Dear Patrick,

1. Please find appropriate assessment with regard to the likelihood of significant effects of the waste water discharges from the agglomeration named Edgeworthstown.

2. Details of all discharges of waste water from the agglomeration have been submitted via the web based link.

3. Please see Excel spreadsheet of additional Environmental monitoring for the agglomeration.

Yours Sincerely,

[Signature]

Mr. Patrick Byrne
Inspector,
Office of Climate, Licensing & Resource Use
Environmental Protection Agency,
PO Box 3000
Johnstown Castle Estate,
Co. Wexford

Re: Edgeworthstown Waste Water Treatment Plant
Reg.No.- D0098-01
EDGERTOWN WASTE WATER TREATMENT PLANT

A REPORT TO INFORM THE APPROPRIATE ASSESSMENT (NATURA IMPACT STATEMENT)

IN LINE WITH THE REQUIREMENTS OF ARTICLE 6(3) OF THE EU HABITATS DIRECTIVE

Prepared on Behalf of

Water Services Department
Longford County Council

June 2010
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INTRODUCTION

1.1 BACKGROUND

This report assesses the likely impacts, if any, of the current and future discharges from the waste water treatment plant in Edgeworthstown, Co. Longford on areas that have been designated under the EU Habitats and Birds Directions (the Natura 2000 network). Effects upon both habitats and species are considered.

Longford County Council have applied to the Environmental Protection Agency (EPA) for a Waste Water Discharge License for the above facility. Under the Waste Water Discharge (Authorisation) Regulations 2007 all discharges to the aquatic environment from sewage systems owned, managed and operated by Local Authorities will require a Waste Water Discharge Licence or certificate of authorisation from the EPA. The authorisation process provides for the EPA to place stringent conditions on the operation of such discharges to ensure that potential effects on the receiving water bodies are strictly limited and controlled. In accordance with Regulation 20(1) of the Waste Water Discharge Regulations, Local Authorities are obliged to assess the significance of the discharges from their waste water treatment plants on the relevant European sites. If effects are likely, then the appropriate assessment process must be followed.

The EPA Circular L8/084 includes a screening methodology in the form of a flow diagram for determining whether an Appropriate Assessment should be undertaken for works involving water services projects. This flow diagram was followed and based on the location of the waste water treatment plant at Edgeworthstown, it was determined that an Appropriate Assessment was necessary. The steps taken in following this flow diagram are illustrated in Figure 1.
1. Is the development in a nature conservation site?

No

2a. (If the development involves a surface water abstraction/discharge:)
Is the development in the surface water catchment of a nature conservation site (or part of such a site)?

Yes - Glen Lough SPA 004045

3. Are the qualifying habitats and species of the site water dependent?

Yes

5. Is there a WFD sub-basin plan for the site or its protected habitats/species?

No

5. ASSESS IMPACTS – APPROPRIATE ASSESSMENT MUST BE CARRIED OUT

Figure 1 – Flow Diagram for the Edgeworthstown Waste Water Treatment Plant
1.2 **REGULATORY CONTEXT**

1.2.1 **Relevant Legalisation**

The Birds Directive (Council Directive 79/409/EEC) implies that particular protection is given to sites (Special Protection Areas) which support certain bird species listed in Annex I of the Directive and that surveys of development sites should consider the status of such species.

The EU Habitats Directive (92/43/EEC) gives protection to sites (Special Areas of Conservation) which support particular habitats and species listed in annexes to this directive. Articles 6(3) and 6(4) of this Directive call for the undertaking of an Appropriate Assessment for plans and projects likely to have an effect on designated sites. This is explained in greater detail in the following section.

The Wildlife Act 1976 (and its amendment of 2000) provides protection to most wild birds and animals. Interference with such species can only occur under licence. Under the act it is an offence to “wilfully interfere with or destroy the breeding place or resting place of any protected wild animal”. The basic designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000) NHA’s are legally protected from damage.

The Water Framework Directive (WFD) (2000/60/EC), which came into force in December 2000, establishes a framework for community action in the field of water policy. The WFD was transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). RBDs are essentially administrative areas for coordinated water management and are comprised of multiple river basins (or catchments), with cross-border basins (i.e. those covering the territory of more than one Member State) assigned to an international RBD. The aim of the WFD is to ensure that waters achieve at least good status by 2015 and that status doesn’t deteriorate in any waters. The definition of good status has been set out in the Surface Water Regulations 2009 (S.I. 272/2009).

1.2.2 **Appropriate Assessment and the Habitats Directive**

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora – the ‘Habitats Directive’ - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC).
Articles 6(3) and 6(4) of the Habitats Directive sets out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Article 6(4) deals with the steps that should be taken when it is determined, as a result of appropriate assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

1.2.3 The Appropriate Assessment Process

The aim of the Appropriate Assessment process is to assess the implications of the proposal in respect of a site's conservation objectives.

Appropriate Assessment is an assessment of the potential effects of a proposed plan - 'in combination' with other plans and projects - on one or more European sites. The 'Appropriate Assessment' itself is a statement which must be made by the competent authority which says whether the plan affects the integrity of a European site. The actual process of determining whether or not the plan will affect the site is also commonly referred to as 'Appropriate Assessment'.

If adverse impacts on the site cannot be avoided, then mitigation measures should be applied during the Appropriate Assessment process to the point where no adverse impacts on the site remain (European Commission, 2000, 2001).
The conclusions of the appropriate assessment report should enable the competent authority to ascertain whether the proposal would adversely affect the integrity of the site (European Commission, 2000, 2001).

Under the terms of the directive (European Commission, 2000, 2001), consent can only be granted for a project if, as a result of the appropriate assessment either (a) it is concluded that the integrity of the site will not be adversely affected, or (b) where an adverse effect is anticipated, there is shown to be an absence of alternative solutions, and there exists imperative reasons of overriding public interest for the project should go ahead.

