

An Bord Pleanála



Inspector's Report

PL10.245770

DEVELOPMENT:

Description: Upgrade of the Inistioge Water Supply Scheme to include:

- (a) 17.62 km of pipeline from the townlands of Grennan, Thomastown to Ballygub Inistioge.
- (b) New reservoir and ultra violet treatment unit at Grennan, Thomastown.
- (c) New water treatment reservoir at Kilmacshane Inistioge
- (d) New Booster pumps at Kilcross Inistioge
- (e) Decommission of existing plant at Ballygub.

Address: Townlands of Grennan, Thomastown, Ballyduff, Kilmacshane Kilcross and Ballygub in Inistioge.

PLANNING APPLICATION

Planning Authority: Kilkenny County Council

Planning Authority Reg. No: 15/306

Applicant: Irish Water

Application Type: Permission

Planning Authority Decision: Grant

Planning Appeal

Appellant(s): Irish Water

Types of Appeal: 1st Party –v- 2 no. conditions

Observers: None

Date of Site Inspection: 1st and 2nd March

INSPECTOR: Paul Caprani

1.0 INTRODUCTION

PL10.245770 relates to a first party appeal by Irish Water against two conditions attached by Kilkenny County Council in its notification to grant planning permission for the upgrade of the Inistioge Water Supply Scheme. The appeal specifically relates to condition no. 12 and condition no. 13(k) of the grant of permission.

2.0 PROPOSED DEVELOPMENT

Planning permission is sought for the upgrade of the Inistioge Water Supply Scheme. The upgrade complies of the following:

The construction of 17.62 kilometres of water main from an existing water supply works in Grennan to the south of Thomastown. The new pipeline will run in a south-easterly direction through the townlands of Dysart, Ballyduff, Kilmacshane, Inistioge, Old Court and finish up at the existing water treatment plant at Ballygub approximately 5 kilometres east of Inistioge. The alignment of the new pipeline will run roughly parallel and to the south of the River Nore before passing under the river and then running along the northern side of the river before terminating at Ballygub.

In addition to the laying of the new pipeline the following works are also proposed.

- The construction of a new treated water reservoir within the existing water treatment plant at Grennan to the south of Thomastown. These new works will include an ultraviolet treatment facility and construction of a new reservoir tank adjacent to the existing reservoir within the treatment plant. The new reservoir will accommodate a water capacity of 1300 cubic metres.
- Approximately 4 kilometres to the south-east of the water treatment plant at Grennan is proposed to construct a watermain within a concrete surround together with an air valve kiosk on the southern side of Ballyduff Bridge which is a protected structure.
- Approximately 2½ kilometres east of Ballyduff Bridge it is proposed to construct a new reservoir, referred to in the application as the 'Inistioge Reservoir' in the townland of Kilmacshane. This new

reservoir is to be located on a greenfield site on the northern side of a local road in the townland. The small rectangular site is located adjacent to the roadway and has a road frontage of approximately 37 metres and an overall depth of just under 30 metres. It will incorporate a circular reservoir accommodating 560 cubic metres of water. A small kiosk for scada and flow measurement is also located on site. A small access road circa 25 metres in length with a small turning head is located adjacent to the proposed reservoir.

- The pipeline will continue south-westwards roughly along the alignment of the R700 regional route into the village of Inistioge. The pipeline will cross under the River Nore and run parallel to the R700 to the townland of Kilcross approximately 1.5 kilometres to the east of Inistioge. It is proposed to install booster pumps on the southern side of a local road which runs parallel to the R700. The pipeline continues eastwards along the northern side of the R700 for a distance of approximately 5 kilometres before reaching the existing treatment plant at Ballygub. At the existing treatment plant it is proposed to infill the existing tanks and remove the existing mechanical equipment. The Ballygub treatment plant will thus be decommissioned.
- The proposed new water supply pipeline will comprise of the installation of 17.62 kilometres of truck distribution rising and scour mains ranging in diameter from 100 millimetres to 300 millimetres.

