

VARTRY WATER SUPPLY UPGRADE PROJECT

Planning Report for Vartry Reservoir and Water Treatment Plant Upgrade with Supporting Environmental Reports



April 2016

IRISH WATER

VARTRY WATER SUPPLY PROJECT

PLANNING REPORT FOR VARTRY RESERVOIR AND WATER TREATMENT
PLANT UPGRADE WITH SUPPORTING ENVIRONMENTAL REPORTS

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1 INTRODUCTION

1.1 Preamble

This Planning Report has been prepared by Nicholas O'Dwyer Ltd. on behalf of Irish Water to accompany a planning application for upgrades to the Vartry Water Supply Scheme (the Scheme).

This report assesses the proposed development against the relevant National, Regional and County Strategies, Guidelines and Plans. The report also assesses the potential impact on relevant environmental, heritage and archaeological aspects of the site and surrounding area.

1.2 Vartry Background

Treated water from Vartry provides drinking water for one of the most densely populated areas in the country. The supply area stretches from Roundwood through North County Wicklow, to South County Dublin, and serves around 220,000 customers. The scheme was originally constructed by Dublin Corporation in the 1860s and currently provides drinking water to approximately 15% of the Greater Dublin Area, including substantial areas of North Wicklow. The scheme 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 in South County Dublin. The scheme has had no major upgrade or refurbishment since it was first built over 150 years ago and is now in need of urgent investment to secure the water supply for the future.

1.2.1 Rationale for the upgrade

The Vartry Water Supply Scheme has been identified by the Environmental Protection Agency (EPA) as being at risk of failure to meet the requirements of the national drinking water standards and is included in Remedial Action List (RAL) maintained by the EPA.

The security of supply from the scheme is also at risk due to algal (diatom) blooms which can occur from March to May, blinding the existing slow sand filters and reducing output from the plant by over 50%.

This project will address the water quality concerns raised by the EPA and provide security of a quality supply for the existing supply area.

1.3 Project Overview

The full programme of works required to the Scheme can be summarised as follows:

1. Improvement works to the existing Draw-off Tower. This is required to replace valve and pipes in poor condition and provide security of supply.
2. Improvement works of the Overflow Spillway. This is required to increase this capacity of the spillway channel in the vicinity of the existing road bridge and reduce the risk of overtopping.
3. New Water Treatment Plant. This is required to address water quality concerns and reduce output during Algal Blooms (April—May) and comply with EPA drinking water requirements.
4. New Link from Vartry to Callowhill. This is required to address security of supply risk due to the poor condition of the existing tunnel and water quality risks due to infiltration.

The works to be carried out at Vartry can be subdivided into discrete standalone elements as listed above. Each element has a different and independent role in the process. The undertaking and/or completion of each element is not dependant on any other works to the overall scheme, listed above, being approved or undertaken.

This application relates to works at the Vartry Reservoir (i.e. Draw-off Tower and Spillway) and Water Treatment Plant site only. The works associated with the replacement of the existing tunnel will be applied for as a separate application because they form a standalone element to removal of the risk to

security of supply and are principally not located on the existing Vartry site (with the exception of a high lift pumping station).

Of key importance is the fact that the scheme must continue to supply the communities with drinking water throughout the lifetime of the project works. This fact has influenced how the contracts will be awarded and how/when works will commence. It is envisaged that the works at the Vartry site will be completed under a single contract and take approximately 36 months to complete upon a grant of planning permission (refer to Section 2.3.6 in relation to programme).

It is envisaged that the new link (which is the subject of a separate planning application) will be constructed as a separate contract and take approximately 12 months to complete.

1.3.1 Environmental Reports

An Environmental Impact Statement (EIS) Screening Report was undertaken for all the proposed works which determined that an EIS was not required. This assessment considered each element of the scheme and its potential future upgrade. The report concluded that *“this 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”*. Similarly, an Appropriate Assessment (AA) Screening Report considered the project alone and in combination with other potential upgrades. Following detailed assessment the screening process concluded that the proposed works will not have a significant effect on the Natura 2000 network and a Stage 2 Appropriate Assessment was not required. The EIS and AA were undertaken in this manner to ensure works for each independent section would not result in a cumulative negative effect.

A number of environmental, heritage and social reports have been prepared to assess any potential environmental impacts of the proposed development. Where appropriate, and in the interest of clarity, the impact of each element of the scheme has been assessed including the upgrade to the existing tunnel. As detailed above, the undertaking or completion of the proposed works is not dependant on any other works to the overall scheme.

1.4 Pre-Planning Consultation

A pre-planning meeting was undertaken by representatives from Nicholas O’Dwyer, Irish Water and Wicklow County Council Planning Department on the 3rd September 2015. A public information day was held at Kavanaghs in Roundwood on the 10th March which was attended by approximately thirty interested persons. This was advertised in the local press and radio.

Since the information session there has been a minor change to the proposal. The location of the temporary storage area has been relocated from the adjoining site to the south west of the water treatment plant site to a site north east of the water treatment plant. The proposed location of temporary storage area has been assessed in this report and supporting environmental reports.

2 PROPOSED DEVELOPMENT

2.1 Site Location

The site is located immediately south of the Lower Vartry Reservoir and south east of Roundwood Village. The site is outlined on Figure 1, overleaf.

