



Deirdre French,
Environmental Licencing Programme
Office of Climate, Licencing and Resource Use
Environmental Protection Agency
PO Box 3000
Johnstown Castle Estate
Co. Wexford.

Uisce Éireann
Bosca OP 6000
Baile Átha Cliath 1
Éire

Irish Water
PO Box 6000
Dublin 1
Ireland

T: +353 1 89 25000
F: +353 1 89 25001
www.water.ie

15^h July 2015

IW-ER-LT0281

Re: Collon Waste Water Discharge Licence (D0261-01)

Dear Deirdre French,

In response to the Regulation 18(3)(b)-3 request for further information notice dated the 29/04/2015 and letter dated 22/06/2015, please see below relevant information.

A screening for Appropriate Assessment was undertaken on 28/04/2015 and the Agency determined that an Appropriate Assessment of the activity is required.

You are thereby required to submit a Natura Impact Statement, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011).

Please see the attached Appropriate Assessment (Natura Impact Statement) report for the Collon agglomeration as requested. The report concluded that there is currently no significant adverse effects on the integrity of the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA by the Collon discharge either directly, indirectly or cumulatively. No specific mitigation measures are required however for the current situation to continue the following recommendations should be implemented:

- Monitoring of the effluent discharge and both upstream and downstream of the discharge point on a regular basis with suitable limits of detection (particularly for Ortho-P) as per the EQSs as laid out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009.

- The effluent quality must continue to meet the requirements as set out in Urban Waste Water Treatment Regulations, 2001. This will continue to protect the Natura 2000 sites the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA.
- With regard to the cumulative impacts of the Collon discharge as a whole and the operational impacts, the wastewater discharge effluent standards must be in line with the Urban Waste Water Treatment Regulations, 2001 and the functioning of the plant must be in compliance with EPA Waste Water Discharge Licence conditions to ensure the environmental quality standards for the receiving waters are met.

Best Regards,



Gerry Galvin
Chief Technical Advisor

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Irish Water Report

Natura Impact Statement as part of the Collon Waste Water
Discharge Licence Application – D0261-01

*For inspection purposes only.
Consent of copyright owner required for any other use.*



Contents

Introduction	1
Legislative Context	1

Methodology	3
Guidance Followed	3
Stages Involved in the Appropriate Assessment Process	4
Field Walkover Surveys	4
Consultation	4

Stage 1: Screening	5
---------------------------	----------

Stage 2: Appropriate Assessment	6
Description of the Project	6
Description of the Receiving Environment and Monitoring Results	6
Waste Assimilative Capacity	10
Field Walkover Survey	11
Description of the Natura 2000 Sites Affected	12
Description of the Conservation Interests of the SAC	12
Annex I Habitats	12
Annex II Species	13
Description of the Conservation Interests of the SPA	15
Annex II Birds and Qualifying Species and Habitats	15
Conservation Objectives of the Natura 2000 sites	16
River Boyne and River Blackwater SAC	16
River Boyne and River Blackwater SPA	16
Impact Prediction	17
Impacts on Water Quality	17
Impacts on Annex I Habitats	18
Impacts on Annex II Species	18
Mitigation Measures	20
Stage 2 Appropriate Assessment Conclusion Statement	21

References	22
-------------------	-----------

Introduction

This Natura Impact Statement provides an Appropriate Assessment (AA) of the existing wastewater discharge from the Collon agglomeration, located in County Louth. This Report assesses whether the current discharge from the Collon agglomeration, alone or in combination with other plans and projects, is likely to have significant effects on a European Site(s) in view of best scientific knowledge and the conservation objectives of the site(s). European Sites are those identified as sites of European Community importance designated as Special Areas of Conservation under the Habitats Directive or as Special Protection Areas under the Birds Directive.

This report follows the guidance for AA published by the Environmental Protection Agency (EPA) 'Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)' (EPA, 2009) and takes account of the Department of the Environment, Heritage and Local Government guidelines 'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities' (DoEHLG, 2009) and Circular L8/08 'Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments' (DoEHLG, 2008).

This Natura Impact Statement was completed by Nicholas O'Dwyer Ltd. on behalf of Irish Water.

Legislative Context

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as "The Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 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. These 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/ECC) as codified by Directive 2009/147/EC.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect Natura 2000 sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (AA):

"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In 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) states:

“If, in spite of a negative assessment of the implications for the [Natura 2000] 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, 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”.

*For inspection purposes only.
Consent of copyright owner required for any other use.*

Methodology

Guidance Followed

Both EU and national guidance exists in relation to Member States fulfilling their requirements under the EU Habitats Directive, with particular reference to Article 6(3) and 6(4) of that Directive. The methodology followed in relation to this AA has had regard to the following guidance:

- Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Environmental Protection Agency, (EPA, 2009).
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. Department of Environment, Heritage and Local Government, (DoEHLG, 2010).
- Circular L8/08 – Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments. Department of Environment, Heritage and Local Government, (DoEHLG, 2008).
- Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg, (EC, 2000a).
- Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg, (EC, 2000b).
- Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels (EC, 2001).
- Guidance document on Article 6(4) of the ‘Habitats Directive’ 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the Commission. Office for Official Publications of the European Communities, Luxembourg, (EC, 2007).
- Nature and biodiversity cases: Ruling of the European Court of Justice. Office for Official Publications of the European Communities, Luxembourg (EC, 2006).
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477 of 2011).
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013).

