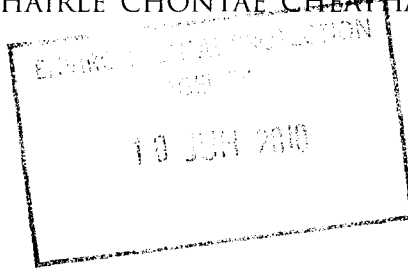




# CARLOW COUNTY COUNCIL

COMHAIRLE CHONTAE CHEATHARLOCHA



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**Our Ref: JC/MC**

**9<sup>th</sup> June 2010**

Ms Ewa Babiarczyk, Inspector  
Office of Climate, Licensing and Resource Use  
Environmental Protection Agency  
Headquarters, PO Box 3000  
Johnstown Castle Estate  
County Wexford

**RE : Waste Water Discharge Licence Application in respect of the Agglomeration  
Named Borris Your Reference : D0248-01**

Dear Ms Babiarczyk

I refer to the above and to your correspondence on 29<sup>th</sup> Septemeber 2009 seeking Further Information in relation to the application for a Discharge Licence for Borris Wastewater Works.

Enclosed are the responses to the issues raised.

Should you have any query regarding the above please do not hesitate to contact me on 059 9136263.

Yours sincerely

**Jerry Crowley**  
**Senior Executive Engineer**  
**Water Services**

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**1. Population Equivalent**

The current loading to the Borris WWTP is 1,100 pe.

**2. Storm Water Overflows**

There is one Storm Overflow Outfall, SW2, in the Agglomeration shown in Location Drawing B5 at co-ordinates **E273,192 N149,923**.

Please note that the Storm Water Overflow is through the same location as the Primary Discharge Point.

**3. Location of WWTP**

We attach revised drawing B2-02. The Plant Location Co-Ordinates are :

**E273210 N149969**

**4. Nutrient Removal and Inlet Upgrade**

Carlow County Council have currently no plans in place to install nutrient removal and to upgrade Inlet Works at Borris WWTP as there is currently no funding available for these works.

**5. Drinking Water Abstraction Point**

There are no drinking water abstraction points downstream of the primary discharge point for the Borris Agglomeration either on the Mountain River or on the River Barrow.

**6. Compliance with European Communities Environmental Objectives Regs 2009 (S.I. No. 272 of 2009)**

Carlow County Council operates a WWTP for the Borris Agglomeration with a specification of :

BOD,       25mg/l  
SS,         35mg/l

**Borris Waste Water Works (Ref : D0248-01)  
Carlow County Council**

**Further Information**

1

Carlow County Council have carried out an Appropriate Assessment for the Borris Waste Water Works to determine the impact of the Agglomeration on the Nore Barrow SAC, Site No 002162.

The Assessment has indicated no adverse impact on the SAC.

Carlow County Council as part of Urban Waste Water Regulations Monitoring sample the Inlet, Outlet, Upstream and Downstream at the WWTP.

The EPA Kilkenny Regional Laboratory carries out chemical sampling at two locations on the Mountain River, one downstream of the Borris Water Treatment Plant and abstraction point, the other upstream of the confluence of the Mountain River with the River Barrow and the results are published each year in the River Water Quality in Co Carlow Report.

Carlow County Council have also carried out Dangerous Substances Monitoring on the Outlet, Upstream and Downstream points associated with the Borris WWTP.

The Borris WWTP is fitted with callout alarms on key items of plant so that the caretaker is immediately notified of a problem.

The caretaker is at the WWTP each day.

The caretaker attends to the site each day of the year and there is arrangements in place to provide a trained stand in caretaker when the regular caretaker is on holidays.

We attach a copy of the Appropriate Assessment for the Borris Waste Water Works.



**Appropriate Assessment of Biological Impacts of  
Borris WWTP  
on Special Area of Conservation 002162**

**June 2010**

**Prepared by:**

**Pascal Sweeney M.Sc., MIEEM,**

**Consultant Ecologist,**

**Sweeney Consultancy,**

**Rahan,**

**Mallow**

**Co. Cork.**

**Tel. 022/26780**

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## 1. INTRODUCTION

The present report by Pascal Sweeney, Consultant Ecologist, was commissioned by Carlow County Council. The discharge from Borris Waste Water Treatment Plant enters the Mountain River within Special Area of Conservation 002162 (River Barrow and River Nore SAC). Under Article 6(3) of the EU Habitats Directive, there is a requirement for an Appropriate Assessment of the implications for the designated site of a discharge such as this, in view of the site's conservation objectives.

The objective of this report is to establish the implications of the existing discharge on the Qualifying Interests (the protected habitats and species listed in Annex I and Annex II of the EU Habitats Directive) for which SAC 002162 is designated.

An intensive assessment of the biological water quality and status of the protected freshwater pearl mussel population in the Mountain River was carried out in 2009 for the Freshwater Pearl Mussel Mountain River Sub-Basin Management Plan, a North-South Share 2 project, funded by the Department of Environment, Heritage and Local Government. The findings of this plan, soon to be available on [www.wfdireland.ie](http://www.wfdireland.ie), are known. In addition, the biological water quality of the Mountain River was assessed by EPA in 2009. Therefore, further field investigations were deemed unnecessary. This Appropriate Assessment report is a desktop study.

The scope of this assessment is:

- Review of Q-values.
- Review of Carlow Co. Co. chemical data.
- Likely occurrence of protected aquatic species at and downstream of the proposed discharge point, based on habitat suitability and available records.
- Likely impacts of the discharge on protected aquatic species and habitats.
- Cumulative effects on the qualifying interests of the Natura 2000 site.
- Measures to mitigate negative impacts on the protected species and habitats.

## **2. METHODOLOGY**

Because the Borris WWTP is already in existence, the current impact on the biota of the receiving environment can be directly assessed. Water quality assessment is based on Q-values and chemical data. Available records of species listed in Annex II of the EU Habitats Directive were checked.

## **3. RESULTS**

### **3.1 Q-values**

2009 Q-values are presented in Appendix 1. The Borris WWTP outfall is on the Mountain River, downstream of the town of Borris. Upstream of the outfall, the nearest EPA site on the Mountain River that was monitored in 2009 was Site 0070 (c. 1.7km upstream). Q4 was assigned to this site in summer 2009. For the Freshwater Pearl Mussel Mountain River Sub-Basin Management Plan, Q4 was assigned a site immediately upstream of the WWTP discharge. The next downstream EPA site is Site 0200, just upstream of the confluence with the River Barrow. On the River Barrow itself, Q4 was recorded by EPA at the closest sites upstream and downstream of the confluence of the Mountain River (Sites 3300 and 3500, respectively).

The most recent Q-value results therefore do not show the discharge from Borris WWTP to be having any impact on biological water quality. A Q-value of Q4 meets the standard specified in the Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations, 1998.

### **3.1 Chemical Data**

Carlow County Council chemical data are presented in Appendix 2A. EPA chemical data are presented in Appendix 2B.

Orthophosphate, the main plant nutrient that can affect plant growth in rivers was measured both upstream and downstream of the outfall on nine dates in 2008. On all nine occasions, the downstream orthophosphate level was either the same, or lower, than the upstream level.

### **3.3 Protected Habitats and Species.**

In this section, the impact of Borris WWTP discharge on each of the habitats and species for which the SAC is designated, is estimated. While the zone of potentially highest impact is taken to be from the discharge point to 1km downstream, the entire downstream freshwater section of the river was considered when assessing the presence of protected habitats and species and the potential effects of the discharge on these.

The Site Synopsis for the River Barrow and River Nore SAC states:

*“The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, Salicornia mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter, Vertigo moulinsiana and the plant Killarney Fern.”*

Several of the species and habitats listed above are terrestrial and could not be affected by the Borris WWTP discharge. Some are estuarine, in which cases the distance from the outfall to the saline waters must be taken into account when assessing the likelihood of any impacts.

#### **3.2a Protected Habitats.**

##### **Floating River Vegetation.**

Of the Annex I habitats listed above, only floating river vegetation would occur within 1 km downstream of the discharge and is therefore considered to be the only Annex I habitat that could potentially be affected to any significant degree. The levels of plant nutrients recorded downstream of the outfall would not negatively impact on this habitat type.