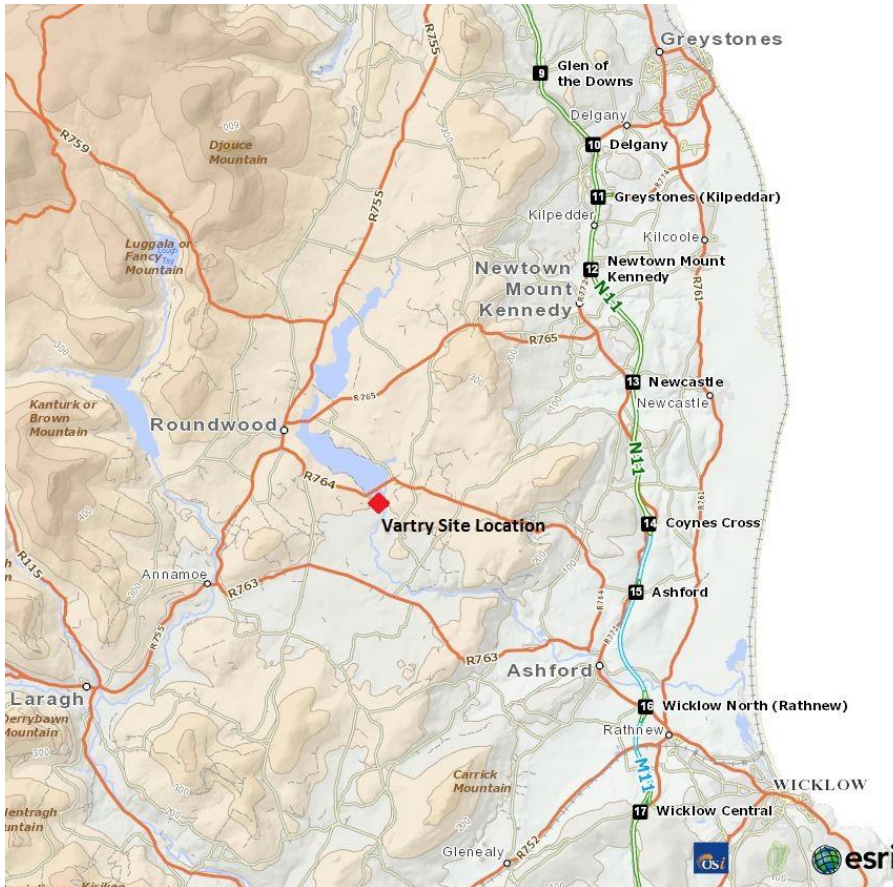


Figure 1 Map Showing Location of Vartry Water Treatment Scheme

2.2 Site Description

The site has an area of 22ha and is irregular in shape. The site is bound to the north by Vartry Reservoir and to the east, west and south by agricultural land. There are a number of houses to the east and west of the site.

The site is currently occupied by the Vartry Water Works and the plant generally consists of:

- Draw-off Tower and associated draw-off pipework
- Stilling Basin
- 16 no. Slow Sand Filter Beds
- Chemical Treatment Building
- Associated Pipework and Covered Storage Reservoir
- Sludge Lagoons
- Existing Stores and Welfare facilities

The layout of the existing site is presented in Figure 2 overleaf.



Figure 2 Aerial Photograph Showing Location of Existing Infrastructure

2.3 Proposed Development

This application proposes to upgrade the following:

- Works within the existing dam structure including a piped siphon over the dam; alterations to the existing draw-off tower within the reservoir; and replacement pipework within the existing dam;
- Deepening of the existing spillway (overflow) from the reservoir including demolition of a disused public toilet and felling of some trees to facilitate access to the bed of the spillway;
- Construction of a new water treatment plant building, sludge dewatering building and sludge tanks, electrical distribution building and wash water recovery/settlements tanks. These will be located where the 6 no. ponds used for settling wash water from the existing Slow Sand Filters are currently located. A number of the existing slow sand filters will be incorporated into the landscaping proposals.

The location of the proposed works are presented in Figure 3 overleaf.



Figure 3 Site Location for the Proposed Treatment |Scheme

2.3.1 Intake Upgrade

The intake upgrade involves the following proposed works:

Modifications to the existing draw-off tower comprising:

- Converting the existing north facing window opening to form a larger aperture for a door with a new inward opening door;
- Forming a window opening above the proposed north facing door aperture;
- Remove concrete infill above the existing south facing access door and provide a new glazed window; and
- Internal modifications to pipework and flooring.

The above modifications are required to allow access to the towers infrastructure in a safe manner.

The works external to the draw-off tower include:

- A new bespoke cantilevered platform - painted to match the colour of the existing access bridge - to facilitate access to the externally mounted actuator via the new north facing door;
- Removing existing cantilevered support for 24-inch plug valve and bellmouth; and
- Existing valve replacement and associated works.

Works within the existing Dam Tunnel at the downstream end:

- Remove valve house window and replace with new pvc removable window;

- Security grille to be retained on completion;
- New overhead gantry system for pipe installation and maintenance; and
- Replacement of all existing pipes and fittings.

The upgrading of existing intake pipework located at the existing draw-off tower and within the existing intake structures within the dam.

