



An
Bord
Pleanála

Inspector's Report PL27.247745.

Development

Water treatment plant.

Location

Vartry Water Treatment Site, Vartry,
Roundwood, Co. Wicklow

Planning Authority

Wicklow County Council

Planning Authority Reg. Ref.

16/363

Applicant

Irish Water

Type of Application

Permission

Planning Authority Decision

Grant Permission

Type of Appeal

Third Party

Appellants

1. Inland Fisheries Ireland
2. Avoca
3. Konrad and Katherine Jay
4. Vartry Anglers Conservation Club
5. River Vartry Protection Society

Observers

1. Steven Matthews
2. Patricia Butler
3. Derek Mitchell

4. Jennifer Whitmore

5. Mary Kavanagh

Dates of Site Inspections

28th February 2017, 2nd June 2017
and 9th June 2017.

Inspector

Mairead Kenny.

Contents

1.0 Overview.....	6
2.0 Site Location and Description	6
3.0 Proposed Development	10
4.0 Planning Authority Decision.....	14
4.1. Decision	14
4.2. Planning Authority Reports	15
4.3. Other Technical Reports	17
4.4. Prescribed Bodies.....	18
4.5. Third Party Observations to Planning Authority.....	19
5.0 Planning History.....	21
6.0 Policy Context.....	23
6.1. Water Services Strategic Plan (WSSP) – a plan for the future of water services	23
6.2. Irish Water Business Plan - transforming water services in Ireland to 2021	24
6.3. Strategic environmental assessment for the water services strategic plan.	24
6.4. Eastern and Midlands Region Water Supply Project.....	24
6.5. Wicklow County Development Plan 2016-2022	24
6.6. Natural Heritage Designations	25
6.7. National Inventory of Architectural Heritage.....	26
7.0 The Appeals	26
7.1. Inland Fisheries Ireland.....	26
7.2. Avoca	27
7.3. Konrad and Katherine Jay.....	27
7.4. Vartry Anglers Conservation Club	27

7.5. River Vartry Protection Society	28
8.0 Responses.....	29
8.1. Applicant Response	29
9.0 Observations.....	30
9.1. Cllr Jennifer Whitmore.....	30
9.2. Cllr Derek Mitchell	31
9.3. Cllr Mary Kavanagh.....	31
9.4. Mrs Patrick Butler, The Dower House, Rossanagh, Ashford.....	32
9.5. Cllr Steven Matthews	32
10.0 Oral Hearing.....	32
11.0 Assessment.....	33
11.1. Need	33
11.2. Policy	36
11.3. Environmental Impact Assessment.....	37
11.4. Hydrology and related issues.....	47
11.5. Ecological impacts	77
11.6. Invasive species.....	81
11.7. Flood Risk Assessment and Dam Stability	82
11.8. Traffic.....	84
11.10. Cultural heritage	85
11.11. Landscape and visual impact	89
11.12. Noise	91
11.13. Air quality impacts	92
11.14. Further comment on legal submissions	93
11.15. Other matters.....	95

11.16.	Appropriate Assessment.....	97
12.0	Conclusions.....	102
13.0	Recommendation	103
13.2.	Reasons and considerations.....	103
13.3.	Conditions.....	104

1.0 Overview

- 1.1. The application relates to the Vartry Water Works site, which is of stated area of 28.226 hectares. The Vartry Water Works is the treatment plant which is part of the Vartry Water Scheme (VWS). The VWS serves 220,000 customers or approximately 15% of the Greater Dublin Area. It includes two storage reservoirs at Vartry, a slow sand filtration water treatment plant, a 4km long tunnel under Callowhill and forty miles of trunk mains that deliver water through the supply area as far as Stillorgan Reservoir. It has had no major upgrade since its construction 150 years ago.
- 1.2. This application relates only to the works at the Vartry Reservoir (Draw off Tower and Spillway) and Water Treatment Plant (WTP) site only comprising:
 - New water treatment plant – required to address water quality concerns and to address disruption to output during Algal Blooms (April – May) and comply with EPA drinking water requirements.
 - Improvement works to the existing reservoir overflow spillway – required to increase the capacity of the spillway channel in the interest of dam safety.
 - Improvement works to the existing draw-off tower – required to replace valves and pipes in poor condition and provide security of supply.
- 1.3. Separately Irish Water is pursuing the two other projects:
 - replacement tunnel between the treatment plant and Callowhill reservoir
 - works to protect Stillorgan Reservoir by covering open ponds – subject to concurrent appeal under PL06D.248782.
- 1.4. The application planning report indicates that each of these elements are discrete standalone projects which has a different and independent role.
- 1.5. To assist in the hydrological aspects of this case Prof Paul Johnston was engaged as a consultant by the Board. His report is enclosed.

2.0 Site Location and Description

- 2.1. The site is immediately south of the Lower Vartry Reservoir and south-east of Roundwood. Broadly, the site is bound to the north by the regional road along the

dam at the Vartry Reservoir and in three directions by agricultural / afforested lands. The site is owned by Dublin City Council and occupied by Irish Water.

- 2.2. The Vartry rises at the base of the Great Sugar Loaf. The Vartry reservoir, now a designated proposed Natural Heritage Area (pNHA) dates to the mid-19th century and the construction of the Lower Vartry dam between 1862 and 1868 which resulted in the flooding of the Vartry River valley to the north. In 1923 a further dam was constructed about 3.4km to the north, creating the Upper Vartry Reservoir. The original scheme involved transfer of filtered water by tunnel at Callow Hill and then crossing the Dargle and Cookstown Rivers on aqueducts and continuing to the storage reservoirs at Stillorgan.
- 2.3. The Vartry River is a salmonid river which is below its conservation limit for salmon but is of importance as a brown trout and salmon fisheries. On exiting the reservoir, the River Vartry flows to the east in the direction of Ashford. The first significant point along this route is Angolan Bridge from where there is an existing water abstraction point to serve Cronroe reservoir, which supplies Ashford. Further on downstream is a narrow gorge The Devil's Glen pNHA. This is a wooded gorge which is designated for rare plants and birds. It is also the site of a now dis-used flow monitoring station. Nun's Bridge is the next significant point downstream beyond which is Ashford. In terms of the fisheries activities these would primarily be related to the area downstream of Ashford. There is some fish passage beyond Devils Glen upstream to the reservoir but this gorge is generally seen as restricting fish movement.
- 2.4. Ashford is where Mount Usher Gardens is located. The river flows through the gardens and then under the M11 motorway before reaching the coast at Broad Lough at The Murrough Special Area of Conservation (SAC) and Special Protection Area (SPA). The river length between the reservoir and the Murrough is stated to be 13km. Mount Usher Gardens dates from the last century and contains a fine collection of trees and plants. The river is a central feature flowing through the garden. Adjacent to the gardens is a complex of restaurants and retail units which are a significant attraction bringing people into Ashford and which are run by Avoca, now owned by Aramark. Aramark invest in the maintenance of the gardens which are accessed through the courtyard complex

- 2.5. The construction of the original WTP at the site and beyond involved major earthworks and introduced a range of new and distinctive structures which remain in situ today and which contribute to the visual amenity and cultural heritage interest of the area. In terms of the structures of interest I refer to the stone draw-off tower in Gothic Revival style, to the filter beds and the stilling pond and to a range of buildings including Vartry Lodge which is the former Supervisor's House and various service buildings including a granite boathouse, the engine house and a cluster of outbuildings. The fittings associated with the original plant appear to be largely in situ. The chemical treatment building is of distinctive design, is centrally positioned in the view of the site from the bridge and was added to the site in the latter part of the 20th century. The view to the ponds is enhanced by the rural landscape setting and the draw-off tower is set against the lake reservoir.
- 2.6. On completion the water treatment plant was extensively landscaped with woodlands and treelines. The lower ground level together with the trees and woodlands all add to the presence and strength of the landscape composition. The reservoir and the structures which are associated with the Vartry Scheme dominate the landscape character for much of this part of Wicklow. The application submissions note that the reservoir was a destination for a Sunday drive up to the 1980s. The manmade lakes to the north are a valued amenity which are utilised for recreational walking.
- 2.7. The landscape character in this general area would be described as being of high amenity value. Apart from the reservoir and water treatment plant utility the main use is agricultural. Thus the landscape is a working landscape. It has few detracting elements however and does not contain features such as quarries and it has some forestry. In the immediate vicinity of the site are attractive stone walls along the roadside.
- 2.8. The vehicular access to the site of the WTP is at the western side of the site. The toilet block at the north-east of the reservoir dam is dis-used.
- 2.9. Vartry Water Treatment Plant consists of the following elements:
- The draw-off tower and the associated pipework to the north of the dam
 - A stilling basin

- A valve chamber room at the base of the dam beside which are sculptures of John Grey who promoted the original scheme
- 16 no. slow sand filter beds
- Associated pipework and covered storage reservoir - in the south-east
- A twentieth century chemical treatment building
- A range of other buildings, stores and structures including sand washing plant
- Sludge lagoons located at the west of the site, where washings are settled.

2.10. The existing water works complex is to the south of the lower reservoir and the site of the new water treatment plant will be within that complex and in particular at the west of that site. The site of the proposed new treatment plant is a triangular field formed as part of the original scheme by the establishment of a woodland belt located inside its north and west boundaries. In the centre of the site is a line of trees which are understood to be remnants of a hedgerow which pre-dates the Vartry scheme and which contains large specimens of native trees. The ground level within the site is varied and the ground has been disturbed including for the provision of the sludge settlement ponds which take up a large area. There is a row of beech trees beside the stone wall along the western boundary, beyond which is a dwellinghouse.

2.11. The site is not highly visible from the immediate context due to the excavated ground level and the extensive tree planting. The view from the north is generally limited to views from the regional road. Views from the west are largely screened by woodlands. Views from the east are similarly screened by woodlands and by the topography.

2.12. Apart from the Vartry river and the reservoir, two other drainage features in the area are noteworthy. The first is a channel which connects to the settlement tanks and takes a licenced discharge from there to the river – this is referred to hereafter as the ‘interceptor channel’. The second is the dam spillway which is at the north-east of the site and which takes overflow from the reservoir in high flow periods. This is generally dry apart from a small flow arising from springs.

2.13. Photographs of the site and surrounding area which were taken by me during my site inspections are attached. I can confirm that I visited the length of the Vartry as well as undertaking a guided inspection lead by Mr Ned Fleming, engineer in charge of

the WWTP and in the company of Prof Johnston. Separately, I visited Ashford and Mount Usher gardens, the Murroughs and road crossings along the route of the river.

3.0 Proposed Development

3.1. Permission is sought for development at the site of Vartry WTP comprising:

- Construction of a new water treatment plant including a water treatment building of approximately 4,670m² gross floor area, low-lift pumping station, sludge treatment facilities including a sludge de-watering building, sludge balancing tank, thickening tanks, sludge holding tank, sludge storage facility, washwater recovery and settlement tanks and an electrical distribution building to replace the existing water treatment plant
- Alteration to the existing reservoir draw-off tower and to pipework and structures within existing reservoir dam, construction of a piped siphon
- Demolition of disused public toilet
- Re-grading of the existing overflow spillway
- Associated landscaping and site development works.

3.2. The stated gross floor area of the proposed works is 6,568m². There is no change to the existing buildings except for the demolition of the toilet block.

3.3. Revisions made by the applicant in response to requests for further information mainly addressed the operation of the scheme. The revised proposal comprises:

- Replacement of pipework and valves within the existing dam and pumphouse
- Deepening of the existing spillway (overflow) from the reservoir for dam safety reasons – the reservoir will continue to overflow when it is full
- Replacement of the existing water treatment plant to provide a modern facility with improved treatment processes to meet standards and security of supply
- No discharge of treated process water to the river – it will be recycled
- Abstraction of 80 megalitres per day (MLD) - no change abstraction regime
- A minimum release of 5MLD will take place at all times

- Retention for reasons of cultural heritage of a number of the sand filter beds
 - The works layout is illustrated on figure 5.
- 3.4. The application is accompanied by a number of environmental, heritage and social reports which assess potential environmental impacts of the proposed development.
- 3.5. The Environmental Impact Statement Screening Report concludes that the proposal is not one which is likely to have significant effects on the environment either by itself or in combination with other plans or projects and therefore does not require an EIS.
- 3.6. The development was subject to consideration under an Appropriate Assessment Screening Report, which concluded that there would not be a significant effect on the Natura 2000 network and a Stage 2 Appropriate Assessment was not required.
- 3.7. The works will take about 36 months to complete during which time the scheme must continue to supply the communities with drinking water.
- 3.8. The development will employ 8-10 full time staff and 2-3 part-time staff. Peak traffic movements of private cars and vans are estimated at 13 and 2 vehicles per day.
- 3.9. The new plant and its operation will involve
- replacement of the existing slow sand filtration plant with a new water treatment plant containing a new process involving flocculation, clarification and rapid gravity filtration with enhanced individual filtration control and monitoring and capable of reliably producing 80 MLD
 - all process water generated to be treated and pumped back to the plant and blended with the inflow water at head of works
 - sludge generated will be thickened, dewatered and removed off site for disposal to licensed facility
 - management system of freshet releases and increased discharges where possible is proposed
 - re-grading of the Spillway channel for a distance of 170 m will result in a Spillway with the minimum discharge capacity of 160 m³ per second
 - the existing discharge from the settled filter sand washings (via the interceptor channel) averages 0.1 MLD – this will no longer be required

- scarring or dewatering of pipes, tanks or other plant where required will involve full de-chlorination in accordance with Irish water standard operating procedure prior to discharge to surface waters.

3.10. Matters related to the **existing VWTP** include:

- prior to 2008 discharge from the plant was an average of 4.6 MLD except in extreme drought conditions – and since that date average discharge has increased to 10.5 MLD
- the existing plant has involved periods of no flow due to ‘pumping back’
- the operation of the existing plant involves periodic discharge of washings from the sand filter beds.

3.11. Aspects of the **construction works** outlined include:

General Measures

- Contractual obligation to comply with construction management plan which will be agreed with the statutory authorities.
- Contractual obligation to incorporate additional measures contained in the environmental reports. This will include seasonal constraints on working and agreement with IFI and NPWS regarding timing, identified pre-construction surveys related to specific species, ecological monitoring, treatment of invasive species, control and timing of tree and vegetation removal to avoid impacts to breeding birds and protection of bats and related matters.
- Contractor’s compound will be in field to north-east of dam. Access to spillway at the existing toilet block. Use of existing site entrance for other works including construction of new plant.

Water Quality

- Minimisation and clear identification of the works area, minimisation of vegetation removal and in particular maintenance of a 10 m strip minimum adjacent to water bodies. Stockpiling of felled trees and rock shall be outside of the channel and flood zones.
- Measures to ensure that working in the dry is undertaken and that no sediment enters the river including control of reservoir water level, formation

of upstream bund to maintain dry working area, pumping of water from this area through a settlement to discharge back to the reservoir. Site clearance on Spillway channel banks to be undertaken when rainfall is not predicted and similarly for the riverbank works.

- Adherence to IFI guidelines and recommendations and to UK guidance including but not limited to the control of water pollution from construction sites, control of water pollution from linear projects and control of water pollution from construction sites good practice guidance. Manage run-off through a series of settlement pond or filter channels along with silt fences and silt mats. Stockpiles 50 m from surface water features. No groundworks adjacent to water bodies in periods of heavy precipitation.
- If necessary pumping and transport of water off the site will be undertaken and the contractor will be obliged to manage the works so that there are no direct or indirect discharge of surface or groundwater.
- Management of wet concrete measures, maintenance of fuels lubricants and fluids within secure bunded areas remote from watercourses and other measures to prevent and if necessary address spillages.

Spillway

- Re-grading will take 3 months and will involve vegetation clearance and rock excavation at the sides and base of the channel for access purposes and for improved flow. A depth of excavation up to 3m is proposed. No blasting. Spillway banks reinstatement to minimise erosion potential.

Works close to Dam

- Works involving the draw off tower and dam tunnel over nine months. Aspects of the methodology to be used in the replacement of valves and fittings outlined. Undertaking of geotechnical and structural assessments.

Installation of Siphon Pipes

- Required for maintenance of supplies in the event of sudden failure and to maintain supplies when intake pipes are taken out of service for the construction phase as well as controlling the reservoir level as Spillway works are being carried out. Six weeks to install.

Monitoring

- Regarding water quality control for the construction phase. Day-to-day monitoring of water quality by the resident engineer. To include examination of effectiveness of silt and pollution control measures. Works to be in compliance with best practice controls. Monitoring will be overseen by an ecological clerk of works during critical periods of construction.

Invasive Species

- Contractor shall be required to adhere to measures to avoid spread and introduction of non-native invasive species and noxious weeds.

4.0 Planning Authority Decision

4.1. Decision

4.1.1. The planning authority decided to grant permission subject to conditions including:

- To be in accordance with the plans and particulars as revised by details submitted on 22nd September 2016 and 3rd November 2016.
- All mitigation measures set out in the environmental reports and associated documentation submitted with the application as amended by the submissions of the 22nd September 2016 and 3rd November 2016 shall be implemented.
- Construction Environment Management Plan and Waste Management Plan to be agreed in writing with the planning authority. To include a construction programme for the works, hours of operation, a traffic management plan and mitigation measures set out in the environmental reports.
- Condition 4(a) Maintain minimum daily compensatory flows of at least 5 MLD.
- Condition 4(b) Install and maintain a hydrometric station at a location to be agreed with the planning authority in consultation with the EPA – information to be available to WCC and EPA on request.
- Condition 4(c) Monitor and record flow of any release of water from the Vartry Reservoir and abstracted water diverted through site pipework into the spillway channel –information to be available to WCC and EPA on request.

- Details of all external wall finishes to be submitted to and agreed in writing with planning authority prior to commencement of works on each building forming part of the Water treatment plant upgrade.
- Engage archaeologist to monitor all topsoil stripping associated with the development – where archaeological material is found the archaeologist may have work on the site stopped pending a decision on the best approach – developer shall be prepared to be advised by the DAHRRGA with regard to the necessary mitigation action and facilitate the recording.

4.2. **Planning Authority Reports**

4.2.1. The **planner's final report** includes the following points:

- Notes clarification of matters including in relation to cessation of wastewater discharge and recycling of all process water to the head of the works, cessation of existing discharge from slow sand filters and cessation of discharge from existing overflow weir as well as cessation of abstraction from Annagolen bridge.
- it is noted that the applicant warns against conditions requiring increased compensatory flows or variable flows above 5MLD.
- Considering the importance of the development in the securing of a drinking water supply to a large region permission is recommended. The history of the reservoir and the provisions of the current development plan as well as the inclusion on the Remedial Action List (RAL) are also referenced. A handwritten note added by the director of services refers to the history which includes periods of no flow into the Vartry and to the proposed compensatory flow.
- Documents submitted indicate with respect to the construction phase that design precautions have been incorporated to ensure that potential impacts arising from spillage are mitigated. The construction element of the proposal should not give rise to impacts on the conservation value of the Natura sites.
- In view of the characteristics of the operational phase and the seasonal flows which historically have taken place it is considered that the development will

not have a significant negative impact on the conservation value of the Natura sites.

- 4.2.2. The planner's original report sets out a range of issues including a summary of the third party submissions and the technical reports, parts of Schedule 5 which are considered relevant to the matter of EIA¹, the development plan policies² which pertain and other matters. Given the location of the new water treatment plant within the overall treatment complex at a point below the road level and having regard to tree screening and augmentation it is considered that the development would not detrimentally impact on the landscape. The listed view at this point is directed towards the reservoir. The view of the water treatment facility is of interest as it reflects the historical man-made development of the area. Retaining some of the filter beds is considered important. There are no issues from a traffic viewpoint. The river basin management plan identifies the risk to the achievement of good status as being related to abstraction. All works took place prior to the current legislative requirements and it is not within the power of the planning authority to reverse such works. The provision of flows should however be investigated. A stage 2 appropriate assessment is not required. Regarding the Devil's Glen pNHA it should be ensured that the supernatant discharge will not detrimentally impact on the river which flows through the gorge. Further information recommended in relation to matters raised in technical reports and by DAHG.
- 4.2.3. The planner's second report notes two outstanding areas of concern which relate to the flow in the river and to the supernatant discharge. Given the lifespan of the Vartry reservoir it is not considered that the increased rate of leakage occurring in the last eight years would be described as an established pattern. In consultation with the Council's law agent it was concluded that the provisions of the water framework directive would not apply where the good status is not being changed. Further information required in relation to matters including that the applicant demonstrates that the proposal will not introduce a new impact. The issue of bat roosts has been

¹ Class 12(a) of part 1 of schedule 5, which was excluded on the basis of the reference therein to transfer of piped drinking water. Class 10 and class 13 of part 2 of schedule 5. These were discounted on the basis that the development is for the improvement of water treatment and not works for the transfer of water resources and the absence of any increase in the volume of abstraction.

² The development plan referenced in this report is the Wicklow County development plan 2010 – 2016.

resolved satisfactorily. The proposal to retain filter beds 1-7 as water features is acceptable.

4.3. Other Technical Reports

4.3.1. **Executive Scientist (Jonathan Sexton) in his final report as amended by Tom Griffin Senior Executive Chemist** recommends permission considering the importance of the proposal in providing secure drinking water supply to a large region permission subject to conditions relating to:

- Installation and maintenance of a hydrometric station at a suitable location on the Vartry downstream of the WTP in consultation with EPA to provide accurate hydrometric data downstream of the abstraction – data to be available to WCC and EPA
- Minimum daily compensatory flows of at least 5MLD
- Develop and implement a compensatory flow regime for the Vartry downstream of the abstraction in consultation with the EPA to ensure the receiving water environment is protected in accordance with the WFD
- When additional water is made available to the region through the East Midland Region Water Supply Project the applicant shall provide any additional compensatory flows to the Vartry as is deemed necessary in consultation with the EPA
- Applicant shall monitor and record flow of any release of water from the reservoir and abstracted water diverted through site pipework into the spillway channel – flows to be made available to WCC and EPA.

As the basis for the above the report includes a summary of clarification of information received from the applicant on 3rd November 2016. This refers to:

- No wastewater discharge will be made to the Vartry River
- All process water will be recycled to the head of works
- Existing discharge from slow sand filters will cease
- No flow figures included from any leakage from existing overflow weir
- No plans to upgrade the weir so leakage there will remain

- Abstraction from Annagolen Bridge will cease once development is complete adding a further 1.2MLD to river flow
- Applicant warns against any conditions that would increase compensatory or variable flows above 5 MLD.

