

April 2018



Water Supply Project, Eastern and Midlands Region

Final Options Appraisal / EIS Scoping Report

Consultation Submissions Report

A Plan for the Future of Water Services

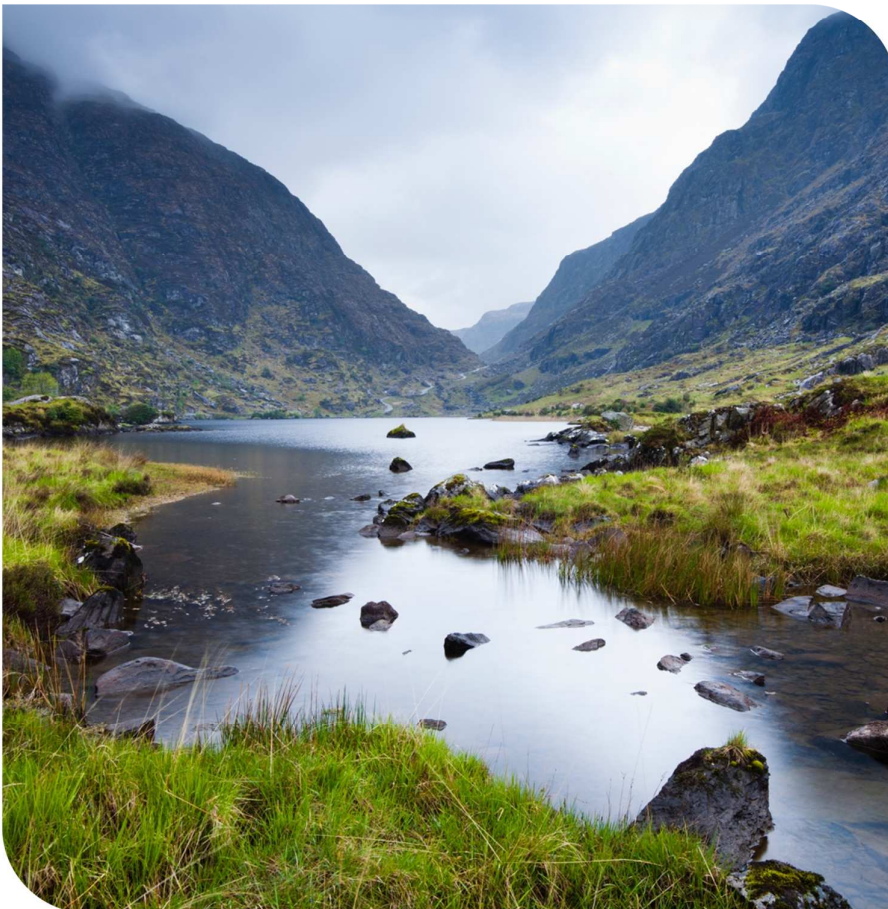


Table of Contents

1.	Executive summary	1
1.1	Introduction	1
1.2	Background	1
1.3	Consultation publicity and activity	1
1.4	Feedback from Fourth Public Consultation	4
1.5	Response to Feedback from Fourth Public Consultation	4
1.6	Next steps	4
2.	Introduction	5
2.1	Project background	5
2.2	Project development.....	6
3.	Consultation publicity and activity	11
3.1	Introduction	11
3.2	Publication of FOAR and EIS Scoping Report	12
3.3	Information materials.....	13
3.4	Advertising	14
3.5	Media	15
3.6	Project website	16
3.7	Landowner engagement.....	18
3.8	Consultation events.....	19
3.9	Direct engagement.....	22
3.10	Information services and making submissions.....	31
4.	Feedback from Fourth Public Consultation	32
4.1	Theme 1: The need for the project	34
4.2	Theme 2: Benefiting corridor	36
4.3	Theme 3: Alternative options.....	36
4.4	Theme 4: Planning	38
4.5	Theme 5: Pipeline	38
4.6	Theme 6: Construction and operation	39
4.7	Theme 7: Environmental issues	41
4.8	Theme 8: Water	47
4.9	Theme 9: Land use	48
4.10	Theme 10: Project cost and funding	52
4.11	Theme 11: Public consultation	52
4.12	Theme 12: Community gain	53

5.	Response to Feedback from Fourth Public Consultation	55
5.1	Theme 1: The need for the project	55
5.2	Theme 2: Benefiting corridor	64
5.3	Theme 3: Alternative options.....	65
5.4	Theme 4: Planning	72
5.5	Theme 5: Pipeline	74
5.6	Theme 6: Construction and operation	78
5.7	Theme 7: Environmental Issues.....	82
5.8	Theme 8: Water	91
5.9	Theme 9: Land use	93
5.10	Theme 10: Project cost and funding	99
5.11	Theme 11: Public consultation	101
5.12	Theme 12: Community gain	103
6.	Next steps	105

Table of Tables

Table 3-1 Local planning authorities in the study area.....	12
Table 3-2 Summary of Radio Advertisement for Consultation.....	15
Table 3-3 Public Representatives contacted.....	22
Table 4-1 Themes arising from consultation.....	32
Table 5-1 Cost Benefit Analysis 2016.....	100

Table of Figures

Figure 1-1 Method of feedback received during the consultation period	4
Figure 2-1 The Preferred Scheme (Abstraction from Parteen Basin and transferred via pipeline through the Midlands to Peamount, South County Dublin).....	6
Figure 2-2 WSP Project Consultation Roadmap	8
Figure 3-1 Advertising Channels.....	15
Figure 3-2 Consultation Media Coverage	16
Figure 3-3 Project Website Homepage.....	17
Figure 3-4 Project Website Statistics	18
Figure 3-5 Video Animation	18
Figure 3-6 Landowner Information Evenings.....	20
Figure 3-7 Public Open Days	21
Figure 4-1 Feedback received by communication channel	32
Figure 5-1 Leakage reductions in the GDWSA 2018 to 2050	61
Figure 5-2 Groundwater abstraction	71
Figure 5-3 Parteen Basin	93

1. Executive summary

1.1 Introduction

Over 1,000 stakeholders participated in the latest consultation stage of the preferred scheme and environmental impact assessment scoping report which ran from fourteen weeks from 8 November 2016 to the 14 February 2017.

This Consultation Submissions Report details the consultation activities undertaken and sets out a summary of the feedback received from the fourth consultation, and the project team's response to this feedback.

1.2 Background

A new water supply source is needed for Irish Water's Eastern and Midlands Region to deliver secure, reliable and sustainable long term water supplies to the region. In 2015 Irish Water embarked on an extensive four-stage public consultation process to identify a suitable new source of water supply for the region. The project which has identified Irish Water's preferred new water supply scheme is titled 'Water Supply Project, Eastern and Midlands Region' abbreviated to WSP.

After analysing feedback from four phases of public consultation, carrying out detailed on-the-ground investigations and computer modelling, abstraction from the Parteen Basin has been identified as the single option which delivers the widest benefit to the greatest number of people with the least environmental impact. The preferred new water supply scheme comprises the abstraction of water from the Lower River Shannon at Parteen Basin in County Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped 170km to a termination point reservoir at Peamount in south County Dublin, enabling connection into the Greater Dublin water supply network. Supplies of treated water would be made available to Midland communities at a number of specified locations along the pipeline route from Parteen Basin to Dublin.

1.3 Consultation publicity and activity

Public participation is an essential element of the development of any infrastructure project, and Irish Water is committed to continuous and responsive two-way communication with all stakeholders, at every stage of the WSP. Four rounds of public consultation have taken place since Irish Water assumed responsibility for the project from Dublin City Council in January 2014.

Throughout the public consultation process, the project team has made public all stakeholder feedback on the project, both positive and negative, and has

produced a series of Consultation Submissions Reports documenting the findings of each consultation.

Public feedback received as part of the first three public consultation stages, in combination with on-the-ground technical and environmental investigations, has formed a key part in the development of the preferred new water supply scheme for the Eastern and Midlands Region.

This Consultation Submissions Report details the consultation activities undertaken and sets out a summary of the feedback received from the fourth consultation, and the project team's response to this feedback.

The fourth consultation period took place over 14 weeks from 8 November 2016 to 14 February 2017 following the publication of the Final Options Appraisal Report (FOAR) and EIS Scoping Report¹. The FOAR confirmed that the preferred scheme for a new water supply comprises the abstraction of water from the lower River Shannon at Parteen Basin in County Tipperary, with water treatment nearby at Birdhill. A 'preferred 200m pipeline corridor' and an 'indicative 50m pipeline corridor' within it were published in the FOAR. The EIS Scoping Report described the methodologies by which the project will be assessed in the Environmental Impact Assessment Report (EIAR).

Additional printed information materials were made available as part of the fourth public consultation in order to facilitate the provision of project information to all stakeholders. This included a project newsletter, Non-Technical Summary (NTS), a landowner leaflet and landowner FAQs, and public displays for consultation events. Copies of the newsletter and NTS were available at the project consultation events, on the project website and were also made available at the planning counters and local libraries along with the hard copies of the FOAR and EIS Scoping Report.

Advertisements promoting the consultation were taken out in local and regional media and a number of interviews with project spokespersons took place on national television, as well as national, local and community radio stations. In total 141 articles were published about the project and the associated consultation in national and regional newspapers, along with 46 online articles and 91 radio and seven television pieces.

Information was made available on the dedicated project website (www.watersupplyproject.ie), which was visited almost 14,700 times during this phase of consultation, with 26% being return visitors and 74% being unique visitors. Irish Water's website was also used to publicise the consultation and the Irish Water WSP project page (www.water.ie/projects-plans/national-projects/water-supply-project/) was visited 660 times during the consultation period.

¹ Directive 2011/92/EU as amended by Directive 2014/52/EU which came into law in May 2017 uses the term Environmental Impact Assessment Report (EIAR) for what was formerly referred to in Irish legislation as an Environmental Impact Statement (EIS)

At the launch of the consultation, a number of stakeholders and organisations were contacted by email, including:

- Stakeholders who had engaged in previous rounds of consultation;
- Public representatives;
- Landowners;
- Statutory and non-statutory organisations; and
- Chief Executives of the Local Authorities within the Study area.

At the launch of the consultation 1,059 letters were issued to landowners - 493 to landowners within the indicative 50m pipeline corridor and 566 to other landowners, those within the 200m preferred corridor and those landowners who previously engaged with the project as part of the route selection process and surveys. The letters outlined the details of the consultation and included an invitation to either a landowner information evening or a public open day. Landowner engagement is an ongoing process throughout the planning phase and each landowner within the 50m indicative pipeline corridor has specific contact details for one of the four dedicated Landowner Liaison Officers (LLOs) who are part of the project team.

Eight public open days were held during the consultation period with 227 attendees recorded. Six dedicated landowner information evenings were held for landowners within the indicative 50m pipeline corridor with 411 attendees recorded. Landowners who did not attend the events were subsequently contacted by their LLOs and provided with the information available at these events. All feedback, questions and concerns were recorded, listened to and responded to on the day or followed up at a later stage.

Two project briefings were held for Members of the Oireachtas. In total, 17 members or member representatives and two Councillors attended these events. Councillor briefings were offered to each local authority along the pipeline corridor, with five briefings being held.

During the consultation period, the project team was available to meet with all interested stakeholders. Over 50 meetings were held with statutory bodies, non-statutory organisations and interested groups during the consultation period. Meetings were also offered to the management teams in each local authority within the study area, with six meetings taking place.

The Joint Oireachtas Committee on Housing, Planning, Community and Local Government met with representatives of Irish Water on 15 February 2017 to discuss the WSP. This event was live streamed to Oireachtas TV and is available to watch on www.oireachtas.ie.

1.4 Feedback from Fourth Public Consultation

All feedback received by the WSP project team as part of this fourth non-statutory period of consultation on the WSP was acknowledged and recorded. All feedback received during the public consultation open days, landowner evenings and stakeholder meetings were considered and are reflected in this report. Figure 1-1 shows the quantity of feedback received through each communication channel during the consultation period.

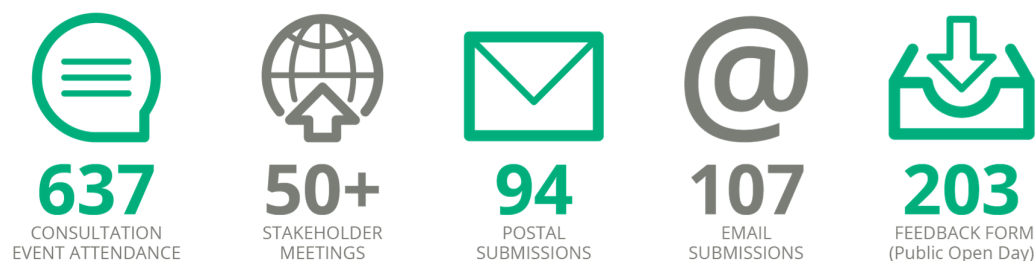


Figure 1-1 Method of feedback received during the consultation period

All feedback has been reviewed by the project team and summarised by theme. Feedback includes the issues raised and feedback provided by interested stakeholders, members of the public and directly impacted landowners during the consultation. Feedback is presented under a number of headings in Chapter 4 of this report.

1.5 Response to Feedback from Fourth Public Consultation

Irish Water has listened carefully to the submissions and queries received, and to the views expressed by stakeholders throughout the consultation period. Section 5 of this report outlines Irish Water's responses to the issues and views expressed in these submissions and discussions.

1.6 Next steps

Irish Water is currently preparing a planning application, including an Environmental Impact Assessment Report and Natura Impact Statement, for the WSP. It is intended that the planning application will be submitted to An Bord Pleanála in 2019 for their independent adjudication, and that water from the WSP will be available throughout the Eastern and Midlands Region from 2025 onwards.

The publication of this Consultation Submissions Report is yet another milestone in the ongoing development of this project. Irish Water is continuously refining the WSP, engaging with landowners and stakeholders, and undertaking ongoing environmental surveys, looking at potential mitigation measures where required and preparing the environmental reports. This work will continue up to planning submission stage.

In the interim period, Irish Water will continue to meet with interested stakeholders to make sure we work together to deliver the vision of a safe, secure and sustainable new water source for the Eastern and Midlands Region.

2. Introduction

2.1 Project background

The Water Supply Project, Eastern and Midlands Region (WSP) is the title of Irish Water's project for the identification and development of a new water source that will be able to deliver a secure, reliable and sustainable long term water supply to the region.

In 2015 Irish Water embarked on an extensive four-stage public consultation process to identify its preferred new source of water supply for the region.

Extensive studies and research have been undertaken to identify and assess all possible supply options to meet the future water supply requirements of the Eastern and Midlands Region. In total ten options were identified and examined in detail.

These ten options were thoroughly assessed on a demographic, technical, geographic, environmental and economic basis, and four options were identified as suitable for further assessment, three of which were based on River Shannon/Lough Derg with the fourth being desalination.

Following further research and public consultation these four were reduced to two – Abstraction of water from Parteen Basin on the lower River Shannon, with water treatment nearby or desalination from the Irish Sea.

After further research and public, Irish Water identified abstraction of raw water from the Parteen Basin on the Lower River Shannon as the preferred new water source option. This option involving the new source at Parteen delivers the widest benefit to the greatest number of people, with the least environmental impact and is Irish Water's preferred scheme.

The WSP will be the first major comprehensive upgrade to Ireland's "New Source" infrastructure in the region in over 60 years and represents a significant step in Irish Water's overall strategic approach to the planning of water infrastructure in Ireland.

In the Final Options Appraisal Report (FOAR), published in November 2016, it was anticipated that population and economic growth in the Eastern and Midlands Region is forecast to generate a demand for an additional 314 million litres of treated water per day by 2050. Existing supply sources and infrastructure for the region do not have the capacity or resilience to meet these future requirements in a sustainable way. Existing water resources and associated infrastructure is already struggling to meet current need as evidenced by a number of significant and costly outages in the region over the past number of years.

The Parteen Basin Scheme (see Figure 2-1) comprises the abstraction of water from the Lower River Shannon at Parteen Basin in County Tipperary, with water

treatment nearby at Birdhill. Treated water would then be piped 170km to a termination point reservoir at Peamount in south County Dublin, connecting into the Greater Dublin network. Supplies of treated water would be made available to Midland communities at specific locations along the pipeline route from Parteen Basin to Dublin.

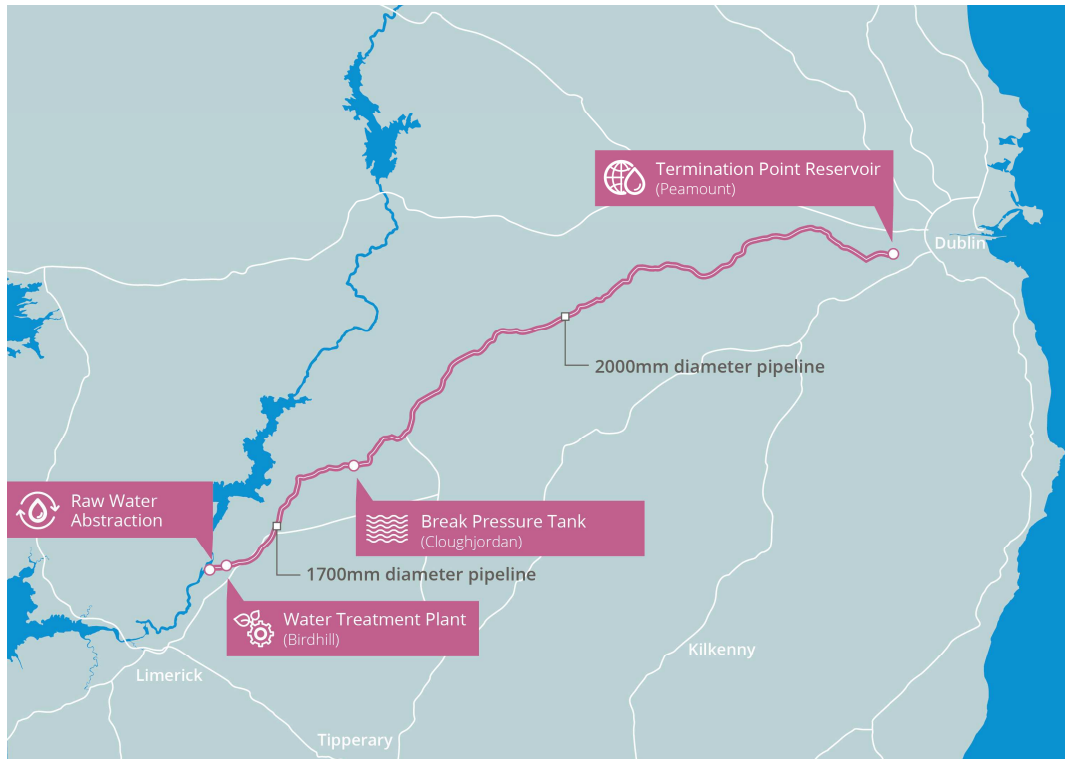


Figure 2-1 The Preferred Scheme (Abstraction from Parteen Basin and transferred via pipeline through the Midlands to Peamount, South County Dublin)

Irish Water has sought, listened to and responded to public feedback at every stage of the project's development. The most recent consultation, the fourth non-statutory public consultation on the project, looked for feedback on the preferred scheme, the Parteen Basin Scheme, and on environmental issues that should be considered in the environmental impact assessment of the scheme.

2.2 Project development

Early engagement with stakeholders is an important aspect of strategic infrastructure development. At critical points in the development of the WSP, Irish Water invited feedback from interested stakeholders, organisations and members of the public to assist them in shaping the project. The public have been consulted to date on the following:

- The need for the WSP and the Project Consultation Roadmap (see section 2.2.1 below for more detail);

- The constraints that should be examined and the methodology used to identify an emerging preferred option from the four technically viable options available (see section 2.2.2 below for more detail);
- The factors considered in the identification of the emerging preferred option (see section 2.2.3 below for more detail); and
- The preferred scheme and any additional environmental issues or alternative methodologies that should be taken into account in the environmental assessment of the scheme (see section 2.2.4 below for more detail).

The Project Consultation Roadmap, (Figure 2-2), shows where consultation feeds into the project development process.

PROJECT ROAD MAP WSP* CONSULTATION

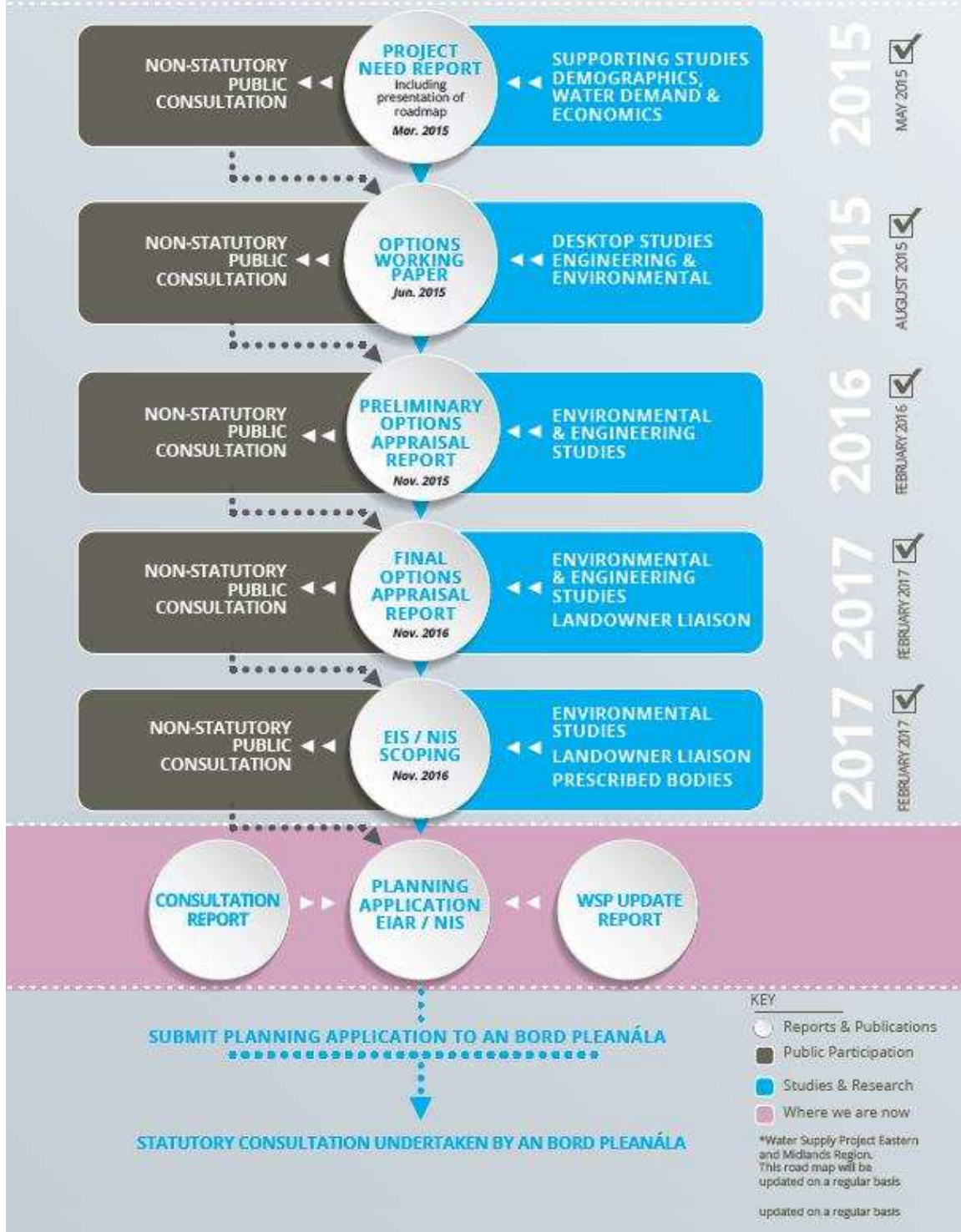


Figure 2-2 WSP Project Consultation Roadmap

Each consultation phase enabled stakeholders to contribute to the decision-making process and to influence the final outcome of the project. This engagement process provided an opportunity for stakeholders to get involved in the project development from the outset, ensuring that the project team was aware of issues and concerns and could respond to and, where appropriate, incorporate this feedback into the development of the project.

All input from this fourth stage of public consultation has been reviewed and is summarised and responded to in this report. Relevant feedback to the environmental assessment process alongside further technical and environmental studies will also be detailed in the Environmental Impact Assessment Report (EIAR) and will accompany Irish Water's planning application to An Bord Pleanála.

The planning application will be subject to a period of statutory consultation (by An Bord Pleanála) which will provide the public with a further opportunity to make submissions and have their say about the WSP. Following that, An Bord Pleanála will determine whether consent for the project should be granted.

2.2.1 Project Need Report (PNR) and Project Consultation Roadmap

Irish Water published the Project Need Report (PNR) and Project Consultation Roadmap in March 2015 and sought feedback on both during an eight-week public consultation between March and May 2015. The PNR draws on independent expert research and recommendations in relation to population projections and economic forecasting (2015 – 2050) and concludes that a new water supply source is needed for the Eastern and Midlands Region. The feedback received along with Irish Water's response to the issues raised is documented in the Consultation Submissions Report, available at:

http://www.watersupplyproject.ie/wp-content/uploads/2015/06/Appendix-A_Options-Working-Paper-OWP.pdf.

2.2.2 Options Working Paper (OWP)

Irish Water published the Options Working Paper (OWP) in June 2015. The OWP contained a review of all previous studies undertaken on the options to provide a new water supply to Dublin and other parts of the Eastern and Midlands Region. It concluded that the four technically viable options, which had emerged from the SEA process (2008-2011) remained appropriate to be brought forward into the planning and EIA process and that all four options should be considered on an equal footing, pending further detailed investigations. It also outlined the assessment criteria for options appraisal, and the proposed approach to positioning infrastructure to achieve least environmental impact, through the use of constraint mapping. An eight-week public consultation on the OWP was held between June and September 2015.

The feedback received along with Irish Water's response to the issues raised is documented in the Consultation Submissions Report, available at:

http://www.watersupplyproject.ie/wp-content/uploads/2015/11/Vol-6_Appendix-H.pdf.

2.2.3 Preliminary Options Appraisal Report (POAR)

The Preliminary Options Appraisal Report (POAR) was published in November 2015. In the POAR, Irish Water set out the detail of the assessment process for the four viable options. The report concluded, after undertaking on-the-ground investigations, abstraction modelling simulations and analysis of stakeholder feedback, that the two options located on the north east of Lough Derg were unsuitable, primarily for environmental reasons. The two options which remained viable were desalination (abstraction from the Irish Sea in north County Dublin) and the abstraction of water from the Lower Shannon at Parteen Basin in County Tipperary. Of these two, the report identified abstraction from the River Shannon at Parteen Basin as the "emerging preferred option", from an environmental, technical and economical point of view. A ten-week public consultation on the POAR was held between November 2015 and February 2016. The feedback received along with Irish Water's response to the issues raised is documented in the Consultation Submissions Report, available at:

http://www.watersupplyproject.ie/wpcontent/uploads/2016/11/appendix_j_preliminary_options_appraisal_consultations_submissions.pdf.

2.2.4 Final Options Appraisal Report (FOAR) and EIS Scoping Report

Irish Water published the Final Options Appraisal Report (FOAR) in November 2016. The FOAR confirmed that the preferred scheme for a new water supply comprises the abstraction of water from the lower River Shannon at Parteen Basin in County Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped 170km to a termination point reservoir at Peamount in south County Dublin, connecting into the Greater Dublin water supply network. Supplies of treated water would be made available to specified Midland communities along the pipeline route. The EIS Scoping Report described how the potential environmental impacts of the scheme will be assessed in the final EIAR². A fourteen-week public consultation on the FOAR and EIS Scoping Report was held between November 2016 and February 2017. Throughout the consultation, Irish Water sought feedback from the public, local authorities, elected representatives and all interested individuals and organisations on the FOAR and the EIS Scoping Report. All consultation activities undertaken, the feedback received and Irish Water's response to the issues raised are detailed in this report.

² Directive 2011/92/EU as amended by Directive 2014/52/EU which came into law in May 2017 uses the term Environmental Impact Assessment Report (EIAR) for what was formerly referred to in Irish legislation as an Environmental Impact Statement (EIS)

3. Consultation publicity and activity

3.1 Introduction

Irish Water published the Final Options Appraisal Report (FOAR) and Environmental Impact Statement (EIS) Scoping Report for consultation in November 2016. The FOAR confirmed that the preferred scheme for a new water supply comprises the abstraction of water from the lower River Shannon at Parteen Basin in County Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped 170km to a termination point reservoir at Peamount in South County Dublin, connecting into the Greater Dublin network. Supplies of treated water would be made available to Midland communities along the route. The EIS Scoping Report described how the potential environmental impacts of the scheme will be assessed in the final EIAR. A fourteen-week public consultation on the FOAR and EIS Scoping Report was held between November 2016 and February 2017. Feedback was invited from members of the public, relevant stakeholders, affected landowners and interested parties on the following Terms of Reference as part of this fourth period of non-statutory public consultation on the project:

- Is there any additional information that should be considered in the development of the preferred scheme?
- Are there any additional environmental issues or alternative methodologies that should be taken into consideration in preparing the EIS³?
- How would you like Irish Water to communicate with you as the project progresses towards planning approval?

Submissions received after the 14 February 2017 have also been considered and are presented in this report. This includes feedback received during the meeting with the Joint Oireachtas Committee for Housing Planning and Local government on the 15 February 2017.

Feedback received as part of the first three public consultation stages, in combination with on-the-ground investigations, formed a key part in the development of the preferred scheme for a new water supply for the Eastern and Midlands Region as outlined in the FOAR and shown in Figure 2-1.

This Consultation Submissions Report sets out a summary of the feedback received on the FOAR and EIS Scoping Report consultation, and the project team's response to these submissions. The submissions and responses are organised according to a range of themes/common issues which emerged.

³ Directive 2011/92/EU as amended by Directive 2014/52/EU which came into law in May 2017 uses the term Environmental Impact Assessment Report (EIAR) for what was formerly referred to in Irish legislation as an Environmental Impact Statement (EIS)

3.2 Publication of FOAR and EIS Scoping Report

The FOAR and EIS Scoping Report were published on the project website and made available to download at the launch of the consultation on 8th November 2016.

To generate awareness of the project and to facilitate public participation, a range of communications tools were used to publicise this period of non-statutory public consultation, including:

- Advertisements in national and local press and on radio;
- Engagement through media and social media;
- An update of the project website;
- A consultation newsletter;
- Landowner engagement;
- Direct engagement;
- A dedicated information service;
- Targeted consultation events for elected members, landowners and members of the public and other interested stakeholders.

In order to ensure the FOAR and EIS Scoping Report were readily accessible, hard copies of the FOAR including appendices, the EIS Scoping Report and a Non-Technical Summary were provided for public display to the County Libraries and Planning Departments of each County Council Offices in the study area (see Table 3-1). The availability of these documents at the planning counter in each Local Authority and at the county libraries was promoted through the project website and advertisements. In addition, hard copies of these reports were available upon request through the project information service and at all information events.

Table 3-1 Local planning authorities in the study area

Local Authorities	Library	Planning Counters
Clare County Council	Clare County Library, Mill Rd, Ennis, Co. Clare	New Road, Ennis, Co. Clare
Dublin City Council	Brendan Teeling, 138 - 144 Pearse Street, Dublin 2	Block 4, Floor 3, Civic Offices, Dublin 8
Dún Laoghaire-Rathdown County Council	d/r LexIcon, Haigh Terrace, Moran Park, Dún Laoghaire, Co. Dublin	County Hall, Marine Rd, Dún Laoghaire, Co. Dublin
Fingal County Council	Fingal County Library, County Hall, Main St, Swords, Co. Dublin	Main Street, County Hall, Swords, Co. Dublin

Local Authorities	Library	Planning Counters
Galway County Council	Galway City & County Library, Island House, Cathedral Sq, Galway	County Hall, Prospect Hill, Galway
Kildare County Council	Kildare Town Library, Kildare Town Centre, Claregate St, Co. Kildare	Devoy Park, Nass, Co. Kildare
Laois County Council	Laois County Library, J.F.L. Av, Portlaoise, Co. Laois	Aras an Chontae, Portlaoise, Co. Laois
Limerick City & County Council	Limerick County Library, Lissanalta House, Dooradoyle Rd, Limerick	7/8 Patrick Street, Limerick
Meath County Council	Meath County Library Service, Railway Street, Navan, Co. Meath	Buvinda House, Dublin Road, Navan, Co. Meath
Offaly County Council	Offaly County Library, O'Connor Square, Tullamore, Co. Offaly	Áras an Chontae, Charleville Rd, Tullamore, Co. Offaly
South Dublin County Council	South Dublin Library, Unit 1, Square Industrial Complex, Tallaght, Dublin 24	County Hall, Tallaght, Dublin 24
Tipperary County Council	Tipperary Library, Castle Avenue, Thurles, Co. Tipperary	Civic Offices, Limerick Road, Nenagh, Co. Tipperary
Westmeath County Council	Westmeath Library Services, Mount St, Mullingar, Co. Westmeath	Áras an Chontae, Mount Street, Mullingar, Co. Westmeath
Wicklow County Council	Wicklow County Council Library, Eglinton Road, Bray, Co. Wicklow	County Buildings, Wicklow Town, Co. Wicklow

3.3 Information materials

3.3.1 Project newsletter and Non-Technical Summary

A project newsletter was published at the launch of the consultation. The project newsletter included:

- Project overview and roadmap;
- The consultation Terms of Reference;
- Description of the preferred scheme;
- How the preferred scheme was identified;
- Information on the EIS Scoping Report; and
- Details of the project information service, how to make a submission and where hard copies of the reports could be viewed or requested.

A Non-Technical Summary of the FOAR was also published. This outlined the findings of the FOAR in a plain English, non-technical format to ensure accessibility to all stakeholders.

Copies of the newsletter and Non-Technical Summary were available at the project consultation events, on the project website and were also provided to the planning counters and local libraries along with the hard copies of the FOAR and EIS Scoping Report. Both the newsletter and Non-Technical Summary documents are included in Appendix A.

3.3.2 Landowner leaflet and landowner FAQs

An information leaflet for landowners was produced. This included:

- Details of the preferred scheme;
- How the preferred scheme was identified;
- The site and route selection process;
- The construction and land reinstatement process; and
- Contact details for the dedicated Landowner Liaison Team, how to make a submission and where hard copies of the reports could be viewed or requested.

A dedicated landowner Frequently Asked Questions (FAQ) document was also produced to provide additional information to landowners. The landowner leaflet and FAQ document were distributed to landowners at the consultation events and by the dedicated Landowner Liaison Officers (LLOs). Both documents are included in Appendix B.

3.4 Advertising

At the launch of the consultation, 30 advertisements were placed in national and regional newspapers. The advertisements advised where copies of the FOAR and EIS Scoping Report documentation could be obtained or viewed, the dates of the consultation, as well as the various means of engaging with the project team.

A further series of advertisements was placed in regional newspapers and on local radio to promote the eight public open days.

A copy of the advertisements and a table detailing the publications and dates they were featured can be found in Appendix C. These were placed in the publications detailed in Figure 3-1. The eight consultation events were advertised on six local radio stations detailed in Table 3-2.



Figure 3-1 Advertising Channels

Table 3-2 Summary of Radio Advertisement for Consultation

Radio Station	Dates
Tipp FM	13.11.16 – 16.11.16
Clare FM	14.11.16 – 17.11.16
Limerick Live 95 FM	18.11.16 – 21.11.16
Midlands 103 FM	25.11.16 – 01.12.16
KFM	02.12.16 – 05.12.16
FM104	03.12.16 – 06.12.16

3.5 Media

Press releases were issued to national and local media organisations across the study area. This included information on the consultation, the purpose of the

consultation, a description of the preferred scheme, and how members of the public could participate.

Spokespersons were made available for interview and press briefings on the day of the launch and throughout the consultation. In total 25 media interviews with national and regional media were carried out.

A considerable amount of national and regional coverage was generated across all media channels throughout the consultation period, particularly around the time of the launch of consultation. In total 141 articles were published about the project and the associated consultation in national and regional newspapers.

At the launch of the consultation, Jerry Grant, Managing Director of Irish Water, was interviewed on Morning Ireland on RTE Radio 1, the Pat Kenny Show on Newstalk, TV3 news and featured on many regional radio programmes throughout the day. The WSP Project Manager, Gerry Geoghegan, was also interviewed on RTE Radio 1 Drivetime with Mary Wilson. The project also featured on RTE's television programme Ear to the Ground, RTE News, Irish Times, Irish Independent, and the Sunday Business Post.

A summary of the coverage generated is outlined in Figure 3-2 and full list of media coverage is presented in Appendix D.



Figure 3-2 Consultation Media Coverage

3.6 Project website

A dedicated project website is provided at www.watersupplyproject.ie and is continuously updated. As a result of feedback received during this consultation we have undertaken a full refresh of the project website to make it easier to navigate. Figure 3-3 below shows the new homepage of the website. The updated project information on the FOAR and EIS Scoping Report consultation was published on the project website on the 8 November 2016 and included:

- The need for the project;
- The benefits of the project;
- The consultation Terms of Reference;

- The consultation documents, to improve accessibility to the technical reports these were presented in a document library;
- A description of the preferred scheme;
- A project animation - a short animation was produced to give an overview of the project, its need and benefits, and to help explain how water will be abstracted from Parteen Basin in a sustainable manner without impacting on levels, flows or navigation. A screenshot of the WSP video animation is shown in Figure 3-5.; and
- Frequently Asked Questions.



Figure 3-3 Project Website Homepage

There is also a webpage dedicated to the WSP on the Irish Water website at <http://www.water.ie/about-us/project-and-plans/projects/Irish-Water-update/>.

This webpage contains overview information on the WSP, the public consultation process and links to the dedicated project website. This website was visited 660 times during the consultation period.