The competent authority is required to complete the Appropriate Assessment in consultation with the National Parks and Wildlife Service (NPWS).
2 METHODOLOGY

2.1 DESKTOP CONSULTATION

A review of areas designated (or being considered for designation) for nature conservation was carried out by consulting the website of the National Parks and Wildlife Service (NPWS). These included Special Areas of Conservation, Special Protection Areas for birds (both internationally important) and proposed Natural Heritage Areas (of national importance). Technical files and previous reports prepared for the waste water treatment plant were supplied by Longford County Council for review in the current assessment. These included the EPA application document for the proposed Discharge License. In addition, monitoring information on the discharges from the waste water treatment plant and the receiving waters were obtained from Longford County Council and used in this assessment. A range of additional sources of information including scientific reports produced by, and information on the websites of the EPA, NPWS, National Biodiversity Data Centre, Longford County Council and other agencies were also reviewed. A full bibliography of information sources reviewed is given in the references section. Ordinance Survey Maps and OS aerial photographs were also reviewed during the desk assessment.

In addition, personnel from the NPWS and waste water treatment plant were also consulted.

2.2 APPROPRIATE ASSESSMENT


The EC Guidance sets out a number of principles as to how to approach decision making during the process. The primary one is ‘the precautionary principle’ which requires that the conservation objectives of Natura 2000 should prevail where there is uncertainty.

When considering the precautionary principle, the emphasis for assessment should be on objectively demonstrating with supporting evidence that:

- There will be no significant effects on a Natura 2000 site;
- There will be no adverse effects on the integrity of a Natura 2000 site;
- There is an absence of alternatives to the project or plan that is likely to have an adverse effect to the integrity of a Natura 2000 site; and
- There are compensation measures that maintain or enhance the overall coherence of Natura 2000.
This translates into a four stage process to assess the impacts, on a designated site or species, of a policy or proposal.

The EC Guidance states that "each stage determines whether a further stage in the process is required". Consequently, the Council may not need to proceed through all four stages in undertaking the Appropriate Assessment.

The four stage process is:

1. Stage 1 - Screening
   - Description of the proposed project.
   - Identification of the Natura 2000 sites potentially affected.
   - Identification and description of individual and cumulative impacts likely to result from the project.
   - Assessment of the significance of the impacts identified above on site integrity. Exclusion of sites where it can be objectively concluded that there will be no significant effects.

2. Appropriate Assessment Stage

   Appropriate Assessment should address the potential of the project to adversely affect the integrity of the site, with respect to its conservation objectives. An adverse effect on integrity is likely to be one that prevents the site from making the same contribution to favourable conservation status for the relevant features as it did at the time of designation.

   ‘Integrity’ is defined by the European Commission (2000) as relating to the reasons for the site’s designation:

   "The integrity of a site is the coherence of the site’s ecological structure and function, across its whole area, or the habitats, complex of habitats and / or populations of species for which the site is or will be classified"
Assessment of the effects of the project on the integrity of the site follows the following steps:

- Describe the proposed plan/project;
- Collate Information about the European Site and set out the conservation objectives of the site;
- Describe how the project or plan, in combination with other projects/plans, will affect the European Site, its key species and key habitat, and how the overall integrity of the site is likely to be affected; and
- Describe what mitigation measures are to be introduced to avoid or reduce the adverse effects on the integrity of the site. Acknowledge uncertainties and any gaps in information.

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage and designing the project in order to avoid such impacts. Second, mitigation measures should be applied if necessary during the appropriate assessment process to the point where no adverse impacts on the site remain. If the project is still likely to result in adverse effects and no further practicable mitigation is possible, then it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest under Article 6(4) of the Habitats Directive. Then compensation measures are required for any remaining adverse effects.

3. Identifying Alternative Solutions

This stage examines alternative ways of implementing the project or plan that, where possible, avoid any adverse impacts on the integrity of the Natura 2000 site.

4. When there are No Alternative Solutions

For sites that host priority habitats and species, it is necessary to consider whether or not there are human health or safety considerations or environmental benefits flowing from the project or plan. If such considerations do exist, then it will be necessary to carry out the Stage Four assessments of compensatory measures. If no such considerations exist, then establish whether there are other imperative reasons of overriding public interest (IROPI) before carrying out the Stage Four assessments. Where IROPI exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the site will be necessary before the project or plan can proceed.
2.3 Field Based Studies

2.3.1 Water Quality Sampling

Biological water quality assessment was carried out at two separate locations on the River Black, both upstream and downstream of the effluent discharge point. These locations are shown in Table 1 and illustrated in Figure 2. It should be noted that station 2 is also the location of the EPA monitoring station (Bridge near Ballinlaghta).

<table>
<thead>
<tr>
<th>Station No.</th>
<th>Location</th>
<th>NGR Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>~ 100m u/s of discharge</td>
<td>N 26011 70665</td>
</tr>
<tr>
<td>2</td>
<td>~ 500m d/s of discharge</td>
<td>N 26476 70276</td>
</tr>
</tbody>
</table>

Table 1 – Stations Sampled as Part of this Assessment

Fieldwork was carried out on 16\textsuperscript{th} June 2010. Weather conditions on this day were dry, calm and sunny.

At each station, the surrounding habitats were noted along with other parameters such as water flow, stream depth and the predominance of vegetation. All samples were taken with a Freshwater Biological Association approved hand held sweep net with a mesh diameter of 500μm. At both stations, a two minute kick and stone wash sample was taken. All samples were retained in plastic containers at the sampling site. Mud and debris were removed from each sample by sieving under running water through a 500 μm sieve. The samples were then live sorted for a period of 30 minutes in a white tray under a bench lamp. All macro-invertebrates were counted and identified to the appropriate taxonomic level. Based on the relative abundance of indicator species, a biotic index (Q rating) was determined for the sites in accordance with the biological assessment procedure used by the Environmental Protection Agency.

