volume as noted in Section 10.5.3 takes appropriate account of the fact that the swales will be in many cases at gradients with check dams, and that immediately downstream of the check dams, there will be little or no depth of water stored in them.
(iv) It is indicated in Section 10.5.4 that the flow estimation for the new crossings is based on FSU methodology and FSU catchment descriptors. This information (FSU methodology and descriptors) are quite unsuitable for flow estimation for small catchments of the size indicated in Table 10-11. For Section 50 consent purposes, the flows should be estimated using a suitable range of methods, and modified to an appropriate confidence level, based on risk, before being used for Hydraulic assessment in support of a Section 50 application.
(v) The flows indicated in Table 10-11 for the various proposed crossings seem low to very low for the catchment sizes indicated and are quite unlikely to be acceptable for Section 50 consent purposes. The growth curve (1.96) indicated in Section 10.5.4 is possibly inappropriate for use with the index flood indicated.
(vi) The Board should consider, further to the previous point, if the flows estimated for use in the FRA are appropriate for the purpose.
(vii) Figure 10.3 is entitled 'OPW Flood Data'. The main flood information shown in this figure is the flood extent information as estimated in the PFRA, as referred to above. It is also noted that the watercourses are shown in a very similar colour to the flood extent information that was produced in the PFRA, leading to the possible misleading understanding that the flood extents shown on this drawing are more extensive than they should be. The PFRA information on the figure is completely in-appropriate for use in this context, as noted above, and further, the potentially misleading nature of the presentation of the information is a cause for concern.

10. Some comments on issues noted on drawings of watercourse crossings.
WF-HF5. It appears that the bed level of the water course may be reduced to go under the proposed structure. If this is the case, this will not be acceptable for Section 50 consent purposes. It is required, unless it is unavoidable, that the existing horizontal and vertical alignments of the watercourse are not interfered with to accommodate a new bridge or culvert. If the bed level profile as shown on the drawing is as existing, it should be expected that there could be significant erosion and deposition at the entry to the culvert, which would compromise the culvert designed cross section. This should be accounted for in the design of the culvert and in the FRA for the project. This principle applies to any crossing for

which Section 50 consent is required.
WF-HF8. It is noted that this structure appears to be located at a bend in the watercourse, where an existing structure is to be replaced. The structure and bank of the watercourse should be designed to be safe against the effects of scour and erosion. Again, this applies to all watercourse crossings where Section 50 consent is required.

11. **Turbine Delivery Route**. It is noted that at PoI 38, there is an indication on the EPA website (https://gis.epa.ie/EPAMaps/) that there is a watercourse crossing this site. The watercourse European Code is IE_SW_18F030400, and it is named 'FINNOW (BLACKWATER)_040'. If this watercourse is crossing this site, any culvert on this to accommodate the proposed development would need Section 50 consent as noted earlier. It is not indicated if any modifications of any structures on the Turbine delivery Route are required to facilitate the project. If any watercourse crossings are to be modified on the route, the modifications may require consent under Section 50 as indicated earlier.
12. **Maintenance**. It is noted that the FRA identifies a number of features to be constructed as part of the development. It is recommended that a regular maintenance regime should be adopted for the inspection and maintenance of these features to the as-designed condition, for the duration of the project and not just the construction period.
13. It is noted that the co-ordinates of the existing Hydrology Features (watercourse crossings) are given in Table 10-7 of the EIAR, and that the co-ordinates of the new crossings indicated in Table 10-11, are not indicated. The locations of the structures indicated in Table 10-7 differ from the locations indicated in Figure 10.5, in at least 6 cases, so there is contradictory information in the documentation about the location of structures.
14. It is indicated in Section 10.5.4 that an OPW representative was met on site. We have no record of an OPW representative attending any such site meeting and we suggest this that site meeting may have been with IFI or another statutory body.
15. It is understood that there is a history of landslides associated with developments of this nature in the past and therefore this should be assessed and addressed by the designers to the satisfaction of the planning authority.

Please use the reference number indicated above in any further correspondence with the office on this matter.