Figure 3-4 shows the website analytics for the consultation period.

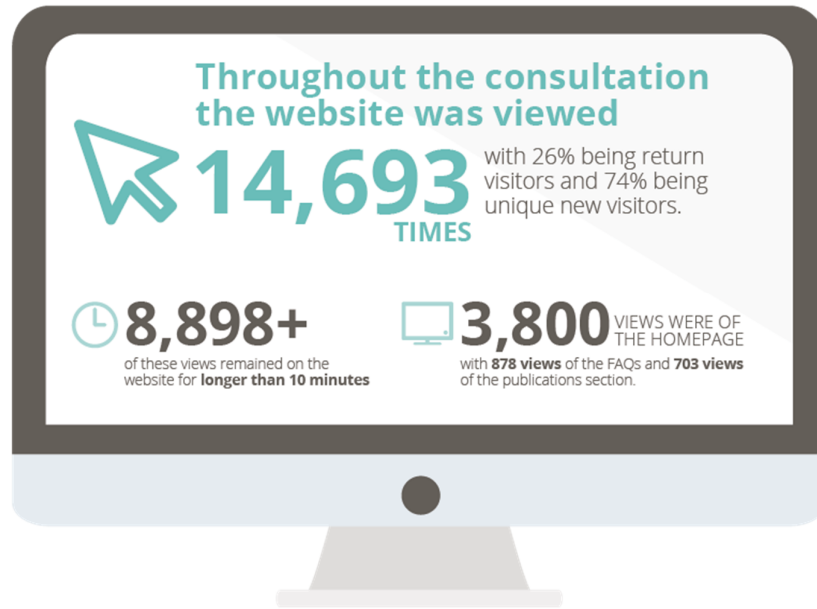


Figure 3-4 Project Website Statistics



Figure 3-5 Video Animation

3.7 Landowner engagement

The FOAR identified a preferred 200m pipeline corridor and within it a 50m indicative pipeline corridor. In total 1,059 letters were issued to landowners - 493 to landowners within the indicative 50m pipeline corridor and 566 to other landowners, those within the 200m preferred corridor and those landowners who previously engaged with the project as part of the route surveys. These

letters were issued at the launch of the consultation, outlining the details of the consultation and extending an invitation to landowner information evenings (see section 3.8.3), or public open days (see section 3.8.4). The landowner letters are included in Appendix E.

Landowner engagement is an ongoing process throughout the planning phase and is delivered by our dedicated team of four Landowner Liaison Officers (LLOs). The role of the LLOs is to provide landowners with a dedicated point of contact throughout the project, and to endeavour to address any issues related to the project which may be of concern to individual landowners. The LLOs are continuing to liaise with all landowners along the preferred route corridor during the planning phase.

3.8 Consultation events

A total of 21 consultation events were held during this consultation period. These included events for elected members, landowners, stakeholders and members of the public. At each event senior members of the project team were available to listen to the views and concerns of attendees and answer any questions they had. All information materials were available at each event. Detailed mapping of the preferred route was available and copies were provided to attendees upon request. Feedback received at these events has been considered by the project team to inform the development of the scheme and this feedback is presented in section 4 of this report.

3.8.1 Oireachtas briefings

Two project briefings were held for Members of the Oireachtas, one on Tuesday 8th November and another on Tuesday 15 November 2016. In total, 17 members or member representatives and two Councillors attended these events.

3.8.2 Councillor briefings

Councillor briefings were offered to each Local Authority along the pipeline corridor. Details of the briefings held are as follows:

- Tipperary County Council, 10th November 2016;
- Clare County Council, 12th December 2016;
- Offaly County Council, 12th December 2016;
- Tipperary County Council, 27th January 2017; and
- Kildare County Council, 30th January 2017.

3.8.3 Landowner information evenings

A letter was issued to all landowners whose lands were within the 50m indicative pipeline corridor, inviting them to one of the six dedicated landowner information evenings that were held during the consultation period. Appropriate venues were selected in consideration of the catchment area and proximity to the pipeline route. The information evenings were well attended by landowners, with 411 attendees recorded. Landowners who did not attend the events were

subsequently contacted by their LLOs and provided with the information available at these events.

The schedule of information evenings and attendance is presented in Figure 3-6.

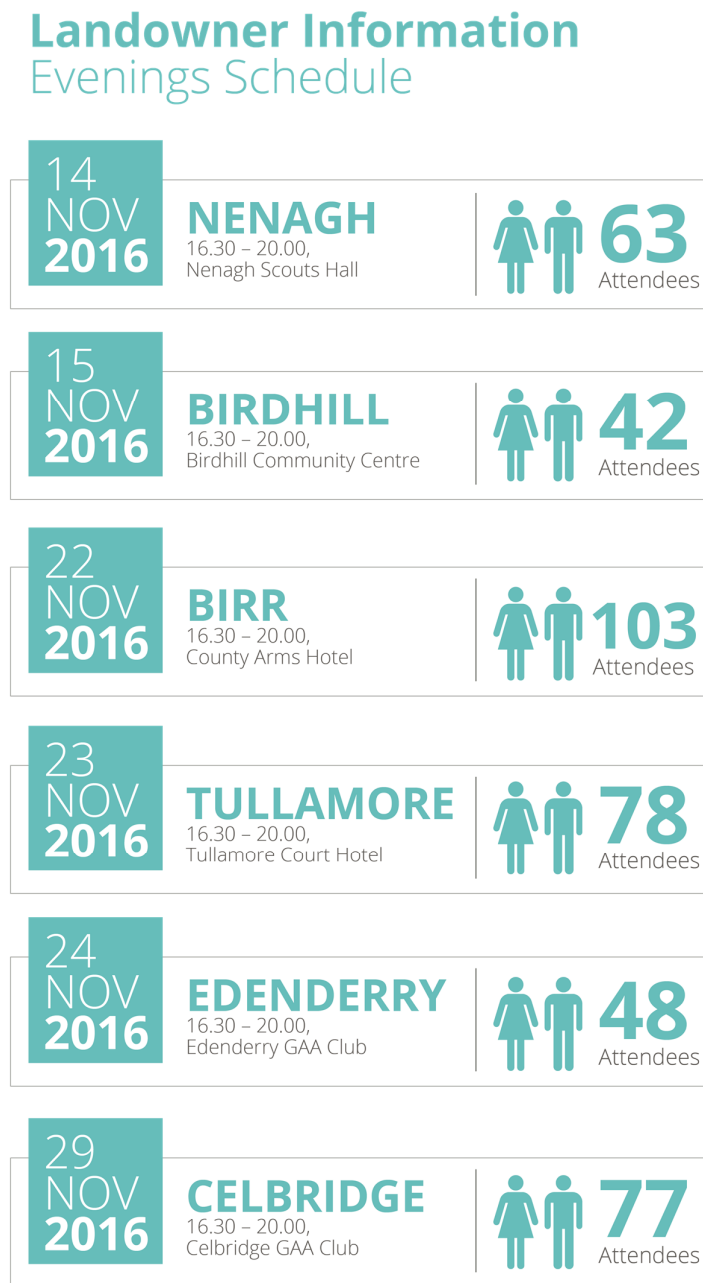


Figure 3-6 Landowner Information Evenings

3.8.4 Public open days

Eight public open days were held during the consultation period. Appropriate venues were selected in consideration of the catchment area and proximity to

the pipeline route. The open days were well attended with 226 attendees recorded. The schedule of open days and attendance is presented in Figure 3-7.

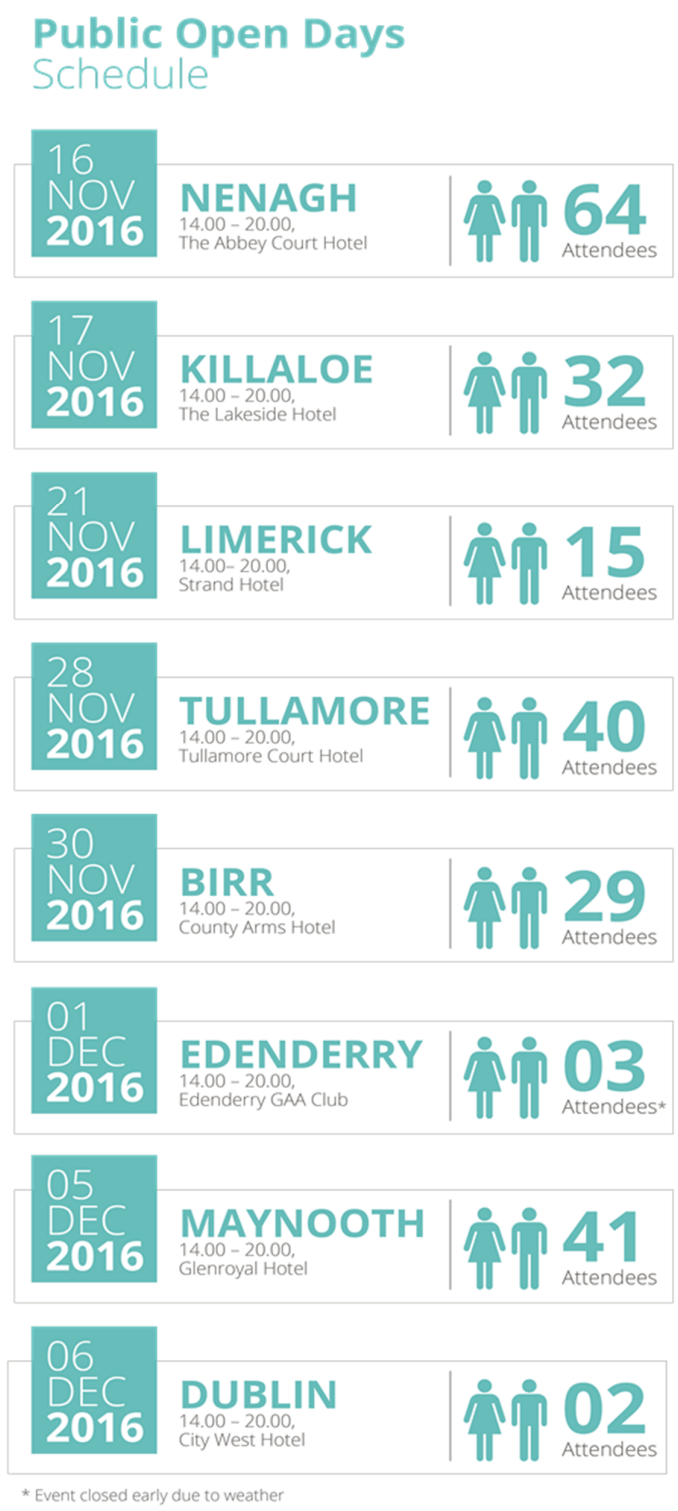


Figure 3-7 Public Open Days

3.9 Direct engagement

At the launch of the consultation, a number of stakeholders and organisations were contacted by email, including:

- Stakeholders who had engaged in previous rounds of consultation;
- Public representatives;
- Statutory and non-statutory organisations; and
- Chief Executives of the Local Authorities within the Study area.

The email correspondence provided information on the preferred scheme, links to the FOAR and the EIS Scoping Report, the consultation Terms of Reference and the contact details for the project team. A sample of the correspondence issued is included in Appendix F.

In total 151 organisations and 14 Local Authorities were contacted at the launch, full details of all organisations contacted are provided in Appendix G.

Detail of the public representatives contacted is provided in Table 3-3.

Table 3-3 Public Representatives contacted

Public Representatives Contacted
An Taoiseach
Minister for Housing, Planning and Local Government
Minister for Arts, Heritage, Regional, Rural & Gaeltacht Affairs
Minister for Transport, Tourism & Sport
Minister for Communications, Climate Action and Environment
Minster for Agriculture, Food and Marine
TDs/Senators in the project study area
Elected Members of all Local Authorities in the project study area
MEPS in the project study area

3.9.1 Stakeholder briefings

During the consultation period, the project team was available to meet with all interested stakeholders. Over 50 meetings were held with statutory bodies, organisations and interested groups during the consultation period. A full list of all organisations who were engaged with during the consultation period is provided in Appendix H.

3.9.2 Local authority engagement

Meetings were also offered to the management teams / Director of Services in each local authority within the study area. The following meetings were held:

- Tipperary County Council Management Team (4/10/2016 & 27/01/2017)
- Limerick City and County Council Management Team (16/12/2016)
- Laois County Council Management Team (19/04/17)
- Clare County Council Management Team (05/12/2016)
- Offaly County Council Management Team (28/11/2016)
- Kildare County Council Management Team (24/01/2017)

The Greater Dublin Area Strategic Planning Consultative Group (GDASPCG) was also briefed on 28/09/2016.

3.9.3 Joint Oireachtas Committee

The Joint Oireachtas Committee on Housing, Planning, Community and Local Government met with Irish Water representatives on 15 February 2017 to discuss the WSP. This event was live streamed to Oireachtas TV and is available to watch on www.oireachtas.ie. Representatives from Irish Water addressed the Committee, including Mr. Jerry Grant, Managing Director of Irish Water, Mr. Michael G. O'Sullivan, Director of Strategic Infrastructure & Group Strategy in Eria and Ms. Claire Coleman, Environmental & Consultation Lead for the WSP.

The following members of the committee were present when Irish Water made its presentation:

- Committee Chairperson Deputy Maria Bailey
- Deputy Pat Casey
- Deputy Barry Cowen
- Deputy Eoin Ó Broin
- Deputy Fergus O'Dowd
- Deputy Jackie Cahill
- Senator Victor Boyhan
- Senator Jennifer Murnane O'Connor
- Senator Grace O'Sullivan

Irish Water outlined a brief history of the project and gave the committee an overview of the project need and the approach adopted in determining the preferred scheme. Irish Water went on to present the benefits that the project has the potential to offer and discussed landowner engagement and the public consultation process.

The committee was then given the opportunity to ask Irish Water any questions they may have on the project or to raise any issues. All of these questions were listened to and responded to by the Irish Water representatives.

A transcript and recording of the proceedings are available at:

<http://www.oireachtas.ie/viewdoc.asp?DocID=34625&&CatID=127&StartDate=01%20January%202017&OrderAscending=0>.

3.10 Information services and making submissions

A dedicated project information service was established at the launch of the project in 2015 to facilitate stakeholders obtaining information on the project and making a submission to the project team. This information service was promoted on the project website, in advertisements, information materials, news releases and in all correspondence issued. Stakeholders were invited to contact the project team or make a submission through the following channels:

- **Lo-call telephone line:** ROI 1890 252 8481 NI: 084 524 65059;
- **Email:** watersupply@water.ie;
- **Post:** Water Supply Project, Merrion House, Merrion Road, Dublin 4;
- **Online form:** available on the Water Supply Project website (www.watersupplyproject.ie).

The information services have been kept live through the project and updated regularly since 2015.

There is also a dedicated team of Landowner Liaison Officers (LLOs). The role of the LLOs is to provide landowners with a dedicated point of contact throughout the project, and to endeavour to address any issues related to the project which may be of concern to individual landowners. The LLOs are continuing to liaise with all landowners along the preferred route corridor during the planning phase.

4. Feedback from Fourth Public Consultation

All feedback received by the project team as part of this fourth, non-statutory period of consultation on the WSP was acknowledged and recorded. All feedback is considered a “submission”, including feedback received during the public consultation open days, landowner evenings and stakeholder meetings, and is reflected in the report. Figure 4-1 shows the quantity of feedback received through each channel during the consultation period.

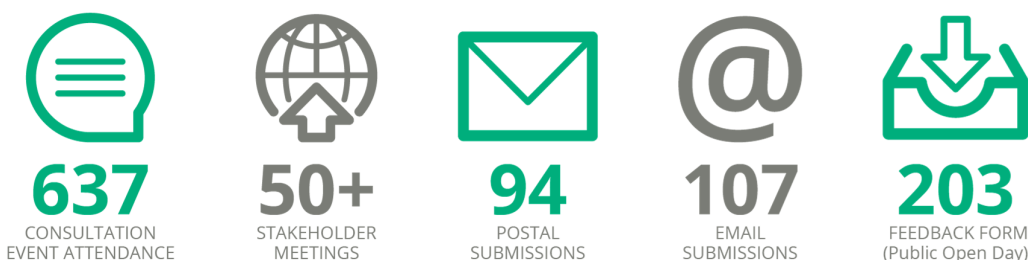


Figure 4-1 Feedback received by communication channel

This section summarises, by theme, the issues raised and feedback provided by interested stakeholders, members of the public and directly impacted landowners during the consultation. These themes are listed in Table 4-1 and the key issues raised under each theme are discussed and responded to in this section of the report.

The views contained in this section do not reflect the views of Irish Water but represent the views of the stakeholders who made submissions as part of the public consultation. Accordingly, Irish Water does not attest to the accuracy of these submissions.

Table 4-1 Themes arising from consultation

Theme	Specific sub-issue
1. The need for the project	<ul style="list-style-type: none"> a) General comments about the project need b) Population growth and balanced regional development c) Water conservation d) Water resources planning
2. Benefiting corridor	

Theme	Specific sub-issue
3. Alternative options	<ul style="list-style-type: none"> a) General comments b) Desalination c) Reservoir storage d) Groundwater as an alternative
4. Planning	
5. Pipeline	<ul style="list-style-type: none"> a) Design and routing of the pipeline b) Changes to pipeline route c) Pipeline operations d) Pipeline crossings
6. Construction and operation	<ul style="list-style-type: none"> a) Construction related flooding and groundwater b) Excess material disposal c) Security
7. Environmental issues	<ul style="list-style-type: none"> a) Environmental Impact Assessment Report b) Climate Change c) Ecology d) Fisheries and aquatic ecology e) Landscape f) Noise and dust g) Traffic management h) Flooding i) Water Framework Directive j) Impact on tourism and amenities
8. Water	<ul style="list-style-type: none"> a) Water quality b) Water levels and abstraction

Theme	Specific sub-issue
9. Land use	<ul style="list-style-type: none"> a) Impact on agriculture operations b) Reinstatement c) Impact during operations d) Potential economic impacts on landowners e) Future development f) Landowner engagement process
10. Project cost and funding	
11. Public consultation	
12. Community gain	

4.1 Theme 1: The need for the project

There were numerous submissions which supported the need for the project and other submissions which questioned the need. All of the feedback received in relation to need has been categorised into sections 4.1.1 to 4.1.4 which endeavour to follow the sequence of how a water utility looks at need.

4.1.1 Population growth and balanced regional development

Some feedback questioned whether the population growth predictions would prove to be accurate, or consistent with a sustainable development vision for Ireland. Others noted that they recognised the need for the project to support future growth, noting that “a secure and sustainable water supply is critical in order to provide for this population growth, both in terms of housing and employment generation.”

There was concern raised that the WSP may further exacerbate the country’s dependence on the Greater Dublin Region, with the unbalanced pattern of regional and urban development highlighted in some submissions.

4.1.2 Water resources planning / the supply demand balance

Some submissions raised the issue of water resources planning, specifically addressing the water resource planning methodology for the project with regard to the estimation of water demand and assessment of water available for use (for example, from existing sources within the Greater Dublin Area).

Queries about the approach to the estimation of non-domestic water requirements and the approach to providing for peaking and headroom were also raised.

4.1.3 Water conservation

A number of submissions suggested that if leakage was properly addressed, the project would not be required. Stakeholders referenced the water savings recorded by Irish Water's First Fix Free Scheme, developed to support customers in reducing leakage on their property, and suggested that more water is available for recovery through addressing leakage than Irish Water had originally considered in the Project Need Report.

Feedback advocated an intensified water conservation and network rehabilitation programme, referencing the age of the current water network in the Dublin area and noting that this is the cause of many leaks.

It was suggested that investment in fixing leaks should be made a priority before proceeding with the WSP, with one submission commenting that "funding should be made available for fixing leaks as a priority."

Feedback received also noted that innovative measures (for example, rainwater harvesting) to encourage water conservation had not been included when assessing the need for the project.

4.1.4 The overall project need

A number of submissions, including one comprehensive submission, raised the issue of the need for the WSP. While it is clearly an issue of concern among stakeholders, opinion was divided between those that see an immediate need for an improved water supply for the region and those that considered the project is not required.

The need for improved water supplies to facilitate future growth in the region and the immediacy of the issue was raised, with some stakeholders noting that the project is vital for the future water security of the Greater Dublin Region.

Some feedback stated that a high proportion of Ireland's Foreign Direct Investment (FDI) companies are water-intensive industries such as pharmaceuticals and the IT sector, and that a non-resilient water supply presents increased risks for these industries.

The direct connection between secure water supplies and economic growth was raised, with one submission noting that a "stable supply of high-quality water is a key requirement for Ireland's economic growth." Another submission noted the risk of reputational damage resulting from water outages, and how such incidents may dissuade "potential investors from establishing enterprises in the region."

The need for a high quality and reliable water supply along the pipeline route to support agri-business was also noted with one submission stating that "it is evident that an adequate and reliable source of quality water is a basic requirement for the further development of the farming and food processing sector."

Some stakeholders felt that Irish Water has not adequately looked at potential small-scale solutions, such as water conservation measures to reduce leakage rates. They felt that if Irish Water was to intensify its ongoing water conservation efforts in fixing leaks and improving the existing network, a project of the proposed scale would not be required.

Some stakeholders felt that there was no need for the project, asserting that Dublin and other areas in the benefiting corridor already have an adequate supply of water. Feedback also questioned whether it was the best use of public investment, with reference to poor timing of such significant investment, stating that it was coming “at a time when the Irish taxpayer is hugely burdened by excessive taxation.”

The accuracy of calculations used in the Project Need Report was questioned, particularly the assessment of demand, headroom, water conservation and future demand.

4.2 Theme 2: Benefiting corridor

A number of submissions welcomed the benefits that the proposed scheme would bring to the Eastern and Midlands Region, not only to Dublin, but also to areas along the pipeline route that “stand to benefit from the transportation of treated water en route to Dublin, ensuring the region has access to a safe and secure water supply.”

Some stakeholders noted that the inclusion of a benefiting corridor in capital infrastructure decision-making will maximise the return on investment and “support economic activity and new investment throughout the Midlands and East.” Other stakeholders were concerned that the project will not account for or assess the infrastructure associated with the benefiting corridor, while others questioned the lack of detailed long term water need forecasting in the benefiting corridor.

It was suggested in one submission that a connection to Laois should be included at this stage in order to provide for the current rate of growth in the county. Some feedback questioned the inclusion of Clare and Wicklow in the WSP demand projections for the benefiting corridor.

4.3 Theme 3: Alternative options

4.3.1 General comments

Some stakeholders’ feedback stated that the alternative options considered by Irish Water were not sufficient and suggested more detailed analysis was needed to inform options selection. It was noted that “there has been inadequate consideration of alternatives within the very narrowed set of alternatives emerging from this project process. In short, the final route in providing a new water supply to sites has failed to consider alternatives which

would have addressed the challenges of inadequate wastewater [treatment facilities] together with issues of water supply.”

Some stakeholders felt that more comprehensive studies and analysis should be undertaken, looking at all of the options in detail, with particular emphasis on the full costs, “not just to the State but also to the farm families and communities that may be left to endure the project.” Some questioned whether Irish Water has looked at other countries and solutions adopted in similar circumstances.

Stakeholder submissions recommended alternative options to be considered including; desalination, reservoir storage, using groundwater sources and fixing the leaks in the existing water pipe network.

Alternative raw water sources were also suggested, including Lough Ree, the River Boyne and the River Liffey.

4.3.2 Desalination

Some submissions suggested that desalination should be considered as the preferred option suggesting that there is an unlimited supply of water from the Irish Sea and reduced pipeline length. Stakeholders felt that desalination was “broadly disregarded and dismissed as being a cost prohibitive option. Yet no cost comparatives were produced, which compared the impact of the proposed route and desalination.”

Other submissions noted the additional cost and environmental impacts of desalination, referencing the energy intensive process involved in desalination and also citing the negative impacts of the process on the environment.

4.3.3 Reservoir storage

Some stakeholders proposed that new reservoirs be constructed to create additional water storage facilities, which they felt would be of benefit during drought conditions. They also highlighted the added community value of establishing a reservoir as a recreational amenity. It was suggested that greater consideration should be given to using reservoir storage to address supply/demand issues. Stakeholders also felt that if the existing water storage was managed correctly then there wouldn't be a need for the project, with one stakeholder stating, “the majority of the Dublin supply network is already backed-up by huge raw water reservoirs.”

Stakeholders proposed other storage options in the Midlands, such as the development of a raw water storage area at Garryhinch, County Offaly, as was previously investigated as part of the WSP options appraisal process.

It was also suggested that the development of a pumped storage facility to both supply water and generate electricity would be a suitable alternative.

4.3.4 Groundwater as an alternative

Some submissions suggested using groundwater sources as an alternative to the preferred scheme.

The possibility of utilising existing aquifers in, or in close proximity to Dublin as groundwater sources was noted, with one submission stating, “a groundwater report in 2008 identified two major aquifers close to Dublin which are ideally located to avail of some of Dublin’s brand-new water treatment plants.” It was also suggested that using groundwater as an alternative would be less expensive and it could be developed as and when needed.

4.4 Theme 4: Planning

Some stakeholders suggested that Irish Water should wait until the National Planning Framework, the River Basin Management Plan (RBMP), the National Water Resources Plan and other national plans and policies are in place before progressing the WSP further as continuing to progress the WSP while these plans are incomplete would be counterproductive. Some were concerned that progressing the WSP prior to the outcome of the National Planning Framework “runs the risk of reinforcing the unbalanced regional development dynamics currently at play.”

4.5 Theme 5: Pipeline

4.5.1 Design and routing of the pipeline

A number of stakeholders expressed an interest in how the pipeline would be designed. They queried the proposed shape, size and depth of the pipeline, what material it would be made out of, and the quantity and location of tunnel drive sites required.

Stakeholders raised the issue that the pipeline had been routed through highly productive agricultural land, noting that this would have a significant impact on their farming efficiency and operation. One stakeholder stated, “the proposed route runs in close proximity to the infrastructure of the existing Mountlucas wind farm and the proposed wind farm at Cloncreen bog. It is critical that the proposed water pipeline does not negatively impact on either the existing or proposed renewable energy projects.”

Some stakeholders proposed advancing preparatory works as part of a current road project in proximity to the proposed pipeline route to avoid duplication of works in the same area at a later date, stating “advanced works could be done on the R454 Ballina Road when the Killaloe bypass upgrade of the road takes place by placing a pipe sleeve for the rising main in the road.”

Others felt that the project should be coordinated with the delivery of other infrastructural improvements. One stakeholder requested that “consideration be given to the installation of a fibre duct and associated chambers along the route” to avoid further disruption at a later date.

4.5.2 Changes to pipeline route

In total, 124 requests for alterations to the pipeline route were received. The majority of landowner route change requests involved requests to alter the route to minimise disruption to their land. Such requests included moving the route nearer to boundaries and further away from buildings, or to ensure that a particular land use could be maintained during construction.

Landowners located outside of the indicative 50m pipeline corridor but still within close proximity to the corridor raised concerns over construction works located close to their dwellings and landholdings, and some also requested that the route be altered as a result.

Stakeholders suggested using infrastructure such as railway lines, motorway networks, canals or forestry as a route for the pipeline, in order to reduce the effect on private landowners. Others requested that the route be altered to avoid environmental and cultural heritage constraints, in particular raised bog habitats and bog remnants.

4.5.3 Pipeline operations

A number of submissions raised concerns around the potential for incidents on the pipeline when operational, including possible bursts or leaks. Clarity was also sought on whether householders and landowners would be compensated for any damage caused by these incidents if they were to occur.

4.5.4 Pipeline crossings

Stakeholders have highlighted locations where the pipeline intersects with other infrastructure, such as canals, roads, railway lines, major power lines, peat bogs and rivers. They have requested that Irish Water engages directly with the relevant authorities when planning a crossing over any major infrastructure to ensure that the necessary requirements and approvals are in place. Concerns were also raised about the potential of river and stream collapse during trenchless tunnelling.

4.6 Theme 6: Construction and operation

This section addresses feedback received relating to construction and operation. Feedback relating to the design of the pipeline is addressed in section 4.5.1 and feedback relating to the environmental impacts of construction are addressed in section 4.7.

Stakeholders were concerned about the construction impacts of the project, such as noise, dust, traffic management and safety. Some were concerned about groundwater impacts, including flooding. Others were concerned about reinstatement, the impact on the landscape along the proposed pipeline and on the nature of the local communities. These concerns are addressed in more detail in sections 4.7 and 4.9.

4.6.1 Construction related flooding and groundwater

A number of submissions raised concerns that groundwater may be impacted during construction, particularly during the excavation of the pipeline route. In particular concerns were raised that construction of the pipeline could alter the groundwater regime and increase the risk of flooding, due to the loss of drainage. The potential impact of flooding to farms was raised in a number of submissions, with one submission stating, “I have serious fears that the pipeline may alter groundwater flows in the area, causing greater and more frequent flooding events.”

The sensitive nature of groundwater in some localities was highlighted and it was noted that there is “much concern as to the damage such a construction project would have on the local water table.”

Stakeholders sought reassurance that potential impacts would be thoroughly and regularly assessed and that hydrological surveys be undertaken as part of these assessments. Stakeholders requested that the results of the hydrological surveys be included and assessed in detail in the EIAR.

Feedback from residents in close proximity to the proposed pipeline route raised concerns about their private drinking water wells and the potential impact the project would have on them. Some noted that “many families along the route depend on bore wells for their water supply” and stated that many of the wells are “shallow and are vulnerable to changes in the groundwater levels.” Another stakeholder felt the project could have an “immediate and catastrophic effect” on their Group Water Scheme.

Some local areas of concern with respect to potential impacts of the proposed pipeline on groundwater were highlighted in feedback including the Lough Ourna/ Ardcroney area of north Tipperary. It was noted that the area surrounding Lough Ourna contains two regionally important aquifers, with high to medium vulnerability. Some feedback stated that the Ardcroney area has a unique groundwater regime and a potential turlough. Other feedback noted that “land between Ballycommon and Lisnasoolmoy is on top of an aquifer.”

Stakeholders were concerned that the proposed pipeline could impact on groundwater supplies in the Geashill and Ballinagar areas of County Offaly.

Stakeholders raised concerns about potential for ground and water contamination from the tailings pond in Silvermines County Tipperary during the construction of the WSP.

4.6.2 Excess material disposal – what you told us

A number of submissions queried where excess excavation materials would be disposed of and if landowners would be able to benefit from any excess material on their landholdings.

4.6.3 Security – what you told us

Stakeholders were concerned that there would be an increased security risk resulting from open and unsupervised areas during construction. They felt that there would be potential for an increase in local crime during construction, noting that the pipeline could “provide an open corridor access” to homes along the route and the 50m temporary working width “will act as an access road through farm land”. Stakeholders queried how this temporary working width would be “secured against burglary, theft of farm equipment, theft of diesel, theft of animals etc.”

4.7 Theme 7: Environmental issues

This section relates to the feedback received on environmental issues, in particular what issues and elements should be included in the Environmental Impact Assessment Report (EIAR). The topics addressed in this section are as follows:

- Environmental Impact Assessment Report;
- Climate change;
- Ecology;
- Fisheries;
- Landscape;
- Noise and dust;
- Traffic management;
- Flooding;
- Water Framework Directive; and
- Tourism and amenities.

4.7.1 Environmental Impact Assessment Report

Stakeholders noted the requirement for a thorough EIAR. A number of submissions noted the requirement to determine the extent of the receiving environment, ‘study area’ or ‘zone of influence’ for surveys. It was also stated that the impacts on the environment have the potential to “extend outside the footprint and environs of the physical infrastructure” and during the construction phase of the project, the temporary work area could potentially impact “significant parts of the Shannon system.”

Some submissions questioned if the EIAR will investigate the environmental impacts of the potential additional infrastructure along the benefiting corridor.

Concerns were raised that additional wastewater would be generated as a consequence of the WSP, in Dublin and along the benefiting corridor and that this should be taken into consideration, in particular if the wastewater will be treated in Dublin and discharged into Dublin Bay. The ecological designations in Dublin Bay were outlined in one submission, stating that “it is a sensitive water body with multiple European and international designations and the magnitude

of any additional wastewater to be generated by the inter-basin transfer involved in this project and discharged into Dublin Bay should be presented clearly.”

4.7.2 Climate change

Stakeholders felt the scope of assessment proposed for the WSP does not consider the potential impacts of the construction or operation on climate change in Ireland. Some queried how construction traffic and the long term operation of the WSP would impact greenhouse gas emissions and contribute to climate change in Ireland. It was also suggested that an assessment of greenhouse gas emissions that will occur “both directly and indirectly as a result of its construction and ongoing operation and maintenance” should be undertaken.

Some stakeholders recommended that climate change impacts “should be reflected in all modelling” undertaken as part of design of the WSP.

One submission commented on the use of historical data as a tool to predict future climate trends and advised that it is “insufficient to just use historic data to estimate the amount of supply available for abstraction/power generation.”

4.7.3 Ecology

A number of submissions raised the effect of the WSP on the ecology along the River Shannon and along the pipeline route. A number of species and habitats were identified by stakeholders as important for consideration by the project team as the WSP develops. Stakeholders were concerned about the loss of habitats along the preferred route, with some submissions emphasising the importance of the Birds and Habitats Directives and the potential for the spread of invasive species. They highlighted the need for these issues to be fully accounted for and the potential impacts fully assessed.

Some submissions highlighted the potential impact on the environment and ecology in specific areas, such as Lough Ourna in north Tipperary, a nationally important site for breeding and wintering birds. It was noted that any impact to water levels could largely affect the biological diversity of the area, which includes whooper swans, widgeon, teal, mallard, pochard, tufted duck, coot and black-headed gulls.

One submission requested that “an assessment of impacts to red and amber listed Birds of Conservation Concern in Ireland is included.”

It was also requested that the “interaction between the impacts on water quality and quantity and on the water dependent habitats and species protected under the Birds Directive and the Habitats Directive are assessed fully for impacts.”

A number of submissions referenced ecological and environmental receptors, such as peatlands and mature hedgerow, as being sensitive to construction activities. Stakeholders recommended that these be avoided when routing the pipeline corridor.

Some stakeholders highlighted that works on the project should not be carried out during the breeding season for birds.

4.7.4 Fisheries and aquatic ecology

A number of submissions raised the potential impact of the WSP on fisheries and aquatic ecology as a concern. In particular, concern was raised that abstraction would impact on water levels and this could have a knock-on effect on fish populations. Feedback also noted the link between fisheries and the angling community and tourism. It was suggested that abstraction would add to the environmental impacts experienced currently on the lake due to the presence of the existing hydropower facility.

A number of submissions questioned the data and the baseline used, and requested that detailed data, an appreciation of fisheries and the potential impacts on fisheries as a result of the WSP be reflected in the EIAR and the project generally.

Some stakeholders requested additional fish assessments be undertaken as part of the EIAR. Some recommended that fish populations be regarded as sensitive receptors and included in the noise and vibration assessment. Some also recommended that invasive species surveys should not solely be assessed using existing desktop data, with one stakeholder stating, “we consider it more appropriate to undertake these surveys at all watercourse crossing locations, other than those being completed using trenchless techniques.”

There were a number of issues raised in relation to loss of spawning grounds, and the impacts on specific species, such as silver eels and migratory salmon.

The spread of aquatic invasive species was noted, with concerns raised regarding known populations of zebra mussels and Asian clams in the area.

It was requested that the fish stock baseline for Lough Derg be established to ensure that any unanticipated changes in the fish stock structure, as a consequence of the project’s progress, can be identified.

4.7.5 Landscape

A number of stakeholders raised concerns about the impact of the WSP on trees and hedgerows along the route of the project. Some stakeholders noted the opportunity that the project presents to improve the landscape. Some made suggestions as to how the route should be landscaped post-construction, including recommendations that the trees and hedgerows be preserved and fully reinstated after construction of the WSP. Others highlighted the potential to provide a wildlife corridor along the pipeline route.

Some stakeholders sought additional information regarding planting restrictions within the permanent wayleave post-construction.

There were some concerns raised about the visual appearance of the Break Pressure Tank (BPT) and the potential impact of both on local viewpoints and on the surrounding landscape.

Concern was expressed in relation to the visual impact of the WTP site given its proposed size and location and the development of such a large infrastructural site close to the village of Birdhill. Details were sought on the screening that would be used around boundaries and landscaping.

4.7.6 Noise and dust

Stakeholders were concerned about the potential impact of noise and dust from construction on local houses and local businesses. Those living near the proposed route were concerned about the impact dust and noise levels generated during construction would have on their day-to-day lives. Some were concerned that the noise during construction would impact on their ability to work from home.

Some stakeholder feedback highlighted that food businesses, in particular food production businesses, are particularly sensitive to high levels of dust emissions. They requested that the environmental assessments “should identify any food premises within 500m of construction activity and identify enhanced mitigation measures to negate impacts on food safety.”

Stakeholders were concerned about the impact that noise and vibration could have on herds and livestock and farming activities close to where construction is being undertaken. They were also concerned about the impact that dust resulting from the construction of the project could have on the health of their families, the health of their livestock, their crops and their lands. Some stakeholders were also concerned about the potential accumulation of dust and other materials associated with the construction on roads, causing a possible safety issue for road users.

Additionally, some businesses along the pipeline route expressed concern that increased traffic would generate noise and dust and cause access issues.

The potential operational noise level at the BPT was also raised as a concern.

4.7.7 Traffic management

The local impact of the project on roads, traffic and traffic management was raised in a number of submissions. Stakeholders highlighted the rural nature of significant sections of the pipeline route and raised concern about the safety of local roads and increased hazards from the presence of Heavy Goods Vehicles (HGVs), the requirement for them to cross established roads and the potential for the HGVs to cause damage to the road structure. They sought clarification on the potential safety implications for road users, children and the wider community.

Concern was expressed by local residents near Birdhill, County Tipperary, about the significant truck movements which will be generated by the new Water Treatment Plant (WTP).