A Built Heritage Assessment was undertaken for the proposed development. The draw-off tower is included in this assessment. The tower, constructed in the 1860's is not a protected structure. The minor works are not considered to result in a significant impact and would be undertaken in sympathy with the design of the tower.

2.3.2 Siphon Works

The siphon works are required to allow the existing intake system to be taken out of service for upgrade. The siphons will remain as a permanent feature to protect the security of supply. The pipes are required to:

- Maintain supplies to the water treatment works in the event of sudden failure of existing pipes and fittings;
- Maintain supplies whilst the existing intake pipes are taken out of service for the upgrading works; and
- Control the reservoir water level at a maximum nominal specified level below top water level whilst the spillway works are being carried out.



Figure 4 Example of a Siphon installation in a UK Water Supply Reservoir. (no railing proposed at Vartry)

The siphon pipe installation will consist of:

- Three HDPE siphon pipes which are exposed in the upstream side of the dam and extend below the reservoir water level and will cross the dam crest (below the existing road) and are buried in the downstream face of the dam.
- Priming valves which will be located at the highest point (in chamber within the crest road).

The new siphon is located to the west of the existing intake tower and immediately adjacent to the southern edge of the existing dam. The siphon was located as close to the existing intake as possible but at sufficient distance so as not to adversely impact on supply to the existing water treatment plant.

2.3.3 Spillway Channel

The existing spillway channel needs to be upgraded to increase its hydraulic capacity and protect the integrity of the dam. The spillway channel will be regraded with a slope of 1:55. It will not be widened. The length of the regrading will be ~170m. Works to include the following:

- Removal of disused toilet and vegetation including trees to create a construction compound and access to the bed of the spillway. The construction compound will be located to the east of the spillway and will remain a permanent feature.
- Vegetation clearance along the spillway and rock removal from the bed of the spillway to deepen it.

The spillway channel upgrade works are located within the existing spillway channel.

2.3.4 New Water Treatment Plant

The proposed new water treatment plant will include the construction of the following Works:-

- i. Raw water inlet pipe to treatment plant building incorporating a low lift pumping chamber and kiosk;

- ii. Water Treatment Building including screening, treatment units, chemical storage and administration area;
- iii. Sludge Management facilities including sludge balancing tank, sludge thickening tanks, thickened sludge holding tanks, sludge dewatering building, sludge dewatering units and sludge storage facility;
- iv. Washwater recovery/settlement tanks; and an
- v. Electrical distribution building.

A summary of the building layout is set out below:

Building Type	Maximum Area	Maximum Height
Water Treatment Building	4670 m ²	11.8 m
Sludge dewatering building	537 m ²	12.5 m
Electrical Distribution Building	221 m ²	6.9 m
Water Recovery/Settlement Tanks	729 m ²	1.1 m (including hand rail)
Sludge Balancing Tanks	79 m ²	4.7 m (including hand rail)
Sludge Thickening (x2)	66 m ² (total)	4.5 m (including hand rail)
Sludge Storage (x2)	57 m ² (total)	4.5 m (including hand rail)
Emergency Sludge Storage Area	200 m ²	1.1 m (including hand rail)

Table 1 Proposed Development Summary Dimensions

The above building sizes are expected maxima building envelopes, and are intended to present a ‘worst case’ scenario. The works will be procured using a Design and Build Form of Tender and so alternative treatment technologies with reduced footprints may be proposed. While the footprint may be reduced the location of the works would not alter from the proposed layout. Under the Contract Agreement, the Contractor will be required to comply fully with the requirements of planning and the planning permission obtained. In particular, the building layouts offered by the Contractor will only be considered provided there is no greater negative impact than the development proposed in this application.

The new water treatment plant works will be located to the west of the site adjacent to the existing Slow Sand Filter Beds as detailed above in Section 2.2 and Figure 4. This location was chosen to allow the existing plant remain operational during construction. Following an assessment of current supplies it was determined that all 16 no. existing Slow Sand Filter Beds are required to maintain existing supplies. Therefore, it is not possible to retire any of the currently used treatment area (principally the 16 filter beds) to facilitate a new treatment plant.

From a visual perspective the proposed location of the plant is considered to minimise any visual impact from the surrounding area and is in keeping with the character of the existing use of the site. The new treatment buildings will be located inside the existing tree boundary. A detailed assessment of Landscape and Visual Effects is included in Appendix 2 and a summary in Chapter 4.

An internal row of trees is required to be removed to accommodate the development. The Arboricultural Impact Report in Appendix 2 and summarised in Chapter 4 notes the removal of the trees to be a significant arboricultural impact. Considering the scale and importance of the proposed development and limited impact on vegetation in terms of the overall site the removal of vegetation is on balance considered to be appropriate.

2.3.4.1 Water Treatment Building

The new water treatment building will accommodate an appropriate water treatment process, screening, treatment units, chemical storage and administration area. The area of the building will be maximum of 4670 m². The maximum height of the structure will be 11.8 m above ground level. A chemical storage area containing bunded storage tanks will be housed within the treatment plant.

2.3.4.2 Sludge Dewatering Building

A sludge dewatering building will accommodate appropriate plant and associated equipment for the dewatering of sludge originating from the water treatment processes on site.

The maximum area of the sludge dewatering building will be 537 m² and the maximum height will be approximately 12.2 m.