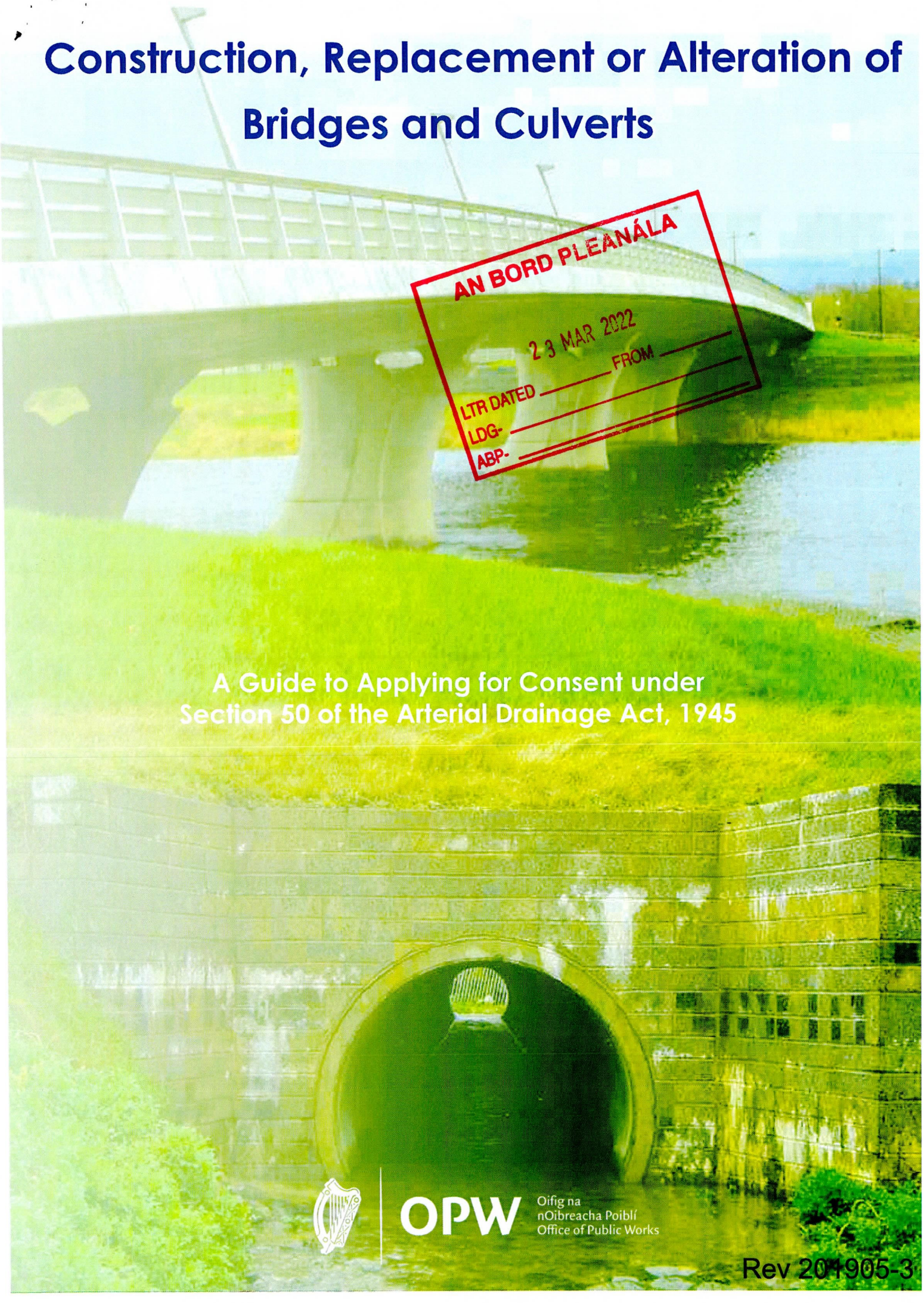
Yours faithfully,

Marian Coughlan

P.P.