Stakeholders were concerned that traffic congestion would have the potential to cause a negative impact on local amenities during construction of the pipeline.

One submission made reference to previous construction at 12th Lock Bridge, near Peamount and noted that there was periodic congestion due to the numbers of construction vehicles servicing the reservoir site. They noted that this construction traffic “particularly impacted on the operation of our children’s summer camps, and gave rise to safety concerns for those children accessing the club by cycling or walking during working hours.”

One stakeholder noted the importance that “a Traffic and Transport Assessment be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network.”

4.7.8 Flooding

Some stakeholders raised concerns about increased flooding risks as a result of the WSP, while others felt that the WSP represented an opportunity to reduce or alleviate flooding. Stakeholders noted the need to review the Office of Public Works’ flood risk management plans and consider flood alleviation measures on the lower Shannon system. One submission suggested that Irish Water “should consider whether the design of the project could include a flood alleviation element for the Shannon region prone to flooding.”

Some submissions noted the increasing trends in rainfall events and rising sea-levels, with one submission referencing the EPA’s report ‘Ireland’s Environment 2016’, stating that “a combination of more intense rainfall and higher sea levels in the coming decades seems likely to have a potential to cause serious flooding in Dublin.”

Some landowners raised concern that the pipeline would alter the drainage systems on their land, leading to flooding. Concerns were also raised by stakeholders living in low-lying areas which are currently prone to flooding, particularly in the winter.

Stakeholders were concerned that construction and reinstatement works may lead to the flooding of land, lowering of local lake levels and groundwater flooding. They stated their concern that the proposed works would provide a direct path or conduit for the flow of collected flood waters to other lands and that the natural capacity of the landscape to deal with seasonal flood events would be altered.

4.7.9 Water Framework Directive

The Water Framework Directive (WFD) was cited in a number of submissions. Stakeholders requested a firm commitment from Irish Water that the project will take account of, and adhere to, the WFD. For example, a stakeholder requested that “the impact of the project on water courses should have regard to the Water Framework Directive catchment characterisations that are being completed by the EPA for the catchments within the benefiting corridor, and the monitoring undertaken should be used to demonstrate how the scheme will protect and enhance the water quality within the benefiting corridor.”

Concerns were raised about the way in which the WFD's objectives are subsumed into the multi-criteria analysis (MCA) and used to decide on proposed infrastructure sites. One stakeholder queried "how a 'high' 'Impact Category' in relation to surface water and aquatic ecology can be reconciled with the 'no deterioration' requirement of the Water Framework Directive, when it is 'neutralised' by other lesser impacts." The stakeholder continued that "the fact that meeting the legal requirements of the WFD can get lost in an MCA is a criticism of this methodology."

Some stakeholders stated that abstraction of water at Lough Derg must not impact on the ability of the waterbody to meet the requirements of the WFD.

4.7.10 Tourism and amenities

The potential impact of the proposed project on tourism and amenities was cited in feedback received. Specific concerns included potential impacts to tourism in the region and the knock-on effect on local businesses and the use of the Shannon Navigation system for recreational and boating usage. Reference was also made to the Fáilte Ireland Guidelines on the treatment of tourism in an Environmental Impact Statement, and how tourism should be considered in the EIAR.

Stakeholders were concerned about the potential impacts of the proposed abstraction regime on the River Shannon. They were concerned that if water levels were to decrease significantly, that navigation would not be possible, and a "unique recreation and tourism jewel will be lost."

Stakeholders noted the effect that new developments and infrastructure can have on tourism, with one stakeholder noting that "tourism can be affected both by the structures or emissions of new developments as well as by interactions between new activities and tourism activities."

There was particular concern expressed in relation to the potential impact of the WSP on the walking routes and amenities of Knockanacree Woodlands near Cloughjordan in County Tipperary and its surrounding areas, including Scohaboy Bog NHA, and walks linked to the Beara-Breifne way. It was noted that these walkways are enjoyed due to their viewpoints and stakeholders stated that the protection of this viewpoint should be ensured.

It was highlighted that tourism "is the life blood of the area", with reference to Birdhill in County Tipperary and east Clare, and concern was raised that the size and location of the proposed water treatment plant could affect the potential growth of tourism in the area.

A number of submissions were received from the angling community and noted the potential impact the construction of the project may have on access to fishing rights and safety concerns. It was stated that the project will have an impact on angling during the construction phase and it was queried whether there would be "safe access for anglers to access fishing rights along rivers/lakes during construction."

One stakeholder outlined in detail how tourism should be considered in the EIA under the following headings:

- Tourism and the environment;
- Impact caused by tourism projects;
- Tourism and the existing environment;
- Tourism and leisure activities; and
- Mitigating adverse impact on tourism.

4.8 Theme 8: Water

4.8.1 Water quality

The subject of water quality was raised in a number of submissions, both in relation to the impact of the project on water quality at source and also on the quality of drinking water supplies. Stakeholders highlighted the importance of ensuring that abstraction of water from the Parteen Basin does not have an adverse effect on the water quality in Lough Derg or the River Shannon and welcomed the inclusion of a specific Water Framework Directive (WFD) Compliance Assessment in the Environmental Impact Assessment Report, noting that this will consider impacts at source.

Stakeholders queried how complimentary infrastructure in the benefiting corridor would be considered in relation to its potential impact on water quality, with one submission noting that the water quality assessment for the project “will not account for or assess the infrastructure associated with the benefiting corridor.”

Stakeholders emphasised that the impact on private drinking water sources within the benefiting corridor will need to be addressed, and it was suggested that “monitoring undertaken should be used to demonstrate how the scheme will protect and enhance the water quality within the benefiting corridor.”

The project’s mandate was also queried, with concern that the project is centred more on ensuring a quantity of water rather than quality. The potential impact on the water quality of surface and groundwater was raised, as was the potential knock-on effect on drinking water supplies. Stakeholders also raised public health related issues resulting from chemicals used to treat water.

A stakeholder suggested that a hydrodynamic and water quality model, will be needed to inform the Environmental Impact Assessment Report and Natura Impact Statement.

4.8.2 Water levels and abstraction

A number of submissions raised concerns over the water levels of Lough Derg, the Parteen Basin and both the upper and lower River Shannon.

In particular, stakeholders were concerned about the impact of abstraction on water levels. They queried how the water level of Parteen Basin would be maintained during abstraction, and if the supply would be coming from the entire

River Shannon, not just Lough Derg, leading to a risk to the River Shannon navigation system.

The issue of water abstraction was also raised in relation to its potential impact on tourism and recreational activities, with concern that abstraction may cause “levels to decrease to a point that regular navigation is not possible, then a unique recreation and tourism jewel will be lost.” This is covered in more detail in section 4.7.10.

Clarification was also sought on how the proposed WSP will impact on the operational water level range used by ESB and the query was raised as to how ESB can guarantee the 10 m³/s statutory compensation water flow at Parteen Weir during a severe drought.

It was questioned whether it is feasible to abstract the long term water requirements for the Eastern and Midlands Region during drought periods without damaging the Shannon and “with no plan B.” Stakeholders also queried whether the water abstraction would change in the future as demand increases.

It was requested that a full impact assessment of any potential water level change is undertaken, and some stakeholders called for legislation or a dedicated management body to be appointed to manage and regulate water levels.

4.9 Theme 9: Land use

4.9.1 Impact on agriculture operations

The impact on local farming activities was a concern widely voiced in feedback received. Some stakeholders felt that farmers would be impacted to the greatest degree by the pipeline and that “their voices are the most important and they must be heard.”

Stakeholders were concerned about the impact that the project would have on the day-to-day running of farming operations, with particular emphasis on dairy farming and the potential negative impact to their farming enterprises during construction. Many landowners within the 50m indicative pipeline corridor requested further information on the disturbance expected to the everyday running of their farms during construction.

Stakeholders were also concerned about the impact the project would have on animal health, with some submissions calling for strict biosecurity controls to be implemented during construction in relation to animals and invasive species.

Landowners were concerned over access to land and sought information on the amount of access to lands required during construction of the project. Some sought additional information on the permanent structures that would be constructed in landowner fields and the access requirements needed to these structures. Others requested details on the type of valves that are going to be used, and the distances between them.

Landowners were also concerned about the long term impacts of the project such as permanent land loss, damage to soil-structure and to drainage systems and potential restrictions on land use. Other issues of concern to landowners included the loss of grazing during construction, the duration of disruption, animals crossing the working width, farm and animal water supply and the impact of dust and noise on the farm.

4.9.2 Reinstatement

The issue of reinstatement was a common theme in submissions, in particular from affected landowners. A number of landowners spoke about the composition of their land in its current state and how they had worked hard to get it to that standard. They questioned whether the land and soil disrupted during construction would be of adequate quality once it was restored. Feedback highlighted “concerns relating to soil, subsoil, rock replacement, reinstatement and consolidation.” Some stakeholders queried, “how will problems arising with differential ground settlement, poor vegetation uptake and compaction be addressed after the hand back?”

Feedback queried how the soil will be segregated during construction for use in reinstatement post construction. It was emphasised that the lack of proper segregation would result in reinstated land not returning to the same growth potential as it had prior to construction work taking place. Landowners requested that the land be properly reseeded and fertilised in agreement with the landowner and requested information on how Irish Water will ensure that this is achieved.

Feedback questioned how drainage ditches will be reinstated and concerns were raised about the impacts to natural drainage systems and man-made stone drains that had been developed and invested in over several generations. Some specific land features were referenced; for example, one landowner suggested that construction would disturb the “drainage systems that have been constructed over many decades” on their land. There is a concern that the reinstated land “will not drain properly and will result in water logging or poor drainage.”

Another issue of concern among stakeholders is the reinstatement of boundaries and fences on completion of the works. One landowner requested that “all existing electric fences surrounding the perimeter of fields involved will continue to be electrified during the proposed works and will be fully reinstated.” Stakeholders were concerned about the reinstatement of internal roads and queried whether they would be returned to the same standard that they were before works commenced. It was felt that Irish Water should ensure the proper reinstatement, including suitable planting, of all lands, boundaries, fences and roads.

Some landowners expressed a preference to undertake the final reinstatement themselves.

4.9.3 Impacts during operations

A number of submissions from landowners expressed concern regarding permanent impact to their land-holding following project completion and during operation, including:

- Permanent loss of land with a consequent relative increase in fixed overheads on retained lands;
- Possible permanent severance of land and permanent interruption of access;
- Injurious affection to the retained land, such as restriction of the use; and
- Ongoing crop loss post construction.

A number of submissions which raised concerns in relation to impacts during operations were from landowners who are actively farming their lands and queried the potential negative impact of the project on the viability of farming operations in the future. Landowners who lease their land were concerned about the impact of the project on them and their tenants.

4.9.4 Potential economic impacts on landowners

The economic impact of construction works on farming enterprises was identified by many landowners as a serious issue that could affect the entire farming community along the pipeline route.

Stakeholders highlighted the reduction of accessibility to lands and the reduction in the amount of land that will be available for farming activity during construction as serious issues. Their concerns included challenges in relation to accessing portions of land during construction, farms being temporarily split in two by the proposed route and the effect this would have on farming incomes.

Concerns were raised in relation to adequate compensation during and after construction from landowners affected by the 50m route corridor.

Landowners highlighted the following potential economic impacts associated with the construction stage of the project:

- Temporary loss of use of land adjacent to the construction site;
- Temporary water and power;
- Interruption to drainage systems; and
- Restriction on use of land for specialist crop production or animal husbandry.

Landowners were concerned that the acquisition of lands would have an effect on localised farming businesses.

Landowners queried whether they would still be entitled to the Basic Payment Scheme during construction if the land cannot be used. They also noted the potential financial loss related to GLAS (Green, Low-Carbon Agri-Environmental Scheme), because of the disruption to land use. They were concerned that there might be a delay or a reduction in the issue of payments from the

Department of Agriculture, Food and the Marine while the pipeline is being constructed.

Some landowners were concerned that they may have to reduce their stock levels because of the reduction in available land to keep their livestock, with one landowner stating that the “current proposed route for the pipeline will result in 35% of the land belonging to the dairy enterprise grazing block being cut off during the construction phase. This will cause me to reduce my stocking rate with a severe knock-on effect on the viability of the holding.”

Landowners also raised concerns about the disruption to farm infrastructure, including paddocks, internal roadways, water supply and fencing during the construction stage. They were concerned that this disruption would lead to inefficiencies in their farming businesses and a resulting loss of income.

The timelines around construction were a concern to some, particularly the potential knock-on effect on farming enterprises for the following seasons if the construction works were to overrun.

The potential devaluation of land was a concern for landowners, with some landowners concerned that the inclusion of a wayleave on their land would impact on the sale of land and properties in the future.

4.9.5 Future development

Stakeholders queried how future applications for planning permission may be affected once the WSP is constructed and operational, with one landowner asking, “what effect will the pipeline have on the ability to get planning permission for farm or domestic buildings?”

Concerns were raised as to whether landowners would receive compensation if they were unable to build or develop property over the permanent wayleave.

Concerns were also expressed about any farming restrictions that may be in place in the vicinity of the pipeline.

4.9.6 Landowner engagement process

Feedback received referred to the landowner engagement process, before and after the publication of the FOAR.

Some landowners felt that the consultation process was not extensive enough and others advised they first became aware of the project as a result of a visit from Irish Water’s Landowner Liaison Officers (LLOs). While others noted that some information was only received by word of mouth from neighbours and within the community. Some landowners felt that if they had been engaged with earlier they would have had an opportunity to provide Irish Water with local information in relation to their lands.

Meetings with the project team were requested in some cases to discuss the project further.

More detail on feedback on the public consultation and landowner engagement process is provided in section 4.11.

4.10 Theme 10: Project cost and funding

4.10.1 Funding

Feedback received highlighted that the cost and funding of the project is a key concern among stakeholders. They were concerned at the likelihood that the project would exceed its budget and also that the State will need to borrow money in order to fund it. Stakeholders also noted their concern about the uncertainty around funding responsibility.

4.10.2 Cost Benefit Analysis

Stakeholders felt that there was a need to undertake a robust cost-benefit analysis on the WSP. They also noted that a cost comparison of repairing the leaking pipes in the network against the cost of developing the WSP should be undertaken.

4.11 Theme 11: Public consultation

A number of stakeholders welcomed the public consultation process, with positive comments on the consultation materials. Others welcomed opportunities for further consultation and engagement as the scheme progresses.

Some feedback questioned the effectiveness of the consultation process. Some stakeholders felt that the consultation period should have been longer, stating that “this window was hardly an ideal opportunity to provide for ‘effective’ public participation.” Other stakeholders acknowledged the extended period afforded to the consultation, given the complex and technical nature of the material and the timing of the consultation, which ran over the Christmas period.

A detailed submission was received explaining the benefits and key elements of an effective engagement exercise. This submission also referenced Article 6 of the Aarhus Convention, which states the public concerned shall be given early and effective opportunities to participate in the environmental decision-making procedures.

The same submission also noted the difference between participation and consultation and encouraged Irish Water to focus its stakeholder engagement efforts more on public participation.

Dissatisfaction with the level of communication with landowners was highlighted in some submissions, with some landowners concerned that they were not informed early enough in the process, and one landowner stating “we only were informed about this pipeline in September 2016, we have since learned that Irish Water published a report in November 2015.”

Concerns were raised over the lack of clarity regarding the precise details of the preferred scheme made available during the consultation period. One environmental group noted the challenges facing stakeholders who wished to participate in the consultation, referring to the way that the documents were presented. They noted that, whilst the Final Options Appraisal Report was clearly written, there were multiple references to sections that should be read “in conjunction with” the report and that this made “full engagement in the consultation impossible for a small organisation of limited capacity.”

Stakeholders suggested that consultation days take place at weekends, instead of weekdays, and recommended that these should be advertised in weekly papers in the midlands as well as the periodicals.

A statutory body requested that “all the constituent local authorities within the Eastern and Midlands Region are consulted with by Irish Water with regard to this project.”

One local community group sought assurance “that all community and landowners’ concerns will be dealt with in a responsive manner during the planning and construction phases of the project.”

4.12 Theme 12: Community gain

A number of stakeholders highlighted the importance of local communities and organisations having the opportunity to engage in the process of developing a community gain scheme for the project.

Feedback acknowledged the potential positive social and economic impact of the WSP, with one submission noting the importance that the project “leaves a considerable legacy.”

A number of stakeholders, clubs and community groups expressed their interest in engaging with Irish Water to develop suitable community gain initiatives. Similarly, interest was expressed in the opportunity to engage and explore any potential for the project to complement a community initiative to build infrastructure to connect to Ireland’s Ancient East Trails.

Other submissions noted the potential economic benefit of the WSP and highlighted the importance that the “benefits of its development are shared broadly.”

Feedback received highlighted the need for the community gain proposals to be fully integrated into the project procurement process to ensure maximum results and compliance from the contractors involved in delivering the project. One stakeholder suggested that Irish Water should “consider local economic benefit as part of its procurement strategy for construction, as this will have the potential to generate further support within communities located along the project route.” Another stakeholder made a similar suggestion, stating that Irish Water “should consider how companies in the benefiting corridor can effectively

engage in procurement processes in a way that maximises community engagement and benefits.”

Community gain through local employment and providing research and training opportunities for communities was also noted as a potential positive impact of the project. It was suggested that the project could contribute to the Midlands’ economy “through the creation of worthwhile employment in the main towns along the route.” It was also proposed that “suitably qualified local suppliers and sub-contractors should be prioritised where possible.”

One stakeholder highlighted that “there is indeed a good story to be created by working together in delivering community gain pieces as part of Irish Water’s local infrastructure development and with careful management, the process has potential to become a kind of ‘best practice’ template of State Agency collaboration with local development groups.”

5. Response to Feedback from Fourth Public Consultation

5.1 Theme 1: The need for the project

Our response to the feedback received in relation to need is outlined in sections 5.1.1 to 5.1.4 below which reviews the logical basis for how a water utility must look at future water need.

5.1.1 Population growth and balanced regional development

Since the publication of the Project Need Report in 2015, the results of the 2016 Census and the National Planning Framework have been published and provide a more current and definitive view of growth outlook. The National Planning Framework estimates that the population in the Eastern and Midlands Region is to grow by 624,000 people by 2040. Within its Water Services Strategic Plan (WSSP), one of Irish Water's strategic objectives is to support national, regional and local economic and spatial planning policy. The WSP enables this.

Irish Water has updated the calculation of need based on the revised growth profiles within the National Planning Framework. At the same time, we have evolved the general approach to need assessment following an internationally recognised methodology for calculation of need. This has been developed as part of the draft National Water Resources Plan (NWRP) covering the future needs of the entire country. The draft NWRP will be consulted on in summer 2018. The results of the refined assessments confirm that the need for the project is real and pressing, with an increased urgency when recent growth pressures are considered.

5.1.2 Water resources planning / the supply demand balance

The calculation of need is undertaken by firstly examining the supply demand balance. The supply demand balance is, quite simply, the difference between supplies available and anticipated demands (based on projected population growth, changes in water usage patterns, non-domestic use and leakage reduction), taking appropriate account of variations and risks to both supply and demand. At the heart of any water services planning must be the requirement for service reliability and resilience under stressed conditions, for example, during droughts, extreme winter weather and allowing for vulnerability assessments of sources and infrastructure.

The Greater Dublin Water Supply Area's (GDWSA) supply at present consists of six individual water treatment plants, extracting from five individual water sources. The water abstractions in the GDWSA, are predominantly sourced from the River Liffey (estimated at 40% of the average Liffey flows) and are considered to be at the limit of what is environmentally sustainable. In addition to this, the existing sources are vulnerable to climate change, making it likely that the volume of water available will reduce over time.

The anticipated demands must cover a range of scenarios, for instance, in the GDWSA the demand for water is about 8% higher during the week than it is at the weekend and is variable with seasonal effects. In a dry summer the demand can be 12% higher than average demand during the rest of the year. In a severe frost demand has been recorded at 20% higher than the average. As we need to be able to maintain a water supply during these periods, we have to allow for these scenarios when assessing our supply/demand balance. These scenarios are known as peaks in demand. Failure to provide for such events will guarantee repeated supply failure with its severe social and economic consequences.

In water resource planning, we need to maintain sufficient “spare” supply capacity above the peaks in demand that actually occur, to ensure that there is a safety margin to cope with uncertainties in the supply/demand balance. This spare capacity is known as headroom and is an essential element of all water services planning by utilities. Having sufficient headroom in the system allows water providers to cope with risks and uncertainties, such as growth happening more quickly than expected, unplanned pressure on resources, climate change implications, changes in water quality due to land use changes, vulnerability of critical assets and progression in environmental and abstraction legislation, for example, the Water Framework Directive. The level of headroom provided by water suppliers varies significantly from one country/city to the next depending on how a provider accounts for risk. For example, the water supply for Paris has 100% headroom or resilience, whereas comparable UK water utilities provide at least 13%.

In February 2018, the operational headroom in the GDWSA was 1.5% on the average demand. The actual resource headroom (water available for supply above the peak demand) is actually a negative figure, when peak conditions are properly factored in. This explains the supply failures in recent years (Web Summit, Storm Emma, Vartry algae). During Storm Emma, the demand peaked by 11%, and as a result there was insufficient water supply in the region to meet demand, resulting in large scale water outages and water restrictions.

These failures had major social impacts on citizens with particular difficulties for families and vulnerable customer categories, with particular water dependencies, for example hospitals. It impacted severely on the service sector, particularly the hospitality sector, with severe economic loss even for short term uncertainty. A direct consequence was quality impairment due to disturbed sediment in pipes and airlocking in plumbing systems. If we continue to operate without the required headroom, we can expect more frequent water outages in the coming years as demand increases, with no matching increase in resources. In a properly functioning water utility, the target resource headroom should never be less than to 13-15% for major urban centres, after normal demands are robustly budgeted for and enduring leakage and peaking factors are included. If we design for peak events and maintain this level of headroom, we will ensure a resilient level of service to our customers whereby a water

outage would arise only in very extreme circumstances, approximately once in every 50 years (in comparison, the Paris Supply is designed for no major outage ever, however, this zero risk level would be prohibitively expensive to provide in the Eastern and Midlands Region).

What are we doing to resolve it?

Irish Water is undertaking a number of projects to secure existing supplies, and increase the amount of water available from existing sources where possible. These include, rebuilding the Vartry Water Treatment Plant to address water quality constraints in the source, building a new pipeline to link the Peamount and Saggart Reservoirs in Dublin, and expanding the Barrow Water Supply Area to optimise usage from the plants at Ballymore Eustace and Leixlip on the Liffey and Srowland on the Barrow. These projects will add a maximum of 56 million litres of water a day effective additional availability to the current supply by 2021. In addition to these projects, Irish Water is committed to reducing leakage levels in the GDWSA by approximately 44 million litres of water a day by 2021. This is the maximum saving which can be reliably achieved in that timeframe, based on a comprehensive leakage management approach, supported by a programme of replacing failing mains - the Leakage Reduction Programme.

All of these projects will increase the water availability in the short term, but due to growth in the region we will continue to run a supply demand deficit until we have a new source of water.

For the Midlands region, within a corridor of benefit from a Shannon-Dublin pipeline, the corresponding population increase is 123,000 and the household numbers will grow from 198,000 to 285,600 in the period to 2050. Examples of the immediate need for the project in this region include the existing supplies to the Mullingar Regional Water Supply Area which are currently at critical risk of failure and had supply restrictions in place during summer 2017, and the River Boyne catchment which has reached its hydrological limit to meet long term growth in the south Louth / east Meath area. Supplies to both the Portlaoise and Tullamore areas will need major augmentation for medium to long term needs beyond existing water supply availability. The forthcoming National Water Resources Plan (NWRP) will detail the supply demand requirement of the country, including this region. Preliminary results from the NWRP estimate that the midlands region will be at a deficit of 70 to 100 million litres per day by 2050. All of our research and supply demand balance models have shown that there is an urgent need for a new resilient water supply – despite leakage savings and extra local production. This will be critical for areas such as Mullingar, Tullamore and Portlaoise.

Supplies in the Greater Dublin Area must also must also provide capacity to cater for expansion in the short term to resolve immediate needs in Ashbourne/Ratoath to the north, and Baltinglass and Aughrim/Rathdrum to the

south. This is an example of how Irish Water is strategically managing water resources nationally over the short, medium and long term.

5.1.3 Water conservation

Irish Water is committed to reducing leakage and has a national programme in place to reduce leakage levels. The national leakage problem is summarised below, including details of Irish Water's national sustained approach to tackling this problem. The leakage problem in the GDWSA is also outlined.

The national story

Irish Water produces 1.67 billion litres of water every day nationally which is distributed through the public water supply network. The public water supply consists of approximately 63,000km of watermain (akin to 1.5 times the length of the equator), over 1.8 million customer connection points (domestic and non-domestic) and tens of millions of individual joints. Leakage is spread over the entire extent of this infrastructure, not just the older pipes. Over half of the water produced is used in our homes and businesses. The rest, 658 million litres of water, is lost through leaking pipes every day. Ireland's leakage is high compared to other EU countries. This is due to a combination of factors, including the age and the condition of the pipes, poor performance of certain pipe materials, soil conditions, the length of the network (low connection density) and the lack of investment in water infrastructure over the past 150 years. Even in our urban areas, we have low connection density due to low rise development, especially by comparison with European cities.

Irish Water's approach to reducing leakage nationally

Irish Water recognises that our leakage rates are unacceptably high compared to the UK and other European Countries, where water conservation activities have been ongoing over the past 30 years, or where the entire water networks were largely reconstructed since the 1950's, generally with urban redevelopment. Based on international best practice and experience, achieving real leakage savings requires a systematic approach over a long period of time.

As part of the leakage reduction journey, Irish Water has spent the last three years putting in place programmes and projects to ensure that the required systems that will allow us to make real inroads into reducing national leakage levels are available or are in the process of being established. This includes:

- Confirmation of 4,500 District Metered Areas (DMAs). The establishment of 100 DMAs by 2021. DMAs are the spatial areas that allow us to assess leakage;
- Calibration and installation of DMA "Bulk" meters. DMA Bulk meters allow us to track and identify areas where there is a sudden increase in water usage (a good indicator of leakage) and monitor areas of the network with consistently high leakage;
- Setting up a national Leakage Management System (LMS). The LMS constantly monitors leakage patterns;

- Installation of over 890,000 domestic meters or 58% nationally. Domestic meters help us to refine our knowledge of unaccounted for water, domestic usage and find and fix leaks both on the customer side and on the network;
- Setting panels of leak detection and repair specialists who can be deployed to address leakage in the network;
- Setting up frameworks of contractors to complete large scale watermains replacement, which is prioritised on the 'leakiest' pipes, with high frequency bursts recorded;
- Development of a prioritised list of poorly performing watermains that are to be addressed as part of the current investment cycle (2017-2021); and
- Development of a programme to find and remove leaking backyard service mains.

Following on from this, in 2017, Irish Water established the National Leakage Reduction Programme which is a long term strategic initiative that will sustainably tackle the leakage problem and maintain leakage savings. This programme has the goal of reducing leaks on the public water supply nationwide by active leakage control, finding and fixing damaged and shared watermains, pressure management and replacing the worst performing mains in terms of leakage. This requires mobilisation and training of skilled specialists equipped to plan and locate leaks for repair on complex underground networks.

An initial investment of €500 million will save 166 million litres of water every day by 2021. That is enough water to supply Cork city twice over. That means by 2021 Ireland's leakage levels will be reduced to more acceptable levels. Irish Water will continue to drive down leakage after 2021. Leakage savings are only useful to meet demands when secured long term, nett of new leaks arising all the time. Leaks on the network arise from pipe bursts, losses in the trunk system (reservoirs and bulk transfer pipes) and from background 'seepages' at millions of joints, connections and minor cracks. This latter component is a constant feature of water networks, even in relatively new systems, hence rates of around 10% leakage in newer continental systems.

It is important to note that without ongoing management, intensive leak detection and repair programmes and supporting replacement of the 'worst' pipelines, leakage does not remain static but increases over time. Therefore, even if we repair leaks and replace old watermains, leakage will always increase, that is why it is imperative there is a sustained programme in place to tackle leakage – the Leakage Reduction Programme.

It is instructive to look at England and Wales which had similar systems and conditions to Ireland in the 1990s. In 1995, leakage there was estimated at 5,000 million litres per day (MI/d) which was reduced to a reported 3,250 MI/d by the year 2000. However, assessment in 2005 using more robust demand data showed leakage at 3,600 MI/d and by 2015 after a further ten years' investment in leakage, reduction to the base figure was reported as 3,200 MI/day. This

underlines the reality of achievable leakage savings within the limits of what is technically and economically feasible. In London, with severe pressure on water resources, the best estimates currently are of 23% leakage. Large scale pipe replacement was ramped up to slightly over 1% of the network annually over a three year period. This was found to be enormously disruptive and failed to deliver sufficient leakage savings or provide value for money. As a result, the utility is reverting to a more balanced approach supported by increased customer metering, similar to Irish Water's Leakage Reduction Programme.

In developing the Leakage Management Strategy for Irish Water, demand management initiatives are being developed further, using good practice programmes from similar water companies. These will build on the successful customer First Fix Free Scheme which provides quarterly consumption data for almost 900,000 households.

The Greater Dublin Water Supply Area story

Currently unaccounted for water in the GDWSA, stands at approximately 229 million litres per day. Of this, it is estimated that approximately 207 million litres are lost through leakage, and the remainder is a conservative estimate of undocumented usage. The water distribution network in the GDWSA consists of 9,000km of pipeline (which is greater than the distance between Dublin and Beijing). There are also 650,000 individual connections to the network, and millions of joints, all reflective of a low level low density city region.

As with the national picture, leakage is spread across the entire network, not just amongst older pipes. The region is broken down into 749 individual DMAs. An average DMA consists of 12km of watermain, and has leakage of 0.28 million litres of water a day. This demonstrates that leakage is spread out over the entire 9,000km. A significant component relates to the bulk transfer system (reservoirs and trunk systems). Locating this is akin to 'a needle in a haystack' challenge over long distances. The main focus of leakage management will be on mains and services/connections leaks, with background seepages picked up opportunistically. Irish Water will follow best industry practice in replacing pipes based on burst history delivering sustainability of the programme and securing maximum improvement in customer service levels.

As outlined, leakage does not remain steady and constantly increases over time. Therefore, to drive down leakage, water savings must be delivered faster than the rate at which new leaks occur. As a result, in order to reduce the current total leakage levels by 67MI/D at 2050, we estimate that we would need to save three to four times this figure (c.250MI/d in the GDWSA, see Figure 5-1).

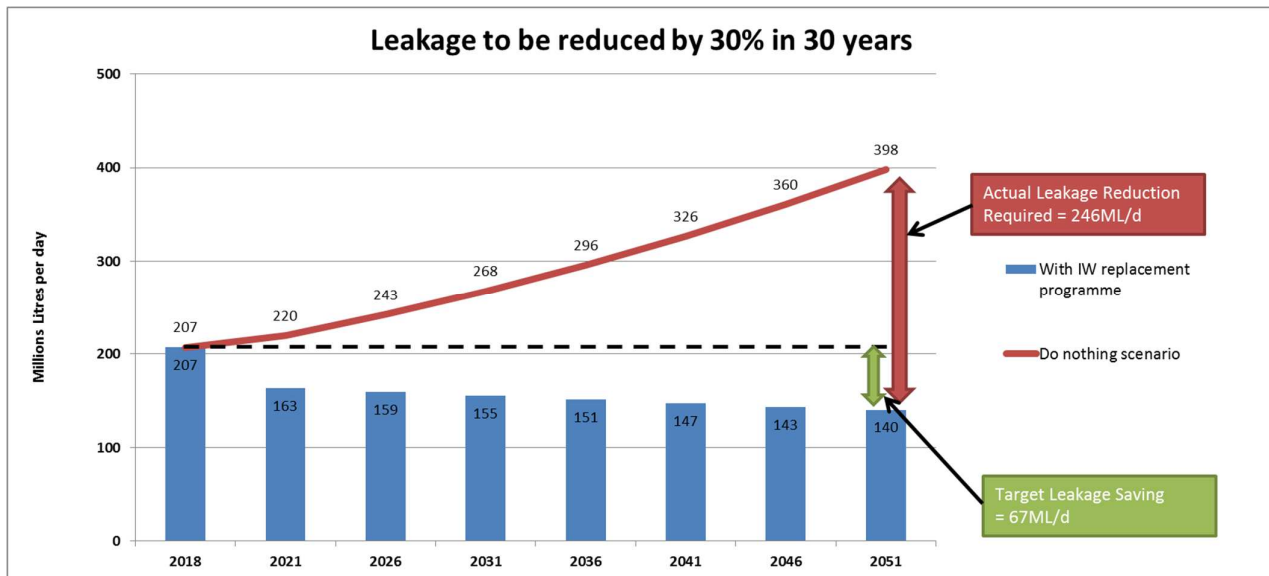


Figure 5-1 Leakage reductions in the GDWSA 2018 to 2050

This challenge will be met by delivering the Leakage Reduction Programme in the GDWSA as follows:

- ensuring that the 749 DMAs are fully operational and maintained with calibrated DMA meters;
- continuous monitoring of the leakage performance of each DMA through the Leakage Management System;
- developing and implementing a programme that examines the performance of large trunk watermains;
- developing pressure management programmes, where possible, and optimising existing pressure management systems;
- having highly trained teams deployed within the GDWSA to find leaks;
- having teams available to repair leaks as found; and
- watermains replacement.

Leakage reduction within the GDWSA is an absolute priority. It is not a choice of either delivering leakage savings or building a new supply. Without leakage savings the GDWSA will not have enough water to meet demand by 2021, and without a new source, it will not have enough water to meet demand by 2025. Ultimately, the reduced leakage targets are a key component of meeting future needs, but on their own fall far short of what is required.

A number of submissions questioned whether, an enhanced rate of watermains replacement could deliver enough savings to eliminate the need for the WSP. Unfortunately, this is not the case, as leakage is spread across the entire 9,000km of network and, due to the enormous lengths of main, replacing the network will take a sustained effort over generations. A replacement rate of 1%

would equate to 90km of construction works in the congested streets and footpaths of the GDWSA, every year for the next 100 years.

Even if it were possible to accelerate this to 2% per annum, it would take over 50 years and after this we would still not have enough water to meet demand. In comparison, the average rate of mains replacement in the UK ranges between 0.2 and 1.4%. In Paris the current rate of replacement is 0.2% and in Zurich the replacement rate is 2%, in a compact city with much higher customer density. A replacement rate at 1% would be at the upper limit of what could be achieved taking account of the scale of impact on water users, road users, and disruption to urban life. At this rate, the adverse economic impact is considerable, while the benefit is marginal for huge capital outlay (see London experience previously outlined).

The supply demand balance deficit in the GDWSA is real and current, and is getting worse each year. Even with leakage savings, and maximising existing sources, we will only have enough water to meet average demand until 2025.

It must be highlighted that there are a number of complexities involved in the rehabilitation of watermains in the built up urban area that limit the rate at which they can be replaced. These include:

- **Heavy service congestion** – urban watermains are often located below banks of gas mains, electricity services, cable ducts and fibre optics, which were laid above the watermains over the years. This makes pipe replacement an extremely difficult and slow process (a crew can complete approximately 20m of open cut mains replacement a day);
- **Safety** – The works site covers all the roads and footpaths that the public use on a daily basis, requiring heavy machinery and difficult construction conditions in close proximity to densely populated areas and traffic;
- **Disruption** – As watermains rehabilitation occurs along the length of the existing network, large water outages are required for the duration of the works. As part of the Dublin Region Watermains Rehabilitation Project, between 2007 and 2011, 107km of watermains were replaced in the GDWSA. This level of mains replacement involved 60,000 individual customers being subject to water outages, with some customers experiencing water outages on a daily basis for a number of weeks. This level of disruption has a disproportionately high impact on the elderly population, and households with young families. Small businesses, such as bars, restaurants and cafes are also severely impacted;
- **Public Health** – Due to public health issues, certain water users cannot be cut off from the water supply. For example, hospitals. In order to maintain continuous supply to these locations, complex water network management is often required to re-route water to these critical users during construction. Therefore, when works are

being carried out in a DMA with a hospital, no works can be carried out in any neighbouring DMAs. This significantly curtails the rate at which watermains can be replaced.

In summary, large scale pipe replacement programmes are ineffective in leakage reduction, absorb enormous levels of capital and deliver minimal economic benefits, unless targeted at 'highest burst frequency' mains. Many of the oldest pipes in the system (Victorian cast iron) are perfectly robust for another 50 years, with low levels of leakage, while newer asbestos cement, uPVC and concrete pipes are having to be replaced due to their poor structural condition. Fact based technical analysis and objective comparison with international experience shows that the balanced approach of Irish Water's Leakage Reduction Programme is not merely optimal but is the only practical and achievable approach to secure and sustainable water supplies for the region to 2050.

5.1.4 The overall project need

We have an urgent need for a new water supply for the Eastern and Midlands Region – despite leakage savings and extra local production - and by 2025 this will be critical.

Irish Water is currently preparing the National Water Resources Plan (NWRP) which will be published later in 2018. As part of the NWRP, supply demand balance calculations for all of the water resource zones that make up the national public supply will be completed. The draft NWRP and its accompanying SEA environmental report will go out to public consultation in summer 2018.

Using the National Planning Framework population and housing predictions, we have projected domestic demand based on an average household use that assumes continuing benefit from customer-side leakage programmes, but also takes account of continuing reduction in household occupancy levels (to 2.4 from 2.7 currently) towards European norms. While major savings were achieved in the First Fix Free Scheme, much of this was absorbed in higher customer service, while new leakage continues to arise. Customer-side programmes will continue to support water conservation as an integral part of containing usage to the design budgeted figures (131 litres per capita in 2050). This figure is comparable with normal usage across Europe (apart from one or two countries where domestic water charges are very high), while current usage in Britain is 130 litres per head per day for metered households and over 150 litres per head per day for unmetered.

