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Mr. John Ring,
Inspector,
Environmental Protection Agency,
Office of Climate, Licensing & Resource Use,
Headquarters,
PO Box 3000,
Johnstown Castle Estate,
County Wexford.

07/03/2011

Re: Notices in accordance with Regulation 25(c)(ii) of the Waste Water Discharge (Authorisation) Regulations 2007)

Dear Mr. Ring,

I refer to yours relating to agglomerations' including Rockchapel & Environs and my reply to same on 15/02/2011. I now enclose an Appropriate Assessment of the effects of the discharge from Rockchapel Wastewater Treatment Plant on the River Feale in electronic searchable PDF format on a CD – ROM as requested.

I am still awaiting an Appropriate Assessment of the effects of the discharges of the remaining agglomerations on the River Blackwater. I will forward same on receipt from consultant

Yours truly,

Paddy O' Friel
Substitute Senior Engineer
Email:

022- 30441.

CORK COUNTY COUNCIL

COMHAIRLE CONTAE CHORCAÍ

ROCKCHAPEL WWTP DISCHARGE

NATURA IMPACT STATEMENT

MARCH 2011

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Quality Control

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1 Introduction

1.1 Background

Ryan Hanley Consulting Engineers have been contracted by Cork County Council to carry out an assessment of the potential ecological impacts of the effluent discharge from Rockchapel WWTP in Northwest Cork and prepare a Natura Impact Statement (NIS). This NIS will subsequently be used to inform the Appropriate Assessment carried out by the Council.

An application for a Waste Water Discharge Certificate for the above agglomeration has been submitted to the EPA by Cork County Council in accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (SI 864 of 2007). Section F of the waste water discharge certificate application requires an assessment of the impacts of discharges on the existing environment.

Where such discharges occur within the catchment of a Natura 2000 site, EPA guidelines state that 'Initial Screening' be carried out in accordance with Appendix 1 of the Circular L8/08 entitled "Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments" issued by the Department of the Environment, Heritage and Local Government (DoEHLG) in 2008. Should the outcome of this screening process indicate that negative effects to any Natura site cannot be ruled out, a full 'Appropriate Assessment' is to be carried out. Further details on the various stages of Appropriate Assessment are included in Section 1.2.

The purpose of this report is to determine the ecological effects, if any, of the Rockchapel WWTP to further assess if any of the predicted impacts have the potential to have significant negative impacts on the qualifying interests or on the conservation objectives of the receiving Natura 2000 site.

1.2 Appropriate Assessment – Legislative Context

The EU Habitats Directive (*Council Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna*) contains a list of rare habitats and species (Annex

I and II respectively); the conservation of these is considered to be of European and International importance. Similarly, the EU Birds Directive (*Council Directive 79/409/EC on the conservation of wild birds*) aims to protect specific bird species considered to be at risk. Member states have the responsibility to designate geographic sites according to their conservation value for the aforementioned habitats and species, namely Special Areas of Conservation and Special Protection Areas, which together form a network referred to as *Natura 2000*; see Section 1.2.

Paragraph 3 of Article 6 of the Habitats Directive state that:

6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

Where such an assessment finds that all potential impacts cannot be successfully avoided or mitigated against, then Paragraph 4 of Article 6 is applied:

6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

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

The statutory agency responsible for Natura 2000 sites is the National Parks and Wildlife Service of the Department of Environment, Heritage and Local Government. The European Court of Justice has recently (December 13 2007) issued a judgment in a legal case against Ireland that found that Ireland has failed in its statutory duty to

confer adequate protection on designated areas. Following on from this the Circular Letter 1/08 & NPWS 1/08 on Appropriate Assessment of Land Use Plans (from the Department of the Environment, Heritage and Local Government) states that all plans and projects will be subject to critical assessment to ensure that they comply with all relevant legislation.

AA is a focused and detailed impact assessment of the implications of the plan or project, alone and in combination with other plans and projects, on the integrity of a Natura 2000 site in view of its conservation objectives. The terms of AA have been worked out in judgments of the European Court of Justice. The case law has established that assessments should be undertaken on the basis of the best scientific evidence and methods. Accordingly, if the consent authority so requires, data and information on the project and on the site and an analysis of potential effects on the site must be obtained and presented in a ***Natura Impact Statement*** (NIS) which must be presented by the applicant.

Ecological specialists are generally engaged by applicants to undertake the surveys, research and analysis, with input from other experts (e.g. hydrologists or engineers) as necessary to prepare the NIS. In general, larger projects will entail a greater amount of scientific scrutiny. It is the responsibility of the applicant to have the NIS prepared for submission to the consent authority. Having satisfied itself that the Statement is complete and objective, the competent authority carries out the AA on the basis of the NIS and any other appropriate sources of information. In the case of Waste Water Discharge Licensing, the Environmental Protection Agency is considered to be the competent authority.

There are 4 stages in an Appropriate Assessment as outlined in the European Commission Guidance document (2001). The following is a brief summary of these steps.

Stage 1 - Screening: This stage examines the likely effects of a project either alone or in combination with other projects upon a Natura 2000 Site and considers whether it can be objectively concluded that these effects will not be significant

Stage 2 - Appropriate Assessment: In this stage, the impact of the project on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. The Appropriate Assessment is informed by the Natura Impact Statement.