Stages Involved in the Appropriate Assessment Process

Stage 1: Screening/Test of Significance

This process identifies whether the Collon Wastewater Treatment Plant (WWTP) discharge is directly connected to or necessary for the management of any European Site(s). This stage identifies whether the discharge is likely to have significant impacts on European Site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each European Site of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2 Appropriate Assessment.

Stage 2: Appropriate Assessment

This stage considers the impact of the current wastewater discharge on the integrity of a European Site(s), either alone or in combination with other projects or plans, with respect to (1) the site's conservation objectives and (2) the site's structure and function and its overall integrity. Where adverse impacts are identified, mitigation measures to negate those impacts are determined.

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the EPA (Competent Authority) to carry out the Appropriate Assessment. If the assessment is negative, *i.e.* adverse effects on the integrity of a site cannot be excluded then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This process examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European Site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the European sites then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment Where Adverse Impacts Remain

This process is an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

Field Walkover Surveys

A field walkover survey was undertaken on the 3rd of June 2014 to identify the potential for qualifying species and habitats in the surrounding environs of the Collon discharge location.

Consultation

The EPA, as the Competent Authority, will seek NPWS advice as may be required in reaching their decision and the NPWS can only communicate with Irish Water on request from the competent authority (*i.e.* the EPA).

Stage 1: Screening

The EPA Screening Determination Report stated “*That the activity is not directly connected with or necessary to the management of the site as a European site and that it cannot be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects will have a significant effect on a European site and accordingly determined that an Appropriate Assessment of the activity is required, and for this reason determined to require the applicant to submit a Natura Impact Statement.*”

This determination is based on the following:

- 1. The ‘Moderate’ water quality status of the receiving water (River Mattock IE_EA_07_1405) under the Water Framework Directive.*
- 2. The ‘Moderate’ water quality status of the downstream receiving water (River Boyne IE_EA_010_0100) under the Water Framework Directive.*
- 3. The potential for cumulative impacts with other plans or projects on the named European Sites.”*

Based on the above assessment and in accordance with Article 6(3) of the Habitats Directive, the discharge from the Collon agglomeration will be brought forward for a Stage 2 Appropriate Assessment.

*For inspection purposes only
Consent of copyright owner required for any other use.*

Stage 2: Appropriate Assessment

The River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA have been determined as requiring Appropriate Assessment and are described in the following sections below. All the potential impacts resulting from the Collon WWTP discharge are detailed in relation to the conservation objectives of these designated sites.

Description of the Project

Collon WWTP is located off the N2, behind the Mattock community centre and sports playing grounds. The plant site is approximately 0.319 ha in area; of which approximately 0.181 ha is utilised. The site is bordered on the southern boundary by the Mattock River. There is a borehole on the site supplying water to Collon.

The existing WWTP at Collon was upgraded from a capacity of 500 PE to 1,200 PE in 2009. The current estimated PE is 853 and the future projected PE (2021) is 876 (Source: IW).

Collon WWTP includes the following treatment processes:

- Preliminary Treatment (including stormwater treatment)
- Biological Aeration
- Secondary Settlement
- Phosphorous removal
- Nitrogen Removal
- Tertiary treatment (only when flows in Mattock river are less than 45 l/s)

The treated effluent is discharged to the Mattock River (NGR 300029E; 281618N). There are no secondary discharges in the agglomeration. The mean effluent quality monitoring results for 2014 and 2015 are detailed below in Table 1.0.

Table 1.0: Mean Collon WWTP Effluent Monitoring Data (mg/l) (January 2014 – April 2015)

Parameter	Mean Effluent Load (mg/l)
BOD	2.65
COD	26.47
SS	5.73

The effluent discharge was compliant with the required UWWTD BOD, COD and SS standards on all sampling occasions (January 2014 – April 2015).

Description of the Receiving Environment and Monitoring Results

The receiving water of the effluent from the Collon agglomeration is the Mattock River. The River flows towards the Irish Sea and meets the River Boyne and River Blackwater SAC and The River

Boyne and River Blackwater SPA approximately 16.5 km downstream of the primary discharge point.

The WFD overall status of the Mattock River is "Moderate". The WFD objective is to restore this waterbody to "Good" status by 2021.