In addition to the Q rating, a simple diversity index called the Berger-Parker Diversity Index was calculated for each site. This index has the formulae

\[ D = \frac{N_{\text{max}}}{N} \]

Where \( N_{\text{max}} \) is the number of individuals of the most abundant taxon and \( N \) is the total abundance of all individuals in the sample. With this diversity index, the value decreases with increased diversity. The reciprocal is therefore used so that an increase in the value of the index accompanies an increase in measured diversity.
Figure 2 - Location of Sampling Points and Waste Water Treatment Plant on the River Black
3 REceiving Environment

The Edgeworthstown waste water treatment plant is located in the townland of Tinnynarr, approximately 0.5km south of the town and just off the N4 Dublin – Sligo Road. It is surrounded mostly by agricultural land. The discharge from the treatment plant enters the River Black at a point approximately half a kilometre south of the treatment plant, just downstream of a confluence with a small, nameless tributary of the river.

3.1 The River Black

The River Black rises in the townland of Lisnanagh, approximately 3km north-west of Edgeworthstown. It then flows through low lying agricultural land where it joined by a network of drainage ditches. On the western outskirts of the town it flows behind a pet food factory and through some recently constructed housing estates. On the east side of the town it flows through agricultural land again and towards the Longford – Westmeath county boundary where it flows through an area of raised and cut over bog and a conifer plantation. Historically (old version OSI maps) the River Black flowed into and out of Glen Lough (prior to the drainage scheme that drained this lake) before it flowed north-east and then south-east towards the River Inny, where it joined it in the townland of Boltomy just downstream of Lough Iron. However, since the lake was drained the flow of the river has been altered and it is now connected to the marsh area of Glen Lough by a drainage channel.

The River Inny is approximately 55 miles in length and it flows from Lough Kinale in County Cavan where it heads south to Lough Derravaragh in County Westmeath. From there is flows westwards to the River Shannon, which it joins at Lough Ree. Ballymahon is the largest town located on the Inny. The river varies in depth from approximately 1.5 metres to over 3 metres in normal water levels. There is very good fishing for roach, breem and pike in this river and there are also some good stocks of wild brown trout in parts.

3.2 Receiving Water Quality

3.2.1 Biological Water Quality Monitoring

Since the commencement of the EPA Water Quality Monitoring Programme, the River Black has consistently failed to reach good ecological status, i.e., it has always been of poor water quality. The earliest information from the EPA comes from 1987, when a Q value of 1-2 (i.e., bad status / severe pollution) was assigned to the river at the sampling station at the Ballymahon Bridge in Edgeworthstown (upstream of the waste water treatment plant). In the intervening years, the Q value from this station has ranged from Q1 (bad status) to a 43 in 2002 (poor status). The latest rating from this station is a Q2 and this was obtained in 2005. Overall, the trend in recent years at this station has shown a slight improvement in water quality since 1999. However, there was a slight decrease in water quality between 2002 and 2005.

The other points sampled by the EPA include the bridge at Ballinlaghta (Garryandrew) and the bridge at Lissanure. The latest EPA rating (2005) from the Ballinlaghta station is a Q2-3, i.e., poor status, while the rating obtained from the Lissanure station was slightly better at a Q3, although this is still classed as being of poor status. However, upstream of where the
River Black meets the River Inny it has received a Q4 (good status). Results from the EPA data for the three stations along the River Black are summarised in Appendix 1.

In addition, the results from the biological water quality monitoring from the two points (upstream and downstream of the waste water treatment plant discharge) on the River Black taken as part of this assessment are summarised in Table 2. A full list of the species found is presented in Appendix I.

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Q Rating</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>~ 100m u/s of discharge</td>
<td>Q3</td>
<td>Poor</td>
</tr>
<tr>
<td>2</td>
<td>~ 500m d/s of discharge</td>
<td>Q3</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Table 2 – Summary of Findings of the Biological Water Quality Assessment

The sample from station 1 (upstream) was dominated by the amphipod *Gammarus duebeni* and the mayfly *Baetis rhodani* was also found in very significant numbers. Group C taxa dominated this sample, these macro-invertebrates are tolerant of organic pollution, although not as tolerant as some species. Group B taxa were scarce and they were represented by the caddis Limnephilidae.

Sample 2 (downstream at Ballinlaghta Bridge) was similar in species composition to Sample 1, although here there were excessive numbers of *Gammarus duebeni*. There were also very high numbers of *Baetis rhodani*. Limnephilidae (Group B) were scarce. The most tolerant macro-invertebrates from Group C D were barely represented in either sample with only one specimen (a leech from the Glossiphonidae family) being recorded in Sample 2. Diversity at both sites was relatively low.

Overall, the biological water quality in the River Black has improved in recent years, although a Q3 is still classed as poor status. Results from the Ballinlaghta Bridge have improved consistently since the opening of the new waste water treatment plant and it is evident that the ecological status of the river at this station is improving. This assessment has shown that there is no difference in ecological status between upstream and downstream points of the waste water treatment plant discharge.

However, it remains that the River Black suffers from eutrophication along its entire length. This eutrophication is probably a result of a number of factors including the very low flow rate and assimilative capacity of the river, the run-off from diffuse agricultural sources, poorly maintained and inadequate domestic septic tanks and other uncontrolled effluent. As there is no significant difference in the water quality rating from stations upstream and downstream of the waste water treatment plant, then it is unlikely that the plant alone is having a considerable impact upon the water quality of this river. Under the Water Framework Directive, the River Black will have to receive good status as outlined in the Shannon International River Basin Management Plan and within the criteria set out in the Surface Water Regulations 2009 (S.I. no. 272 of 2009).
3.2.2 Chemical Water Quality Monitoring

Longford County Council operate a continuous monitoring of the chemical parameters at the discharge point and upstream and downstream of the waste water treatment plant. This is carried out both by the Council themselves and an independent laboratory service. A summary of the most up to date information taken in March 2010 and May 2010 can be seen in Appendix I.