##### **Old Oak Woodlands, Dry Heath and Eutrophic Tall Herbs.**

Terrestrial habitats, unaffected by discharges to rivers.

## **Estuary, Tidal Mudflats, Salicornia Mudflats, Atlantic Salt Meadows, Mediterranean Salt Meadows.**

Saline habitats which potentially could be affected by substantially increased nutrient concentrations in the freshwater sections of rivers. However, given the distance from the outfall to saline waters (c. 28km), no impacts are considered likely.

### **3.2b Protected Species.**

#### **Freshwater Pearl Mussel (*Margaritifera margaritifera*).**

A baseline monitoring on the Mountain River pearl mussel population was undertaken in 2006 (Ross, 2006). In April 2009, a survey of the mussel population was undertaken for the Freshwater Pearl Mussel Mountain River Sub-Basin Management Plan. In the 2009 survey, the downstream end of the mussel beds recorded is at Grid Ref. 273241 149917, a short distance upstream of the WWTP outfall.

Results of the 2009 survey show the Mountain River population upstream of the outfall to be in very poor status, in rapid decline and in danger of imminent extinction. In the sections of river surveyed in 2006 that were also surveyed in 2009, a 61% decline in numbers was recorded. While Moorkens (1995, 1996), had found considerable juvenile recruitment in the best beds, no mussels under 65mm were found in the 2009 survey, indicating that recruitment has not taken place for several years. The cause of this decline appears to be siltation. Exceptionally high sediment loads were found in the river, and recent losses of adults had occurred downstream of an area of substantial bank and instream works with direct connectivity to the mussel population.

The freshwater pearl mussel is apparently now extinct in the main channel of the River Barrow (Lucey, 1998). A single live specimen of freshwater pearl mussel was last found in the River Barrow in 1991 at Grid Ref. 2734 1477, downstream of the confluence of the Mountain River, which at the time had a much healthier population and from which this specimen was probably washed into the River Barrow (E. Moorkens, *pers. comm.*).

As the outfall of Borris WWTP is downstream of the mussel beds in the Mountain River it will not affect the freshwater pearl mussel population.

#### **Nore Freshwater Pearl Mussel (*Margaritifera margaritifera durrovensis*).**

Within SAC 002162, the Nore freshwater pearl mussel is a sub-species which occurs only in a 10km stretch of the main channel of the River Nore and is not in any part of the River Barrow.

**Twaite Shad** (*Alosa fallax*).

Twaite shad is an anadromous fish which enters large estuaries in late April or May to spawn in gravels near the end of the freshwater reaches (Whelan, 1989). Doherty *et al.* (2004) state that in Ireland the only known spawning population of twaite shad occurs in the upper tidal limit of the River Barrow, below the weir at Saint Mullin's, with considerable variation in spawning activity depending upon water temperature, tidal strength and river flow. Threats to Irish shad populations include deterioration of water quality and habitat degradation.

As no decline in biological water quality was found, and given the distance from Borris WWTP to the upstream end of the known distribution range of this species (c. 15km), no impacts are considered likely.

**Moulins' Whorl Snail** (*Vertigo moulinsiana*)

*Vertigo moulinsiana* is found in calcareous wetlands, usually adjacent to lowland rivers and lakes (Kerney, 1999). However, as it is not an aquatic species, it is not susceptible to changes in quality of river water.

**Killarney Fern** (*Trichomanes speciosum*)

Killarney fern is a terrestrial species, found on very sheltered, damp rock faces (Stace, 1991) and could not be affected by the river water quality.

**Sea Lamprey** (*Petromyzon marinus*).

King (2006) recorded sea lampreys at low densities in only four tributaries of the River Barrow. None were recorded at any of the eight sites electrofished on the Mountain River. As no decline in biological water quality was found, no impacts are considered likely, if this species is present.

**Brook Lamprey** (*Lamprera planeri*) and **River Lamprey** (*Lamprera fluviatilis*).

King (2006) recorded brook and river lampreys at seven of the eight sites electrofished on the Mountain River. A significant drop in water quality could negatively affect any lamprey present. However, as no decline in biological water quality was found, it is considered that the discharge is currently having no impacts on these lamprey species.

**White-Clawed Crayfish (*Austropotamobius pallipes*).**

Crayfish are fairly well distributed in the River Barrow catchment (Demers *et al.*, 2005). However, none were found in the invertebrate kick samples taken at six main channel sites on the Mountain River as part of the survey undertaken for the Freshwater Pearl Mussel Mountain River Sub-Basin Management Plan. The EPA alkalinity results (Appendix 2B) indicate that the calcium content of the river water is probably too low for this species. If this is the case, the nearest crayfish to the outfall are in the main channel of the River Barrow. A significant drop in water quality could negatively affect crayfish (Although Demers *et al.* (2005) reported that over one third of the sites where crayfish were found were Q3-4 or less). However, as no decline in biological water quality was found, it is considered that the discharge is currently having no impacts on crayfish.

**Atlantic Salmon (*Salmo salar*).**

The presence of a freshwater pearl mussel population in the Mountain River indicates suitable habitat for salmonids, on which the mussels depend during the reproductive phase. The River Barrow and its tributaries is not a Salmonid Water designated under the European Communities (Quality of Salmonid Waters) Regulations of 1988 (S.I. No. 293 of 1988). The chemical data presented in Appendix 3 are within the standards specified for compliance with these regulations in Salmonid Waters, both upstream and downstream of the outfall for the following parameters for which data are available: Temperature, Dissolved Oxygen, pH, Nitrite, Non-ionised Ammonia, Total Ammonium, Zinc and Copper. The BOD<sub>5</sub> standard specified in these regulations is less than 5mg/l O<sub>2</sub>. The Carlow County Council 2008 data for the site downstream of the outfall show this level to have been exceeded once (7mg/l O<sub>2</sub> on 14/04/08). The egg and juvenile stages of the salmon life cycle are very vulnerable to deteriorations in water quality (Hendry and Cragg-Hine, 2003). A significant drop in water quality would also negatively affect adult salmon. However, as no decline in biological water quality was found, it is considered that the discharge is currently having no significant impacts on salmon.

**Otter (*Lutra lutra*).**

Within the South Eastern River Basin District, which includes the Mountain River, Baily and Rochford (2006) recorded positive results at nearly 73% of the sites surveyed, indicating a widespread distribution of the species. If water quality dropped to the extent that the abundance of prey species were significantly affected, otters could be negatively impacted. However, as the discharge would not appear to be negatively impacting on prey species, it is considered that the discharge is currently having no impacts on otters.

## 4. CONCLUSIONS

### 4.1 Conservation Objectives.

Summarising the main threats to the designated site, the Site Synopsis for The River Barrow and River Nore SAC states:

“The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.”

The relevant conservation objective pertaining to the discharge to Borris WWTP must therefore be the proper treatment of the effluent before discharge to the river. The fact that the EPA Q-value results show no biological impact of the discharge indicates that this conservation objective is currently being achieved.

### 4.2 Cumulative Impacts.

Point sources, diffuse runoff and inputs from tributaries of unsatisfactory water quality are affecting the biological water quality of the River Barrow along the course of the river. This can be seen in the 2009 EPA Q-ratings (Appendix 1). In that sampling season, the water quality was seen to mostly fluctuate between Q3-4 and Q4 along most of the course of the river, with Q4-5 and Q3 recorded at one site each in the upper parts of the river. At the seven sites surveyed downstream of Carlow Town (i.e. from Site 2455 downstream), Q3-4 was recorded at three and Q4 was recorded at four, including the two lowermost sites surveyed on the River Barrow, between which is the confluence of the Mountain River. Unsatisfactory water quality (less than Q4) has never been recorded by EPA in the Mountain River.

The following facility in the catchment of the lower section of the River Barrow has a waste licence: Powerstown Landfill Site, Licence Code W0025-02. The licence specifies that there are to be no direct emissions to groundwater and that no raw leachate, treated leachate or contaminated surface water shall

be discharged to the Powerstown Stream. All leachate is transported to Mortarstown Waste Water Treatment Plant for disposal.