The EPA River Water Quality (2013 and 2014) monitoring data of the Mattock River is summarised below in Table 2.0. The water quality of the EPA downstream monitoring point (approximately 2 km downstream) is classified as Good status (2012) (Boyd's Br., 0100). The recent (2013 and 2014) average monitoring data downstream of the Collon discharge location (Table 2.0, Boyd's Br.) is in compliance with the Surface Waters Regulations for Good status. However, a number of samples were above the EQS for Ortho-P. The next EPA monitoring point (2013 and 2014) along the Mattock River (Wood Mill Br., 0200) is in compliance with the Surface Water Regulations for Good status. All Ortho-P samples were below the EQS for Good status. Furthermore, there were no elevated Ortho-P concentrations at the New Br. u/s/ Boyne River confluence (Station Nr. 0300) monitoring location (c. 16.5 km downstream). Based on the results presented in Table 2.0 it would appear that there is a localised impact from the Collon WWTP discharge on the Mattock River in terms of Ortho-P, however the discharge is sufficiently assimilated at Wood Mill Br. monitoring location (Station Nr. 0200). Based on the above, it is considered that the effluent is not impacting on the Moderate status of the Boyne River Estuary (IE_EA_010_0100) and hence is also not considered to be impacting the associated SAC and SPA.

The EPA 2012 Biological Quality survey noted satisfactory ecological conditions at three of the five sites surveyed on the Mattock River in June 2012. Good ecological conditions persisted at Boyd's Bridge (Station No: 0100; NGR: 301855 280761) located approximately 2km downstream of discharge point. However excessive siltation was evident at this station. Unsatisfactory moderate ecological conditions were noted at Slane Rd Br Collon (Station No: 0050; NGR: 299751 281708), approximately 0.3km upstream of the discharge.

Table 2.0: EPA 2013 and 2014 Mattock River Monitoring Data (Source: EPA)

Monitoring Station	Sample Date	Ammonia (mg/l)	BOD (mg/l)	DO (% Saturation)	Ortho-p
Boyd's Br (0100) (c. 2 km downstream of Collon discharge)	15/01/2013	0.05	0.75	93	0.05
	02/04/2013	0.03	0.75	90	0.13
	16/07/2013	0.03	2	108	0.08
	05/12/2013	0.01	0.5	95	0.06
	16/01/2014	0.02	0.5	82	0.042
	25/03/2014	0.038	0.5	89	0.064
	17/07/2014	0.023	0.5	110	0.093
	15/12/2014	0.026	0.5	94	0.04
	Average	0.03	0.75	95	0.070
	EQS	<0.14	<2.6	80 - 120	<0.075
Wood Mill Br u/s Devlins R confl. (0200) (c. 9 km downstream of the Collon discharge)	15/01/2013	0.03	0.75	97	0.03
	02/04/2013	0.015	2.4	94	0.05
	16/07/2013	0.03	3.9	97	ND
	05/12/2013	0.01	0.5	100	0.045
	16/01/2014	0.04	0.5	84	0.038
	25/03/2014	0.01	0.5	89	0.035
	17/07/2014	0.029	0.5	115	0.029
	15/12/2014	0.027	0.5	97	0.049
	Average	0.02	1.19	97	0.04
	EQS	<0.14	<2.6	80 - 120	<0.075
New Br u/s Boyne R confl. (0300) (c. 16.5 km downstream of the Collon discharge)	15/01/2013	0.78	0.75	94	0.03
	02/04/2013	0.015	0.75	91	0.04
	16/07/2013	0.015	0.75	85	ND
	05/12/2013	0.031	0.5	97	0.039
	16/01/2014	0.062	0.5	82	0.049
	25/03/2014	0.01	0.5	89	0.035
	17/07/2014	0.023	0.5	116	0.012

Monitoring Station	Sample Date	Ammonia (mg/l)	BOD (mg/l)	DO (% Saturation)	Ortho-p
	15/12/2014	0.035	0.5	95	0.047
	Average	0.12	0.59	93	0.04
	EQS	<0.14	<2.6	80 - 120	<0.075

For inspection purposes only.
 Consent of copyright owner required for any other use.

The Collon WWTP is contained within the Devlin (Mattock) Water Management Unit. The Eastern River Basin Management Plan – Programme of Measures does not have any specific recommendations for Collon WWTP.

Results from ambient monitoring undertaken by IW upstream and downstream of the primary discharge location for 2014 and 2015 are shown in Table 3.0 below.

Table 3.0: Average Monitoring Data Upstream and Downstream of Primary Discharge Location (Source: Louth County Council) (January 2014 – April 2015)

Parameter	EQS*	Upstream	Downstream
BOD	≤2.6	1.62	1.71
Ammonia	≤0.140	0.07	0.06
Ortho-P	≤0.075	<0.18	<0.18
SS	N/A	6.81	7.44

*European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009 (95%ile standards presented). Where results were reported as less than the limit of detection as a worst case scenario assessment these results were assumed to be equal to the limit of detection. Please note for Ortho-P all upstream and downstream monitoring results were reported as <0.18.

The monitoring results in Table 3.0 above demonstrate that the water quality within the Mattock River is in compliance with Schedule 5 of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009) for Ammonia and BOD. From these results it is not possible to conclude whether the Collon effluent is locally impacting the receiving waterbody in terms of Ortho-P as both upstream and downstream monitoring data were reported as less than the limit of detection.

Waste Assimilative Capacity

Table 4.0 summarises the assimilative capacity calculations which are based on the current plant capacity (853 PE.), 95%ile river flow (0.012 m³/s) (Source: EPA Hydrometric Data System HydroTool) and water quality standards for River waterbodies in the European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009).