While Ireland now has 58% metered coverage, this is barely 45% in the GDA due to the apartment mix, complex services in older properties and areas which couldn't be metered in the programme. For the unmetered categories, all of the data suggests significantly higher usage especially accounting for older properties and their plumbing characteristics. Therefore, the Irish Water projections in this area will be challenging to meet and will require a strong, continuing focus on water conservation.

For commercial, institutional and industrial usage, the Irish Water projections represent a compound growth rate to 2050 of 1.25% per year. This reflects the need to track economic growth (at a discounted rate allowing for water efficiency trends). In addition, we have made a strategic provision which recognises the potential of the region for water dependent industry such as agri-food, pharmaceuticals and microelectronics which have huge potential for Ireland competing in an international market increasingly influenced by water stress. This has significant job creation potential and represents a very significant economic opportunity with national benefits. The WSP will facilitate these benefits over the entire Eastern and Midlands Region.

The preliminary results of the NWRP have confirmed that an additional 330MI/d is required for the Eastern and Midlands Region. This estimate is aligned with the draft NWRP which will be published later in 2018.

Only a new source can deliver a resilient water supply to this region. Irish Water has identified and intensely examined every reasonable option for meeting the future water supply needs of the Eastern and Midlands Region. Abstraction from the Parteen Basin has been identified as the option which delivers the widest benefit to the greatest number of people with the least environmental impact.

The Parteen Basin scheme comprises the abstraction of water from the lower River Shannon at Parteen Basin in County Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped 170km to a termination point reservoir at Peamount in south County Dublin, connecting into the Greater Dublin network. Provision of treated water supplies to communities in North Tipperary, Offaly, Laois, Westmeath, Kildare, Meath and Wicklow is also enabled by the preferred scheme.

All research, assessments and public consultations have been undertaken in line with best international practice for the identification of need and determination of options. The outcome of this process identified that the Parteen Basin scheme is the best option, and is the only option that meets the project's objective of providing a long term and sustainable water supply for the Eastern and Midlands Region.

5.2 Theme 2: Benefiting corridor

Irish Water is committed to providing resilient and sustainable water supplies across the Eastern and Midlands Region, both to support economic growth, and as part of responsible water resource planning.

Irish Water is currently in the process of completing the National Water Resources Plan (NWRP), the objective of which is to set out how we intend to maintain the supply and demand for drinking water for the entire country over the short, medium and long term whilst minimising the impact on the environment. As part of the exercise we are assessing supply demand balance across the entire 400 water resource zones that cover the public water supply

nationally. For each individual zone, Irish Water is modelling the supply demand balance, using the same methodology as that used for the GDWSA.

This analysis includes an area referred to as the midlands benefiting corridor in the Final Options Appraisal Report, which stretches from Limerick to Dublin. The WSP provides a unique opportunity to address the supply demand balance and support resilience and economic growth in the entire Eastern and Midlands Region.

We have examined the existing water supplies in a benefiting corridor which is defined by its proximity to the water treatment plant and the treated water pipeline proposed under WSP, or by its proximity to the existing Greater Dublin Area, Water Supply Zone.

A preliminary assessment has been made by Irish Water, of the required water quantities at potential off-take points within the benefiting corridor and working assumptions have been made on a prudent number of off-take locations.

The off-take points will facilitate future connections over a longer time frame. Interconnection works to Limerick (Clare) north Tipperary, Offaly, Laois, Westmeath (Mullingar), Meath (Navan) or to other locations in the benefiting corridor, are part of work in development, to be implemented over time and are not part of the WSP. Any such future connections will be taken to existing municipal reservoirs and networks and will be subject to their own statutory processes.

The benefiting corridor will be reviewed in greater detail as part of the NWRP, however the preliminary results of this have identified a minimum deficit of 70 to 100 million litres per day.

5.3 Theme 3: Alternative options

5.3.1 General comments

Irish Water has identified and intensely examined every reasonable option for meeting the future water supply needs of the Eastern and Midlands Region. All the research and studies have been undertaken in line with best international practice for the identification of need and determination of options.

The evidence shows that abstraction from the River Shannon at Parteen Basin is the option which delivers the widest benefit to the greatest number of people with the least environmental impact and in the most cost effective manner. The WSP is the first major comprehensive upgrade to Ireland's "New Source" infrastructure in the region in over 60 years. It has been in development since the mid-1990s, originally under Dublin City Council as project sponsor on behalf of the Department of Environment, Heritage and Local Government, and under Irish Water Management since January 2014. On taking over management of the project, Irish Water identified four key stages of assessment and non-

statutory public consultation to identify a preferred scheme for a new water supply for the Eastern and Midlands Region.

1st Consultation Stage

The first stage in this process was a review of the need for the project, the Project Need Report published in March 2015 confirmed the need for a new water source for the Eastern and Midlands Region.

2nd Consultation Stage

The Options Working Paper (June 2015) examined the work previously undertaken in the Strategic Environmental Assessment of the ten water supply options considered in 2010 by Dublin City Council (DCC). DCC undertook two phases of Strategic Environmental Assessment (SEA) between 2005 and 2011. The assessments identified, and considered three options initially and then subsequently ten potential new water supply options to cater for the projected water supply demand deficit. In the second phase of SEA, the ten water supply options were assessed at a 'desktop-study' level and appraised under technical, environmental, socio-economic and economic assessment criteria. Out of the ten water supply options DCC evaluated, four options emerged as potentially viable.

Irish Water's Option Working Paper validated four options as viable for consideration in the next stage of options appraisal.

The four options included:

- Abstraction from Lough Derg;
- Abstraction from Lough Derg, with Midlands raw water storage;
- Abstraction from Parteen Basin; and
- Desalination of seawater in north Fingal.

Other options such as wastewater re-use, rainwater harvesting, and intensification of abstraction with environmental flow replacement on the Liffey, and proposals to combine water supply abstraction with flood relief were also assessed as part of this stage of project development.

3rd Consultation Stage

The Preliminary Options Appraisal Report (POAR) (November 2015) considered and evaluated these four options, taking into account preliminary results of investigative surveys and hydrodynamic modelling at that time.

The POAR identified abstraction from the River Shannon at the Parteen Basin area, downstream of Lough Derg, as an "Emerging Preferred Option", subject to continuing surveys. It identified a 2km corridor from Parteen to a termination point in South Dublin where a pipeline route of least environmental impact could be positioned

Desalination was identified as the second viable option. However, it was noted that it was a "Dublin-centric" solution, and it did not address the problems of future growth or small isolated water supplies in the Midlands and that this

option posed a potentially greater environmental impact through its use of chemicals and high energy consumption.

Abstraction from Lough Derg, either directly or with raw water storage in the Midlands was not taken forward from this process due to the adverse impact it would have on water residence times in parts of Lough Derg during prolonged dry summer conditions. Water residence time is a measure of how quickly the flow through a water body provides a turnover of the volume of that water body, that is the amount of water in the lake in ratio to the rate water enters or leaves the lake.

4th Consultation Stage

Following three rounds of public consultation and over two years of technical and environmental assessments, the preferred scheme was published in the Final Options Appraisal Report (November 2016). The preferred scheme identified comprised the abstraction of water from the River Shannon, on the eastern shore of Parteen Basin in County Tipperary, with water treatment nearby at Birdhill. Treated water would then be delivered to communities in the Midlands and Dublin area, through a 170km pipe with a termination point reservoir at Peamount in south County Dublin.

- Reservoir storage alternative options are addressed in section 5.3.3.
- Using groundwater sources as an alternative is addressed in section 5.3.4; and
- Water conservation as an alternative option is discussed in section 5.1.3.

5.3.2 Desalination

Desalination has been considered in detail at each stage throughout the development of the WSP, initially as part of the Strategic Environmental Assessment phases carried out by Dublin City Council between 2005 and 2011 and subsequently by Irish Water (2014 – 2017).

Irish Water's considerations were informed by bathymetry surveys, seawater quality analysis, marine mammal surveys, dispersion modelling, international expert reviews, desalination plant site visit and operator feedback. The output was reported in the Options Working Paper, Preliminary Options Appraisal Report and Final Options Appraisal Report.

The desalination process required to treat the seawater includes an intake approximately 3km off shore (from the Loughshinny area of north County Dublin) followed by a Dissolved Air Flotation process, microfiltration, ultrafiltration and Reverse Osmosis (single pass), followed by chemical dosing to re-mineralise the treated water. In addition, for every litre of freshwater produced, another litre (plus approximately 5%) of concentrated salt water (approximately 1.5 to 1.6 times as "salty" as the initial seawater) must be disposed of back to the sea approximately 2km off shore.

The desalination process strips the majority of salt from the seawater and as a consequence also strips the majority of its minerals. Chemicals are therefore added to the treated water to try to match the water quality characteristics of the water currently in supply. The complexity of blending desalinated seawater with water from a conventional water treatment plant is challenging and can have the following effects:

- The differing treated water chemistry in the blend of different water sources has the potential to affect the effectiveness of the disinfectant (i.e. chlorine) in the water supply;
- The different chemical concentrations and subsequent effect on water stability such as hardness, chlorination and corrosion issues can lead to complaints from consumers; and
- The potential effect of bromide (a chemical found in seawater) on disinfection (i.e. chlorine) stability and effectiveness in the water supply.

The Parteen Basin option would also involve blending with existing sources however, as the Shannon is a conventional surface water source, the complexities outlined above would not arise.

Desalination is energy intensive, although the carbon footprint could be offset by utilising green energy (such as offshore wind farms or potentially novel wave energy recovery systems). The energy required to operate the desalination plant (for the full GDA requirement) has been calculated as 960MW/day compared to the conventional water treatment plant (for the GDA and Midlands) which has been calculated as 160MW/day.

The dispersion modelling of the area (offshore Loughshinny) carried out as part of the 2008 Strategic Environmental Assessment (SEA) confirmed a requirement for:

- An intake pipe, to abstract the sea water, to be located 3km from the shore; and
- An outfall pipe, to dispose of the brine, to be located 2km from the shore.

The potential impact on marine biodiversity by intake pipes can affect microbial organisms that constitute the base layer of the marine food chain as negative pressure is required to draw the seawater to the treatment plant. The outfall pipe will also have an impact due to the elevated salt levels that would be experienced in the zone around the outfall pipe where the brine is discharged. This can have an impact on marine ecosystems if not carefully managed. It can also impact on some organisms in the zone around the discharge. This is due to the change in the baseline condition as a result of the brine discharge which causes changes in temperature and in salt concentration. Super saturated salt water will also decrease oxygen levels in the immediate discharge vicinity.

Since the dispersion modelling was carried out, the Rockabill to Dalkey Island Special Area of Conservation (SAC) has been designated along the east coast. The SAC is approximately 1km off shore and therefore, based on the siting envisaged at SEA stage, both the abstraction and outfall pipes and structures are within the SAC. This increases the potential to negatively impact the environment.

Cost comparisons of the Parteen Basin abstraction and desalination options were provided in section 9.4 of the POAR (November 2015), and were considered in the cost-benefit analysis published with the FOAR (November 2016). An updated cost-benefit analysis will be undertaken later this year.

Taking all research and investigations into account Irish Water did not identify desalination as the preferred option primarily for the following reasons:

- It is a “Dublin-centric” solution, and it does not offer the same potential as the Parteen option does to address the challenges of future growth, water supply resilience or of small isolated vulnerable water supplies in the Midlands;
- The heavy use of chemicals in the desalination process would lead to a greater impact to the environment than the treatment of a surface water supply;
- Over five times the energy is required to operate a desalination plant than a conventional water treatment plant. This leads to greater environmental impacts and operating costs;
- The intake and outtake pipes have the potential to negatively impact on the recently designated SAC;
- The requirement for extensive post-treatment mineral balancing to match the water chemistry and taste characteristics of existing water sources is challenging;
- The complexity of managing the taste issues associated with blending freshwater and desalinated water sources can lead to customer dissatisfaction; and
- The Whole Life Cost of the desalination option is greater than that for the Parteen Basin option and the findings of the cost-benefit analysis suggest that the Parteen Basin option is the preferable investment choice (see section 5.10).

5.3.3 Reservoir storage

Raw water storage was considered during the options appraisal stage and was modelled and examined in detail in the POAR.

The abstraction option from Lough Derg in combination with storage in Garryhinch was not brought forward from the POAR because it had a greater risk of environmental impact than the preferred scheme. In particular, that option had significant construction and environmental risks associated with the storage site and risked transfer of potentially environmentally damaging alien species

such as Asian clams and zebra mussels into other river catchments. In addition to these risks, the transfer of raw water does not meet Irish Water's broader objectives relating to improving treated water supplies to communities in the Midlands Region. The POAR can be found at the following link:

http://www.watersupplyproject.ie/wp-content/uploads/2016/08/Vol-1_Main-Report_PrelimOptionsAppraisal_V1_Update3.pdf.

The available volumes of water in the existing storage reservoirs in the Dublin area are managed by Irish Water and maximised to their full potential. For each reservoir, a target operating curve has been developed. This profiles the optimal use of the storage to ensure that the maximum sustainable yield for the site can be provided over the entire year in all weather conditions with an acceptable frequency of drought occurrence, whilst ensuring that the appropriate flood attenuation provisions and compensation flows have been allowed for in the river. Operating according to this curve means the sustainable yield can be achieved on a daily basis. If additional water over and above the sustainable yield is abstracted, the risk of rationing and outages increases later in the year, as the levels of stored water fall below the target operational curve.

Seeking to abstract further water from these reservoirs would increase the risk of failure of supply, and extending supply to new customers on this basis would represent a risk to minimum standards of service for all existing customers.

Parteen Basin already includes existing water regulating assets due to the presence of the hydro-power plant. The proposed abstraction of water is, in essence, an abstraction of water from the hydro-power scheme, utilising existing assets and avoiding the need to construct any new raw water storage. Abstraction from hydropower impoundments is commonly used worldwide to provide industry and local communities with a sustainable supply of water that would otherwise be discharged to sea.

While there are benefits of renewable electricity generation in a pumped storage hydropower facility that might justify the additional cost of reservoir construction and maintenance, the environmental risks of raw water storage, such as the transfer of alien species and the considerable scale of storage capacity required for a pumped storage facility, make this an unsuitable option.

5.3.4 Groundwater as an alternative

Groundwater is stored in and moves slowly through geological formations of soil, sand and rocks called aquifers (see Figure 5-2). Groundwater plays an important role in public water supply in Ireland with more than 700 of Irish Water's 900 (approximately) drinking water treatment plants utilising groundwater sources.

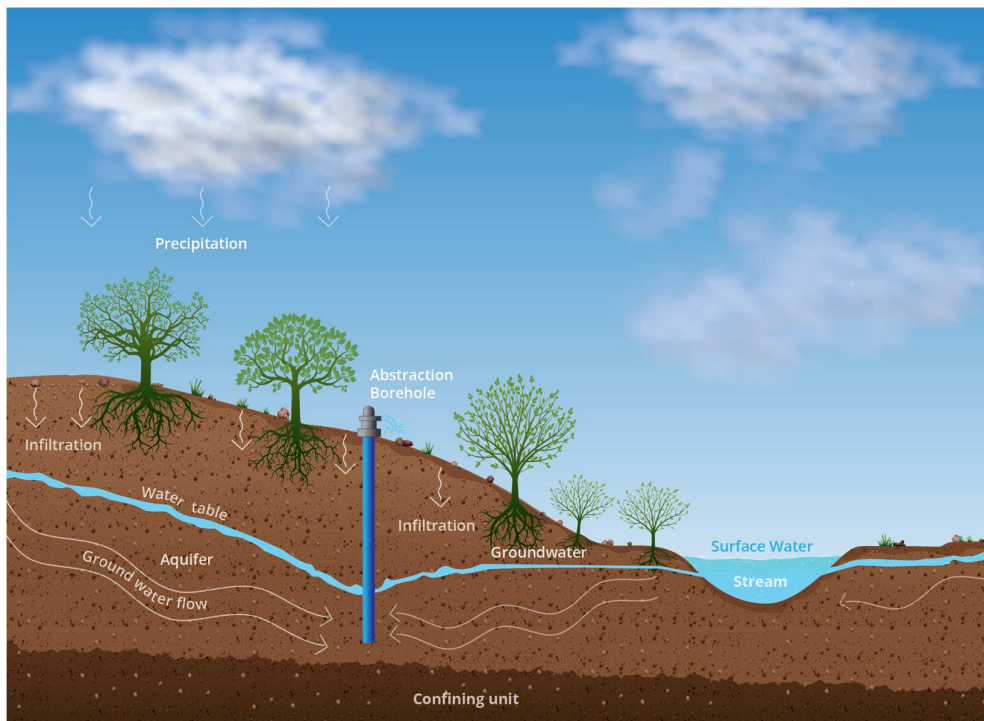


Figure 5-2 Groundwater abstraction

Groundwater sources, whilst having localised water supply advantages, also have limitations, particularly for large scale water supplies. The abstraction of groundwater can greatly impact the water levels below ground, particularly in the vicinity of the abstraction well (see Figure 5-2). Depending on geological and hydrological conditions of the aquifer, the impact of abstractions on water table level can be short-lived or more permanent. Abstractions from groundwater can also draw water from inter-linked surface water bodies such as rivers. Furthermore, groundwater is susceptible to contamination from land use activities.

It is important that groundwater sources are protected by sustainable rates of abstraction throughout the year and by controlling land use in the catchment above the source. As part of the assessments of options for the WSP, two studies were undertaken (one in 2008, the other in 2015) to investigate the potential of groundwater as a suitable new source of water for the Eastern and Midlands Region.

In 2008 a detailed assessment of groundwater within an 80km radius of Dublin extending northwards to Dundalk, westwards as far as Tullamore and southwards to Gorey was undertaken by specialist hydrogeologists (Eugene Daly Associates). The assessment used borehole data, collected over decades, along with groundwater modelling to examine the potential productivity of groundwater within that area.

In 2015 Irish Water undertook a full review of this assessment. This review is documented in detail in Appendix B of the Options Working Paper (June 2015), which is available on the project website (http://www.watersupplyproject.ie/wp-content/uploads/2015/05/150525WSP1_AppendixBSource_A011.pdf). The

review was undertaken using the Water Framework Directive (WFD) prescribed methodology. It referenced new data from the revised Geological Survey of Ireland (GSI) geological/hydrogeological data layers/information, revised and updated EPA WFD Risk Assessments, and the Groundwater Regulations of 2010.

The review concluded that there are limits to what quantity of groundwater is available over and above what is already being used locally. For example, in the Fingal well fields, the Laois aquifers and the east Meath and south Louth aquifer, there is limited water available beyond that currently used for local supply. There is also an environmental risk to abstracting groundwater; for example, the aquifers in the north and west Dublin areas are shallow and support the base flows in the Rivers Boyne and Liffey. Similarly, excessive pumping of the Curragh aquifer could have negative impacts to the ecology in the Pollardstown Fen SAC.

In essence, groundwater is not available at the scale required for the future water supply needs of the Eastern and Midlands Region. Furthermore, any large scale groundwater development would require extensive well fields and water mains network which would entail an excessive cost for a limited yield. Land use restrictions would have to be put in place over a very large area, with potentially significant impacts on the agri-food sector.

Irish Water will continue to use groundwater, in its primary role, for local water supply needs.

5.4 Theme 4: Planning

At a strategic level Irish Water's Water Services Strategic Plan (WSSP) includes an aim to support national, regional and local economic and spatial planning policy. Irish Water will publish their National Water Resources Plan (NWRP) later in 2018 which will be aligned to the WSSP. The NWRP will outline how Irish Water proposes to provide a safe, secure and reliable water supply to its customers for the next 25 years.

The need for a new water source to supply the Greater Dublin Area (GDA) was first identified in 1996 by the then Department of Environment in its Greater Dublin Water Supply Strategic Study (GDWSSS). As the preparation for project delivery has progressed there has been continuous assessment and evaluation of the need for the project. Irish Water replaced Dublin City Council (acting on behalf of the seven local authorities in the GDA) as the agency responsible for delivering the project in 2014. A full review of the need for the project, together with the aims and objectives of the project, was undertaken then. This assessment resulted in the expansion of the water supply project beyond the GDA to include the entire Eastern and Midlands Region. Furthermore, Irish Water continuously examines the drivers for the project within the context of

Irish Water's overall remit in terms of water supply and management together with reviewing census data, legislation and policy, for example.

The current raw water sources for the Greater Dublin Area will be at their sustainable abstraction capacity limits by 2025, and even taking account of leakage savings from the ambitious water conservation programme underway, there will still not be enough water to meet future demand. The rest of the Eastern and Midlands Region faces similar challenges. If the WSP investment is not made now, then regular water outages are likely to become a feature of everyday life for the region in the future. We must take the bigger step and we must take it now if we are to meet future demand and deliver secure, reliable and sustainable long term water supplies for the Eastern and Midlands Region.

Irish Water recognises that a project of this scale and scope should sit within a spatial planning policy context, particularly because of the interconnectedness between the supply of water and population and economic growth. Policy support for the project to supply water to the GDA is well established.

The need for a new long term future water source for the GDA was identified in the Regional Planning Guidelines (RPGs) for the GDA (2010 – 2020), while the Eastern and Midlands Regional Assembly (EMRA) Issues Paper 2017 (the precursor to the future Regional Spatial and Economic Strategy (RSES) which will replace the RPGs), recognises that water infrastructure in the region is severely constrained. Also, there has been, and continues to be policy support for the project at county development plan level within the GDA.

Over time, as the remit of the Water Supply Project expanded beyond the GDA into the midlands, planning policy support has been growing to support this objective. For example, the Regional Planning Guidelines for the Midland Region 2010-2022 recognised the pressure on the provision of water supply as a result of rapid growth in the area and suggests that the River Shannon offers potential as a significant water source for the region.

Earlier this year the government published the National Planning Framework (NPF). As a statutory consultee Irish Water contributed to its preparation. The purpose of the NPF is to provide a planning framework to guide development and investment over the coming years. At the same time the government published a companion document, the National Development Plan, a ten year strategy for public capital investment, thereby aligning the State's investment strategy and strategic planning documents. It is Irish Water's role to facilitate growth as it is identified and planned for within the hierarchy of spatial plans such as the NPF, the RSES and County Development Plans. The need for WSP is clearly identified in the NPF.

Furthermore, the delivery of WSP has the potential to facilitate Ireland's commitment to achieving Water Framework Directive (WFD) objectives, as

outlined in the River Basin Management Plan by enabling the pressure to be relieved on other water supply sources.

5.5 Theme 5: Pipeline

5.5.1 Design of the pipeline

The WSP represents the first major comprehensive upgrade of ‘new source’ infrastructure in the Eastern and Midlands Region in over 60 years. The proposed pipeline corridor was designed in line with international best practice to avoid national, regional or locally important constraints, such as towns, villages, areas of environmental importance, mountains, rivers and major infrastructure. Given the size and scale of the project, there will be a degree of disruption in order to deliver this project successfully. Full consideration will be given to the concerns raised and mitigation measures will be put in place to minimise disruption.

Irish Water is preparing an outline Construction and Environmental Management Plan (CEMP), as well as an EIAR, which will include details on how the proposed scheme will be constructed and detail mitigation measures to be put in place where required. Throughout the development, construction and operation of the scheme, best practice construction methodologies will be applied and the experience and expertise of our sister company, Gas Networks Ireland, in delivering large scale cross country pipelines will be utilised at all times.

Irish Water will ensure that appropriately qualified and experienced contractors will be utilised on the project. We are also working with Local Authorities and farming and community organisations, so that there is a coherent and collective approach to minimising local impacts.

Irish Water will ensure adequate information and support is available to stakeholders throughout all stages of the project development.

The most appropriate construction methods will be used to ensure that environmental impacts and risks are minimised. These will include where the pipeline crosses infrastructure such as canals, roads, railway lines, major power lines and rivers. There will be approximately 27 tunnel drive sites located along the pipeline route, including under railway lines, a canal, a major river and national primary roads. We will work directly with statutory bodies, utilities and road and rail companies before detailed plans for construction are finalised, to ensure that their requirements are included in our construction methodology and programme.

Prior to any construction, a detailed assessment of soils and ground conditions will be undertaken. This assessment is required to inform the EIAR. Our construction methodology will address key areas of concern regarding ground conditions, including construction methods through bogs and tunnelling works at river crossings. Tunnelling under saturated soil conditions beneath river

crossings is common in civil engineering, and the rate of tunnel drive, and rate of withdrawal of material from the bore, will be planned to avoid any risk of bed collapse. The planning of tunnelling and stream crossing works will take into account the IFI's 'Guidelines on Protection of Fisheries During Construction Works In and Adjacent to Waters.' Similarly, where the project interfaces with other infrastructure, we will ensure that the technical standards and specifications of the agencies responsible for the structures, such as Transport Infrastructure Ireland, Waterways Ireland and Irish Rail, will be adhered to in order to avoid any movement or settlement.

During pipeline routing, wherever possible, a buffer zone has been applied from residential properties to the edge of the 50m temporary working width. This approach of good positional design from the outset minimises the risk of structural damage from construction.

The locations of both existing wind farms and those that are currently in the planning process were identified and highlighted during the route selection process. These have been considered in the preferred pipe alignment and positioning, and clearance distances have been applied to windfarm infrastructure. The proposed works' detailed design and construction methodology will mitigate any potential impacts to neighbouring developments.

A technical assessment was carried out to establish the most appropriate pipe size for the project. This assessment concluded that the provision of a single pipe would be the optimum solution. The pipeline from the water treatment plant to the break pressure tank, which is a rising main, will be 1.7m in diameter. The pipeline from the break pressure tank to the termination point reservoir, which is a gravity main will be 2m in diameter.

Commercially available pipes, manufactured to quality assured standards, are circular, as are the jointing technologies, fittings, bends and valve flanges. A round cross-section is hydraulically and structurally efficient for conveying water under pressure, and bespoke section manufacture of a non-circular cross-section would be commercially and technically impractical and unjustifiable.

At this point, the pipeline material for the proposed scheme has not yet been selected, but there are many materials used worldwide in water transfer pipelines, including concrete, steel, ductile iron and other polyethylene based materials.

While the diameter of the water supply pipeline (1.7m to 2m) would be larger than comparable Irish natural gas transmission pipelines (0.5m to 1m), the pipe-laying techniques and management of agricultural considerations within the proposed 50m temporary working width are comparable and best practice construction methodology will be followed based on the experience and learnings from gas transmission pipeline projects.

The disruption to farming activities arises primarily from fencing off an area of 50m in width as a temporary wayleave, with the consequent temporary loss of

land available for agricultural use and, in some cases, the requirement to cross this working width to access parcels of severed land. The proposed wayleave package to be issued to landowners for acceptance on a voluntary basis will include a Code of Practice which will address the impact on farming enterprises and operations. Land affected by the pipeline construction will be reinstated to be farmed as normal. A Deed of Easement is proposed to legally document the 20m wide permanent wayleave for the pipeline. The particular concerns of landowners are discussed more fully in Theme 9: Land use.

5.5.2 Changes to pipeline route

The proposed route corridor was designed in line with international best practice and to avoid environmental, archaeological and community features, including historic sites, towns, villages, areas of environmental importance and major infrastructure. We appreciate the locally specific information provided in the submissions and the time individuals have taken to engage in the process of route development.

We have a dedicated landowner engagement team, which is engaging with landowners along the proposed pipeline route on an ongoing basis. This team has facilitated the appraisal of submissions from landowners requesting an adjustment to the pipeline route.

We have considered in detail, on a case-by-case basis, all 124 requests for alterations to the pipeline route.

Three questions were considered in assessing a reroute request, based on the same assessment framework that has been used throughout the project. These questions were:

- Is the request technically possible, with minimal impact to the proposed scheme? This includes considerations such as the introduction of acute horizontal angles and the impact on the vertical profile of the pipe;
- Will the alteration result in a greater adverse environmental impact when compared with the proposed route? For example, the route may have been designed to avoid historical features, underground water features or protected trees or habitats; and
- Will there be an impact on neighbouring properties? If, following consultation with neighbouring landowners, it is agreed that there will be no adverse effects on the adjoining lands and the first two questions are satisfied, the proposed reroute can be adopted.

Of the requests received, 48 have been facilitated, 30 have been partially facilitated, and 46 are not feasible due to technical, environmental constraints and/or impact on adjoining land. We are still receiving requests for alterations to the route and we will continue to consider requests right up to the planning stage.

Routing of the proposed pipeline alongside existing infrastructure was considered. However, these routes did not perform favourably when considering other aspects, such as environmental constraints, hydraulic engineering and energy requirements, impact on landholdings and impact on existing infrastructure.

5.5.3 Pipeline operations

Safety is an absolute priority for Irish Water and has been considered from the outset in the pipeline routing, and will continue to be a priority in the design, construction and operation of the pipeline.

Consideration has been given in the routing of the pipeline to allow a buffer distance from dwellings to minimise the impact of any pipeline incidents, were they to occur.

The pipeline material chosen during design, the construction specifications, and the high degree of quality control, supervision and testing that will be undertaken at construction stage, will ensure that the likelihood of a leak or burst occurring will be very remote.

In the unlikely event that a burst should occur when the pipeline is operational, the design of the pipeline includes automated valves along its length that will respond accordingly to close and limit the amount of water that can discharge from the pipe. An Operational Strategy will also be put in place so that if a leak or burst does occur it can be detected quickly. The affected section can be isolated effectively by closing the upstream and downstream valves, the pipe can be drained down if required, with de-chlorination of the water before controlled discharge to nearby watercourses, at flow rates appropriate to their capacity. The repair will be carried out quickly, to minimise the impact on landowners and the water supply. The manner of the repair will depend on the pipeline material selected at detail design, and the Operational Strategy will address this, for the various materials that may be proposed. It will also address the question of maintaining water supply during a repair time.

Pro-active maintenance will be carried out routinely to identify and address potential issues before they become a problem.

Pipelines of 1.6m diameter (and greater) already transfer water through lands in the east midlands, in County Kildare, at comparable pressures to that proposed in the WSP. A burst on such a pipeline is a very rare event. In the unlikely occurrence that a particular landholding is impacted by such an event, compensation would be payable for any damage caused as a result.

The Operational Strategy, which is currently under development, sets out the approach to regular pipeline inspection and the manner in which rare events are addressed. The strategy is being used to inform the EIAR in relation to the management of the unlikely event of a burst or requirement for leak repair. The Operational Strategy, on completion, will be included in the documentation accompanying the planning application.

5.5.4 Pipeline crossings

Where the pipeline crosses infrastructure such as canals, major roads, major power lines and railway lines; trenchless technologies such as tunnelling will be used, where a tunnel will be drilled under the infrastructure, river or canal. A tunnelling technique such as 'pipe jacking' could be used to a depth of 1.6m under the infrastructure, river or canal. These techniques are established, tried and tested and used world-wide.

Irish Water will continue to engage with statutory authorities who manage affected infrastructure in relation to crossing points and their requirements and will ensure we comply with their requirements.

5.6 Theme 6: Construction and operation

5.6.1 Construction related flooding and groundwater

Irish Water has noted all concerns expressed in relation to the potential vulnerability of groundwater and an assessment on the potential impacts of pipeline construction on groundwater will be carried out as part of the EIAR. The EIAR will identify appropriate mitigation measures to minimise predicted impacts where necessary, for both the construction and operation phases.

There are a number of measures that Irish Water has carried out or committed to undertake to ensure that construction of the proposed scheme does not adversely impact groundwater or local wells. These measures include;

- **Groundwater Levels:** Planning stage investigative geophysical surveys and borehole surveys have already assessed the route option in relation to groundwater. Groundwater levels will continue be monitored and additional ground investigations will be undertaken prior to any construction works. These assessments will increase knowledge of groundwater levels and inform the construction practices around groundwater management for each area;
- **Water supply wells:** The EIAR will identify appropriate measures for the design and construction of the pipeline taking into account the presence of wells verified on lands impacted by the pipeline. Furthermore, a water monitoring programme of groundwater wells will be undertaken before, during and after the construction phase. If water supply wells are damaged, or the water quality/quantity is affected during the construction phase, an alternative supply will be provided to the landowner or resident. In the unlikely event of a well drying up, an alternative well will be drilled provided the damage to the well is connected to, and traceable to, the construction of the pipeline; and
- **Groundwater survey information:** The project has focused geophysical surveys in areas of known groundwater sensitivity, to

study the features recorded in these areas, and to help identify potential karst and other groundwater features.

The construction of the pipeline and the reinstatement of land will be undertaken in a manner to prevent the pipeline trench becoming a conduit for groundwater flow or interfere with the natural groundwater characteristics of the area. The pipeline trench design, and the construction methodology will ensure that the drainage pattern of either the surface water or groundwater is not altered as a result of the proposed pipeline. This will be achieved by using the native excavated material as backfill and avoiding the use of imported granular bedding or surround materials where possible. It will also be achieved by the use of clay 'stanks', which are sections of backfill across the trench in an impermeable material, to prevent unintended longitudinal drainage along the trench. It should also be noted that the ground levels of the restored land will remain the same after the pipeline is installed.

All ditches, open drains and watercourses interfered with by the works will be maintained in effective condition during construction and restored to as good a condition on completion as before the commencement of the works. Particular care shall be taken to ensure that the minimum amount of damage or disturbance is caused to land drains and where practicable the pipeline shall be laid to run below the level of the land drains. The position of all land drains cut or disturbed during excavation shall be prominently marked by pegs at both sides of the trench immediately following their location.

With respect to Group Water Schemes, consultations have taken place with representatives from the National Federation of Group Water Schemes (NFGWS), including National Coordinators and Development Officers from the areas directly affected, that is Tipperary and Offaly. Consequently, the proposed works have been informed by existing information such as Group Water Scheme records, and Zone of Contribution studies, which provide information on the soil characteristics, bedrock and ground water source catchment. This information has been supported by site visits to the areas potentially affected, in the presence of NFGWS Development Officers, and their advices have been taken on board in locating, and mitigating, the proposed works. In addition, this information is supported by further, and targeted, ground investigation to confirm the earlier studies and the chosen pipeline route. Consultations are ongoing with the NFGWS, and will continue throughout the development of the WSP.

Project specialists, on behalf of Irish Water, have examined the area of the proposed pipeline corridor in Ardcroney/ Ballythomas over the last two years. A number of site visits were undertaken by the project team to assess the interactions between hydrogeology, hydrology and ecology in the area.

In addition, ground investigation (GI) works have been undertaken which provided further information and data to inform the project whilst also responding to the issues raised. The works undertaken along the proposed

pipeline in the Ardcroney/ Ballythomas area included geophysical surveys, shell and auger boreholes, rotary core boreholes, and geotechnical testing on the soils and bedrock. A pumping test was also carried out and ongoing groundwater level monitoring is continuing. A Flood Risk Assessment has also been prepared for the Ardcroney/ Ballythomas area. This information will further inform the assessments of the project which will be outlined in the Environmental Impact Assessment Report (EIAR).

In recognition of the further constraints identified through these investigations, the 50m corridor was adjusted to avoid or accommodate the following constraints:

- Feature identified as possibly representing a turlough;
- Overhead high voltage ESB power line; and
- Archaeological heritage features.

The concerns of landowners have been noted, and standard construction methods designed to prevent unintended drainage of groundwater along the pipeline trench have been developed. This information will be incorporated in the design of the pipeline and trench which will be detailed in the EIAR. Furthermore, the EIAR will assess the potential for direct and indirect impacts from the proposed pipeline corridor and will outline appropriate mitigation measures, if required during construction and operation.

The concern raised regarding the tailings pond at Silvermines in County Tipperary was investigated and groundwater impacts assessed. It was concluded that there are no potential contamination issues in relation to the proposed 50m pipeline route; confirmed by recent soil sampling. Excavated materials would be of naturally occurring uncontaminated soils. In addition, the proposed pipeline is located on higher ground than the tailings pond, in an elevated area. Given the topography between the proposed pipeline route and the tailings pond, the natural drainage is away from the pipeline and towards the pond. Consequently, any groundwater control measures along the proposed pipeline route will not impact directly on either the tailings pond or the perimeter interceptor channel/drainage ditch around the tailings pond site.

Feedback received highlighted an area in Ballinagar in County Offaly as being the suspected location of an old unlicensed landfill. In response to this feedback, boreholes were drilled in the Ballinagar area and groundwater has been sampled as part of the ongoing assessment of the risk that suspected old waste deposits could impact groundwater due to the proximity of the proposed pipeline route.

Consultations with Offaly members of the NFGWS highlighted their concerns of potential impact with a previous routing proposal, on proximity of the groundwater wells, and potential impacts on the zone of contribution of the wells feeding the Ballinagar GWS. The pipeline has been re-routed in this area to address both of these issues. The boreholes undertaken on the re-route alignment did not record any evidence of contamination. In summary, the zone

of contribution of the existing wells will be avoided by the proposed re-routing of the pipeline corridor, and the finalisation of the re-route at this location is subject to surveys that are currently under way. Irish Water will continue to liaise with stakeholders on this issue.

In addition to their own investigations, Irish Water has taken cognisance of the specific areas and locations that have been highlighted in submissions as having vulnerable groundwater tables and aquifers that supply private and group water supplies. For example, in relation to the Ardcroney Group Water Scheme, the proposed pipeline corridor is within the outer zone of contribution, approximately 3.5km from the drinking water source. Based on the borehole data from the GI works, subsoil in this area is approximately 10m of unsaturated soils. Given the deep subsoil and distance from the water supply source, no significant impacts are anticipated. As with the area of high ecological value in Ardcroney/ Ballythomas, the EIAR will assess potential indirect impacts and outline necessary mitigation measures in relation to potential impacts on group water schemes.

We are committed to sharing the hydrogeological information gained from the investigations with advisers and landowners in the areas concerned, and will work with landowners to address their concerns as the design progresses, as well as during and after construction.