Also in the catchment of this section of river, the following have IPPC licences:

Braun Oral B, Code P0287-01. The licence specifies emission limits to the Carlow UDC sewer and also specifies measures for the protection of groundwater and surface water.

Peerless Rugs Europe Ltd., Code P0261-01. The licence specifies conditions and limits for emission to sewer. The licence also specifies the monitoring requirements for surface water discharges of non-process water and actions to be taken if contamination is detected.

Clogrennane Lime Ltd., Code P0400-02. This facility has no emissions to water of environmental significance.

Richard Keenan & Co. Ltd., Code P0555-01. The licence specifies measures for the protection of groundwater and surface water.

Green Biofuels Ireland Ltd., Code P0829-01. The licence specifies emission limits to sewer and also specifies that there are to be no emissions to water of environmental significance.

Provided that the facilities listed above comply with the terms of their licences, they will have no cumulative impact on biological water quality and on the conservation objectives of Special Area of Conservation 002162.

As the EPA Q-value results show that the Borris WWTP discharge is not having an effect on biological water quality at the next site downstream of the outfall, it is considered that it would not significantly add to the cumulative impact on the Natura 2000 site and its conservation objectives.

#### **4.3 Mitigation Measures.**

Details of mitigation measures within Borris WWTP, provided by Carlow County Council, are presented in Appendix 4. In any future changes made to Borris WWTP in terms of capacity or design that could impact on the effluent quality, it must be ensured that mitigation measures are adequate to avoid inputs to the river that would negatively impact on the conservation objectives of the SAC.

When the relevant catchment management plan is published, it will have to be ensured that all discharges will be compatible with the plan.

## 5. NON TECHNICAL SUMMARY

- A desktop assessment was carried out in order to assess the current effect, if any, of the discharge from Borris Waste Water Treatment Plant (WWTP) on the Mountain River and the implications of any such effects for protected habitats and species within the Special Area of Conservation (SAC).
- Biological water quality assessment results show unpolluted conditions at all sites on the Mountain River, indicating that the effluent from Borris WWTP is currently having no significant impact on the biological water quality of the river.
- Six species and one habitat which are listed for protection under the EU Habitats Directive were identified as being present, or likely to be present at or downstream of the Borris WWTP outfall.
- The fact that the discharge is not resulting in any difference in the biological water quality upstream and downstream of the discharge point, indicates that there is no significant negative effects of the effluent on the protected habitats and species within the SAC.
- In any future changes are made to Borris WWTP that could impact on the effluent quality, it must be ensured that mitigation measures are adequate to avoid inputs of nutrients to the river that would negatively impact on the conservation objectives of the SAC.

# APPENDIX 1 BIOLOGICAL WATER QUALITY

## Mountain River (14M01) EPA Q-values 1980 – 2009

River and Code: **MOUNTAIN (CARLOW)**

**14M01**

Tributary Of: 14B01 BARROW

OS Catchment No: 183

OS Grid Ref of confluence: S 733 499

Station Nos.	<i>Biological Quality Ratings (Q Values)</i>								
	1980	1984	1989	1993	1997	2000	2003	2006	2009
0020	-	-	4	4	4	4	5	4	4
0040	-	-	4	4	-	-	-	-	-
0050	-	4-5	4-5	4-5	4-5	4	4-5	-	-
0070	-	-	4-5	4-5	5	4	5	4	4
0100	5	4-5	4-5	4-5	-	-	-	-	-
0200	5	4	3-4	4	4-5	4	-	-	4

<i>Station No.</i>	<i>Station Location</i>	<i>National X</i>	<i>Grid Ref. Y</i>	<i>Discovery Series No.</i>	<i>County Code</i>
0020	Br u/s Killedmond Br	279559	152135	68	CW
0040	Just u/s Aughnabrisky R confl	0	0	68	CW
0050	Br W of Killedmond	276930	151603	68	CW
0070	Brook Lodge	274424	151004	68	CW
0100	Ballycoppigan Br	273437	149877	68	WD
0200	Just u/s Barrow R confl	272971	149455	68	CW

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## Freshwater Pearl Mussel Mountain River Sub-Basin Management Plan Q values 2009

Site	1	2	3	4	5	6	7	8
Location	Mountain d/s pearl mussel beds	Dinin R. Kilcloney	Dinin R. Corries Br.	Augh-nabrisky R. u/s confluence	Mountain u/s Augh-nabrisky	Mountain Rosdellig	Mountain d/s Glasheroge Stream	Mountain u/s Glasheroge Stream
Easting	273241	273145	274964	278270	278346	276926	274403	274417
Northing	149917	152357	155819	150986	150985	151574	151005	150997
	<b>Q4</b>	<b>Q3-4</b>	<b>Q3-4</b>	<b>Q4</b>	<b>Q4</b>	<b>Q4</b>	<b>Q4</b>	<b>Q4-5</b>

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## River Barrow (14B01) EPA Q-values 1971 - 2009

River and Code: **BARROW**  
 Tributary Of: 14B01 BARROW  
 OS Grid Ref of confluence: S 722 388

**14B01**  
 OS Catchment No: 183

### Biological Quality Ratings (Q Values)

Station.	1971	1973	1974	1975	1976	1978	1979	1980	1982	1986	1989	1991	1994	1997	2000	2003	2005	2006	2008	2009
0050	-	-	-	-	-	-	-	5	5	5	5	-	5	4-5	4-5	4-5	-	4	-	4
0100	-	-	-	-	-	-	-	3-4	4-5	4	3	-	3-4	4	4	3-4	-	3	-	4-5
0200	4	-	4	-	-	-	-	4	4	4	3-4	-	3-4	4	4	3-4	-	4	-	4
0300	4-5	-	3-4	-	-	-	-	5	-	4	4	-	4	3-4	4	4	-	4	-	3-4
0400	5	-	3-4	-	3-4	4	-	5	-	4	4	-	-	-	-	-	-	-	-	-
0500	3-4	-	3-4	-	3	3-4	-	4	-	4	4	-	3-4	3-4	3-4	3-4	-	3-4	-	3-4
0550	-	-	-	-	-	-	-	-	-	-	3-4	-	-	-	-	-	-	-	-	-
0600	4	-	3-4	-	4	3-4	-	4	-	4	4	-	4	4	3-4	3-4	-	3-4	-	-
0700	4	-	4	-	-	4	-	4	4	4-5	4-5	-	4	4	4	4	-	3-4	-	3-4
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0780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
0800	4	-	-	-	-	2-3	-	3-4	-	4	4	-	4	-	-	-	-	-	-	-
0850	-	-	-	-	-	-	-	-	-	-	-	-	-	3-4	-	-	-	-	-	-
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1500	-	-	-	-	-	-	-	4	4	4	4	-	4	3-4	3-4	4	-	3-4	-	3-4
1590	-	-	-	-	-	-	-	-	-	-	-	-	-	3-4	3-4	3-4	-	-	-	-
1600	1-2	-	3	-	1-2	1-2	-	3	3-4	4	3-4	-	3-4	-	-	-	-	-	-	-
1800	1	-	1-2	-	1-2	1-2	-	4	4	4	4	-	3-4	-	-	-	-	-	-	-
1900	1	-	2	-	2-3	2	-	4	4	4	4	-	4	3-4	4	4	-	4	-	n/s
2000	1-2	-	2	-	-	2	-	3	3-4	3-4	3	-	4	3-4	4	4	-	-	-	-
2150	-	-	-	-	-	-	-	-	-	3-4	4	4	-	4	-	-	-	-	-	-
2200	3-4	-	2-3	-	-	3	-	-	-	-	-	-	-	-	3	4	-	3-4	-	3-4
2400	2	-	2	-	2	2	-	2	1	-	-	-	-	-	-	-	-	-	-	-
2450	-	-	-	-	-	-	-	3	3-4	4	-	3	3	3	3	-	-	-	-	-
2455	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	3-4
2500	2	3	-	-	2	-	-	3	3	3-4	3-4	-	-	-	-	-	-	-	-	-
2600	3	-	3	-	3-4	2	-	3-4	3	3	3-4	-	3-4	3	3	3-4	-	4	-	3-4
2680	-	-	-	-	-	-	-	-	-	-	-	-	-	3-4	3-4	4	-	4	-	4
2700	4	-	-	4	4	4	-	3	3-4	3-4	3	-	3	-	-	-	-	-	-	-
2750	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	-	-	-	-
2800	4	-	-	4	-	-	3-4	3	3-4	3-4	3	-	3	-	-	-	-	-	-	-
2900	4	-	-	4	-	-	3-4	3	2-3	2-3	2-3	-	3	3-4	3-4	4	-	4	-	4
2910	4	-	-	4	-	-	3-4	-	-	3-4	3-4	-	4	4	3-4	3-4	-	4	-	-
3000	-	-	-	-	-	-	-	4	4	3-4	3-4	-	3-4	3-4	4	3-4	-	4	-	-
3100	4-5	-	-	4	-	-	4	4	4	4	3	-	3-4	-	-	3-4	-	3-4	-	3-4
3300	4-5	-	-	4-5	-	-	3-4	4	4-5	4	4	-	4	-	-	3-4	-	4	-	4
3500	4	-	-	3-4	-	-	4	4	4	4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	4	4
3600	4	-	-	-	-	-	4	-	4	4	-	-	-	-	-	-	-	-	-	-