Stage 3 - Assessment of Alternative Solutions: Should the Appropriate Assessment determine that adverse impacts are likely upon a Natura 2000 site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts.

Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain: Where imperative reasons of overriding public interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura site will be necessary.

1.3 Natura 2000 sites

There are two designations which from part of the Natura 2000 network of sites that require specific ecological protection in Ireland:

Special Areas of Conservation (SACs)

These are sites that have been identified to be of conservation importance in a European context, based on the habitats and species; both plant and animal; that they support. The Directive has a number of Annexes. Habitats listed on Annex I are those habitat types of community interest whose conservation requires the designation of Special Areas of Conservation. Some of these are known as priority habitats for which there is a particular obligation for protection. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation are listed on Annex II of the Directive.

All SACs are also proposed Natural Heritage Areas. There is a list of Notifiable Actions which apply to each annexed habitat and species. These are activities for which consent must be sought from the Minister of Environment, Heritage and Local Government within SACs. SACs are protected under the Habitats Directive of 1992 (EU Directive 92/43/EEC) and the Natural Habitats Regulations of 1997 (S.I.94/97).

The Rockchapel WWTP discharges to the River Feale, inside the Lower River Shannon cSAC boundary. The Natura Impact Statement will consider impactes to this Natura 2000 site.

Special Protection Areas (SPAs)

These are sites of European importance that have been identified as being of conservation importance on account of the bird species and populations they support. The Directive directs all member states to take measures to protect all wild birds and to preserve a sufficient diversity of habitats for all species naturally occurring within their territories, so as to maintain populations. Species whose status is a cause for concern are specifically identified for special conservation measures in Annex I of the Directive, and SPAs have been designated based on either the presence of these species or the presence of significant numbers of wintering waterfowl.

All SPAs are also proposed Natural Heritage Areas. SPAs are protected under the Birds Directive of 1979 (EU Directive 79/409/EEC) and the Natural Habitats Regulations of 1997 (S.I.94/97).

Several SPAs are located in the vicinity of Rockchapel; these however are associated with upland terrestrial habitats and will not be affected in any way by the Rockchapel WWTP discharge. No SPAs are therefore considered as part of this Natura Impact Assessment process.

1.4 Scheme locations

The geographic location of the Rockchapel agglomeration is shown in Figure 1.1. While numerous Natura 2000 sites are located within the region, this report only considers potential impacts which relate to the River Feale, which forms a key part of the Lower River Shannon cSAC. The locality of the discharge in shown in Figure 1.2.

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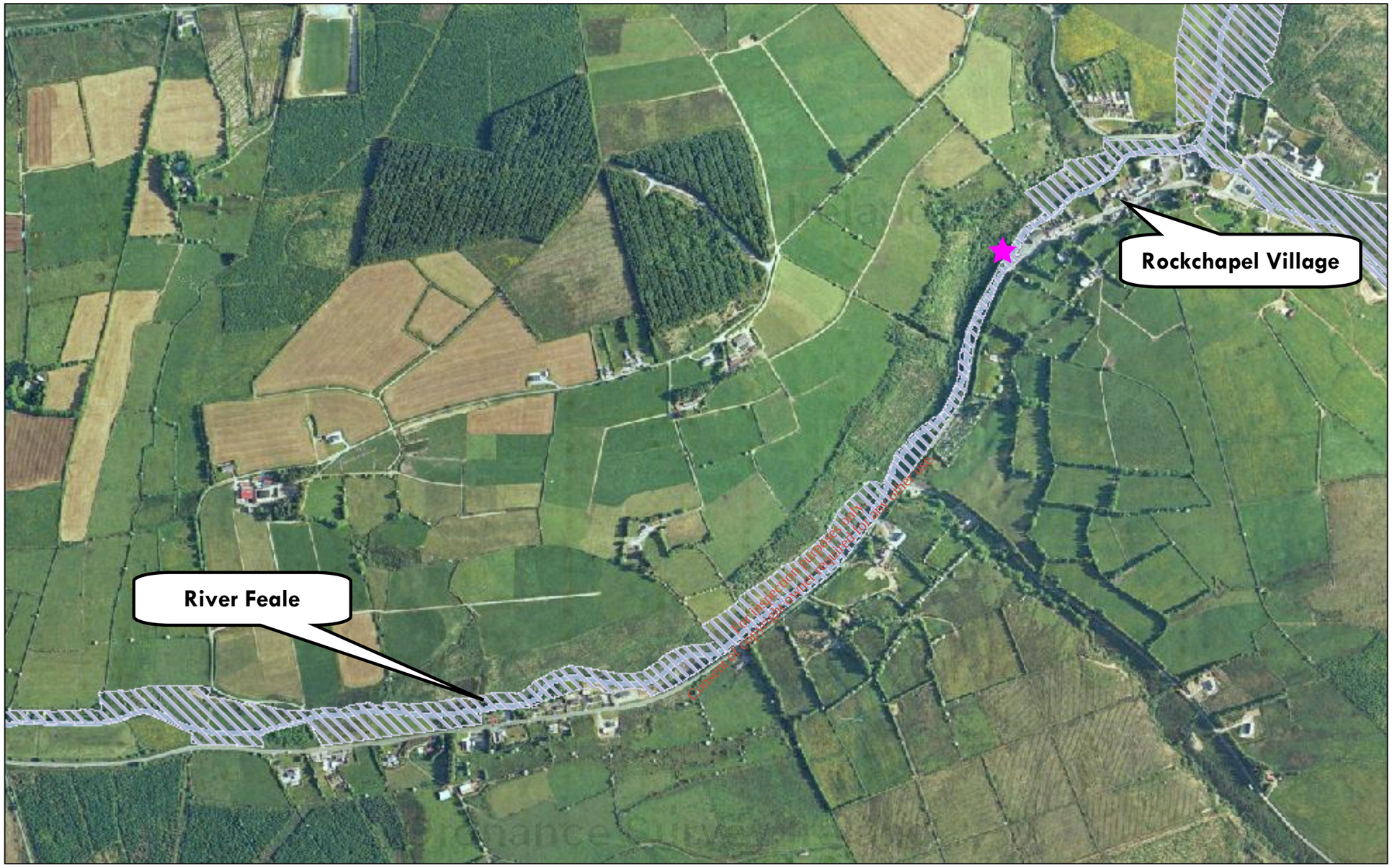
Figure 1.1 – Geographic location of Rockchapel treatment plant