5.6.2 Excess material disposal

Irish Water is fully committed to best practice soil stripping, stockpiling and management of materials, including disposal of excess material. Prior to entry of any lands, Irish Water will set out how topsoil and subsoil will be stripped, stored and protected, how excavated material will be managed, how backfill in the trench will be compacted and how the temporary working width will be prepared to receive subsoil, and then topsoil, prior to seeding.

Irish Water will aim to maximise re-use of excavated material on site. The excess excavated material will be removed and disposed of by a suitably qualified contractor in accordance with the Waste Management Act 1996, as amended, and obligations under the conditions of a grant of planning permission. A Waste Management Plan, which will form part of the outline Construction Environmental Management Plan (CEMP) for the project, will be completed by the appointed Contractor prior to commencement of construction. The Waste Management Plan will be implemented to minimise waste and ensure correct handling and disposal/recovery of construction waste streams in accordance with legislation and Best Practice Guidelines.

5.6.3 Security

We appreciate the security concerns raised and will ensure it is addressed in a robust manner as the project progresses towards construction. There will be a binding, contractual obligation in the works contract for the contractor to secure the temporary working width, and all access to it, both during working periods,

and also at any downtime periods in winter. Irish Water will require all tendering contractors to produce detailed security proposals as part of their bid and the construction contract will include, as a minimum, obligations such as;

- Securing the working area at all times;
- Registration and identification of all personnel and vehicles, locking of gates and regular security inspection of the working areas; and
- Contractually requiring contractors to work closely with Gardaí and Community Watch groups (specified as part of a security section within the Employer's Requirements).

The project team and contractors will work with landowners and local communities to address security concerns. Measures will include the development of an effective compliance auditing regime, which would verify that the contractual obligations are being met.

5.7 Theme 7: Environmental Issues

5.7.1 Environmental Impact Assessment Report

The WSP is subject to an Environmental Impact Assessment (EIA) and Appropriate Assessment process. An Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS) will be prepared in line with legislative requirements, guidelines and best practice.

The EIAR and the NIS will accompany Irish Water's Planning Application to An Bord Pleanála. This most recent consultation requested feedback from stakeholders on any additional environmental issues or alternative methodologies that should be taken into consideration in preparing the EIAR.

All the issues raised during this fourth period of public consultation, as summarised in this chapter, have been reviewed and are being considered by the relevant specialists in the preparation of the EIAR.

The EIAR will present the findings of the environmental assessments and identify potential impacts of the project. The magnitude and spatial extent of these impacts will be described in the EIAR, for example, it will include whether potential environmental effects are localised or geographically more extensive. The EIAR will present an evaluation of these impacts, and propose appropriate mitigation measures. The EIAR will accompany Irish Water's planning application to An Bord Pleanála.

The preferred scheme has the potential to facilitate supply to a number of towns in the benefiting corridor into the future through the consolidation of a number of water supply schemes, many of which are drawing from small and vulnerable water supplies. Potential future connections from the WSP pipeline would provide resilience support to existing schemes, raising standards of service for communities supplied by them. However, the WSP will not include an assessment of the potential future infrastructure requirements associated with

future development within the benefiting corridor. All future projects will be subject to the relevant planning policy, regulations and environmental assessment.

The EIAR and AA for the WSP will examine the effects of the project on the environment and on designated European sites, from the abstraction point, up to and including the proposed Terminal Point Reservoir.

Irish Water will keep the wastewater requirements of each community in the benefiting corridor under review in its investment planning, so that adequate wastewater treatment capacity is always maintained. The water supply connections to communities in the benefiting corridor and any required upgrades to their wastewater treatment infrastructure will be subject to separate planning consent and will be assessed for potential effects on the environment and on European sites.

Regarding wastewater management in Dublin Bay, there is still a need for the Greater Dublin Drainage Project (<http://www.greaterdublindrainage.com/>) and the Ringsend Wastewater Treatment Plant Upgrade (<http://www.water.ie/about-us/project-and-plans/projects/ringsend/>) regardless of where the drinking water supply is sourced. These projects are being advanced through the planning process in parallel with the development of the WSP and are also being assessed for their effects on the environment and on European sites. Both of these projects have been consulted on throughout their development.

The development of all three projects continues to be reviewed for consistency by Irish Water, so that the projects are aligned and working together to provide robust wastewater infrastructure and a new water source for the Eastern and Midlands Region.

5.7.2 Climate change

The EIAR will include a qualitative climate assessment.

There is the potential for a number of Greenhouse Gas (GHG) emissions to the atmosphere during the construction phase of the development. Construction vehicles, generators etc., may give rise to CO₂ and N₂O emissions. The Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction (IAQM, 2014) states that site traffic and plant is unlikely to make a significant impact on local air quality. However, due the size and scale of this project's construction phase, climate impacts will be assessed in the EIAR.

Climate impacts include the embodied energy from construction materials, site vehicles, forestry loss and peat loss. The carbon release associated with the excavation and oxidization of peat soils should be included in any carbon calculation, similar can be said of forestry, due to the removal of a carbon sink. The assessment will calculate the embodied carbon dioxide equivalent of materials including the emissions associated with their transportation. This is

compared to the agreed limit for national emissions under Ireland's EU 2020 Target.

In addition to GHG generation as described above, the adaptability of the preferred scheme to climate change will also be assessed, in particular, the impacts of flooding. A Flood Risk Assessment to consider flood risk to, and arising from, key infrastructure sites will be prepared in accordance with Planning and Development Act and the Guidelines on the Planning System and Flood Risk Management. Climate change will also be accounted for in the hydrodynamic modelling, which will simulate the impact of abstracting water from Parteen Basin under different climate scenarios, and this will be detailed in the EIAR. A reference to this assessment will be discussed in the climate chapter of the EIAR. Flooding is discussed in more detail in section 5.7.8.

We are using the most up-to-date data wherever possible and assessing for worst case impacts. Historical meteorological data will also be included to discuss the potential impact of dry and wet periods on construction dust and provides a robust story of the environment.

5.7.3 Ecology

We recognise that many fish, bird and mammal species depend on the health of the ecosystem of Lough Derg and its surrounding areas. The pipeline route corridor positioning has sought, where possible, to avoid environmentally sensitive areas. The project team will continue to engage with environmental stakeholders and specialists, who are experts in the topics of biodiversity and ecology, to make sure we fully assess and minimise potential impacts of the proposed scheme.

The pipeline route in the north Tipperary area has sought to avoid areas of hydrogeological and ecological sensitivity, and has been guided by site walkovers, historical mapping, ground investigations, ecological surveys, consultation feedback and geophysics in that area.

Through selective routing of the pipeline the WSP has avoided Lough Ourna.

Hydrological assessment of the surface and groundwater levels at Lough Ourna are underway. Preliminary results from hydrological and hydrogeological assessments indicate that surface and groundwater water levels are not expected to change as a result of the WSP.

Extensive winter and breeding bird surveys and ecological surveys, including invasive species mapping, have been undertaken to date and are ongoing where access to land is permitted. This includes two seasons of winter and breeding bird surveys at Lough Ourna and across the pipeline corridor.

The surveys mentioned above will also inform the development of the EIAR for the WSP. Appropriate mitigation measures for the protection of ecological habitats and species will be identified in the EIAR and the issue of invasive species will also be addressed.

Irish Water is very aware of the problems associated with invasive species and has a biodiversity policy, along with guidance documents in place. Invasive species surveys and mapping has been completed through walkover surveys. Further invasive species mapping will be undertaken as the project progresses.

5.7.4 Fisheries and aquatic ecology

There will be no change to the water levels in Lough Derg and Parteen Basin and no change to the water flows discharged from Parteen Weir as a result of the WSP abstraction (see section 5.8.2). Consequently, there is unlikely to be any impact on fisheries or the aquatic ecology arising from the WSP abstraction.

The EIAR and NIS that are currently being prepared will consider the impacts on fisheries and the aquatic ecology and, where required, will propose appropriate mitigation measures for any likely impacts as a result of the WSP.

At present, extensive baseline data gathering and studies are being undertaken to understand the fishery and aquatic environs in the project study area, as described below:

- One of the largest water quality surveys ever carried out in the State is underway on Lough Derg and Parteen Basin and data from these surveys are being used to inform the environmental assessment;
- Irish Water has participated in fish stock surveys in the lower Shannon, carried out in conjunction with Inland Fisheries Ireland. We have discussed the potential effects to the aquatic environment in the Parteen area with the Department of Housing, Planning and Local Government; National Parks and Wildlife Service; Inland Fisheries Ireland; and various angling bodies in order to develop our understanding of that environment;
- Irish Water has also used the services of an internationally respected fisheries specialist, to advise on fisheries issues relevant to the development of the project and to engage with anglers, Inland Fisheries Ireland, ESB and all other relevant stakeholders; and
- Irish Water has undertaken a range of surveys in and around Lough Derg, such as follows:
 - Bathymetry;
 - Lake Bed;
 - Water Levels, Flows and Current Measurements;
 - Water Temperature Measurements;
 - Water Quality Monitoring; and
 - Weather and Wind Recording.

The concerns raised regarding the loss of spawning ground, have been examined. Investigations undertaken as part of the project have indicated that there is unlikely to be any loss of spawning ground for salmon or lamprey species in the Parteen Basin as a result of the WSP abstraction. Beds of bulrush and arrowhead were recorded at the proposed abstraction location, which may provide spawning habitat for coarse fish species but are unlikely to

support spawning by pike as they will have died back during their principle spawning period. The full analysis of impacts to spawning grounds will be outlined in the EIAR and NIS.

We have looked into the impacts that both zebra mussels and Asian clams have on water supply infrastructure in the lower Shannon area and the WSP abstraction infrastructure will be designed to mitigate these impacts. For example, it is proposed that the abstraction intake screens will be manufactured in a copper nickel alloy material. This material would inhibit the attachment of zebra mussels to the abstraction intake screens and therefore mitigate against them clogging up the abstraction intake infrastructure. Irish Water has also supported research on the prevalence of zebra mussel and Asian Clams in Lough Derg/Parteen Basin to assist with the environmental assessments.

Irish Water was a statutory consultee on the River Basin Management Plan consultations and fed into the development of the recently published River Basin Management Plan (RBMP). The RBMP has outlined that Inland Fisheries Ireland (IFI) “*identified a need to improve the assessment of barriers along rivers (e.g. weirs and dams) that may be impacting on a range of migratory fish species.*” The RBMP identified two principal actions to address barriers to fish migration:

- the development by the IFI of a multi-stakeholder programme to provide a national inventory of barriers to fish migration; and
- the establishment by the DHPLG of a steering group to review and make recommendations on improving fish passage through the Shannon catchment.

As part of the development of the WSP, Irish Water is committed to working with stakeholders and will engage with the RBMP multi-stakeholder programme and the steering group set up to review and make recommendations on improving fish passage through the Shannon catchment. Irish Water will ensure that the findings of the WSP surveys and assessments are shared and discussed with these groups.

5.7.5 Landscape

Landscaping proposals will be included as part of our planning application for the proposed scheme. These will include, for example, landscaping to screen tanks and buildings on infrastructure sites. Any such landscaping would integrate sensitively with the existing landscape and the natural environment. The project team has noted all feedback on landscaping, which will be considered in the preparation of the EIAR.

Project construction will require some hedgerow removal along the pipeline route and ancillary works however, this will be minimised where possible. Trees and hedgerows impacted by the pipeline route will be mitigated with similar native species upon project completion, subject to any planting constraints over the pipeline in the 20m permanent wayleave, required to protect the pipeline.

While the location of the BPT is technically constrained by the required elevation, every effort will be made to construct the BPT so that it fits sensitively with the contours of the landscape. The slopes and embankments surrounding the BPT will be planted to minimise intrusion on the landscape.

As a result of public consultation, ongoing engagement with the local authority and other stakeholders, and design development, we have identified in relation to the proposed Water Treatment Plant (WTP) in Birdhill, County Tipperary, three areas which require further consideration. They include:

- Design development – an outline design had been prepared in 2016 and set out in the Final Options Appraisal Report. This has subsequently been developed into a next stage preliminary design which includes greater definition on the various unit processes typically incorporated into a robust water treatment plant, and engineered to reflect the topography and potential sensitivity of the chosen site.
- To offset the visual intrusion that may be imposed on a more compact site we are looking at increasing the spatial distribution of the various unit processes. This also allows for an opportunity for more effective landscaping to soften the appearance of the proposed works.
- A subsequent policy requirement in Irish Water requiring that all of its water treatment plants have capacity to store up to six months of dewatered sludge before removal off site for further treatment and disposal.

These requirements are currently being assessed and findings, which may include an increase in site size, and any changes to this will be communicated accordingly.

All stakeholders in the local area will continue to be engaged with as this process progresses.

5.7.6 Noise and dust

The construction industry has established experience and techniques to minimise noise and dust disruption during construction, although it is acknowledged that these impacts can never be completely mitigated. The potential for the generation of noise and dust during construction is recognised and an assessment of potential impacts will be included within the EIAR along with appropriate measures to minimise noise and dust disruption. Furthermore, sensitive receptors, such as local businesses, food production business, residential houses will be identified and mitigation measures will be put in place where necessary to minimise health concerns that were raised.

Examples of mitigation could include the selection of plant with a low inherent potential for noise and vibration generation, limiting hours during which noisy or

vibratory activities are permitted, monitoring noise and vibration at sensitive locations and notifying landowners in advance of noise-generating operations.

The EIAR will also include an assessment of the air quality and potential impacts on air quality of the project, particularly related to dust generation during the construction period. A series of appropriate mitigation measures will also be included within the assessment to minimise any foreseen impacts on air quality.

Construction works will be undertaken in accordance with commonly employed requirements to minimise potential impacts, such as:

- Limiting ground vibrations and noise levels to make sure they don't exceed set levels, with monitoring employed at residential properties to ensure compliance during construction;
- Working hours would generally align with the industry standard (for example 8am – 7pm Monday through Friday and 8am – 4.30pm on Saturday); any construction works that are required outside of these hours would be done with the permission of Irish Water in consultation with the relevant local authority. It is anticipated that there will be a requirement for localised 24 hour working during tunnelling works and these will be communicated to the relevant local community prior to commencement; and
- A Dust Management Plan will describe measures designed to mitigate the potential for any health impacts or nuisance as a result of dust. This will form part of the outline Construction Environmental Management Plan (CEMP) for the project.

The construction works contracts will be in line with best practise procedures, for example, similar to those in the October 2004 National Roads Authority Guidelines, which outlines the treatment of noise and vibration in national road schemes, will be used to minimise disruption.

We will also continue to work with landowners to minimise impacts on crops, herds and livestock.

The design of the BPT will mitigate operational noise factors; for example, the entry of water into an enclosed tank would be below the ground and the water would feed into the tank from the bottom, resulting in minimal flows and minimal noise factor and this will be presented in the EIAR.

5.7.7 Traffic management

Irish Water notes the safety concerns of stakeholders in relation to traffic safety and management during the construction and operation of the WSP. Safety on this project, and on every Irish Water project, is absolutely paramount and is a core value of Irish Water.

Traffic impacts will be assessed and planned for in advance of construction of both the pipeline and the associated infrastructure. Traffic movements will be

projected from the calculated pipeline and materials volumes to be brought to, and removed from, the sites, based on the planning stage design. While many of these traffic movements may be predicted at the planning stage, others will depend on the pipeline material selected in the procurement process, by the routes from ports where materials may be imported and by the proposed working methods and number of working areas of the appointed contractor. Irish Water will continue to work with communities and construction materials suppliers to finalise these plans before construction starts.

As already noted an outline CEMP will be prepared at the planning stage of the project and will form part of the planning application to An Bord Pleanála. The outline CEMP will inform the appointed Contractor's CEMP for the construction stage.

A Traffic Management Plan will be carried out in accordance with the EPA's current EIA guidance documents and established best practice, and will be tailored accordingly based on professional judgement and local circumstance and will form part of the Contractor's CEMP. We will continue to work with local authorities and brief elected representatives on the development of these key plans to ensure they address local issues.

Reducing impacts is not just about planning and mitigating; Irish Water will also communicate any construction activities, road closures and alternative routes to local communities through their local elected representatives, local newspapers and radio advertisements, regular project newsletters and website updates. The contractor will be responsible for ensuring that local communities are aware of potential disruption – before it happens.

It is also proposed, that a programme for awareness events will be rolled out locally prior to construction works starting.

5.7.8 Flooding

Flooding has been a recurring theme raised throughout the WSP consultation process, in particular the potential for flood alleviation. This issue has been examined and the results identify that abstraction at the Parteen Basin will not significantly alleviate the risk of flooding. This is because the abstraction has a minimal reduction in water flow, both in times of low or high water flows. Therefore, there would be no significant reduction in flood water level. Our research and modelling has shown that the proposed abstraction would account for roughly 2% of the average flow and roughly 0.5% of flood peak flows at the Parteen Basin, meaning the proposed continuous abstraction of water for the WSP would not contribute towards alleviating flooding in the Shannon catchment. The project team has provided this information to the Shannon Flooding Relief Task Force during a presentation on the WSP given to the task force in December 2016.

A Flood Risk Assessment in line with Office of Public Works' (OPW) Planning System and Flood Risk Management guidelines will be undertaken as part of the planning application.

The potential impact from climate change, such as rising sea levels and increasing rainfall patterns, will be considered in the assessment of hydrodynamic and water quality models for the WSP, taking into account our consultation with specialists in this area, including the Environmental Protection Agency.

The construction of the pipeline and reinstatement of land will be undertaken in a manner to prevent the pipeline trench becoming a conduit for water and that the pre-construction drainage is reinstated as much as possible as detailed in section 5.6.1.

Lands will be reinstated based on best practice construction methodology, which Irish Water's sister company Gas Networks Ireland has used for the construction of over 2,400km of natural gas transmission pipelines over 40 years and which is discussed in more detail in section 5.9.2.

5.7.9 Water Framework Directive

Compliance with the WFD will be undertaken for the entire project, including all of the waterbodies on the pipeline route that fall under the remit of the WFD. The EIAR will include a project-specific WFD Compliance Assessment.

The requirements of the WFD will be fully considered in the planning stage.

5.7.10 Impact on tourism and amenities

The EIAR will assess impacts on tourism and amenities, including temporary impacts arising from construction.

Since 2014, Irish Water has been undertaking a hydrodynamic survey on Lough Derg. To date, the results of this survey have shown that the proposed abstraction from Parteen Basin will not impact the existing normal operating water level range, or flows or navigation in Lough Derg, the Parteen Basin or the River Shannon, subject to an operational agreement with ESB, as outlined in section 5.8.2. The WSP will operate within the same water level range as currently applies on Lough Derg and Parteen Basin. The results of the hydrodynamic survey and computer model were published in the POAR and this was updated in the FOAR. The survey is ongoing and the updated findings will be included in the EIAR. A short animation has been produced to help explain how the water will be abstracted from Parteen Basin without impacting on levels, flows or navigation, and can be found on the project website.

The results of the surveys indicate that abstraction from the River Shannon at Parteen Basin will not adversely impact local use, for drinking, angling, navigation or agriculture.

As outlined in section 5.7.5, to offset the visual impact of the WTP and associated potential effect on local tourism, landscaping proposals will be developed for the site to soften the appearance of the proposed works.

Access arrangements and construction timings for the BPT and other infrastructure will be discussed with all landowners and local community groups. We are committed to avoiding unnecessary impact on agricultural lands and on local amenities including walking and recreational routes. It is not expected that Irish Water will require regular access to the BPT during the operational stage; periodic access to the tank will be required for inspection purposes and at any time in the case of emergency. The EIAR will identify and evaluate the potential impacts of the proposed access arrangements, and appropriate mitigation measures will be considered.

5.8 Theme 8: Water

5.8.1 Water quality

Irish Water is committed to meeting the requirements set out in the EU's WFD and are undertaking a complete assessment of waterways, including catchment characterisations that are developed by the EPA.

Our compliance with the WFD will be reflected in the Environmental Impact Assessment Report (EIAR), and will include a project-specific WFD Compliance Assessment.

Irish Water has commissioned one of the largest water quality surveys ever carried out in the State. These baseline surveys are continuing and results to date have been used to build and calibrate a computer model of Lough Derg and Parteen Basin, which will be an important management tool in protecting the water quality in the lake. The model is now enabling environmental scientists and others to assess the environmental significance of any potential impacts of the abstraction.

The modelling of water quality in the lake will be included in the EIAR and will demonstrate that natural flows from the Shannon through Lough Derg to Parteen Basin will not be diminished under conditions of abstraction of water at Parteen Basin, downstream of Lough Derg.

A new water source would not compromise the quality of treated water. Water abstracted as part of this project would undergo appropriate treatment as would any other source to make sure it is safe. Sampling of the raw water has been used in developing the water treatment process design. The treated water will be blended with water supplies from the existing sources as it is integrated into water supply network. This project will provide an opportunity to enhance treated water quality in public water supplies by building resilience into water supplies across the benefiting corridor.

All chemicals used in the water treatment process will be used in accordance with the drinking water regulations (S.I. 122 of 2014 and amendments); all treated water is tested before leaving the Water Treatment Plant to ensure levels are below permitted limits. This is common practice for treated drinking water. Any discharges of water at washout valve locations, on rare occasions when a section of the pipeline would be drained down for repair, would be de-chlorinated before discharge.

5.8.2 Water levels and abstraction

The abstraction of water from Parteen Basin for the WSP (the WSP abstraction) will be facilitated by a water abstraction agreement with the ESB. This will preserve the existing normal operating band on Lough Derg and Parteen Basin. The WSP abstraction will therefore have no impact on either water levels in Lough Derg or on the statutory minimum flow to the River Shannon downstream of Parteen Weir (see Figure 5-3).

The normal operating band, which has been operated since the late 1970s, represents the band of water within Parteen Basin and Lough Derg which is managed for power generation. ESB controls the water levels within this band across a wide range of flow conditions. It is proposed that ESB would adjust their power generation flow (see Figure 5-3) to accommodate the WSP abstraction thereby avoiding any interference with existing water levels. This means that for every bucket of water abstracted from Parteen Basin for the WSP, ESB would not send a bucket down the headrace for power generation (see Figure **Error! Reference source not found.**5-3). Once the WSP abstraction is in place the operation of water levels on Lough Derg and along the River Shannon, both upstream and downstream, will look and feel very similar to current operations, and there will be no visible day-to-day difference.

A short video animation is available on the project website explaining how the proposed abstraction can be managed within the normal operating band on Lough Derg and Parteen Basin, see www.watersupplyproject.ie. Section 6 of the Final Options Appraisal Report outlines the analysis of the proposed WSP abstraction at Parteen, across more than 80 years of record, including the most extreme drought year (1995). It also explains how consultations with ESB have established that no change is required to the normal operating band on the Parteen Basin and Lough Derg in order to accommodate the WSP abstraction even in drought conditions.

There will be no change to the water levels in Lough Derg and Parteen Basin and no change to the water flows discharged from Parteen Weir as a result of the WSP abstraction. Consequently, there is unlikely to be any impact on navigation or tourism arising from the WSP abstraction.

The scale of the WSP abstraction by the year 2050 will equate to a maximum of 4 cubic meters per second (approximately 2% of the average flow of the River Shannon). At this low scale of abstraction, Irish Water does not perceive any impact on the operations of any other stakeholders. Furthermore, if the demand

for potable water increases beyond this projected rate of abstraction, a new source requiring its own planning consent would be required to meet this increased demand.



Figure 5-3 Parteen Basin

In December 2017, the Government approved the commencement of work on a General Scheme of a Water Environment (Abstractions) Bill which it is intended to publish in summer 2018 and to have enacted by the end of 2018. The Bill relates to the development of an appropriate regulatory framework for all abstractions greater than 25 m³/ day. It is envisaged that there will be a single regulatory framework for all water abstractions. The new regime will address abstractions from both surface waters and groundwater. Notwithstanding this forthcoming new water abstraction licencing regime, An Bord Pleanála, when carrying out its Environmental Impact Assessment of the WSP, will have to assess the cumulative effects, including those of impacts on habitats arising from the abstraction. All potential impacts of the scheme, including abstraction, will therefore be addressed in the EIAR and the NIS, which are currently being prepared and will accompany Irish Water’s planning application to An Bord Pleanála for their independent assessment.

5.9 Theme 9: Land use

5.9.1 Impact on agriculture operations

On all projects, Irish Water endeavours to engage with those who might be impacted by construction and operation, at every stage of the project. The extensive experience of Irish Water’s sister company Gas Networks Ireland, which has successfully delivered over 2,400km of natural gas transmission pipelines through the lands of over 5,600 landowners since 1977, will be

leveraged during the planning, wayleaves acquisition, construction and reinstatement phases of the project.

Throughout the planning and construction phases of the project landowners will be kept informed by Landowner Liaison Officers (LLOs), including details of any planned construction activities on their land and the proposed schedule for start and finish of those works.

The overall construction period for the project is likely to be 3-4 years, but disruption will be much shorter than this for each individual landholding.

It is expected that the main construction works would last approximately 4-6 months in each landholding, with the 50m temporary working width required for a period of approximately 18 months in total (including the installation of temporary fencing to the completion of topsoil reinstatement, seeding and removal of the temporary fencing). In areas of poor or difficult ground, or in areas near major road and river crossings, different construction methods may be required, which could result in a longer construction time or larger temporary working areas.

As part of a voluntary wayleave package, Irish Water will enter into pre-entry agreements with each landowner in advance of any works commencing. The pre-entry agreement will document existing conditions and the individual requirements of each landowner, with a view to minimising disruption insofar as is possible. The pre-entry agreement will also ensure that livestock, machinery and landowners have safe crossing points across the working width.

An EIAR will be produced prior to the planning application being submitted and will include a section on agronomy. It will describe existing conditions, assess the potential impacts associated with the construction and operation of the proposed project and will prescribe appropriate mitigation measures. The EIAR will also address issues raised to date in relation to land use.

All contractors appointed to carry out work on the project will be required to draft and implement a Contractors Construction Environmental Management Plan (CEMP) which will include aspects such as providing adequate training to their staff in relation to biosecurity on farms, adhering to disease control protocols and complying with any Department of Agriculture, Food and the Marine regulation pertaining to crops and livestock diseases. All contractors will also be required by the outline CEMP and Employer's Requirements of their contract to take the necessary measures to reduce the potential spread of invasive species. Mitigation measures for the control of Invasive Species will also be set out in the EIAR.

With respect to the permanent structures, such as valves, associated with the project Irish Water will require access to the wayleave periodically and at any time in the case of emergency. In the event of access being required, the access route can be agreed with the landowner to ensure that disturbance is kept to a minimum. Walkover inspections and maintenance checks on valves

would typically be annual in frequency. and for routine inspections the landowner would be notified in advance. A requirement to bring plant or equipment to a valve location would rarely arise.

To minimise the disruption to landowners during and after construction, valves will be located in areas of least interference, such as close to headlands and field boundaries. Kiosks will only be necessary for the line isolation valves, and these will typically be located at road crossings. Access to these structures is a requirement at all times and access arrangements and routes will be agreed with the landowner.

There will be three kinds of valves used on the WSP pipeline: air valves, washout valves and inline isolation valves, which are described in more detail below.

- Air valves permit any air in the pipe to be released, and they permit air to enter the line to maintain the integrity of the pipeline during a sudden drain down condition. It is expected that air valves would be located at intervals of 500m to 600 m. Generally, they are placed at high points along the pipeline, but may also be required at other strategic locations if necessary and subject to the final planning design;
- Washout valves allow sections of the pipeline to be emptied and would be located at a frequency of approximately 500m to 600m, generally at low points along the pipeline. During commissioning of the pipeline, they are used for removing silt and sediment which may have accumulated during the construction process. During pipeline operation, it is very rare that these valves are used, and they are generally only required for emptying sections of pipeline if necessary for emergency repairs or for routine maintenance programmes every 20 to 30 years; and
- Line isolation valves would typically be located 5km apart, as buried valves. It will be necessary to provide electrical power to operate the line valves, in which case surface kiosks would be required: one to house the valve and a separate kiosk for electrical distribution. Line isolation valves, wherever possible, will be located in close proximity to air or washout chambers and will be positioned adjacent to public roads.

5.9.2 Reinstatement

Lands will be reinstated based on best practice construction methodology, which Irish Water's sister company Gas Networks Ireland has developed over 40 years. This construction methodology will be summarised in a Code of Practice which will be made available to landowners as part of the voluntary wayleave package.

The Code of Practice will outline how topsoil and subsoil will be stripped, stored and protected, how backfill in the trench will be compacted, how land drainage will be managed throughout, and how the temporary working width will be prepared to receive subsoil, and then topsoil, prior to reseeding.

This shall involve:

- The compacted subsoil shall be ripped with a mechanical ripper to a minimum uniform depth of 300mm. In all cases the depth of ripping shall exceed the depth of subsoil compaction;
- The first layer of subsoil shall be restored and ripped. All surface stones and roots over 150mm in diameter shall be picked before any topsoil is put back;
- The topsoil shall be left in a loose and friable condition;
- Levelling off of the ground so as to present a neat and level appearance (the level of the trench area shall be the same as that of the undisturbed surrounding ground one year after restoration is completed);
- The removal of all stones in excess of 50mm in diameter from the surface;
- The reseeding of the area of grassland in consultation with the landowner. The rate of seeding and time and method of sowing including application of fertiliser shall be in accordance with good agricultural practice; and
- Driving over the land where topsoil has been put back will be kept to a minimum, particularly in wet weather. Mechanical equipment heavier than standard tractors and trailers will not be allowed travel back over the top soil.

All ditches, open drains or watercourses interfered with by the works will be maintained in effective condition during construction and finally restored to as good a condition as before the commencement of the works. Particular care shall be taken to ensure that the minimum amount of damage or disturbance to land drains is caused and, where practicable, the pipeline shall be laid to run below the level of the land drains. The position of all land drains cut or disturbed during excavation shall be prominently marked by pegs at both sides of the trench, as to follow their location.

Direct reinstatement of land by landowners would not be possible, as it will be a minimum requirement of the Construction Contract for the Contractor to return land to the state it was in prior to construction taking place. This will ensure that contractual liabilities are clear and unambiguous.

Normal agricultural operations can resume once reinstatement has been completed. However, there will be a requirement that operations do not interfere with the pipeline or result in a material reduction of the 1.2m minimum depth of the cover to the pipeline.

With regard to field boundaries, temporary fencing shall be erected in position before construction commences and shall be maintained thereafter (unless otherwise agreed with the landowner) until reinstatement of land is completed, when it shall be removed. Reinstated fences, walls and hedges will use appropriate materials in each case, using original materials where possible for walls and appropriate hedge material, restricted by pipeline planting requirements, for hedges.

An agronomist will also input to the Code of Practice on the care of the soil during construction and restoration.

All permanent pathways/roadways affected will be restored to their original condition.

5.9.3 Impacts during operations

Future restrictions on land use of the permanent wayleave, typically 20m in width would be legally documented by way of a Deed of Easement and registered as a burden on the title of the affected land. A minimum depth of 1.2m of cover to the pipeline means that full agricultural activity can resume post reinstatement, however the Deed of Easement will restrict building development and forestry activities within the permanent wayleave and such restrictions would have to be communicated to any tenants of the land.

Landowners will be compensated for the permanent wayleave and for crop losses and disturbance incurred during construction as outlined in section 5.9.4.

The agronomy section of the EIAR will consider potential construction and operational impacts on agricultural land at national, regional and local level.

5.9.4 Potential economic impacts on landowners

Irish Water understands the impact our activities may have on stakeholders and communities, and we seek to manage these impacts responsibly. The particular concerns of landowners, as expressed at landowner engagement evenings, via correspondence or in one-to-one discussions with LLOs, have all been noted and have fed into the further development of the project. The proposed wayleave package to be issued to landowners for acceptance on a voluntary basis will address the impact on farming enterprises and operations.

In relation to compensation for losses and disturbance it has been past practice of Irish Water's sister company, Gas Networks Ireland, to issue a Landowner / Occupier / Tenant form as part of a voluntary wayleave package to ascertain to whom any compensation for "Losses and Disturbance" should be paid. Irish Water anticipates that this approach will be used on the WSP also.

In assessing losses account will be taken of EU and State support schemes, for example, Basic Payment Scheme, Areas of Natural Constraint (ANC) Scheme, GLAS and Agri-Environment Options Scheme (AEOS). Irish Water will initially make a case for "force majeure" to the Department of Agriculture, Food and the Marine that it should not penalise the landowner for the loss of farming

hectares. In the event of the Department not permitting concessions, then the matter will be treated as a compensation issue.

Irish Water will enter into pre-entry agreements in advance of construction commencing to document the particular requirements of each landowner in terms of the type of fencing required, water supply for stock, location of crossing points across the temporary working width, land drainage and access arrangement.

Where necessary, additional access points will be provided to allow landowners access across the working width and thereby mitigating field severance. The temporary working width may be reduced at these points to allow for appropriate stock-proof barriers to be closed and opened as required. This will ensure that livestock, machinery and landowners have safe points of access across the working width. Landowners will be given prior notice of any proposed short periods of interruption at an access point to facilitate pipeline construction activities.

We are consulting closely with landowners and farming operations to mitigate against the disruption that will occur during the construction phase.

5.9.5 Future development

Under the proposed Deed of Easement, development will be restricted within the 20m-wide permanent wayleave.

Landowners will be compensated for the 20m wide permanent wayleave. We will fully engage with landowners and landowner representative organisations to progress negotiations in relation to a wayleave package to offer to landowners for acceptance on a voluntary basis.

5.9.6 Landowner engagement process

Irish Water is committed to ongoing engagement with landowners, and there are currently four dedicated LLOs working on the WSP. The role of the LLOs is to provide landowners with a dedicated point of contact throughout the project, and to address any issues related to the project which may be of concern to individual landowners. The LLOs are continuing to liaise with all landowners along the preferred pipeline route corridor. Irish Water will also seek to engage with farming representative organisations to keep their members briefed on project progress as the project advances towards a planning application, and right through to construction and reinstatement.

The LLOs began engaging with landowners from February 2016 to arrange field surveys and conduct verification exercises within the 2km wide least constrained route corridor which had been published in November 2015 as part of the POAR.

The “Preferred 200 m Pipeline Corridor” was published in the FOAR in November 2016, and included an “Indicative 50m Pipeline Corridor” within it.

In early November 2016, Irish Water invited landowners affected by the preferred 50m corridor route to a series of six dedicated landowner information evenings and all interested parties to eight public open days at locations along the pipeline route as part of our 14-week non-statutory public consultation on the FOAR (November 2016 – February 2017). This allowed for a very constructive dialogue between members of the project team, and the landowners who attended those events.

Comprehensive individual responses have been issued to 112 written submissions from landowners.

The LLOs are continuing to liaise with all landowners along the preferred route corridor during the planning phase. All verbal submissions were followed up by the LLOs to ensure landowners had received full and comprehensive responses to their queries at the information evenings and in relation to re-route requests. The concerns and issues raised during these meetings, through the LLOs and correspondence from landowners have been considered as part of the consultation process. Engagement with landowners is ongoing, particularly in relation to securing access for continuing environmental surveys, ground investigations and responding to route change requests. The public consultation on the FOAR, and ongoing engagement with stakeholders (including landowners), studies, site visits and constraints assessment, continue to inform the process in defining a final route for the pipeline and its ancillary components.

5.10 Theme 10: Project cost and funding

5.10.1 Funding

Irish Water has guaranteed funding in place to cover all costs of the WSP planning application including oral hearing and associated costs.

In implementing its overall capital investment programme, Irish Water will prioritise investment decisions to ensure that it utilises available capital most effectively by making investments that deliver the biggest impact in terms of risk reduction while maximising value for money. The WSP will be prioritised in line with its strategic necessity and importance. In view of the critical need to deliver the additional water resources required to underpin social and economic development from 2025, this project is included in the Government's National Development Plan at €1.3 billion.

5.10.2 Cost Benefit Analysis

In 2016, Indecon International Economic Consultants carried out a Cost Benefit Analysis (CBA) of the Parteen Basin and Desalination options. Indecon's findings were published in Appendix C of the Final Options Appraisal Report (FOAR). The CBA compared the Parteen Basin Option, the Desalination Option and the Do Minimum Scenario against each other.

The Do Minimum scenario is the scenario which is most likely to prevail should either the Parteen Basin Option or the Desalination Option not be implemented – it would have significant social and economic development implications for the Eastern and Midlands Region. The preferred solution for the Eastern and Midlands Region needs to optimise the supply demand balance in the region in the short, medium and long term, using appropriate phased supply increases combined with water savings from leakage repairs and other water conservation activities. The optimum solution will provide sufficient headroom to enable robust and secure supplies which guarantee internationally accepted standards of service for its customers. Continuing to operate the water supply system in its current state, where basic levels of service and normal resource planning standards are frequently not met, is no longer acceptable for a country/city region both in terms of the social and economic cost today and which aspires to economic growth through making it attractive for water intensive industry to locate here. Consequently, the Do Minimum scenario is not a feasible approach to strategic water resources planning.

The baseline results of the 2016 CBA for the Parteen (Shannon) and Desalination options (the only two viable options) are shown in Table 5-1.

Table 5-1 Cost Benefit Analysis 2016

Option	Net Benefit (€ Million)	Benefit to Cost Ratio (BCR)
Parteen Basin	1,635.1	3.25
Desalination	1,012.8	1.75

The results of the CBA showed that the Parteen Basin option is the preferable investment choice and results in a higher net benefit than the Desalination option or the Do Minimum scenario. The findings confirm that Parteen Basin represents the most economically advantageous investment option for the provision of new water supply infrastructure to the Eastern and Midlands Region. Irish Water will undertake a full update of the CBA later in 2018.

Irish Water is undertaking a national programme of works to reduce leakage and improve our water supply. The solution to resolve the supply demand balance in the GDWSA and the Midlands is dependent in part on Irish Water delivering significant and challenging targeted savings from this programme. As a result, full achievement of these targets has already been built into the overall assessment of need for the Eastern and Midlands Region.