2.3.4.3 ESB/Generator Building

A new ESB/Generator Building will be provided on site to accommodate a new transformer and electrical equipment to enable provision of power supply to the proposed development. The area of the ESB Sub-Station will be maximum of 221 m² and maximum height of 6.9 m.

2.3.4.4 Washwater Recovery/Settlement Tanks

A Filter Wash Water Recovery Tank will be provided on site to collect and process all washwater arising from the filter backwashing process. The tank will also collect supernatant and filtrate from the sludge thickener and holding tanks. The area of the tank will be 729 m². The tank will be constructed adjacent to the sludge tanks. The maximum height of the tank will be approximately 1.1 m above existing ground level including the handrail. Supernatant from the washwater settlement tanks will discharge to the existing filter inlet canals, through the existing filters and discharge to the existing site drainage system.

2.3.4.5 Low Lift Pumping Station

A low lift pumping station is proposed to lift water to the water treatment plant at times when the reservoir level is very low. This pump will only be used periodically when required.

2.3.4.6 Sludge Tanks

The following Sludge Tanks will be provided on a concrete or gravelled area slab adjacent to the sludge dewatering building:

- Sludge Balancing Tank;
- Sludge Thickening Tank (2 No.);
- Sludge Storage Tank (2 No.); and
- Emergency Sludge Storage Area.

The maximum height of the tanks will be 4.7 m (including hand rails).

2.3.4.7 External Finishes to Structures

The scale of the proposed structures are similar to those within the site with the exception of the Water Treatment Plant Building which is over 50 metres wide and 90 metres long, and over 10 metres high. This requires particular attention to ensure it is appropriately designed.

The design approach has been to reduce the visual impact by the use of the surrounding landscape topography, through a cut and fill solution and also with the use of extensive landscaping similar to that in the surrounding area. These measures have reduced the visual impact of the height by reducing the scale of the building. To address the length and width of the structure, the building has been subdivided into a series of panels, seven to the long dimension and four to the shorter dimension.

The five central panels corresponding to the structural grid are composed of composite Kingspan panels and two, additional panels, one at each end, providing a rainscreen solution with fibre cement panels by Tegral, or Rockpanel. The rainscreen panels are available in a very wide variety of colours. The contrast in materials between the body of the building and the ends, further assist in breaking down the visual impact of the total structure. It is intended to recommend "earth" colours for these materials but they will be subject to detailed discussion with the Planning Authority on receipt of Planning Permission.

2.3.4.8 Pipelines

All pipelines will connect to existing site pipework and will be laid underground.

2.3.4.9 Site Works

The existing access from road R764 will be maintained and a minimum of 6 m wide roadway will be provided to the proposed Treatment Plant Site. Car parking spaces will be located in proximity to the treatment building to provide sufficient parking for operational staff and visitors to the site. The number of spaces provided is similar to the current requirement at approximately 11 car parking spaces.

Other site works will include landscaping, excavation, backfilling, earthworks, fencing, site lighting, ducting and surface water drainage system including oil interceptor(s) to the existing outfall system.

2.3.5 Temporary Works

2.3.5.1 Temporary Spoil Storage Area

A temporary spoil storage area is proposed to the north east of the proposed treatment plant site to locate stockpile excavated material for re-use as landscaping works once the new plant is operational. Access to this area will be from the existing access point.

Drainage from the site will be controlled by an interceptor drain and the installation of silt traps. This will prevent water quality impacts on the reservoir and River Vartry (via the spillway).

2.3.5.2 Contractors Compound

A contractors compound will be accommodated within the site boundary, adjacent to the proposed water treatment plant building.

2.3.5.3 Access to Draw-Off Tower and Dam Tunnel

A temporary access ramp will be required at the edge of the reservoir, at a location to be determined. This will be required for installing pontoons on the reservoir and the movement of men and materials.

2.3.6 Program of Works

The overall duration of the proposed works will take approximately 30 to 36 months to complete with the main upgrades expected to be complete within 24 months as outlined below:

- The Siphon works will be constructed in advance of the pipeline upgrade works and will need to be carried out when water is not spilling over the overflow (typically April to October). It is expected that this work will take 6 to 8 weeks to complete.
- Similarly the Spillway Upgrade Works will need to be completed when water is not spilling over the overflow and it is envisaged that this work would take 20 to 30 weeks to complete.
- The pipeline upgrade works are independent of reservoir water level and can be completed once the siphon is installed. It is envisaged that these works will take 8 to 12 months to complete.
- The Water Treatment Plant is the largest element of works and will take up to 24 months to complete construction and commissioning. Once the new plant is operational the existing plant can be taken out of service and the site landscaping works can then be progressed. This operation is expected to take a further 6 to 12 months resulting in an overall programme of 30-36 months.

3 PLANNING ASSESMENT

3.1 Site and Surrounds Planning History

The recent planning history for the site and surrounding area is summarised in the following table.