Ezra MacManamon

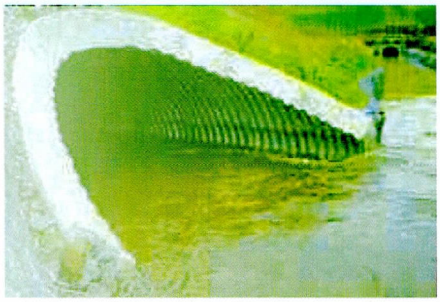
Construction, Replacement or Alteration of Bridges and Culverts



A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945

OPW
Oifig na nOibreacha Poiblí
Office of Public Works

Rev 201905-3



About this Guide

This guide has been produced by the Office of Public Works (OPW) to assist those applying for consent from the Commissioners of Public Works to construct, replace or alter a bridge or culvert. The issues that this guide addresses include:

- Why is consent required from the OPW?
- How is an application reviewed by the OPW and how long can a review take?
- What information should be submitted in support of an application for consent?
- What are the features of hydraulically efficient and inefficient bridges and culverts?

Within this guide, the following references are used:

- Bridges: This refers to the entire bridge structure, including all ancillary works such as watercourse realignment, erosion control and approach works.

- Culverts: This refers to the entire culvert structure, including all ancillary works such as watercourse realignment, erosion control and approach works.

- Structures: This refers to both bridges and culverts, including all ancillary works such as watercourse realignment, erosion control and approach works.

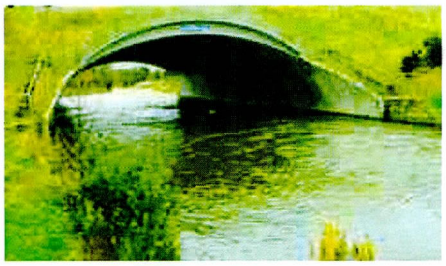
If further information is required, please refer to the relevant OPW contact details on the back page of this guide.

Introduction to Section 50

Section 50 of the Arterial Drainage Act, 1945 requires that:

> *No local authority, no railway company, canal company or other similar body, and no industrial concern shall construct any new bridge or alter, reconstruct, or restore any existing bridge over any watercourse without the consent of the Commissioners or otherwise than in accordance with plans previously approved of by the Commissioners.*

The OPW is responsible for the implementation of the regulations in the Arterial Drainage Act, 1945, including Section 50.



Section 50 and Flood Risk Management in Ireland

The objective of flood risk management is to reduce the impact that flooding has on communities and infrastructure both at present and into the foreseeable future through the implementation of measures such as:

- Planning and development controls.
- Land use management.
- Flood warning systems.
- Flood relief schemes.

The role of the various State Bodies in the management of flood risk in Ireland is defined by the "Report of the Flood Policy Review Group". Of particular relevance to this guide are the roles and responsibilities that are assigned to the OPW, which include taking the lead role in relation to the management of flood risk in Ireland.

The construction, replacement or alteration of a bridge or culvert has the potential to change the hydraulic characteristics of a watercourse. If significant, this change may result in:

- Flood levels upstream of the bridge being increased due to the creation of a restriction in the watercourse.
- Flood levels downstream of the bridge being increased due to the removal of a beneficial restriction from the watercourse.
- Erosion of the watercourse and/or floodplain being initiated or accelerated due to the restriction increasing flow velocities and turbulence.
- Deposition of material in the watercourse or on the floodplain due to a change in flow velocities and turbulence.
- Overland flow paths on the adjacent floodplain being blocked or diverted due to the construction of bridge approaches.

The above changes to the hydraulic characteristics of a watercourse or floodplain may impact on local flood risk management plans. The OPW has a broader interest in ensuring that the adverse hydraulic effects created by new or existing bridges and culverts are avoided, minimised or managed through the process of obtaining consent under Section 50.

> ! Consent under Section 50 does not confer permission to construct and does not absolve the developer from fulfilling any other legal obligations or from third party claims that might arise from the project.

Hydraulic Design Standards

In general, a proposed bridge or culvert design submitted with an application under Section 50 should demonstrate the achievement of the following design standards:

- ✓ A bridge or culvert must be capable of passing a fluvial flood flow with a 1% annual exceedance probability (AEP) or 1 in 100 year flow without significantly changing the hydraulic characteristics of the watercourse.