<b>Station</b>	<b>Station Location</b>	<b>National X</b>	<b>Grid Ref. Y</b>	<b>Discovery Series No.</b>	<b>County Code</b>
0050	Tinnahinch Br	235155	210490	54	LA
0100	Ford S of Rearyvalley	236128	213025	54	LA
0200	Ballyclare Br	238591	214722	54	LA
0300	Twomile Br	242280	211786	54	LA
0400	Bay Br	0	0	54	LA
0500	Borness Br	246396	209279	54	LA
0550	Br SE of Hammerlane	0	0	54	OF
0600	Portnahinch Br	249067	210029	54	OF
0700	Kilnahown Br	251371	210753	54	LA
0760	Barrow Br	253997	212626	55	LA
0780	Portarlinton: Spa Br	254267	212860	55	LA
0800	1km d/s Portarlinton	0	0	55	LA
0850	D/s Portarlinton STW (RHS)	256216	212270	55	LA
0900	Ford S of Trasca	258196	212310	55	LA
1000	Pass Br	262277	210933	55	KE
1200	1km d/s Monasterevan Br	0	0	55	KE
1300	Ford E of Fisherstown House	263295	205798	55	LA
1400	Dunrally Br	263649	201794	55	LA
1500	Bert Br	265925	196929	55	KE
1590	u/s Athy at Boat Club	268061	194455	55	KE
1600	Athy Br	0	0	55	KE
1800	Ardreigh Lock	0	0	55	LA
1900	Tankardstown Br	270366	188203	61	LA
2000	Maganey Br	271712	184733	61	LA
2150	Weir near Knockbeg College	0	0	61	LA
2200	New Br 1km u/s Carlow Br	272007	177797	61	LA
2400	1.5km d/s Graigue Br	0	0	61	LA
2450	At Dolmen Hotel	270638	174158	61	LA
2455	Br at Dolmen Hotel	270591	174098	61	LA
2500	d/s Clogrennan Lock	0	0	61	LA
2600	Milford Br	269917	170497	61	CW
2680	Cardinal Moran Br	269482	166332	61	CW
2700	Leighlinbridge	269067	165467	61	CW
2750	At Island nr Killinane Ho	269534	163800	61	CW
2800	u/s Bagenalstown	270355	163054	61	CW
2900	Royal Oak Br (LHS)	268937	161444	61	CW
2910	Royal Oak Br (RHS)	268937	161444	61	CW
3000	Fenniscourt Lock	269757	159377	68	CW
3100	Goresbridge (100m u/s on LHS)	268437	153717	68	KK
3300	Ballyteigelea Br	271000	150410	68	KK
3500	Graiguenamanagh Br	270973	143540	68	KK
3600	St Mullins	0	0	68	KK

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**APPENDIX 2  
CHEMICAL DATA  
APPENDIX 2A. Carlow Co. Co. ROUTINE MONITORING 2008**

	<u>SampleDate</u>	<b>BOD mg/l O2</b>	<b>COD mg/l O2</b>	<b>Suspended Solids mg/l</b>	<b>Ortho-phosphate mg/l P</b>	<b>Total Nitrogen mg/l N</b>	<b>Ammonium mg/l N</b>
Upstream	02/05/2008	5	12	1	0.013	4	0.029
	26/05/2008	<3	<8	1	<0.009	2	<0.007
	04/04/2008	5	56	1	0.009	2	0.26
	11/04/2008	<3	<8	<1	<0.009	4	0.014
Downstream	02/05/2008	4	19	1	<0.009	4	0.23
	26/05/2008	4	<8	1	<0.009	2	0.051
	04/04/2008	7	24	<1	0.009	5	0.33
	11/04/2008	<3	<8	<1	<0.009	2	0.031

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## APPENDIX 2B- EPA MONITORING 2008

	<b>SampleDate</b>	<b>BOD mg/l O2</b>	<b>Ortho-phosphate mg/l P</b>	<b>Chloride mg/l</b>	<b>Nitrate mg/l N</b>	<b>Ammonium mg/l N</b>	<b>Non-ionised Ammonia mg/l NH3</b>	<b>Nitrite mg/l N</b>	<b>Dissolved Oxygen % O2</b>	<b>Conductivity @ 25°C uS/cm</b>	<b>Temperature °C</b>	<b>pH</b>	<b>Alkalinity mg/l CaCo3</b>	<b>Zinc ug/l</b>	<b>Copper ug/l</b>
<b>Upstream</b>	22/01/2008	0.9	0.22	13	2.6	<0.003	0.0000	<0.001	95	132	7.6	7.8	33		
	06/03/2008	0.3	<0.006	12	2.3	0.005	0.0001	0.001	100	127	7.7	8.1	26	<30	<5
	08/05/2008	0.8	0.007	12	2.3	0.007	0.0003	0.003	98	132	14.0	8.1	28		
	07/08/2008	2.1	0.012	11	1.6	0.022	0.0005	<0.001	93	119	14.5	7.9	31		
	28/10/2008	1.3	0.008	12	2.1	0.018	0.0002	0.001	92	128	6.3	7.8	38		
<b>Downstream</b>	22/01/2008														
	06/03/2008	0.7	<0.006	15	3.5	0.022	0.0003	0.004	101	224	8.0	7.9	63		

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## APPENDIX 3

### REFERENCES

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Moorkens, E.A. (1995). Mapping of proposed SAC rivers for *Margaritifera margaritifera*. A report for the National Parks and Wildlife Service on work carried out from August to October 1995. Volume 2. Internal NPWS Report.

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## APPENDIX 4

### Borris WWTP – Mitigation Measures

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# CARLOW COUNTY COUNCIL

## BORRIS WASTE WATER WORKS

### WASTEWATER DISCHARGE LICENCE APPLICATION

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## Appendix 4

# Mitigation Measures for Appropriate Assessment for Borris Agglomeration

## **Borris and the Catchment Area**

Borris is located 32kms south of Carlow Town on the Mountain River. The Regional Road R702 runs through the town. The catchment area consists of the town of Borris. No areas outside of Borris are pumped or transferred to this WWTP.

The present loading from the catchment to the WWTP is estimated to be 1100pe.

## **Borris Waste Water Treatment Plant**

The original WWTP had a capacity of 250pe. The WWTP had become severely overloaded by the 1990s and in 1999 a new WWTP was constructed on the site of the original plant.

The existing works had consisted of an inlet screen, an Imhoff Tank, two percolating filter beds with rotating arms, a Humus Tank and a final effluent measuring device.

The new WWTP utilised the existing manual screens and converted the Imhoff Tank to a grit trap/ primary settlement tank.

A new 150mmPVC pipe was then laid at an elevated level to transfer the incoming effluent to the two new tanks.