Rockchapel WWTP Discharge

Lower River Shannon cSAC Boundary

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Figure 1.2 – Location of Rockchapel WWTP discharge in relation to cSAC

2 Methodology

2.1 Desk study

A desk study was carried out to collate the available information on the ecological environment around the Rockchapel WWTP. Water quality data from sampling points upstream and downstream of the discharge was gleaned from the Environmental Protection Agency website (www.epa.ie). The National Parks and Wildlife Service (NPWS) website (www.designatednaturereareas.ie) was also queried in relation to areas and records of rare and protected species within the discharge receiving waters. Further information was collated from the Water Framework Directive website (www.wfdireland.ie).

The certificate application form already submitted by Cork County Council was consulted, in combination with water sampling data supplied by Kerry County Council in relation to various water quality standards. A number of other environmental reports submitted in relation to plans or projects in the region were also reviewed; these included Natura Impact Statements for several other WWTPs further downstream in the Feale catchment.

2.2 Consultation

The Shannon regional division of Inland Fisheries Ireland was consulted in relation to the potential for disturbance to aquatic habitats and fisheries within the River Feale and was also asked to comment on any existing issues in relation to the existing discharges. No reply has been received to date. The National Parks and Wildlife Service (NPWS) were consulted through the Development Applications Unit (DAU); no response has been received to date. Informal phone consultation was also carried out with regional NPWS staff who subsequently referred the consultant to the NPWS site synopses.

3 Assessment

The assessment of impacts associated with the Rockchapel WWTP discharge has been prepared in accordance with the following documents:

- Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007). Environmental Protection Agency. Wexford. 2009.
- Circular L8/08 Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments. 2 September 2008.
- Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government. Dublin. 2009 (Revised March 2010)
- Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, European Commission 2001
- Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats Directive' 92/43/EEC, European Commission, 2000

The assessment process is laid out in Appendix 1. Water sampling data in relation to influent, effluent, upstream and downstream points is reproduced in Appendix 2.

4 Conclusions

The Natura Impact Assessment screening process is laid out in Appendix 1. The findings of this screening process are summarised below.

The Rockchapel treatment plant is operating close to its design capacity and generates an effluent that while being slightly over the UWWT regulation thresholds, is not considered to being leading to any impacts to the Upper Feale. The river is currently considered to be in satisfactory ecological condition with good ecological conditions recorded upstream and downstream of the discharge. Eutrophication does not appear to be a problem, and the nature of the river indicates that it possesses a relatively large assimilative capacity for BOD loading; biological recovery appears to be rapid.

The only two qualifying interests for the cSAC found in this eastern extent of the Natura 2000 site (salmon and otter) are present in good numbers in the sub-catchment and are not predicted to be being impacted in any way by the present effluent.

The screening exercise concludes that no significant impacts to the Lower River Shannon cSAC are envisaged and therefore no further assessment is required. The Finding Of No Significant Effects Matrix is contained in Appendix 3.