In the earlier report dated 6th October 2016 the recommendation of the Executive Scientist was firstly to grant permission subject to conditions and secondly to seek clarification of additional information. One of the recommended conditions which was of particular interest to third-party observers and subject to discussion at the oral hearing related to the maintenance of the existing flow regime of leaking water. I address this later. The two earlier reports also indicate concern relating to the supernatant discharge and other issues.

4.3.2. **Environmental Health Officer** report – this refers to the connection to the public foul sewer and therefore there is no on-site wastewater treatment system included. Due to the scale of the project the issues arising would be best considered by the Environmental Section and the EPA.

4.3.3. **Wicklow Area Engineer** (Paul Byrne Senior Executive Engineer) - no objections.

4.3.4. **Roads Engineer** (Conor Page Executive Engineer) – no objection subject to approval prior to commencement of development of Construction Management Plan.

4.4. **Prescribed Bodies**

4.4.1. **Inland Fisheries Ireland** The submissions of IFI to the planning authority are largely reiterated in the appeal and oral hearing submission. As the position of the IFI to the revised development is outlined therein I referred this stage only to the overall concern of IFI which is that the proposal to upgrade the existing plant will reduce flows and there is insufficient information but reason for concern about the fisheries impact.

4.4.2. **An Taisce** The original report acknowledges the need for an upgrade but considers that there is insufficient information relating to water quality issues, climate change, construction and operation impacts and no legal mechanism under which the level of abstraction can be controlled. The compensatory flow needs to be examined from an ecological perspective. The Weser case is referenced (C – 461/13). The requirement

under the Water Framework Directive to attain good ecological potential by 2015 could be jeopardised as the proposed development would lock the river into a system where its flow is inadequate and potentially going to decrease due to climate change. Assessment of the potential negative impacts on the Vartry Reservoir pNHA, the Devils Glen pNHA or the Vartry River has not been as thorough as the assessment of the potential impacts on the Natura Sites. The current status of the salmonid population within the river should have been assessed and impact of the development relative to the current situation and the requirements of the WFD should have been addressed.

4.4.3. The subsequent report indicates concerns that the increased leakage coincides with the achievement of good status in the upper reaches of the river. The development must not negatively impact on the ecological status of designated sites downstream or the status of the river.

4.4.4. **Irish Water** in a submission as a prescribed body refers to requirements in case of connections to adhere to standards.

4.4.5. **DAHRRGA** in its submissions to the planning authority supports the conclusions of the archaeological assessment report recommends conditions, requests additional information on bats and recommends conditions relating to architectural and industrial heritage including the retention in situ of structures and features and otherwise the recording and deposition of records to appropriate archives. Regular routine maintenance and repair of redundant items and structures of architectural or industrial heritage interest should be required.

4.5. **Third Party Observations to Planning Authority**

4.5.1. **Common Themes** include the need for an environmental impact assessment, concern relating to the impact of the development on the flow in the river and consequence effect on fisheries and aesthetics. Independent supervision of works is needed.

4.5.2. **Konrad and Katherine Jay** refer to the importance of the river in Mount Usher Gardens. Project likely to cause serious damage and pollution in the construction and operational phases. Irish Water need to be aware of their obligations to Riparian Owners and under EU laws and guidance. Self-regulation is unacceptable.

- 4.5.3. **Eamon Lowe** recommends a condition relating to sightlines.
- 4.5.4. **Lucy Tottenham** requests that the works should be suitably overseen during the construction phase. A survey to determine flow in the river should be carried out to determine a benchmark and ensure that the works do not restrict current or future water levels. Potential impact on salmonid spawning areas downstream.
- 4.5.5. **Avoca** refer to the Vartry as the central feature of Mount Usher Garden. €250,000 per annum spent in maintenance of the garden, which is critical to the café, bakery and stores which make up 'The Courtyard' and which have revived the village. Accepted worldwide as the finest example in world of 'Robinsonian' gardening.
- 4.5.6. **Friends of the Murrough** state that in the absence of a full Environmental Impact Statement it is not possible to be sure that there would be no impact from this development particularly if any possible reduction in flows of the river were not compensated. Detail required regarding construction phase management.
- 4.5.7. **Frances Tottenham** states that the applicant's submissions make little reference to the importance of the river. If it is damaged, then the whole ecosystem including the Murrough will be affected. Need for the construction or operation phases monitoring by an independent body. Contravenes the EU Directive and the River Basin Management Plan.
- 4.5.8. **John Wilding** refers to his status as a riparian owner and entitlement to have a reasonable flow after abstraction and an unpolluted quality of water. Notes the history of water quality issues. Fish stocks remain compromised. River flow has not been comprehensively quantified and the annual cycle needs to be examined.
- 4.5.9. **Vartry Anglers Conservation Club** The club has undertaken investments and patrols and worked with IFI to improve salmonid stocks. No continuous flow data. The variation in the river from flood to drought is massive. Recent fish sampling work by IFI results in the Vartry being the only river in the Eastern River Basin District to have ecological status of high. Thus highly significant for Atlantic Salmon. An AA needs to be undertaken to determine the impact of the proposed development on Atlantic Salmon stocks. If the salmon population status of high is downgraded the development will breach the WFD.
- 4.5.10. **Joe Kavanagh** The reduction in flow will have a huge effect on the fish and fauna in the river on lands, on Ashford, Mount Usher and The Murroughs. Notwithstanding

any necessary works to save leakages provision must preserve river flow to protect fisheries and amenity. The option of a providing a slipway for excess water to continue to feed the river as has been done for years is recommended.

- 4.5.11. **John Sheehan** The structures in the vicinity of the site (the spillway, the tower, the road and its walls and the filter beds and associated structures) form a very significant part of our industrial / cultural heritage. These features are visible from the road and from the popular walk around the reservoir. The development should not change or detract from the current views insofar as possible. The height of the new structures will impinge on the roadside viewing point. Concerned about the proposal to cover some of the filter beds and that there is some ambivalence as to whether even the older beds will be retained

5.0 Planning History

- 5.1. The application form refers to a **pre-application consultation** meeting which took place on 3rd September 2015.
- 5.2. **Reg. Ref. 16/1090** refers to an application for permission for a replacement pipeline between the VWTP and the Callowhill site. The pipe diameter is 1200mm and the length of the route is 4.3km. The pipeline location traverses the site of the VWTP. It connects the proposed new treatment plant which is in the western side of the site with the eastern side and then follows a route to the south of filter beds no. 12 and 14 and to the east of the covered reservoir before crossing the Vartry river to meet the eastern site boundary. The development includes a proposed new pumping station and electrical distribution building at the eastern side of the VWTP site, a 19m precast concrete bridge at that location as well as other works at the eastern side of the pipe near Callowhill. A 10m separation from the river will operate for the construction period and there will be no instream works. Water would be pumped to a Summit Break Pressure Tank at Callowhill.
- 5.3. The application was accompanied by an Appropriate Assessment Screening Report. The latter concluded that the development would not have a significant effect on the Natura 2000 network alone or in combination with other projects and that a Stage 2 Appropriate Assessment is not required. In this regard the report refers to the works to VWTP.

5.4. The planning authority granted permission for the development subject to conditions including:

- Implement all mitigation measures in documents submitted with the application as amended by submission 21st December 2016.
- Full and detailed Construction Environmental Management Plan and Invasive Species Management Plan shall be agreed. To include *inter alia* a construction programme for the works, hours of operation, a traffic management plan and mitigation as set out in the environmental reports.
- Appointment of a competent person to monitor and record the mitigation measures and impact of works on the environment and to record and investigate any complaints received from the public – power to suspend or take further mitigation measures as necessary – name and contact details to be provided in advance of works – records available on request.
- Measures related to the flow and quality of any water discharged from the overflow channel of the Callowhill Tunnel in accordance with the Hydrogeological Assessment – where necessary on foot of monitoring the water discharge shall be treated and where such a requirement arises the details of such treatment shall be submitted to the planning authority for written approval.
- Archaeological monitoring.

5.5. **Reg. Ref. D16A/0855 / PL06D.248782.** This is a live appeal related to the Stillorgan Reservoir, Mulchanstown, Co. Dublin. The application is for development at a 21 hectare site comprising:

- A covered treated drinking water reservoir with an area of 3.1066 ha and a green roof, to replace the three existing open reservoirs which will be drained, decommissioned and landscaped
- Associated pipelines
- A control building (accommodation valve controls, secondary disinfection and welfare facilities) with an area of 2904m²

- A new vehicular access, internal access roads, landscaping, a drainage attenuation pond and all associated site development and site excavation works above and below ground.

5.6. The application is accompanied by an Environmental Impact Statement. The planning authority requested additional information on the application on 20th January 2017. This request addresses *inter alia*:

- Compliance with the zoning objective
- Details of the roads and construction
- Omissions in AA screening
- Ecological issues including a cumulative impact assessment on ecology in conjunction with other plans and projects
- Other matters.

5.7. In 2002 under **PL06D.129014**, permission was granted by An Bord Pleanála for a development which is described by Irish Water as being similar to the proposal for Stillorgan reservoir subject of the current appeal (PL06D.248782). Details are not available for me at the time of writing but are not considered necessary.

6.0 Policy Context

6.1. Water Services Strategic Plan (WSSP) – a plan for the future of water services

6.1.1. This Irish Water publication identifies the Vartry water supply in terms of its historical context, its importance and its condition. Upgrading of the Vartry water supply is likely to be addressed in Irish Water's National Water Resources Plan and future Capital Investment Plans. In the context of describing the significant disruption events in water supply in recent years there is reference to the algal bloom experienced on the Vartry reservoir in May 2013. The significant reliance in the Dublin region on the Liffey is stated to demonstrate the vulnerability of the service.

6.2. **Irish Water Business Plan - transforming water services in Ireland to 2021**

- 6.2.1. This document outlines the overall state of the water services infrastructure in the country highlighting Vartry as one of the plants which is in critical need of investment and upgrade. Specific references also made in this regard to the tunnel.

6.3. **Strategic environmental assessment for the water services strategic plan.**

- 6.3.1. This was published in July 2015. There is no specific reference to Vartry, or indeed to other major water supply schemes. Objectives relating to the targets to be achieved include table 6.1 which sets out monitoring indicators such as maintenance of favourable conservation status and prevent the deterioration of the status of water.

6.4. **Eastern and Midlands Region Water Supply Project**

- 6.4.1. *Final Options Appraisal Report* was recently published (Nov. 2016). *Project Need Report* (Feb. 2015) refers to need for a new major water supply for the Dublin region in the amount of 330MLD with a continued supply from Vartry of 75MLD.

6.5. **Wicklow County Development Plan 2016-2022³**

- 6.5.1. Some of the more significant policy provisions which are relevant to the making of a decision on this application/appeal are outlined below.
- 6.5.2. The plan identifies the critical importance of provision of an adequate supply of water treatment facilities. The strategy includes facilitating Irish Water in the protection and improvement of resources and provision of water services infrastructure. To implement the provisions of the WFD and the Eastern and Midland RBMP.
- 6.5.3. Objective W15 is to support Irish waters proposed investment in the VWSS, which will likely comprise a new treatment plant, a new pipeline and upgrading of the dam.
- 6.5.4. Objective CCE5 is to have regard to climate change mitigation and adaptation in assessing all large-scale development.

³ A ministerial directive in relation to this plan was issued on 14 February 2017 and remains in force at the time of writing. It relates to provisions which are not relevant to the appeal.

- 6.5.5. The built heritage strategy outlined in chapter 10 includes policies relating to protection and conservation of the built heritage of the county, safeguarding of archaeological sites, protection of architectural heritage through identification of protected structures and designation of ACAs. The Wicklow RPS for the county is set out in an Appendix. It does not include the water treatment plant structures including the draw off tower and the dam and sand filter beds.
- 6.5.6. There are a number of views and prospects around Vartry reservoir but none of relevance to the proposed development. Schedule 10.5 outlines prospects of special amenity value or special interest and no.16 is the prospect of Vartry reservoir.
- 6.5.7. NH1 is to ensure that the impact of new developments on biodiversity is minimised and that proposals include measures for biodiversity protection and enhancement.
- 6.5.8. Objective NH3 is to contribute towards the protection of designated ecological sites. Other objectives refer to matters related to Appropriate Assessment. Objective NH5 is to maintain the conservation value of all proposed and future NHA's. Requirements regarding ecological impact assessments are referenced. Vartry reservoir is a proposed Natural Heritage Area, as is Devil's Glen.
- 6.5.9. Policies relating to the preservation of trees, groups of trees or woodlands which include to discourage felling of mature trees are presented (NH 14 – NH 19).
- 6.5.10. NH 20 refers to restricting development likely to lead to a deterioration in water quality and NH 21 refers to development that would interfere with the natural water cycle which will be resisted where it interferes with survival and stability of habitats.
- 6.5.11. NH 23 refers to minimising interference with river and stream beds and maintenance of a buffer of 10 m along watercourses.
- 6.5.12. The site is within the north-east mountain lowlands area of high amenity. There are no tree preservation orders pertaining to the site. There are no county geological sites.

6.6. **Natural Heritage Designations**

- 6.6.1. Wicklow mountains SAC is to the west and north-west of the reservoir. Downstream of the site at the point of discharge of the Vartry river to the sea The Murrough Wetlands SAC. This overlaps with the Murrough SPA.

6.7. National Inventory of Architectural Heritage

- 6.7.1. There is a record in the NIAH for 'Vartry Reservoir' which is rated as of Regional interest under the categories architectural, historical and technical. The listing relates to the dam, reservoir, basin and in particular contains a description of the stone built valve tower within the reservoir. The tower and bridge are part of the first purpose-built reservoir and as such are of historical importance.

7.0 The Appeals

7.1. Inland Fisheries Ireland

- 7.1.1. Vartry is an EU designated salmonid system. Supports salmon and trout and records of Lamprey. Officially recognised as a salmon river. Achievement of Conservation Limit required. Vartry has been closed to salmon fishing since 2007.
- 7.1.2. Information provided is inadequate including in relation to the lack of detail EIS. Because of the existing impoundment the hydrological regime of the reservoir is seriously impaired, contributing to depressed salmonid densities. Failure to evaluate the impact of the sustained flow of 5ML per day on the ecological integrity of the downstream catchment. Full assessment of the impact on habitat, chemistry, biota and subsequent biological interaction is required taking into account likely impact of climate change and evaluating implications for preventing deterioration and achieving good status under the WFD.
- 7.1.3. There is a separate report on the fish community at selected sites on the Vartry in 2008. The report responds to a proposal in 2008 by WCC to abstract up to 3 MLD from the aquifer in the townland of Ballinahinch at a location 100m or less from the river. Acknowledges that the river is not of major significance nationally as a salmon river but does contribute to the stock available in and around the coast. Deterioration in water quality since designation as a salmonid river is noted. Need for greater emphasis on matters of flow in line with the WFD is noted.

7.2. **Avoca**

- 7.2.1. The appeal relates to the reduction in current flow of water through Mount Usher Garden. If IW is permitted to reduce the flow of water below the current minimum of 15 MLD the river will essentially die. Redds and wildlife are very plentiful at present.
- 7.2.2. Avoca is the current occupier of Mount Usher with a right to terminate at short notice. This is a loss making enterprise. The family sold all of its shares to Aramark recently.

7.3. **Konrad and Katherine Jay**

- 7.3.1. Owners of the gardens the importance of which is described. The role of Avoca and of our own family in maintaining the gardens over the last 35 years is outlined.
- 7.3.2. Opposition is to the manner in which the project is envisaged and was approved including failure by WCC to determine the consequences for river and ecosystem.
- 7.3.3. Salmonid River, which supports protected species and also a recognised Freshwater pearl mussel sensitive catchment. Discharging of more chemicals into the river, which will have a reduced flow will be disastrous.
- 7.3.4. Conditions allow for monitoring but contain no sanctions. Failure to comply with WFD. Riparian rights under the 1942 Water Services Act. Failure to prepare a book of reference. Contrary to the WCDP 2016-2022 including the Overall Vision and Development Strategy for Ashford and other objectives.

7.4. **Vartry Anglers Conservation Club**

- 7.4.1. Lack of EIS/EIA means that the impacts of the project are not fully understood and cannot be mitigated and the public cannot be fully informed, contrary to Aarhus.
- 7.4.2. We proposed an interim project that could facilitate construction of the plant and beginning the upgraded supply whilst maintaining the current downstream flows and water quality in the catchment pending availability of sufficient data.
Recommendation was adopted but subsequently removed from the report of the Senior Executive Scientist Jonathon Sexton.
- 7.4.3. The seriously impounded nature of the river has not been acknowledged. Irish Water have referred to the historically reduced downstream flows which the planning

authority have accepted. This is completely inaccurate. The project description is not clearly outlined and the project has changed during the application process. Assertions about current and historical flow regimes are not supported by sufficient data as there is no continuous flow measurement for the catchment and the figures and graphs produced are predominantly from their own discharge and abstraction records which are themselves incomplete and continually altered and reinterpreted.

- 7.4.4. No consideration of the potential social and economic impacts. The only overriding public need in relation to the Vartry supply is with regard to water quality.
- 7.4.5. The enclosed report of Ken Whelan addresses the impact of the development on Migratory Fish Species. The report identifies that the Vartry contains unique populations of salmon, trout, eel and lamprey (3no. species) – this comment is based on the very limited survey work carried out to date by the IFI in 2008 and 2014 and also notes the importance of these species in European terms.
- 7.4.6. The report notes the importance of connectivity, the genetic uniqueness of salmon in each river, the designation of salmon as a qualifying interest of the Vartry, the likely severity of impact of climate change on small rivers and their fisheries. The threats facing salmon are outlined and the importance of brown trout and sea trout in the Vartry are noted. Some of these species can be found above seemingly impassable barriers such as Devil's Glen. The importance of Broad Lough whose biology is largely regulated by freshwater discharges is noted. Eel are increasingly under pressure and no data is submitted in relation to the inclusion of passes which might contribute to restoration. Comprehensive lamprey survey required.

7.5. **River Vartry Protection Society**

- 7.5.1. An oral hearing is required to allow for cross-examination of IW experts on the hydrology of the river. Irish Water proposed two solutions both of which were overturned by our experts. The third solution is equally unsound. It involves pumping all of the raw toxic discharged back into the top of the reservoir. We need to avoid poorly constructed plans and no EIA to enforce the conditions. We own property by the Vartry and have the knowledge and expertise to ensure a good outcome.

- 7.5.2. Defining a new regime for a river and safe and cautious consideration of compensatory flows takes time and we wish to get on with the measuring of the river throughout the seasons to have the data that is missing in this negotiation.
- 7.5.3. Amongst the enclosures are a report of Ms Faith Wilson an independent ecological consultant indicates a requirement for EIA in this sensitive area which is a salmonid watercourse and also designated as a freshwater pearl mussel sensitive area. NPWS guidelines in relation to the scope of freshwater pearl mussel survey should be adhered to and there was no risk assessment undertaken. Bird species within the SPA have not been assessed in terms of potential impacts from changes of flow. Indirect impacts on salmonid and salmonid habitat are not assessed in the context of changes in the flow.

8.0 Responses

8.1 Applicant Response

- 8.1.1. The response by the applicant includes the following comments:
- It is a matter of over-riding public importance that these works proceed as soon as possible. Submissions of EPA and HSE enclosed in support.
 - Regarding availability of data, the obligation is to use the best available information and this is fulfilled. We do not agree that data is insufficient.
 - A minimum compensation flow of 5ML per day will be released to the Vartry river at all times, which approximates the amount released under normal operating conditions and represents an increase in flows during drought events. A simulated flow duration curve, which is presented shows that the potential impact from the compensation flow will be positive. There have been periods during 2008 and 2015 when flow was reduced to 1.2 MLD and 3MLD.
 - Regarding the 'good' status which is in place immediately downstream of the plant there is no credible evidence that the development will cause a deterioration. The minimum compensation flow is greater than the average prior to 2008 and it mitigates the potential climate change impact.

- To further address the concerns of IFI a supplementary fisheries report is presented. This includes a number of comments including in relation to the conservation limit for salmon, the benefits of the proposed compensatory flow, the historic flow patterns, status of freshwater pearl mussel as ‘unknown’.
- Regarding the ecological status of fish in the river this has been estimated from surveys conducted by IFI as ‘good’ in 2008 and ‘high’ in 2014 and the biological differences between these designations are marginal and the survey methodology differed.
- The development has been screened for potential impacts on Natura Sites. The screening by the planning authority concluded EIA is not required. Further legal opinion enclosed. The 1942 Water Services Act does not apply.
- Irish Water on 3 November 2016 agreed to re-establish hydrometric monitoring on the Vartry. In advance of investing in the upgrade Irish water requires certainty regarding the volume of water.
- The development is adequately described. It was deemed to have positive socio-economic impacts. The amendments to the proposed development are indicative of the consultation process which addressed concerns.

9.0 Observations

9.1. Cllr Jennifer Whitmore

9.1.1. The main points of the observation relate to:

- Acknowledges need for an upgrade but there is insufficient information in absence of an EIS and not in compliance with Aarhus Convention. There is no information provided in relation to the regime for the 5MLD flow such as flow duration or seasonality and insufficient data.
- WCC did not give sufficient weight to plans and guidelines including in relation to Mount Usher, Ashford, European Sites and fishing.
- Would result in a reduction of flows to the Vartry by two-thirds. Language regarding no additional abstraction is misleading, if technically correct.

- In the absence of an EIS it was not possible to assess potential mitigation measures that may have found the balance between the water needs of Dublin and Wicklow and natural heritage and economic needs of the area. Resolution of the issues can be achieved without delaying the upgrade.
- Appropriate Assessment specific to migratory species is required.
- It was suggested appellants that whilst works were being undertaken a monitoring and assessment programme would be put in place to gain an understanding of the system and collect sufficient data as a basis for any decision to reduce or modify the flow regime – this should be considered.