From this information, it can be seen that the chemical water quality in the River Black is largely within the guidelines set out in the salmonid regulations (European Communities (Quality Of Salmonid Waters) Regulations, 1988). Although these are not designated salmonid waters, the water quality objectives for salmonid presence in a watercourse provide a useful comparison. However, the levels of ortho-phosphate from samples upstream and downstream of the discharge point are elevated and above the guidelines set out in the EPA’s Water Quality in Ireland Report 2001 – 2003 (Toner et al., 2005). In March 2010, the results obtained for ortho-phosphate were actually higher in the upstream samples. This indicates that ortho-phosphate is a problem within the catchment as a whole. Ammonia also seems to be a problem in this river and levels obtained upstream and downstream are also above the recommended guidelines.

The quality of the discharge of the effluent for BOD (biological oxygen demand), COD (chemical oxygen demand) and suspended solids are within the requirements set out in the Urban Wastewater Treatment Directive S.I. No. 254 of 2001. There are no requirements for phosphorus and nitrogen in these guidelines for treatment plants with a p.e. (population equivalent) less than 10,000. However, the limits for these parameters for plants with a p.e. greater than 10,000 provide a useful comparison. The effluent from the plant in Edgeworthstown is within the requirements for the total phosphorus. However, it did exceed the limits for total nitrogen in March 2010. However, this limit is for plants with a p.e. greater than 10,000 and the Edgeworthstown plant is much smaller than this.

3.2.3 Assimilative Capacity

As part of their application for a Discharge License, Longford County Council have calculated the assimilative capacity of the River Black for certain chemical parameters in order to identify the potential effects that discharge from the waste water treatment plant will have on the water quality of the River Black.

The waste assimilative capacity of a river at any particular location may be defined as the maximum quantity of waste water which may be discharged under set conditions of river flow that does not lead to any significant decrease in water quality and which does not harm aquatic life or humans who consume the water.

The assimilative capacity of rivers can be calculated to determine if the river can absorb the wastewater discharge and still comply with relevant legislation and water quality objectives. The parameters that can be used when calculating the assimilative capacity of a river include BOD and suspended solids.
Assimilative capacity calculations are based on mass balance, which looks at the natural self-purification capacity of a stream/river to assimilate a waste discharge. Based on the calculations, the total amount of waste water (and quality) which can be discharged into receiving waters without deteriorating the existing/future water quality can be determined.

The Waste Assimilative Capacity for BOD (WAC) = \((C_{\text{max}} - C_{\text{back}}) \times F_{95} \times 86.4\) kg BOD day\(^{-1}\)

Where 
- \(C_{\text{max}}\) = Maximum permissible concentration
- \(C_{\text{back}}\) = Background concentration (upstream)
- \(F_{95}\) = 95th percentile flow (m\(^3\)/s)
- 86.4 = Conversion Factor

(Gray, N. 2005)

Therefore, the parameters required for this assessment include the flow rate of the river, the discharge flow rate from the wastewater treatment plant into the river, the concentration of the parameter in the discharge and the current water quality parameters from upstream of the proposed point of discharge.

Longford County Council have calculated the assimilative capacities for BOD, ortho-phosphate, ammonia, oxidised nitrogen and suspended solids. The calculations and results for these parameters were supplied in the original application form for a Discharge License to the EPA. These calculations showed that the effluent being discharged from the plant was within the assimilative capacities for all the calculated parameters. However, it should be borne in mind that the biological rating for this river is now a Q3, which would change the recommended ortho-phosphate concentration from 0.1 mg/l to 0.07 mg/l. As 0.07 mg P/l is used as the upstream concentration in the assimilative capacity calculations, this would result in an assimilative capacity of zero. If the upstream concentration is taken from the latest results produced by Longford County Council presented in Appendix I, then this would result in a negative assimilative capacity. Therefore it can be concluded that there is a considerable phosphorus input into the Black River upstream of the waste water treatment plant.
4 SCREENING

4.1 DESCRIPTION OF THE PROPOSED PROJECT

Longford County Council have applied to the EPA for a Waste Water Discharge License under the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). The current Edgeworthstown Waste Water Treatment Plant is located at Tinnynarr and was completed in the mid 1990’s. The new effluent treatment facility at Edgeworthstown was provided to replace an existing grossly overloaded treatment works. The old works discharged into a stream adjacent to the works and as the effluent was not achieving the required standard, the new facility was provided. The current plant is comprised of preliminary, secondary and tertiary treatment to achieve the final standard. The preliminary treatment consists of screening and grit removal. The secondary treatment is by two extended aeration tanks which can achieve a BOD (Biological Oxygen Demand) reduction of up to 98%. Finally, the tertiary treatment or polishing is achieved by two trickling filters in conjunction with two settlement tanks fitted with wedge wire screens to prevent any solid loss in the final effluent. The effluent is then discharged into the River Black approximately half a kilometre south of the plant.

The existing works can treat loads up to three DWF (dry weather flow). The storm tank is capable of holding flows in excess of three DWF and up to a maximum of six DWF for two hours and anything in excess of this is discharged into the River Black.

The design of the existing works in the mid 1990’s was single stage. The existing stage was designed to cater for a population of 2700 p.e. (population equivalent) and a flow of 17.71/s.

The Edgeworthstown waste water treatment process is a conventional extended aeration process. The existing plant has a design capacity of 2700 p.e. and a design effluent quality of 25mg/l BOD, 35mg/l suspended solids and 2 mg/l of phosphorus. The influent to the wastewater treatment plant is screened with a mechanical back raked screen. Grit is removed with a Jeta circular grit trap. Flows in excess of 3 DWF are then diverted to the storm water holding tank. The flow is then split between two aeration tanks which aerate the activated sludge with surface aerators. Two circular clarifiers with half bridge scrapers are used for secondary settlement prior to the supernatant being diverted to a pumping chamber where it is pumped over a stone media of two trickling filters by means of a rotating arm distributor. The treated effluent is then diverted to two tertiary clarifiers which have wedge wire screens installed to prevent any final loss of solid to the primary discharge point.