- ✓ In addition to the above fluvial flood flow standard, if a bridge or culvert is located within a tidal zone, it must cater for a tide level with a 0.5 % (AEP) or 1 in 200 year flow without significantly changing the hydraulic characteristics of the watercourse.

- ✓ A bridge must be capable of operating under the above design conditions while maintaining a freeboard of at least 300 mm.

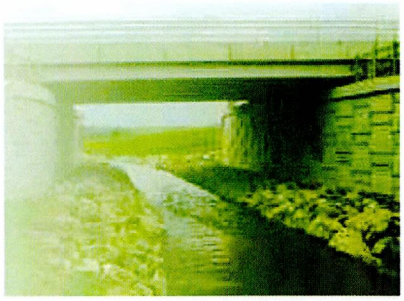
- ✓ If the land potentially affected does not include dwellings and infrastructure, a culvert must be capable of operating under the above design conditions while causing a hydraulic loss of no more than 300 mm (excluding the culvert gradient).

- ✓ If the land potentially affected includes dwellings and infrastructure, it must be demonstrated that those dwellings and/or infrastructure are not adversely affected by constructing the bridge or culvert.

- ✓ A culvert diameter, height and width must not be less than 900 mm to facilitate maintenance access and reduce the likelihood of debris blockage.

! If the level of risk or uncertainty warrants, a HIGHER design standard may be required.

i A LOWER design standard may be considered by the OPW if there is a sufficiently low risk. In such cases, adequate justification must be provided with the application.



Hydrological Considerations

The hydrological analysis submitted in support of an application should be representative of the rainfall and flood flows that can be expected at the site of the proposed bridge or culvert. It should therefore:

- Define the hydrological characteristics of the watercourse catchment upstream of the location of the proposed bridge or culvert.
- Utilise all appropriate and available rainfall and hydrometric data.
- Where appropriate, use a range of techniques to estimate the design peak flood flow.
- Incorporate any expected change in the catchment's hydrological characteristics due to "climate change".

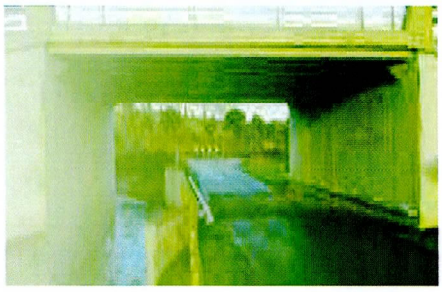
Hydraulic Considerations

The hydraulic analysis submitted in support of an application should be representative of the bridge or culvert that will be constructed. It should therefore take into account:

- All losses associated with the bridge or culvert (e.g. entrance, exit, friction and pier losses).
- Any ancillary works that may affect the hydraulic performance of the bridge or culvert (e.g. erosion control works and debris screens).
- The effect of the downstream water level on the hydraulic performance of the bridge or culvert, including tides.
- The hydraulic implications of any environmental measures incorporated into the bridge or culvert design (e.g. depression of the invert or the installation of baffles).

! If the information required to review your application is not submitted, the OPW will place your application on hold pending the receipt of outstanding or additional information.

! Any change to the hydraulic design of the bridge or culvert made after receipt of consent from the OPW under Section 50 will invalidate that consent.



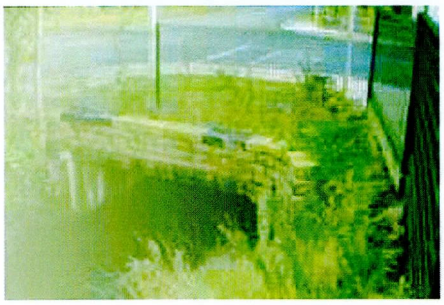
Level of Technical Analysis

The level of technical analysis that may be required in support of an application is outlined in the following table.