9.2. Cllr Derek Mitchell

9.2.1. The main points of the observation include:

- Requests an oral hearing.
- At times of low flow, the 15MLD leakage may be the only flow to the Vartry. The proposal will greatly reduce the flow in the Vartry. There will be an increased quantity of waste sludge to be put back into the reservoir or the river below the works which has not been properly assessed.
- Most of the water in the catchment area is transferred to other catchment areas. Minority of water is left in the river. Transfer requires mandatory EIA.
- 70 jobs are at stake at Mount Usher. The project should be considered as a Strategic Infrastructure Approval process and all SIAs require consideration of community gain. Community gain was fundamental to the original scheme and should be reinstated but IW has refused. Attachments refer to community benefits as are likely to apply under the Shannon – Dublin scheme.

9.3. Cllr Mary Kavanagh

9.3.1. The scheme requires assessment under EIA and AA and based on reliable scientific evidence that the scheme as proposed will not have long term, negative impact on the environment and principle subjects therein.

9.3.2. Requirement that determine maximum abstraction value permitted in order to maintain flow rates at present values. Sensitive water body of economic value. May be possible to provide the level of abstraction required without negatively impacting on the environment but this needs to be proven with the certainty of scientific evidence which may be provided by a comprehensive EIA.

9.4. **Mrs Patrick Butler, The Dower House, Rossanagh, Ashford**

9.4.1. The main points of the observation include:

- Riparian owner - IW have not made any contact with us as required under law. Permission should be denied until IW comply with this requirement.
- The proposal to reduce flow by 66% requires EIA and AA. The decision not to pursue these requirements is flawed in light of lack of up to date flow data.
- There is a possibility of likely significant effects and therefore an EIA / AA should be carried out and should be requested by An Bord Pleanála so that alternative solutions and mitigating factors can be taken into account.

9.5. **Cllr Steven Matthews**

9.5.1. The main points of this observation include:

- While the upgrade is necessary the flows and impacts are underestimated.
- An AA and EIA are required in order to provide reliable scientific evidence that there will not be long term negative impacts and determine the maximum abstraction value. An EIS is necessary to ensure compliance with the requirements of the WFD and Habitats Directive.
- The Vartry is sensitive water body of value. It may be possible to provide the levels of abstraction required but this needs to be proven.

10.0 **Oral Hearing**

10.1.1. An oral hearing was held in relation to the proposed development over a period of three days between the 19th and 21st of June at the Glenview Hotel in County

Wicklow. The list of participants and all documents presented during the course of the hearing are on the file.

10.1.2. Issues subject of discussion during the oral hearing are considered in the planning assessment below.

10.1.3. The Board retained the services of Artane Recording Studio, to record the proceedings. A copy of the recording is available on file. It is divided into sections and relevant speakers and issues are provided as headings to enable the Board to easily access discussions of interest.

11.0 **Assessment**

11.1. **Need**

11.1.1. All of the high level policy documents produced by Irish Water over recent years have highlighted the urgent need to upgrade the Vartry Scheme. It is the largest water supply on the RAL and serves approximately 200,000 people in north Wicklow and South Dublin. Various submissions on file (including by third parties who oppose the development in its detail) refer to the need for upgrades to the Vartry Water Supply of which the current proposal is part. The Vartry Water Supply Scheme was on the **EPA's original Remedial Action List (2008)**.

11.1.2. In view of all of the above the upgrade to the VWTP is supported by the planning authority, the HSE, the EPA and in a significant number of the third party written and oral presentations.

11.1.3. The basis for the proposed development finds support primarily in **water quality and water supply objectives**. In terms of matters identified by the EPA and HSE in relation to the VWTP the risks which related to the existing slow sand filter plant which will be addressed by the proposed water treatment plant upgrade are

- Risk of not meeting drinking water quality standards, particularly related to THM formation which arises due to inadequate removal of organic material in the slow sand filters and the need for chlorination.
- Risk to security of supply due to algal blooms which impact on the functioning of the slow sand filters, reducing output from the Vartry Plant and which have

led to water shortages. By slowing the treatment processes at the production plant the algae have led to significant disruptions to water supply. Ongoing disruptions resulting in a requirement to provide emergency measures (including resorting to use of mobile tanks) are likely to increase if security of supply is not enhanced.

- 11.1.4. **Leakages in the existing infrastructure** are clearly visible in the plant at present, including in the valve house located at the base of the dam. Leakages under the sand filter beds are also understood to be significant and outflow from these structures to the stream are also clearly visible.
- 11.1.5. The development involves improvement works to the draw-off tower within the reservoir and works to replace or refurbish valves and pipes, which are in poor condition within the existing dam. A **siphon pipe** to be installed will provide for maintenance of supplies in the event of sudden failure or when intake pipes are taken out of service for the construction phase. These works aim to promote security of supply.
- 11.1.6. The development before the Board includes measures related to **dam safety**. That is the works to the overflow and spillway the objective of which is to increase the hydraulic capacity of the channel in the vicinity of the road bridge to allow for the safe passage of flows during future extreme rainfall events. I revert to this matter later in this report.
- 11.1.7. There are other aspects of the **overall Varty Water Supply Scheme** which require significant works. These relate to risks related to the structural stability of the Callowhill tunnel, the potential for ingress of pathogens into the tunnel and the open nature of the Stillorgan reservoir. These are separate projects, which are being separately pursued by Irish Water.
- 11.1.8. The question arose at the oral hearing as to whether the new supply being planned for Dublin obviated a need for a development of the scale proposed for Varty. Current indications are that the proposed **East and Midlands Region Water Supply Project** would provide for 330MLD. Ms Ryan⁴ submission to the oral hearing is that

⁴ Ms Ryan is the project manager on the National Water Resources plan for Irish Water. She described this as the 25 year plan to develop a roadmap to ensure supply demand balance nationally. Table 1 of her evidence indicates that by 2022 – 2041 there is a requirement for an additional 130 MLD to serve the region she notes that a significant portion of this growth will be in

the ability of Irish water to meet the supply/demand balance in the GDWSA until a major new source is developed is dependent on full output from existing sources, including 75 MLD from the Vartry source.

- 11.1.9. Regarding the possibility of using water conservation to make up for any deficit in supply Ms Ryan in response to questions outlined measures which are being taken. In this regard she referred to a €100 million water conservation and leakage reduction investment for the period 2017 – 2021.
- 11.1.10. Irish Water states that even in the event of the delivery of a new major supply project for the region the existing scheme will continue to play a significant role. Future planning for regional supplies envisages reliable production capacity of 75MLD from Vartry. This is approximately 10% of the regional water supply and is the only source of water for many communities. A map submitted by the applicant indicates areas which are fully supplied from Vartry (N11 corridor between Wicklow town and Carrickmines) and partially supplied from Vartry (large parts of Dun Laoghaire Rathdown and parts of south-east and north-east Dublin city).
- 11.1.11. The East and Midlands supply will not be available before 2025 and all projections for the region assume that Vartry will be providing 75MI/day. I will later address the matter of whether there will be scope or indeed a requirement arising from the Water Framework Directive to provide a greater compensatory flow than that proposed, resulting in a reduction in the production in water supply. In the context of the overall production of 75MLD, such arguments do not undermine the need for the scheme.
- 11.1.12. I conclude that the development will provide for necessary upgrade works to critical infrastructure, addressing both water supply and water quality issues and involving works to improve dam safety. The works will secure the importance of the Vartry as a major drinking water supply in the region. I consider that the need for an upgrade to the Vartry scheme is clearly demonstrated in the applicant's submissions.

the North Wicklow and South County Dublin region and that it is therefore reliant on output from Vartry.

11.2. Policy

11.2.1. I next refer in more detail to the planning policy support for the scheme in principle. Secondly I consider whether by reason of its detailed design the proposed development might be deemed to be contrary to development plan and other policy provisions.

11.2.2. The applicant's submission is that there is support for the scheme in the following policy documents:

- National spatial strategy 2002 to 2020, which recognises the importance of efficient water services and need for water supply in the Dublin region
- Infrastructure and capital investment plan 2016 – 2021 which provides the government's framework for infrastructural investment and aims to provide high quality infrastructure and note the planned investment by Irish water
- Irish water capital investment plan 2014 – 2016
- Irish water business plan which refers to this particular VW SS as an example of works in need of investment and upgrade
- RPG's for the greater Dublin area 2016 – 2021 which encourages investment in improving water storage, distribution, supply and quality
- The Wicklow County development plan and plans for Bray, Greystones Delgany and Kilcoole and for Roundwood.
- The Dun Laoghaire Rathdown County and the Dublin city development plan.

11.2.3. I accept the overall trust of the application statement which is that there is high level support for the upgrade of the plant which is part of the Vartry Water Supply Scheme, which is an important part of the region's water supply infrastructure. I refer in particular to objective W15 which specifically refers to a new treatment plant at Vartry. The planning authority in its consideration of the application and as part of its oral hearing submissions testify that the proposed development would be in accordance with the development plan for the county of Wicklow. I consider that at a strategic level this is not reasonably open to contradiction.

11.2.4. In terms of the specific development plan and other policies which pertain to the immediate vicinity of the site I note the following

- the presence of the listed prospect to the reservoir – these are not relevant to the site
- the absence of any specific provisions relating to architectural heritage or tree protection on or in the immediate vicinity of the site of the proposed development
- the listing of the draw-off tower and bridge in the NIAH – but not in the development plan
- a range of wider policies which relate to the protection of the amenities of the towns and of the cultural heritage assets of the area including the town of Ashford and Mount Usher gardens.

11.2.5. I have considered the points made by observers that the scheme is contrary to the development plan objectives including in relation to biodiversity, pNHAs at Devil's Glen and Vartry reservoir, Natura sites, Ashford and Mount Usher gardens.

11.2.6. My conclusion is that the common thread in the above relates primarily to the provision of an adequate supply of water in the Vartry river and reservoir. If that is achieved it follows that development plan policies including those related to the VWTP and surroundings, to the village of Ashford and to Mount Usher are not undermined, insofar as these mainly related to the ecology and visual amenity of the river and its fisheries resource and to the adjacent lands.

11.2.7. The protection of the cultural heritage and visual amenity are considered below in addition. There are no protected views of structures.

11.2.8. In principle I am satisfied that there is nothing evident from initial consideration to support a conclusion that the proposal would materially contravene any objective of the development plan.

11.3. **Environmental Impact Assessment**

11.3.1. A common theme in the submitted appeals and observations as well as in the oral hearing relates to the stated need for EIA. This section addresses whether there is a legal requirement for EIA. Firstly, I present the position of the applicant and the planning authority, which is that there is no requirement for EIA. Secondly I present the opposing case offered by third parties.

11.3.2. Applicant's position

- 11.3.3. The **applicant's case** that there is no legal requirement for an EIA is set out under the presentation of **Mr Rory Mulcahy SC** to the hearing, the submission of **Arthur Cox Solicitors dated 26th January 2017** and the EIA Screening report. **Mr Fergal Keogh** on behalf of the planning authority upheld their decision that there is no requirement for EIA.
- 11.3.4. **Mr Rory Mulcahy** reiterated the points made in the report of Arthur Cox Solicitors noting that the planning authority determined that a water treatment plant is not a project within the meaning of Schedule 5 or Annex 2 and is not therefore one for which EIA is required. The proposed development is not a project to abstract water and is not a project to transfer water between river basins because the water has been transferred between river basins since the 1860s. Further, it is not a modification or increase of an existing abstraction because there will be no increase in the amount of water abstracted and there will be no increase in the capacity of the reservoirs. The consequence is that Wicklow County Council could not require an EIS to be submitted. In any case Mr Mulcahy stated, based on the future operation of the plant and the flow proposed, there is no likelihood of any significant effect.
- 11.3.5. The question arises therefore as to whether the subject development sits within a relevant class of project. I submit that the most obvious candidates in this regard are Class 12 of Schedule 5 Part 1 of PDR and Class 10(m) of Part 2 of Schedule 5 both of which relate to the transfer of water between river basins. I refer to the attached extracts from the planning regulations.
- 11.3.6. My estimate of the annual volume of water which would be treated in the new plant and transferred from the reservoir and the site is about 30 million cubic metres per annum. The threshold set in Class 10(m) of Part 2 is therefore exceeded⁵. The threshold set under Class 12 of Part 1 is not exceeded.
- 11.3.7. Regarding Class 10(m) of Part 2, I note also that there is no reference herein to 'transfers of piped drinking water are excluded', although such clause is attached to Class 12(a) and (b) of Part 1. Thus the transfer of 30 million cubic metres per annum of piped drinking water from one river basin to another would appear to require EIA.

⁵ That threshold is 2 million cubic metres per annum.

11.3.8. My opinion is that the Board should determine that the appeal does not relate to a project which falls under Class 10(m) for the following reasons:

- transfers of water between river basins are already authorised and taking place and will not be increased
- the subject development primarily relates to water treatment.

11.3.9. Such a conclusion would be in line with the applicant's position, which in my opinion has considerable merit.

11.3.10. The Board may also wish to consider the relevance of Class 13(a) of Schedule 5 Part 2, which refers to extensions of development already authorised. The extract attached again provides the exact wording for consideration.

11.3.11. My recommendation is that the Board discount the above Class on the basis that the wording implies a change in scale of the project so that it is

- Brought into a Class of Part 1 or Part 2 and
- Is increased in size by specified percentages.

11.3.12. As there is no change in the level of abstraction my opinion is that Class 13(a) has no relevance – there is no 'increase in size'. Further, I consider that this is not a project to transfer water. I conclude that the development does not trigger a requirement for EIA based on Class 13(a) of Schedule 5 Part 2.

11.3.13. The Board may wish to consider Class 22 of Schedule 5 Part 1. This also refers to changes to or extension of projects. The wording set out is that the 'change or extension in itself meets the thresholds' set out in this Annex. I have earlier referenced the fact that the development of a project for water abstraction would exceed the thresholds of Class 10(m). If the Board considers that this is a project to transfer water then it may also consider that it would fall under Class 22. I reiterate my opinion that the project is for treatment of water, the transfer having already been authorised and enacted.

11.3.14. On the same basis I consider that the project is not one to which Class 15 of Part 2 applies. That Class refers essentially to sub-threshold cases. Again, if the Board considers that this is a project to transfer water then it would be relevant. My opinion is that it is not.

- 11.3.15. Mr Mulcahy's submission addressed the matter of project splitting. I consider that he was incorrect in stating that the legal requirement is to address only the project for which consent has been applied⁶. I agree with Mr Doyle that there is a requirement to consider the full extent of the project and whether it is a separate scheme or part of a larger project for which EIA is required.
- 11.3.16. On this issue there is information in the public realm and in the planning history. In favour of the applicant's statement that the VWTP is 'the project' is the evidence submitted by Ms Ryan of Irish Water. She stated that the upgrade of the plant has been long in planning including as a separate project. Further, the Board has previously granted permission on appeal in 2002 for covering of Stillorgan reservoir. I also refer the Board to information from the IW website which describes the Callowhill tunnel and VWTP upgrade as one project. The Stillorgan reservoir is described as another project.
- 11.3.17. Finally, in terms of arguments in support of the applicant's position I submit that all of the three separate projects (treatment plant, tunnel and reservoir) address separate and distinct concerns. My opinion is that in terms of its rationale and future operation the upgrading of the water treatment plant there are strong arguments in favour of it being considered legitimately as a separate project, which will address water quality issues and water supply issues, which are directly connected with the substandard sand filter system in place. The upgrade of this water treatment plant is not dependent on any other works at the tunnel or reservoir.
- 11.3.18. Having regard to all of the above I consider that it would be reasonable if the Board concluded that the project as defined relates to water treatment and not to transfer, that there is no specific relevant development type in either in the Annexes to the Directive or in the Schedules to the PRD 2001 as amended and that there is no requirement for EIA for this distinct independent project.

⁶ Mr Mulcahy pointed to case **C-396/1991 (*Bund Naturschutz*)** wherein it was determined that the EIA Directive is not capable of requiring an EIA for any anything other than the project for which development consent is sought – so the focus must be on the project for which the consent is sought. Mr Doyle referred to that case as having been superseded (including by **C-2/07 *Abraham*** and **C-142/07 *Ecologistas En Accion*** cases) and that Mr Mulcahy's statement would not reflect the current position of the European courts.

11.3.19. Before departing from the first party's case I note for completeness the **EIS Screening Report of February 2016**. This essentially comprises a sub-threshold assessment of the development, but also includes the pipeline to Callowhill, which is not before the Board under this appeal. This screening document was not overly relied upon by the applicant at the oral hearing but was referenced including in the context of the consideration by the planning authority.

11.3.20. Regarding the approach taken in the Screening Report I consider that it is flawed. The legal basis for sub-threshold EIA relies on A.92 of Part 10 of the PRD 2001. That sets out the definition of 'sub-threshold development' and the definition is

'sub-threshold development' means development of a type set out in Schedule 5 which does not exceed a quantity, area or other limit specified in that Schedule in respect of the relevant class of development;

11.3.21. Again, the heart of the matter is whether the development may be considered to fall within a class set out in the Schedule. If the project is not of a type which falls within a class then there can be no requirement for EIA either mandatory or sub threshold. The screening report does not identify a relevant Class and the approach appears to me to be out of keeping with the manner in which the Directive was transposed into Irish law.

11.3.22. *Third parties' position*

11.3.23. I now concentrate on the third parties' arguments. I refer in particular to the submissions of **Mr Alan Doyle Solicitor** to the oral hearing. This comprises the only detailed and strong legal submission made in support of the case that an EIA is required.

11.3.24. Mr Doyle's submission focused on the **definition of 'the project'** and the need to **avoid 'project splitting'**. Following my conclusion above that the project as defined in this planning application is not within a Class, the matter of project splitting is the central issue. I note that the meaning of this term appears to have expanded beyond the idea of 'salami slicing' a project into smaller ones of similar nature, so

that it falls below a threshold and avoids EIA. It is clearly necessary to take a holistic view of the project and a broad interpretation of its extent and impacts.

11.3.25. Regarding what 'the project' is for the purposes of EIA Mr Doyle stated that the project is to bring drinking water from Wicklow to Dublin and it 'includes the dam and reservoir to catch the water, the plant to treat it, the pipe to carry it, and the receiving reservoir to hold it. No part of that project makes any sense without the others.' He referred to Mr Oliver's report which gave a description of the existing scheme as containing three elements and reiterated that the Vartry Scheme is the project.

11.3.26. **Mr Alan Doyle** stated that the purpose of EIA was to ensure that the environmental impacts are assessed prior to the making of a decision. The **project is likely to have significant effects** because it involves renewal of a project which takes 95% of its water from the Vartry and if it were not rebuilt the works would have to be decommissioned and the Vartry flow would return. Mr Doyle made this point on more than one occasion.

11.3.27. The project is the **rebuilding of the 1861 Vartry scheme** and the rebuilding involves new works for the transfer of water resources between river basins and involves a new installation of a long distance aqueduct and therefore requires EIA. The project, which is the entire Scheme contains two elements (an aqueduct and the reservoir) which trigger EIA as they fall within relevant classes. Where one part of the project triggers EIA there has to be an EIA of the entire project. The reconstruction of the overall scheme also implies that the development falls to be considered under the Class relating to transfer of water.

11.3.28. Regarding the requirement for EIA for an **aqueduct** I consider that the only relevant section in the regulations is Class 10(j) of Part 2 of Schedule 5, which relates to overground aqueducts. Even if the Board determines that the project is as defined by Mr Doyle, my submission is that it does not contain an overground aqueduct, nor am I aware of any works to overground aqueducts which may be deemed connected to the current proposal. I therefore do not consider that this is a relevant Class.

11.3.29. The alternative trigger for EIA according to Mr Doyle is that the works at Varty is part of the Scheme which includes the covering of **Stillorgan Reservoir** for which

an EIA has been required⁷. Regarding the argument that the requirement for **Stillorgan reservoir** to be subject to EIA infers that the current proposal also falls to be so assessed I note as follows. The requirement for EIA for the reservoir relates to the category of urban development, which is a materially different type of project to the transfer or indeed treatment of water. In this sense I consider that it is difficult to conclude that the EIA for Stillorgan has relevance to the determination that an EIA is required for the proposal. Further I cannot conclude that the works at the VWTP are integral to the works at the reservoir (or *vice versa*).

11.3.30. I revert again to the ‘**transfer**’ issue and whether the WTP is functionally independent or an intrinsic part of that project which requires EIA. There is no change to the position of abstraction or the volumes and no change to the destination of the majority of the treated water. However, the infrastructure to support the transfer is to be substantially altered and in effect is entirely rebuilt. If the three separate project elements were to come before the Board in the first instance, then the Scheme as described by Mr Doyle would require EIA. That is beyond doubt in my opinion. However, the fact is that the three separate pieces of infrastructure are in place and that there are separate unconnected reasons for their upgrade. The environmental consequences of this type of project arise from the transfer of water from one basin to another – that is unchanged.

11.3.31. Further I consider that it is relevant that the regulations provide for alterations to existing projects. Class 13(a) in my opinion needs to be interpreted in the context of ‘an increase in size’, which might be considered to equate to an increase in volume of water transferred. However, there is no change in the volumes or the source or destination of water transferred. This express provision which relates to alterations or extensions to existing development is not met. The Board is referred also to Class 22 of Part 1 and Class 15 of Part 2, both of which were considered earlier.

11.3.32. Mr Doyle referenced a number of **specific legal cases** in support of his arguments. I refer the Board to the recording and to the specific judgements. The cases referenced include:

⁷ The requirement for EIA for Stillorgan Reservoir relates to ‘urban development’ Class 10(b)(iv). Documentation on the planning file of DLR refers to the request for an EIS as a precautionary measure.

- C-227/01 - Valentia / Tarragona railway
- C-2/142/2007 *Ecologistas en Accion*
- C- 275/09 - Brussels airport case
- C-2/07 Abraham case –Liege Airport
- O’Grianna case [GL0781]
- Daly and Kilronan Case [2017] 5 JIC 1103.

11.3.33. Amongst the points established in these legal cases and referenced by Mr Doyle are that a project does not have to be new to require EIA, but can be a modification of an existing. A part of a project cannot be removed from the remainder for the purpose of avoiding EIA. While the water treatment plant does not in itself trigger EIA it is an integral part of the whole scheme he states. It therefore requires EIA just as much as the reservoir works at Stillorgan requires EIA. In the O’Grianna case, which was declaratory it was noted in effect that the grid work is part of a larger development, which requires an EIA and therefore the planning authority must carry out an EIA of the project as a whole.

11.3.34. On the matter of EIA Mr Mulcahy’s response to Mr Doyle’s submission relied on the authorised nature of the abstraction and that there is no provision under EU law for an EIA for a project which is authorised and for which there is no further application for development consent is sought. Therefore, the Vartry scheme does not trigger a requirement for EIA. The European cases outlined by Mr Doyle refer to the issue of project splitting, which he stated simply does not arise.