Two new circular tanks were constructed to act in sequence. Extended aeration is achieved using the two batch reactors which undergo aeration and clarification in sequence. Aeration is by diffused air.

The existing humus tank is now used as a primary settlement tank.

The works consist of the following:

- Inlet works with manual screening.

- Imhoff Tank acting as a primary settlement tank.
- Two batch reactors which undergo aeration and clarification in sequence.
- Sludge Holding Tank.
- Waste Water Tank to hold waste water from change over sequence. This waste water is periodically returned to inlet pipe.
- Control building.
- Access road.
- Shower, toilet, hand basin and store room.

### **Sources of Emissions from the Waste Water Works**

The effluent being transferred to the WWTP is a typical municipal sewage with no industrial or agricultural type discharges such as food processing.

The treated effluent entering the Mountain River is consistent with the type of effluent associated with an activated sludge type process. There are no loadings coming to the WWTP that would be radically different from typical municipal sewage.

The potential loadings to the receiving waters are BOD, COD, Suspended Solids, Phosphorus, Nitrates and Ammonia.

The specification for the WWTP is the following parameters outlined in the Urban Waste Water Regulations 2001:

BOD,	25mg/l
SS,	35mg/l

The effects on the receiving waters of the treated effluent are greatly reduced by the treatment process at the WWTP.

There is currently no stormwater overflow tanks at the works. When flows to the works exceed 1,000m<sup>3</sup> a day the excess overflows at the inlet screen and discharges through a 300mm dia pipe to the Mountain River.

There is also no nutrient removal at the WWTP.

### **Receiving Waters**

The treated effluent from the Borris Wastewater Works discharges via a 225mm diameter pipe into the Mountain River which flows along the southern boundary of the WWTP.

The Mountain River originates on the western slopes of Mount Leinster and flows in a mainly south westerly direction through the town of Borris and into the River Barrow. The underlying geology throughout the catchment is of granite and other intrusive rocks rich in silica. There are no lakes on the river.

The main land use is agriculture, pasture (47%), miscellaneous farming (28%) and conifer plantations in the upper reaches. Borris is the only significant settlement on the river.

The Mountain River is a candidate Special Area of Conservation due to the presence in the river of Freshwater Pearl Mussels, *Margaritifera Margaritifera*. There has been a population of Freshwater Mussels recorded in the Mountain River dating back to 1925 (Jackson). In 1991 Moorkens recorded Pearl Mussels as very common around Killedmond upstream of Borris. However recent studies have noted that the Pearl Mussel population has almost been decimated in certain stretches of the Mountain River particularly downstream of Borris.

The South East River Basin District Management Plan, Mountain River Sub-Basin Plan concentrates on the issue of the survival and enhancement of the Pearl Mussel population in the Mountain River.

## **Operation of the Works**

The Borris Waste Water Plant is operated by the following staff:

- 1 No Caretaker

The caretaker reports to the Area Engineer for the Southern Area. The Area Engineer is the Budget Holder for the plant and arranges all works pertaining to the plant.

The caretaker is also responsible for the sewer network in the Waste Water Works. The Area Engineer supplements the caretaker with additional resources as required.

All sampling is done by the County Council Technician responsible for testing and sampling county wide. Testing is done by an accredited laboratory.

The plant is manned between the hours of 08.00 and 12.00 Monday to Friday with the plant being also manned between the hours of 08.00 and 12.00 on Saturday and between the hours of 10.00 and 12.00 on Sunday.

Call out systems are in place whereby staff are notified of malfunctions in the plant operation and are in a position to get to the plant and address the problems immediately. A contract is in place with a service provider to carry out maintenance to the plant on a regular basis.

The contract is awarded through a tendering process. The contract includes rates for rapid response to emergency situations and call out rates for breakdowns.

Carlow County Council are presently setting in place the PMS (Performance Management System).

This will involve each caretaker compiling a monthly report on the Plant Operations. The caretakers report will be approved his line manager and by a Senior Engineer in Water Services.

The caretaker will receive extensive training in the operations of a WWTP. This training will be refreshed as required.

Carlow County Council are committed to operating and maintaining the WWTPs within the County to level necessary to produce an effluent to the required standards and to achieve this consistently.

### **Sources of Emissions from the Waste Water Works**

The effluent being transferred to the WWTP is a typical municipal sewage with no industrial or agricultural type discharges such as food processing. There are no exceptional loadings going to the WWTP.

There are no loadings coming to the WWTP that would be radically different from typical municipal sewage.

The potential loadings to the receiving waters are BOD, COD, Suspended Solids, Phosphorus, Nitrates and Ammonia.

The effects on the receiving waters of the treated effluent is greatly reduced by the treatment process at the WWTP.

Carlow County Council have taken the necessary steps to ensure that emissions to the receiving environment from the wastewater works will be minimised and closely monitored going into the future.

In our application for Waste Water Discharge Licence we look at the discharge in terms of the various Directives.

### *Urban Waste Water Treatment Directive*

The Borris WWTP is designed and constructed in line with all relevant requirements under the Urban Waste Water Treatment Directive.

The WWTP is designed to produce a treated effluent in line with this, namely a BOD not greater than 25mg/l and Suspended Solids not greater than 35mg/l.

The WWTP currently achieves this objective without any difficulty.

### *Habitat Directive*

The Mountain River is designated as a Candidate SAC as part of the Barrow Nore SAC, Site No 002162. The Mountain River contains populations of the Freshwater Pearl Mussel, *Margaritifera Margaritifera*, although these populations are clearly in decline.

The Freshwater Pearl Mussel is protected under Annex 11 and Annex V of the European Community Council Directive on Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC). It is listed in Article 3 of the Bern Convention. Under Irish Law it is illegal to interfere with *M.margaritifera* (Statutory Instrument No 112,1990).

Freshwater Pearl Mussels have attained great significance in recent times as people became aware of their imminent demise. They also require a very high quality water in which to survive and the drive to protect this species is seen as symbolic of the drive to improve water quality in general.

### *Water Framework Directive:*

The objectives of the Water Framework Directive (WFD) are to protect all high status waters, prevent further deterioration of all waters and to restore degraded surface and ground waters to good status by 2015. A major programme is under way to achieve this target.

The Borris Waste Works are located within the Barrow Lower Water Management Unit.

Carlow County Council is the lead authority for the South East River Basin District Management Plan. The SERBD Management Plan will be adopted by the end of 2009.

The programme of measures established in this plan will need to be implemented in order to achieve its environmental objectives and with a view to attaining good status in all water bodies by 2015.

The programme shall include basic measures which include measures regarding the 11 named directives.

With regard to the Habitats Directive sub basin plans are set out to protect the pearl mussel populations designated under the Habitats Directive.

### **Main Points of Appropriate Assessment**

- A desktop assessment was carried out in order to assess the current effect, if any, of the discharge from Borris Waste Water Treatment Plant (WWTP) on the Mountain River and the implications of any such effects for protected habitats and species within the Special Area of Conservation (SAC).
- Biological water quality assessment results show unpolluted conditions at all sites on the Mountain River, indicating that that the effluent from Borris WWTP is currently having no significant impact on the biological water quality of the river.
- Six species and one habitat which are listed for protection under the EU Habitats Directive were identified as being present, or likely to be present at or downstream of the Borris WWTP outfall.
- The fact that the discharge is not resulting in any difference in the biological water quality upstream and downstream of the discharge point, indicates that there is no significant negative effects of the effluent on the protected habitats and species within the SAC.

- In any future changes are made to Borris WWTP that could impact on the effluent quality, it must be ensured that mitigation measures are adequate to avoid inputs of nutrients to the river that would negatively impact on the conservation objectives of the SAC.

## **Conclusion**

Carlow County Council operates a 1,500pe WWTP in Borris. This will ensure a much reduced loading entering the Mountain River.

At a capacity of 1500 pe the plant is adequately sized to cater for the wastewater loadings from Borris village for many years. The current loading is 1100pe, only 73% of the available capacity.

This WWTP will allow Carlow County Council to do its part in removing pollution from the Mountain River and contributing to improvements in the water quality in the Mountain River and also the Slaney and the SAC 000781.