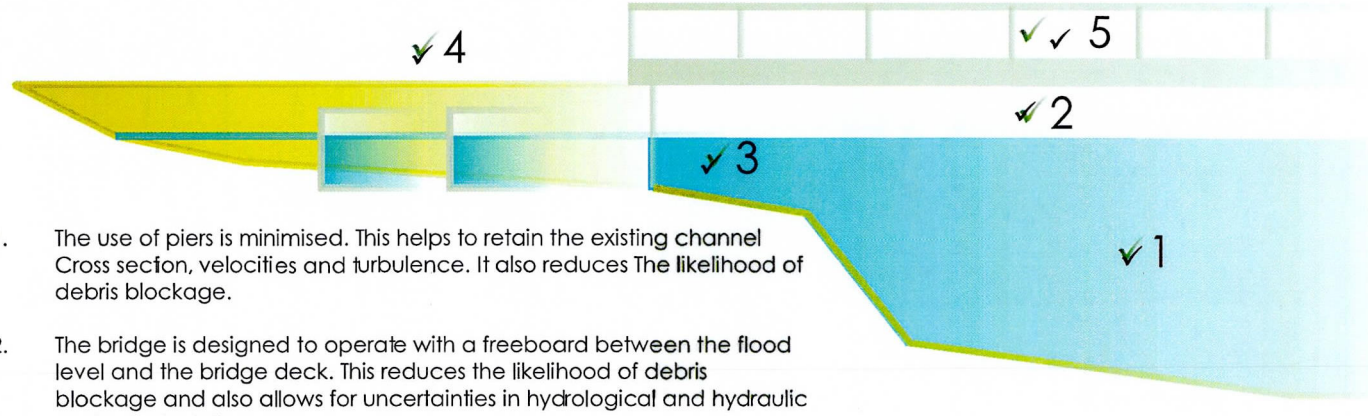
		Information Requirements											
		Impact		Survey Information			Hydrology		Hydraulics			Additional	
		Flood level	Flood extent	Detailed plan of structure and adjacent watercourse	Cross section survey extending over the affected area	Aerial or ground-based contour survey covering the affected area	Estimation of design flood flow	Estimation of design flood hydrograph	Simple hydraulic calculations	Numerical hydraulic model	Flood risk assessment	Analysis of alternative events that may be affected by the structure	Joint probability analysis combining fluvial and tidal events
Affected Land	Undeveloped	✓	-	✓	O	-	✓	-	✓	-	-	-	O
	Rural dwellings and Infrastructure	✓	O	✓	O	O	✓	O	✓	O	O	O	O
	Urban dwellings and infrastructure	✓	✓	✓	✓	O	✓	✓	✓	✓	✓	O	O

✓ Likely to be required
O May be required
- Unlikely to be required

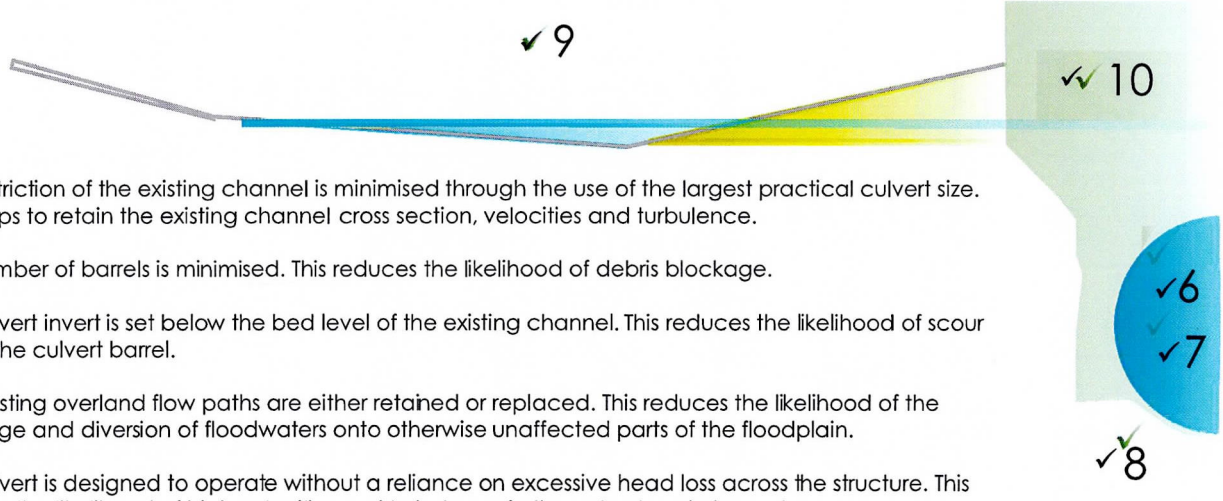
i Please be aware that this information is provided as a guide only, and that additional information may be requested at the discretion of the OPW.