The WAC calculations carried out are based on IW's 2014 and 2015 effluent monitoring data (Table 1.0).

Assimilative capacity calculations have been completed on both the actual background concentrations and the EPA "notionally clean river" concentrations.

Table 4.0: Mattock River Assimilative Capacity of Collon Wastewater (853 PE), Using Actual Background Concentrations and Notionally Clean River Concentrations

Parameter		Background (mg/l)	Predicted downstream quality (mg/l)	EQS* (mg/l)
BOD	Actual Background	1.618	1.78	≤2.6
	Notionally Clean	0.26	0.63	
Ammonia	Actual Background	0.066	0.08	≤0.140
	Notionally Clean	0.008	0.04	

Parameter		Background (mg/l)	Predicted downstream quality (mg/l)	EQS* (mg/l)
Ortho-P	Notionally Clean	0.005	0.17	≤0.075

The Waste Assimilative Capacity calculations tabled above indicates that the Mattock River has assimilative capacity for BOD and Ammonia. The above is supported by the ambient downstream monitoring results in Table 3.0. Applying the notionally clean river approach there is insufficient assimilative capacity for Ortho-P within the receiving waterbody, the Mattock River, at the discharge location.

Field Walkover Survey

A site walkover survey was conducted on the 3rd June 2014. The walkover was focussed on the Collon WWTP Discharge location; the Mattock River. Habitat codes (in parentheses) follow those used by Fossitt (2000).

The Collon WWTP and discharge location is surrounded by amenity grassland (GA2) and improved (GA1) and semi-improved grassland (GS2). Pairc Mattock, sports playing field is situated downstream of the discharge location to the east of the WWTP. A local pitch and putt course is located to the south of the discharge location and extends eastwards towards the N2. There are small areas of semi-improved and improved grasslands on the remaining boundaries to the WWTP site and discharge location; along with some residential areas. The Mattock River has been altered to incorporate a weir just upstream of the primary discharge location.

The predominant plant species recorded were Yellow iris (*Iris pseudacorus*), Broad-leaved Dock (*Rumex obtusifolius*), Common nettle (*Urtica dioica*), *Poa spp.*, *Cardus spp.*, and *Ranunculus spp.*

Above the weir in the River was a large rock ideal for Otter sprainting; however, none were found during the walkover survey. No slides or couches were noted in the river bank vegetation.

The River was medium to low flow during the time of the survey with good visibility of water. *Cladophora spp.* was noted upstream and downstream of the discharge. Downstream of the discharge this species was coated in sediment/silt. This species indicates enrichment, particularly phosphorous, but was present both upstream and downstream of the discharge location indicating the enrichment is likely originating from another source, although the Collon discharge may be having a localised cumulative impact.

No bird species were seen in the vicinity of the WWTP discharge location, no kingfishers were recorded and no suitable habitat was recorded.

Description of the Natura 2000 Sites Affected

River Boyne and River Blackwater SAC

The River Boyne and River Blackwater SAC comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. There are many large towns adjacent to but not within the site, including Slane, Navan, Kells, Trim, Athboy and Ballivor.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

(Refer to <http://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002299.pdf> for the full site synopsis).

River Boyne and River Blackwater SPA

The River Boyne and River Blackwater SPA is a long linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Counties Cavan, Louth and Westmeath.

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.

(Refer to <http://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004232.pdf> for the full site synopsis).

Description of the Conservation Interests of the SAC

Annex I Habitats

The qualifying habitats of the River Boyne and River Blackwater SAC are listed below:

- Alkaline fens [7230]
- Alluvial forests [91E0]

Alkaline fens [7230]

Alkaline fens are typically calcareous basin or flush fen systems with extensive areas of species-rich small sedge communities. This habitat requires a high water table, a calcareous, low nutrient water supply and minimal water level fluctuation. The main pressures for this habitat type have been identified as peat extraction, wetland reclamation and infilling. The Overall Status is considered to be "Bad" due to the pressures outlined; the overall trend is Unknown due to the absence of a national survey for this habitat. This habitat type is groundwater dependent and is considered to be at risk from Nitrogen and Phosphorous groundwater nutrient enrichment (diffuse and point-source).

Alluvial forests [91E0]

Riparian forests of ash (*Fraxinus excelsior*) and alder (*Alnus glutinosa*) occurs on heavy soils which are periodically inundated by the annual rise of river levels, but which are otherwise well drained and aerated during low water. This habitat has suffered considerable historic losses and is highly fragmented. Non-native and invasive species especially sycamore (*Acer pseudoplatanus*) and beech (*Fagus sylvatica*), and problematic native species such as bramble (*Rubus fruticosus*) and common nettle (*Urtica dioica*) (a consequence of undergrazing) are regarded as the main pressures impacting this habitat. The Overall Status is assessed as “Bad” due to these ongoing pressures and highly fragmented nature of this habitat. There have been national efforts to remove non-native and invasive plant species, reinstate correct hydrological regimes and generally to improve the conservation status of alluvial woodlands. Some substantial areas have been rehabilitated, and this is the main reason for the improving trend reported since the 2007 assessment. This habitat type is surface water and ground water dependent and is at risk from nutrient enrichment (Nitrogen and Phosphorous) of surface water and groundwater (diffuse and point-source). Although this habitat is surface and groundwater dependent, it is considered to have a low sensitivity to “nutrient enrichment N and P of surface water (diffuse and point-source nutrient pollution)” (Source: Western RBD / ESBI / Eleanor Mayes Report *Protected Areas: Water Dependent Habitats and Species*, December 2008).