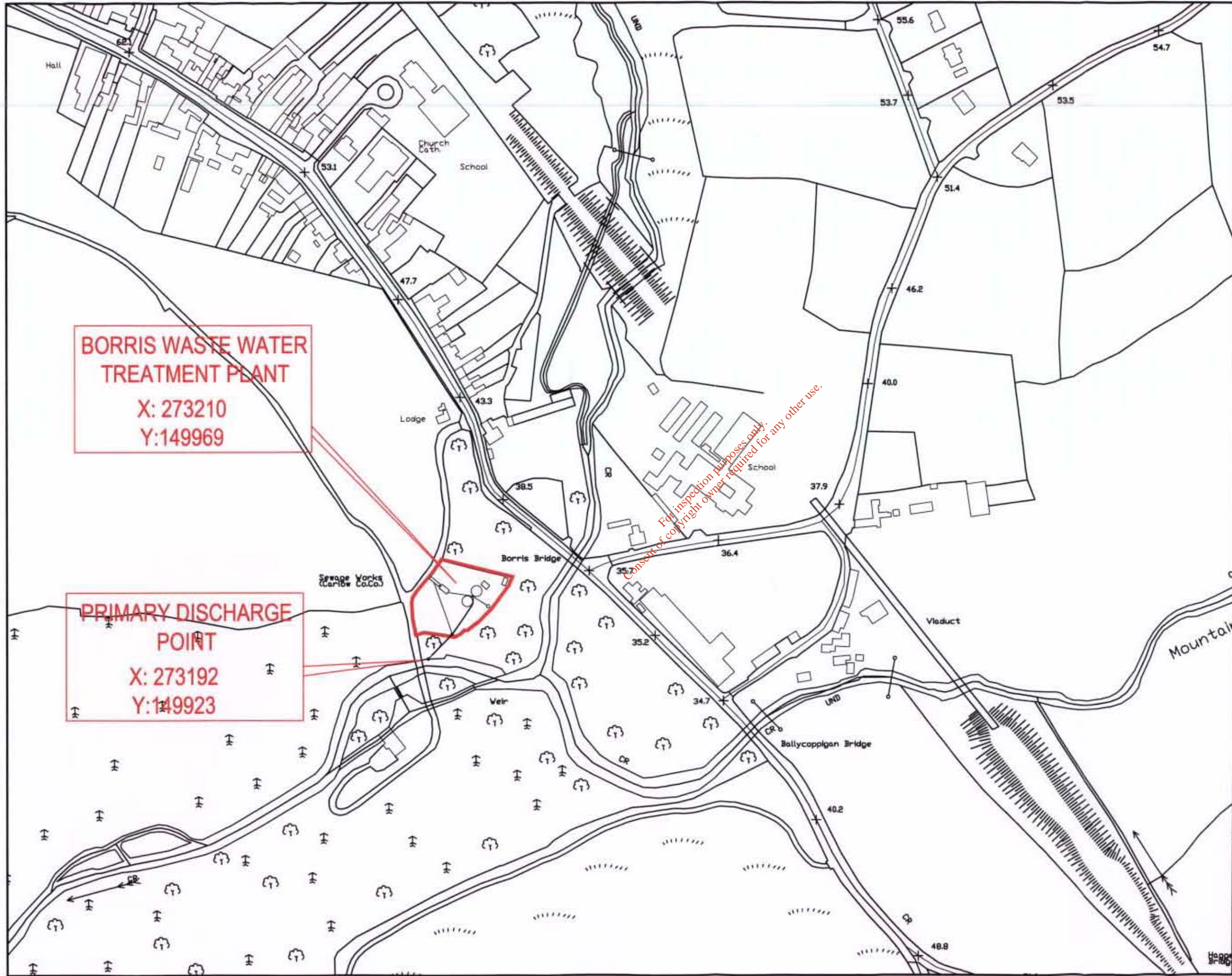
The WWTP has greatly reduced the potential for the Borris Waste Water Works as a substantial source of phosphate and nitrate loading into the Mountain River.

The WWTP will allow Carlow County Council to achieve the objectives and programmes set out under the SERBD Management Plan and in the Dangerous Substances Directive.

Carlow County Council have put the necessary mitigation measures in place to deal with potential impacts outlined in the Borris Agglomeration Appropriate Assessment.

To comply completely with the requirements of the River Basin Management and the SAC, Carlow County Council will need to upgrade the Inlet Works, Install storm holding tanks and introduce ferric dosing to reduce P loadings.

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**BORRIS WASTE WATER  
TREATMENT PLANT**  
X: 273210  
Y: 149969

**PRIMARY DISCHARGE  
POINT**  
X: 273192  
Y: 149923

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No.	Date	Amendment / Issue	Rev.
A	02/03/09	XXXXXXXXXXXXXXXXXXXX	J.C.

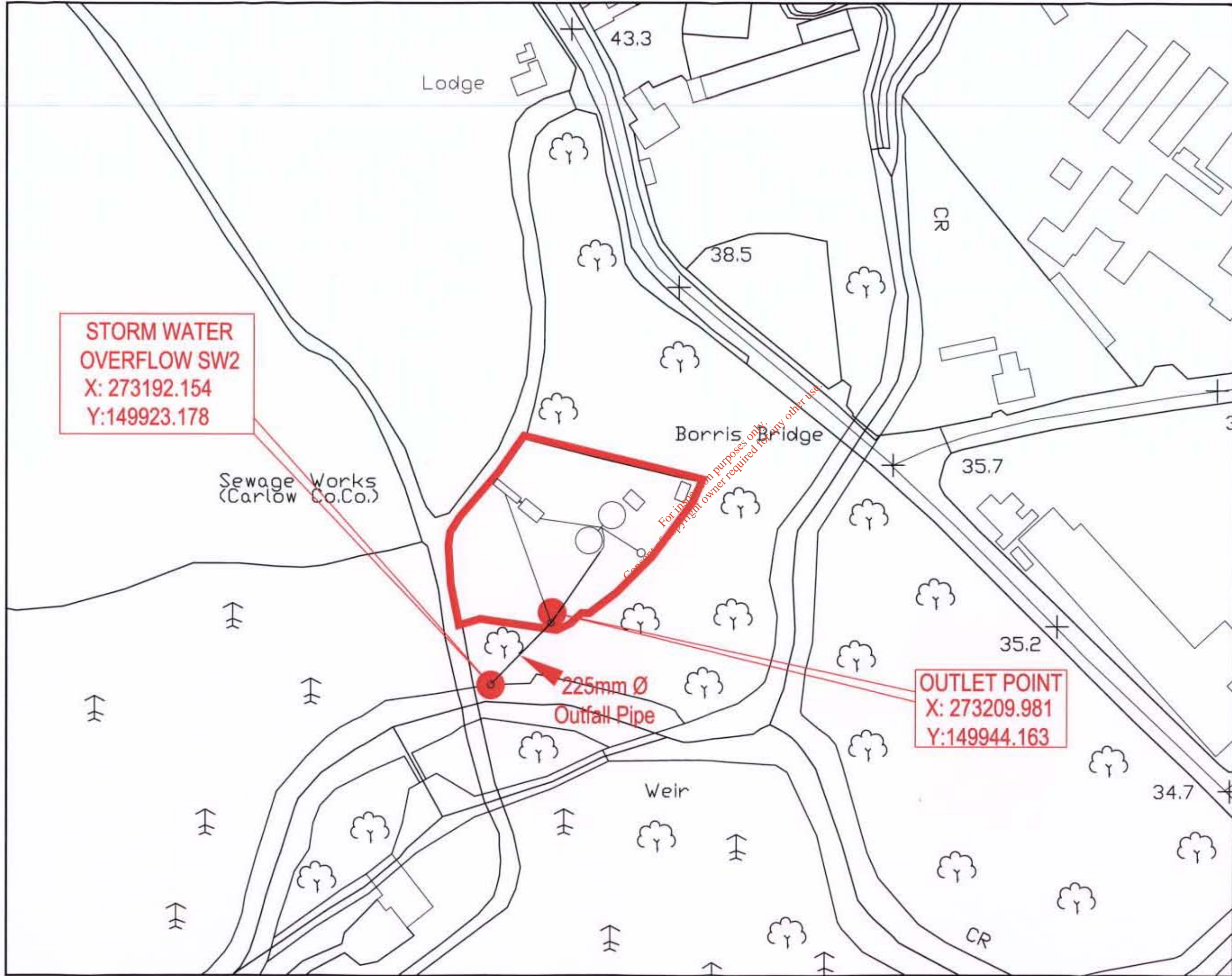
**CARLOW COUNTY COUNCIL**  
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Director of Services: John Carley  
County Hall, Athy Road, Carlow  
Phone: (0509) 170300 Fax: (0509) 130206  
Email: [secret@carlowccoco.ie](mailto:secret@carlowccoco.ie)