Some features of a Hydraulically **EFFICIENT** Bridge and Culvert

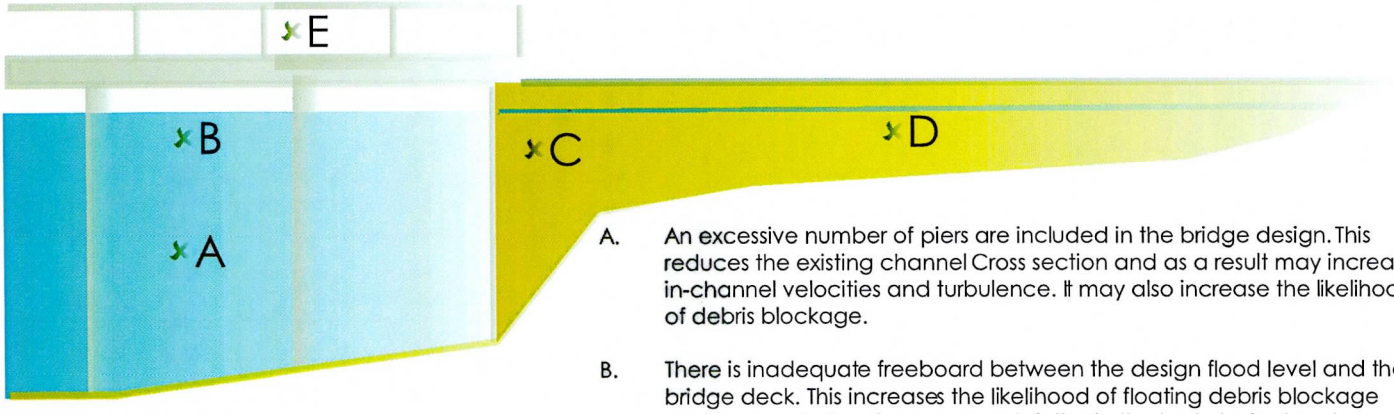


1. The use of piers is minimised. This helps to retain the existing channel Cross section, velocities and turbulence. It also reduces The likelihood of debris blockage.
2. The bridge is designed to operate with a freeboard between the flood level and the bridge deck. This reduces the likelihood of debris blockage and also allows for uncertainties in hydrological and hydraulic design calculations.
3. The encroachment of the bridge abutments into the channel is minimised. This helps to retain the existing channel cross section, velocities and turbulence.
4. Any existing overland flow paths are either retained or replaced. This reduces the likelihood of the blockage and diversion of floodwaters onto otherwise unaffected parts of the floodplain.
5. The bridge abutments and any piers are parallel with the existing direction of flow.



6. The restriction of the existing channel is minimised through the use of the largest practical culvert size. This helps to retain the existing channel cross section, velocities and turbulence.
7. The number of barrels is minimised. This reduces the likelihood of debris blockage.
8. The culvert invert is set below the bed level of the existing channel. This reduces the likelihood of scour under the culvert barrel.
9. Any existing overland flow paths are either retained or replaced. This reduces the likelihood of the blockage and diversion of floodwaters onto otherwise unaffected parts of the floodplain.
10. The culvert is designed to operate without a reliance on excessive head loss across the structure. This reduces the likelihood of high velocities and turbulence in the culvert and channel.