3.0 DESCRIPTION OF RECEIVING ENVIRONMENT

The existing water treatment works at Grennan is located on elevated lands overlooking the River Nore to the immediate east. The pipeline runs in a southerly direction through a forested area and through agricultural lands adjacent to local narrow third class roads before reaching the lowlands of Ballyduff and crossing the Ballyduff Bridge which traverses the Arrgile River. Both the Arrgile River and the River Nore are designated SACs. The River Nore is also a designated SPA. The proposed pipeline continues north-eastwards along a local third class road along an elevated route through the townland of Kilmacshane before running adjacent to the R700 into the village of Inistioge and across the River Nore using trenchless technology. The pipeline continues eastwards into the elevated townland of Kilcross before running down towards the R700. The pipeline then branches off north-eastwards towards the existing Ballygub wastewater treatment plant

which again is located on elevated land on the lower slopes of Brandon Hill. The proposed pipeline mainly passes through agricultural land. The pipeline also passes through small areas of forest particularly to the south of Thomastown.

3.0 PLANNING AUTHORITY'S DECISION

The planning application was lodged on 29th May 2015. It was accompanied by

- A Planning Report
- A Natura Impact Statement
- An Archaeological Impact Assessment Report
- A Hydrological and Hydrogeological Impact Assessment
- A Petrifying Springs with Tufa Formation Targeted Survey Report

3.1 Initial Assessment by Planning Authority

A report from Kilkenny County Council Fire and Rescue Service states that there is no objection to the proposed development subject to a number of conditions in respect of fire hydrants.

A report from Inlands Fishery Ireland recommends that a number of conditions be attached in the case that planning permission is granted for the proposed development.

A report from the Department of Art, Heritage and the Gaeltacht make a number of comments in respect of archaeology and notes that the proposed development works are partially located within the zone of archaeological potential in Inistioge.

A report from the Environment Department has no objection to the proposed development subject to conditions.

A separate report from the Department of Arts, Heritage and the Gaeltacht specifically deals with nature conservation issues. It states that the Department is of the opinion that the Council should seek further information regarding the extent of habitat loss, damage at each watercourse crossing. A detailed methodology should accompany such crossings. Further information regarding the use of sodium hypochlorite which is highly toxic to the aquatic environment should also be sought.

A report from the Local Authority Road Engineer makes a number of comments in relation to traffic considerations, sightlines, road enclosures and notes that a road opening licence will also be required in respect of works.

3.2 Additional Information Request

On 20th July 2015 Kilkenny County Council requested additional information in relation to the following:

- Further details in respect of the extent of habitat loss, damage at each watercourse crossing.
- Further details in relation to the method statement regarding silt management in the vicinity of the crossing below Inistioge Bridge.
- Address the issue of the use of sodium hypochlorite.
- The applicant is requested to redesign the proposed crossing of the pipeline on Ballyduff Bridge which is a protected structure.
- Further details in relation to landscaping.
- Further details in relation to available sight lines at the Grennan Reservoir, Inistioge Reservoir at Kilcross Boosting Station.
- Further details of the bridge crossing at Ballyduff Bridge.
- Detailed trench reinstatements for the proposed watermains at various locations.
- Further details in respect of road closure requirements in order to facilitate the development.

3.2 Further Information Submission

Further information was received by Kilkenny County Council on 31st August 2015.

In relation to the proposed watercourses crossing it is stated that it is not proposed to remove or replace any existing culverts or bridges as part of the project. Mitigation measures in respect of the watercourses are identified in the NIS. Further details in respect of the individual water crossings are set out in the submission.

Detailed method statements regarding silt management in the vicinity of the crossings below the Inistioge Bridge are also set out.

An assessment of the impact on sodium hypochlorite is also set out in the response. Details as to when and how sodium hypochlorite will be used in the scouring of pipes as set out. The redesign of the pipeline traversing Ballyduff Bridge is indicated in drawings P27 and P28 submitted with the additional information.

Details of landscaping to be provided on each of the reservoirs and the Booster Station are set out as are details of road reinstatements along the route.

A further submission from the Department of Arts, Heritage and the Gaeltacht state that archaeological recommendations as outlined in the previous submission still stand. In relation to nature conservation, it is stated that it is Department's considered opinion that a condition of planning is required to ensure that all waters used to flush the pipes both on completion of the works and during the operation shall be discharged to a wastewater treatment works and not directly to surface drainage systems. This condition is required to facilitate the proposal passing AA screening.