Decision Date	Decision	Development Description
19/9/2006	Conditional Grant	Replacement building on site of Old Hatchery Building.
18/2/2005	Conditional Grant	Single storey building, 30sqm floor area, for the purpose of energy recovery using 1 no. water turbine to generate electricity.
4/12/2002	Conditional Grant	Erection of Proposed Sand Storage Structure
6/8/2002	Conditional Grant	Install Puraflo wastewater treatment units and a percolation area within the site of the Vartry Water Treatment Works.
11/10/2000	Conditional Grant	Covered reservoir & ancillary works.
5/10/1993	Conditional Grant	Sandwasher with effluent settling lagoons & construction of haul roadway.
12/6/1992	Conditional Grant	2 no. Signs.
7/2/1992	Conditional Grant	Provision of a garage/machinery store.

30/10/2002	Invalid	Single storey portal frame sand storage building 730m ² with associated drainage
14/5/2002	Invalid	Permission is sought to build a percolation area as part of the Vartry Water Treatment Works

Table 2 Site Planning History Search

Source:

<http://wicklow.maps.arcgis.com/apps/webappviewer/index.html?id=57b22c27e7c049fbac54117da1a20f60>

A search of Wicklow County Council Map Based Planning Search indicated no significant surrounding development. Numerous dwellings and extensions have been permitted. However the density of development remains normal to agricultural and rural lands.

3.2 Planning Policy

This section sets out the relevant National, Regional, County and Local Development Plan policies and objectives to be considered for the proposed upgrade to the Vartry Water Supply Scheme.

3.2.1 Infrastructure and Capital Investment Plan 2016-2021

The Capital Investment Plan provides the Governments framework for infrastructure investment in Ireland over the period from 2016-2021. The plan aims to provide high quality infrastructure to facilitate the economic recovery. The plan states:

“Investment in infrastructure, such as transport and communication networks, energy and water, is an important enabler of economic growth.”

The plan aims to achieve investment in infrastructure through a number of large projects and several smaller projects.

“Irish Water plans to invest €4 billion over the period 2016-2021. This very significant level of investment is targeted at addressing the major deficits in drinking water quality and capacity, wastewater quality and capacity, and repairing much of the infrastructure that is in most need of investment, including removing lead piping from the public network.”

The proposed Vartry Water Treatment Site development is considered to be in accordance with the objectives of the Capital Investment Plan. Upgrading the Plant to a more efficient and reliable technology will improve water quality for the existing customers.

3.2.2 National Spatial Strategy 2002-2020

The National Spatial Strategy (NSS) for Ireland 2002-2020, was published by the Minister for the Environment and Local Government in late 2002. The NSS for Ireland is a twenty year planning framework designed to achieve a better balance of social, economic, physical development and population growth between regions supported by more effective planning. In order to drive development throughout Ireland the NSS requires that area of sufficient scale and critical mass be built up through a network of gateways and hubs. The NSS has recognised the importance of efficient water services throughout Ireland to achieve this. The need for water supply to both Dublin and the regions is evident in the Strategy.

3.2.3 Irish Water - Capital Investment Plan 2014-2016

The plan details Irish Water’s plan for investment throughout the Country. The plan states:

“In the first instance, we will seek to maximise capacity of existing assets, including upgrading operation, supported by targeted capital maintenance. We will review options to upgrade existing assets as the next step, reviewing all technical opportunities to do so.”

The proposed works at Vartry are in line with the need for Irish Water to upgrade existing infrastructure.

3.2.4 Irish Water Business Plan – Transforming Water Services in Ireland to 2021

The plan details the current status of the Irish Water Industry and the need for improvements to existing infrastructure. Specifically, the Vartry Water Supply Scheme is given as example of a large treatment plant dating from the 19th Century and *“in critical need of investment and upgrade”*. The proposed works are included in Irish Water’s Capital Investment Plan.

3.2.5 Regional Planning Guidelines for the Greater Dublin Area 2016-2021

The Regional Planning Guidelines (RPG’s) for the Greater Dublin Area seek to *“deliver policies integrating land use, transport, economic growth and investment in utilities”*, including water, with the overall *“aim to provide sustainable high quality locations for business, residents and visitors”*. The Greater Dublin Area consists of the four Dublin Council’s, Wicklow County Council, Meath County Council and Kildare County Council. The RPG’s inform and influence the formulation of Development Plans at a county and local level, seeking the implementation of objectives and policies identified in the NSS.

The RPG’s for the Greater Dublin Area encourages that:

“Investment is made in improving water storage, distribution, supply and quality in all locations across the GDA where required to ensure that public health is maintained

and that lack of water does not restrict the expansion and development of identified growth towns in the GDA, and so that the future needs of industry can be met”.

The Vartry Water Supply Scheme is a significant asset to the region and provides water to approximately 15% of the Greater Dublin Area. The proposed works to upgrade and improve the efficiency of the asset are considered to be critical to the ongoing supply of water at an appropriate quality to a large population in the region.

3.2.6 Wicklow County Development Plan 2010-2016

The Wicklow County Development Plan provides the strategic framework and policy context for guiding development within Wicklow County Council. The County Development Plan is the pre-eminent County Document that is central to the management of the County. It sets out an overarching vision, policies, strategies and objectives in the context of a coherent spatial framework that is crafted upon the principles of proper planning and sustainable development.

Chapter 3 Vision and Core Strategy states:

“It is the strategy of this plan to facilitate significant improvements to water infrastructure, with priority for investment being derived from the County Settlement Strategy”.