11.3.35. Regarding the Irish cases of O’Grianna and Daly and Kilronan Mr Mulcahy stated that these refer to where applications for two aspects of a project are dealt with separately and if they are functionally interdependent and one part requires an EIA then the other also requires an EIA. Mr Doyle’s argument is that if they were applying for abstraction then the WTP also would require an EIA. But the abstraction is authorised.

11.3.36. Mr Doyle reiterated that Mr Mulcahy was falling into the error identified in European cases of considering the development for which consent was applied rather than the overall scheme.

11.3.37. Mr Doyle made a range of other comments relating *inter alia* to the volume of water being abstracted, to the risk of accidents, impacts on fisheries, impacts on individual species of fauna, birds and flora including protected species, change to the water quality status, all of which he stated required consideration under an EIA. Direct and indirect effects including the elimination of leaks including in the tunnel need to be considered. I consider that the relevance of these comments is restricted to the undertaking of a sub-threshold assessment if that was required.

11.3.38. Conclusions.

11.3.39. The EIA Directive does not require that any project likely to have a significant effect on the environment be made subject to the environmental impact assessment process – only those which are referred to in the Annexes fall under that requirement. The Classes in the Planning and Development Regulations transpose the requirements of the Directive. There is no class related to water treatment plants.

11.3.40. I agree that the legal context in the consideration of this matter should extend beyond the development for which consent has been applied. It is necessary and appropriate that the Board consider whether the upgrading of the WTP and the making of a separate planning application constitutes ‘project splitting’.

11.3.41. The Board will have to make a judgement on what constitutes ‘the project’. If permitted the overall effect of current plans to be delivered by Irish Water would result in almost an entire rebuilding of the Vartry Scheme which transfers water between the two river basins. That the relevant thresholds (in terms of water volume) is breached is not disputed. The result of works in planning by Irish Water would be that water treatment would take place in new structures at a new location and using a new form of treatment, the treated water would flow through a new pipeline as far as Callowhill reservoir and the Stillorgan reservoir would be significantly modified. In effect the entire Vartry Scheme would be rebuilt and that all three significant elements are to be upgraded at the same time.

11.3.42. If this were an entirely new project it would appear to require EIA and indeed would have to be queried in terms of the law for Strategic Infrastructure projects.

11.3.43. However, it is not a new project and in particular in terms of the environmental consequences the impoundment and abstraction and inter-basin transfer are broadly

unchanged. The case against a requirement for EIA is therefore strong. Looking at the overall Vartry Scheme, there is no change to the source or volumes of water transferred, which is the relevant matter when looking to the purpose of the Directive – only the mechanism for delivery of that transfer which changes. Legislation sets out a specific Class for a ‘change or extension of development already’ authorised and the development does not comply.

11.3.44. Referring to the O’Grianna and Kilronan cases I consider that it is relevant that a grid connection to a wind turbine can reasonably be argued to constitute a **functionally interdependent infrastructure**. I do not consider that similar arguments can be made in this case. The delivery of treated water to Stillorgan reservoir is ongoing and in my opinion there are no consequences from the VWTP upgrade which are relevant to the reservoir, apart from a change in the quality of the water which in this context is not a material factor. The works involving amendment to and covering of the reservoir did not provide an impetus to upgrade the VWTP – these are entirely separate matters which are not functionally interdependent. Similar arguments arise in relation to the Callowhill Tunnel for which an EIA was not sought. I completely reject the idea regarding decommissioning.

11.3.45. Regarding the ECJ cases, to the extent that the nature of the projects subject of the relevant cases is outlined, these appear to all relate to development proposals which would have resulted in materially different environmental impacts. Reading the judgements, it is clear that there are many references in some of the cases cited to significant increases in activity and consequential environmental impacts.

11.3.46. It is my conclusion based in particular on

- The Classes in Schedule 5 of the PDR 2001 as amended
- The different purposes of the upgrade of the plant, pipeline and reservoir
- The separate nature of these three projects
- The unchanged volumes and historic nature of water transferred

that the evidence is in favour of the applicant’s case that an EIA is not required.

11.4. Hydrology and related issues

11.4.1. This section of my report addresses the hydrological aspects of the proposed development under the following headings:

- Overview of parties' positions
- Characteristics of the Vartry river catchment
- Hydrological impact of the proposed development
- Baseline data – availability and adequacy
- Design and adequacy of compensatory flow
- Comparison with the current regime
- Evidence for positive changes due to leakage
- Water Framework Directive
- Planning conditions and future management.

11.4.2. Overview

11.4.3. In broad terms the opposing positions set out by the appellants and observers and by the applicant may be summarised as follows.

11.4.4. The applicant contends that up to 2007 the River Vartry operated under a regime, which included a contribution of mean discharge from the water treatment plant of 4.6 MLD. Under that regime it is stated that the environmental and water quality conditions in the River Vartry were 'good'. At times there was no discharge from the water treatment plant due to 'pumping back' to the plant to maintain drinking water supply. The applicant acknowledges that there have generally been higher flows since the undertaking of works at sand filter beds in 2008. Irish Water submissions refer to the establishment of this 5 MLD flow as a guaranteed minimum for the first time in the scheme's history. As such the proposed steady-state contribution of 5 MLD will represent an improvement over the historic flow levels⁸.

⁸ My references to 'normal', 'established' or 'historic' flows all have the same meaning and refer to the pre-2008 situation.

11.4.5. The appellants' position is that the maintenance of the more recent flow of over 10 MLD average is necessary to avoid a deterioration in current status and to ensure the protection of fisheries, aquatic ecology and visual amenity. The average figure is over the period since 2008 but leakages are increasing every year, up to 15 MLD most recently. Under the increased leakage there have been improvements in fisheries. The compensatory flow proposed is inadequate in volume and the basis for the changes are not grounded in sufficient data and proper assessments and the consequences are highly uncertain.

11.4.6. In parallel with this section of the report the Board is referred to Professor Johnston's report, which presents expert evidence on the issues.

11.4.7. Characteristics of Catchment and Flows

11.4.8. In its natural condition the River Vartry drains an upland catchment with steep gradients thereby exhibiting a flashy hydrological regime which is strongly responsive to individual rainfall events⁹. The presence of the upper and lower reservoirs, which are in place since 1862 and 1923 respectively, dampen the hydrological response. The portion of the catchment upstream of the dam is approximately half of the overall catchment¹⁰. The run-off contribution from the lower half of the catchment (below the dam) remains flashy. The submissions by Mr Drea and Mr Weiss emphasise this point on behalf of the third parties noting that significant changes in river flow can occur within a few hours of rainfall¹¹.

11.4.9. The abstraction in the past is noted in Prof Johnston's report as being between 79MLD and 83 MLD in recent years. The existing water treatment plant involves

⁹ References to 'natural' including in Prof. Johnston's report should be interpreted as related to the river as it would have existed prior to the construction of the reservoirs. As such it is a notional concept and one which has not existed since the 1850s.

¹⁰ Prof. Johnston refers to the overall catchment area of the Vartry of 101.1 km² entering Broad Lough and to the catchment area upstream of the dam of 56.8 km².

¹¹ Mr Luke Drea represented Vartry Anglers' Conservation Club. I note the availability of considerable expertise on the side of the appellants and I refer to the genuine concern of the parties. Dr Whelan has been engaged at an international level in the protection of Salmon. The witnesses for IFI all of whom have decades of professional experience. Mr Weiss as well as being a resident along the river is a retired engineer. The submissions of Councillor Jennifer Whitmore are based on her ten years work on Salmon fisheries management abroad. Many witnesses notably Mr Luke Drea, Mr Jay of Mount Usher and others demonstrated detailed local knowledge of the conditions in the river, gained from living alongside the river for decades and / or from engagement in angling and related management of the river. Ms Wilson is an ecologist and her evidence on the Killarney Fern relates to her surveys of the Devil's Glen.

water filtration through 16 no. slow sand filters. Flows from the water treatment plant to the river have been recorded at a weir since 1989. The record shows an average flow of 4.6 MLD from 1989 to 2006 and an average of 10.5 MLD between 2008 and 2015, with increased contribution from leakages up to recent times. The increase in flow since 2008 relates to an unintended consequence of works undertaken at the site. Deterioration of the beds resulting in more frequent filter washing and associated river discharges is also cited as a factor contributing to the higher discharge.

11.4.10. Mr Oliver's evidence indicates that for decades, installations have been in place to enable the flow, which would otherwise enter the river to be 'pumped back' and re-used in the plant¹². His evidence on the first day of the hearing refers in detail to the practice of back pumping during droughts as far back as 1975 when all or most of the water which would have been available to the river was returned to the head of the works for drinking water production.

11.4.11. Except in extreme conditions the effect of the dam and the Vartry abstraction are that the flow in the Vartry immediately downstream of the plant is low. The typical situation is that the Vartry receives a contribution comprising water from operation and maintenance of the plant and through leakages. Additional to that flow is water from other sources including an 'interceptor channel' which takes a licenced discharge from the settlement ponds and flow from springs in the dam spillway¹³.

11.4.12. Most significantly in extreme conditions there are spillway flows over the dam into the Vartry river. These can be very high (maximum of 500 MLD) but in some years are negligible or entirely absent.

11.4.13. Below the VWTP run-off from the lower half of the catchment is the primary source of water in the river. The flow at any point in the river is noted by Prof. Johnston to be roughly proportional to the contributing catchment area. Prof Bruen's¹⁴ submissions emphasised the extent of contribution from the catchment

¹² Mr Oliver is the Project Engineer who coordinated the submissions of the IW team at the hearing and approved the application documentation. Mr Ned Fleming is the engineer at the plant. He has operated the plant for decades and his information together with recorded data from the plant were significant inputs to the data presented by the applicant.

¹³ The interceptor channel flow is in the order of 1MLD and it will be retained as a surface water channel, without any supernatant discharge from the VWTP. The estimated flow from the springs is in the order of 0.5-1.5 MLD.

¹⁴ Prof Michael Bruen gave evidence for IW on hydrology.

and the fact that the relative importance of the flow from the WTP is lessened at points which are downstream. At Annagolen Bridge¹⁵ the mean relative contributions from catchment and from the WTP is almost 50:50.

11.4.14. I discuss later the fact that the Vartry is not the only river entering Broad Lough at the discharge point of the Vartry to the sea¹⁶.

11.4.15. Hydrology of Proposed Development

11.4.16. On request as part of the submissions to the hearing Mr Oliver provided a diagrammatic representation of the various inputs and outputs of water which affect the Vartry River. Mr Johnston's report contains a modified version of this and shows the location of measuring points along the river. The diagram is a useful starting point for understanding the **future flow regime** as it would operate if permission is granted.

11.4.17. The proposal is for a maximum abstraction of 80 MLD to include 5 MLD compensatory flow. Mr Mulcahy noted that the water abstraction consents are without upper limit. However, the abstraction of 80MLD has occurred since the 1930s and will not be altered¹⁷. This is based on Ms Ryan's evidence that the new plant will operate at 75 MLD and adding in a minimum of 5 MLD compensatory flow as a steady guaranteed flow, which will be delivered through the sand filter beds and monitored at the existing outfall. This will be raw water from the reservoir save for the effect of passing through the sand filter beds.

11.4.18. No discharge of supernatant to the river will occur and there will be no need for a discharge licence. This was clarified in Mr Mulcahy's opening statement. The treated water discharge will be returned to 'head of works'.

11.4.19. The interceptor channel to drain surface water run-off only. The volume will be changed only by an estimated figure of 0.1MLD, due to the lack of discharge from washings from the sand filter cleaning. Previously this channel took a discharge from Roundwood wastewater treatment plant but that is now diverted elsewhere.

¹⁵ Annagolen Bridge is upstream of Devil's Glen and downstream of the plant outfall.

¹⁶ The total contributing catchment of rivers entering Broad Lough is 148 km².

¹⁷ This is relevant not only in terms of the effect of the development but also in terms of law and process. A number of parties comment that there was no Book of Reference or serving of notice on them in relation to the abstraction. However there was stated to be no such requirement in the absence of increased abstraction.

- 11.4.20. Cessation of abstraction of water at Annagolen Bridge once the VWTP is operational as clarified in response to Mr Keogh's query¹⁸. This current abstraction takes 1-1.5 MLD.
- 11.4.21. Prof. Johnston clarifies the perception by some third parties that the future flow could be depleted by significant amounts e.g. from a spot flow value of 15 MLD down to 5 MLD under the new regime. Clearly that is not correct as it does not take into account the contribution of the runoff flow from the sub-catchments downstream of the dam. He contributes the presentation of information by the applicant as adding to mis-understandings. I consider that the hearing clarified this and other matters, although dispute remained on the substantive points.
- 11.4.22. I emphasise the fact that the flows from the spillway and from the plant have been irregular and unsteady. The discharges presented by the applicant are average figures which mask the considerable variation which occurred. The proposed 5MLD compensatory flow is a steady (guaranteed) discharge.
- 11.4.23. Baseline Data - Availability
- 11.4.24. As a prelude to the consideration of the effects of the proposed development I note that there is very limited baseline data available.
- 11.4.25. As evident from Prof. Johnston's report the analyses undertaken by all parties are characterised by a lack of hard hydrological data. Prof. Johnston is critical of the approach taken by the applicant noting their use of data which he describes as sometimes contradictory and non-specific. The data from the monitoring weir installed at the plant in 1989 which records the flows to the river from the plant and from the spillway weir is however described by Prof. Johnston as invaluable evidence.
- 11.4.26. The Devil's Glen data is the only semi-continuous flow record of the river and it relates to the period 1952 to 1979¹⁹. It is not a complete record and contains some

¹⁸ This is also referred to as the Cronroe abstraction. Mr Fergal Keogh was one of a team of four officials who represented Wicklow County Council Planning and Environment Departments. Mr Jonathon Sexton contributed significantly in the environmental technical discussion and his senior Mr Tom Griffin likewise. Ms Edel Birmingham was also present from Planning. Elected officials present who made submissions were Councillor Whitmore and Councillor Mitchell.

¹⁹ This is the former ESB gauging station subject of photographs presented to the hearing. It is located on one of the third party's lands and she indicated no objection to any future access to the site if required by IW for the purpose of flow monitoring or similar activity.

gaps. There were short surveys taken in July 2016 and in the period January 2017 to June 2017 by Capital Water Systems Limited for the applicant.

11.4.27. Third parties and their representatives including IFI, Mr Doyle²⁰ and Mr Drea in particular were highly critical of the data availability including in relation to hydrological measures. Prof Johnston shares that concern. He notes the difficulty in interpreting spot flow **measurement** in a very responsive hydrological regime, such as the Vartry. However, apart from the flow measurements from the water treatment plant and the dam spillway there is very limited other baseline data. Prof. Johnston states that these spot measurements are not enough to characterise such flashy flow regime when assessing the impact of the proposed change in the discharge from the plant. Prof. Bruen in evidence for the applicant also acknowledges that the surveys provide a relatively short record but relies on available information including from a nearby comparable river²¹.

11.4.28. At the hearing there was a level of discussion about the availability of additional flow data and whether additional survey work might reasonably be assembled for the purposes of considering this appeal. The general conclusion, which was not subject of much dispute was that long-term data from a properly established hydrometric station would be needed for the purposes of properly contributing to the evidence base. Prof. Johnston's engagement with Prof. Bruen on the matter of possibly preparing a flow duration curve to obtain a picture of the flow regime during the high leakage period is discussed later – this assessment which might be valuable in understanding the post-2008 flows has not been prepared, the focus of the applicant being related to the pre-2008 flows.

11.4.29. In general therefore, I conclude that the applicant has reasonably utilised all available data. I refer the Board to Mr Johnston's comment that while some insight was gained by the analysis of the available data by the applicant there remains significant uncertainty in the relevant predictions. However, it is also evident from that long-term flow data is required for the purposes of making additional assessments which would be deemed to be robust. Prof. Johnston considers that

²⁰ Mr Alan Doyle Solicitor co-ordinated the submission of the third parties and presented legal argument.

²¹ The Avonmore river at Rathdrum has continuous records. The record from the Vartry to the extent that it is available is comparable according to Prof. Bruen.

there is sufficient data available to enable conclusions to be drawn and does not recommend that further information be requested.

11.4.30. It is not feasible to delay the project for up to a decade for the purposes of establishing monitoring stations and collecting data. I have accepted the need in principle for the development. It would be preferable in my opinion to grant permission subject to a condition requiring a higher compensatory flow in the event that the Board had serious reservations regarding the impact of the scheme. I refer below to the likely future requirements arising from the Water Framework Directive which ultimately may greatly influence the operation of the VWTP. I propose therefore to continue my assessment of this appeal based on acceptance that there is available information sufficient to draw conclusions, a matter to which I revert below. I refer separately at a later point to the matter of survey work which was deemed necessary to ascertain fisheries habitat impact.

11.4.31. Design of Compensatory Flows

11.4.32. It is clear from submissions to the hearing that the timing of the delivery of flow is important as well as the volume. In terms of the effect of the changes arising under the new regime I refer to Prof. Johnston's statement that '.....*mean* flow to the river is to be effectively depleted by a mean 5 MLD (compared to 2007-2015 figures), the actual flow change and its proportional impact at any location, on any given day will be highly variable and thus, its significance may also be highly variable'.

11.4.33. I next address the background to the decision to provide 5 MLD compensatory water. The applicant throughout has stressed that the level of compensation water provided has to be balanced with Irish Water's requirements to supply water to the region. At the hearing third parties stated that a higher (10 MLD) compensatory flow was agreed at a local level but rejected by the board of Irish Water. Further, the third parties state that this flow of 10 MLD is the average amount which has been discharged to the Vartry from the plant in recent years and is needed to sustain the ecology.

11.4.34. The submission of Irish Water in effect is that the normal or reference condition for the river is that which prevailed prior to 2008 and the records show that

the historical discharge since 1989 to the river was 4.6 MLD average. Mr Mulcahy's²² submission was that the ecological conditions which the third parties seek to protect applied under such a flow. Mr Oliver indicated that this level of compensation flow would equate to the conditions to which the river was accustomed.

11.4.35. Other than this fact and the statements of Irish Water that the historic flow led to 'good' water status, there is in Prof. Johnston's view little evidence presented to justify the choice of a steady 5 MLD as the future discharge to the river. Prof Johnston's questions on this matter at the hearing did not particularly elicit additional information. Prof Johnston notes also the assessment by the applicant of the dry weather flow (DWF) stating that this appears to be the basis of the 5 MLD²³.

11.4.36. I conclude that the evidence is that the applicant determined that the historic flow levels were what was required to be provided and that the DWF calculations supported this choice.

11.4.37. To ascertain the nature of the future flow regime I refer the Board in particular to the evidence of Prof Michael Bruen who reviewed the previously presented hydrological report and undertook further assessments²⁴. He clearly stated in response to Mr Weiss that while he did not set out to justify the selected 5MLD compensatory flow, his assessments do in fact support this flow as a valid figure²⁵.

11.4.38. The Board is referred to the fact that the applicant did not present a detailed case in relation to the changes from the current regime, which is discussed below. The applicant's submissions do provide comparisons between the future and the historic regimes as well as comparing the future regime with the 'natural' river.

11.4.39. In the absence of adequate continuous data for flows at the outfall from the plant, Prof. Bruen uses theoretical calculations combined with the available flow data from Devil's Glen to determine the 95 percentile flow for the river at that point. His work involved looking at data from Devil's Glen (up to 1979) and the data set from

²² Mr Rory Mulcahy SC co-ordinated the applicant's witnesses and presented legal evidence.

²³ Dry weather flow is taken as the annual minimum daily flow in the river with a return period of 50 years. The Board will note that the decision not to discharge the supernatant was made during the course of consideration of the application by Wicklow County Council and that was the reason for the DWF assessment.

²⁴ Hydrological Report of September 2016 – presented as further information to WCC.

²⁵ I take this opportunity to refer to the considerable authority and reputation of Prof Bruen. As a witness for the applicant he came across as reputable and independent.

the nearby Avonmore river. Theoretical assessments undertaken on the basis of two different methodologies added to his presentation. The output includes predicted Flow Duration Curves.

- 11.4.40. The release of the additional 5 MLD flow he stated was significant. The contribution is less significant for higher flows and for locations further downstream. The 5 MLD flow is critical during the drought conditions but less significant in other conditions.
- 11.4.41. He concluded that the proposed regime would be better than the original regime as represented by the data from Devil's Glen, which he was satisfied was useful data.
- 11.4.42. For completeness I refer to discussion at the hearing regarding limitations to the applicant's assessments. For a start it is acknowledged to be based on intermittent water flow data. Prof. Bruen acknowledged that the Devil's Glen information is poor for the high flows and that the Capital Surveys flow records are of very short duration. Based on visual assessment the gaps in information from Devil's Glen were reasonably spread and in particular the low flows are well represented he stated. Third parties referred however to the absence of records for the drought years. Mr Doyle went through the data in some detail stating that the bulk of what is missing relates to the second half of the year and that you cannot necessarily be satisfied with the quality of data. Prof Bruen stated that he checked the data in a visual way rather than on a day by day basis and he did not check for the drought year in particular but the main point would be if there are a lot of low-flow data figures missing then that actually strengthens the applicant's case. If there is a preponderance of low-flow values missing, then the flow duration curve drawn should actually be worse in the low-flow periods meaning that the guaranteed compensatory flow is more important.
- 11.4.43. Prof. Bruen accepted in response to Dr Whelan's²⁶ comments that there might be issues regarding his use of the nearby Avonmore river as a comparator insofar as it is not impounded. However, he also defended this choice on the basis that the data for the period available for Devil's Glen (up to 1979) co-related well with that for

²⁶ Dr Ken Whelan is an expert on salmon fisheries and a member of NASCO.

the Vartry for the same period. Therefore, use of the later data for the Avonmore as a basis for projections for the Vartry was therefore valid.

11.4.44. Regarding the likely effects of climate change Dr Whelan challenged a selected report presented by Prof. Bruen stating that other similarly recent published work does not support the case made by Prof. Bruen. In 1989 there was a climate change shift and the patterns since that date differ noticeably. Dr Whelan thus stated a serious concern that the use of very old data may not be appropriate. Prof. Bruen noted that there have been cycles of wet and dry periods and at some stations step changes in rainfall patterns reported, but not at others. If there was a climatic shift it would be at all stations he stated and concluded that there are huge uncertainties. However, he stated there is consensus amongst experts on likely future patterns under climate change scenarios and that is that the south and eastern parts of the country will be drier, which Dr Whelan did not specifically refute.