Appendix 1 – Rockchapel WWTP Screening

Project	
Location	Discharge associated with agglomeration of Rockchapel village, County Cork.
Distance from designated site	0km: WWTP discharges to the River Feale, inside the cSAC boundary.
Brief description	Rockchapel is an attractive village built on the upper waters of the River Feale, in the north-western periphery of the Kanturk Electoral Area on the borders of Cork, Kerry and Limerick, and is located within a Clár designated area. The general topography of the area comprises steep rolling uplands of the Mullaghareirk Mountains and the radial river patterns of the River Feale. The topography of this area is generally steep and the soil is relatively poor in quality and has become dominated by intensive commercial coniferous plantations. As a whole this landscape is remote and houses and farmsteads are sparse and the buildings that are there are of a modest size and fit well into the landscape. There are few settlements in the area and as a result, the village of Rockchapel contains a number of facilities which serve both the village and a wide rural hinterland. These facilities include a post office, a number of small convenience shops, public houses, church, funeral home, a national school, a community centre, Bruach na Carraige Seisun Centre, a GAA playing pitch and associated clubhouse. There are a number of groups active in the area notably IRD Duhallow which has offices in the town along with a number of community groups including Comhaltas Ceoltoiri Eireann, Rockchapel Development, Rockchapel I.C.A. and Rockchapel Tidy Town Committee. With this in mind, an appropriate amount of suitable land has been zoned for residential development. Rockchapel WWTP is designed for a Population Equivalent (PE) of 150, which was commissioned in 2000. Activated Sludge is the process employed at the Rockchapel waste water treatment plant. Influent initially gravitates into the inlet works, consisting of an automatic screen and bypass followed by a manhole with a high level overflow prior to the inlet sump. At the inlet sump two number pumps forward the influent to the package treatment plant. Following the aeration process effluent gravities to the settlement, the solids settle while the supernatant flows over the weir and discharges to the river. Sludge may be returned from the settling tank to the aeration tank and excess sludge is removed from the settling tank as required to the sludge holding tank and thereafter removed off site for disposal. In the event of high storm flows effluent overflow from the manhole prior to the sump to the river. The final effluent is discharged to the River Feale, which is adjacent to the wastewater treatment plant site. The maximum flow to the existing WWTP is in the order of 33m3/d to 99m3/d. Information provided by Cork County Council indicates that the plant is slightly overloaded, in that the agglomeration it currently serves (225PE, from a house count) is in excess of the design capacity (150PE). The plant is currently licensed for a population equivalent of 240. It is evident from sampling data that treated effluent from the Rockchapel wastewater treatment plant is slightly above the thresholds for compliance with standards contained the UWWT Regulations. It is considered that there are no management issues associated with the plant, as a caretaker with responsibility for a number of small WWTPs in the local region monitors the plant and is on duty between 8am and 5.30pm Monday to Saturday.

Is the plan directly connected with or necessary to the Natura 2000 site management for nature conservation?	No.
Natura 2000 site	
Name	Lower River Shannon
Designation	Candidate Special Area of Conservation
Basis	EU Habitats Directive
Description	*From the NPWS Site Synopsis*: This very large site stretches along the Shannon valley from Killaloe to Loop Head/ Kerry Head, a distance of some 120 km. The site thus encompasses the Shannon, Feale, Mulkear and Fergus Estuaries, the freshwater lower reaches of the River Shannon (between Killaloe and Limerick), the freshwater stretches of much of the Feale and Mulkear catchments and the marine area between Loop Head and Kerry Head. The Shannon and Fergus flow through Carboniferous limestone as far as Foynes, but west of Foynes Namurian shales and flagstones predominate (except at Kerry Head, which is formed from Old Red Sandstone). The eastern sections of the Feale catchment flow through Namurian Rocks and the western stretches through Carboniferous Limestone. The Mulkear flows through Lower Palaeozoic Rocks in the upper reaches before passing through Namurian Rocks, followed by Lower Carboniferous Shales and Carboniferous Limestone. The Mulkear River itself, immediately north of Pallas Green, passes through an area of Rhyolites, Tuffs and Agglomerates. Rivers within the subcatchment of the Feale include the Galey, Smearlagh, Oolagh, Allaughaun, Owveg, Clydagh, Caher, Breanagh and Glenacarney. Rivers within the sub-catchment of the Mulkear include the Killeenagarriff, Annagh, Newport, the Dead River, the Bilboa, Glashacloonaraveela, Gortnageragh and Cahernahallia. The site is a candidate SAC selected for lagoons and alluvial wet woodlands, both habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for floating river vegetation, *Molinia* meadows, estuaries, tidal mudflats, Atlantic salt meadows, Mediterranean salt meadows, *Salicornia* mudflats, sand banks, perennial vegetation of stony banks, sea cliffs, reefs and large shallow inlets and bays 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 – Bottle-nosed Dolphin, Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Atlantic Salmon and Otter. The Shannon and Fergus Estuaries form the largest estuarine complex in Ireland. They form a unit stretching from the upper tidal limits of the Shannon and Fergus Rivers to the mouth of the Shannon estuary (considered to be a line across the narrow strait between Kilcredaun Point and Kilconly Point). Within this main unit there are several tributaries with their own 'sub-estuaries' e.g. the Deel River, Mulkear River, and Maigue River. To the west of Foynes, a number of small estuaries form indentations in the predominantly hard coastline, namely Poulnasherry Bay, Ballylongford Bay, Clonderalaw Bay and the Feale or Cashen River Estuary. Both the Fergus and inner Shannon estuaries feature vast expanses of intertidal mudflats, often fringed with saltmarsh vegetation. The smaller estuaries also feature mudflats, but have their own unique characteristics, e.g. Poulnasherry Bay is stony and unusually rich in species and biotopes. Plant species are typically scarce on the mudflats, although there are some Eel-grass beds (*Zostera* spp.) and patches of green algae (e.g. *Ulva* sp.