A report from Kilkenny County Council's Planning Department Conservation Section does not object to the granting of planning permission provided that the granite paving stones for the proposed footpath at Ballyduff Bridge be grouted using a lime mortar mix and not cement as proposed.

A further report from the Road Design Office of Kilkenny County Council states that there is no objection to the proposal subject to conditions in respect of sightlines at the reservoirs and the requirement for the applicant to submit details in respect of road enclosures and road opening licences to facilitate the proposed laying of the pipeline.

The planner's report notes the additional information submitted and considers that all issues have been dealt with appropriately. It is therefore recommended that planning permission be granted for the proposed development. In its decision dated 19th October 2015, Kilkenny County Council issued notification to grant planning permission for the proposed development subject to 17 conditions.

Condition no. 12 required that:

"All waters used to flush the pipes both on completion of the works and during operation shall be discharged to a waste water treatment works and not directly to any surface drainage system.

Reason: *To provide for the protection of the environment.*

Condition no. 13K requires that:

The total residual chlorine levels in any discharges to waters shall not exceed 0.005mg/l HOCL and in this regard specific measures shall be put in place to store, treat and analyse any such chlorine bearing waters and to certify compliance with the aforementioned standard before discharge.

Reason: In the Interests of protecting the environment

4.0 PLANNING HISTORY

There appears to be no planning history associated with the appeal site.

5.0 GROUNDS OF APPEAL

The two conditions attached to the Planning Authority's notification to grant planning permission and referred to above were subject to a first party appeal by Irish Water.

Irish Water request that condition no. 12 be amended for the following reasons:

All waters used to flush the pipe during the commission and operation of the pipes will not have an impact on receiving waters due to the following mitigation measures proposed.

- During the commissioning of the proposed works new tanks will be required to be disinfected and the new works will require that all waters used for the commissioning will be dechlorinated to a maximum of 0.5 milligrams per litre and will only be released when receiving water flow rates are greater than the 75 percentile flow.
- Any scouring of the pipeline to remove sand and grit deposits shall only be undertaken when the river flow rates and the River Nore are higher than the 75 percentile flow.
- Routing and scouring for the removal of sediments from reservoirs at Inistioge and Greennan for discharge to the River Nore shall only be undertaken when flow rates in the river are higher than the 50 percentile flow. Discharge rates from the reservoir shall not exceed flow velocities of 3.7 metres per second.

In respect of condition 13(k) which requires that the total residual chlorine level in any discharges to waters shall not exceed 0.005mg/l. Irish Water seeks clarification on the above condition for the following reasons.

- It is stated that conditions 13(a) to 13(p) (but excluding 13k) specifically refer to required measures to mitigate possible construction impacts while the wording of condition 13(k) does not relate to construction impacts. With regard to normal scouring maintenance practices, the scouring of pipelines typically occur annually or less frequently using potable drinking water to remove any sediment.
- The minimum free residual chlorine level in drinking water as stipulated by the Environmental Protection Agency in their Disinfection Guidance Manual is 0.1mg/l. Irish Water considered that the application of a 0.05mg/l free chlorine limit on all discharges is unnecessarily stringent given the available dilution values for drinking water. The limited scouring operations together with the timing of any such discharges will ensure that adequate dilution of chlorinated waters will take place. Irish Water therefore request that An Bord Pleanála amend condition no. 12 so that networking commissioning and scouring shall only take place during times where flow rates in the river are higher than the 75 percentile flow and scouring of reservoir shall take place during times when flow rates in the river are greater than the average or 50 percentile flow. This will ensure that adequate dilution of chlorinated water will take place and will mitigate against any adverse effect to the receiving waters of the River Nore.

Also attached to the grounds of appeal is a hydrological assessment of the proposed water main scouring to be carried out. It includes assimilative capacity calculations and residual chlorine mass balance calculations for both the 150 mm pipe outfall at Grennan and the 200mm pipe outfall for the Inistoige Reservoir at Kilmacshane. It concludes that there is sufficient assimilative capacity within the River Nore to cater for the anticipated chlorine levels at river flows above the 75%ile.

6.0 APPEAL RESPONSES

A submission from Kilkenny County Council in response to the grounds of appeal states that the Planning Authority has no further comments to make.