Chapter 4 Population, Housing and Settlement details the Settlement Strategy through a Settlement Hierarchy from Level 1 to Level 10. Bray is details as Level 1, Greystones is Level 3. Both settlements are serviced by the Vartry Water Supply Scheme.

Chapter 12 Water Infrastructure specifies:

“the provision of an adequate supply of water and wastewater treatment facilities is critical to facilitate and sustain the growth of the County over the lifetime of the plan and beyond”.

Wicklow County Development Plan states *“The County Development Plan’s role is to set higher level goals, policies and objectives, leaving more detailed planning and zoning to the local plan making process. It is not optimal to zone lands in the County Development Plan in any case in isolation from an analysis and public consultation of the requirements of the town itself”.* The subject site is not located within an area covered by a local plan. Therefore no zone has been applied to the site.

The proposal is considered to be essential development to ensure the continuity and quality, of the existing water supply. This is particularly important given the strategic importance of settlements within North Wicklow.

The Wicklow County Development 2016-2022 is currently being reviewed by Wicklow County Council. The draft plan sees the need and benefit of an efficient and reliable water supply and remains focused on providing a high quality supply.

3.2.7 Bray Town Development Plan 2011 - 2017

The provision of a high quality water supply to the Bray area is a policy of the Development Plan. The Vartry Water Supply Scheme supplies water to Bray Town. The proposed works aim to ensure the existing supply maintains a reliable source and the quality of the water supply is increased. The proposed works are considered to be in accordance with the Development Plan and support the aim of the policy.

3.2.8 Greystones-Delgany & Kilcoole Local Area Plan 2013 - 2019

The plan states that there is adequate supply for the Greystones population and expected population increase. This area is partially serviced by the Vartry Water Supply Scheme. The proposed works will ensure the existing supply remains reliable and the quality of the supply is to the required standard.

3.2.9 Roundwood Town Plan 2010-2016

The Roundwood Town Plan states:

“The village of Roundwood is served by a single bored well. The capacity is limited and only sufficient enough to cater for current needs. Pending the augmentation of this supply no new development will be permitted. Infill development will be considered depending on the availability of water”.

The proposed works may allow for a connection to increase water supply to Roundwood in the future subject to availability of water.

3.2.10 Dun Laoghaire-Rathdown County Development Plan 2010-2016

The County Development Plan sets out the policies for sustainable development for the Dun Laoghaire Rathdown area. The Vartry Water Supply Scheme services a significant area of Dun Laoghaire Rathdown County Council. While the proposed development is not located in the Dun Laoghaire Rathdown area the upgrade will be of significant benefit to the area. For this reason the objectives of the County Development Plan are relevant to the proposed development.

The plan aims to adopt policies to *“ensure the provision of high quality public water supply and drainage systems”*. As detailed above the proposal is considered to be essential development to ensure the continuity and quality of the existing water supply.

3.2.11 Dublin City Development Plan 2011-2017

Similar to Dun-Laoghaire-Rathdown the proposed works are not located within Dublin City. However, the water treated at the Vartry Water Treatment Plant site delivers water to customers within Dublin City Council. The Dublin City Development Plan outlines within the introduction its intention to:

“provide high quality public infrastructure which aims to minimise waste, promote sustainable production and consumption of drinking water, ensure efficient and effective wastewater treatment, mitigate where possible and adapt to the impacts of climate change.”

The proposed works are in line with the objectives of the Council. The works will ensure a more sustainable production of drinking water.

3.2.12 Summary

In summary, the above policy supports development that ensures public health is maintained by facilitating significant improvements in water supply. This is noted as important for key settlement areas including Bray, Greystones, Dun Laoghaire-Rathdown and Dublin City.

4 ENVIRONMENTAL REPORTS

A number of reports have been prepared to assess any potential environmental impacts of the proposed development. In the interest of clarity and to assess all proposed upgrade works associated with the Scheme the reports have considered all future likely upgrade works. This is to ensure the cumulative effect of all proposed developments are fully assessed. Each report is included in Appendix 3.

4.1 EIS Screening Report

The purpose of this report was to identify the legal requirement or otherwise for a statutory Environmental Impact Assessment of the Vartry Water Supply Upgrade project.

Consideration was given to the *Planning and Development Regulations, Schedule 5, Part 1 and Part 2 and Schedule 7 Criteria for determining whether a development would or would not be likely to have significant effects on the environment and The Department of Environment, Heritage (now Community)*

and *Local Government* guidance. Characteristics of the proposed development including size, cumulative impacts with other proposed development, use of natural resources, production of waste, pollution and nuisances and risk of accidents were considered under the following headings:

- (a) human beings, fauna and flora;
- (b) soil, water, air, climate and the landscape;
- (c) material assets and the cultural heritage; and
- (d) the interaction between the factors referred to in points (a), (b) and (c)

Having regard for the proposed Works and in the context of studies undertaken, the report concluded that this 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 that an Environmental Impact Statement (EIS) is not required under the Planning and Development Act 2000, as amended and incorporating the Planning and Development Regulations 2001, as amended.

4.2 Appropriate Assessment Screening Report

This report assess whether the construction and operation of the Vartry Reservoir Works alone or in combination with other plans and projects, are likely to have significant effects on a Natura 2000 Site(s). The report assesses the proposal in accordance with current guidance.