Activated sludge is returned to the aeration basins to maintain the mixed liquor suspended solids in the basins. Waste sludge is pumped to a sludge holding tank. Sludge is then dewatered prior to disposal.

The main components of the wastewater treatment plant are as follows:

1. 225mm diameter Conc. intake pipe.
2. Speco fine self cleaning screen with compaction
3. Jeta grit trap with grit classifier.
4. Two aeration basins
5. Two Secondary Clarifiers.
6. Two trickling filters
7. Phosphorus removal facility.
8. Two tertiary clarifiers.
10. Belt press building
11. Control Building.
12. One Picket fence thickener

<table>
<thead>
<tr>
<th>Wastewater Treatment Plant</th>
<th>Effluent Concentration (mg/l)</th>
<th>Effluent Load (kg/d)</th>
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</thead>
<tbody>
<tr>
<td>BOD (kg/d)</td>
<td>10</td>
<td>5.11</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>20</td>
<td>10.22</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 3 – Summary of Waste Water Treatment Plant Effluent Loads
4.2 IDENTIFICATION OF NATURA 2000 SITES POTENTIALLY AFFECTED

Using the precautionary principle in combination with the flow chart illustrated in Figure 1, it was concluded that there would be one Natura 2000 site potentially affected by effluent and water quality deterioration in the River Black. This Natura 2000 site is Glen Lough (Special Protection Area 004045 and pNHA 001687) and it is located approximately 3.6km southeast of the treatment plant discharge point (See Figure 3). Once over 100ha in area, this lake underwent a severe drainage regime in the 1960s and now there is little open water, except for the winter months. Marsh now dominates the area and species such as bottle sedge, water horsetail and reed canary grass are common. Other habitats around the lake include reed swamp, wet and dry grassland, cutaway bog and heath, coniferous forest and a young willow plantation.

High numbers of whooper swan use this lake and in addition Greenland white-fronted goose also visit the site in winter. Both these species are listed in Annex I of the EU Bird’s Directive. Wigeon, teal, mallard, pintail, shoveler and lapwing also use the site. Other species recorded in the Glen Lake complex include the marsh harrier and the marsh helleborine, a perennial orchid species listed in the Flora Protection Order.

Under S.I. No. 65/2010, i.e., European Communities (Conservation of Wild Birds (Glen Lough Special Protection Area 004045)) Regulations 2010, the following activities are prohibited on Glen Lough:

1. Any activity that involves the deliberate killing or capture of any species of naturally occurring bird in the wild state, save where a specific derogation within the meaning of Article 9 of the Directive is in place.

2. The destruction, damage or removal of nests or eggs or any disturbance, particularly during periods of breeding or rearing, save where a specific derogation within the meaning of Article 9 of the Directive is in place.

3. The rearing or keeping of birds, the hunting and capture of which is prohibited, save where a specific derogation within the meaning of Article 7 of the Directive is in place.

4. Altering watercourses or wetlands, including changing the height of the water table, blocking or altering the flow of the water or deepening any channel.

5. Developing, operating or allowing leisure or sporting activities liable to cause significant disturbance to those birds listed in Schedule 3 of these Regulations or damage to their habitats.

6. Any activity intended to disturb those birds listed in Schedule 3 of these Regulations including by mechanical, air or wind powered or audible means.

7. Construction or alteration of tracks, paths, roads, embankments, car parks or access routes, or using or permitting the use of land for car parking.

8. Planting of trees.

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9. Reclamation or infilling.

10. Introduction (or re-introduction) into the wild of plants or animals not currently found in the area.

11. Any activity which destroys habitat, except normal maintenance activities as defined in approved farm plans.

12. Reclaiming land for agricultural purposes, including spraying or burning vegetation, clearing scrub and rough vegetation, draining or moving soil, ploughing, harrowing or reseeding.

13. Any other activity of which notice may be given by the Minister from time to time.
Glen Lough is largely surrounded by agricultural land, therefore it would be quite susceptible to eutrophication from run-off from the surrounding areas. Other threats include illegal hunting and further alteration of the water table.

In its judgment C 418-04 of December 2007, the European Court of Justice referred to drainage maintenance works that had been carried out by the Office of Public Works in the Glen Lough SPA. The Court's judgment in this case made it clear that even maintenance works require an Appropriate Assessment (under Article 6(3) of the Habitats Directive) for their potential impact on a Natura 2000 site.

The location of this SPA in relation to the treatment plant and its discharge point can be seen in Figure 2.

4.3 IDENTIFICATION OF ANNEX II SPECIES OUTSIDE THE DESIGNATED AREA

Consultation with the NPWS wildlife ranger for the area revealed the presence of some further species listed in Annex II of the Habitats Directive and Annex I of the Birds Directive that occur outside the designated boundary of the Glen Lough SPA. These species can be found on the lower reaches of the River Black and they include:

- **Otter Lutra lutra**

  The otter is a nocturnal mammal that lives along river banks and lakes in Ireland. The otter has become extinct in many parts of Europe due to habitat degradation and hunting, so Ireland's otter population is of international importance. Otters live in "holts" or burrows in the riverbank, where they rest during the day. Otters are territorial, solitary and are most active at dusk or after dark. They mark their territories with droppings, called 'spraints', often at noticeable points such as on rocks or high mounds which are usually found at important fishing or grooming sites. Otters usually catch bottom-dwelling fish and will eat water birds, small mammals and carrion.