	and *Enteromorpha* sp.). The main macro-invertebrate community, which has been noted from the inner Shannon and Fergus estuaries, is a *Macoma-Scrobicularia-Nereis* community. In the transition zone between mudflats and saltmarsh, specialised colonisers of mud predominate: swards of Common Cord-grass (*Spartina anglica*) frequently occur in the upper parts of the estuaries. Less common are swards of Glasswort (*Salicornia europaea* agg.). In the innermost parts of the estuaries, the tidal channels or creeks are fringed with species such as Common Reed (*Phragmites australis*) and Club-rushes (*Scirpus maritimus, S. tabernaemontani* and *S. triquetrus*). In addition to the nationally rare Triangular Club-rush (*Scirpus triquetrus*), two scarce species are found in some of these creeks (e.g. Ballinacurra Creek): Lesser Bulrush (*Typha angustifolia*) and Summer Snowflake (*Leucojum aestivum*). Saltmarsh vegetation frequently fringes the mudflats. Over twenty areas of estuarine saltmarsh have been identified within the site, the most important of which are around the Fergus Estuary and at Ringmoylan Quay. The dominant type of saltmarsh present is Atlantic salt meadow occurring over mud. Characteristic species occurring include Common Saltmarsh Grass (*Puccinellia maritima*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Sea-milkwort (*Glaux maritima*), Sea Plantain (*Plantago maritima*), Red Fescue (*Festuca rubra*), Creeping Bent (*Agrostis stolonifera*), Saltmarsh Rush (*Juncus gerardi*), Long-bracted Sedge (*Carex extensa*), Lesser Seaspurrey (*Spergularia marina*) and Sea Arrowgrass (*Triglochin maritima*). Areas of Mediterranean salt meadows, characterised by clumps of Sea Rush (*Juncus maritimus*) occur occasionally. Two scarce species are found on saltmarshes in the vicinity of the Fergus Estuary: a type of robust Saltmarsh-grass (*Puccinellia foucaudii*), sometimes placed within the compass of Common Saltmarsh-grass (*Puccinellia maritima*) and Hard-grass (*Parapholis strigosa*). Saltmarsh vegetation also occurs around a number of lagoons within the site. The two which have been surveyed as part of a National Inventory of Lagoons are Shannon Airport Lagoon and Cloonconeen Pool. Cloonconeen Pool (4-5 ha) is a natural sedimentary lagoon impounded by a low cobble barrier. Seawater enters by percolation through the barrier and by overwash. This lagoon represents a type which may be unique to Ireland since the substrate is composed almost entirely of peat. The adjacent shore features one of the best examples of a drowned forest in Ireland. Aquatic vegetation in the lagoon includes typical species such as Beaked Tasselweed (*Ruppia maritima*) and green algae (*Cladophora* sp.). The fauna is not diverse, but is typical of a high salinity lagoon and includes six lagoon specialists (*Hydrobia ventrosa, Cerastoderma glaucum, Lekanesphaera hookeri, Palaemonetes varians, Sigara stagnalis* and *Enochrus bicolor*). In contrast, Shannon Airport Lagoon (2 ha) is an artificial saline lake with an artificial barrier and sluiced outlet. However, it supports two Red Data Book species of Stonewort (*Chara canescens* and *Chara cf. connivens*). The site supports an excellent example of a large shallow inlet and bay. Littoral sediment communities in the mouth of the Shannon Estuary occur in areas that are exposed to wave action and also in areas extremely sheltered from wave action. Characteristically, exposed sediment communities are composed of coarse sand and have a sparse fauna. Species richness increases as conditions become more sheltered. All shores in the site have a zone of sand hoppers at the top and below this each of the shores has different characteristic species giving a range of different shore types in the cSAC. The intertidal reefs in the Shannon Estuary are exposed or moderately exposed to wave action and subject to moderate tidal streams. Known sites are steeply sloping and show a good zonation down the shore. Well developed lichen zones and littoral reef communities offering a high species richness in the sublittoral fringe and strong populations of *Paracentrotus lividus* are found. The communities found are tolerant to sand scour and tidal streams. The infralittoral reefs range from sloping

	platforms with some vertical steps to ridged bedrock with gullies of sand between the ridges to ridged bedrock with boulders or a mixture of cobbles, gravel and sand. Kelp is very common to about 18m. Below this it becomes rare and the community is characterised by coralline crusts and red foliose algae. Other coastal habitats that occur within the site include the following: • Stony beaches and bedrock shores - these shores support a typical zonation of seaweeds (*Fucus* spp., *Ascophyllum nodosum* and kelps). • Shingle beaches - the more stable areas of shingle support characteristic species such as Sea Beet, Sea Mayweed (*Matricaria maritima*), Sea Campion and Curled Dock (*Rumex crispus*). • Sandbanks which are slightly covered by sea water at all times – there is a known occurrence of sand/gravel beds in the area from Kerry Head to Beal Head. • Sand dunes - a small area of sand dunes occurs at Beal Point. The dominant species is Marram Grass (*Ammophila arenaria*). Flowing into the estuaries are a number of tidal rivers. Freshwater rivers have been included in the site, most notably the Feale and Mulkear catchments, the Shannon from Killaloe to Limerick (along with some of its tributaries, including a short stretch of the Kilmastulla River), the Fergus up as far as Ennis, and the Cloon River. These systems are very different in character: the Shannon being broad, generally slow-flowing and naturally eutrophic; the Fergus being smaller and alkaline; while the narrow, fast-flowing Cloon is acid in nature. The Feale and Mulkear catchments exhibit all the aspects of a river from source to mouth. Floating river vegetation characterised by species of Water-crowfoot (*Ranunculus* spp.), Pondweeds (*Potamogeton* spp.) and the moss *Fontinalius antipyretica* are present throughout the major river systems within the site. The rivers contain an interesting bryoflora with *Schistidium alpicola* var. *alpicola* recorded from in-stream boulders on the Bilboa, new to county Limerick. There is a resident population of Bottle-nosed Dolphin in the Shannon Estuary consisting of at least 56-68 animals (1996). This is the only known resident population of this E.U. Habitats Directive Annex II species in Ireland. Otter, a species also listed on Annex II of this directive, is commonly found on the site. Five species of fish listed on Annex II of the E.U. Habitats Directive are found within the site. These are Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Allosa fallax fallax*) and Salmon (*Salmo salar*). The three lampreys and Salmon have all been observed spawning in the lower Shannon or its tributaries. The Fergus is important in its lower reaches for spring salmon while the Mulkear catchment excels as a grilse fishery though spring fish are caught on the actual Mulkear River. The Feale is important for both types. Twaite Shad is not thought to spawn within the site. There are few other river systems in Ireland which contain all three species of Lamprey. Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs abundantly in parts of the Cloon River. This site is of great ecological interest as it contains a high number of habitats and species listed on Annexes I and II of the E.U. Habitats Directive, including the priority habitat lagoon, the only known resident population of Bottle-nosed Dolphin in Ireland and all three Irish lamprey species. A good number of Red Data Book species are also present, perhaps most notably the thriving populations of Triangular Club-rush. A number of species listed on Annex I of the E.U. Birds Directive are also present, either wintering or breeding. Indeed, the Shannon and Fergus Estuaries form the largest estuarine complex in Ireland and support more wintering wildfowl and waders than any other site in the country.