An onsite inspection was undertaken by an experienced ecologist to assess the site. This information is used to describe the receiving environment and identify Natura 2000 Sites. Potential impacts in terms of direct, indirect and secondary impacts and cumulative and combination impacts are detailed. It is noted that none of the Natura 2000 sites lie within the boundaries of the proposed works area.

Following detailed assessment the screening process concludes that the Proposed Works will not have a significant effect on the Natura 2000 network and a Stage 2 Appropriate Assessment is not required.

4.3 Ecological Impact Assessment

The report assess the impact the proposed upgrades may have on the ecology in the area. A desktop assessment was undertaken to consider National Parks & Wildlife Service (NPWS) metadata website, the National Biodiversity Data Centre (NBDC) database and a literature review of published information on flora and fauna occurring in the development area. A field study was also undertaken in accordance with the Heritage Council Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2001). The survey was carried out during daylight, at dusk and night time. Protected species which were identified as occurring or potentially occurring on the site were assessed including, badgers, bats, amphibians, reptiles and birds, otters and invertebrates. Any invasive species were also noted.

Following detailed investigation into the site the impact of the proposed development is detailed in the report. Where impact is possible during the construction or operation phases mitigation measures are proposed specific to each species. The report concludes that assuming the successful implementation of the measures described in the report, the scheme can be considered in line with planning policies BD2 – BD9, WH1 – WH6 and WT1 – WT6 of the Wicklow County Development Plan and all relevant national and international legislation.

4.4 Invasive Species Survey of Vartry Water Supply Scheme

The report surveys invasive species on the subject site. The report was conducted in accordance with the appropriate legislative framework, Regulations 49 and 50 of the European Communities (Birds and Natural Habitats) Regulations 2011. A desktop review and field surveys were undertaken and results collated. Best practice measures and recommendations are provided. Overall the report concludes that subject to controls, best practice measures there is no potential for the spread and introduction of high impact invasive species.

4.5 Noise Impact Report

The noise impact assessment has compared the measured noise levels in proximity to the nearest noise sensitive properties to the relevant guideline noise limits outlined in the *WHO Guidelines for Community Noise* and the *EPA Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*.

The results show the measured noise levels at the noise monitoring location are in accordance with the relevant guideline noise limits outlined in the *WHO Guidelines for Community Noise* and the predicted noise levels at the nearest residential properties are in accordance with the *WHO Guidelines for Community Noise* during daytime and night-time.

The assessment of operational noise from the proposed development has indicated that the EPA's "Area of Low Background Noise" limit criteria will not be exceeded at the nearest residential properties. Site specific noise mitigation measures are deemed necessary and have been recommended.

4.6 Air Quality and Dust Impact Report

The report considers that the potential for dust nuisance impact during construction would be limited to the immediate vicinity of the activities, even without dust suppression measures in operation, because of the excavated materials being predominantly of a coarse and wet nature.

The potential for nuisance dust impacts is considered to be negligible at the nearest sensitive receptors with appropriate mitigation measures employed and dust deposition rates will be in accordance with relevant guideline limits assuming the recommended construction mitigation measures are adhered to.

The report concludes there will be no significant air quality and dust impacts from the operation of the proposed development.

4.7 Flood Risk Assessment

The report reviews all existing information regarding the flood risk at the proposed treatment plant site. No historical evidence or OPW recorded flooding at the site was found. OPW flood hazard mapping has recorded recurring flood events at Roundwood village which is up-gradient and away from the proposed site. Indicative and predictive flood maps produced for the Eastern RBD by CFRAM were consulted to establish flood zones in the area. None of the maps produced by the CFRAM study indicate that the proposed development was at risk of flooding from any source. It is concluded that Stage 3 detailed flood risk assessment is unnecessary as the proposed development is compatible with its location in Flood Zone C.

The proposed development does not increase the risk of flooding elsewhere as it does not affect the pathway of the spillway and through the provision of on-site drainage attenuation will not contribute to increased flows in the downstream catchment.

4.8 Landscape & Visual Effects Assessment

An assessment was carried out in accordance with the methodology prescribed in the *Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA)*. The likely nature and scale of changes to the main landscape elements and characteristics and the consequential effect on landscape are taken into account for the landscape impact assessment. The visual impact assessment considers the potential changes to the component elements of views, the character of the views, and the visual amenity experienced by visual receptors. The assessment is based on a number of viewpoints selected to represent the receiving environment and potential visual receptors in the area.

The report considers the proposed works, both during construction and operational phases. In both landscape and visual terms there is considered to be a temporary adverse impact during the construction phase. Once operational the impact is considered to be minimal. The main building, the water treatment plant, is considered to have a low impact on the surrounding landscape and low to neutral visual impact. Similarly the proposed permanent landscape mound located on filter beds no. 8-

14 would result in a low to medium magnitude change to the landscape and low to medium visual impact.

The applicants' intention is to retain the filling basin, filters 15 & 16 (recently constructed) and the original filter beds no. 1 – 7, constructed as part of the original scheme. Only at a point where their operation was no longer viable would it be considered to decommission them and incorporate them in landscaping proposals. Such proposals would involve partial filling of the filter with surface material and finish with a grass surface. This would ensure the filters were not completely backfilled and the general structure and arrangement of the filters maintained.