  The occurrence of otters in Ireland has been declining since the early 1980s and studies since then have observed an 18% decrease in otters occurring at a selection of sites throughout the country. Reasons for this loss include habitat destruction, increased disturbance and an increase in organic pollution of rivers. The current conservation assessment for the otter, Ireland was judged to be "unfavourable – inadequate" in the 2007 Article 17 report produced by the NPWS (NPWS, 2008). The otter has been protected in Ireland under national legislation since 1976 (Wildlife Act 1976), although a limited number of licenses to hunt otters were issued under this Act until the 1990s. The Wildlife Amendment Act (2000) removed the hunting clause entirely and it is now illegal to hunt, disturb, or intentionally kill otters. The otter is listed on Annex II and Annex IV of the EU Habitats Directive (92/43/EEC).

- **Kingfisher Alcedo atthis**

  Kingfishers are small, unmistakable birds that nest in the banks of slow moving rivers. Both male and female birds excavate the nest burrow into a stone-free sandy soil of a low stream bank, usually about 0.5m from the top. The birds choose a vertical bank clear of vegetation,
since this provides a reasonable degree of protection from predators. There are many suitable sites like this along the River Black.

Kingfishers fly low and rapidly over the water where they hunt small fish such as sticklebacks and minnows and larger macro-invertebrates such as the freshwater shrimp. They are extremely vulnerable to cold winters and habitat degradation through eutrophication and alteration of the water courses. It is likely that the River Black population suffered during the extreme winter of 2009/2010. Kingfishers are listed in Annex I of the EU Birds Directive. They are on the Amber List of Birds of Conservation Concern in Ireland, which means that they are of medium conservation concern in Europe.

4.4 IDENTIFICATION OF POTENTIAL IMPACTS AND EFFECTS

This section provides a screening exercise to establish the likelihood of the potential impacts and effects of the discharge from the Edgeworthstown waste water treatment plant on Glen Lough SPA being significant.

4.4.1 Direct Impacts

The effluent from the Edgeworthstown waste water treatment plant is not discharged directly into Glen Lough SPA/pNHA. Therefore, there would be no direct effects on this site as a result of the current discharge.

4.4.2 Indirect Impacts

Indirect (or secondary) impacts are defined as effects that are "caused by and result from the activity although they are later in time or further removed in distance, but still reasonably foreseeable" (Bowers-Marriott, 1997).

There is some potential for indirect impacts on Glen Lough SPA/pNHA as a result of the existing discharge from the Edgeworthstown waste water treatment plant. This is due to the fact that effluents from the plant and storm sewer network have the potential to be carried down into the Glen Lough area. However, based on the current biological water quality monitoring values and the Longford County Council water quality monitoring data (chemical) it can be concluded that at the present time, the discharge from the Edgeworthstown waste water treatment plant is having no significant effect on the water quality of the River Black. The Q ratings for this river are the same both upstream and downstream of the plant whilst the chemical monitoring conducted by Longford County Council has shown that the effluent discharged is within the assimilative capacity of the river for BOD, ortho-phosphate, ammonia, oxidised nitrogen and suspended solids. At the current Q3 rating, it is likely that activities upstream of the treatment plant are having a greater impact on the quality of the water in the river than the treatment plant itself. These impacts would included eutrophication from run-off from diffuse agricultural sources and inefficient septic tanks.

Prior to the upgrading of the Edgeworthstown waste water treatment plant, it is likely that effluent from this plant was having a severe negative impact on the quality of the River Black, which could have lead to indirect impacts upon Glen Lough SPA. This is a situation that has changed in recent years with the upgrading of the plant and water quality in the River Black has improved since the last EPA assessment in 2005. Potential still exists through the
operation of the treatment plant that an accidental pollution episode may affect water quality in the receiving waters and this could affect the SPA. However, the risk of such an event occurring in a well managed and modern treatment plant is low.

4.4.3 Cumulative Impacts

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first; through persistent additions or losses of the same materials or resource, and second,-through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

The River Black has a relatively low assimilative capacity due to its small size and it’s low flow and dilution rate. In addition, the pollution inputs from sources upstream and downstream of the treatment plant discharge are also lowering the assimilative capacity. This is especially the case for phosphorus. However, the discharge from the plant at the current time remains within the assimilative capacity of the river, therefore at current operation standards the cumulative impacts can be described as negligible.

4.5 Overall Assessment

Using the information gathered as part of this report along with an analysis of the chemical data produced by Longford County Council, it was concluded that the continuing operation of the waste water treatment plant at Edgeworthstown at current standards is having no impacts upon the integrity of Glen Lough SPA, it’s habitats or its designated species. It can also be concluded, that the plant is having no impacts upon the otter or the kingfisher, species that are listed in Annex II of the Habitats Directive and Annex I and IV of the Birds Directive. Therefore, full appropriate assessment of this license is not necessary and Stage 2 of the process will not be undertaken.

However, continuous monitoring of the water quality in this river needs to be maintained and results need to analysed frequently in order to ensure compliance. Biological water quality monitoring should also be implemented on a more frequent basis as it was five years between surveys on this river (EPA 2005 & this assessment 2010).