Area	72138ha
Condition	There is a wide range of landuses within the site. The most common use of the terrestrial parts is grazing by cattle and some areas have been damaged through overgrazing and poaching. Much of the land adjacent to the rivers and estuaries has been improved or reclaimed and is protected by embankments (especially along the Fergus Estuary). Further, reclamation continues to pose a threat as do flood relief works (e.g. dredging of rivers). Gravel extraction poses a major threat on the Feale. In the past, Cord-grass (*Spartina* sp.) was planted to assist in land reclamation. This has spread widely, and may oust less vigorous colonisers of mud and may also reduce the area of mudflat available to feeding birds. Domestic and industrial wastes are discharged into the Shannon, but water quality is generally satisfactory - except in the upper estuary, reflecting the sewage load from Limerick City. Analyses for trace metals suggest a relatively clean estuary with no influences by industrial discharges apparent. Further industrial development along the Shannon and water polluting operations are potential threats. Fishing is a main tourist attraction on the Shannon and there are a large number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The River Feale is a designated Salmonid Water under the E.U. Freshwater Fish Directive. Other uses of the site include commercial angling, oyster farming, boating (including dolphin-watching trips) and shooting. Some of these may pose threats to the birds and dolphins through disturbance. Specific threats to the dolphins include underwater acoustic disturbance, entanglement in fishing gear and collisions with fast moving craft.
Conservation interests	**SAC Qualifying Interests – Habitats** • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons • Vegetated sea cliffs of the Atlantic and Baltic coasts • Salicornia and other annuals colonizing mud and sand • Atlantic salt meadows (Glauco-Puccinellietalia maritimae) • Mediterranean salt meadows (Juncetalia maritimi) • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation • Sandbanks which are slightly covered by sea water all the time • Large shallow inlets and bays • Reefs • Perennial vegetation of stony banks • Spartina swards (Spartinion maritimae) • Molinia meadows on calcareous, peaty or clavey-silt-laden soils (Molinion caeruleae) • Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) **SAC Qualifying Interests – Species** • River lamprey • Brook lamprey • Sea lamprey • Atlantic salmon • Bottlenose dolphin • European otter • Freshwater pearl mussel