6.1 Other Submissions

A submission from Water Ways Ireland states that Waterways Ireland has no jurisdiction on the River Nore and therefore has no submission to make in respect of the appeal.

7.0 DEVELOPMENT PLAN PROVISION

The site is governed by the policies and provisions contained in the Kilkenny County Development Plan 2014-2020. Section 9.1.2 of the plans specifically relates to water supply issues. The plan notes that there are 20 public water supply schemes within County Kilkenny. Water quality is monitored on a daily basis and in accordance with EPA requirements. This is done by both the Council itself and by external laboratories on behalf of the Council and by the HSE. The Council shall consult with EPA publication '*The provision and Quality of Drinking Water in Ireland*' and the EPAs 'Remedial Action Lists' in the establishment and maintenance of water sources in the county. The Inistioge Water Supply Scheme is listed as one of the water supply schemes within the county.

8.0 ASSESSMENT

8.1 Introduction

I have read the entire contents of the file, visited the subject site and have had particular regard to the various reports submitted with the application including:

- The Archaeological Report
- The Natura Impact Statement.
- The Hydrological Impact Assessment
- The Petrifying Springs and Tufa Report

I have also had particular regard to the issues raised in the Planning Authority's request for additional information and the various reports prepared by Kilkenny County Council's internal Departments and external reports received from Statutory Bodies. I am generally satisfied that the overall development has been robustly and comprehensively assessed in general terms. I therefore consider that the Board could restrict its deliberations in this instance to the issues raised in the grounds of appeal. Namely condition no. 12 and condition 13K attached

to the Planning Authority's notification to grant planning permission. Based on the information contained on file and the planning authority's assessment of the proposal I do not consider it necessary to examine the application *de novo*.

It is however a necessary requirement for An Bord Pleanála to carry out a separate Appropriate Assessment in respect of the proposed application. I would consider this to be all the more pertinent in this instance having regard to the fact that the scouring waters will be discharged into the River Nore SAC and SPA. Therefore the final section of this report will carry out a general appropriate assessment but will have particular regard to any potential implication on Natura 2000 sites arising from any alterations to the conditions appealed.

8.2 Condition No. 12

Condition no. 12 stipulates that all waters used to flush the pipes both on completion of the works and in the periodic scouring/cleaning during the operation shall be discharged to a wastewater treatment works and not directly to surface drainage system in order to protect the environment. It appears that this condition arose on foot of the submission from the Department of the Arts, Heritage and the Gaeltacht dated 11th September 2015 which states:

"It is the Departments considered opinion that a condition of planning is required to ensure that all waters used to flush pipes both on completion of the works during the operation being discharged to wastewater treatment works and not directly to drainage system. This condition is required to facilitate passing of AA screening".

I consider the necessity and indeed the appropriateness of such a condition is questionable on a number of grounds.

Firstly the requirement of such a condition is unlikely to be necessary in order to ensure that the proposal passes AA screening. This issue is assessed in more detail when evaluating condition no. 13(k) below.

I note that no details have been provided as to where the wastewater treatment plant within Inistioge is located. However the EPA Waste Discharge Authorisation Licence (reg. ref. A0159-01) indicates that the current treatment plant for the Inistioge agglomeration provides primary treatment only. There are plans to upgrade the treatment plant to incorporate secondary treatment however the Irish Water 'Proposed

Investment Programme' for 2014-2015 indicates that the improvements proposed for the Inistioge wastewater treatment plant is still at planning stage.

A second significant concern relates to the proposal to flush water supply pipes for the purposes of scouring and the removal of sediments and biofilm at velocities of up to 3.7 metres per second into a wastewater treatment plant. This could significantly and adversely affect the workings of the wastewater treatment plant. Where the existing wastewater treatment plant incorporates primary settlement as a means for attenuating effluent from the Inistioge agglomeration, increasing the discharge velocity through the plant will unsettle sludge and biomass within the settlement tank, disturbing the quiescent conditions thereby significantly reducing the effectiveness of any primary treatment to take place prior to discharge. The discharge licence prepared by the EPA indicates that currently the wastewater treatment plant appears to have a slight negative impact on the biological water quality of the River Nore (into which it discharges). Increasing the velocity of throughput through the settlement tank and thereby unsettling the sludge content within the tank is likely to give rise to higher BOD and suspended solids in the discharge from the treatment plant thereby exacerbating poor biological water quality in the River Nore. Therefore any potential advantages of reducing the chlorine/hypochlorite concentration in the River Nore would be offset by a poorer performance in the wastewater treatment plant as a result of directing all waters in flushing the pipes to the wastewater treatment works.