Overall the proposed development when in operation results in a minimal impact on the landscape and surrounding viewpoints.

4.9 Built Heritage Assessment

The report identifies and assesses building and structures on the subject site and the associated site at Callow Hill. Relevant development plans, Council records of protected structures and ordnance survey maps were used to identify special architectural significance along with an onsite inspection. The structures were then rated in accordance with the National Inventory of Architectural Heritage.

The report produces a table which summarises any building or structure that is rated higher than "Record Only" and details whether any mitigation measures are required to address possible effects. The Slow Sand Filter Beds and Siphon are the main areas relevant to this application.

It is proposed to retain the existing stilling basin, recently upgraded Filters No. 15 and 16 and the slow sand filters 1 to 7 (filters constructed as part of the original works) as water bodies to receive discharges from the water turbine, supernatant from the washwater settlement tanks and to act as attenuation areas for site run-off and drainage. It is proposed to incorporate filters 8 to 14 (the filters constructed at a later date than original scheme) into the landscaping proposals. The retention of filters 1 to 7 is dependent on their condition and operational considerations. These can only be fully assessed once the new works are in operation and the existing filters are fully taken out of service for inspection. If, at that time, the condition of filters 1 to 7 is such as to make it not feasible to retain them as water bodies it is proposed to retain them as landscaped features.

4.10 Archaeological Report

The report assesses the impact the proposal may have on the archaeological and historical significance of the site. A desktop study and field inspection have been undertaken to identify any areas of archaeological potential and probable finds within the proposed development area.

The report concludes that there will be no impacts on any recorded monument as a result of the proposed works. The assessment also did not identify any previously unidentified archaeological sites or areas of archaeological potential that may be impacted upon by the works.

To mitigate any impact of the proposed development, archaeological monitoring of top soil stripping is recommended to be undertaken.

4.11 Transport Assessment

A Traffic Impact Assessment (TIA) and Traffic Management Plan (TMP) were undertaken for the proposed development. The TIA considers the traffic impacts of the proposed works on the local road network. Both construction and operational traffic are considered. Both desktop research and an onsite traffic survey provided existing conditions. A worst case scenario is detailed and mitigation and enhancement measures provided.

The TMP designs a process for managing the proposed works. The risks to traffic, pedestrian, cyclists and uses of adjacent entrances are considered. The requirement for installation, maintenance and removal of traffic management measures are specified.

Overall it is considered that the main change to existing traffic will be confined to the construction phase rather than the operation phase.

4.12 Arboricultural Impact Report and supporting Tree Protection and Survey Reports

A total of 544 trees were surveyed on site and detailed in Appendix 1 of the Tree Survey Report. The purpose of the survey was to provide base-line information on the composition and condition of the trees within the subject area. The analysis of the trees was undertaken using the VTA methodology.

The Arboricultural Report considers the impact of the removal of trees and hedgerows required for the proposed development. In total 9 areas on the site were assessed. The reports notes that in two of the nine areas identified there will be a significant impact in arboricultural terms. This impact is generally located within the site boundary at the proposed location of the water treatment plant.

The Tree Protection Report details the measures and methods required to appropriately protect trees on site. The report focus on the pre-construction and construction phases. Prior to construction a number of recommendations are detailed. Once complete and construction has commenced monitoring by a Site Arborist is recommended. To guide the contractors during construction the report states the contractor's obligations and the Code of Practice for the preservation of trees is detailed.

4.13 Socio-Economic and Human Beings

The report assesses the likely and significant effects of the proposal on the surrounding area. An assessment of the existing environmental conditions, including site and development context, planning context and population profile, gives a background to the existing conditions.

The potential impacts of the construction and operation phases are assessed based on the existing conditions. In general the construction phase is considered likely to result in some interruption to the surrounding area. Mitigation measures can be used to adequately manage these impacts.

The operational phase differs to the construction phase. The site is currently a water treatment site. The proposal does not result in a change of use or intensity of use. The development is likely to operate with no greater impact than the existing scheme.

5 SUMMARY

The proposed development has been assessed with regard to the relevant planning policy and environmental, heritage and social factors. Impacts of the proposed development have been considered and where possible mitigation measures will be put in place to avoid or lessen the impact. Where impacts occur they are generally considered to be minor in nature. In relative terms the benefit of an upgraded water treatment plant that services approximately 220,000 customers outweighs the likely impacts during construction and minor impacts during the operational phase. Overall the proposed development is considered to be appropriate to the subject site and of benefit to the wider community.

APPENDIX 1 DOCUMENTS SUBMITTED

- Application Form
- Newspaper Notice
- Site Notice
- Planning Fee Calculations
- Letter of Consent from the landowners, Dublin City Council

APPENDIX 2 DRAWINGS

APPENDIX 3 ENVIRONMENTAL REPORTS

- EIS Screening Report
- Appropriate Assessment Screening Report
- Ecology Report
- Invasive Species
- Noise Impact Report
- Air Quality and Dust Impact Report
- Flood Risk Assessment
- Landscape and Visual Affects
- Built Heritage Assessment
- Archaeological Report
- Traffic Impact Assessment
- Traffic Management Plan
- Arboricultural Impact
- Tree Protection Strategy
- Tree Survey
- Socio-Economic & Human Beings
- Architecture Context & Commentary