Section 5.5 of the FOAR looked at the potential implications of intensifying the Leakage Reduction Programme as part of the Do Minimum scenario. It concluded that to reduce leakage by an additional 30 MI/d in the GDWSA (over and above reductions already assumed in the calculation of need), would

require rehabilitation of more than 1,286km of additional mains (excluding service connections) by 2026 and would cost an estimated minimum additional €321m (depending on location) on top of the very significant social cost of disruption that would be caused by such works. It is not considered either viable or cost effective to undertake mains rehabilitation at that rate, especially in built up urban areas due to constraints, not least those presented by other underground services and traffic management requirements.

It is clear, that no matter how successful Irish Water is at fixing leaks, it still won't be enough to meet projected demand (see section 5.1.2). A new major source is needed as well as fixing leaks. Reducing leakage alone is not sufficient to balance the water supply needs of the region, but is an important and integral part of the proposed project to deliver a new supply.

Irish Water is tasked with delivering a secure, resilient and sustainable water supply for the country. A major part of this involves providing the most effective solutions while simultaneously dealing with an infrastructure that has received inadequate investment for decades. This means making some major financial and strategic decisions to ensure that a secure and sustainable water supply can be delivered. This must be delivered within a timescale that will meet the future need in the various regions of the country within a realistic at best value for money. Irish Water, following many years of assessment, has identified that the Parteen Basin scheme is the best option for providing a long term and sustainable water supply for the Eastern and Midlands Region.

5.11 Theme 11: Public consultation

Public participation is an essential element of the development of any infrastructure project, and Irish Water is committed to continuous and responsive two-way communication with all stakeholders, at every stage of this project.

Throughout the public consultation process, the project team has presented all stakeholder feedback on the project, positive, negative and neutral, and has produced a Consultation Submissions Report documenting the outcome of each consultation. The approach of 'response by theme' adopted in the consultation reports allows Irish Water to report and respond to stakeholder feedback, whilst respecting stakeholders' and individuals' privacy.

We have had meaningful dialogue with over 1,000 stakeholders during the most recent period of consultation and will continue to engage and respond to stakeholder concerns and enquiries throughout the development and design of this project.

Even though some feedback suggested that the response to previous consultations had been low considering the scale of the project, the figures referred to written submissions received only and did not take into account the

extensive number of events, dialogues and meetings that have taken place. For example, the activities undertaken during this round of consultation included:

- 52 meetings with stakeholder groups and individuals, including ESB, EPA, IFI, NPWS, Waterways Ireland, the Water Policy Advisory Committee, Tipperary County Council and other County Councils, Farming Bodies, Angling Interests, Tourism Bodies, Lough Derg Science Group, River Shannon Protection Alliance, Chambers of Commerce, and IBEC;
- Six landowner information evenings, with 396 individuals in attendance;
- Two Oireachtas Briefings, with 22 members or member representatives in attendance;
- Five councillor briefings;
- Eight public open days, with 218 individuals in attendance;
- 36 adverts in national and regional press and aired on local radio stations;
- 1,059 invitations to landowners to landowner information evenings and public open days;
- 25 interviews with regional and national media;
- Six pieces on national television;
- 17 pieces on national radio;
- 141 articles published on the project and this round of consultation;
- Over 300 written project briefings to stakeholder groups and individuals at the launch of the FOAR and EIS Scoping Report;
- A dedicated project website containing full project documents, videos, FAQs;
- Hardcopies of reports available across all Local Authority Planning Counters and County Libraries in the study area;
- Project newsletters; and
- Landowner leaflets and FAQs.

Some stakeholders felt that we had not engaged with landowners early enough in the process. In November 2015, a 2km-wide least constrained route corridor was published in the POAR, which was determined following a multi-criteria analysis. Following a public consultation, and taking account of the feedback received, site visits onto a number of lands that could potentially be affected by the scheme were undertaken as well as various field surveys arranged in consultation with landowners. A refined 2km least constrained route corridor was then defined and further reduced to a “Preferred 200 m Pipeline Corridor” by an extension of the multi-criteria analysis, and introduction of further constraint data sets. This process was supported by stakeholder engagement.

The “Preferred 200 m Pipeline Corridor” was published in the FOAR in November 2016, and included an “Indicative 50m Pipeline Corridor” within it. The public consultation on the FOAR, and ongoing engagement with

stakeholders (including landowners), studies, site visits and constraints assessment, continue to inform the process in defining a final route for the pipeline and its ancillary components.

We have considered all of the stakeholder suggestions for improving public participation and the consultation process and increasing the clarity and ease of navigation. For example, the team has developed a 'document library' approach for presenting the various sections of FOAR and EIS Scoping Report documentation on the project website to enhance the accessibility of the information presented, as suggested by one stakeholder. Also, following feedback on the duration of the consultation period received during the POAR consultation, Irish Water increased the period of this round of consultation to 14 weeks.

We wish to emphasise that all stakeholders who wished to engage with us were listened to, and the views expressed by all were noted and passed on to the relevant technical team members. All affected landowners impacted by the 50m indicative pipeline corridor were contacted and invited to a landowner information evening. Additionally, one of our four dedicated LLOs made contact with each affected landowner. The output of this engagement is demonstrated by the significant number of reroute requests that have been facilitated or partially facilitated. Irish Water is committed to continuously engaging with stakeholders in a spirit of collaboration, mutual respect and courtesy, working towards the delivery of cost effective, efficient, economically viable and environmentally sustainable water services for the people of Ireland.

5.12 Theme 12: Community gain

It is Irish Water's ambition to protect and improve both the environment and public health together with supporting Ireland's social and economic growth, through appropriate investment in water services. Irish Water's Business Plan, Transforming Water Services in Ireland to 2021, sets out ambitious targets to fully transform water services and address the decades of underinvestment in water services infrastructure. Central to Irish Water's aim is realising its core water services function, namely the delivery of water services in a timely manner, within the funding framework of Commission for Regulation of Utilities Water and Energy (CRU).

Irish Water will make a planning application for WSP to An Bord Pleanála, as Strategic Infrastructure Development (SID). Section 37 G (7) of the Planning and Development (Strategic Infrastructure) Act 2006 stipulates that in the event planning permission is granted for a Strategic Infrastructure Development, An Bord Pleanála can make provision for a community gain proposal arising out of the development.

While compensation addresses 'direct and measurable losses' incurred by landowners who provide wayleaves on their land to facilitate the project, the

purpose of community gain is to redress any imbalance incurred by a community where a strategic infrastructure project would be developed within the locality. Community gain can take many forms including financial assistance for projects or initiatives, new or improved community amenities, education, volunteering and benefit-in-kind donations and social clauses.

The provision of high quality, resilient water supplies, throughout the Eastern and Midlands Region, which will provide consistent water supply standards and help to equalise opportunity for economic development, is the fundamental gain of this project for all communities in the Eastern and Midlands Region. Furthermore, the delivery of WSP has the potential to facilitate Ireland's commitment to achieving Water Framework Directive (WFD) objectives, as outlined in the River Basin Management Plan by enabling the pressure to be relieved on other water supply sources. Irish Water and the WSP project team are giving due consideration to the preparation of a community gain proposal, including a community needs assessment. This will take on board feedback received on community gain to date, from all four consultations and the feedback outlined in section 4.12. A community gain proposal will form part of the planning application to An Bord Pleanála.

6. Next steps

Irish Water is currently preparing a planning application, including an Environmental Impact Assessment Report and Natura Impact Statement, for the Water Supply Project, Eastern and Midlands Region (WSP). It is currently intended that the planning application will be submitted to An Bord Pleanála in 2019, legislation permitting, and that water from the WSP will be available in the Eastern and Midlands Region from 2025.

The publication of this report is yet another small step in the overall development of the WSP.

Irish Water is refining the scheme, undertaking environmental surveys, looking at mitigation, where required, and producing the Environmental Impact Assessment Report. We remain committed to submitting a planning application in 2019 but in the meantime we will continue to meet with interested stakeholders to make sure we work together to deliver the vision of a safe, secure and sustainable water source for the Eastern and Midlands Region.

Appendix A: Newsletter and Non-Technical Summary

Water Supply Project

Eastern and Midlands Region

The Preferred Scheme for a New Water Supply for the Eastern & Midlands Region

Consultation Newsletter No.4

UISCE
ÉIREANN : IRISH
WATER



NOVEMBER 2016

Irish Water is launching the fourth public consultation phase on the Preferred Scheme for a New Water Supply for the Eastern and Midlands Region (WSP). This will represent the first major comprehensive upgrade of 'new source' infrastructure in over 60 years and will meet the domestic and commercial needs of over 40% of Ireland's population into the medium to long term future.

Irish Water's remit includes the delivery of a sustainable and resilient Water Supply nationally. One of the key elements in the successful delivery of that remit is finding a new source of water supply for the Eastern and Midlands region of the country. Simply fixing the leaks, important though that is, will not deliver the additional 330 million litres of water a day this region will need by 2050.

In order to identify a new Source for the Eastern and Midlands Region, Irish Water has, over the past few years, carried out extensive research, environmental and technical assessments of various options and three rounds of public consultation.



Parteen Basin - Photo courtesy ESB

What is happening now?

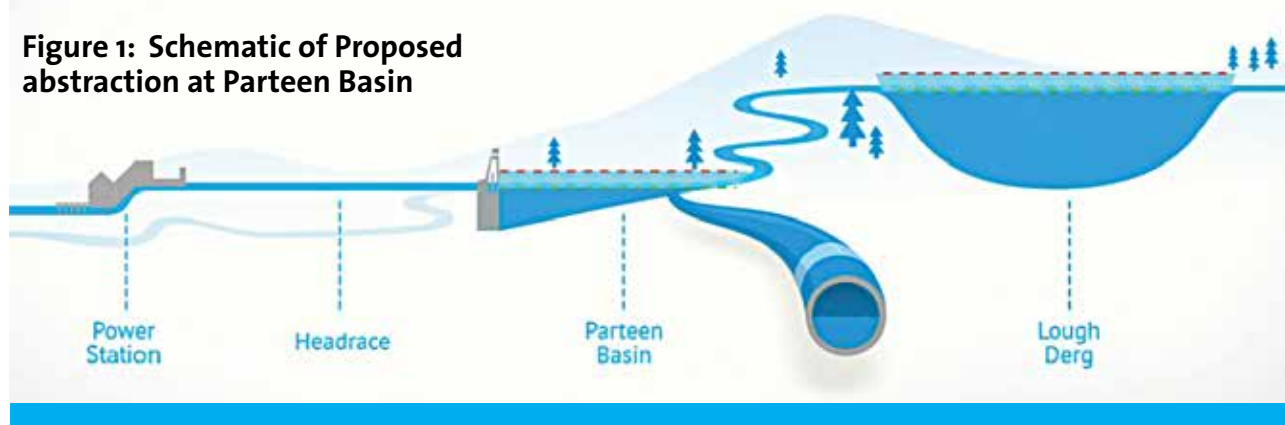
Phase Four of the consultation process has now begun with the publication of the Final Options Appraisal Report (FOAR) and the Environmental Impact Statement (EIS) Scoping Report. The FOAR confirms that the preferred scheme is:

- Abstraction of water from the Lower Shannon at Parteen Basin
- Water treatment nearby at Birdhill
- Treated water piped to a termination point reservoir at Peamount in South County Dublin, with supplies of treated water available to Midland communities along the route.

The EIS Scoping Report considers potential issues which may arise from the preferred scheme and describes how any impacts will be assessed.

We are now undertaking a **14 week** non-statutory public consultation on these two reports and invite submissions from the general public and key stakeholders.

Figure 1: Schematic of Proposed abstraction at Parteen Basin



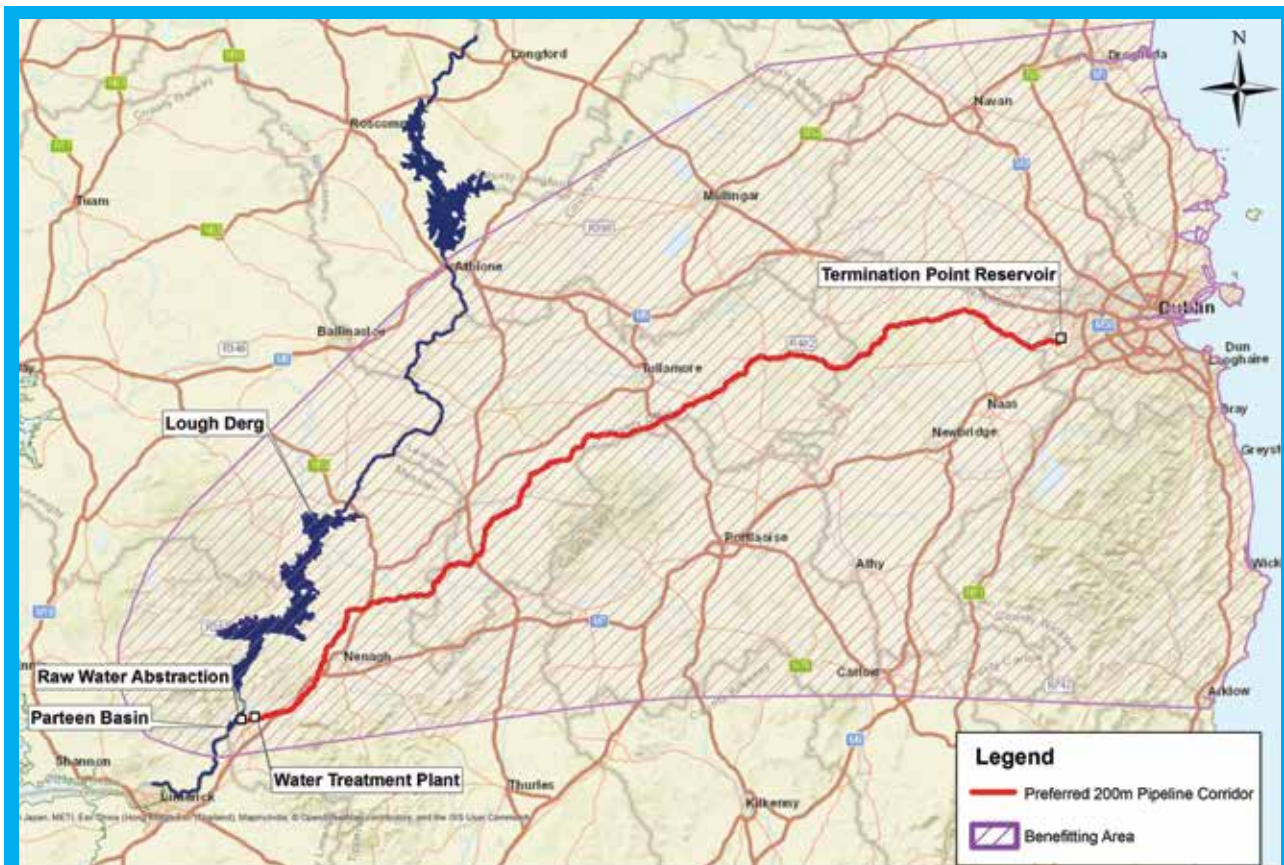


Figure 2: Water supply overview

The Preferred Scheme

The preferred scheme involves the sustainable abstraction of water on the eastern shore of Parteen Basin in Co. Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped to a termination point reservoir at Peamount in South County Dublin. Supplies of treated water would be made available to Midland communities along the route from Parteen Basin to Dublin.

This would provide a reliable and sustainable water supply to present and future domestic, commercial and industrial consumers along the proposed pipeline's 170 km route.

The water abstracted from Parteen Basin would comply with the normal water level range operated by ESB in Lough Derg. Minimum statutory flow requirements along the Shannon which are maintained by the ESB would also remain unaffected.

The FOAR identifies a preferred 200m pipeline corridor and an indicative 50m pipeline corridor within which environmental, technical and geographical constraints can be accommodated.

How was the Preferred Scheme Identified?

After three rounds of public consultation and over two years of technical and environmental assessments the preferred scheme was identified as the most appropriate and widely beneficial, out of the initial ten, and subsequent four technically viable options examined.

The other options which had been under consideration were two options based in North Eastern Lough Derg and also a Desalination option located on the East coast. All options were assessed on a number of Environmental, Economic, Socio-Economic and Technical criteria and the preferred scheme has emerged following this detailed analysis. Earlier Reports concluded that the abstraction from North East Lough Derg had the potential to negatively impact the Shannon system from an environmental perspective and were therefore set aside.

Why is this the Preferred Scheme?

While Desalination is technically viable it is significantly more expensive than the Parteen Scheme, which also offers greater benefits across a wider area in accordance with Irish Water's 25 year Water Services Strategic Plan (WSSP). Desalination would also be Dublin focussed, and would not address problems with existing, small and vulnerable Midland water supplies, which is an objective of the WSSP. Desalination also posed a potentially greater negative environmental impact through its use of chemicals and high energy consumption.

Therefore abstraction of water from the Shannon at Parteen Basin (Lower Lake) has been identified as the option which best meets the objectives of the WSSP because:

- It has, by far, the least environmental impact of any of the Shannon options which have been under consideration. It is the closest location to the river estuary with all of the water having already flowed through the Shannon to Parteen.
- The pipeline from Parteen has the potential to serve treated water to more locations, towns and communities along the route from Shannon to Dublin than any other option.
- Parteen Basin is already highly regulated because of the presence of the hydro-power plant, and water abstracted for supply, will be counterbalanced by a corresponding reduction in water used in power generation. The proposed abstraction of water is, in essence, an abstraction of water from the hydro-power scheme. Abstraction of water from hydro-electric power schemes is commonly employed worldwide to enable environmentally sustainable availability of drinking water.

What is the EIS Scoping Report?

The EIS Scoping Report describes any potential environmental impacts of the scheme and how these will be assessed in the final Environmental Impact Statement (EIS).

The EIS will present the results of environmental investigations and feedback from on-going consultations and will influence the development of the final scheme, identifying and evaluating any potential impacts and appropriate mitigation measures to be considered. The EIS will accompany Irish Water's planning application to An Bord Pleanála.

Moving to a Final decision-What Happens Next?

This is the fourth phase of non-statutory public consultation on this project. The feedback from this consultation period alongside further technical and environmental studies and engagement with landowners and the general public will inform the selection of the final scheme. This will be detailed in the EIS and will accompany Irish Water's planning application to An Bord Pleanála.

During the consultation period a number of landowner evenings and eight public open days will be held at various locations along the proposed pipeline route where members of the project team will be available to answer any questions.

Following on from the conclusion of the consultation process in early 2017, Irish Water will be in direct contact with landowners affected by the proposed pipeline route.

The planning application will be subject to a period of statutory consultation which will provide the public with an opportunity to have their say, following which An Bord Pleanála will determine whether consent should be granted.

Where planning permission is granted for the project, construction and commissioning would take approximately three to four years. Typically construction activity would be limited to the pipeline corridor and would be of approximately 18 months duration in any landholding during which the land would be fully reinstated to its original condition. The new water supply would be made available along the pipeline at the end of the 3 to 4 year period.

Community Gain

As with all Strategic Infrastructure Projects, the planning process requires that due consideration of community gain is undertaken by the applicant. In addition to improved and sustainable domestic and commercial water supplies, the communities along the route of the pipeline are also in a position to gain some additional specific benefits.

Many products and services needed during construction would be sourced from local businesses and the construction phase of the project would provide a range of employment opportunities for local people.

Irish Water, working with Local Authorities and other relevant bodies also propose to provide financial support for training schemes to enable as many local people as possible to work on the project. Irish Water also propose to support projects that contribute towards achieving the conservation objectives of the Lower Shannon Special Area of Conservation (SAC) and the objectives of the River Basin Management Plans and the development of environmental education & protection initiatives and sports & leisure facilities.

The importance of Public Consultation

Public participation and consultation forms a key part of the decision making process being undertaken by Irish Water. To date the Project has consulted on a number of factors and incorporated relevant feedback into the development of each subsequent phase of the project.

The three previous public consultations have addressed:-

- The need for the Project and the Project Roadmap.
- The constraints that should be examined and the methodology used to identify an emerging preferred option from the four technically viable options available.
- The factors considered in the identification of the Emerging Preferred Option.

How can I get involved?

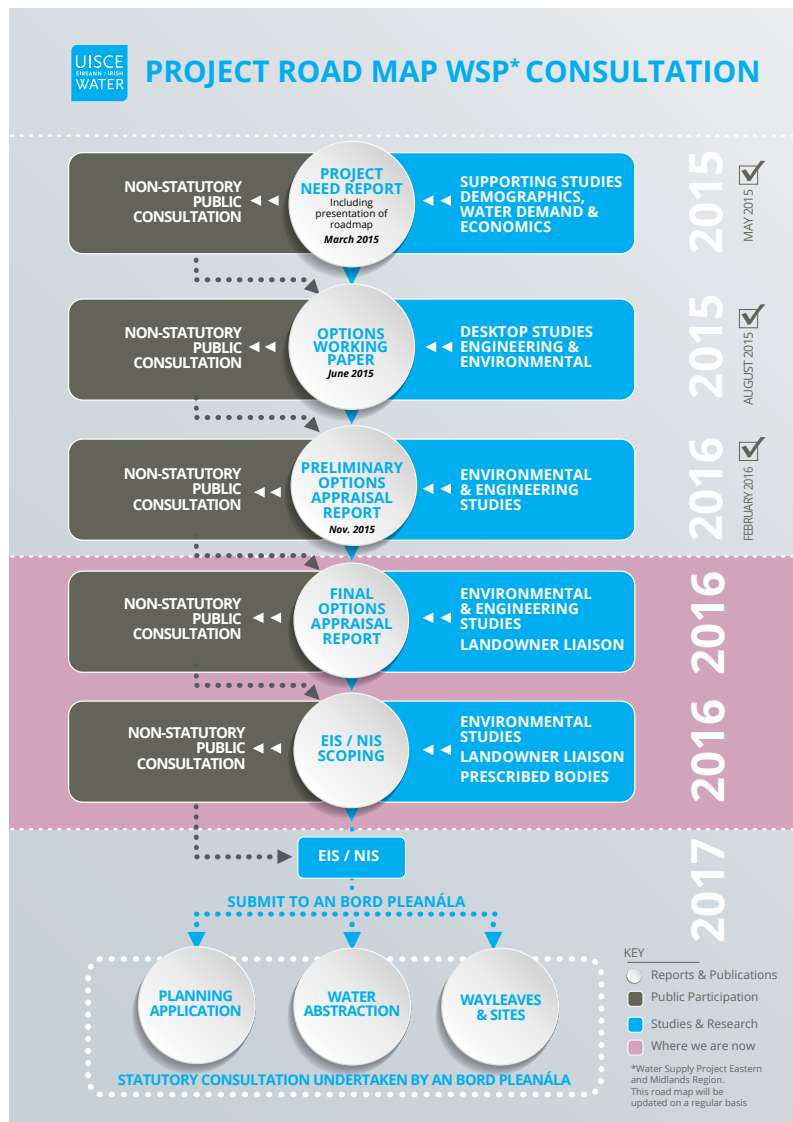
We are now undertaking a 14 week non-statutory public consultation on the Preferred Scheme for a new water supply for the Eastern and Midlands Region (as presented in the FOAR) & EIS Scoping Report and invite submissions from the general public and key stakeholders. We would like to invite your views on:

- Is there any additional information that should be considered in the development of the Preferred Scheme?
- Are there any additional environmental issues or alternative methodologies that should be taken into consideration in preparing the EIS?
- How would you like Irish Water to communicate with you as the project progresses towards planning approval?

Where do I send my Submission?

Submissions can be sent either by email to watersupply@water.ie or by post to Water Supply Project, Merrion House, Merrion Road, Dublin 4.

Closing dates for receipt of submissions is 14 February 2017.



Where can I get more information?

Hard copies of the FOAR and EIS Scoping Report are available to view in County Libraries and at Local Authority Planning Counters across the area or can be downloaded from www.watersupplyproject.ie or contact us on **1890 252 848**

Public Open Days in the study area will be advertised on local radio and press. Check out the website or call for more detail.

Further information can also be obtained by calling 1890 252 848

Contact Us

Should you have any questions or queries about this project, wish to request hard copies of any of the publications mentioned in this newsletter or wish to be included on a mailing list for project updates, please do contact us using the details below.

Water Supply Project
Merrion House
Merrion Road
Dublin 4

From the Republic of Ireland
Telephone; 1890 252 848

From Northern Ireland
Telephone; 084 524 65059

An Irish version of this newsletter is available to you if you prefer. Please contact us and we can send one to you, or alternatively you can download it from the website at www.watersupplyproject.ie or email watersupply@water.ie

Water Supply Project
Eastern and Midlands Region

**Final Options
Appraisal Report
(FOAR)**
Non Technical
Summary

November 2016



Contents

Background	1
Assessing Potential Sources	2
Moving from Two Alternative Options to One Preferred Option	3
Parteen Basin – The Preferred Option	4
Community Gain	6
The importance of action	7
Moving to a Planning Application	8

Background

The Water Supply Project – Eastern and Midlands Region (WSP) has been in development since the mid 1990s, originally under Dublin City Council as project sponsor, and under Irish Water management since January 2014.

Three public consultations have already taken place since March 2015, first on the Need for the project and the road map for how the project would be undertaken, then on examination of Options and the method of appraising them, and thirdly, at November 2015, narrowing down the options, which were originally ten, to two for further examination, namely:

1. Abstraction from the Shannon at Parteen, and
2. Desalination of seawater from the Irish Sea.

This Final Options Appraisal Report (FOAR), identifies the Preferred Scheme as abstraction from the River Shannon at Parteen, downstream of Lough Derg. The process of reaching this recommendation is now offered for public consultation over 14 weeks, commencing on November 8th 2016.

The feedback on this consultation will be included as part of the preparation of the design, the Environmental Impact Statement and the Planning Application which will be submitted towards the end of 2017 to An Bord Pleanála for their independent adjudication. At that point An Bord Pleanála will undertake all necessary statutory consultations. In October 2015, Irish Water also published its Water Services Strategic Plan (WSSP), which sets out strategic objectives for the delivery of water services throughout the country over the next 25 years up to 2040. The WSP is closely aligned with key objectives of the WSSP and, since it serves more than 40% of the population of the State, it is an important component in the delivery of the overall strategic plan.

The question of ‘Need’ relates not just to providing additional water to meet growing demand, but also to providing increased robustness, or resilience, in the overall water supply system, against loss of supply, or contamination/pollution events, or risks arising from climate change.

The research work and public consultation over the past two years has concluded that existing supply sources and infrastructure for the region, do not have the capacity or resilience to meet future requirements. Population and industrial growth will generate a demand for an additional 330 million litres of water per day by 2050 (which is the equivalent of 130 Olympic sized swimming pools). The present infrastructure is struggling to meet current need as evidenced by a number of significant and costly outages in Dublin over the past 5 years.

Public consultation has consistently emphasized the importance of water conservation and of reducing leakage, which is a national problem, and which is too high. Section 5 of the FOAR outlines significant progress made by Irish Water, over the past 12 months, working with customers to reduce leakage. The water demand projections for the WSP already include ambitious targets for leakage reduction, and assume that these targets will be met. However, while fixing leaks and water conservation initiatives will provide valuable water savings, on which we are already relying to help to meet demand, this will not provide a long term solution for our water supply requirements.

The WSP represents the first major comprehensive upgrade to Ireland’s ‘new source’ infrastructure in over 60 years. It is a key element of Irish Water’s overall nationwide remit as it will meet the domestic, commercial and industrial needs of over 40% of Ireland’s population into the medium to long-term future (to 2050).

Assessing Potential Sources

The four Options

Over the past two years, four technically viable options have been assessed, and refined down to two. The four options consisted of abstraction from North Eastern Lough Derg, with and without Midlands raw water storage, abstraction downstream of Lough Derg at Parteen Basin, and desalination of seawater in North Fingal. The four were validated from an original list of 10 possible options, examined previously during the 2008 – 2010 period.

The four technically viable options were examined in the Preliminary Options Appraisal Report (Nov 2015), and refined down to two remaining options, under assessment criteria which included:-

Environmental factors:

- Biodiversity, Flora and Fauna
- Fisheries
- Water
- Air/Climatic Factors
- Material Assets (Energy)
- Cultural Heritage (including Architecture and Archaeology)
- Landscape and Visual
- Material Assets (Land Use)
- Tourism
- Population
- Human Health
- Soils, Geology and Hydrogeology

Technical and Risk factors:

- Safety
- Planning Policy
- Engineering and Design
- Capital and Operating Costs
- Sustainability
- Risk (including technical, environmental, planning, financial and socioeconomic)

The assessments found that the two North East Lough Derg options had a significantly greater potential to impact negatively on the Shannon system (from an environmental perspective) than the Parteen Basin option which also has the potential to provide more widespread benefits along the pipeline corridor.

While Desalination remained as the second ranked viable option, it was noted that it was ‘Dublin-centric’, and did not address the problems of small isolated water supplies in the Midlands.

The Preliminary Options Appraisal Report (Nov 2015) identified abstraction from the River Shannon at Parteen Basin (Lower Lake), with water treatment located nearby, as the Emerging Preferred Option, with Desalination of seawater as a less preferred alternative option. It also identified a pipeline route corridor which would be likely to have least environmental impacts. Public consultation on the Preliminary Options Appraisal Report took place from November 2015 to February 2016.

Feedback from that consultation process, results from continuing surveys, modelling and investigations, as well as assessment of the two remaining options using the constraints and assessment criteria, has led to the formal identification of the Parteen Basin scheme as the Preferred Option. Details of the processes which led to this finding are set out in the Final Options Appraisal Report and its Appendices.

Further details on the background and implementation of the assessment process were set out in the Preliminary Options Appraisal Report.

Moving from Two Alternative Options to One Preferred Option

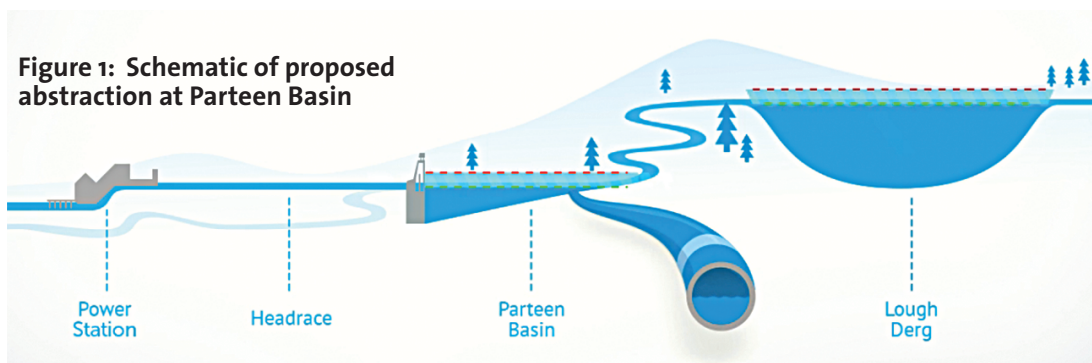
The two alternative options which have been under consideration are:

1) Abstraction from the Shannon at Parteen Basin (Lower Lake)

This option involves abstraction at Parteen Basin (Lower Lake), downstream of Lough Derg, followed by water treatment nearby at Birdhill. Treated water would be pumped to a high point near the Tipperary-Offaly border, from where it would flow by gravity to a termination reservoir at Peamount in south Dublin. Overall there would be 170km of transfer pipelines, crossing the country in a way that can deliver, at selected locations, resilient supplies of treated water to other communities along the route from Parteen Basin to Dublin.

Water volumes abstracted at Parteen Basin would be counterbalanced by an equal volume reduction in water used for power generation at Ardnacrusha, so that no change would be required in normal operating water levels on Lough Derg, or in minimum statutory flows required in the River Shannon

(In the Preliminary Options Appraisal Report published in November 2015, this had emerged as the option most likely to provide the best and most widely beneficial new source of supply for the Eastern and Midlands Region).



2) Desalination

This option involves the abstraction of sea water from the Irish Sea in North Fingal and desalination of this water through a Reverse Osmosis (RO) desalination plant, together with the discharge of brine (from the treatment process) back into the Irish Sea. The process includes the pumping of treated water through approximately 35km of pipelines to existing and proposed reservoirs located in northern and western parts of Dublin.

Parteen Basin – The Preferred Option

While Desalination is technically viable it is significantly more expensive than the Parteen Scheme, which also offers greater benefits across a wider area in accordance with Irish Water's 25 year Water Services Strategic Plan (WSSP). Desalination would also be Dublin focussed, and would not address problems with existing, small and vulnerable Midland water supplies, which is an objective in Irish Water's WSSP. Desalination also posed a potentially greater environmental impact through its use of chemicals and high energy consumption.

Therefore abstraction of water from the Shannon at Parteen Basin (Lower Lake) has been identified as the option which best meets the objectives of the Water Services Strategic Plan because:-

- It has, by far, the least environmental impact of any of the Shannon options which have been under consideration. It is the closest location to the river estuary with all of the water having already flowed through the Shannon to Parteen. It carries least risk of environmental impact and the provision of water treatment at source prevents risk of transfer of potentially environmentally damaging alien species, such as Asian clams and zebra mussels, into other river catchments.
- The pipeline from Parteen has the potential to serve treated water to more locations, towns and communities along the route from Shannon to Dublin than any other option.
- Parteen Basin is already highly regulated because of the presence of the hydro-power plant, and water abstracted for supply will be counterbalanced by a corresponding reduction in water used in power generation. The proposed abstraction of water is, in essence, an abstraction of water from the hydro-power scheme. Abstraction of water from hydro-electric power schemes is commonly employed worldwide to enable environmentally sustainable availability of drinking water

Pipeline Route Corridor

Several 2km wide potential pipeline "corridors" were originally identified and assessed in the Preliminary Options Appraisal Report (POAR). One of these corridors was assessed as likely to have the least impact on communities and the environment, and this is termed 'least constrained'. This was offered for public consultation in the POAR, and is the corridor within which work has been continuing over the past year towards developing the final route for the pipeline.

Narrowing the corridor down to 200m.

Since February 2016, Irish Water's Landowner Liaison Officers have been contacting landowners to verify land ownership details and arrange permission for environmental surveys. Feedback from this consultation and the results of environmental surveys, has defined a preferred 200m pipeline corridor, within the original 2km 'least constrained route corridor', which again is positioned for least impact. This is shown as the purple line in Fig 2 below.

Within this preferred 200m pipeline corridor, the Final Options Appraisal Report and associated mapping also positions an indicative 50m pipeline corridor within which it would be feasible to locate the pipeline in way which accommodates environmental, technical and geographical constraints. This is still subject to consultation with those whose land the route will cross or pass near to and is also subject to some refinement with detailed design, which will continue to aim for the least impact on people and on the environment.

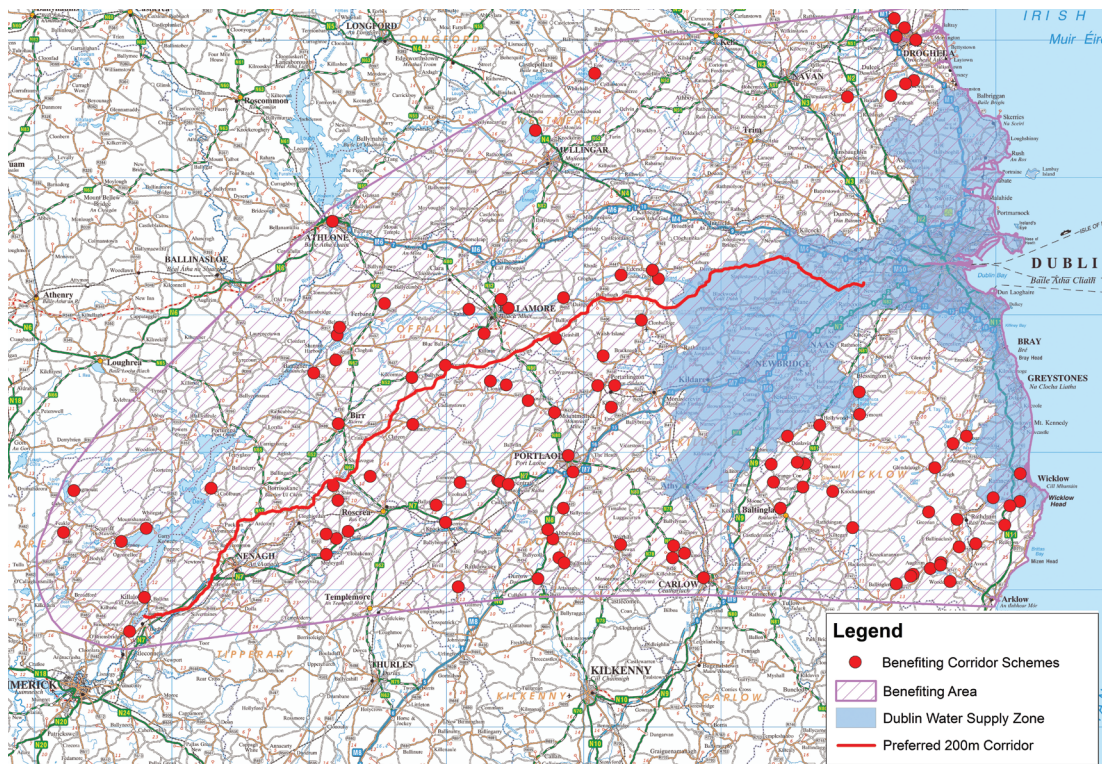


Figure 2: Proposed zoom pipeline corridor and existing water supplies in potential Benefiting Areas

Sustainable abstraction

Irish Water propose to enter an agreement with ESB, to reduce water used in hydropower generation at Ardnacrusha by approximately 2%, to offset the water to be abstracted from Parteen Basin for water supply. The abstraction would effectively come from water which is currently used in hydropower generation, and subsequently discharged to the tidal estuary. The water to be abstracted from Parteen Basin would require no change in the normal operating water level range in Lough Derg. Minimum statutory flow requirements on the River Shannon downstream of Parteen Basin would also remain unaffected.