11.4.45. In terms of the submissions of the applicant to the planning authority the hydrological report of September 2016 is noteworthy²⁷. The calculated EPA estimate for Long-term DWF at Devil's Glen for the period 1952-1979 of 1.38 MLD is noted and is deemed to correlate with an estimate for the same period based on flow duration curves prepared (DWF of 1.6 MLD). As such the evidence suggests that the 95 percentile flow at Devil's Glen for the same period can be estimated to be 2.76 MLD. I submit that the hydrological report presented to the planning authority therefore also supports the case that the guaranteed minimum flow of 5.0 MLD constitutes a significant improvement on the historical situation.

11.4.46. Prof Johnston addresses and supports Prof Bruen's assessment that the proposed compensation flow represents an improvement on the natural historical dry weather flows that might have occurred in the upper part of an un-impounded Vartry river, below the WTP site. Prof Bruen's work is based on a theoretical method devised for Irish catchment (Mandal) to estimate the flow from the catchment between the WTP site and the point at Devil's Glen for which there are records for 1952-1979. Prof Bruen provided an estimate of Q_{95} at the downstream side of the

²⁷ I refer to the Hydrological Report prepared by Nicholas O' Dwyer received by the planning authority on 22nd September 2016. As well as referring to the data from Devil's Glen this utilises the very limited spot flow data from Annagolen Bridge, references the spot measurement data from Ashford weir from 1995, the EPA estimate of DWF at Devil's Glen and incorporates the July 2016 flow data from the Capital Water Systems Ltd survey.

plant of 2.9 MLD. This is the figure for that point on the river if the flows were unimpounded.

11.4.47. Prof. Johnston concludes that the applicant has established some likely key effects from the scheme. These effects are:

- The steady discharge of 5 MLD will slightly improve low flow conditions over the pre-2007 situation
- The 5 MLD discharge can be justified on the basis of the natural DWF
- The proposed 5 MLD is slightly above the likely Q_{95} that might have prevailed in the natural catchment below the WTP
- The effect of the 5 MLD discharge diminishes downstream in proportion to the additional area of the tributary catchment.

11.4.48. Prof Johnston concluded that the paucity of hydrological data available was nevertheless sufficient for Irish Water to draw the tentative conclusion that the proposed scheme of the 'upgraded plant' supplying a steady 5 MLD to the Vartry, with no discharge of process water, would not significantly change the hydro-ecological regime that prevailed downstream in the Vartry before 2007 and could be construed as promoting a slight improvement.

11.4.49. In the future drier climate change scenario for this region I accept that the new regime is demonstrated to be an improvement over the pre-2007 situation. I consider that the evidence presented supports this conclusion.

11.4.50. My overall opinion in relation to the applicant's submissions is that a reasonable case has been made to support the overall position, based on available information in a patchy record source and supplemented by other methodology and more recent survey work. In general, in relation to Prof. Bruen's evidence I consider that no substantive argument was offered by any of the parties against the approach or the conclusions. Prof Johnston's appraisal of the work undertaken by Prof Bruen does not identify any particular flaws in methodology.

11.4.51. I conclude that the Board can be satisfied that there is sufficient information available and a reasonable case offered on which to conclude that the proposed 5MLD compensatory flow can be justified in terms of maintenance of the status of

water and protection of fisheries and ecology with reference to the established conditions. (pre-2008) and to the natural river.

11.4.52. Comparison with the current regime

11.4.53. The current regime is described above under the heading Characteristics of Catchment and Flows. In the foregoing and to address the third parties concerns I examine the changes in the future hydrological regime compared with existing post-2007 flows. The basic point made by third parties including IFI in written submissions and to the hearing is that the flows under the future regime will or may constitute a deterioration in conditions in the Vartry, which will have negative consequences including for fisheries.

11.4.54. Prof Johnston's report refers to the data from the sets of flow gaugings made at six different locations along the river on 21 days between 13th of January and 2nd of June 2017, which was presented at the hearing. He notes that from this data the mean discharge to the river from the water treatment plant for this period was 7.0 MLD. I noted Mr Drea's comments relating to the failure by Irish Water to agree to a survey for the period of the last six months, stating that survey of a lower flow period would have been more relevant. The calculated figure of a mean discharge from the plant as presented by Prof. Bruen does not support Mr Drea's reservations as it appears that the first six months of 2017 which were captured were in any case lower than the mean for years 2008 to 2015.

11.4.55. Prof. Bruen's evidence for the period 2008 to 2015 is that for six of the months (9% of the months) the release from the facility was substantially lower than the proposed 5 MLD. The spillway is active about 20% of the time but there have been years in which there was no spillway overflow, which again he stated emphasises the importance of guaranteed flow.

11.4.56. Bearing in mind that the evidence for the post 2007 period is very limited I now refer the Board to Prof Johnston's considerations. Prof Johnston refers to the only available continuous flow data as being from the set of flow gauging made at six separate points on 21 days in the first half of 2017. Figure 2 of his report presents a comparison between the actual flow and the flow which would occur at Annagolen Bridge for this six-month period under the new regime. This is information which the applicant did not clearly demonstrate. He notes the importance of assessment of

this location due to the small natural catchment of Annagolen Bridge, which is only 7.6 km². Thus at this point along the river the relative contribution of flow from the WTP is at its most acute. The graph presented captures a pattern of minimal change for much of the relevant period at Annagolen Bridge. However, for the period of the lowest recorded flow, which was on 10 May 2017 and for other low flow periods the proposed steady discharge from the water treatment plant of 5 MLD would result in a decrease in flows compared with the current regime as measured in the 2017 surveys. As noted by Prof. Johnson the applicant in response to questions at the hearing agreed with this point.

11.4.57. Annagolen Bridge being located upstream of Devil's Glen is of relatively limited importance for fisheries and ecology generally²⁸. The river downstream of Devil's Glen is considerably more important in terms of fisheries spawning and the flows for fish migration and the effect of changes in water level for survival of fry in particular are of concern to the third parties. While acknowledging a significant change in low flows at Annagolen Bridge under the proposed compensatory flow the applicant's submission in relation to impacts further downstream is that flow and level changes are of less significance due to the contribution of catchment flow, which are proportionally more important.

11.4.58. As summarised in Prof. Johnston's report the applicant's position is that changes identified would include:

- Based on spot flows recorded on 10th May 2017 the contribution of the WTP discharge at Annagolen Bridge would increase from 89% of flow to 91% of flow under the new regime and on the same day would decrease from 28% to 18.5% at Newrath
- These reductions in flow could amount to a change in water level of 50 mm at Annagolen Bridge and 6 mm at Newrath
- The *natural* median flows Q₅₀ coupled with the WTP discharges would decrease by 23% at Annagolen Bridge and by 7% at Newrath under the new regime compared to the current leakage conditions

²⁸ The Devil's Glen pNHA is separately considered below.

- The flows in the catchment as a whole show a small decline in flow duration curve but relatively small magnitudes of change in terms of water levels especially in the lower reaches
- The effect of the mean decrease of 5 MLD on current conditions diminishes downstream in proportion to the area of the catchments contributing
- The degree of change under the new hydrological regime will differ from that of the past 10 years although particularly significant at lower flows in the upper part of the catchment above Devil's Glen
- This degree of change is likely to be less than the appellant's apparently perceive.

11.4.59. His report also notes the following lacunae in Irish Water's case:

- the applicant's analysis excludes a number of conditions in the catchment such as the abstraction at Annagolen Bridge and the effect of spillway overflows and the influence of discharges from the interceptor channel
- as such however the analysis while idealistic is also probably conservative
- evidence of absolute changes in terms of water levels were not provided by the applicant.

11.4.60. Prof Johnston had a discussion with Prof Bruen during the oral hearing in relation to the possible preparation of FDC's based on the monitoring data from the discharge weir installed in 1989. Prof Bruen's concerns in relation to the difficulty in standing over any such assessment are accepted.

11.4.61. In conclusion in relation to the matter of comparison between the current regime and the future regime I consider that the most significant change which will occur is related to the area upstream of Devil's Glen, where the leakage has resulted in the greatest proportional flow increased. In the future scenario it is this location also which would be most significantly affected in terms of loss of flow and greatest water level reduction, although such changes are also seen throughout the river including in the lower reaches which are important for fisheries.

11.4.62. *Evidence for positive changes from leakages and other comment on Fisheries*

- 11.4.63. I refer at this point to the submissions that there is evidence for significant improvements in the aquatic environment, which can be connected to the increased leakage of the last 10 years. There are two aspects to this namely the evidence which may be derived from the longer term surveys of macroinvertebrates, the Q values and the post 2008 fish survey data²⁹. It is necessary also to consider the context within which any positive changes to fisheries must be considered, including other inputs to the system at the time.
- 11.4.64. In terms of all of these issues the Board is referred in particular to the presentation of IFI and the questioning including by Dr O'Farrell³⁰ on behalf of Irish Water which took place subsequently on the afternoon of day 2 of the hearing.
- 11.4.65. The application submissions presented include the response to the further information³¹. This focuses on describing the status of fish species in the river based on surveys over the last ten years, concluding that there is no clear reason why the ecological status in terms of fish was changed from good (2008, 2013) to high (2015) and disputes aspects of the methodology. The report also focuses on the fisheries status of the river noting that it is primarily a sea trout river which also has a run of salmon but is managed for legislative purposes as a salmon river and is closed to all angling.
- 11.4.66. The submission by Irish Water is that the river since 1979 has generally maintained its 'good' to 'high' status based on the Q-ratings and overall 'good' status under the Water Framework Directive. Amongst the arguments presented by Mr Murphy³² and in particular by Dr O'Farrell for Irish Water are that the distinction between good and high under the Q value system is deemed to be open to dispute and there should not be an overemphasis on the difference between good and high under that measure.

²⁹ Under the Water Framework Directive the surveying of fish increased as it was a requirement that fish be used in the classification of the ecological status of surface waters. Previously the most significant measure was the Q value, a biological water quality index which was based on the composition and abundance of invertebrate communities in rivers.

³⁰ Dr Martin O'Farrell is a fisheries biologist with considerable relevant experience including in the management of trout and salmon.

³¹ This is a report by Dr O'Farrell dated January 2017 entitled *Fish and Fisheries Assessment of the Vartry River ... in relation to the Proposed Vartry Water Treatment Plant Upgrade*.

³² Mr Paul Murphy is an ecologist and his comments on ecology, fisheries and AA are noteworthy.

11.4.67. Mr McGarrigal's evidence for IFI is that the improvements are evident since 2012 and he traces that to the diversion of the Ashford sewage discharge. Table 1 of his presentation shows that Fish are of 'good' status for 2013-2015 as based on the 'one out all out' principle the lower of the two results, which is the 'good' status for Ashford Bridge is the selected one. Thus the 'high' recorded at Newrath Bridge does not trigger a 'high status' for that water body.

11.4.68. Under the future regime the Vartry would have a unique position compared with other rivers in the same catchment, which will not benefit from any minimum flow. This was noted by the applicant and I consider that it is an important point. The applicant's witnesses did not consider that the proposed development posed a threat to the fish stock, noting that the benefit of the minimum flow would ensure that the river would remain alive in a period of drought while other rivers may not.

11.4.69. The case presented by IFI and others in written and oral evidence is that there have been noticeably improved ecological conditions. Submissions by Dr Whelan for Vartry Anglers' Conservation Club refer to the unique genetic reservoir of salmon which each river holds. He noted the NASCO agreement which he described as morally binding. Mr Beckett for IFI noted that the Vartry has a biological function as a juvenile salmon production unit in the context of the concept of national production. The Vartry is very well regarded as a sea trout fisheries in relation to which there are restorative objectives including under the National Biodiversity Plan³³. Dr Whelan stated that sea trout may rely on conditions above Devil's Glen, which is generally deemed to be the upper limit for salmon and trout as it acts as a barrier. In 2013 Ireland reported that there are numerous threats to salmon. Poor marine survival is something we cannot control we can only control freshwater survival is the IFI submission.

11.4.70. I consider that the IFI surveys comprise the body of evidence which is most persuasive in terms of the appellants' concerns about the impact of the development on fisheries³⁴ and aquatic ecology. The overall point is that there is a general trend for an improvement in ecological status as demonstrated by the results of electro-fishing. Fish populations have been steadily increasing since the leakages

³³ IFI referred to other species in their submission notably European eel, the status of which remains critical and although it is not represented well in the Vartry it must be protected.

³⁴ Residents of riverside properties and anglers commented in relation to the size of salmon redds and excellent fisheries stocks in recent years.

intensified in 2008. This is despite two fish kills in 2012 and 2017. The relevant reaches of the river appear to have quickly recovered their good ecological status although salmon populations have not yet reached the conservation limit.

11.4.71. In terms of the appellants' case, Mr Beckett's submission and Table 1 are key. He pointed to the improvements at Ashford and Newrath Bridge in particular. Newrath for example in 2008 was recorded as 'good' and in 2013 was also 'good' but by 2014 and 2015 'high' was recorded. Conditions at Ashford improved similarly.

11.4.72. Dr O Farrell entered into detailed discussion with Dr Kelly of IFI in terms of the tools in the assessment of fisheries status for the purposes of the WFD. The two experts agreed to differ on the value of the IFI methods. This was a detailed technical discussion with both sides arguing that the matter is complex. Dr Kelly pointed to the fact that the tools used by IFI are accepted by the EPA and on a European basis and are properly calibrated for Ireland. I do not consider that Dr O Farrell succeeded in undermining the methods used by IFI.

11.4.73. In elaborating on this evidence in response to questions from Prof Johnson, Dr Kelly noted IFI ongoing annual surveys at 4 locations.

11.4.74. I consider that IFI did provide a substantive body of evidence to support their argument relating to steady improvements in recent years. There is an indication that fish populations below Devil's Glen has improved over the last 10 years. However, there are many other factors that may have affected the relevant statistics. Mr Beckett and Dr Kelly for IFI acknowledged in response to questioning that the subject period since 2008 was wetter as described by Prof. Bruen. IFI agreed that the higher rainfall would be a contributory factor to improving conditions for fisheries. IFI also agreed that the cessation of wastewater discharge would have positively influenced the Newrath Bridge site but emphasised that the same could not be stated for Ashford, which is upstream of the former discharge point and which improved similarly.

11.4.75. Regarding the impact of the development the overall conclusion of IFI is that there is insufficient information to ascertain the effect of the development. Mr Doyle questioned IFI about whether the proposed level of discharge as a result of the development could affect the water status IFI indicated that 'it might' and that it may prejudice high quality status in the lower reaches.

- 11.4.76. Mr Beckett and Dr Kelly both acknowledged that they could not give an affirmative response to Prof Johnston's question in relation to whether there was evidence for an increase in fisheries status (although Newrath Bridge and Ashford have gone from good to high).
- 11.4.77. The hydrological evidence necessary to support the fisheries and aquatic ecology and to determine with certainty the impact of the proposed flow regime has already been demonstrated to focused primarily on the period prior to 2008. It has however been demonstrated that water levels in the river downstream will probably have increased slightly, particularly at low flows, but would only be significant in the upper reaches above Devil's Glen.
- 11.4.78. Prof. Bruen noted the importance of flows in excess of the 40 percentile flow for fish migration and the importance of the 95 percentile flow, the very low flow conditions which is relevant to the survival of any fry. For flows greater than the 70 percentile (higher flows) these flows will be lower under the future regime but for flows lower than the 70 percentile flow they will be higher. Referring to the lower reaches of the River the location at Nuns Cross Bridge was reported to be a significant spawning area. Prof Johnston notes that as modelled the flow at this location at low flow Q_{95} was predicted as approximately 9 MLD under the proposed regime, excluding any flow from the spillway. He comments that this still represents a very low water level but that it is likely to have been the situation under the original flow regime up until 2007.
- 11.4.79. I accept the over-arching position presented by the applicant in relation to the historic 'good' conditions, which remains the status under the WFD. Nevertheless, there is evidence of increased fisheries since 2008 and therefore in the opinion of the third parties there is uncertainty regarding the impact of the proposed development on fisheries based on evidence from recent survey.
- 11.4.80. At the end of the hearing third parties held with a view that there was a requirement for further independent study including EIA or other independent environmental assessment prior to consent. IFI was generally willing to accept that the construction phase offers an opportunity for addressing existing survey deficiencies and also indicated that they would continue to undertake surveys of their own in that period. In response to a request which I had issued in the hearing, the

parties set out what conditions they would like to see attached in the event that permission is granted for the development and I address this later below.

11.4.81. My conclusion in relation to the demonstrated improvements in water quality as indicated in the IFI WFD fish surveys is that while results are improved it is difficult to attribute those improvement to the increased flows from leakages in the context of a wetter period and changes in inputs from Ashford.

11.4.82. Water Framework Directive

11.4.83. The context of all of the above is the Water Framework Directive. The Vartry is considered an impounded catchment, which is therefore recorded as being at risk in the characterisation report for the WFD. As a heavily modified water body the criteria is to establish and maintain at least good status in terms of ecological criteria. The 'at risk' classification is related to the existing and established abstraction of water. I agree with Prof Johnston that (contrary to any inference by Mr Doyle) there is no requirement to change the situation regarding the abstraction. IFI who have an important role in the implementation of the Directive also acknowledge that the impoundment will remain³⁵.

11.4.84. My conclusion is that the overall status of the water cannot presently be described as high. Neither has IFI conclusively attributed overall high status for fisheries. The surveys and the evidence point to facts which suggest improved ecological conditions but not definitively in my opinion to a change in the fisheries / ecological conditions. IFI officials themselves were not presenting a clear cut statement in relation to status improvement.

11.4.85. The official WFD status as assigned by the competent authority the EPA is that the status is good. It is relevant in this regard that the first round of River Basin Management Plans relates approximately to the period at which leakage started. The overall status of water at that time was good and its official status remains good.

11.4.86. In the context of a precautionary approach, I refer the Board to the compensation flow and its adequacy. This matter in terms of the WFD is relevant in the context of a discussion on ecoflows. The applicant's submissions under the AA screening report refers to a regime of 'freshets' and the third parties refer to the need

³⁵ Mr Mulcahy to Mr Beckett.

for variable regimes. However, both Prof Johnston's report and Mr Jonathan Sexton's oral hearing submissions address the fact that there is presently no accepted methodology for the establishment of ecoflows as will be required under the Directive. As such, as pointed out by Mr Sexton, while it might appear reasonable to revert to the established or normal flow which prevailed before 2008, it is much more difficult to put a figure on an alternative flow / regime in the absence of an agreed methodology and in this case in the absence of sufficient data relating to fisheries habitat³⁶.

11.4.87. In the context of the above submission with which I am in agreement, and having regard to the various comments of Irish Water relating to water supply requirements the compensatory flow proposed is acceptable in my view.

11.4.88. However, I do consider that the possible future requirements for increased compensatory flow or more variable flow regime, which may emerge from the WFD strongly supports the condition recommended by Prof Johnston. That condition is that the branch pipe should have a capacity of at least 15 MLD to allow for any future change that may be required in compensation flow. In this context also he recommends that the valve controlling the flow on the branch pipe should be able to be remotely controlled allowing for variability in discharge if required. Although there was a very detailed discussion at the oral hearing in relation to possible conditions this matter was not raised at the time. I do not consider it to be an onerous requirement but if the Board considers it significant it may refer the matter to the applicant for comment prior to any final decision. I also emphasise to the Board the wording of Prof Johnston's recommendation which is that permission may be granted but 'subject to, and contingent upon' the conditions he sets out³⁷. He describes the proposed steady 5 MLD discharge as a building block in any future determination of ecoflows. I refer also to Prof Bruen, and his evidence which stated in relation to climate change that the predicted greatest decrease in precipitation is likely to be in the Dublin region.

³⁶ This discussion emerged with reference to what became known at the hearing as the 'Johnathon Sexton' condition. That related to a draft condition which he stated was attached in error and which on reflection would not be in order. The suggestion was that the applicant be required to retain leakages which exist.

³⁷ The other conditions were discussed at the hearing.

- 11.4.89. In terms of the legal context I refer the Board to the presentation by Mr Doyle. Referring to particular case law he noted that if a project jeopardises attainment of good water status or if it reduces or may cause a deterioration of the status, consent must be refused. He references the statement of IFI that this proposal may cause a deterioration in status.
- 11.4.90. On this matter also I note the role of the EPA as the competent authority and the discussion above in relation to the establishment of ecoflows and the measures contained in the planning conditions to facilitate a new regime. As pointed out by Prof Johnston including in his reference to a report of Dublin City Council from 2009 there is likely to be a requirement in the future to undertake examination of compensation requirements on regulated rivers.
- 11.4.91. Secondly, in the submission of Mr Doyle on the Water Framework Directive he referenced the Weser case and its conclusion that there is a deterioration in the water if there is a deterioration in one of the quality elements even if that does not trigger a fall in the status overall. It is relevant he said that you are trying to bring things back to a good status. All public authorities have a duty to take actions to secure compliance with the provisions of the Plans made and any programme of measures established and that is binding on the Board. Again I note that there is no evidence that the proposed development will give rise to a deterioration in one of the quality elements and as such change the status.
- 11.4.92. In the event that the Board considered that the proposed development would lead to a decline in the status, then based on the Weser case it would be obliged to refuse permission. The Board will be familiar with the existence of a derogation procedure which might apply in such cases. My conclusion is that the evidence which is available and the assessment undertaken are likely to be sufficient to maintain the good ecological status and to maintain the good overall status of the water. The case to the contrary is I find not made and there is no body of data available for any further interrogation and no reasonable means of collecting that data. I consider that the development is in accordance with the legal requirements of the WFD.
- 11.4.93. My opinion on this matter overall is that there is nothing in terms of guidance or law which would require the Board to refuse permission in the situation which

arises in this case: I do not consider that the bar is as high as the criteria set by the Habitats Directive and I agree with Mr Mulcahy that the language of the Directive is about not knowingly causing a deterioration. In the circumstances where there is admittedly a degree of uncertainty about the effect of the changed flow regime, but where equally there is no strong evidence that the increased flow has actually improved conditions to the extent relevant to the WFD and in relation to the recommendation below and the particular conditions set out, I consider that the Board can be fully satisfied that a grant of permission would not contravene the WFD.