Some features of a Hydraulically **INEFFICIENT** Bridge and Culvert



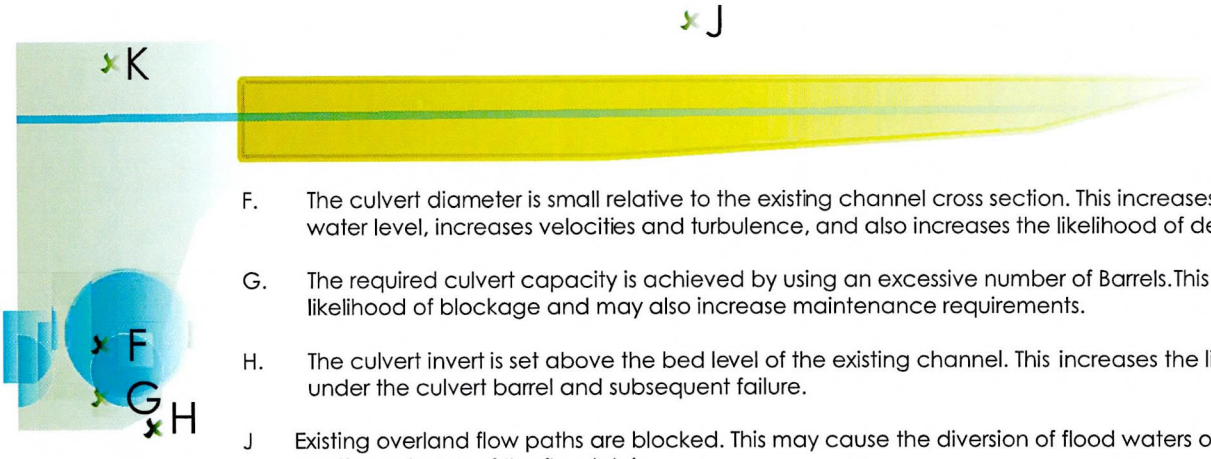
A. An excessive number of piers are included in the bridge design. This reduces the existing channel Cross section and as a result may increase in-channel velocities and turbulence. It may also increase the likelihood of debris blockage.

B. There is inadequate freeboard between the design flood level and the bridge deck. This increases the likelihood of floating debris blockage and does not allow for any uncertainties in the hydrobgical and hydraulic design calculations.

C. The bridge abutments encroach into the existing channel. This reduces the existing channel cross section and as a result may increase in-channel velocities and turbulence.

D. Existing overland flow paths are blocked. This may cause the diversion of flood waters onto otherwise unaffected parts of the floodplain.

E. The bridge abutments and any piers are not aligned parallel to the existing direction of flow. This is likely to decrease the hydraulic performance of the bridge.



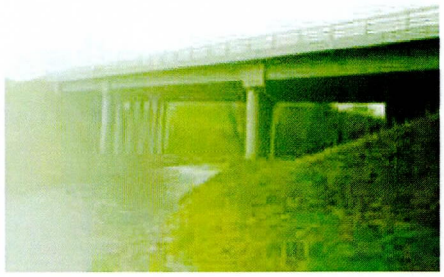
F. The culvert diameter is small relative to the existing channel cross section. This increases the upstream water level, increases velocities and turbulence, and also increases the likelihood of debris blockage.

G. The required culvert capacity is achieved by using an excessive number of Barrels. This increases the likelihood of blockage and may also increase maintenance requirements.

H. The culvert invert is set above the bed level of the existing channel. This increases the likelihood of scour under the culvert barrel and subsequent failure.

J Existing overland flow paths are blocked. This may cause the diversion of flood waters onto otherwise unaffected parts of the floodplain.

K The culvert is only able to pass the design flow with a significant head loss across the structure. This may result in increased upstream water levels, high velocities and turbulence that may damage the structure and channel.