In fact were the wastewater treatment plant to be upgraded to secondary treatment as planned, the periodic flushing of the watermains to the wastewater treatment plant would radically alter the food mass ratio and MLSS in the secondary treatment plant thereby making the secondary treatment must less effective.

The Board should also bear in mind that both primary and secondary treatment, but particularly primary treatment would also be a relatively ineffective way of reducing chlorine levels in the final discharge in the wastewater treatment plant. Primary treatment incorporates limited biochemical measures and processes to breakdown chlorine content in any discharge. Therefore rerouting pipes to the wastewater treatment plant would not prove particularly effective in reducing chlorine content in the discharge.

Thirdly the incorporation of condition no. 12 could result in a material alteration to the application before the Board. I can find no details as to the exact location of the Inistioge wastewater treatment plant on the documentation contained on file, the Kilkenny County Council website or the EPA website. It is possible that the existing treatment plant comprises of an underground settlement tank and therefore its location was not apparent in undertaking my site inspection nor is it apparent from any maps of the Inistioge area. The proposal to discharge any scouring or flushing of the water supply pipeline is likely to necessitate significant alterations to the current application before the Board and would therefore probably require a new planning application or at the very least additional information prior to determining the application. If the Board are minded to incorporate condition no. 12 in its determination of the application, I would recommend that further information be sought in relation to proposed pipeline routes and details of wayleaves/consent from landowners in order to carry out the alterations necessary to comply with the condition.

8.3 Condition 13(k)

Condition 13(k) requires that the total residual chlorine level in any discharges to waters shall not exceed 0.005mg/l HOCL and in this regard specific measures shall be put in place to store, treat and analyse any such chlorine bearing waters and to certify compliance with the aforementioned standard before discharge. The grounds of appeal argue that such a parameter is unnecessarily stringent given the available dilution volumes available in the River Nore.

There are no specified standards set out for chlorine in Schedule 5 of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (SI 272 of 2009). The only Regulations that specify a standard for chlorine are the European Communities (Quality of Salmonid Waters) Regulations 1988 SI no. 293 of 1988. The River Nore is designated as a salmonid water in the First Schedule of the said Regulations. In terms of water quality standards the Second Schedule specifies a total residual chlorine level (mg/l) HOC of less than 0.005 and this standard is to be conformed with a 95% samples over a period of 12 months where sampling is carried out at least once per month.

Chlorine is a form of disinfection as it is a powerful oxidising agent and extremely efficient in destroying deactivating microorganisms that can produce a variety of waterborne diseases. Chlorination is extremely beneficial for many minor water supplies and is often considered the only

treatment deemed necessary in treating potable water. As the public water supply in this instance is a distance from consumers, it is essential that continuing protection is provided and afforded along the distribution system and this requires flushing and scouring of the distribution pipes prior to the commencement of operation and also during periodic cleansing operations. Small doses of chlorine are of no direct significance in terms of human health having particular regard to the modest levels used in water treatment processes.

Chlorine reacts with water to form hypochlorous acid (HOCl) and hydrochloric acid (HCl). The question in relation to the condition for determination before the Board is whether or not residual levels of chlorine or hypochloric acid in the discharges to receiving waters would be environmentally damaging to the River Nore particularly in light of the Conservation Objectives for the River.

In this regard a critical distinction must be made between the planning condition which requires residual chlorine levels not to exceed 0.005mg/l in any discharge whereas the only Regulations that specify limits for residual chlorine (i.e. the Salmonid Regulations) require limits of less than 0.005 mg/l in the receiving waters as opposed to in the discharge. This is a very important distinction as the grounds of appeal indicate that there is significant and ample assimilative capacity in the receiving waters of the River Nore to dilute residual chlorine levels in the discharge to a fraction of the limits specified in the Salmonid Water Regulations.

Whether the cleaning and scouring of the pipeline on a periodic basis would result in chlorine levels in the River Nore to be above the limits specified in the Salmonid Regulations are calculated and evaluated below.