11.4.94. Planning conditions and future management

11.4.95. As part of the discussion regarding the advantages which would accrue from consideration of the proposed development under EIA, a reference was made to the fact that there is no **Schedule of Commitments** attached in the current process. Parties made reference to what was considered to be a confusing process, arising in part to the various amendments presented by the applicant. There was a level of discussion at the oral hearing regarding the possible merits of a Schedule of Commitments, which would be submitted for agreement by the planning authority. In the interest of clarity, I do consider it appropriate in this case that a single document be available for inspection by members of the public to supplement the planning conditions and to ensure a clear understanding of all matters proposed to be undertaken by the applicant.

11.4.96. In this regard I note that notwithstanding the lack of EIS the documents lodged with the planning authority included many specialist reports which contain specific proposals relevant to detailed design, to monitoring, to remediation of impacts and to the protection of the environment in the construction phase in particular. This would include a range of subjects which were not discussed at the hearing or raised in the written submissions but which are nevertheless important in terms of the proper planning and sustainable development of the area.

11.4.97. Mr Keogh had throughout the hearing expressed reservations regarding any possible overlap with matters which properly fall under other codes and he identified some concern about the responsibility on the planning authority in agreement of a Schedule. Ultimately he accepted that the planning authority could have a role in

agreeing the contents of a document which comprised a compilation of commitments given by the applicant. It would be appropriate that matters fall to agreement by the Board in the event of dispute.

11.4.98. I now refer particularly to the conditions which relate to water quality and water flow which were discussed at the oral hearing and I present my conclusions thereon.

11.4.99. The **establishment of two hydrometric gauging stations** is the most significant condition. These installations would provide for the gathering of sufficient data to facilitate the proper management of the river. The recommendation of IFI is that they be independently validated with real-time hydrometric flow gauging. There was a level of discussion at the hearing regarding the potential location of such stations including the value of the location at Devil's Glen where there is already a body of data, whether lands would be accessible and the role of the EPA. Mr Weiss indicated that access could be provided and that riparian owners would be happy to give access. There is land available to the applicant at a point close to the outfall from the plant. Hence there is no issue with the upstream site. I think it is fair to say that consensus emerged that the stations would be established following consultation with the EPA and I recommend that any condition in this regard be so worried. Mr Mulcahy agreed that this matter could revert to the Board for agreement if necessary.

11.4.100. The suggestion of IFI is that there would be online access to the data. I recommend that any such condition also include that criterion. I would note however that the provision of real-time quality data would be ambitious and difficult to maintain and that as an alternative regular monitoring results could be put on the web for easy access. In general the availability of data online would address a concern highlighted by Mr Keogh that the planning authority should not be overburdened. I suggest that periodic reporting of headline figures and an executive summary of the conditions for the preceding year would assist in the provision of information to the public. My recommendation is that reports be lodged to the planning authority on an annual basis.

- 11.4.101. Prof. Johnston's also notes the need for the existing weir in the discharge chamber to be calibrated. I recommend that this additional requirement be addressed by condition.
- 11.4.102. I consider that this recommendation regarding establishment of two monitoring stations and the undertaking as suggested below of fisheries mapping are fundamental matters, in the absence of which my recommendation would be to request additional information or to increase the compensatory flow.
- 11.4.103. The second significant requirement related to the need for a **wetted area fisheries habitat map and hydrological monitoring**. It was suggested that these should provide a baseline for current aquatic and ecological conditions within the catchment. IFI considered that the three-year construction period would be a reasonable time over which fisheries area assessment including the monitoring of flow data could be undertaken. The need for this arises on the basis that there is a risk of reduction in the wetted areas. A number of other parties were involved in this discussion, notably Dr Whelan who identified the complexity of such mapping. Mr Weiss referenced the lack of flow data which needed to be available for comparison with any changes to habitat. Ms Wilson stated that there was a need to record flow across a range of transects. Such information she stated would be needed in order to establish what is a sustainable flow. It would be reasonable that the applicant consults the IFI in the design of these surveys.
- 11.4.104. In general I note that IFI indicated a willingness to engage with the applicant in the event that construction of the proposed development goes ahead. In that context therefore and having regard to the fact that other parties referred to IFI as having a role I recommend that IFI be mentioned in some of the planning condition. IFI stated that their annual surveys will be adjusted to ensure coordination with work by the applicant.
- 11.4.105. In relation to the hydrometric stations and the fisheries habitat mapping, Mr Keogh behalf of the planning authority queried if such information would be needed in the context where permission had already been granted. He noted that the planning authority did not want to become engaged in enforcement requests by other authorities. He noted that there could be a fine line in a case for the Board to grant permission and also indicated by condition that more information is required. He

cautioned against any conditions which would address scenarios where impacts are identified and queried issues of follow-up to those conditions.

- 11.4.106. In general, the planning authority cautioned that it would not be comfortable in responding to this wide range of conditions on the day. However, if the conditions are not too onerous and subject to the comments of IW the planning authority has confidence in the Board to address the matter appropriately.
- 11.4.107. Regarding the issue discussed in relation to the purpose of such data and whether it would be at all relevant my conclusion is that availability of high quality monitoring data will facilitate proper management of the proposed new regime. As such a condition in this regard is relevant and reasonable.
- 11.4.108. In the longer term the information will be useful and will aid in the determination of appropriate compensation flows. Such assessment would be required under the WFD but there is presently to my knowledge no specific timeline under that measure and as discussed no consensus regarding methodology. As such it is necessary in my opinion that the applicant take the lead.
- 11.4.109. I consider that Prof. Johnston's recommendation that hydrological **monitoring be initiated as soon as possible** is reasonable. I suggest that a 6-month timeframe from the date of decision would be reasonable.
- 11.4.110. As a matter of clarity I suggest that the proposed abstraction of 80MLD maximum of which 5 MLD would go to the compensatory flow should be clarified by condition. The request that the current leakage flow of 15 MLD be maintained has been discussed above and deemed to be unworkable. However, a condition should incorporate Prof Johnston's suggestion regarding the **15 MLD branch pipe work and that the valve control should allow for variability**. This would be consistent with and facilitate the management of freshets as proposed by the applicant in written submissions. This was not put to the applicant during the hearing - it emerged through discussion between myself and Prof. Johnston afterwards and is not considered onerous in terms of additional construction.
- 11.4.111. Regarding the method of delivery of that compensation flow Mr Weiss in particular expressed concern that the proposed delivery by way of the otherwise redundant slow sand filter bed is not a long-term solution. The view was expressed that there should be a solution that does not utilise old beds, old pipes or old

infrastructure. I agree with Mr Oliver that this is the appropriate solution, including for reasons of the heritage of these bed and I generally accept his conclusions that it is feasible. I note however that the applicant had also previously highlighted potential difficulties in the running of those beds in the future. Mr Weiss requested that third parties would be involved in the design of this matter and I indicated that I would refer his request to the Board. My recommendation is that it would not be feasible to allow for the engagement of third parties in this and I accept the proposal presented by Irish Water to continue the use of the (reduced number of) sand filter beds.

11.4.112. The recommendation regarding installation of a **remotely controlled valve controlling the flow on the branch pipe work to allow for variability in discharge** was suggested by Prof Johnston. This would allow for a direct discharge to the river in the event of inadequate flow through the sand filters or any quality problems. As an alternative the siphon pipe might be usable. As this matter is one of the significant outstanding concerns of the appellants and Prof Johnston has indicated shared concern and highlighted this matter as one of his few specific recommendations, I recommend the attachment of the condition as presented.

11.4.113. Prof Johnston refers to the need for **monitoring of residual spillway flows** which may increase as a result of the proposed regrading of the channel. Mr Oliver's comments to the oral hearing supplement written submissions, which include reference to **geotechnical investigation**. I consider it appropriate that this aspect of the work be subject of a specific planning condition.

11.4.114. The applicant's written submissions refer to a Construction Environmental Management Plan and a draft was presented to the hearing. It is appropriate that the **CEMP** be finalised. I note that the parties including IFI did not indicate particular concern relating to the possibility of pollutants including sediment entering the river during construction. Mr Weiss requested that it be addressed by condition. I agree that this can be readily managed in an appropriate way. Further the applicant indicated at various times in the hearing that appropriate measures will be written into the contract agreements. I am of the opinion that this matter is in general best left to the applicant to address. I do however note Mr Oliver's comments regarding the contractor's adherence to the conditions of the permission as a contractual matter, which I consider is sufficient.

- 11.4.115. In relation to the matter of **supernatants discharge** Mr Keogh expressed concern that any such matter would be identified in any planning condition. He stated that the prohibition of a discharge licence cannot be addressed by condition of the Board – it is not a matter for the planning system. Mr Doyle however disagreed as the discharge is relevant as it is related to the use of the land and as such could be subject of a condition. On behalf of Irish Water Mr Mulcahy confirmed that once the plant is commissioned there will be no discharge then or in the future so no licences would be necessary. Existing discharge licences would be revoked. He also stated that pumping back of any supernatant to the reservoir would not be undertaken.
- 11.4.116. I consider it was clarified during the hearing (and indeed in the revised submissions to the planning authority) that discharge from the plant will be recirculated to the head and works (and not to the reservoir). Ultimately this practice was not disputed by the parties although Mr Weiss had referenced at the start of the hearing that it would cause problem with chemical build-up. Irish water also confirmed it would **cease the practice of pumping back water** in periods of water shortage. I see no reason why these matters would not be identified in a planning condition insofar as they are part of the operating regime. I agree with Mr Keogh and Mr Mulcahy that specific reference to no discharge licence is not advisable.
- 11.4.117. A matter which is relevant to the flow of water in the Vartry and which will be a consequence of the improved supply of drinking water from the upgraded water treatment plant is the proposal by Irish water to **cease abstraction at Annagolen Bridge**. Irish Water given a clear commitment that this abstraction will be decommissioned within two months of the commissioning of the proposed water treatment plant. I suggest that the time period be increased to three months. I consider it appropriate in the interest of clarity that would be included in schedule of commitments.
- 11.4.118. A fundamental matter identified by Mr Weiss was the proposal to allow the contractor the option in the final design to continue a level of **chemical dosing** at the existing location beside the river. Mr Oliver emphasised that in his opinion this location was suitable and pointed to the fact that most of the dosing would in future be undertaken at the plant but that final correction of pH could be permitted at the existing location, that best practice would be carried out and that the area would be fully bunded. The matter which had given rise to a spillage previously was now

resolved. Mr Weiss indicate that this matter was of such fundamental importance that it would result in all legal avenues being pursued in the event that this aspect of the scheme was not revised. Mr Oliver pointed to the need for a value for money assessment of re-using the existing equipment noting that significant upgrades of related infrastructure would be made. The applicant insisted that the risk would not be particularly less if the process was moved away from the river but Irish Water ultimately offered to revise this aspect of the process.

11.4.119. I refer the Board to Mr Johnston's report on this matter. He highlights this matter as one of the fundamental (and relatively few) conditions required as the basis of his recommendation to grant permission. I consider that the applicant has not given any reasonable justification for the location of the plant so close to the river other than financial considerations. Given that it will in future be related to a facility which is some distance from the river, any rationale for that siting is in my opinion undermined. In the interest of risk minimisation I consider that it would be appropriate to relocate this aspect of the process and decommission the existing infrastructure as requested by the appellant. A specific condition is appropriate.

11.4.120. In a similar vein I refer to **the interceptor channel** which currently takes discharge from the sludge storage ponds located broadly within the site of the new water treatment plant. This is not gauged but is estimated to be about 1 MLD. This is shown in Prof Johnston's chart as an input into the Vartry. It will continue to deliver surface water and this aspect of management can be included in the Schedule in the interest of clarity.

11.4.121. Regarding **sludge** which will be produced in the future from the upgraded WTP, the appellants requested that all solid be spread so there is no possibility of any run-off or stored in sealed containers and removed from the premises. Irish Water has confirmed that all sludge will be removed to a suitably licenced facility and as part of Mr Oliver's response he highlighted the manner in which sludge would be appropriately de-watered on-site. This commitment is clearly set out in the original documents submitted to the planning authority and is further address in the draft CEMP and should be incorporated in the Schedule.

11.4.122. I refer also to a request by appellants that suitable measures be taken to contain emergency flow and ensure suitable bunding was in place. Irish water

reiterated commitments in this regard to the own hearing and I note that these matters are addressed in their original submissions. In response to this and to related matters Irish water reiterated its commitment to implementation of best practice in the construction and operational phases to ensure minimum environmental consequences for the environment including the quality of water in the Vartry. Adherence to best practice is a commitment by the applicant, which can be included in any Schedule to be agreed with the planning authority. I agree with the planning authority that any testing of bunded areas, concrete plinths and so on and referral of results to the planning authority is not an appropriate condition. The onus is on the applicant to ensure proper installation and maintenance and to prevent groundwater or surface water contamination.

11.4.123. Regarding a request by an appellant the water flowing over the weir should not be diverted, obstructed or obstructed in any way at any time of the year and that all water should flow on interfered to the river unobstructed, this is inherent in the design which does not propose any work which might affect this flow. I am of the opinion that this does not need to be referenced in conditions.

11.4.124. Mr Doyle made a suggestion on behalf of appellants that in the context of the possible delivery of the Eastern and Midlands Region Water Supply Scheme by 2025 and noting that the Shannon will be reduced by only 1%, the Board should **restrict the permission to 15 years**. Irish Water's objection to any such condition was twofold relating to the investment under the proposed development and to the planning for that scheme which is based on the provision of 75 MLD from Vartry. I consider that any such condition would be unduly onerous and entirely unreasonable. If the Board considers that there is substance in Mr Doyle's suggestion, then the alternative would be to refuse permission or seek a substantially modified proposal.

11.4.125. Regarding Mr Weiss' condition suggestion in number eight of his document which relates to inspection, he omitted that request.

11.4.126. Other issues which were discussed but which were deemed not to be practical or necessary or would be covered by construction management plan include that don't change in temperature of the river be allowed (which was deemed to be beyond the applicant's control but also to be protected by water quality

monitoring), processes and safety management measures and matters related to bunding.

11.4.127. It is clear that there is a level of uncertainty in relation to the future regime and its effect. A number of third-party submissions indicate that solutions can be achieved and consensus. All parties including the applicant working in the context of a paucity of data. Some of the parties including IFI and Mr Whelan outline fairly similar requirements in relation to wetted habitat surveys which they consider would be required and could be undertaken in a short duration. Mr Whelan indicated that even a six-month survey at the right time of the year could provide sufficient information in relation to the bed of the river and on that basis it would be possible to ascertain what in fact was the required flow to protect all fisheries habitat and in this manner and on that basis to draw up a flow regime for different times of the year which would protect salmon and other species

11.4.128. The Board may wish to consider the value in itself of requesting a wetted habitat survey which could be undertaken next year commencing April 2018. I do not recommend this option insofar as data from a larger timespan would be beneficial in terms of adding to the body of knowledge in relation to flows in particular.

11.4.129. Therefore, I recommend that the Board otherwise adopt the conditions which were discussed at the hearing in relation to the establishment of hydrometric stations as well as the undertaking of aquatic habitat surveys during the period of construction.

11.4.130. As a general point I refer to the significant nature of some of the conditions including issues raised by Prof Johnston and others relating to the branch pipe work, gauging stations, continuance of flow monitoring, and relocation of the chemical dosing station. A number of these matters are of particular concern to 3rd parties and are also highly influential in Prof Johnston's recommendation to grant permission and indeed in my own recommendation.

11.4.131. Conclusions

11.4.132. My conclusion in relation to the demonstrated improvements in water quality as indicated in the IFI WFD fish surveys is that while results are improved it is

difficult to attribute those improvement to the increased flows from leakages in the context of a wetter period and changes in inputs from Ashford.

11.4.133. I accept the evidence presented by the applicant that the river has been in good condition for the period of monitoring. The status was good prior to the increased leakages and that is its official status presently. No conclusive evidence is available to suggest that a reversion to pre-2008 conditions (albeit improved due to the compensatory flow) would significantly alter this status.

11.4.134. There may be future obligations arising under the WFD to determine appropriate levels of compensatory flow.

11.4.135. Having regard to all of the above and subject to the recommended conditions, which are discussed in the next section of this report I consider that the Board can be satisfied that the proposed development would not lead to a deterioration in the status of the water and that it would be keeping with the provisions of the Water Framework Directive.

11.5. **Ecological impacts**

11.5.1. For the purposes of this section of the report I refer to environmental/ecological impacts other than those considered above. I refer the Board to the proposed Natural Heritage Areas (pNHAs) which are identified upstream and downstream of the site namely at the reservoir lakes immediately north of the dam and at the Devil's Glen, a few kilometres downstream. In this section also I provide an overview of the ecological impact and I address specific concerns highlighted by appellants and prescribed bodies including in relation to Bats, Killarney Fern, Freshwater Pearl Mussel and Aquatic Ecology. In relation to Otter I refer to the AA screening section of this report.

11.5.2. Regarding the **Devil's Glen pNHA**, this is described as a wooded, rocky gorge which supports a number of rare or scarce plants and birds. I consider that legitimate points were raised by Ms Wilson in relation to the submission of information regarding the **Killarney Fern** and her evidence is that survey work undertaken by her and others has demonstrated that the species is present in the Devil's Glen. Ms Wilson has demonstrated that the applicant's baseline studies were overly reliant on

NPWS historical data. Ms Wilson indicated that the Killarney Fern relies on a humid environment and queries the effect of the proposed development in that context.

- 11.5.3. Notwithstanding the omission of detailed consideration of the species, which is protected I do not consider that this should be a barrier to permission. Neither do I consider that further information should be requested on this matter. I refer in this regard to the fact that the NPWS through its parent Department did not reference the species and had they done so no doubt the planning authority would have reacted by requesting further information. I submit that whilst it is demonstrated that the application submission is deficient, I also suggest that Ms Wilson who has expertise in this area was not definitive in predicting adverse consequences.
- 11.5.4. Finally, I refer to the recommendation of Ms Wilson in relation to conditions which might be attached in the event that permission is granted. Those conditions include that an expert opinion on the Killarney Fern population in relation to the pNHA be sought. The applicant's response to this was that it was not clear that this could be determined to arise from the proposed development and therefore there was no requirement for such a condition. I note that the environment of the pNHA will remain humid and I suggest that there is no conclusive evidence which indicates that a grant of permission would be detrimental to the species. My recommendation is that in the event of permission is granted the Board should not attach the recommended condition.
- 11.5.5. Regarding the possible potential presence of **Freshwater Pearl Mussel** Mr Murphy noted the results of the stage I survey, which he recently carried out and no individuals either alive or dead were found. He acknowledged that there is a historical record of freshwater pearl mussel. Mr Weiss indicated that the area between his property and Ms Tottenham's is the most promising location for the species and that this area was not surveyed. Mr Murphy noted that he had followed the standard NPWS approach and looked at 5 no. sites which in his experience from other parts of the country constituted very favourable sites. His conclusion therefore is that the species is not there and he noted that the previous record from 1884 was around Newrath bridge. Mr Murphy also noted that the species may use trout as part of their life-cycle and that for this reason survey of the Devil's Glen area was valid. I accept the applicant's submissions and consider that there is no requirement for

further assessment of the species and significant likelihood of the species being present.

- 11.5.6. Ms Wilson referred to the importance of the settlement ponds as a **Kingfisher** habitat area, not as a breeding area but as a feeding area and suggested that this should be considered in the CEMP. Mr Murphy in response noted that there is a lot of good habitat for Kingfisher and abundant minnow which are an important food source. He acknowledged that during the construction there would be disturbance. If the ponds are utilised over the winter, he suggested it would be on a periodic basis and in regard to the size of habitat that is available he would not consider the displacement to be significant. Ms Wilson noted that one species may be pushed into the territory of another. I accept the applicant's evidence in relation to the availability of alternative habitat and consider that the applicant has sufficiently addressed this matter.
- 11.5.7. An issue which arose during the oral hearing was the absence of a stand-alone **Aquatic Ecology** report. Regarding the lack of a stand-alone aquatic report Mr Murphy noted that he had prepared one and that it was assimilated into a subsequent overall ecological report. Any issues related to fisheries habitat would have been addressed by Dr O'Farrell. While the applicant acknowledged that a full fisheries habitat survey had not been carried out it was the applicant's submission that no evidence was presented to indicate that conditions would deteriorate. I have largely addressed this matter above and drawn conclusions which are in favour of the applicant submission albeit subject to significant conditions.
- 11.5.8. Regarding **the protection of bats** this matter was one of the issues which led to a request for further information subsequent to the comments of the parent department of NPWS. Ms Wilson submission is that 7 no. species have been recorded in surveys in the past in this area. The applicant's response to the planning authority includes a bat survey which notes that there was no evidence of bat roosts in stone structures at Vartry reservoir. However, Daubenton's bat forage round the road bridge and the intake tower but appear not to use them as a roost. The survey also identifies a number of precautionary measures including in relation to any required tree felling. These are supplemented by the submission of an outline CEMP to the oral hearing which set out precautionary working method for demolition of the toilet block, which is deemed to be suitable as a bat roost and which is used by brown

long eared bat. In the event that bats are encountered measures are set out. I consider that the applicant has undertaken sufficient investigative works and that the measures to be adopted including in relation to the construction phase are appropriate.

- 11.5.9. The applicant's submissions including the oral hearing presentations and the Ecological Impact Assessment reports present a range of information regarding measures to mitigate possible environmental consequences during the construction period. These include relatively standard measures such as the preparation of an Environmental Management Plan, adherence to best practice guidance which are specified and to prevent spillage. The report also sets out a range of measures which are specific to each phase of the construction such as control of reservoir water levels, geotechnical and structural assessment of wall, tunnel and bedrock and similar. The report also refers to the Callowhill tunnel which is not relevant.
- 11.5.10. The submission of the draft CEMP which has been referenced before and which would be required to be finalised provides the conditions to ensure minimal ecological damage related to construction. The applicant has indicated that it will be a contractual obligation to incorporate additional measures contained in the environmental reports. This will include seasonal constraints on working and agreement with IFI and NPWS regarding timing, identified pre-construction surveys related to specific species, ecological monitoring, treatment of invasive species, control and timing of tree and vegetation removal to avoid impacts to breeding birds and protection of bats and related matters.
- 11.5.11. Having regard to the limited nature of the work at the intake point at the dam and to the absence of any increase in abstraction from the lake, I am satisfied subject to standard mitigation in the construction phase that the development would not give rise to any significant environmental impacts on the reservoir. I note that the parties to the appeal did not raise any significant concerns in relation to the potential impact on this pNHA. Relating to the character of this lake it has a history of extremely low water levels and there is no aspect of this development which would exacerbate that. I consider that any climate change implications are properly a matter for future consideration under the WFD.