Regional benefit

In the interim period since the Project Need Report of March 2015, Irish Water has reviewed the water supplies in a potentially Benefitting Corridor around the treatment plant and transfer pipeline.

Ireland has over 850 water treatment plants, serving 4.6m people, compared to less than 50 in Northern Ireland, serving 1.8m people, and 297 in Scotland, serving 5.2m people. Many of these water treatment plants and supply schemes, throughout the country, operate in effective isolation, with little supporting connectivity which would maintain supplies around disruption of a source, or treatment plant, or key section of trunk main. Our dispersed, isolated sources and treatment plants are a legacy of planning at ‘county level’ and with the formation of Irish Water an opportunity exists for consolidation to achieve consistently high standards and benefits of scale which are now needed. The low yield of many small Midland sources, their vulnerability to pollution, the environmental impacts of over-abstraction even under present conditions, are all operational facts and the consistent trend internationally is toward consolidation of such supplies.

Irish Water aims to consolidate existing smaller water sources of unreliable yield, or elevated vulnerability to pollution, or low linkage and resilience, to achieve nationally uniform standards of service from consolidated, efficient water treatment plants and resilient distribution systems. This is a clear objective in the 25 Year Water Services Strategic Plan. Consolidating that overall number, is key to providing consistent, reliable high quality water supplies to all citizens right across the Region.

At the time of preparation of the Project Need Report (March 2015), a preliminary estimate of the requirements of the Benefitting Corridor was prepared, based on individual county 'need assessments' prepared by Local Authorities, which predated Irish Water's assumption of responsibility for overall National Water Resource Planning. In the interim period since the Project Need Report of March 2015, Irish Water has reviewed the WSP need, based on detailed analysis and risk assessment of 107 existing water supply schemes, based on the 25-year rationalisation objectives of the Water Services Strategic Plan, whilst accounting for necessary upgrade works which have had to proceed in advance of the WSP, due to pressing water quality issues at some locations, particularly those in the EPAs Remedial Action List (RAL).

The review has also considered risk factors such as changing water abstraction legislation, source contamination, possible transfer of group water supplies and climate change.

Community Gain

Irish Water originally set out its approach to Community Gain in Section 10 of the Preliminary Options Appraisal Report (Nov 2015). It identified the potential for a significant element of community gain for those living and working in the Eastern and Midlands Region.

In addition to improved and sustainable domestic and commercial water supplies, the communities along the route of the pipeline are also in a position to gain some specific additional benefits.

Many products and services needed during construction will be sourced from local businesses; the construction phase of the project will provide a range of employment opportunities for local people; Irish Water, working with Local Authorities and other relevant bodies, propose to provide financial support for training schemes to enable as many local people as possible to work on the project. Irish Water also propose to support projects that contribute towards achieving the conservation objectives of the Lower Shannon Special Area of Conservation (SAC) and the objectives of the River Basin Management Plans (RBMPs), and the development of environmental education and protection initiatives and sports and leisure facilities. To this end, Irish Water in its Planning Application, will request An Bord Pleanála to include a community gain fund as a planning condition in any planning permission for the project.

Of the two remaining water supply options examined in the Final Options Appraisal Report, the Preferred Option (Parteen Basin) has the potential to give rise to the greatest breadth and variety of community gain as its 170km pipeline (See Figure 2) crosses several counties on-route between the Shannon and Dublin. The Desalination Option benefits a much smaller area, and it does not address the need to consolidate existing water supplies across the Midlands and Eastern Region, in accordance with the objectives of the Water Services Strategic Plan.

More detailed information on community gain can be found in Section 10 of the Final Options Appraisal Report.

The importance of action

The Final Options Appraisal Report recommends that abstraction from the River Shannon at Parteen Basin is, subject to public consultation and any necessary further research, taken forward to a Planning Application for the following reasons:-

- i. The population of the Dublin Water Supply Area, on realistic planning scenarios, will rise from 1.52m people at 2011, to 2.15m by 2050. The population of the potential Benefiting Corridor around a treated water pipeline, routed across the Midlands, would rise from 0.53m at 2011, to approximately 0.68m by 2050.
- ii. The principal water abstraction and treatment centres on the River Liffey, at Leixlip and Ballymore Eustace, have been developed over decades on infrastructure originally provided in the 1940s and 1960s and, in the case of the Vartry Reservoir, on infrastructure dating from the 19th century. The Water Supply Project represents the first major comprehensive upgrade to Ireland's 'new source' infrastructure in over 60 years.
- iii. The existing water supply sources serving the Dublin Water Supply Area can currently supply 600-623 Mld at full production capacity under stressed conditions, against current average day demand of 550-575 Mld. When international norms of provision for peaks, and headroom are applied, the short term position, without proper planning, is one of increasing difficulty for reliably meeting water requirements. Action is therefore required to provide normal international water utility standards of service.
- iv. In the East and Midlands Region, Irish Water, working with customers, has already saved 26 Mld in domestic leakage over the past twelve months. The calculated water requirement for the Water Supply Area and Benefiting Corridor already assumes that ambitious leakage recovery targets will be met (both on the customer side and on the mains network). However, the reduction of leakage alone will not meet the overall need. The requirement is to both minimise water demand and to diversify risk from over dependence on existing sources.
- v. The original Project Need Report, which included an independent review by Indecon Economists has underlined the strategic importance of secure, high quality water supplies for the key exporting sectors of the Irish economy. It has examined the costs to the economy of water supply disruption and the negative impacts of supply systems which fall short of international norms of resilience and reliability. Indecon have highlighted the "very significant negative employment impacts if adequate water supply is not available to meet the needs of indigenous and overseas businesses". IDA have also emphasised the importance of resilient water supplies, not only for new industry considering locating in Ireland, but also for those already established here and considering expansion.
- vi. Water demand projections have been independently developed, by Indecon and by the Project Engineering Advisers, in conjunction with Irish Water. Most recent available data from the metering programme on domestic consumption has been used, econometric modelling of industrial water requirements across each sector of the economy has been used and international trends in industrial water usage have been identified and included in projections.
- vii. 'Do Minimum' options in the absence of the WSP project are likely to be expensive, disruptive and piecemeal in nature without decisively addressing the risks in the absence of a new Water Supply Scheme.

- viii. Options have been assessed with the support of environmental and geotechnical surveys. A preferred option of abstraction of 330 Mld from the River Shannon at Parteen has been identified. This is sustainable and will be supported by an Agreement under statute to be negotiated with ESB which will reduce water usage in hydropower generation, measure for measure, with water abstracted for water supply.
- ix. Irish Water, in looking at the water requirements from a new source, has taken a national perspective and is examining the contribution of a new source to the resilience of the collective sources serving the Eastern and Midlands areas of Ireland. It is expected that, over time, more than 100 public water supplies in the region, dependent upon small vulnerable sources, will be consolidated to less than 30% of this number, supported by the Water Supply Project. This is accordingly a nationally strategic project.

Moving to a Planning Application

At each of the three previous stages of the process of identifying a preferred option, public participation in the decision making process has taken place, and the views of all interested parties are again invited on the findings of the Final Options Appraisal Report (FOAR), and also on the scoping of environmental impact assessment work from this point onwards.

Public Consultation

A fourteen week public consultation process follows the publication of the FOAR. During this period, Irish Water is also consulting on the Scope of an Environmental Impact Statement (EIS) on the Preferred Option of abstraction from the Shannon at Parteen. This process is open to everyone, and the terms of reference for the FOAR and EIS Scoping Report public consultation are:

- Is there any additional information that should be considered in the development of the Preferred Scheme?
- Are there any additional environmental issues or alternative methodologies that should be taken into consideration in preparing the EIS?
- How would you like Irish Water to communicate with you as the project progresses towards planning approval?

Irish Water also welcome all relevant submissions on the project. The closing date for receipt of submissions is 14 February 2017.

The feedback on this consultation will be included as part of the preparation of the design, the Environmental Impact Statement and Planning Application which will be submitted towards the end of 2017 to An Bord Pleanála for their independent adjudication. At that point An Bord Pleanála will undertake all necessary statutory consultations.

For further information, questions or to make a submission you can visit: www.watersupplyproject.ie or contact us on 1890 252 848 watersupply@water.ie or by post by post to Water Supply Project, Merrion House, Merrion Road, Dublin 4.

There will also be a series of Public Open Days in the study area which will be advertised on local radio and press. More detail on these events are available on the website.

Appendix B: Landowner Leaflet and Landowner FAQs

Water Supply Project

Eastern and Midlands Region

The Preferred Scheme for a New Water Supply for the Eastern & Midlands Region

Information for Landowners

UISCE
ÉIREANN : IRISH
WATER



NOVEMBER 2016

Irish Water has launched the fourth public consultation phase on the Preferred Scheme for a New Water Supply for the Eastern and Midlands Region (WSP). This will represent the first major comprehensive upgrade of 'new source' infrastructure in over 60 years and will meet the domestic and commercial needs of over 40% of Ireland's population into the medium to long term future.

Irish Water's remit includes the delivery of a sustainable and resilient Water Supply nationally. One of the key elements in the successful delivery of that remit is finding a new source of water supply for the Eastern and Midlands region of the country. Simply fixing the leaks, important though that is, will not deliver the additional 330 million litres of water a day this region will need by 2050.

In order to identify a new Source for the Eastern and Midlands Region, Irish Water has, over the past few years, carried out extensive research, environmental and technical assessments of various options and three rounds of public consultation.

What is happening now?

Phase Four of the consultation process has now begun with the publication of the Final Options Appraisal Report (FOAR)

and the Environmental Impact Statement (EIS) Scoping Report. The FOAR confirms that the preferred scheme is:

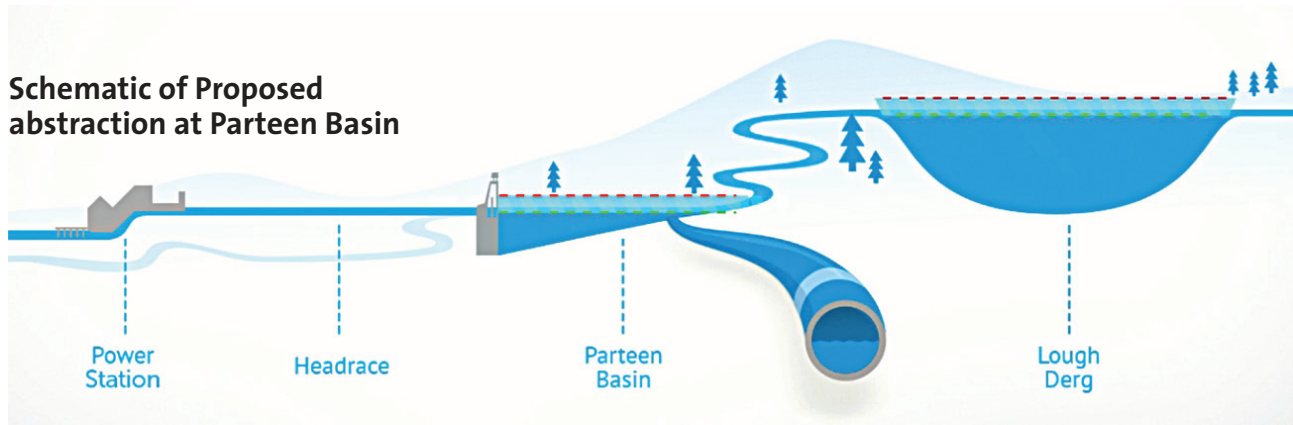
- Abstraction of water from the Lower Shannon at Parteen Basin
- Water treatment nearby at Birdhill
- Treated water piped to a termination point reservoir at Peamount in South County Dublin, with supplies of treated water available to Midland communities along the route.

The EIS Scoping Report considers potential issues which may arise from the preferred scheme and describes how any impacts will be assessed.

We are now undertaking a **14 week** non-statutory public consultation on these two reports and invite submissions from the general public and key stakeholders.



Parteen Basin, Lower Shannon



The Preferred Scheme

The preferred scheme involves the sustainable abstraction of water on the eastern shore of Parteen Basin in Co. Tipperary, with water treatment nearby at Birdhill. Treated water would then be piped to a termination point reservoir at Peamount in South County Dublin. Supplies of treated water would be made available to Midland communities along the route.

This would provide a reliable and sustainable water supply to present and future domestic, commercial and industrial consumers along the proposed pipeline's 170 km route.

The water abstracted from Parteen Basin would comply with the normal water level range operated by ESB in Lough Derg. Minimum statutory flow requirements along the Shannon which are maintained by the ESB would also remain unaffected.

The FOAR identifies a preferred 200m pipeline corridor and an indicative 50m pipeline corridor within which environmental, technical and geographical constraints can be accommodated.

How was the Preferred Scheme Identified?

After three rounds of public consultation and over two years of technical and environmental assessments the preferred scheme was identified as the most appropriate and widely beneficial, out of the initial ten, and subsequent four technically viable options examined.

The other options which had been under consideration were two options based in North Eastern Lough Derg and also a Desalination option located on the East coast. All options were assessed on a number of Environmental, Economic, Socio-Economic and Technical criteria and the preferred scheme has emerged following this detailed analysis. Earlier Reports concluded that the abstraction from North East Lough Derg had the potential to negatively impact the Shannon system from an environmental perspective and were therefore set aside.

Why is this the Preferred Scheme?

While Desalination is technically viable it is significantly more expensive than the Parteen Scheme, which also offers greater benefits across a wider area in accordance with Irish Water's 25 year Water Services Strategic Plan (WSSP). Desalination would also be Dublin focussed, and would not address problems with existing, small and vulnerable Midland water supplies, which is an objective of the WSSP. Desalination also posed a potentially greater negative environmental impact through its use of chemicals and high energy consumption.

Abstraction of water from the Shannon at Parteen Basin (Lower Lake) has been identified as the option which best meets the objectives of the WSSP because:

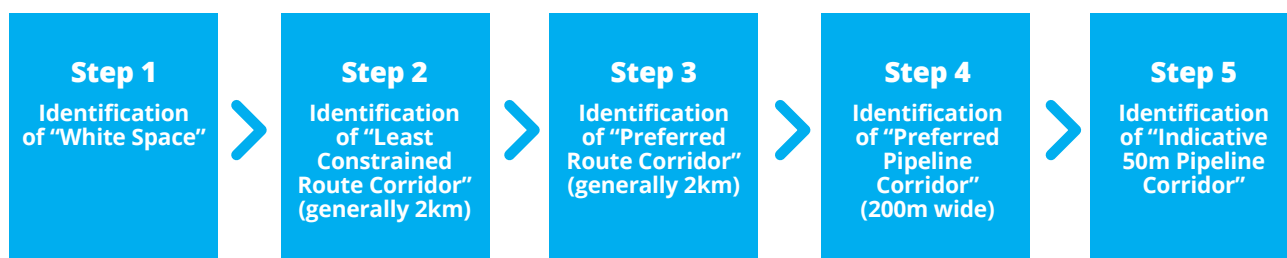
- It has, by far, the least environmental impact of any of the Shannon options which have been under consideration. It is the closest location to the river estuary with all of the water having already flowed through the Shannon to Parteen.
- The pipeline from Parteen has the potential to serve treated water to more locations, towns and communities along the route from Shannon to Dublin than any other option.
- Parteen Basin is already highly regulated because of the presence of the hydro-power plant, and water abstracted for supply will be counterbalanced by a corresponding reduction in water used in power generation. The proposed abstraction of water is, in essence, an abstraction of water from the hydro-power scheme. Abstraction of water from hydro-electric power schemes is commonly employed worldwide to enable environmentally sustainable availability of drinking water.

Site and Route Selection Process

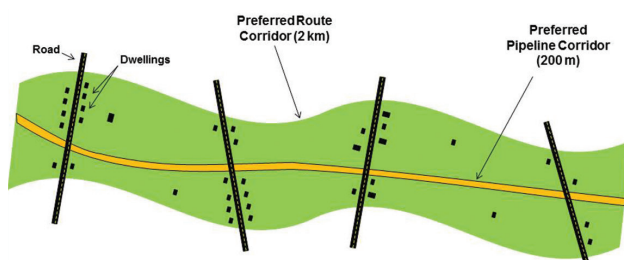
As part of the selection of the "Preferred Pipeline Corridor" and "Indicative 50m Pipeline Corridor" various technical constraints/requirements or datasets were mapped and classified by experts from the following specialist areas:

- Engineering
- Cultural Heritage
- Ecology
- Noise & Vibration
- Air Quality
- Traffic
- Landscape and Visual
- Agronomy
- Soils/Geology
- Water Quality/Hydrology
- Hydrogeology

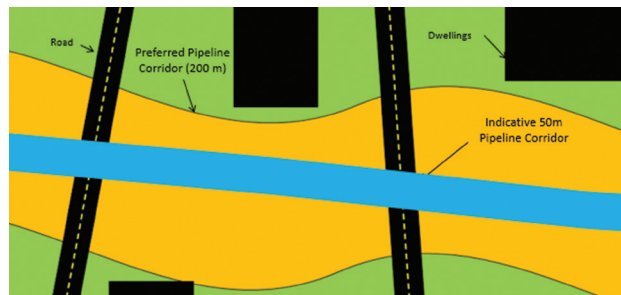
Steps taken to establish the preferred corridor are illustrated below. In addition, information gathered during environmental walkover surveys facilitated by landowners was considered in the route selection process.



Steps taken to establish the Preferred Corridor



Positioning zoom Pipeline Corridor within 2km Preferred Route Corridor



Positioning Indicative 50m Pipeline Corridor (within zoom corridor)

How would my land be impacted?

Subject to receipt of planning permission for the project, it is anticipated that construction and commissioning of the entire scheme would take approximately three to four years. The impact on any landholding would typically be approximately 18 months duration, following which the land would be fully reinstated to its original condition.

The extensive experience of Irish Water's sister company, Gas Networks Ireland (formally Bord Gáis Networks), which has successfully delivered over 2,400km of natural gas transmission pipelines through the lands of over 5,600 landowners since 1977, would be brought to bear during the planning, wayleave acquisition, construction and reinstatement phases of the project.

Throughout the planning and construction phase of the project, landowners will be kept informed by Landowner Liaison Officers (LLOs) of the planned construction activities and schedule for the start and finish of construction on their land. A pre-entry agreement would be entered into with each landowner in advance of construction commencing to document existing conditions and individual requirements in terms of fencing, water supply for stock, crossing points and drainage etc.

A temporary working width of approximately 50m wide would be required during the construction stage to manage the operations involved in construction of the pipeline and ancillary valve chambers. This would include space to properly store the excavated topsoil and subsoil separately,

to transport materials along the working area, to excavate the trench, and for workers and machinery to work safely and efficiently. Additional space might also be required at particular points such as crossings of motorways, railways, canals, etc. It is expected that construction works would last approximately 4-6 months in each landholding, with the temporary working width required for a period of 18 months in total (from the time



Pipeline corridor showing pipe before trenching and welding



Pipeline corridor post reinstatement

of installation of temporary fencing to the completion of reinstatement and removal of the temporary fencing).

Irish Water is committed to the full and proper restoration of all land disturbed by its operations and to reinstating any affected boundary walls and fences. Reinstatement would take place in accordance with an agreed Code of Practice outlining how topsoil and subsoil will be stripped, stored and protected, the disposal of excess excavated material, management of land drainage, and how the temporary working width would be prepared to receive subsoil, and then topsoil, prior to seeding.

Pipeline construction works would generally not take place on agricultural lands in winter. Following completion of the works a permanent right of access (or wayleave) would be required to inspect and maintain the pipeline and ancillary valve chambers.

This permanent wayleave would be legally documented by way of a Deed of Easement and registered as a burden on the title of the affected land and would typically be 20m in width. While the land could be farmed in the normal way, as the pipeline would have a minimum depth of cover of 1.2m, the Deed of Easement would restrict building development and forestry within the permanent wayleave.

Moving to a Final decision- What Happens Next?

This is the fourth phase of non-statutory public consultation on this project. The feedback from this consultation period, alongside further technical and environmental studies and engagement with landowners and the general public, will inform the selection of the final scheme. This will be detailed in the EIS and will accompany Irish Water's planning application to An Bord Pleanála.

During the consultation period, six landowner information evenings and eight public open days will be held at various locations along the proposed pipeline route where



Example of valve chamber in a field at field boundary

members of the project team will be available to answer any questions.

Following on from the conclusion of the consultation process in early 2017, Irish Water will continue to be in direct contact with landowners affected by the proposed pipeline route. The planning application, which is due to be lodged in late 2017 / early 2018 will be subject to a period of statutory consultation which will provide the public with an opportunity to have their say, following which An Bord Pleanála will determine whether consent should be granted.

Subject to planning permission being granted, construction and commissioning would take approximately three to four years. The new water supply would be made available along the pipeline at the end of the 3 to 4 year period.

Where can I get further information and how can I make my views known?

Your dedicated Landowner Liaison Officer is available to meet with you if you require further information or to discuss any aspect of the project. You can also contact them if you wish to make your views on the project known or if you would like to meet with other members of the project team.

Alternatively you can get in touch with the Landowner Liaison Team on **021 4239000**, at watersupply@water.ie or at **Water Supply Project, Eastern and Midlands Region, Irish Water, PO Box 900, Webworks, Eglinton Street, Cork.**

Hard copies of the FOAR and EIS Scoping Report are available to view in County Libraries and at Local Authority Planning Counters across the area or can be downloaded from www.watersupplyproject.ie.

Water Supply Project

Eastern and Midlands Region



The Preferred Scheme for a New Water Supply for the Eastern & Midlands Region

Frequently Asked Questions



NOVEMBER 2016

The extensive experience of Irish Water's sister company, Gas Networks Ireland (formally Bord Gáis Networks), which has successfully delivered over 2,400km of natural gas transmission pipelines through the lands of over 5,600 landowners since 1977, will be brought to bear during the planning, wayleave acquisition, construction and reinstatement phases of the Water Supply Project – Eastern and Midlands Region.

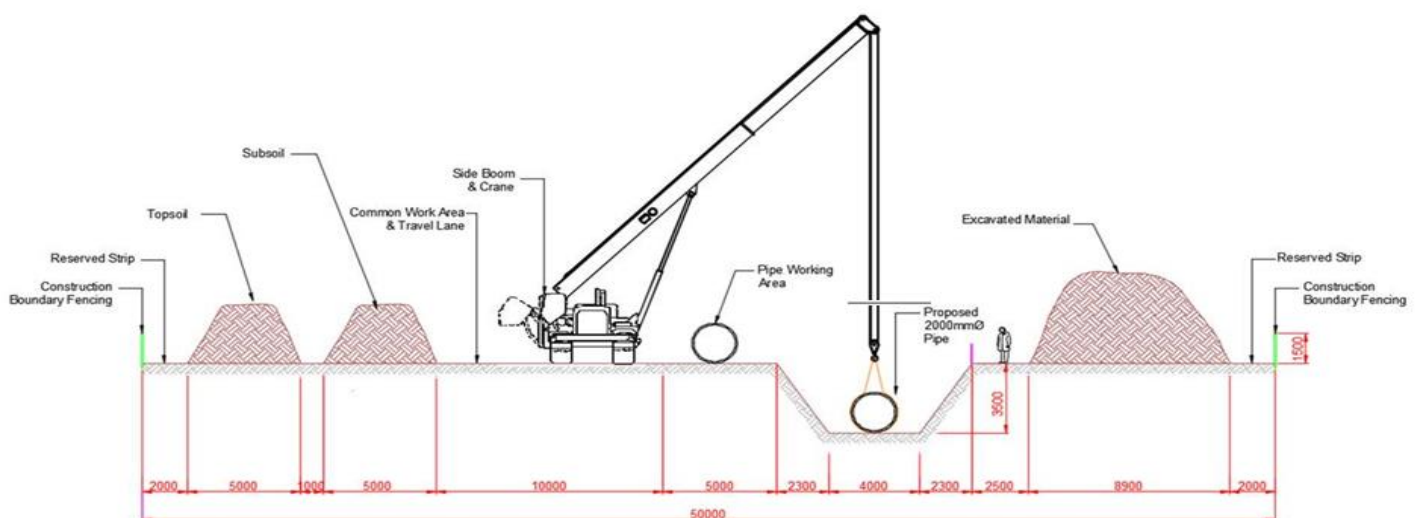
What is a wayleave?

In the context of the Water Supply Project a wayleave is the legal right to construct, operate and maintain a water supply pipeline within a strip of land.

What is a temporary working width and what size is it?

A temporary working width is required in the construction stage only, to manage the operations involved in the construction of the pipeline and the valve chambers. This includes space to properly store the excavated topsoil and subsoil, to transport materials from roads to the working area, to excavate the trench and for staff and machinery to work safely. Additional space may also be required at particular points such as crossings of motorways, railways, canals, etc.

On the Water Supply Project, the temporary working width will typically be 50m wide (inclusive of a permanent wayleave).



Note:
1. Soil Storage Mounds Typically 3000 - 5000 mm High

Typical Construction Width

What is a permanent wayleave and what size is it?

Once construction is complete and the pipeline is operating, a right of access (or wayleave) is required to inspect and maintain the pipeline and chambers. This permanent wayleave which is legally documented by way of a Deed of Easement and is registered as a burden on the title of the affected land will typically be 20m in width. While the land can be farmed in the normal way, there will be restrictions on building development and forestry within the permanent wayleave, in accordance with the Deed of Easement.

How is Irish Water communicating with landowners?

Irish Water is communicating with Landowners through four dedicated Landowner Liaison Officers (LLOs). The role of the LLOs is to provide landowners with a dedicated point of contact throughout the planning phase, through construction, and afterwards. Each landowner whose land may be on the pipeline route has a nominated LLO as an ongoing point of contact for the project.

Landowner Information Evenings and Public Open Days and are being held during the current stage of consultation (14 weeks from 8th November 2016 to 14th February 2017) and ongoing liaison with landowners on the final route will continue throughout 2017.

What is the role of the Agronomist on the Water Supply Project?

An agronomist is an agricultural scientist with particular specialism in the area of soil science and management and plant and crop production. In the context of the Water Supply Project, an agronomist will input to the Code of Practice on aspects such as the care of the soil during construction and land restoration, and to the environmental impact assessment. The project team includes Agronomy specialists.

What is a Pre-Entry Agreement?

A pre-entry agreement is put in place with each individual landowner in advance of construction commencing to document the particular requirements of each landowner in terms of type of fencing required, water supply for stock, location of crossing points across the temporary working width, land drainage etc.

How long will construction take?

The overall construction period for the project is likely to be 3 to 4 years, but disruption will be much shorter than this for each particular landholding.

It is expected that construction works would last approximately 4 to 6 months in each landholding, with the temporary working width required for a period of 18 months in total (including the installation of temporary fencing to the completion of topsoil reinstatement, seeding and removal of the temporary fencing).

In areas of poor or difficult ground, or in areas near major road and river crossings, different construction methods may be required which could result in a longer construction time.

Will construction take place in winter?

Irish Water will wherever practicable carry out the main pipeline activities in the period 1st March to 30th November, and will use all reasonable endeavours to plan its construction programme in order to comply with this time scale. The owner and occupier will be informed of the start and finish dates of the planned programme of work. Construction at other locations which are not seasonally sensitive for soils, such as the Water Treatment Plant site, can continue during wintertime.

How will the land be reinstated?

Lands will be reinstated based on best practice construction methodology which Irish Water's parent company Ervia has used for the construction of over 2,400km of natural gas transmission pipelines over 40 years and summarised in a Code of Practice which will be made available to landowners as part of a wayleave package. This will outline how topsoil and subsoil will be stripped, stored and protected, how backfill in the trench will be compacted, how excavated material will be disposed of, how land drainage will be managed throughout, and how the temporary working width will be prepared to receive subsoil, and then topsoil, prior to seeding.

Will Irish Water restore land to its pre pipeline construction state?

Irish Water is committed to the full and proper restoration of all land disturbed by its operations and for restoring any boundary walls and fences affected by the works.

What size is the pipe?

Hydraulic design work is continuing, but at this time the most likely pipe size is 1,700mm diameter in the rising main section to a high point at the Tipperary/Offaly border and 2,000mm diameter in the gravity section from there to the termination point reservoir in south Dublin.

How deep will the pipe be?

The minimum cover from the ground to the top of the pipe will be 1.2m, but where the overall design tries to minimise the number of valves, and position them where possible near boundaries, for least interference in landholdings, there will be sections of pipe which are at greater depth than 1.2m. Crossings of roads / rivers / rail and canal will also involve an increase of cover to the top of the pipe, generally a minimum of 1.6m.

What is the pipe made of?

There are many materials used worldwide in water transfer pipelines, including concrete, steel, ductile iron and other polyethylene based materials. The pipeline material has not yet been selected and is likely to be the outcome of a procurement competition if the project receives planning consent.

Will the pipeline be visible?

The pipeline will be laid underground, and will not be visible.

What are valve chambers, and what frequency of access will Irish Water need to them?

There are three kinds of valves on the pipeline; air valves, scour (or washout) valves, and line isolation valves.

Air valves permit any air in the pipe to be released, and they permit air to enter the line if it needs to be drained down for maintenance. It is expected that air valves would be located at intervals of 500m to 600m. Generally they are placed at high points along the pipeline, but may also be required at other strategic locations if required and subject to the final design.

Scour (or washout) valves allow sections of the pipeline to be emptied and would be located at a frequency of approximately 500m to 600m, generally at low points along the pipeline. During commissioning of the pipeline they are used for removing silt and sediment which may have accumulated during the construction process. During pipeline operation it is very rare that these valves are used, and are generally only required for emptying sections of pipeline if required for emergency repairs or for routine maintenance programmes every 20 to 30 years.

Line isolation valves would typically be located 4km-6km apart, as buried valves. In some instances it may be necessary to provide electrical power to operate some of the line valves in which case a surface kiosk would be required. Line isolation valves, wherever possible, will be located in close proximity to air or wash out chambers and will be positioned adjacent to public roads.

Wherever possible valves would be located in locations of least interference, such as close to headlands and field boundaries.

Walkover inspections, and maintenance checks on valves would typically be annual in frequency. A requirement to bring plant or equipment to a valve location would rarely arise.

Is there a risk of flooding of lands arising from construction?

Flooding will not arise from construction activities. The timing of construction in land prone to flooding will be timed for dry non-flood periods. The construction of the pipeline and reinstatement of land will be undertaken in a manner which will ensure that the pipeline trench does not become a conduit for water.

How will Irish Water manage construction in bogland?

The extensive experience of Gas Networks Ireland will be taken into consideration in planning construction in bogland. Construction will be designed on an individual basis based on site investigation data and may involve the use of 'piling' technology to ensure a stable foundation for the pipe.

What happens if the pipe leaks?

The pipeline material and construction specifications, as well the high degree of quality control and testing that will be undertaken at construction stage, will ensure that the likelihood of a leak occurring will be very low.

In the unlikely event that a leak should occur, valves along the pipeline will limit the amount of water that can leak from the pipe. A maintenance plan will be put in place so that if a leak does occur it can be detected quickly and the repair will be carried out to minimise the impact on landowners and to the water supply.

What if a well or nearby lake is affected?

Potential impacts on lakes will be assessed during the Environmental Impact Assessment process. Pipeline construction and reinstatement of land will be undertaken in a manner which will ensure that the pipeline trench does not become a conduit or barrier for water movement. This can be achieved by constructing impermeable barriers at regular intervals along the trench or through the use of bedding and backfill mixed with a 'bentonite' clay to ensure or increase impermeability.

Water supply wells will be identified during planning of the proposed pipeline. A water monitoring programme of groundwater wells will be undertaken before, during and after the construction phase. If water supply wells are damaged or the water quality/quantity is affected during the construction phase, an alternative supply will be provided to the landowner as is standard practice on all pipeline projects. In the unlikely event of a well drying up an alternative well will be drilled provided the damage to the well is connected to and traceable to the construction of the pipeline.

Will this project impact on Single Farm Payment for farmers whose land is involved?

In assessing losses, regard will be taken of E.U. and State support schemes (e.g. Basic Payment Scheme, ANC Scheme, GLAS, AEOS, etc.)

If a new reference period is adopted for establishing entitlements for an area based payment scheme, and if this reference period coincides with the pipeline construction programme, Irish Water will consult with the Department of Agriculture, Food and the Marine on the effect that the project might have on establishing a new base line for determining the entitlement to such payments.

Irish Water will initially make a case for "force majeure" to the Department of Agriculture not to penalise the landowner for the loss of farming hectares. In the event of the Department of Agriculture not allowing concessions, then the matter will be treated as a compensation issue.

Will there be additional restrictions on land spreading if the project goes ahead?

The European Communities (Good Agricultural Practice for Protection of Waters) Regulations (also known as the GAP or Nitrates Regulations) gives legal effect to Ireland's Nitrates Action Programme, required by the Nitrates Directive (91/676/EEC). Compliance with the GAP Regulations is overseen by the Department of Agriculture Food and the Marine with Local Authorities responsible for enforcement.

Article 17 of the GAP Regulations regulates the land spreading of organic fertilisers in the vicinity of drinking water abstraction points. For a scheme supplying 100m³ or more per day or serving 500 or more persons a 200m distance from the abstraction point applies.

The map below shows the indicative buffer zone at the proposed abstraction point comprising a circle of 200m radius, centred on the proposed raw water intake location.



Who will own the pipeline?

The pipeline will be owned by Irish Water. Irish Water was established pursuant to the Water Services Act 2013 and is a designated activity company, limited by shares. Irish Water has two shareholders, Ervia and the Irish Government. The ultimate shareholder of Irish Water is the Irish Government and, on that basis, Irish Water is a state-owned entity.

These Frequently Asked Questions and other information on the project can be found at www.watersupplyproject.ie

**Appendix C: Example advertisement at the Launch of FOAR and EIS
Scoping Consultation / Summary of Advertisements**



Public consultation on Preferred Scheme for new water supply for the Eastern and Midlands Region

Irish Water invites you to come along to one of our Open Days

On 8th November Irish Water launched the fourth phase of public consultation phase on the Preferred Scheme for a New Water Supply for the Eastern and Midlands Region. This will represent the first major upgrade of 'new water source' infrastructure in over 60 years and will deliver secure and sustainable water to over 40% of Ireland's population into the long term future.

Irish Water has published the Final Options Appraisal Report (FOAR) and the Environmental Impact Statement (EIS) Scoping Report for public consultation. The Final Options Appraisal Report (FOAR) confirms that the Preferred Scheme is:

- Abstraction of water from the lower Shannon at Parteen Basin
- Water treatment nearby at Birdhill
- Treated water piped to a termination point reservoir at Peamount in South County Dublin, with supplies of treated water available to Midland communities along the route.

The EIS Scoping Report considers potential issues which may arise from the Preferred Scheme and describes how any impacts will be assessed. Irish Water is now undertaking a 14 week period of non-statutory public consultation and invites you to join us at one of our public information days to learn more about the Preferred Scheme, meet the project team or find out more information on making a submission on the FOAR or EIS Scoping Report.

PUBLIC OPEN DAYS WILL BE HELD AT:

LIMERICK

Strand Hotel Monday 21st November 2016 2pm to 8pm

This is a vital project for the future of this region and **feedback during the public consultation process will help inform the proposal** Irish Water puts forward for planning permission.

The consultation period which begins now will close on 14th February 2017. Submissions can be sent by email: watersupply@water.ie or by post: **Water Supply Project, Merrion House, Merrion Road, Dublin 4**

Safeguarding your water for your future.

For further information visit www.watersupplyproject.ie

Alternatively, please contact the project team by:

Email: watersupply@water.ie Telephone: LoCall 1890 252 848

The FOAR & EIS Scoping Report are available to view in County Libraries and at Planning Counters within the project study area and can be downloaded from our website www.watersupplyproject.ie

Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region



Irish Water invites you to have your say

November 8th marks the launch of the fourth public consultation phase on the Preferred Scheme for a New Water Supply for the Eastern and Midlands Region. Delivery of this New Water Supply will represent the first major upgrade of 'new water source' infrastructure in over 60 years and will deliver secure and sustainable water to over 40% of Ireland's population in the long term.

Irish Water has published the Final Options Appraisal Report (FOAR) and the Environmental Impact Statement (EIS) Scoping Report for public consultation. The Final Options Appraisal Report (FOAR) confirms that the preferred scheme is:

- Abstraction of water from the Lower Shannon at Parteen Basin
- Water treatment nearby at Birdhill
- Treated water piped to a termination point reservoir at Pearmount in South County Dublin, with supplies of treated water available to Midland communities along the route.

The EIS Scoping Report considers potential issues which may arise from the preferred scheme and describes how any impacts will be assessed.

Irish Water is now undertaking a 14 week period of non-statutory public consultation and invite submissions from the general public and key stakeholders. We would like your views on all aspects of the Project, and specifically on:

- Is there any additional information that should be considered in the development of the Preferred Scheme?
- Are there any additional environmental issues or alternative methodologies that should be taken into consideration in preparing the EIS?
- How would you like Irish Water to communicate with you as the project progresses towards planning approval?

This is a vital project for the future of this region. Feedback to the public consultation process will inform the proposal Irish Water puts forward for planning permission.

Submissions to the consultation process can be sent either by email to watersupply@water.ie or by post to Water Supply Project, Merrion House, Merrion Road, Dublin 4.

Closing dates for receipt of submissions is 14th February 2017.

Safeguarding your water for your future.