There are two outfalls proposed in this instance. The more northerly outfall is located near the reservoir at Grennan to the south of Thomastown. The characteristics of the outfall are as follows:

- Diameter - 150 millimetres.
- Scour velocity between 0.9 m/s and 3.7 m/s.
- Maximum discharge flow 0.016 m³/s to 0.065 m³/s.

An additional outfall is also proposed into the River Nore from the Inistioge reservoir. This outfall is located approximately 1 kilometres east of the Brownsbarn Bridge and approximately 7 kilometres

downstream of the discharge point for the reservoir at Grennan. The characteristics of this outfall are as follows:

- Diameter - 200 millimetres
- Scouring velocity between 0.9 m/s and 3.7m/s.
- Maximum discharge flow between 0.028 m³/s and 0.116 m³/s.

In terms of background concentrations of chlorine in the River Nore, the hydrological report submitted with the grounds of appeal assumes zero concentration of chlorine. For the purposes of calculating assimilative capacity I have assumed a small residual concentration of 0.001mg/l to represent an absolute worst case scenario.

In terms of the River Nore Catchment area the following information is particularly relevant for the purposes of calculating assimilative capacity¹.

- Catchment area – 2445 km²
- Average annual rainfall - 965 millimetres
- 50 percentile flow - 21.8 m³/s.
- 70 percentile flow 12.1 m³/s.
- 95 percentile flow 4.805 m³/s.

In terms of the residual chlorine in the scouring process the information contained on file states that the residual chlorine levels are between 0.1mg/l and 0.5mg/l. For the purposes of assimilative capacity, again a worst case scenario is assumed based on a maximum concentration of 0.5mg/l. The assimilative calculation figures are presented below.

Mass Balance Calculations

$$T = \frac{FC+fc}{F+f}$$

Where:

T = The resultant concentration due to the discharge (mg/l).

F = 70%ile flow in receiving water (m³).

¹ The above figures for the Nore Catchment area are based on EPA "hydrotool data" which are slightly different, and more conservative than the figures presented in the hydrological report submitted in the grounds of appeal.

C = Mean background concentration of the receiving water, assumed to be 0.001 mg/l.

f = Maximum discharge flow (m³/s).

c = Maximum concentration in the discharge.

For the Outfall at Grennan at 70thile flows in the River Nore and based on a scouring velocity 3.7m/s or 0.065m³/s:

$$T = \frac{12.1 \times 0.001 + 0.065 \times 0.5}{12.1 + 0.065} = 0.0036 \text{ mg/l}$$

Thus in an absolute worst case scenario the resultant concentration of chlorine in the River Nore downstream of the outfall is 0.0036 mg/l. This level is compliant with the limit set out in the Salmonid Regulations for Chlorine.

For the Outfall at Inistoige at 70thile flows in the River Nore and based on a scouring velocity 3.7m/s or 0.116m³/s:

$$T = \frac{12.1 \times 0.001 + 0.116 \times 0.5}{12.1 + 0.116} = 0.0057 \text{ mg/l}$$

Thus in an absolute worst case scenario, the resultant concentration of chlorine in the River Nore downstream of the outfall is 0.0057 mg/l. This level is marginally above the limit set out in the Salmonid Regulations for Chlorine.

The Board should also take into consideration the cumulative impact arising from the flushing / scouring of the pipes at the same time. If the pipes were to be flushed simultaneously the resultant chloride concentrations in the River Nore downstream of the outfalls would be 0.0093 mg/l or almost double the limits set out in the Salmonid Regulations. A condition should therefore be attached stipulating that the cleaning/scouring of both reservoirs should not take place within any 24hr period.

8.3.1 Conclusions in respect of Assimilative Capacity.

Having regard to the fact that the watermain scouring operations are (a) likely to take on a periodic basis, prior to being brought into service and on an annual basis after that and (b) the above assimilative capacity calculations are based on an absolute worst case scenario, I consider the Board could alter Condition 13 (k) as follows:

(a) In the case of the Outfall from Grennan Reservoir the total residual chlorine levels in any discharge to waters shall not exceed 0.5 mg/l and shall only discharge during periods when the water levels in the River Nore exceed 75%ile flows (the Board could consider stipulating either 70%ile flows or 75%ile as residual chlorine levels from the outfall into the Nore are likely to be acceptable under either flow regime).