Table 5.0: Qualifying Habitats along Surveyed Stretch of the Mattock River

Site	Qualifying Habitats	Immediately Present		Potential to be Present downstream of Surveyed Stretch
River Boyne and River Blackwater SAC	Alkaline fens [7230]	Upstream	No	Yes
		Downstream	No	
	Alluvial forests [91E0]	Upstream	No	Yes
		Downstream	No	

Annex II Species

The River Boyne and River Blackwater SAC is selected for the following Annex II species:

- River Lamprey (*Lampetra fluviatilis*) [1099]
- Salmon (*Salmo salar*) [1106]
- Otter (*Lutra lutra*) [1355]

River Lamprey (*Lampetra fluviatilis*) [1099]

The river lamprey (*Lampetra fluviatilis*) breeds in freshwater rivers and streams. Adults spawn in spring, excavating shallow nests in gravels and stones. After hatching, the larvae called ammocoetes drift or swim downstream to areas of river bed with a fine silt composition. They burrow into this bed material and live as filter feeders over a period of years before transforming into young adult fish. As adults they are parasitic, attaching to and feeding on larger fish in coastal waters. They can grow up to 30 cm at maturity at which stage they re-enter freshwater to spawn. The adult fish die after spawning. There are extensive areas of suitable habitat and no

significant pressures impacting these species. The Overall Status is therefore assessed as “Favourable” (NPWS, 2013).

Atlantic Salmon (Salmo salar) [1106]

Salmon use rivers to reproduce and as nursery areas. Eggs are deposited during the winter in a depression, called a redd, excavated in river gravels. The eggs develop protected within the substrate and during spring hatch into alevins, which in turn develop into fry. The fry feed for the summer and over the autumn, gradually becoming parr. Fry and parr feed primarily upon invertebrates. The Irish population generally comprises fish that spend two winters (small numbers spend one or three winters) in freshwater before going to sea, in spring, as smolts at around 10-25 cm in length. There has been a recent stabilisation of the numbers of salmon spawning in Ireland and an increasing number of salmon rivers meeting their conservation limits, however low rates of marine survival are of concern. There are numerous threats to the freshwater habitat and vigilance is required to ensure the maintenance of good quality habitat which salmon require to thrive. Some factors which impact negatively on salmon include reduced marine survival (probably as a result of climate change), poor river water quality (resulting from factors such as inadequate sewage treatment, agricultural enrichment, acidification, erosion and siltation), forestry-related pressures and over-fishing. This species is evaluated as being of overall 'Inadequate' conservation status nationally (NPWS 2013) with overall trend in Conservation Status classed as “Stable”.

Otter (Lutra lutra) [1355]

Dramatic declines, leading in some cases to extinctions, occurred in many European otter (*Lutra lutra*) populations during the latter half of the 20th Century, however, Ireland has remained a stronghold for the species. The main threats to the otter include habitat destruction (including river drainage and the clearance of bank-side vegetation), pollution, particularly organic pollution resulting in fish kills and accidental deaths (road traffic and fishing gear). The otter is currently widespread throughout Ireland and present in a wide variety of habitat types. The overall assessment of the conservation status of otter is “Favourable” (NPWS, 2013).

Table 6.0: Qualifying Species along Surveyed Stretch of Mattock River

Site	Qualifying Species	Observed or Signs of Species Presence along surveyed Stretch of River		Suitable Habitat Present along surveyed Stretch of River	
River Boyne and River Blackwater SAC	River Lamprey	Upstream	No	Upstream	Uncertain, due to weir in River which may be impassable at certain flow levels.
		Downstream	No	Downstream	Yes
	Atlantic Salmon	Upstream	No	Upstream	Uncertain, due to weir in River which may be impassable at certain flow

Site	Qualifying Species	Observed or Signs of Species Presence along surveyed Stretch of River		Suitable Habitat Present along surveyed Stretch of River	
					levels.
		Downstream	No	Downstream	Yes
	Otter	Upstream	No	Upstream	Yes
		Downstream	No	Downstream	Yes

Description of the Conservation Interests of the SPA

Annex II Birds and Qualifying Species and Habitats

The River Boyne and River Blackwater SPA has been selected for the following Annex I species:

- Kingfisher (*Alcedo atthis*) [A229]

Kingfisher (*Alcedo atthis*) [A229]

Kingfisher is a resident species to Ireland and can be found throughout the country all year long on streams, rivers or canals. This distinctive species feeds on various species of small fish (stickleback, Minnow and Chub) and large aquatic insects (mayfly, stonefly and dragonfly nymphs and water beetles) caught by plunge-diving from a perch or while hovering (Holden and Cleaves, 2006).