11.5.12. I conclude that the development proposed would not give rise to significant adverse ecological impacts subject to adherence to the mitigation measures set out.

11.6. Invasive species

- 11.6.1. There is potential for spread of invasive species including on designated habitats at Vartry (pNHA) and along the river corridor and from there to European Sites which are connected. This has been assessed in a specific report presented by the applicant. The surveys undertaken of the Vartry Site indicate the presence of Canadian Pondweed in two of the settlement ponds. Common Rhododendron was located within the site also and is thought to have originated from intentional planting rather than invasion. Both species are listed in the third schedule of SI 477 of 2011 and allowing or causing spread or dispersal of such species is an offence. A third species Montbretia is a medium impact species which is not included on the third schedule.
- 11.6.2. The Invasive Species survey report sets out general best practice control measures and recommends the preparation of a detailed Invasive Species Management Plan to cover locations where invasive species have been identified and to ensure proper treatment and control. Subject to adherence during the construction phase of the proposed control measures and best practice guidelines together with a recommendation for the preparation of an Invasive Species Management Strategy there is deemed to be no potential of the spread and introduction of high impact invasive species.
- 11.6.3. Regarding the risk of transfer of Canadian pondweed to the river Murphy clearly stated that the nature of the ponds location is isolated and that there is no risk. It would have to be taken from the ponds and transfer into the river in his opinion and he noted also that that species together with other invasive species are along the river. In addition if it reached the environment as it is a freshwater plant it would not pose a threat to the estuarine environment as it would not survive there.
- 11.6.4. Regarding the invasive species management plan a noted that while the surveys initially were not undertaken in the optimum species it is also standard practice for further survey immediately prior to construction. The management required in

dealing with some of the species is quite significant and Mr Murphy discussed this at the hearing.

11.6.5. I accept that there are no concerns in relation to the three species recorded at the site of the water treatment plant and I consider that the applicant has outlined sufficient construction phase management to address the possible importation of other species to the site.

11.7. Flood Risk Assessment and Dam Stability

11.7.1. The application submissions include a Flood Risk Assessment. Based on available information sources including OPW Flood Hazard maps, CFRAM mapping, walkover survey and local knowledge the site is not within an area at risk of flooding.

11.7.2. I consider that the designation of the location as being within Flood Zone C is appropriate. There is not deemed to be any flood risk associated with the proposed development including the enlarged spillway channel, which I accept. The spillway is noted to be at a significantly lower level than the site for the new treatment plant, is some distance from the new plant and the capacity of the deepened spillway is sufficient to move water away quickly and prevent overtopping of the dam.

11.7.3. The applicant decided out of a stated 'abundance of caution' to undertake a Stage 2 Flood Risk Assessment to examine potential risks to the development from potential overtopping of the dam. As there is a very low risk of overtopping of the dam the treatment plant is describe as being within Flood Zone C, which I accept.

11.7.4. Regarding the FRA presented I note that the development is described in table 2-3 as being of 'Less vulnerable' class. The basis for that classification is not clear to me. I refer the Board to the relevant Table 3.1 of the Guidelines under which Highly Vulnerable Development is stated to include essential infrastructure including water treatment. While I would query the classification used in the FRA presented I note that it makes no difference to the assessment of the development under the matrix in the Guidelines for the appropriateness of development. I conclude that the application submissions adequately demonstrate that the development would be considered to be 'Appropriate' in this Flood Zone C, that the development is 'Appropriate' in such a location and that there is no requirement for a Stage 3 assessment involving a Justification Test.

- 11.7.5. Regarding the potential that the new plant would give rise to flooding elsewhere the location of the main treatment plant at a level of 5.5m below the existing ground and sloping away from the dam means that it will not reduce the flood plain.
- 11.7.6. Section 3 of the FRA provides an assessment of surface water management in the future including calculations of the surface water run-off and the required attenuation volume. These calculations appear to be based on standard methodology and calculate the 100 year return period run-off at $0.09\text{m}^3/\text{s}$. The applicant reasonably concludes that the runoff from the proposed site will not increase the risk of flooding in the existing surface water system.
- 11.7.7. I consider that based on the information presented in the application that the proposed development does not increase the risk of flooding of adjacent lands as it does not affect the pathway of the spillway or contribute to increased flows in the downstream catchment. The risk of flooding of the site of the treatment plant from the spillway or the dam is minimal and will be further reduced as a result of the works to the spillway.
- 11.7.8. The detail of the works to the spillway and the requirement for these works was discussed at the oral hearing. Mr Oliver described the spillway as being 'just about ok' in terms of the dam stability. In response to questioning he stressed that the need for works was to increase the maximum capacity of the channel to accommodate supercritical flow. The proposal arises as a result of the panel one reservoir engineer's inspection and the calculation of the probable maximum load. Mr Oliver noted that in the UK such a recommendation was legal requirements which have to be complied with.
- 11.7.9. He clarified also that the works to the spillway would not involve explosives and that vibration monitors would be in place for the construction. Further he noted that the existing spring water, which is part of the source of the flow downstream of the dam will continue to flow in the upgraded spillway.
- 11.7.10. Prof Johnston in his report addresses this matter following discussion at the oral hearing. The concern identified by Prof Johnston relates to the presence of springs in the area of the spillway which is to be deepened. He notes that a consequence of this deepening by up to 3m in places could result in increases in residual spillway flows. The existing flow from the springs is small and is estimated to

be in the order of 0.5 to 1.5 MLD. Prof Johnston notes that the effect of the increase in the spring flow which may result from the deepening of the channel could arise due to increased head. He acknowledges that this may not be significant but still suggests that it should be closely monitored both during and after construction. In relation to the need for the spillway deepening Prof Johnston noted that it would accommodate 13, 800 MLD and he queried the need for such a capacity given that the recorded historical maximum spillway flow for the last hundred and 50 years is approximately 500 MLD.

11.7.11. Due to the nature of the works and the proposals to monitor vibrations Mr Oliver was satisfied that the works to the spillway could be undertaken without any consequences for dam stability. He emphasised that the panel engineering recommendation was that the works be undertaken and that they be done before 2018.

11.7.12. I am satisfied based on the written and oral submissions that the works involving the deepening of the spillway are necessary. In this regard I consider that considerable weight should be given to Mr Oliver's comments regarding the legal status in the UK of panel one reservoir engineer report.

11.7.13. I conclude that the development is acceptable in terms of risk of flooding and in relation to works to the dam spillway.

11.8. **Traffic**

11.8.1. The impact and management of the construction phase traffic is addressed in two separate reports presented as part of the application. The Traffic Impact Assessment report refers to the relative importance in terms of the dominance of traffic impacts of the construction traffic to and from the WTP site. This will be the largest contributor to overall traffic flows associated with the proposed development. The report provides an assessment of the likely traffic flows, which I consider are demonstrated to be relatively low. The route to be impacted is primarily regional road and the N11 at which there are two possible junctions which might be suitable. A number of relatively short road closures will be needed.

11.8.2. The assessment provided is limited on the basis that the relevant guidelines recommend detailed assessment only in circumstances which do not arise herein.

Volumes are low in absolute terms and in relation to their contribution as a percentage of existing traffic which is below the required 30% for more detailed assessments. Both operational and construction phase traffic are reasonably demonstrated to be capable of being accommodated safely.

11.8.3. A draft preliminary traffic management plan for the WTP (and the Callowhill pipeline) is presented and is included in Appendix C of the applicant's submissions. Its objectives include avoidance of Roundwood village and use of suitable routes and delivery times. It briefly addresses site specific risks in the area including the tourist season and aspects of the works which will give rise to specific requirements. These would include works on the R764 including a new Siphon Crossing, Intake tower works, Spillway upgrade works and use of the entrance to the plant by construction vehicles. Traffic related to the temporary storage site required for works also involves a lot of movements from the existing site across the bridge and onto the temporary storage location at the opposite site. The identification in the draft preliminary traffic management plan of the types of factors which will be taken into account is in my opinion adequate for the purposes of the current applicant and there is no evident likelihood of significant issues being encountered.

11.9. Regarding the suitability of sightlines which is a matter which was raised in one written submission i consider that the main entrance is suitable and that the detail of any new entrance at the temporary site would be addressed under the management plans to be agreed with the planning authority.

11.9.1. I concur with the conclusion that there will be no residual impacts.

11.10. Cultural heritage

11.10.1. Architectural impacts

11.10.2. From inspection of the site it is clear that the overall site is of considerable built heritage interest. The application submissions outlined the history of the Scheme. It is evident that not only was this a major achievement in terms of public health, it also comprised the highest achievements in terms of engineering and landscape design. It is a testament to the endeavours of the designers and builders that the original structures and fittings are largely in situ today including for example

the mechanisms in the chamber room, the stilling pond, the sand filters and indeed much of the original tree planting.

11.10.3. The built heritage assessment report states that no buildings on the subject site are included in the RPS and that no buildings or other structures at the Vartry Works are included in the NIAH. Vartry Lodge is noted to be included in the NIAH and rated as having a regional significance³⁸. In fact as referenced above there are major elements of the original scheme which are included on the NIAH namely the dam, reservoir and basin. The stone-built valve tower which is within the reservoir and the associated bridge are the focus of the description. It is also this structure which is subject to significant alteration proposals.

11.10.4. The applicant's submission in the Built Heritage Assessment report is that the works to the WTP which might be deemed to have a potential heritage impact can be summarised as follows:

- installation of siphon pipe on the reservoir side of the embankment (where they would be visible), under the public road and descending the southern side of the embankment where they would be concealed
- internal works to be under-taken at the draw off tower and a new working platform installed on the exterior of the tower through converting a window into a door with a latticework balustrade
- works to the spillway, which in the built heritage assessment report is stated not to be affected
- in the chamber room replacement of valves and other equipment will be needed and a new fit out of the chamber will take place
- at the exterior of the valve chamber a new set of doors will be installed, which are deemed to be necessary to facilitate movement of machinery and which requires removal of the round headed window and its replacement with doors.

11.10.5. Having regard to the lack of formal protection afforded to the WTP I agree with the comments in the built heritage assessment that many of the works are likely

³⁸ Vartry Lodge is at a remove from the works and I am satisfied that it will not be affected.

to be considered to be exempted development. The NIAH does not confer any legal protection in itself.

11.10.6. Nevertheless, having regard to the heritage value of the WTP it is appropriate and necessary in my opinion that all works be subject of further detailed agreement with the planning authority and that all works be supervised by an appropriate the qualified and experienced heritage consultant. The mitigation measures presented in the built heritage assessment report are in my opinion very much a starting point and do not adequately guide or clarify the nature of the work to be undertaken.

11.10.7. In relation to the works to the tower and bridge it is appropriate that detailed drawings be agreed with the planning authority prior to commencement of works. I note that the applicant's assessment is that the impacts on built heritage are not significant and that the requirement in terms of mitigation is that the works to the exterior would be in sympathy with the design of the tower. It is proposed to mimic the existing latticework where appropriate.

11.10.8. I consider that the works to the spillway, should the Board consider them necessary in the interest of dam safety, would be acceptable. I note that the character of this area will change including as a result of the removal of the toilet block and trees and the significant excavation of rock in the spillway. However apart from its historical interest the spillway is not generally a feature of architectural interest and it is not highly visible from the public realm. This and other features should be subject to a condition regarding recording.

11.10.9. There are many other features on the site which contribute to its intrinsic interest. I note for example the sculptures of Mr John Gray³⁹ and the internal fittings of the chamber. On inspection of the chemical building I noted that it contains models and sections of the original scheme which would be at the very least of educational interest. The chemical building in itself contributes to the built heritage value of this site. I consider that it was designed and positioned with skill. There are no proposals to alter it and on balance I do not consider that a condition is appropriate regarding its retention or future use.

³⁹ The role of Mr John Gray as a major driving force behind the project is recorded in the application submissions. He was a medical doctor. He purchased the land needed for the scheme and handed it over to the city council at no profit.

- 11.10.10. Apart from one written submission to the planning authority the impact on cultural heritage did not attract public interest and was not subject of discussion at the oral hearing. I consider that the nature of the issues arising is that they are suitable for consideration and agreement with the planning authority.
- 11.10.11. In terms of the consideration of the planning authority I am of the opinion that the overall approach taken was reasonable insofar as the planning authority requirement to retain in situ a number of the sand filtration bed is highly significant. The proposal is to retain filter beds 1-7 as water features and to retain the stilling basin. I have previously discussed issues relating to the feasibility of this proposal. However, I consider it appropriate to expand on the planning conditions. DAHRRGA recommends conditions relating to architectural and industrial heritage including the retention in situ of structures and features and otherwise the recording and deposition of records to appropriate archives. I incorporate these recommendations as appropriate in the conditions below.
- 11.10.12. I conclude that subject to conditions the development is acceptable in terms of the impact on architectural heritage.
- 11.10.13. Archaeological impacts
- 11.10.14. The majority of works are located in a heavily modified landscape that has seen significant and continuous disturbance to the local topography. There are no recorded archaeological sites in the immediate vicinity of the proposed development. Notwithstanding the significant disturbance that has taken place at this location, however, there is potential for archaeological remains, which may be disturbed by groundworks. Recommendations in this regard are presented in the Archaeological Assessment report. These refer in particular to topsoil stripping and archaeological monitoring. There is further assessment in the relevant report of the pipeline route.
- 11.10.15. The report of the relevant prescribed body refers to engagement of an archaeologist to monitor all topsoil stripping associated with the development and where archaeological material is found the archaeologist may have work on the site stopped pending a decision on the best approach. The developer shall be prepared to be advised by the DAHRRGA with regard to the necessary mitigation action and facilitate the recording.

11.10.16. Subject to conditions I consider having regard to the contents of the relevant report that the Board can be satisfied that no significant archaeological impact is likely in this case.

11.11. Landscape and visual impact

11.11.1. The LVIA outlines how at the time of its construction the Vartry Scheme involved considerable intervention in the landscape. The damming of the river in the 1860s formed what became known as the Lower Reservoir which was followed by the creation of a second, upper reservoir to the north in the early twentieth century. The scheme construction involved significant modifications to land formation for the purposes of construction of the dam and the site of the sand filter beds. The treatment plant was accompanied by embankments and extensive planting including of exotic tree species and woodlands. The water treatment complex included distinctive features such as the Gothic Revival draw-off tower and other structures notably the two rows of filter beds. Reports submitted by the applicant include photographs from the Lawrence collection which show buildings such as Vartry Lodge set in an open landscape largely devoid of trees and significant woodland planting. The scheme has since matured. . In terms of the landscape it is noteworthy that the site was a destination for Sunday drivers up to the 1980s. It is a highly modified landscape, which in my opinion would be considered to constitute a valued landscape.

11.11.2. Regarding the landscape and visual impacts of most significance these relate to the removal of sand filter beds and the landscaping of the site and the introduction of the new plant at the western side of the site.

11.11.3. I refer the Board to the photomontage PM_C which shows the proposed view from the regional road/bridge. This image also incorporates a permanent earth mound which would be constructed at the area presently occupied by filter beds and which would alter the landscape and topography. I consider that the works in this general area are acceptable. I accept the submission of the applicant that the overall change to the landscape can be considered of low to medium magnitude once the construction phase is over and the landscaping settles in and matures.

11.11.4. I note however that the LVIA also addresses the scenario of all filter beds being removed and presents a photomontage. I agree that this would constitute a more significant and adverse effect which would diminish the character of the views. I consider that in terms of the landscape effects and their cultural heritage importance it is appropriate to attach a specific condition relating to the retention of the 7 no. sand filter beds.

11.11.5. The LVIA refers to the location of the proposed water treatment plant as being within a field formed as part of the original scheme by the establishment of woodlands inside its north and west boundaries. As such the defining feature of the site is identified as the enclosing vegetation. I agree with that description and note that this field comprises a suitable location for what will be a large industrial development of utilitarian design. The development will require removal of a line of trees which traverse the site and which I consider is acceptable in the circumstances. The detailed tree survey clarifies however that the dense planting along the eastern side will be retained. Tree protection measures are set out in the application submission.

11.11.6. The applicant's submissions include reference to careful consideration of the colours of the buildings. I note that the planning authority addressed the matter of external finishes by condition and I consider that the Board should do likewise. The objective should be to minimise any possible visual effects arising from the new buildings and plant. The screening behind trees together with the lowering of the ground level should limit the visual effect of the proposed development and this will be aided in time by the maturation of new woodland planting. The obscuring of the buildings by tree planting is appropriate in my opinion in this instance. Additional planting will screen views to the site and would also ensure that the enclosed nature of the water features in the original sand filter beds and the surrounding landscape retain their character.

11.11.7. Regarding views from the dam wall I note that the applicant attributes a protected status to a prospect at this location. That is that conflict with the Council's planner's report and it is not my interpretation of the development plan. Even if the Board is to consider that the prospect warrants protection or is protected, I considered that subject to implementation of the scheme and the mitigation measures as proposed, the character of that view and its value would be protected.

11.11.8. In relation to construction phase impacts these are unavoidable and will result in adverse landscape and visual impacts. I agree with the applicant submission however that beyond the construction period the residual effects of the works would constitute an acceptable intervention in a functioning utility landscape. I consider that the not exceeding the proposed overall height of the structures and the ensuring the reduced ground level at the new plant together with tree protection measures are critical requirements but consider that they are covered by the standard condition one and need not be addressed further. I conclude that the development is acceptable in terms of its landscape and visual impacts.

11.12. Noise

11.12.1. Noise impacts arising from the proposed development has been considered in the report of Envest Environmental Ltd. This is based on baseline studies and a noise model. The character of the area is rural within frequent traffic noise along the regional road and with the existing plant and agricultural noise dominating the background noise climate. Based on standard assessment for daytime, evening and night-time this area is deemed to be one of low background noise. The assessment of noise for the three-year construction period indicates that construction activities will not occur during night-time hours. In addition it is noted that construction noise impacts will be short-term. However the closest noise sensitive receivers are only 65 m from the proposed new plant. There is another dwelling house which would be closer to the spillway but which would appear to be occupied and owned in connection with the plant. Predicted noise levels are modelled taking into account the site clearance and preparation phase as well as in the period of excavation and rock breaking arising from deepening of the spillway and other works.

11.12.2. In my opinion based on the application submissions the predicted construction noise levels at the two nearest dwelling houses are likely to give rise to significant disturbance. I accept however that at a distance of 200 m from the works certain aspects will not give rise to nuisance. This report contains a significant number of construction mitigation measures set out in section 5.1 and significantly recommends that should complaints be received predicted noise monitoring will be undertaken. It is also recommended that the contractor appoint a responsible person. I consider that these recommendations and others including in relation to necessary night-time

workings such as use of dewatering pumps are all suitable for inclusion under the schedule of commitments.

11.12.3. In relation to operational phase noise I refer again to the fact that there is one dwelling house very close to the proposed plant. The noise impact assessment is that pumps will be the main potential noise source and these will be located at underground basement level which will significantly attenuated potential breakout. Other sources of noise are identified and assessed. The conclusion of the assessment of operational noise from the proposed development indicates that the EPA's limit criteria will not be exceeded at the nearest residential properties subject to certain sound pressure levels being incorporated into the design. There is reference also to construction of unearthed bond and to the possibility at detail design stage of incorporating acoustic louvres and to details of construction of the relevant buildings. I recommend that these matters be reserved to the applicant to resolve. A condition in relation to noise is however considered appropriate.

11.13. Air quality impacts

11.13.1. The air quality impact assessment report addresses the matter of construction phase impacts inadequate detail in my opinion. It also sets out a range of appropriate construction mitigation measures. The potential for dust generation will be of limited duration but will require careful implementation of the recommended dust mitigation measures it is stated.

11.13.2. It is stated that there would be no significant operational air quality impacts on the basis that the processes do not result in significant odour emissions and due to the wholly contained nature of the plant.

11.13.3. I accept the conclusions of this report and note that they have not been queried by the planning authority, third parties or prescribed bodies. I consider it is appropriate in view of the proximity of dwelling houses to highlight as a separate condition the mitigation measures in this report and particularly recommend their inclusion in a Schedule of Commitments.

11.14. Further comment on legal submissions

- 11.14.1. A number of detailed legal submissions were presented at the hearing including in relation to AA screening, SEA and the Water Supplies Act and other matters including the requirement for EIA, which is addressed earlier.
- 11.14.2. AA screening
- 11.14.3. Mr Doyle considers that the **AA screening assessment** undertaken is flawed and needs to be repeated as Irish Water has not established beyond reasonable scientific doubt that there will not be an adverse effect on the integrity of the site. Irish Water may make an argument that the concern should only relate to the modification of the flow and that therefore there is no likely effect but as with the EIA the project is the entirety of the works not merely the current water treatment plant but also the abstraction. The project and the in combination effects of the project have to be considered so even if the rest of the works is not the project they have to be considered. This was a reference to the abstraction from the reservoir and other extant and proposed works and the need to look at ongoing effects, which in Mr Doyle's view have to be considered along with the current proposal. The Board may wish to consider whether there is a requirement to consider the effect of the existing abstraction – my opinion is that there is no such requirement as the level of abstraction is not increased. I refer the Board to the appropriate assessment section of this report, which I consider adequately addresses all requirements.
- 11.14.4. I note also that Mr Doyle states that the Habitats Directive has been incorrectly interpreted in Ireland including by NPWS. He states that the correct interpretation in terms of appropriate assessment is that all species and habitats listed under the annexes fall to be assessed and not just the qualifying interests. He stated that the relevance of the qualifying interest related to the establishment and designation of a European site. However once that site was designated they have no more or no less relevance to AA than any other annex species or habitat. I bring this to the attention of the Board. However, having regard to national law and guidance and in the absence of legal judgements to the contrary, my opinion is that the argument is without substance. I agree with Mr Mulcahy who states that the AA screening was done, that nobody has pointed to risks to the conservation objectives

and that in any case the non-qualifying species and the effect on them was examined.