(b) In the case of the outfall from the Inistioge Reservoir a more precautionary approach could be adopted whereby the total residual chlorine levels in any discharge to waters shall not exceed 0.5 mg/l and shall only discharge during periods when the water levels in the River Nore exceed 50%ile flows. The assimilative capacity calculations indicate that under 50%ile flow, the residual chlorine levels in the River Nore downstream of the outfall would not exceed 0.036 mg/l which would be within the limits for Chlorine stipulated in the Salmonid Regulations.

9.0 APPROPRIATE ASSESSMENT

The applicant submitted a Natura Impact Statement with the application. The assessment incorporated field walk over surveys and the NIS screening identified the River Barrow SAC and River Nore SPA as the European sites most likely to be effected by the proposed development. There are no other European sites within the vicinity of the proposal which are likely to be affected by the proposed development. The NIS describes the nature of works that could potentially impact on the European sites. These include

- The creation of a new borehole pump.
- The provision of temporary site compounds.
- Access and haul roads
- Excavation of trenches in roads and in streams for pipeline crossing.
- Horizontal directional drilling for the crossing of the River Nore at Inistioge.
- The above ground bridge crossing at Ballyduff Bridge
- The construction of reservoirs and other water treatment facilities and
- The super chlorination or flushing of the mains.

The NIS sets out in detail the proposed works, the habitats within which the proposed works are to take place and the proximity of the proposed works to the Natura 2000 sites.

The NIS goes on to describe the Natura 2000 site which could be affected and sets out the qualifying interests and these include:

- *Code 1130 – estuaries*
- *Code 1140 - mudflats and sandflats not covered by seawater at low tide.*
- *Code - 1310 Salicornia and other annuals colonising mud and sand.*
- *Code -1330 Atlantic salt meadows.*
- *Code - 1410 Mediterranean salt meadows.*
- *Code - 3260 watercourses of plain to montane levels with the ranunculion, fluitanits and callitricho-batrachion vegetation.*
- *Code - 7220 - petrifying springs with two formations.*
- *Code - 910E alluvial forests with alnus glutinosa and forxinus excelsior.*
- *Code - 6430 hydrophilous tall herb fringe communities of plains and montane to alpine levels.*
- *Code - 4030 European dry heaths.*
- *Code - 91AO Old sessile oak woods with ilex and blechnum in the British isles.*

The Natura impact statement assesses detail the potential impact of the proposed development on each of the qualifying interests listed. The NIS then sets out the Annex 2 species associated with the River Barrow and River Nore SAC and these are:

- *Code - 1016 Desmoulins whorl snail*
- *Code - 1029 the freshwater pearl mussel*
- *Code - 1990 the freshwater pearl mussel*
- *Code - 0192 the white clawed cray fish*
- *Code - 1095 the sea lamprey*
- *Code - 1096 the brook lamprey*
- *Code - 1099 the river lamprey*
- *Code - 1103 the twaite shad*
- *Code - 1106 atlantic salmon*
- *Code - 1355 the otter*
- *Code - 1422 the Killarney fern*

Again these qualifying interests are described in the context of the proposed development.

Finally the NIS refers to the species of special conservation interest of the River Nore SAC namely:

- *Code A229 – The Kingfisher*

The conservation objectives associated with the River Barrow and River Nore SAC and River Nore SPA are set out.

In terms of impact prediction it concludes that it is envisaged that there will be no significant adverse effects on the integrity of the River Barrow and River Nore SAC or the River Nore SPA in view of the sites conservation objectives. I consider that the conclusions reached in the NIS to be reasonable based on my own assessment which is set out below.

Changes in water quality arising from discharges could adversely affect Annex 1 habitats and Annex 2 species associated with the River Barrow and River Nore SAC. According to the NIS, petrified springs with tufa formations and Dysart woodland both of which are qualifying interests are located approximately a quarter of a kilometre from the pipeline and there are potential impacts arising from over land flows containing silts and hydrocarbons from the proposed works to be undertaken. However mitigation measures will be put in place to contain any overland flows during the construction phase.