This species is at risk from river/stream culverting and pollution from, in particular, animal waste slurries and silage clamps. This species is Amber-listed in Ireland. BirdLife International has evaluated the European population as depleted, due to a moderate historical decline.

Table 7.0: Qualifying Species along Surveyed Stretch of the Mattock River

Site	Qualifying Species	Observed or Signs of Species Presence		Suitable Habitat Present along surveyed Stretch	
The River Boyne and River Blackwater SPA	Kingfisher	Upstream	No	Upstream	Yes (feeding)
		Downstream	No	Downstream	Yes (feeding)

Conservation Objectives of the Natura 2000 sites

Article 6 of the Habitats Directive states that:

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.

The importance of a site designated under the Habitats Directive is defined by its qualifying features or interests. Qualifying interests for any Natura 2000 site are listed on a *pro forma*, called the Natura 2000 standard data form, which forms the basis of the rationale behind designation, and informs the Conservation Management Plan for targeted management and monitoring of key species and habitats.

River Boyne and River Blackwater SAC

Objective: To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

River Boyne and River Blackwater SPA

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

For inspection purposes only.
Consent of copyright owner required for any other use.

Impact Prediction

Impacts on Water Quality

The aquatic conservation interests of the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA are directly dependent on the aquatic environment. As the Collon WWTP discharges treated effluent into the Mattock River, which flows approximately 16.5 km downstream into the River Boyne there is a pathway between this discharge and the ecological receptors in the receiving SAC and SPA.

The WWTP discharge is compliant with the requirements of the Urban Waste Water Treatment Directive. The 2014-2015 ambient monitoring results (IW) demonstrate that the water quality within the Mattock River are in compliance with Schedule 5 of the European Communities Environmental Objectives (Surface Water) Regulations 2009 (S.I. No. 272 of 2009) for BOD and Ammonia. The Ortho-P monitoring both upstream and downstream of the discharge location is reported as <0.18 so it is not possible to conclude whether there is an impact in terms of Ortho-P. However, WAC calculations based on the notionally clean river approach and the presence of *Cladophora* spp. upstream and downstream of the discharge would indicate a localised impact in terms of phosphorous enrichment.

The 2013 and 2014 EPA Mattock River monitoring data (Table 2.0) demonstrates that the water quality downstream of the Collon WWTP discharge point (Boyd's Br., c. 2 km) is in compliance with the Surface Waters Regulations for Good status. However, a number of samples were above the EQS for Ortho-P. The next EPA monitoring point (2013 and 2014) along the Mattock River (Wood Mill Br., c. 9 km downstream of the Collon discharge location) is in compliance with the Surface Water Regulations for Good status. All Ortho-P samples at this location were below the EQS for Good status. Furthermore, at the confluence of the Boyne River Estuary (New Br. u/s Boyne R Confl., c. 16.5 km downstream), all Ortho-P samples were also in compliance with the Surface Water Regulations for Good status.

Cumulative water quality impacts, which may impact the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA and hence the water dependent qualifying habitats and species, may result from the following:

- Chemical fertiliser application to agricultural lands (the main fertilisers in use supply nitrogen, phosphorus, potassium and sulphur) and recreational facilities (playing fields and pitch and putt courses *etc.*)
- Agricultural practices such as ploughing leads to greater mineralisation and nitrification, and in the case of old grassland, it can result in an increase in the release of nitrogen over a number of years (OECD, 1986)
- Artificial drainage increases nitrate leaching and reduce the morphological qualities of watercourses, thereby reducing the quality of habitat for flora and fauna
- Forestry may alter water quality indirectly through increased evaporation losses and hence an increase in solute concentrations
- On-site wastewater treatment systems, poorly performing septic tank units and other small effluent systems can be significant sources of nutrients to rivers
- Point pressures including Section 4 licenced facilities and IPPC licenced facilities
- Peat siltation due to peat harvesting, over-grazing by sheep leading to erosion and forestry practices in the hills during planting and harvesting operations

- Wastewater treatment plant discharges (e.g. Tullyallen, Drogheda and Donore)

Based on the results presented in Table 2.0 it would appear that there is the potential for a localised impact from the Collon WWTP discharge on the Mattock River in terms of Ortho-P; however, the discharge would appear to be sufficiently assimilated well before it reaches the confluence with the Boyne River Estuary (c. 16.5 km downstream) and the associated SAC and SPA. As such it has been concluded that there is no direct or cumulative impact on the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA from the Collon WWTP discharge.

In summary, the discharge from the Collon agglomeration is not likely to be impacting the downstream SAC and SPA and the water dependent qualifying interests within these sites, alone or in combination with other plans or projects.

Impacts on Annex I Habitats

Alkaline fens [7230]

This is a groundwater dependent habitat and as such it is not impacted by the Collon WWTP discharge.