Information Checklist

To allow us complete a full review of your application, you need to prepare and submit the following information to the OPW:

- ✓ Completed application form.
- ✓ Scaled and annotated location plan (including accurate geographic position).
- ✓ Scaled plan(s) and cross section(s) of all works associated with the bridge or culvert (including the earthworks necessary to form any approaches to the bridge or culvert) referenced to ordnance datum.
- ✓ Annotated photographs of the proposed site, the upstream channel and floodplain, and the downstream channel and floodplain. Details of any existing bridges both upstream and downstream of the proposed site are to be included, if applicable.
- ✓ Technical documentation covering the hydrological and hydraulic analysis completed during the design of the bridge or culvert.

The Review Process

An application for consent under Section 50 is reviewed by the OPW as follows:

a. The application is received, registered and acknowledged by the OPW.

b. The application is checked to ensure that all the information necessary to review it has been submitted.

c. If necessary, a request for any outstanding information is issued.

d. Once all necessary information is received, the application is reviewed. This review includes:

- Examination of the hydrological and hydraulic calculations.
- Review of the basis for the conclusions reached with regard to the impact of application on upstream and downstream flood levels.
- A request is issued if any additional information is required to complete the review of the application.

e. The application for consent under Section 50 is either granted or declined.

> **i** The OPW aims to review applications within 8 weeks of receiving all necessary information.

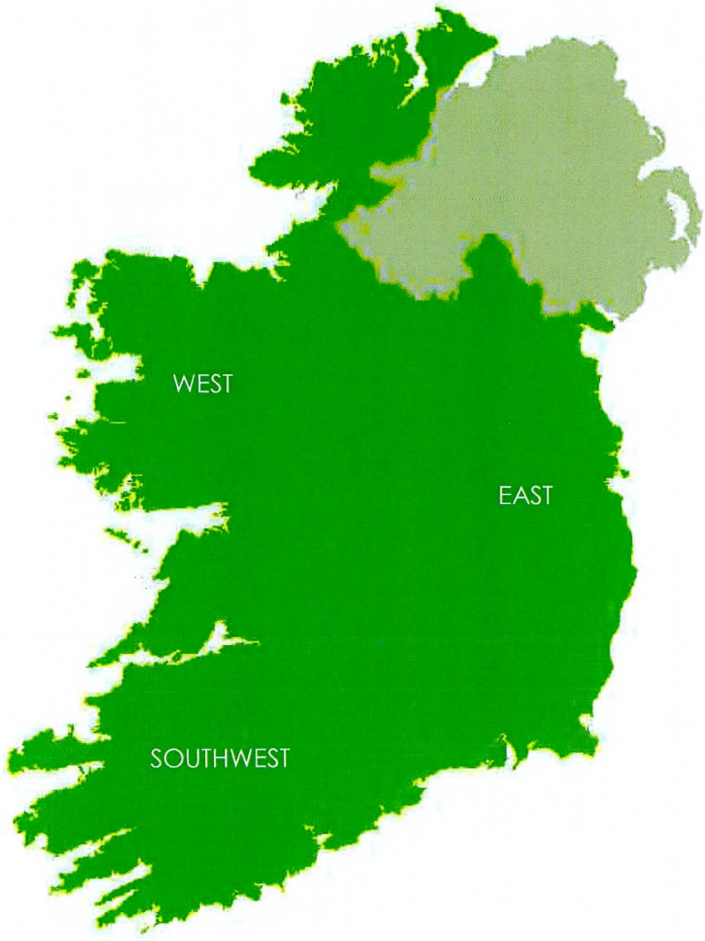
Further Information

Further information specific to the application for consent under Section 50 is available from:

OPW East Region
Newtown
Trim
Co. Meath
Phone: (046) 943 1352
bridgeseast@opw.ie

OPW South West Region
Templemungret House
Mungret
Co. Limerick
Phone: (061) 227 139
bridgessouthwest@opw.ie

OPW West Region
Headford
Co. Galway
Phone: (093) 35456
bridgeswest@opw.ie



General information may also be available from the following organisations.

OPW Oifig na nOibreacha Poiblí Office of Public Works
www.opw.ie

epa Environmental Protection Agency
www.epa.ie

MET
www.met.ie

! The OPW accepts no liability for the failure of a bridge or culvert, or the effect of a bridge or culvert on third parties, as a consequence of information contained in this guide.