For further information visit www.watersupplyproject.ie

Alternatively, please contact the project team by:

Email: watersupply@water.ie

Telephone: LoCall 1890 252 848

The FOAR & EIS Scoping Report are available to view in County Libraries and at Planning Counters within the project study area and can be downloaded from our website www.watersupplyproject.ie

Summary of Advertising for Consultation

Media	Dates
National Print	
Irish Times	08.11.2016
Irish Independent	08.11.2016
Sunday Independent	13.11.2016
Irish Examiner	08.11.2016
Sunday World	13.11.2016
Irish Farmers Journal	10.11.2016
Local / Regional Print	
Clare Champion	10.11.2016
Clare People	09.10.2016
Connacht Tribune	10.11.2016
Liffey Champion	10.11.2016
Leinster Express	15.11.2016
Limerick Leader	10.11.2016
Limerick Post	10.11.2016
Westmeath Examiner	08.11.2016
Meath Chronicle	08.11.2016
Offaly Independent	11.11.2016
Tullamore Tribune/Midlands Tribune	09.11.2016
Western People	14.11.2016
Nenagh Guardian	09.11.2016
Tipperary Star	10.11.2016

Media	Dates
Westmeath Independent	09.11.2016
Wicklow People	09.11.2016
Wicklow Times	14.11.2016
Kildare Post	10.11.2016
Trade	
Irish Farmers Monthly	01.12.2016
Finance Dublin	10.11.2016
Eolas	01.12.2016
Business and Finance	05.12.2016
Business Plus	14.12.2016
In Business	01.12.2016

Appendix D: Media Coverage during consultation period

Item	Publication	Author	Date
Proposed Shannon water pipeline deemed a 'white elephant' and waste of tax payers' money	Inshore Ireland	Gillian Mills	01/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Finance Dublin	unattributed	01/11/2016
River Shannon Protection Alliance responds	Inshore Ireland	unattributed	01/11/2016
Sumamry of the Kennedy report compiled by Emma Kennedy, Solicitor	Inshore Ireland	unattributed	01/11/2016
Preferred route for Shannon pipeline published	RTE Radio 1 - 07:00 News	unattributed	08/11/2016
New water supply proposed for the midlands and east	LMFM - 07:00 News	unattributed	08/11/2016
Business Headlines in Today's Newspapers	NewsTalk - The Breakfast Show	Vincent Wall	08/11/2016
Review Of Newspapers With John S Doyle	RTE Radio 1 - Morning Ireland	Rachael English, Cathal Mac Coille	08/11/2016
Preferred route for Shannon pipeline published	RTE Radio 1 - 08:00 News	unattributed	08/11/2016
New water supply proposed for the midlands and east	NewsTalk - 08:00 News	unattributed	08/11/2016
Irish Water Announces Preferred Option For Supplying Midlands And East	Midlands 103 - 08:45 News	unattributed	08/11/2016
Preferred route for Shannon pipeline published	RTE Radio 1 - 09:00 News	unattributed	08/11/2016
Preferred route for Shannon-Dublin pipeline published	RTE Radio 1 - Morning Ireland	Rachael English, Cathal Mac Coille	08/11/2016
Irish Water Announces Proposals For Pipeline To Take Water From River Shannon	Clare FM - 09:00 News	unattributed	08/11/2016
New water supply proposed for the midlands and east	LMFM - 09:00 News	Ruth O Connell	08/11/2016
New water supply proposed for the midlands and east	Tipp FM - 10:00 News	unattributed	08/11/2016
Newspaper Review	Clare FM - Morning Focus	Gavin Grace	08/11/2016
Irish Water has published details of its preferred route for a new pipeline	Tipp FM - Tipp Today	Fran Curry	08/11/2016
Irish Water publishes route of Shannon to Dublin pipeline	Kildare FM - 11:00 News	unattributed	08/11/2016
Irish Water puts a price tag of up to 900 million euro on a new supply for the Midlands and the East	NewsTalk - 11:00 News	unattributed	08/11/2016
Irish Water puts a price tag of up to 900 million euro on a new supply for the Midlands and the East	Limerick 95FM - 11:00 News	unattributed	08/11/2016
Irish Water puts a price tag of up to 900 million euro on a new supply for the Midlands and the East	Highland FM - 11:00 News	unattributed	08/11/2016
Plan unveiled to bring a new water supply to the city	Q102 - 11:00 News	unattributed	08/11/2016
Shannon to Dublin pipeline plan published	RTE Radio 1 - Today with Sean O'Rc Sean O'Rourke		08/11/2016
Irish Water puts a price tag of up to 900 million euro on a new supply for the Midlands and the East	Galway Bay FM - 11:00 News	unattributed	08/11/2016
Irish Water puts a price tag of up to 900 million euro on a new supply for the Midlands and the East	Galway Bay FM - 11:00 News	unattributed	08/11/2016
Opposition In Clare To Proposed Pipeline From River Shannon	Clare FM - 11:00 News	unattributed	08/11/2016
Cabinet to consider public service pay this morning	RTE Radio 1 - Today with Sean O'Rc Sean O'Rourke		08/11/2016
Newspaper Review	Limerick 95FM - Limerick Today	Joe Nash	08/11/2016
Irish Water says it will compensate the ESB for any water it takes from the Parteen basin in county Tipperary	East Coast Radio - 13:00 News	unattributed	08/11/2016
Irish Water publishes route for pipeline bringing water from River Shannon to Dublin	NewsTalk - The Pat Kenny Show	Pat Kenny	08/11/2016
Irish Water compensate the ESB for any water it takes from the Parteen basin	4FM - 13:00 News	John Hart	08/11/2016
Plans To Take Lough Derg Supply To Dublin Set To Cost Almost 1 Billion Euro	Clare FM - 13:00 News	unattributed	08/11/2016
Irish Water compensate ESB for water taken from the Parteen basin	Cork 96FM - 13:00 News	Barry O'Mahony	08/11/2016
Staunch opposition to new plans to extract millions of litres of water from Lough Derg to Dublin	Tipp FM - 13:00 News	unattributed	08/11/2016
Irish Water To Spend 900M Euro On Pipeline Via Kildare	Kildare FM - 13:00 News	unattributed	08/11/2016
Irish Water compensate ESB for water taken from the Parteen basin	Galway Bay FM - 13:00 News	unattributed	08/11/2016
Irish Water compensate ESB for water taken from the Parteen basin	Cork 96FM - 15:00 News	unattributed	08/11/2016

Item	Publication	Author	Date
Preferred Route For Water Supply Pipeline Passes Through Laois And Offaly	Midlands 103 - 15:00 News	unattributed	08/11/2016
Irish Water says it will compensate ESB for any water taken from Parteen Basin	KCLR FM - 13:00 News	unattributed	08/11/2016
Irish Water publishes route of Shannon to Dublin pipeline	Tipp FM - Tipp Today	Fran Curry	08/11/2016
Irish Water	RTE Radio 1 - Drivetime	Mary Wilson	08/11/2016
Irish Water publishes route for pipeline bringing water from River Shannon to Dublin	Tipp FM - 17:00 News	unattributed	08/11/2016
Plans To Take Lough Derg Supply To Dublin Set To Cost Almost 1 Billion Euro	Clare FM - 17:00 News	Derek Lynch	08/11/2016
€950m pipeline ready by 2025	Irish Independent Tabloid	unattributed	08/11/2016
Farmers concern over Irish Water's Shannon-Dublin pipe plan	RTE1 - Six One News	Bryan Dobson and Sharon Ni Bheolain	08/11/2016
Irish Water Announced preferred route for controversial pipeline from Shannon to the Greater Dublin	TV3 - TV3 News at 5.30	Caroline Twohig	08/11/2016
Irish Water Announced preferred route for controversial pipeline from Shannon to the Greater Dublin	TV3 - News at 8	Elaine Stenson	08/11/2016
Irish Water Announced preferred route for controversial pipeline from Shannon to the Greater Dublin	RTE1 - Nine News	Eileen Dunne	08/11/2016
Preferred route for Shannon-Dublin pipeline published	RTE1 - News at One	John Finnerty	08/11/2016
Shannon to Dublin pipeline plan is unveiled	Irish Times	Lorna Siggins	08/11/2016
Shannon-Dublin pipe plan to affect 500 landowners	Irish Times	unattributed	08/11/2016
Review Of Newspapers With John S Doyle	RTE Radio 1 - Morning Ireland	Keelin Shanley and Rachael English	09/11/2016
New Water Source - Irish Water	Kildare FM - Kildare Today	Shane Beatty	09/11/2016
Irish Water Pipeline Requires The Cooperation Of Scores Of Kildare Landowners	Kildare FM - 13:00 News	unattributed	09/11/2016
Company rejects water extraction warnings	Irish Times	David Raleigh	09/11/2016
Farmers Concerned' over Shannon water pipe	Irish Examiner	Joyce Fegan	09/11/2016
Farmers fear pipeline may devalue their land	Irish Times	Eoghan MacConnell	09/11/2016
Home News	Irish Times	unattributed	09/11/2016
Piping water from Shannon to Dublin	Irish Times	unattributed	09/11/2016
Protesters to lodge objections to pipeline	Irish Times	Lorna Siggins Western Correspondent	09/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Wicklow People	unattributed	09/11/2016
Shannon plan is a capital pain in city	Limerick Leader Wed	Nick Rabbitts	09/11/2016
Shannon-Dublin water pipeline route revealed	Daily Mirror Eire	Anita McSorely	09/11/2016
Ownership of Public Water System	LMFM - The Michael Reade Show	Michael Reade	10/11/2016
Farmers view on Shannon-Dublin Pipeline Project by Irish Water	Tipp FM - Tipp Today	Frank Curry	10/11/2016
Farmers vow to 'Fight the Pipe'	Tipp FM - 13:00 News	Presenter	10/11/2016
Irish Water To Spend Quarter Of A Million Euro To Replace Pipes	Radio Kerry - Kerry Today	Jerry O'Sullivan	10/11/2016
Farmers vow to 'Fight the Pipe'	Tipp FM - 17:00 News	unattributed	10/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region Irish Water	Midland Tribune	unattributed	10/11/2016
Shannon Extraction Pipeline Plans Published	Midland Tribune	Darren Keegan	10/11/2016
Shannon-to-Dublin water route to end at Peamount	Tallaght Echo	Brendan Grehan	10/11/2016
Shannon-to-Dublin water route to end at Peamount	Ballyfermot Echo	Brendan Grehan	10/11/2016
Shannon-to-Dublin water route to end at Peamount	Clondalkin Echo	Brendan Grehan	10/11/2016
Shannon-to-Dublin water route to end at Peamount	Lucan Echo	Brendan Grehan	10/11/2016
Cold water poured on pipe proposal	Tipperary Star	Ronan Dodd	10/11/2016

Item	Publication	Author	Date
Irish Water publish preferred route for pipeline from Shannon to Dublin	Athlone Topic	unattributed	10/11/2016
Shannon water extraction	Tipperary Star	unattributed	10/11/2016
Call From the Dail with Michael O'Regan	Radio Kerry - Kerry Today	Jerry O'Sullivan	11/11/2016
Main Stories of the Week	Tipp FM - Tipp Today	Fran Curry	11/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Galway City Tribune	unattributed	11/11/2016
Final route unveiled for proposed Lough Derg abstraction	Clare Champion	Dan Danaher	11/11/2016
Dublin water will be pumped from Parteen	Limerick Post	Bernie English	12/11/2016
Water pipe plan to go through Offaly	Offaly Independent	unattributed	12/11/2016
Dublin water plan a capital pain for city	Limerick Leader Saturday City	Nick Rabbits	12/11/2016
Dublin water plan a capital pain for city	Limerick Leader Saturday County	Nick Rabbits	12/11/2016
Dublin water plan a capital pain for city	Limerick Leader West Edition	Nick Rabbits	12/11/2016
Farmer anger over Shannon-Dublin pipe	Irish Farmers Journal	unattributed	12/11/2016
Farmer anger over Shannon-Dublin pipe	Irish Farmers Journal	Amy Nora Fitzgibbon	12/11/2016
Plan to take water from Shannon progresses	Nenagh Guardian	Peter Gleeson	12/11/2016
Seven Days In numbers	Irish Times - Weekend Review	unattributed	12/11/2016
Irish Water: Shannon pipeline to boost Midland jobs	Sunday Business Post	Michael Brennan	13/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Irish Water Sunday World	unattributed	13/11/2016
Irish Water's New Pipeline	Kildare FM - Kildare Today	Shane Beatty	14/11/2016
Fighting the pipe	Irish Independent Tabloid-Farming su	unattributed	15/11/2016
New water source Pipe line plans	Leinster Leader	unattributed	15/11/2016
Farmer anger over Irish Water's Shannon-Dublin pipe plan	Clare FM - 13:00 News	unattributed	15/11/2016
Pipeline will bring water from Parteen Basin to Carlow	Carlow Courier	unattributed	15/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Wicklow Times	unattributed	15/11/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Wicklow Times North	unattributed	15/11/2016
The navvies' Eipe could e solution	Leinster Leader	unattributed	15/11/2016
Farmer's fears for Irish Water pipe	Clare People	Andrew Hamilton farming@clarepeople.ie	15/11/2016
Opposition to €900m Lough Derg pipeline	Clare People	Stuart Holly	15/11/2016
Public Notice	Leinster Express	unattributed	15/11/2016
Farmers urged to attend meetings on water pipe	Tipp FM - 10:00 News	Fiona Donnellan	16/11/2016
Public consultation meeting for controversial water pipeline	Tipp FM - Tipp Today	Fran Curry	16/11/2016
Farmers concerns must be paramount in Shannon to Dublin pipeline	Northern Standard	unattributed	17/11/2016
Questions Remain Unanswered Regarding Pipeline Project - IFA	Tullamore Tribune	unattributed	17/11/2016
Questions Remain Unanswered Regarding Pipeline Project - IFA	Midland Tribune	unattributed	17/11/2016
Fighting the pipe - Farmers opposed to Shannon to Dublin Water Project	RTE Radio 1 - Drivetime	Mary Wilson	17/11/2016
Shannon pipeline details published	Offaly Topic	unattributed	17/11/2016
Shannon pipeline details published	Meath Topic	unattributed	17/11/2016
Farmers urged to question pipeline	Tipperary Star	Ronan Dodd	17/11/2016
Irish Water defends pipe route choice	Tipperary Star	Konan Dodd	17/11/2016

Item	Publication	Author	Date
€1.2bn plan to pipe water from Shannon to city	Dublin Voice - Northside Edition	Michelle McGlynn	18/11/2016
€1.2bn plan to Pipe water from Shannon to city	Dublin Voice - Southside Edition	Michelle McGlynn	18/11/2016
Conflicting reports on Lough Derg abstraction economic impact	Clare Champion	unattributed	18/11/2016
If the price is right	Clare Champion	unattributed	18/11/2016
Concerns Over Proposed Water Pipeline To Dublin	Tipp FM - Tipp Today	Fran Curry	18/11/2016
Significant questions remain unanswered regarding water pipeline project	Dungarvan Observer	unattributed	18/11/2016
Choppy waters	Nenagh Guardian	unattributed	19/11/2016
Concern at Shannon water pipeline plan	Offaly Independent	Rodney Farry	19/11/2016
Concern grows over water plan	Limerick Post	Bernie English	19/11/2016
IFA voice concern over water pipeline project	Nenagh Guardian	unattributed	19/11/2016
'No impact on flow to lower Shannon' from water scheme	Limerick Leader Saturday City	unattributed	19/11/2016
'No impact on flow to lower Shannon' from water scheme	Limerick Leader Saturday County	unattributed	19/11/2016
No impact on flow to lower Shannon' from water scheme	Limerick Leader West Edition	unattributed	19/11/2016
Public consultation on Preferred Scheme for new [...]	Limerick Leader Saturday City	unattributed	19/11/2016
Shannon water pipeline proposal 'vital' for Lucan	Liffey Champion	Carrie Bermingham	19/11/2016
Water piped from Limerick may help to meet midlands' future demands	Westmeath Examiner	DEMAND WSP looking ahead	19/11/2016
Water plan a 'White Elephant' - RSPA	Nenagh Guardian	unattributed	19/11/2016
Farmers seek answers on pipeline	Irish Farmers Journal	unattributed	19/11/2016
Farmers seek answers on pipeline	Irish Farmers Journal	Amy Nora Fitzgibbon	19/11/2016
Water pipeline	Irish Farmers Journal	unattributed	19/11/2016
Water pipeline	Irish Farmers Journal	unattributed	19/11/2016
Leaked document from the water commission	RTE1 - The Week in Politics	Aine Lawlor	19/11/2016
Missing the bigger picture	Irish Times	unattributed	21/11/2016
Irish Water says River Shannon plan will benefit Clare	Clare FM - 09:00 News	Ronan Moyles	21/11/2016
Discussion on project to supply water from Parteen to Dublin	Clare FM - Morning Focus	Gavin Grace	21/11/2016
Irish Water Says River Shannon Plan Will Benefit Clare	Clare FM - 11:00 News	unattributed	21/11/2016
Irish Water Says River Shannon Plan Will Benefit Clare	Clare FM - 13:00 News	unattributed	21/11/2016
Farmers opposed to Shannon to Dublin water project	Tipp FM - 13:00 News	unattributed	21/11/2016
Irish Water publishes route of Shannon to Dublin pipeline	Tipp FM - Tipp Today	Fran Curry	21/11/2016
Irish Water publishes route of Shannon to Dublin pipelineIrish Water publishes route of Shannon to Dublin pipe	Tipp FM - Tipp Today	Fran Curry	21/11/2016
Irish Water publishes Shannon to Dublin pipeline route	Tipp FM - Tipp Today	Fran Curry	21/11/2016
Concern Over Impact Of Shannon River Scheme On Clare	Clare FM - 17:00 News	unattributed	21/11/2016
'Fight the Pipe' group to step up protest measures	Tipp FM - 17:00 News	unattributed	21/11/2016
Farmers unhappy with pipeline proposals	Laois Nationalist	Joe Barrett	22/11/2016
No impact on lower River Shannon flow from Irish Water project	Limerick 95FM - 17:00 News	unattributed	22/11/2016
Rural solutions to urban problems	Irish Times	unattributed	23/11/2016
Irish Water outlines why River Shannon is only show in town	Tipperary Star	unattributed	24/11/2016
Public consultation on Preferred Scheme for new water supply for the Eastern and Midlands Region Irish Wate Midland Tribune		unattributed	24/11/2016

Item	Publication	Author	Date
SF raises concerns over abstraction	Tipperary Star	unattributed	24/11/2016
Whose water?	Daily Mail Eire	unattributed	24/11/2016
Capital punishment	Limerick Post	unattributed	26/11/2016
Extraction plan is 'akin to taking a spoonful out of bath'	Limerick Leader Saturday City	NICK BABBITTS	26/11/2016
Inside	Limerick Leader Saturday City	unattributed	26/11/2016
Inside	Limerick Leader Saturday County	unattributed	26/11/2016
MEP hears of local concern over Derg plan	Nenagh Guardian	unattributed	26/11/2016
POLL: Will Irish Water's plans [...]	Nenagh Guardian	unattributed	26/11/2016
Shannon plans described as 'taking a spoonful from bath'	Limerick Leader Saturday County	NICK BABBITTS	26/11/2016
Shannon plans described as 'taking a spoonful from bath'	Limerick Leader West Edition	NICK BABBITTS	26/11/2016
THE HOME FARM: the important pushed out by the urgent	Irish Farmers Journal	unattributed	26/11/2016
Water pipeline will destroy farmland	Irish Farmers Journal	unattributed	26/11/2016
What to watch	Irish Examiner-Weekend	Des O'Driscoll	26/11/2016
WATER NIGHTMARE	Sunday World	Lynne Kelleher	27/11/2016
Information Days On Water Supply Pipeline Being Held In Offaly	Midlands 103 - 08:45 News	unattributed	28/11/2016
Irish Water's Preferred Scheme for the Eastern and Midlands region	Limerick 95FM - Limerick Today	Joe Nash	28/11/2016
Information Days On Water Supply Pipeline Being Held In Offaly	Midlands 103 - 11:00 News	unattributed	28/11/2016
General taxation for water charges says the expert commission	RTE Radio 1 - Today with Sean O'Riada	Sean O'Rourke	29/11/2016
Majority should not have to pay water charges, says commission	NewsTalk - Drive	Sarah McInerney, Chris Donoghue	29/11/2016
2016 Review of the Year	Tipperary Star	unattributed	29/11/2016
Fight The Pipe Meeting Scheduled For Ballyeighan Hall	Midland Tribune	Derek Fanning	29/11/2016
Fight The Pipe Meeting Scheduled For New Year	Tullamore Tribune	Derek Fanning	29/11/2016
MEETING THE CAPITALS'S LONG-TERM NEEDS	Business Ireland	unattributed	01/12/2016
Public consultation on preferred scheme for new water supply for the Eastern and Midlands Region	Irish Farmers Monthly	unattributed	01/12/2016
What's on TV tonight	Evening Echo	unattributed	01/12/2016
Irish Water is about to spend €1.2bn to take water from the Shannon and make it available in Dublin via a 170km pipeline	RTE1 - Ear To The Ground	unattributed	01/12/2016
POLITICAL PITCH BECOMES EVER MUDDIER OVER WATER	Connacht Tribune	Harry McGee	02/12/2016
POLITICAL PITCH BECOMES EVER MUDDIER OVER WATER	Galway City Tribune	Harry McGee	02/12/2016
Get used to it: paying for water is a necessity	Sunday Business Post	unattributed	04/12/2016
Irish Water Holds A Public Consultation Meeting In Maynooth Today	Kildare FM - Kildare Today	Shane Beatty	05/12/2016
Educate yourself about pipeline - IFA	Leinster Leader	unattributed	06/12/2016
Irish Water's plan water from Tipperary to Dublin	Kildare FM - Kildare Today	Shane Beatty	07/12/2016
Farmers to meet to oppose pipe plans	Tipperary Star	Ronan Dodd	08/12/2016
Group Opposing Waterpipe Hold Public Meeting	Midland Tribune	Derek Fanning	09/12/2016
Fight The Pipe Group To Hold Public Meeting On Water Supply Project	Midlands 103 - 17:00 News	unattributed	09/12/2016
Inshore Island Magazine	RTE Radio 1 - Seascapes	Marcus Connaughton	09/12/2016
Taking water by pipe through farming land in Greater Dublin area	Tipp FM - Tipp Today	Fran Curry	10/12/2016
Meeting to 'fight the pipe'	Nenagh Guardian	unattributed	10/12/2016

Item	Publication	Author	Date
Fight the Pipe organise meeting	Tipp FM - 13:00 News	unattributed	11/12/2016
ICSA Meets With Irish Water and Ervia Over Pipeline Concerns	East Cork Journal	unattributed	15/12/2016
ICSA raises pipeline concerns	Letterkenny Post	unattributed	15/12/2016
Landowners On Water Pipe Eoute Will Get Money Upfront	Midland Tribune	Gearoid Keegan	15/12/2016
Landowners On Water Pipe Route Will Get Money Upfront	Tullamore Tribune	Gearoid Keepn	15/12/2016
Fight the Pipe meeting	Nenagh Guardian	unattributed	17/12/2016
Pipeline fears still not addressed -1 FA	Offaly Independent	Rodney Farry	17/12/2016
Water concerns	Limerick Post	unattributed	17/12/2016
Jobs In Construction Sector	Tipp FM - Tipp Today	Fran Curry	20/12/2016
ICMSA calls on Dept. to release payments	Tipperary Star	unattributed	22/12/2016
ICSA meets with Irish Water and Ervia over pipeline concerns	Dungarvan Observer	unattributed	23/12/2016
A to Z of 2016	Irish Farmers Journal	unattributed	24/12/2016
Meeting sought over Shannon pipe	Nenagh Guardian	Simon ODuffy	24/12/2016
Water pipeline to benefit Mullingar	Westmeath Examiner	unattributed	24/12/2016
ALL THE NEWS THATS GOMG TO HAPPEN IN 2017	Irish Times - Weekend Review	Darragh Murphy	31/12/2016
december	Tullamore Tribune	unattributed	05/01/2017
December review	Midland Tribune	unattributed	06/01/2017
November Review	Midland Tribune	unattributed	07/01/2017
'Healthy regions depend on a sizeable city, without that they cannot thrive'	Irish Independent Tabloid – Review	Kim Bielenberg	07/01/2017
Water: more questions in the pipeline	Tipperary Star	Ronan Dodd	08/01/2017
Offaly IFA Holding Public Meeting On Water Pipeline Plan	Midlands 103 - 17:00 News	unattributed	09/01/2017
Irish Water needs to answer farmers' concerns about the Shannon pipeline, says IFA	Midlands 103 - 08:45 News	unattributed	10/01/2017
IFA Says Irish Water Needs To Answer Concerns About Shannon Pipeline	Midlands 103 - 11:00 News	unattributed	10/01/2017
Geoghegan assures landowners they won't suffer financial losses during construction of Shannon water pipelir	Midlands 103 - 15:00 News	unattributed	10/01/2017
Landowners To Be Compensated For Losses Caused By Shannon Water Pipeline	Midlands 103 - 17:00 News	unattributed	10/01/2017
Council to look for water remuneration	Wicklow People	Myles Buchanan	11/01/2017
Council to look for water remuneration	Bray People	Myles Buchanan	11/01/2017
Farmers still have 'huge concerns' over Shannon pipeline	Offaly Independent	unattributed	14/01/2017
Irish Water's future plans for Tipperary	Tipp FM - Tipp Today	Fran Curry	16/01/2017
What Water Price	Wicklow Times	unattributed	17/01/2017
What Water Price	Wicklow Times North	unattributed	17/01/2017
IFA Sheep Meeting Will Focus On New €10 Ewe Sheep Scheme	Tullamore Tribune	unattributed	19/01/2017
Pictured at the January meeting of Offaly [...]	Midland Tribune	unattributed	19/01/2017
30 submissions on Cloncreen wind farm	Offaly Independent	unattributed	21/01/2017
Irish Water Making Presentation To Council Today On Eastern and Midlands Region Pipeline	Kildare FM - 13:00 News	unattributed	30/01/2017
Tipperary branch of the Irish Cattle and Sheep Farmers Association Meeting	Tipp FM - Tipp Today	Fran Curry	02/02/2017
Tipperary farmers feel isolated in their bid to get answers about plans to bring water from the Shannon to Dubli	Tipp FM - 13:00 News	unattributed	02/02/2017
Locals oppose 'The Pipe'	Nenagh Guardian	unattributed	04/02/2017

Item	Publication	Author	Date
Submissions due on Shannon water plan	Nenagh Guardian	Simon O'Duffy	04/02/2017
Water pipe plans move step closer	Leinster Leader	unattributed	07/02/2017
Court challenge to water pipe urged	Tipperary Star	Ronan Dodd	09/02/2017
Farming opposition to water pipe grows	Tipperary Star	Ronan Dodd	09/02/2017
Huge Opposition To Water Pipe At ICOSA Meeting	Midland Tribune	unattributed	09/02/2017
300 Kildare landowners contacted over Irish Water pipeline	Liffey Champion	Laura Mc Loughlin	11/02/2017
Opposition to water pipe at ICOSA event	Nenagh Guardian	unattributed	11/02/2017
Water proposal	Nenagh Guardian	unattributed	11/02/2017
Deadline For Submissions On Water Supply Pipeline	Midlands 103 - 11:00 News	Michael Brophy	14/02/2017
Shannon-Dublin water pipeline have not yet been fully addressed	Midlands 103 - 13:00 News	unattributed	14/02/2017
IFA says farmers want answers over Shannon-Dublin pipeline	Midlands 103 - 15:00 News	unattributed	14/02/2017

Appendix E: Landowner Letter template

Name
Address

7th November 2016

**Re: Water Supply Project - Eastern and Midlands Region
Landowner Information Evening**

Dear ...,

The Water Supply Project - Eastern and Midlands Region represents the first major upgrade to Ireland's "new source" water supply infrastructure in over 60 years. It will deliver a much needed new source of water supply to the Eastern and Midlands region, facilitating economic growth along the route and meeting the domestic, commercial and industrial needs of over 40% of Ireland's population into the medium to long term future to 2050.

We wish to advise you that Irish Water is publishing a report on 8th November 2016 which identifies the preferred scheme for a new source of water supply for the region. This preferred scheme involves abstraction of water from Parteen Basin on the lower River Shannon and water treatment nearby at Birdhill, to be delivered throughout the Eastern and Midlands Region via an underground treated water pipeline to a termination point reservoir at Peamount in South County Dublin.

This "Final Options Appraisal Report" is the fourth in a series of reports which combine the findings of environmental and technical research and public consultation and will also include an indicative 50 metre wide pipeline corridor. This indicative pipeline corridor has been identified by examining environmental, technical and geographic constraints. You will probably have been aware of these studies through contact with our Landowner Liaison Officer, **Name** and we wish to thank landowners for their co-operation in this regard.

While further environmental and technical assessments will be required along with a 14 week consultation phase, before a definitive route can be agreed, we wish to confirm that the current 50 metre indicative pipeline corridor affects land which we understand to be in your ownership.

Following the publication of the Final Options Appraisal Report, a 14 week public consultation period will begin from 8th November 2016 to 14th February 2017. A series of Landowner Information Evenings have been arranged, at which you will have the opportunity to learn more about how the indicative route corridor was selected, how you may be affected, engage with members of the project team and contribute your views to the consultation process. The Information Evening to be held in your area will take place from **4.30pm to 8.00pm on date/place.**

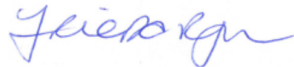
Copies of the Final Options Appraisal Report and Environmental Impact Statement Scoping Report will be available at the Information Evening. Alternatively they can be downloaded from the project website (www.watersupplyproject.ie) or are available at Local Authority Planning Counters and County Libraries.

Following on from the conclusion of the consultation process in early 2017, Irish Water will be in direct contact with landowners affected by the proposed pipeline route. The extensive experience of Irish Water's sister company, Gas Networks Ireland, which has successfully delivered over 2,400 km of natural gas transmission pipelines through the lands of over 5,600 landowners since 1977 will be brought to bear during the planning, wayleave acquisition, construction and reinstatement phases of the project.

We encourage you to attend the Landowner Information Evening in your area. Should you be unable to attend please contact our dedicated Landowner Liaison Officer for your area, **name/telephone number**. Alternatively, you may contact us at the above address, telephone number or on watersupply@water.ie.

I look forward to meeting you.

Yours sincerely,



Frieda Ryan
Wayleaves Manager
Major Projects

Appendix F: Launch Day email template

Launch day email

Dear XXXXXXXX,

As part of its remit to deliver a sustainable and resilient national water supply, Irish Water has commenced the fourth round of consultation on the Final Options Appraisal Report (FOAR) which identifies the Preferred Scheme for meeting the future needs of the Eastern and Midlands Region as well as the Environmental Impact Statement (EIS) Scoping Report for the scheme. The fourteen week consultation period commences on November 8th 2016, and runs until February 14th 2017.

The report traces the three year process which began with the review of the Need for the Project (March 2015), then progressed through review of ten options (June 2015), to more detailed examination of four options, shortlisted to two, with identification of an emerging preferred option in November 2015. Environmental assessment, engineering design, landowner engagement and public consultation conducted in the interim period has culminated in the Preferred Scheme, which is presented in the FOAR.

The Preferred Scheme confirms abstraction and treatment of water at Parteen Basin (also known as 'Lower Lake') on the lower Shannon in County Tipperary together with a treated water pipeline route between Parteen and Dublin.

Alongside the identification of the Preferred Scheme, Irish Water have published an EIS Scoping Report, which considers the nature and likely scale of the potential environmental impacts that may arise from the Preferred Scheme. Scoping ensures that potential environmental impacts are identified at the initial stages of the process while ensuring environmental protection is a key consideration in the development of the project design.

The FOAR, which provides detail on the assessment process used in the identification of the Preferred Scheme, and the EIS Scoping Report can be read in full and downloaded at <http://www.watersupplyproject.ie/publications/>.

Submissions may be made by email to watersupply@water.ie, or by post to Water Supply Project, Merrion House, Merrion Road, Dublin 4. If you require any further information, please contact us using the project email address or call us on low-call 1890 252 848 in the Republic, or on 084 5246 5059 in Northern Ireland. In addition, the Project Team will be available to discuss the project at 8 Open Days which will be held during the consultation period. These will be advertised in local newspapers and dates will be published on the project website. Closing dates for receipt of submissions is 14th February 2017.

Kind regards,

Mick Garrick,

Project Manager

Appendix G: Launch Day organisations sent FOAR and EIS Scoping Correspondence

Groups / Organisations Contacted on Launch of the FOAR and EIS Scoping consultation

American Chamber of Commerce Ireland	Friends of the Irish Environment	Nenagh Anglers
An Taisce	GAA	Newbridge Chamber
Athlone Chamber	Geological Survey of Ireland (GSI)	North Kildare Chamber
Ballinacurra Residents Association	Global Action Plan	Northern and Western Regional Assembly
Birdwatch Ireland	Golden Eagle Trust (Sea Eagle Reintroduction)	NPWS
Birdwatch Ireland - Limerick Branch	Good Energies Alliance Ireland	NTA
Bord Iascaigh Mhara	Green Economy Foundation	NTMA (new ERA)
Bord na Mona	Health and Safety Authority (HSA)	NUI Maynooth
British Irish Chamber of Commerce	Health Service Executive (HSE)	Old River Shannon Research Group
Carra/Mask/Corrib Water Protection Group	Hedge Laying Association of Ireland	OPW
Castleconnell Fishery Association	Heritage Council	Professor of Economics (Trinity)
Cavan Leitrim Environmental Awareness Network	IBEC	Public Water Forum
Celebrate Water	IDA Ireland	Railway Safety Commission
Celt (Centre for Environmental Living and Training)	IFA	Restaurants Association of Ireland
CER	Inland Fisheries Ireland	River Shannon Protection Alliance
Chambers Ireland	Inland Waterways Association of Ireland (IWAI)	Roscrea Chamber
CIE	International Association of Hydrogeologists (IAH) Irish Group	Salmon Watch Ireland
Clonmel Chamber	Irish Creamery Milk Suppliers Association (ICMSA)	Save Our Lough Ree
Cloughjordan EcoVillage	Irish Environmental Network	Save the Swilly
Coastwatch	Irish Federation of Pike Anglers	School of Natural Science TCD
Coillte	Irish Hotels Federation	Shannon & District Chamber of Commerce
Commission for Railway Regulation	Irish Marine Federation/Afloat	Shannon Dolphin and Wildlife Foundation
Condron Concrete	Irish Peatland Conservation Council	Shannon Fisheries Partnership
Coomhola Salmon trust	Irish Peatlands Conservation Council	Shannon Foynes Port Company
Cork Environmental Forum	Irish Rail	Shannon Group PLC

County and City Management Association	Irish Seal Sanctuary / Sea Fisheries Advisory Group	Shannon, Mulkear and District Anglers Association
Crann - Trees for Ireland	Irish Seed Savers Association	Society of Chartered Surveyors
Curlew Trust	Irish Water and Fish Preservation Society	Sonairte
DCC North Central Env Strategy Policy Committee	Irish Whale and Dolphin Group	South Dublin Chamber
Dublin Chamber of Commerce	Irish Wildlife Trust	Southern and Eastern Regional Assembly
Dublin City Business Association	Just Forests	St Flannan's Fishing Club
Dun Laoghaire Rathdown Chamber	Kells & District Chamber	Streamscapes
East Clare Tourism	Killaloe District Councillors (support RSPA submission)	SWAN
Eastern and Midlands Regional Assembly	Landscape Alliance Ireland	Teagasc
Eastern River Basin District	Landscape Forum Ireland	The Organic Centre
Eco - Unesco	Laois Chamber	Thurles Chamber
Eir	Limerick & District Anglers Association	Tourism Ireland
Eirgrid	Limerick Chamber	Transport Infrastructure Ireland
ELIG (Environmental Pillar, An Taisce, Environmental Law Implementation Group)	Lisheen Mines	Tullamore Chamber
Ennis Chamber	Longford Environmental Alliance	Voice
Enterprise Ireland	Lough Derg Anglers Association	VOICE (Voice of Irish Concern for the Environment)
EPA	Lough Derg Science Group	Waterways Ireland
ESB	Lough Derg Yacht Club	Zero Waste Alliance
ESRI	Macroom District Environmental Group	
Failte Ireland	Marine Institute	
Feasta	Midland Gateway Chamber, Tullamore Chamber, CIF (dominic@glangroup.ie)	
Fingal Local Enterprise Office	Mullingar Chamber	
Forest Friends	Nagle Consultants	
Friends of Irish Environment	National Anglers Representative Association (NARA)	
Friends of the Earth	National Federation of Group Water Schemes	

County Councils Contacted on Launch of the FOAR and EIS Scoping consultation

Cocos	Galway County Council	Offaly County Council
Clare County Council	Kildare County Council	South Dublin County Council
Dublin City Council	Laois County Council	Tipperary County Council
Dun Laoghaire Rathdown County Council	Limerick City & County Council	Westmeath County Council
Fingal County Council	Meath County Council	Wicklow County Council

Appendix H: Organisations briefed during consultation

Groups / Organisations met during the consultation period		
Clare County Council Councillors	IBEC Environment Policy Committee	National Federation of Group Water Schemes
Clare County Council Elected Members	IFI	National Federation of Group Water Schemes (NFGWS)
Clare County Council Management Team	Inland Waterways Association of Ireland	Nenagh Anglers
Cloughjordan Community Development community	Irish Rail	Offaly County Council Elected Members
Conor Murphy, NUI Maynooth	Joint Committee on Housing, Planning, Community and Local Government	Offaly County Council Elected Members
Dublin Chamber of Commerce	Kildare County Council CE and Management Team	Shannon Flooding Relief Task Force Steering Group Meeting
Dublin Lord Mayor and Cllr Naoise O' Muiri	Limerick City & County Council Management Team	TCC WSP - Meeting with TCC Re Construction Access/ Compounds
Eastern & Midland Regional Assembly	Meeting with Tadhg McKenna (Member of the Public)	Tipperary County Council
Elected Members of Kildare County Council	Ministers, TD's and Senators	Tipperary County Council Elected Members
Enterprise Ireland	Mulkear and District Anglers' Association	Water Policy Advisory Committee

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