Alluvial forests [91E0]

Water quality does not threaten this habitat to the same degree with little/no potential for adverse effects, and no changes to the conservation status of these habitats. It is therefore considered that there is little/no potential for adverse effects and no changes to the conservation status of these habitats likely from the Collon WWTP discharge (Western RBD / ESBI / Eleanor Mayes Report Protected Areas: Water Dependent Habitats and Species, December 2008).

Table 8.0: Qualifying Habitats Potentially Impacted by the Collon Discharge

Qualifying Habitats	Potential Impacts	Brief Explanation	Mitigation required
Alkaline fens [7230]	No	This habitat type is groundwater dependent as such no pathway exists for the Collon discharge to impact on this habitat.	No
Alluvial forests [91E0]	No	Water quality does not threaten this habitat to the same degree with little/no potential for adverse effects, and no changes to the conservation status of these habitats.	No

Impacts on Annex II Species

River Lamprey (*Lampetra fluviatilis*) [1099]

River lamprey are surface water dependent species. Lamprey are found in the River Boyne catchment at high densities. During the 2005 Boyne Lamprey Survey (O'Connor, 2006), the highest densities of larvae were recorded on the Lower Boyne including the Mattock River at New Bridge (38.00 lamprey/m²) on the lower Mattock. The Survey concluded that it is likely that populations of *Lampetra fluviatilis* are present in this sub-catchment. Lamprey populations and their habitats here are considered to be above satisfactory conservation status. The populations are considered to be currently threatened by pollution. The Collon WWTP discharge has the potential to locally impact the River Mattock water quality (in terms of Ortho-P) and therefore in

combination with other catchment point sources and pressures there is the potential for localised impacts on this surface water dependent species (*ex situ*).

Salmon (*Salmo salar*) [1106]

Salmon are surface water dependent species and are highly sensitive to pollution. Salmon require good water quality. Salmon are present along the Boyne catchment. As a result of Inland Fisheries Ireland's repair works on the Mattock River (pools created, gravel imported to improve spawning habitat) and the implementation of the Catch and Release Scheme Salmon numbers have seen an increase. The Collon WWTP discharge has the potential to locally impact the River Mattock water quality in terms of Ortho-P and therefore in combination with other catchment point sources and pressures there is the potential for localised impacts on this surface water dependent species (*ex situ*).

Otter (*Lutra lutra*) [1355]

Otter are widespread on the waterways of Ireland and they rely on good water quality for adequate food supply. No otter were recorded within the vicinity of the Collon WWTP discharge location during the field survey. However, Otter are known to be present within the Boyne catchment and have been recorded within the vicinity of the Collon WWTP discharge location (Otter Survey of Ireland (Chapman, 1982)). The Collon discharge could potentially have indirect effects on *ex situ* otters (as a result of reduced food supply).

Kingfisher (*Alcedo atthis*) [A229]

The Mattock River has one of the highest densities of Kingfisher recorded on the individual rivers surveyed as part of the Boyne and Blackwater systems survey (Crowe 2010). This species is dependent on good water quality for a sufficient food supply. Excessive discharge of nutrients can result in excessive algal growth which can lead to oxygen depletion and reductions in the availability of the Kingfisher prey species. The Collon discharge could potentially be having indirect effects on species (*ex situ*) due to the potential localised Ortho-P nutrient enrichment.

Table 9.0: Qualifying Species Potentially Impacted by the Collon Discharge

Qualifying Species	Potential Impact	Brief Explanation	Mitigation Required
River Lamprey	Yes	Potential for localised impact on <i>ex situ</i> species as this species is known to be present along the Mattock River.	Yes
Atlantic Salmon	Yes	Potential for localised impact on <i>ex situ</i> species as this species is known to be present along the Mattock River.	Yes
Otter	Yes	Potential for localised impact on <i>ex situ</i> species as this species is known to be present along the Mattock River.	Yes
Kingfisher	Yes	Potential for localised impact on <i>ex situ</i> species as this species is known to be present along the Mattock River.	Yes

Although, there is the potential for the Collon WWTP discharge to have a localised impact on the Mattock River and any *ex situ* species present, due to the assimilative capacity within the receiving waterbody and the downstream monitoring (EPA, 2013 and 2014) no impact is

predicted on the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA and/or the species or habitats contained within these sites.

Mitigation Measures

The plant may be contributing to localised nutrient enrichment within the receiving waterbody in terms of Ortho-P. However, based on recent (2013 and 2014) EPA monitoring data there is an improvement in water quality downstream of the discharge (Wood Mill Br., 0200) approximately 9 km downstream of the discharge and further downstream at the confluence with the River Boyne (New Br. u/s Boyne R. Confl., 0300) approximately 16.5 km downstream of the discharge. The Collon WWTP discharge is not considered to be having a direct impact on the downstream Natura sites or the Moderate status of the River Boyne Estuary (IE_EA_010_0100). Based on the above it is considered that there is currently no significant adverse effects on the integrity of The River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA in view of the conservation objectives of the sites and that the conservation status of the qualifying species/interest are not being compromised by the Collon discharge either directly, indirectly or cumulatively. There is however potential for the Collon discharge to have a localised impact on any *ex situ* species, as detailed above.