A hydrogeological assessment was carried out to ensure that ground water dependent ecosystems such as petrified springs and tufa formations will not be effected. No petrified springs were recorded in the vicinity of boreholes. The ground water dependent ecosystems are hydrogeologically disconnected from any borehole extraction zones. In terms of other types of habitats which could potentially be affected including floating river vegetation and hydrophilous tall herb communities there are potential impacts arising from potential pollutant escapes during the construction phase of the reservoirs. Again appropriate measures will be taken during the construction phase to contain any surface water run off which could potentially impact on these habitats.

Perhaps a greater potential impact could arise on the aquatic species within the River Nore as a result of discharge from the outfalls into the river. Qualifying interests including the freshwater pearl mussel, the Nore freshwater pearl mussel and the white clawed cray fish, the lamprey species (sea river and brook lamprey), The twaite shad and the otter and perhaps most importantly the Atlantic salmon could potentially be impacted by the proposed discharges during flushing of the pipes. In

respect of the Nore freshwater pearl mussel this species is confined to a 10 kilometre stretch approximately 30 kilometres upstream from the proposed works and therefore is unlikely to be affected by the proposal. However it is noted in the NIS that the lower reaches of the River Nore have not yet been systematically surveyed for freshwater pearl mussel. The proposed flushing techniques to be undertaken periodically as part of the development will involve the flushing of chlorine enriched potable water through the pipes and into the River Nore. Due to the nature of the discharge there will be no change in the water quality composition for parameters such as alkalinity, pH, nitrate, phosphate, potassium or BOD/COD. There might be some discharge of suspended solids and silt and sand. However the amounts of suspended solids arising from an infrequent flushing of the pipes is likely to have a negligible impact on the aquatic species within the river. While it is acknowledged that the aquatic species which form part of the qualifying interests associated with the SAC are very sensitive to changes in water quality, any changes in suspended solids arising from the discharge would have no impact on water quality within the River Nore.

As referred to previously in my report the only potential change for chemical composition arising from the discharge relates to chlorine. I have argued above that any changes in the chlorine levels, even where chlorine levels with the discharge were permitted at a concentration of 0.5mg/l as suggested in the revised condition above, would not breach the residual chlorine levels permitted under the European Communities (Quality of Salmonid Waters Regulation 1988). I am satisfied based on the assimilative capacity calculations carried out above that if condition 13(k) were to be altered to permit a higher concentration of chlorine in the final discharge (i.e.0.5mg/l), the residual concentrations in the receiving waters would be below the limits set out in the Regulations provided that (a) the discharge in the case of the outfall at Grennan was only permitted where river flows exceeded the 75 percentile in the River Nore and (b) in the case of discharge from the Inistioge reservoir, discharges were only permitted where flows in the River Nore exceeded the 50 percentile flow that any such discharge would not in any way impact or compromise the integrity of the aquatic species that form part of the qualifying interests associated with the Natura 2000 sites.

Finally as the proposed development will have a negligible impact on water quality in the River Nore or the Annex 1 habitats associated with the River Nore, I do not consider that the proposed development will in any way affect the habitat of kingfisher which is the sole species of special conservation interest associated with the River Nore SPA.

10.0 CONCLUSIONS AND RECOMMENDATIONS

Arising from my assessment above, I consider that the Board should uphold the decision of Kilkenny County Council and grant planning permission for the proposed upgrade of the Inistioge Water Supply Scheme. However the conditions were the subject of a first party appeal should be altered as follows:

Condition no. 12 should be omitted.

Condition no. 13K should be altered as follows:

- (a) The total residual chlorine levels in any discharges to waters from the Grennan reservoir and associated pipe work shall not exceed 0.5mg/l and shall only discharge during periods when water levels in the River Nore exceed 75 percentile flows.
- (b) The total residual chlorine levels in any discharge to waters associated with the Inistioge reservoir and associated pipe work shall not exceed 0.5mg/l and shall only discharge during periods when water flows in the River Nore exceed 50 percentile flows.
- (c) The cleansing/scouring of the Grennan reservoir and associated pipe works and the cleansing/scouring of the Inistioge reservoir and associated pipe work should not take place within the same 24 hour period.

Reason: In the Interest of protecting the environment

**Paul Caprani,
Senior Planning Inspector.**

15th March, 2016.

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