It is unlikely that water quality in this river will achieve good ecological status until measures are taken to reduce the overall inputs of phosphorus and nitrogen into this system from diffuse sources.
### WATER QUALITY DATA

<table>
<thead>
<tr>
<th>Station</th>
<th>Year</th>
<th>Q Rating</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballymahon Road Bridge</td>
<td>2005</td>
<td>2-3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>1999</td>
<td>1</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1996</td>
<td>1</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1994</td>
<td>1</td>
<td>Bad</td>
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<tr>
<td></td>
<td>1992</td>
<td>1</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1990</td>
<td>1</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1989</td>
<td>1-2</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1988</td>
<td>1</td>
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</tr>
<tr>
<td></td>
<td>1987</td>
<td>1-2</td>
<td>Bad</td>
</tr>
<tr>
<td>Br nr Ballialaghta</td>
<td>2005</td>
<td>2-3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>2-3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>1999</td>
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</tr>
<tr>
<td></td>
<td>1996</td>
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</tr>
<tr>
<td></td>
<td>1986</td>
<td>2</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1984</td>
<td>1-2</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1982</td>
<td>1</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1980</td>
<td>3-4</td>
<td>Moderate</td>
</tr>
<tr>
<td>Lissanure Bridge (5th Bridge d/s St)</td>
<td>2005</td>
<td>3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>2002</td>
<td>3</td>
<td>Poor</td>
</tr>
<tr>
<td></td>
<td>1999</td>
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<td>3</td>
<td>Poor</td>
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<td>1990</td>
<td>1</td>
<td>Bad</td>
</tr>
<tr>
<td></td>
<td>1987</td>
<td>3-4</td>
<td>Moderate</td>
</tr>
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</table>

Summary of the EPA’s Biological Water Quality Monitoring for the River Black
## Indicator Group

<table>
<thead>
<tr>
<th>Indicator Group</th>
<th>Taxon</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Very sensitive)</td>
<td>Absent</td>
<td>0</td>
</tr>
<tr>
<td><strong>Group B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Moderately sensitive)</td>
<td>Cased Tricoptera</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Limnophilidae</td>
<td>2</td>
</tr>
<tr>
<td><strong>Group C</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Moderately tolerant)</td>
<td>Ephemeroptera</td>
<td>255</td>
</tr>
<tr>
<td></td>
<td><em>Baetis rhodani</em></td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Uncased Tricoptera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydropsychidae</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Amphipoda</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Gammarus duebeni</em></td>
<td>200+</td>
</tr>
<tr>
<td></td>
<td>Diptera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chironomidae</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Coleoptera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elmithidae</td>
<td>1</td>
</tr>
<tr>
<td><strong>Group D</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Very tolerant)</td>
<td>Crustacea</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><em>Asellus aquaticus</em></td>
<td>1</td>
</tr>
<tr>
<td><strong>Group E</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Most tolerant)</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td><strong>Not Assigned to a Group</strong></td>
<td>Absent</td>
<td></td>
</tr>
</tbody>
</table>

| Total Abundance        | 257                       |
| Q Value                | 3                         |
| Berger-Parker Diversity Index | 1.28                      |

Results from the Biological Water Quality Monitoring of Station 1 (u/s of discharge)
<table>
<thead>
<tr>
<th>Indicator Group</th>
<th>Taxon</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Very sensitive)</td>
<td>Absent</td>
<td>0</td>
</tr>
<tr>
<td><strong>Group B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Moderately sensitive)</td>
<td>Cased Tricoptera</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Limniphilidae</td>
<td>6</td>
</tr>
<tr>
<td><strong>Group C</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Moderately tolerant)</td>
<td>Diptera</td>
<td>564+</td>
</tr>
<tr>
<td></td>
<td>Tipulidae</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Ephemeroptera</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Baetis rhodani</em></td>
<td>161</td>
</tr>
<tr>
<td></td>
<td>Uncased Tricoptera</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hydropsychidae</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Amphipoda</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Gammarus duebeni</em></td>
<td>400+</td>
</tr>
<tr>
<td><strong>Group D</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Very tolerant)</td>
<td>Hirudinea</td>
<td>1</td>
</tr>
<tr>
<td><strong>Group E</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Most tolerant)</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td><strong>Not Assigned to a Group</strong></td>
<td>Absent</td>
<td></td>
</tr>
</tbody>
</table>

**Total Abundance**: 571  
**Q Value**: Q3  
**Berger-Parker Diversity Index**: 1.44

Results from the Biological Water Quality Monitoring of Station 2 (d/s of discharge)
APPROPRIATE ASSESSMENT FOR THE DISCHARGE LICENCE FOR THE EDGEWORTHSTOWN WWTP

<table>
<thead>
<tr>
<th>Location</th>
<th>SS mg/l</th>
<th>COD mg/l</th>
<th>BOD mg/l</th>
<th>Total P mg/l</th>
<th>Ortho-P mg/l</th>
<th>Ammonia mg/l</th>
<th>Total N mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edgeworthstown u/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 2010</td>
<td>2</td>
<td>21</td>
<td>3.10</td>
<td>2.55</td>
<td>0.097*</td>
<td>0.175*</td>
<td>2.55</td>
</tr>
<tr>
<td>May 2010</td>
<td>1</td>
<td>14</td>
<td>1.23</td>
<td>0.114</td>
<td>0.091*</td>
<td>0.03*</td>
<td>1.35</td>
</tr>
<tr>
<td>Edgeworthstown Discharge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 2010</td>
<td>4.8</td>
<td>30</td>
<td>2.2</td>
<td>0.133</td>
<td>0.051</td>
<td>0.311</td>
<td>20.1**</td>
</tr>
<tr>
<td>May 2010</td>
<td>4.2</td>
<td>67</td>
<td>1.58</td>
<td>0.201</td>
<td>0.117</td>
<td>0.077</td>
<td>10.3</td>
</tr>
<tr>
<td>Edgeworthstown d/s</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 2010</td>
<td>1.4</td>
<td>21</td>
<td>1.79</td>
<td>0.075</td>
<td>0.053</td>
<td>0.067*</td>
<td>6.25</td>
</tr>
<tr>
<td>May 2010</td>
<td>2.8</td>
<td>20</td>
<td>1.67</td>
<td>0.164</td>
<td>0.113*</td>
<td>0.055*</td>
<td>4.96</td>
</tr>
</tbody>
</table>

Results obtained by Longford County Council in their Water Quality Monitoring Program of the Edgeworthstown WWTP

* = results not within the limits set out by the Salmonid Standards

** = results not within limits of Urban Wastewater Treatment Directive with a p.e. of 10,000+

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units of Measurement</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissolved Oxygen</td>
<td>% sat &amp; mg/litre</td>
<td>50%&lt; 9</td>
</tr>
<tr>
<td>PH</td>
<td></td>
<td>≤ 6.9</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>mg/litre</td>
<td>≤ 25</td>
</tr>
<tr>
<td>BOD</td>
<td>mg/litre</td>
<td>≤ 5</td>
</tr>
<tr>
<td>Non-ionized Ammonia</td>
<td>mg/litre</td>
<td>≤ 0.02</td>
</tr>
</tbody>
</table>

Guidelines set out in the EUROPEAN COMMUNITIES (QUALITY OF SALMONID WATERS) REGULATIONS, 1988, for the standards to be achieved in salmonid waters.