11.14.5. SEA

11.14.6. I note that Mr Doyle set out a requirement that EIA has to be rooted in SEA. Ms Ryan is referred to the WSSP stating that this had been subject to SEA. Mr Doyle however had gone to this and other documents noting that references to Vartry were limited.

11.14.7. Mr Mulcahy responded to the above through discussion with Ms Angela Ryan of Irish Water. Regarding SEA, she noted that when Irish Water came into being there would have already been individual proposals for the VWSS involving the upgrade of the reservoir, the tunnel and the upgrade of the VWTP. She acknowledged the need for the upgrade of the VWTP pre-dated Irish Water and she confirmed that she had seen such separate plans. There is an overall Capital Investment Plan but that is budgetary in nature. She referred to the WSSP which had been subject to SEA.

11.14.8. In this regard Mr Doyle noted that the WSSP contained only a single reference to Vartry and that the consideration of alternatives including the fast tracking of the Shannon scheme needed to be addressed. The works are part of a larger project to renew and rebuild the original project and the renewing and rebuilding are works and the works are a project and the project comes within that category of the transfer between river basins requiring EIA. There has to be a plan he stated and any such plan should look at Shannon scheme and address whether a temporary fix of the existing plant pending the larger scheme would suffice.

11.14.9. Mr Mulcahy indicated that the argument is wholly without substance and that there cannot be a requirement in the context of the planning application to show that you have done an SEA. In any case the WSSP has been subject to SEA and it is available online and it has informed the capital report.

11.14.10. I agree with the submissions on behalf of the applicant.

11.14.11. Water Supplies Act

11.14.12. Regarding the riparian rights and in particular to fail to serve a **Book of Reference** I note that there is no increase in abstraction and that the levels of water

taken from the Vartry are not dissimilar to the quantities for much of the last century. I do not consider that the Board should further investigate this matter and I agree with the submission of Mr Mulcahy in this regard.

11.15. **Other matters**

- 11.15.1. In relation to the suggestion that a condition relating to **community gain** would be appropriate I comment as follows. This matter was raised by Councillor Derek Murphy in his submission but was not actually discussed in any detail at the hearing. Cllr. Mitchell indicated that this project should be considered as part of this strategic infrastructure approval process. In relation to the principle of that issue I note that none of the legal submissions have made substantive arguments in that regard and from examination of the relevant legislative provisions I am of the view that the proposal does not sit within the strategic infrastructure legislative classes.
- 11.15.2. Notwithstanding that conclusion the Board may wish to consider whether a community gain condition would be appropriate. Councillor Mitchell's arguments refer amongst other things to the supply of water to regions other than the immediate environment. Based on a figure of one cent per cubic metre, 65 MLD and 365 days of the year he suggests that a figure of €237, 000 would be appropriate on an annual basis. My opinion is that the greatest interest the local community may have would appear to relate to the river. As such investment by Irish water in the infrastructure and in the recommended mapping and surveys would assist in addressing this.
- 11.15.3. Further I note that it would be unusual for such a condition to be attached in the absence of both a concrete proposal from the applicant and a ground swell of local demand, particularly in relation to a case which is not a strategic infrastructure case. I therefore recommend that the Board reject the suggestion.
- 11.15.4. In relation to the **running of the oral hearing and public participation** generally the comments below refer.
- 11.15.5. Mr Doyle made a series of objections to the procedure at the hearing. He objected to the amount of new information which was submitted, which he considered was unreasonable and contrary to the Aarhus Directive as well as to the requirement for access to information including under the EIA Directive, which in his

view was relevant. He indicated that the applicant's report was not easy to penetrate and not easy for a layperson to engage with.

- 11.15.6. The matters under consideration at the hearing were difficult and technical. I do not consider that there were substantial bodies of additional information presented and certainly nothing which would require a revision of public notices. The applicant did present new evidence including in the form of new witnesses and there was detailed discussion which would have involved points of elaboration which had not previously been presented. That is the nature and purpose of oral hearings.
- 11.15.7. I consider that sufficient time was presented at the hearing to aid this understanding and I note that Prof Bruen provided an explanation of the flow duration curves and what they mean explaining for instance what is meant by a 95 percentile figure and so on. I consider that all of the technical information was presented in as straightforward manner as possible and certainly there was never any attempt by any person involved to complicate matters.
- 11.15.8. There were difficulties in terms of availability of documents at one stage and the use of visual aids was not undertaken in a manner which maximised public participation. However, I did at various stages draw the attention of the applicant to these issues and indicated to the attendants that any documents would be available from the applicant. Ultimately all parties appeared satisfied that the process had been beneficial.
- 11.15.9. In relation to the matter of public access and information I note that prior to the making of the application the applicant held a public information day which was advertised on the radio and is stated to have been attended by 30 people.
- 11.15.10. Third parties objected to the description of the proposal as an upgrade. However I note that the public notices which accompanied the application make clear the nature of all aspects of the work and in this regard the use of the term upgrade is in my view acceptable. The public has been adequately notified as required under the planning regulations.
- 11.15.11. Finally I consider that the compilation of a schedule of commitments, as is recommended in the conditions below would overcome some of the reservations expressed by participants at the oral hearing in relation to the application documentation.

11.16. Appropriate Assessment

- 11.16.1. Following the provisions of article 6 of the Habitats Directive as transposed into Irish legislation, there is a requirement that the Board carry out a screening for Appropriate Assessment of this development in order to ascertain in view of best scientific knowledge whether the proposal is likely to have a significant effect on a European site individually or in combination with any other plan or project.
- 11.16.2. The applicant in the Stage 1 screening report for Appropriate Assessment has considered this matter and determined and outlined a position which is that there is no likelihood of significant effects on European site and no requirement for submission of A Natura Impact Statement. I refer the Board to the original AA screening report dated September 2015 which was revised by a further report of October 2016. The revised AA screening report provides some clarity on aspects of the construction phase of the development in particular and I have incorporated that information under the description of the proposed development at the start of this report.
- 11.16.3. In brief the development comprises three elements namely:
- the construction of a new water treatment plant
 - works to the Spillway and the intake tower
 - regulation of the flow from the River Vartry.
- 11.16.4. Section 4 of the AA screening report refers to the identification of relevant Natura 2000 sites. The report takes as its starting point a 15 km zone of impact as suggested under national guidance. I have examined the relevant data which is available in particular on the NPWS website and the accompanying maps. On this basis I am satisfied that the applicant submission identifies correctly all of the relevant Natura 2000 sites within 15 km of the site and these are listed below – commencing with the Special Areas of Conservation and generally in order of proximity to the VWTP:
- Wicklow Mountains SAC – Site Code 00212
 - Carriggower Bog SAC – Site Code 000716
 - Vale of Clara (Rathdrum Woods) SAC - Site Code 000733

- The Murrough Wetlands SAC – Site Code 002249
- Glen of the Downs SAC – Site Code 000719
- Deputy's Pass Nature Reserve SAC – Site Code 000717
- Bray Head SAC – Site Code 000714
- Wicklow Reef SAC – Site Code 002274
- Wicklow Mountains SPA – Site Code 004040
- The Murrough SPA – Site Code 004186
- Wicklow Head SPA – Site Code 004127.

11.16.5. The AA Screening Report identifies the qualifying interest for each of these Natura sites and the potential impact arising from the development. Based on the information provided in table 4-1 which I consider to be both comprehensive and accurate, I agree with the applicant's submission that further assessment is required in relation to otter (as a qualifying interest of Wicklow mountains SAC) and to certain habitats found within The Murrough Wetlands SAC.

11.16.6. Ms Wilson at the oral hearing referenced the lack of information in the AA screening report regarding the effects on the food availability to birds in The Murrough SPA. She stated also that she was not suggesting a direct effects on birds. I note that the applicant decided to 'screen out' this Site from further consideration. I consider that the potential for any changes to food availability to birds is related only to the possible changes in salinity as there is no increased discharges of potential pollutants and in the circumstance where construction phase impacts can reasonably be mitigated. The latter point was accepted generally by parties at the hearing including IFI. On the matter of salinity changes I refer to Prof. Johnston's report which discounts the possibility of any significant effect. I accept that conclusion and therefore consider that the Site does not require further consideration.

11.16.7. I consider that the relevant European Sites are the Wicklow mountains SAC and the Murrough Wetlands SAC and the associated qualifying interests are as follows.

11.16.8. Wicklow Mountains SAC

- Otter.

11.16.9. The Murrough Wetlands SAC

- Atlantic Salt Meadows
- Mediterranean salt meadows
- Calcareous fens
- Alkaline fens.

11.16.10. In this regard for the making of a decision as to whether or not a stage 2 appropriate assessment would be required I consider that the applicant has correctly identified the following potential impacts.

11.16.11. The relevant potential impacts may be summarised therefore as:

- Water quality impacts in the construction phase
- Noise and vibration in the construction phase
- Operational phase impacts related to water flow and levels.

11.16.12. Mr Murphy provided clarification in relation to an apparent inconsistency in the report. In the invasive species report the presence of 3 invasive species Canadian pondweed, rhododendron Ponticum and Montbretia was noted. Canadian pondweed appears to be the most extensive and is found in the settlement ponds but was not dominant.

11.16.13. I questioned Mr Murphy regarding this inconsistency and why the invasive species were not considered under the screening report. I am satisfied with his response on this matter which is that the AA screening report does not refer specifically to this species but due to the isolated nature of those ponds there is no significant pathway to the river and from there to the Murroughs. He noted also that there is already Canadian pondweed within the Vartry and that it would not survive in an estuarine environment.

11.16.14. Responding to Ms Wilson's comments regarding the period of survey they accepted that was less than ideal but that all species would have been visible in any case in the autumn. Further invasive species surveys will be undertaken prior to work. In that way the most efficient means of control can be affected.

- 11.16.15. I have considered the applicant's submissions. I am satisfied that none of the species identified in the invasive species report poses a threat to the SAC downstream or requires any further consideration in the context of appropriate assessment.
- 11.16.16. I consider that no other issues arose at the hearing or elsewhere in the application submissions to warrant consideration of any other potential impact.
- 11.16.17. In relation to water quality impacts in the construction phase this matter is to be addressed by a range of design and mitigation measures which are highlighted in the AA screening report. There was more discussion at the hearing on matters relevant to the construction and operation phases including possibility of spillages, avoidance of leaks through bunding, handling of sludge, location of chemical dosing facility and matters related to the removal of the settlement ponds which are on site.
- 11.16.18. Relating to the construction period in particular I consider it reasonable to conclude that there were no serious concerns raised and indeed some appellants indicated quite clearly that they considered that the potential for water quality impacts during the construction phase could be readily mitigated. In the circumstances of this case it is important to note that the two main areas of significant works can be easily managed so that working is in the dry and to acknowledge that the applicant has set out measures in this regard. I am satisfied therefore that water quality impacts during the construction phase are highly unlikely to give rise to any significant impact on the Murrroughs downstream.
- 11.16.19. The permission for the replacement Callowhill tunnel includes significant development at the eastern end of the site at the opposite side of the river. I do not consider that any cumulative effects, including in relation to sediment or fuel spillage and related matters, would be significant. Again I refer to the best practice measures and the standard nature of this aspect of construction, which can be readily mitigated.
- 11.16.20. In relation to the potential for significant effects on otter I note and accept that while the species is present at the site (foraging but no holts) and would be liable to disturbance from noise and from water quality impacts which could affect feeding opportunities, the species is highly mobile and for the short duration (24 months) of

works which takes place in a relatively confined site I agree with Mr Murphy's assessment that the risk of significant impact is low.

11.16.21. Regarding the potential impact on Atlantic and Mediterranean salt meadows and calcareous and alkaline fens related to flow and water level impacts in the operational phase I refer the Board to Prof Johnston's consideration of the effect of the proposed development on the hydrology of Broad Lough. His conclusion on this matter references the total contributing catchment to Broad Lough, which is nearly 3 times the area of the impounded catchment. Obviously there are no changes arising as a result of this proposed development which would affect that two-thirds of the overall catchment. Regarding the area which would be altered Prof. Johnston notes that the small changes in current mean compensation flow will have negligible impact on salinity levels. I consider that the Board can be satisfied based on the above that the hydrological conditions influencing the SAC will be subject to negligible change. I consider that it is relevant also that the historic patterns of flow have fluctuated.

11.16.22. Regarding the effect of the development on the Natura sites Ms Wilson requested that a condition be attached that an expert in coastal ecology processes assess whether flow / salinity changes might impact on the habitats. I advised her at the time that if the Board had any concerns in this regard it would be necessary that the matter be addressed prior to any decision.

11.16.23. Mr Murphy in the context of the contribution of the river to The Murroughs SAC notes the proposed cessation of abstraction at Annagolen Bridge. I agree that this would further minimise change in terms of the flow of water in the river which enters Broad Lough.

11.16.24. Finally, I note Mr Murphy's reference to the dependent qualifying interests and their location, which he described as being at a remove from the inflow of the Vartry. While this matter remained of concern to some of the parties at the oral hearing I consider that the applicant's conclusions in terms of a requirement for stage 2 assessment on this matter are reasonable.

11.16.25. In relation to the potential in combination effects I refer to the AA screening report for the development of a new pipeline and a pumping station and other works which includes development within the site of VWTP and close to the river Vartry.

That report references a number of aspects of the development which could potentially be significant and in this regard I refer to the crossing of the Vartry River, the undertaking of works close to the river, the crossing of a catchwater drain using open cut trenching methods and the noise from the construction phase. The report addresses each of these potential impacts and considers the likelihood of significant effects on Otter, which is a qualifying interest of the Wicklow Mountains SAC and of potential impacts from pollution and sedimentation on the Murroughs. I agree with its assessment in terms of the standard nature of the issues arising and the ability to control any likelihood of significant adverse consequences.

- 11.16.26. Having regard to the above, it is reasonable to conclude on the basis of the information available, which I consider adequate in order to issue a screening determination, that the proposed development, individually and in combination with other plans or projects would not be likely to have a significant effect on any European site in particular the Wicklow Mountains SAC and The Murroughs SAC (Site codes 00212 and 002249), in view of the Sites' Conservation Objectives and an Appropriate Assessment involving submission of an NIS is not therefore required.

12.0 Conclusions

- 12.1. In relation to the principle of the development I consider that the need for the development and its urgency are clearly established.
- 12.2. I consider that the development accords with relevant policy objectives including the development plan.
- 12.3. Notwithstanding the deficiencies in data identified including in relation to hydrology and fisheries the Board can be satisfied that the development would not give rise to a deterioration in the ecological status of water under the Water Framework Directive.
- 12.4. I do not recommend that the Board seek additional information at this time notwithstanding the relatively short duration which would be required to undertake valuable fisheries habitat surveys. In the absence of an increased body of data regarding the hydrology I do not consider that such information would sufficiently clarify issues.

- 12.5. Neither am I am of the opinion that there is grounds to refuse permission for this development on the basis that the future flow regime will be detrimental to the environment or contrary to the legal obligations of An Bord Pleanála. The evidence simply does not support such a conclusion.
- 12.6. I am satisfied that permission can be granted based on the recommended conditions below and that such a decision would be appropriate in terms of the proper planning and sustainable development of the area, including ecology.
- 12.7. Regarding procedural and legal matters I consider that all requirements are complied with including in relation to the Habitats Directive. There is no legal basis for EIA in this case and impacts are sufficiently assessed in the applicant's submissions subject in some respects to further detailed design or surveys, which can be addressed by condition.

13.0 Recommendation

- 13.1. Based on my assessment above I recommend that the Board grant permission for the reasons and considerations and subject to the conditions below.

13.2. Reasons and considerations

Having regard to:

- a) the provisions of the Water Services Strategic Plan published by Irish Water
- b) the provisions of the Wicklow County Development Plan 2016-2022
- c) the established need for an upgrade of the existing water treatment plant
- d) all documentation on file and the submissions and observations made in respect of the application, including at the oral hearing,
- e) the proposals for management of the proposed development particularly the provision of a minimum compensatory flow.

It is considered that subject to compliance with the conditions set out below, including compliance with the mitigation measures proposed, that the impact of the proposed development on the environment would be acceptable and that the proposed development:

- would not seriously injure the ecology of the area, including fisheries, protected special and habitats, and areas designated for environmental protection,
- would not seriously detract from the character or setting of significant features of architectural or archaeological heritage,
- would not seriously injure the amenities of residential properties in the area,
- would be acceptable in terms of traffic safety and convenience,
- would not result in significant visual or landscape impacts in the wider area within which it is located,
- would have positive effects on human health
- would comply with the development plan policy for the area
- would not contravene the Water Framework Directive.

The Board considered that the design and operation of the scheme proposed together with the mitigation measures and commitments of the applicant and the conditions below will ensure that the status of water under the Water Framework Directive will not deteriorate. The Board noted particularly that there would be definite benefits in the low flow periods, which would be protective of the ecological status.

The Board considered that there is no legal requirement for an Environmental Impact Assessment.

The Board concurred with the Inspector and considered that there is no requirement for a Stage 2 Natura Impact Statement.

13.3. Conditions

1. The development shall be carried out and completed in accordance with the plans and particulars lodged with the application as amended by the further plans and particulars submitted on the 22nd day of September 2016, except as may otherwise be required in order to comply with the following conditions.
Where such conditions require details to be agreed with the planning

authority, the developer shall agree such details in writing with the planning authority prior to commencement of development and the development shall be carried out and completed in accordance with the agreed particulars.

Reason: In the interest of clarity.

2. The mitigation measures and commitments identified in the Environmental Reports and other plans and particulars submitted with the planning application, and the further particulars submitted by the applicant at the oral hearing, shall be implemented in full by the developer, except as may otherwise be required in order to comply with the following conditions.

All mitigation measures and commitments, including relevant matters which emanate from the planning conditions below, shall be compiled into a Schedule of Commitments, which shall be a single document, a draft or final version of which shall be submitted to the planning authority within three months of the date of this decision.

No development including enabling works shall commence prior to receipt of the written agreement of the planning authority in relation to a final Schedule of Commitments. In default of agreement the matter shall be referred to An Bord Pleanála.

Reason: In the interest of clarity, public participation and protection of the environment during the construction and operational phases of the proposed development.

3. The operation of the proposed development shall be in accordance with the following:
 - (a) Water abstraction shall not exceed the established volume of eighty million litres per day.
 - (b) A minimum compensation flow of five million litres per day shall be discharged.

- (c) The method of delivery of this flow shall be by way of the seven sand filter beds which are to be retained.
- (d) The branch pipework proposed to deliver the discharge shall have a capacity of at least fifteen million litres per day and the valve controlling the branch pipework shall be capable of remote control and variability.
- (e) The practice of 'back pumping' shall cease.
- (f) All supernatants shall be recycled to the head of the works.
- (g) Within three months of the operation of the proposed development the existing water abstraction at Annagolen Bridge shall cease.
- (h) The existing interceptor channel shall be retained for the delivery of surface water only.
- (i) All chemical dosing shall be relocated to the site of the new water treatment plant and the existing infrastructure adjacent the river fully decommissioned.

Reason: In the interest of clarity and to facilitate variable flow in the interest of compliance with the Water Framework Directive and to minimise risk and to protect cultural heritage during the operational phases of the proposed development.

4. The following shall apply in relation to the monitoring of flow:

- (a) Within six months of the date of this decision the developer shall install and maintain two hydrometric gauging stations which shall be permanently established with a fixed structure incorporating suitable fish passage and shall accurately measure and record in real time the combined flows from the water treatment plant discharge and the spillway channel.
- (b) The locations shall be subject of the written agreement of the planning authority following consultation with the EPA and IFI.
- (c) The existing weir in the discharge chamber shall be calibrated and its performance evaluated.
- (d) The availability of data shall be in accordance with the requirements of the EPA. The applicant shall also make information available to the planning

authority on request and shall present an annual report summarising key issues.

Reason: To fully establish baseline hydrological information and to allow precise determination of the releases and discharges from the new plant and the reservoir in the interests of protecting the environment.

5. The developer shall undertake a wetted area fisheries habitat mapping and hydrological monitoring to include a fisheries area assessment. Details shall be presented to the planning authority for written agreement following consultation with the EPA and IFI. The duration of this assessment shall be for the construction period.

Reason: To establish further baseline data in the interest of protecting the environment and to monitor the effect of the proposed development to ensure compliance with the Water Framework Directive.

6. An Environmental Management Plan and Invasive Species Management Plan shall be submitted to the planning authority.

This shall include *inter alia* a construction programme for the works, hours of construction and a traffic management plan and shall incorporate all mitigation measures as set out in the environmental reports and commitments made at the oral hearing including in relation to protection of the natural environment and measures to mitigation noise and air quality impacts.

A competent person to monitor and record the mitigation measures and impact of works on the environment and to record and investigate any complaints received from the public shall be appointed and shall be given power to suspend or take further mitigation measures as necessary.

The written agreement of the planning authority in relation to the above measures shall be obtained prior to commencement of any works including enabling works.

Reason : To ensure a proper standard of development in the interest of pollution control, avoiding water quality impacts and in the interest of residential amenity.

7. The following shall apply in relation to the protection of architectural heritage:

- (a) The Built Heritage Assessment report shall be supplemented by specific details of the fittings and features on the site which are to be retained and where they will be stored pending any future display.
- (b) The detailed design of the works to the tower and at the entrance to the valve chamber and the implementation of those works shall be supervised by a recognised Conservation Architect. On completion of these works the Conservation Architect shall certify accordance with best practice.
- (c) Prior to commencement of works the Conservation Architect shall prepare a record of the features of interest at the site. This record shall include a detailed, labelled photographic survey of all structures, including the spillway and of fittings and features.
- (d) This record shall be submitted to the planning authority prior to commencement of development and one copy of this record shall be submitted to the Irish Architectural Archive.

Reason : To protect architectural heritage and to establish a record of this complex which is included on the National Inventory of Architectural Heritage.

8. The developer shall facilitate the preservation, recording and protection of archaeological materials or features that may exist within the site. In this regard, the developer shall -

- (a) notify the planning authority in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development,
- (b) employ a suitably-qualified archaeologist who shall monitor all site investigations and other excavation works, and
- (c) provide arrangements, acceptable to the planning authority, for the recording and for the removal of any archaeological material which the authority considers appropriate to remove.

In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.

Details of the materials, colours and textures of all the external finishes to the proposed buildings shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development.

Reason: In the interest of the visual amenities of the area.

Mairead Kenny

Senior Planning Inspector

29th September 2017