	* Water-dependent habitats and species are underlined **Additional features/species of conservation interest** A number of plant species that are Irish Red Data Book species occur within the site - several are protected under the Flora (Protection) Order, 1999: • Triangular Club-rush (*Scirpus triquetrus*) - in Ireland this protected species is only found in the Shannon Estuary, where it borders creeks in the inner estuary. • Opposite-leaved Pondweed (*Groenlandia densa*) - this protected pondweed is found in the Shannon where it passes through Limerick City. • Meadow Barley (*Hordeum secalinum*) - this protected species is abundant in saltmarshes at Ringmoylan and Mantlehill. • Hairy Violet (*Viola hirta*) - this protected violet occurs in the Askeaton/Foynes area. • Golden Dock (*Rumex maritimus*) - noted as occurring in the River Fergus Estuary. • Bearded Stonewort (*Chara canescens*) - a brackish water specialist found in Shannon Airport lagoon. • Convergent Stonewort (*Chara connivens*) - presence in Shannon Airport Lagoon to be confirmed. Overall, the Shannon and Fergus Estuaries support the largest numbers of wintering waterfowl in Ireland. The highest count in 1995-96 was 51,423 while in 1994-95 it was 62,701. Species listed on Annex I of the E.U. Birds Directive which contributed to these totals include: Great Northern Diver (3; 1994/95), Whooper Swan (201; 1995/96), Pale-bellied Brent Goose (246; 1995/96), Golden Plover (11,067; 1994/95) and Bar-tailed Godwit (476; 1995/96). In the past, three separate flocks of Greenland White-fronted Goose were regularly found but none were seen in 1993/94. Other wintering waders and wildfowl present include Greylag Goose (216; 1995/96), Shelduck (1,060; 1995/96), Wigeon (5,976; 1995/96); Teal (2,319; 1995-96); Mallard (528; 1995/96), Pintail (45; 1995/96), Shoveler (84; 1995/96), Tufted Duck (272; 1995/96), Scaup (121; 1995/96), Ringed Plover (240; 1995/96), Grey Plover (750; 1995/96), Lapwing (24,581; 1995/96), Knot (800; 1995/96), Dunlin (20,100; 1995/96), Snipe (719, 1995/96), Black-tailed Godwit (1062; 1995/96), Curlew (1504;1995/96), Redshank (3228; 1995/96), Greenshank (36; 1995/96) and Turnstone (107; 1995/96). A number of wintering gulls are also present, including Black-headed Gull (2,216; 1995/96), Common Gull (366; 1995/96) and Lesser Black-backed Gull (100; 1994/95). This is the most important coastal site in Ireland for a number of the waders including Lapwing, Dunlin, Snipe and Redshank. It also provides an important staging ground for species such as Black-tailed Godwit and Greenshank. A number of species listed on Annex I of the E.U. Birds Directive breed within the site. These include Peregine Falcon (2-3 pairs), Sandwich Tern (34 pairs on Rat Island, 1995), Common Tern (15 pairs: 2 on Sturamus Island and 13 on Rat Island, 1995), Chough (14-41 pairs, 1992) and Kingfisher. Other breeding birds of note include Kittiwake (690 pairs at Loop Head, 1987) and Guillemot (4010 individuals at Loop Head, 1987). Two additional fish of note, listed in the Irish Red Data Book, also occur, namely Smelt (*Osmerus eperlanus*) and Pollan (*Coregonus autumnalis pollan*). Only the former has been observed spawning in the Shannon. Freshwater pearl mussels are known from the Upper River Feale; a population was encountered during surveys for the N21 upgrade. No detailed survey of pearl mussels in the Lower Feale has taken place to date.

	The Feale is a designated salmonid river, and is also listed as a sensitive river by the UWWT regulations. The Feale, Galey and Brick rivers were all open rivers for salmon angling in 2010, indicating a harvestable surplus for the species.

Stage 1 - Screening	
Describe the individual elements of the plan (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 sites.	The Rockchapel agglomeration receives secondary treatment at the WWTP, before discharging to the Feale River. The effluent then disperses in the water column. An observation of the River Feale in Rockchapel village revealed that at this location, the river is still a relatively small waterbody (2-3m across), but with moderate to fast flows and flowing across frequent riffles and minor falls along a notable incline. No evidence of nutrient enrichment or poor water quality was observed downstream of the discharge. The most recent EPA water quality sampling data from 2007 indicates that the River Feale displays good ecological conditions (Q=4), both upstream of the discharge at Rockchapel Bridge and, 5km downstream of the discharge point, near the Breanagh River confluence. Sampling data for the discharge provided by Kerry County Council indicated that the effluent contains slightly elevated and thus non-compliant concentrations for BOD and Suspended Solids. The Feale at this location is listed as having 95 percentile flow of 0.25m3/sec. Data associated with the assimilative capacity of the river indicates that the discharge leads to an increase of: • 0.008mg/l in Orthophosphate • 0.012mg/l in Total Phosphate • 0.19mg/l in BOD • 0.3mg/l in Suspended Solids • 0.31mg/l in Total Nitrogen • 0.231mg/l in Ammonia Upstream and downstream sampling of the River Feale carried out on behalf of Cork County Council indicates no changes in the measurable levels of BOD, Suspended Solids, Ammonia and Orthophosphate (See Appendix 2). The outfall effluent contains material and solutes which may have a slight eutrophying effect within the receiving stream, but these are likely to exist in significantly lower concentrations than if no treatment were to be applied. No response was received from Inland Fisheries Ireland during the consultation period. NPWS referred the consultant to the NPWS website and Site Synopsis. The Water Framework Directive assigns 'Good' status to the Upper Feale River; this is based on 'Good' results for Macroinvertebrates and overall Ecological condition and 'High' results for fish and physio-chemical status. A high ranking for fish for this stretch of the river is significant, as the headwaters of the Feale are key for spawning salmon and trout.
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans	All potential impacts relate to the effluent of the WWTP entering the cSAC; no impacts will result from land-take, resource usage, excavation, construction or transportation.