Carlow Local Authorities, A CPD Accredited Company

Project: **WASTE WATER DISCHARGE LICENCE APPLICATION FORM. BORRIS WASTE WATER TREATMENT WORKS.**

Title: **BORRIS WWTP PLANT LOCATION**

Drawn by:	P.H.	Job No:	XXXXXXXXXXXXXXXXXXXX
Checked by:	G.C.	Dwg Loc:	XXXXXXXXXXXXXXXXXXXX
Approved by:	J.C.	Dwg No:	<b>B2-02</b>
Scale:	1:2500	Rev:	<b>B</b>
Date:	29-01-08		



**STORM WATER OVERFLOW SW2**  
**X: 273192.154**  
**Y:149923.178**

**OUTLET POINT**  
**X: 273209.981**  
**Y:149944.163**

**225mm Ø**  
**Outfall Pipe**

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No.	Date	Author	Issue	Appr.
A	01/01/08	J.C.		

**CARLOW COUNTY COUNCIL**  
**CARLOW COUNTY COUNCIL**  
**WATER SERVICES DEPARTMENT**  
 Director Of Services: John Carley  
 County Hall, Adhy Road, Carlow  
 Phone: (059) 817000 Fax: (059) 812026  
 Email: wsw@carlowcc.ie

Carlow Local Authority, A CPD Accredited Company

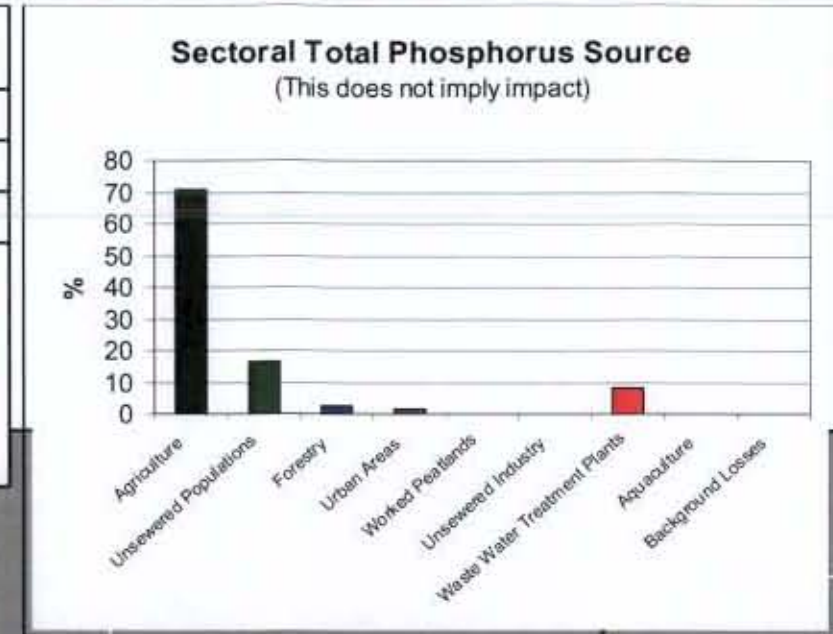
**WASTE WATER DISCHARGE LICENCE APPLICATION FORM.**  
**BORRIS WASTE WATER TREATMENT WORKS.**

**BORRIS WWTP**  
**STORM WATER OVERFLOW LOCATION**  
**Borris SW2**

Drawn by:	P.H.	Job No:	XXXXXXXXXXXXXXX
Checked by:	G.C.	Drawn Loc:	XXXXXXXXXXXXXXX
Approved by:	J.C.	Drawn No:	
Date:	29-01-08	Rev:	A

# Barrow Lower Water Management Unit Action Plan

Name0	Barrow Lower Water Management Unit
Area	228 km <sup>2</sup>
River Basin District	South Eastern RBD
Main Counties	Carlow
Protected Areas	River Nore & River Barrow SAC Blackstairs Mountains SAC 3 Freshwater Pearl Mussel Catchments; Mountain, Ballymurphy, Aughavaud River Barrow UWWTD 3 drinking water abstractions from Mountain, Ballymurphy, Aughavaud, and 2 from Barrow.



## Barrow Lower Water Management Unit



### Legend

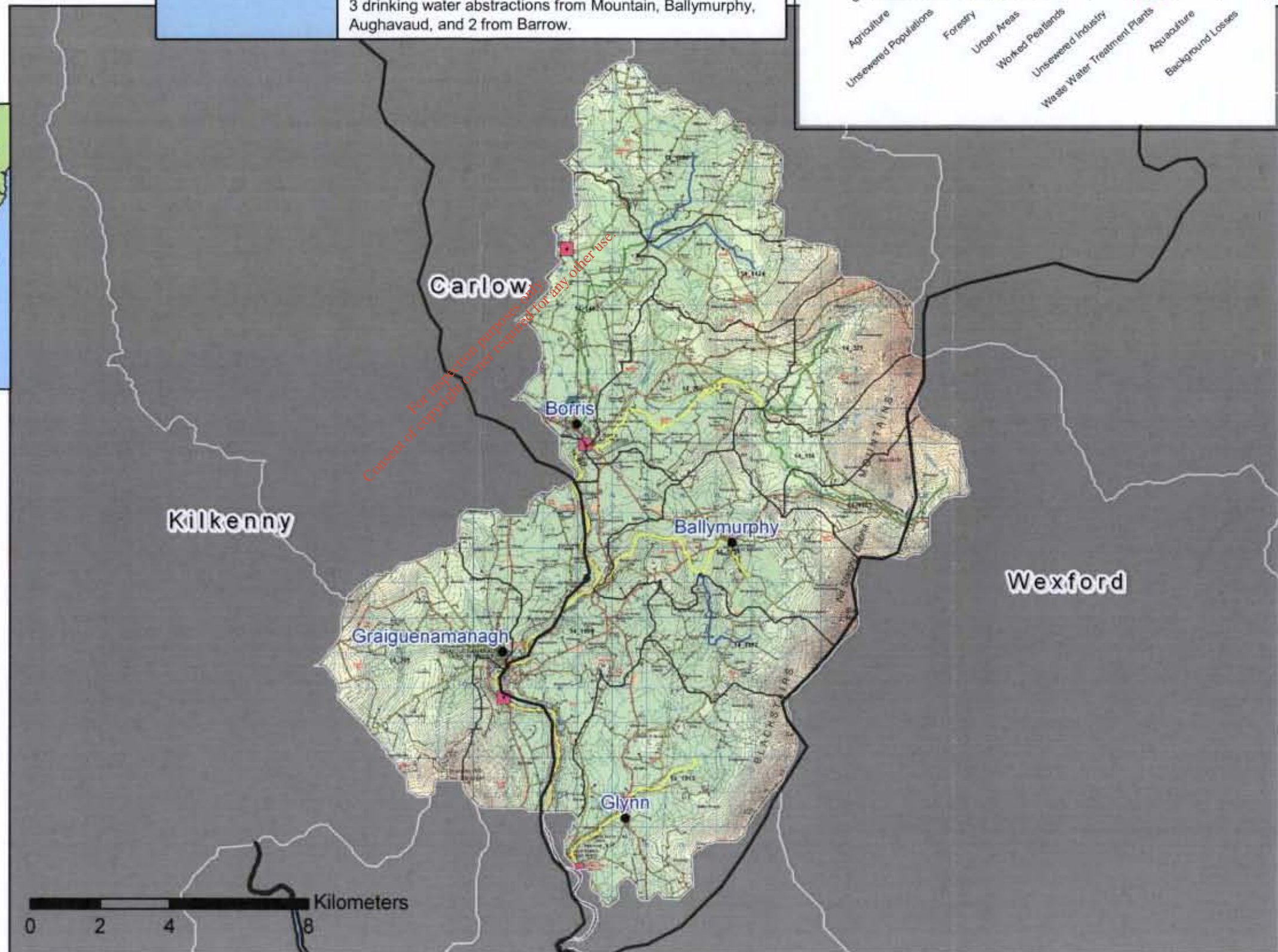
- WMU Boundary
- County Boundary
- Quarries
- Waste Water Treatment Plants
- Local Authority Licensed Discharge
- EPA Licensed Facility (IPPC)