Taking the above on board no specific mitigation measures are required in terms of the SPA and SAC sites; nevertheless, for the current situation to continue and to ensure no localised impact on any *ex situ* species that may be present within the vicinity of the discharge location the following recommendations should be implemented:

- Monitoring of the effluent discharge and both upstream and downstream of the discharge point on a regular basis with suitable limits of detection (particularly for Ortho-P) as per the EQSs as laid out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009.
- The effluent quality must continue to meet the requirements as set out in Urban Waste Water Treatment Regulations, 2001. This will continue to protect the Natura 2000 sites the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA.
- With regard to the cumulative impacts of the Collon discharge as a whole and the operational impacts, the wastewater discharge effluent standards must be in line with the Urban Waste Water Treatment Regulations, 2001 and the functioning of the plant must be in compliance with EPA Waste Water Discharge Licence conditions to ensure the environmental quality standards for the receiving waters are met.

Stage 2 Appropriate Assessment Conclusion Statement

The current assessment for the Waste Water Discharge Licence Application investigates the potential adverse effects on the aquatic qualifying interests of the Natura 2000 network, specifically the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA, arising from the Collon discharge, in combination with other plans/projects affecting the aquatic environment.

The assessment considers whether the discharge, alone or in combination with other projects or plans, will have adverse effects on the integrity of the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA, and includes any mitigation measures necessary to avoid, reduce or offset negative effects.

It is envisaged that there will be no significant adverse effects on the integrity of the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA, in view of the conservation objectives of the sites and that the conservation status of the Annex II species will not be compromised by the discharge either directly, indirectly or cumulatively. When the above recommendations are implemented in full this will also protect any *ex situ* species in the vicinity of the Collon WWTP discharge location.

It is concluded that the Collon discharge, alone or in-combination with other plans and/or projects will not give rise to significant effects on the integrity of the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA. This Stage 2 assessment concludes the Appropriate Assessment process and further assessment is not considered necessary.

For inspection purposes only.
Consent of copyright owner required for any other use.

References

Crowe (2010). An Assessment of the Effects of Arterial Drainage Maintenance on Kingfisher *Alcedo atthis* and other riparian birds II. Available at:
<http://www.opw.ie/media/Issue%20No.%2012%20%20EclA%20Kingfisher%20Alcedo%20atthis%20and%20other%20Riparian%20Birds%20II.pdf>

Chapman, P.J. & Chapman, L.L. (1982) The Otter Survey of Ireland. Unpublished survey carried out on behalf of The Vincent Wildlife Trust; NPWS Irish Wildlife Manual 23.

DoEHLG (2008). Circular L8/08 Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments. Department of the Environment, Heritage and Local Government.

DoEHLG (2009). '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*'. Department of the Environment, Heritage and Local Government.

EPA (2009). Waste Water Discharge Licensing Appropriate Assessment Guidance Notes. Notes on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007) Environmental Protection Agency, Co. Wexford.

EPA (2014). EPA Maps: <http://gis.epa.ie/Envision>

European Commission (2000a). Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg.

European Commission (2000b). Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg.

European Commission (2001). Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC. Office for Official Publications of the European Communities, Brussels.

European Commission (2007). Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission.

European Commission, (2007. Interpretation Manual of European Union Habitats [Online] Available at:
http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/2007_07_im.pdf

European Communities (Birds and Natural Habitats) Regulations 2011. S.I. 477 of 2011.

European Communities Environmental Objectives (Surface Waters) Regulations 2009. S.I. 272 of 2009.

Heritage Council. (2011). Best Practice Guidance for Habitat Survey and Mapping.

Holden, P., & Cleeves, T. (2006). *RSPB handbook of British Birds*. 2nd Edn. Christopher Helm Publishers, Incorporated.

O'Connor W. (2006) A survey of juvenile lamprey populations in the Boyne Catchment. Irish Wildlife Manuals, No. 24 National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

McGarrigle, M., Lucey, J., & O Cinneide, M. (2010). *Water Quality in Ireland 2007-2009*. EPA, Wexford.

NPWS (2007). *The Status of EU Protected Habitats and Species in Ireland* Vol. 1. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

NPWS (2007a). *The Status of EU Protected Habitats and Species in Ireland* Vol. 2. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin.

NPWS (2013). The Status of EU Protected Habitats and Species in Ireland. Species Assessments Vol. 3, Version 1.0. Unpublished Report, National Parks & Wildlife Services. Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

NPWS (2015) Conservation objectives for River Boyne and River Blackwater SAC [002299]. Generic Version 4.0. Department of Arts, Heritage and the Gaeltacht.

NPWS (2015b) Conservation objectives for River Boyne and River Blackwater SPA [004232]. Generic Version 4.0. Department of Arts, Heritage and the Gaeltacht

Ordnance Survey Ireland (2015). *Mapviewer*. Available at:
<http://maps.osi.ie/publicviewer/#V1,588882,739883,0,10>

Western RBD, ESBI & Eleanor Mayes (2008). Report Protected Areas: Water Dependent Habitats and Species.