As there is no standard for phosphorus in these regulations, guidelines for this parameter were taken from the EPA’s report on Water Quality in Ireland 2001 - 2003 (Toner et al., 2005). This recommends the following:

<table>
<thead>
<tr>
<th>Ortho-P level</th>
<th>Q-Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>~0.015 mg/l</td>
<td>Q5</td>
</tr>
<tr>
<td>~0.03 mg/l</td>
<td>Q4</td>
</tr>
<tr>
<td>~0.045 mg/l</td>
<td>Q3-4</td>
</tr>
<tr>
<td>0.07 mg/l</td>
<td>Q3</td>
</tr>
<tr>
<td>&gt;0.1</td>
<td>Q2</td>
</tr>
<tr>
<td>&gt;0.1</td>
<td>Q1</td>
</tr>
</tbody>
</table>

Page 25 of 25
The requirements of Urban Wastewater Treatment Directive 91/271/EEC for treatment plants serving a population equivalent of more than 2000 are:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units of Measurement</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>% sat &amp; mg/litre</td>
<td>25</td>
</tr>
<tr>
<td>COD</td>
<td>mg/litre</td>
<td>125</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>mg/litre</td>
<td>35</td>
</tr>
<tr>
<td>Total Phosphorus*</td>
<td>mg/litre</td>
<td>2</td>
</tr>
<tr>
<td>Total Nitrogen*</td>
<td>mg/litre</td>
<td>15</td>
</tr>
</tbody>
</table>

* These limits are recommended for plants with a p.e. greater than 10,000 and discharging to sensitive areas
SITE NAME: GLEN LOUGH SPA

SITE CODE: 004045

Glen Lough is situated about 5 km north-west of Lough Iron, to which it is connected by the Black River. Extensive drainage in the 1960s has resulted in a dramatic drop in the watertable here, with the result that there is now little open water, except during flooding in the winter months. Sedge-dominated freshwater marsh now occupies the majority of what was once open water. Plant species present include Bottle Sedge (Carex rostrata), Water Horsetail (Equisetum fluviatile) and Canary Reed-grass (Phalaris arundinacea). Other habitats present include reedswamp, wet and dry grassland, cutaway bog colonised by heath vegetation, scrub and wet willow (Salix spp.) woodland.

An internationally important Whooper Swan population uses the site at times. This flock (average peak of 272 individuals for the 5 seasons 1995/96-1999/00) also uses Lough Iron and a range of grassland feeding areas in the vicinity. At times, the site is visited by part of the internationally important Midland lakes Greenland Whitefronted Goose population, although numbers are low (17). Dabbling ducks are well represented, but in relatively low numbers, and include such species as Wigeon (85), Teal (75), Mallard (46), Pintail (7) and Shoveler (23). Lapwing (189) are also found in the area.

Glen Lough is surrounded by intensively farmed agricultural land and undoubtedly receives nutrient run-off. The effect of this on the vegetation and indirectly the birds is not known. Planting of forestry around part of the margin of the site has occurred. Any further planting would be of concern as this could destroy feeding areas used by the swans, geese and herbivorous wildfowl.

Whilst this site attracts a range of wintering waterfowl, the principal interest is the internationally important Whooper Swan population that is based in the area. Whooper Swan is of particular note as it is listed on Annex I of the E.U. Birds Directive. Greenland White-fronted Goose, nowadays an occasional visitor to the site, is also listed on Annex I of this Directive. The site provides useful habitat for Shovler, which in Ireland is a fairly localised species.
SITE NAME: GLEN LOUGH pNHA

SITE CODE: 001687

Glen Lough is situated about five kilometres north-west of Lough Iron and the Black River connects these two lakes. Extensive drainage in the 1960's has resulted in the dramatic drop in water table here, with the result that there is little open water, except during flooding in the winter months. Sedge dominated freshwater marsh now occupies the majority of what was once open water.

Species encountered include Bottle Sedge (Carex rostrata), Horsetail (Equisetum fluviatile) Water Mint (Mentha aquatica), Canary Reed Grass (Phalaris arundinacea), and occasional tussocks of Tufted Sedge (Carex elata). Unlike most of the other lakes in the Midlands it does not have a significant diving duck population.

Instead, it holds large numbers of dabbling ducks, with Mallard, Wigeon and Teal having been recorded here. Internationally significant numbers of Whooper Swan (236) have been noted here but Greenland White-fronted Geese are now irregular. In fact the area where they were last seen has recently been planted with conifers and it seems unlikely that they will return here. Other habitats of note encountered at Glen Lough include reedswamp, wet and dry grassland vegetation, cutaway bog colonised by heath vegetation, scrub, wet willow woodland, exposed rock and fen.

Although many of the Midland lakes have undergone extensive drainage this lake is a typical in that the water table has considerably dropped and the lake has ceased to exist, except during flooding in the winter months. This situation has worsened further with the dredging of the exit stream about three years ago by OPW, so that flooding at the site is now rare and short-lived. Coincidentally whooper swans have ceased regularly feeding at the site and dabbling duck usage is no longer significant.
APPENDIX III REFERENCES & FURTHER READING


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