### River Status

- High
- Good
- Moderate
- Poor
- Bad

### Lake Status

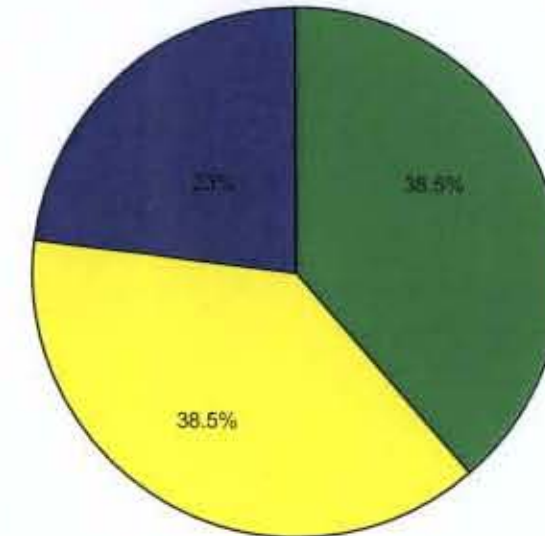
- High
- Good
- Moderate
- Poor
- Bad



# Barrow Lower Water Management Unit Action Plan

STATUS/IMPACTS	
Overall status	13 River Water Bodies in WMU - 3 at High, 5 at Good, 5 at Moderate status. No lakes.
Status elements	Q-score dictates status. Moderate status is dictated in 3 WBs by FPM presence. Phys Chemical status passes where monitored. Status for all 3 high WBs were extrapolated. Chemical status not monitored.
Possible Impacts - EPA Water Quality 2004	<p>AUGHAVAUD - The improvement recorded in 2000 at Turra Bridge (0400) was not maintained in 2003 and, as the luxuriant weed and algal growths there indicate, the stream was once again suffering the effects of excessive nutrient enrichment in that area. Further downstream at St. Mullins (0600) the macroinvertebrate composition was consistent with satisfactory conditions but the presence of black silt (suspected slurry) and slime growths here does not auger well for the maintenance of good quality in the lower reaches. This stream was at risk and in 2003 with agriculture (slurry) suspected. Waterbody Code: SE_14_1913 / 2009 status: Good (Based on Q value 4 in 2006)</p> <p>AUGHNABRISKY - Quality was assessed as satisfactory at both locations surveyed in 2003 and it was of the highest standard in the Sculloge Bridge area (0300) but the lower reaches(0500) had become much more weedy and silted since the previous survey indicating increasing eutrophication due to suspected agriculture (slurry). Waterbody Code: WE_14_114/ 2009 status: Good (Based on Q value 4)</p> <p>BARROW - it is clear that there has been an overall improvement in the Barrow since 2000. This despite the fact that water levels were generally below normal everywhere and were very low in the upper river thus providing less dilution capacity for wastes. However, eutrophication continued to be widespread due to suspected agriculture in the upper river (0100, 0200) and to suspected sewage.</p> <p>DUISKE - This little stream continued to be in a satisfactory condition upstream of Graiguenamanagh (0100) in 2003. Waterbody code: SE_14_1909 / 2009 WB status: Good (Based on Q value 4 in 2008)</p>

River data



PRESSURES/RISKS	
Nutrient sources	91% of TP is Diffuse, with 71% from Agriculture, and 17% from Unsewered Properties
Point pressures	4 WWTPs: Borris, Glynn, Graiguenamanagh, Ballykillen. 3 WTPs: Borris, Ballinkillen, Aghangleary. 1 IPPC: Animal Feed Plant.
Wastewater Treatment Plants (WWTP) and Industrial Discharges	At risk: Borris WWTP Graiguenamanagh WWTP
Quarries, Mines & Landfills	There are 2 Quarries no mines and no landfills so no waterbodies at risk.
Agriculture	Small area of WMU at risk - low-lying areas to the west of the WMU.
On-site systems	There are 1873 septic tanks in this WMU, 0 are at risk.
Forestry	3 waterbodies at risk from eutrophication and sedimentation from forestry - SE_14_1100, SE_14_1424 and SE_14_1913
Dangerous substances	No waterbodies at risk from Dangerous Substances.
Morphology	No waterbodies at risk
Abstractions	4 abstractions but no waterbodies at risk
Other	1 AWB - Barrow Navigation

# Barrow Lower Water Management Unit Action Plan

<b>SELECTED ACTION PROGRAMME</b>	
<i>NB All relevant basic measures, general supplementary measures and SEA mitigation measures apply</i>	
Point Sources	See Action Table for WWTP at risk below. INDUSTRY - Examine the terms of all discharge authorisations to determine whether they require review for the purpose of compliance with water body objectives including protected area objectives and environmental quality standards.
Diffuse Sources	Good Agricultural Practice Regulations and Enforcement.
Other	FORESTRY Measures to address eutrophication and sedimentation apply in the upland forested areas along the Corries River and at Corrybeg, and the forested areas of Ballyclingan and Aghnaglear, where the Aughavaud River runs through.  OTHER Freshwater Pearl Mussel Sub Basin Plans – measures to protect FPM.

<b>FUTURE DEVELOPMENT</b>	
Future Pressures and Developments	Throughout the river basin management cycle future pressures and developments will need to be managed to ensure compliance with the objectives of the Water Framework Directive and the Programme of Measures will need to be developed to ensure issues associated with these new pressures are addressed.

<b>OBJECTIVES</b>	
Restore/Protect 2015	13 water bodies
Alternative Objectives	Extended Deadlines – none  New Modifications or Development – none  HMWB/AWB - 1 AWB - Barrow Navigation

Point Source Discharge	County	Priority	Measure
Borris WWTP	Carlow	1	Implement an appropriate performance management system
Graignamanagh Sewerage Scheme WWTP	Kilkenny	1	Implement an appropriate performance management system
Point Source Discharge	County	Priority	Measure
Borris WWTP	Carlow	2	Ensure capacity of treatment plant is not exceeded

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# Barrow Lower Water Management Unit Action Plan

River Data

IE_SE_BarrowLower																
Member State Code	Monitored Y (Extrapolated N)	Donor Waterbody	Biological Elements				Supporting Elements			Chemical Status	Protected Areas				Objective	Date objective to be achieved
			Macrobenthos (Q)	FreshWater Pearl Mussel	Fish	Phytobenthos (Diatoms)	Morphology	Specific Polutants	Physio-chemical		Ecological Status	Special Area of Conservation	Special Protection Area	Nutrient Sensitive Waters		
SE_14_1100	N	TBC													HES	2009
SE_14_114	Y		G										Y		GES	2009
SE_14_1177	N	TBC											Y		HES	2009
SE_14_1424	N	TBC											Y		HES	2009
SE_14_1483	Y		G										Y		GES	2009
SE_14_1492	Y		G						H				Y		GES	2009
SE_14_1756	Y			M									Y		GES	2015
SE_14_1909	Y		M						G				Y		GES	2015
SE_14_1913	Y		G	M									Y		GES	2015
SE_14_201	Y		G						H				Y		GES	2009
SE_14_203	Y		G	M					H				Y		GES	2015
SE_14_325	Y		G										Y		GES	2009
SE_14_937	Y			M					H				Y		GES	2015

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