or projects) on the Natura 2000 site by virtue of: Size and scale; Land-take; Distance from Natura 2000 site or key features of the site; Resource requirements; Emissions; Excavation requirements; Transportation requirements; Duration of construction, operation etc.; Others.	Disposal of effluent to river systems can lead to altered nutrient balance (eutrophication), increase in particulate matter, potential threat of toxicity, reduction in biological status and loss of habitat / species. Nutrient enrichment has the effect of increasing phytoplankton growth which in turn increases the biological oxygen demand. Organic loading of effluent also leads to localised oxygen depletion in rivers due to microbial action. Such influences would impact negatively on all aquatic life in the receiving Upper Feale. However, the effluent is close to being compliant for BOD and SS and the Feale at this location is a naturally self-oxygenating river due to the numerous riffles and channel incline. Biological recovery is expected to be rapid. Any increases in toxic substances resulting from contamination events during the operation phase could have direct negative impacts on all of the aquatic species for which the Lower River Shannon cSAC has been designated, in particular salmon. The Rockchapel WWTP is a relatively recent piece of infrastructure and contamination events are considered unlikely as the plant is frequently inspected by the appointed caretaker. Any impacts which could negatively affect salmonid populations in the river could have indirect effects on dependent species. Otter may be affected by decreases in fish populations which form a key dietary resource. There is no evidence of negative impacts to fish species in the upper reaches of the Feale, and thus no impacts to otter are envisaged. Lamprey species are naturally absent from the Feale upstream of the Clydagh confluence (O'Connor, W. 2007. *A baseline survey of juvenile lamprey populations in the River Feale catchment*. NPWS). No records exist for Freshwater Pearl Mussel this high up in the Feale catchment. Other plans and projects in the vicinity which may act in combination with the discharge include: • Implementation of Nitrates Directive: Reduction in eutrophying run-off to Feale Catchment • Shannon River Basin District Plan: Overall improvement in river water quality within catchment • Kanturk Electoral Area Local Area Plan: Sustainable development of area with awareness of conservation interests of Upper Feale Catchment • Operation of other WWTPs downstream of the Rockchapel agglomeration (Mountcollins/Abbeyfeale): Cumulative removal of enriching nutrients from Feale catchment Overall, these are likely to have a beneficial cumulative effect on the Natura 2000 site.
Describe any likely changes to the site arising as a result of: Reduction of habitat area; Disturbance of key species; Habitat or species fragmentation; Reduction in species density; Changes in key indicators of conservation value; Climate change.	There will be no loss of our reduction in Annex I habitats as a result of the operation of the existing WWTP. Accelerated algae and plant growth within river water columns leads to shifts in diurnal oxygen concentrations. This in turn leads to loss of biological indicator macroinvertebrate species. These species form the bases of salmonid feeding patterns, and their loss may lead to alterations in river ecology as other less sensitive invertebrate species begin to dominate. The discharge is very close to being compliant with the requirements of the UWWT regulations. Upstream and downstream sampling carried out on behalf of Cork County Council indicates not discernable increases in phosphate loading, and dissolved oxygen is seemingly unaffected by the slightly elevated levels for BOD and SS in the discharged effluent. This is likely to result from the Feale in Rockchapel being a fast flowing river with an open stony substrate and numerous riffles which lead to very rapid biological

	recovery. The river is considered to be in overall satisfactory condition by the EPA, as stated in the most recent water quality report. Salmonid spawning grounds may be significantly impacted by the increased growth of plants on the river substrate. Such growth will also impede the movement of juvenile fish. The receiving stream was observed to maintain an open channel with a stony substrate; this is indicative of a river generally unaffected by eutrophication. It is estimated that climate change will result in more extended but less frequent wet and dry periods and warmer water temperatures, as rainfall patterns in Ireland are changing. This could result in precipitation increases of over 10% in the winter months, and decreases of approximately 25% in the summer, and annual temperature increases. However, there is insufficient information to predict the effects on the site as these will be more closely related to localised rainfall events.
Describe any likely impacts on the Natura site as a whole in terms of: Interference with the key relationships that define the structure of the site; Interference with key relationships that define the function of the site.	Potential nutrient enrichment of receiving waters due to the discharge resultant from the operation of the existing WWTP has the capacity to adversely affect water quality. It may also potentially negatively impact on populations of the protected aquatic species for which the site has been designated. No evidence of such enrichment is currently apparent. Any highly localised reduction in dissolved oxygen around the discharge point is considered to be rapidly negated by the fast flowing nature of the Feale over numerous riffles and low falls.
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale of magnitude of impacts is not known.	The Rockchapel treatment plant is operating close to its design capacity and generates an effluent that while being slightly over the UWWT regulation thresholds, is not considered to be leading to any impacts to the Upper Feale. The river is currently considered to be in satisfactory ecological condition with good ecological conditions recorded upstream and downstream of the discharge. Eutrophication does not appear to be a problem, and the nature of the river indicates that it possesses a relatively large assimilative capacity for BOD loading; biological recovery appears to be rapid. The only two qualifying interests for the cSAC found in this eastern extent of the Natura 2000 site (salmon and otter) are present in good numbers in the sub-catchment and are not predicted to be being impacted in any way by the present effluent. The screening exercise concludes that no significant impacts to the Lower River Shannon cSAC are envisaged and therefore no further assessment is required.

Appendix 2 – Water quality sampling data

Attachment E4 Rockchapel analytical data for certification application							
Sample Date	17/09/2009		17/09/2009		17/09/2009		17/09/2009
Sample	Influent		Effluent		River Upstream		River Downstream
Sample Code	GT1185		GT1186		GT1187		GT1188
Flow M^3/Day	No result		No result		No result		No result
pH	7.2		7.5		7.2		7.1
Temperature °C	No result		No result		No result		No result
Conductivity uS/cm 20°C	752		662		93		92
Suspended Solids mg/L	120		46		<2		<2
Ammonia-N mg/L	35.4		34.2		<0.05		<0.05
BOD mg/L	283		30		<2		<2
COD mg/L	588		292		24		19
TN-N mg/L	54.69		48.44		1.05		1.02
Nitrite-N mg/L	No result		0.564		No result		No result
Nitrate-N mg/L	No result		<0.5		No result		No result
TP-P mg/L	6.2		5.2		<0.05		0.11
O-PO4-P mg/L	4.4		3.6		<0.05		<0.05
SO4 mg/L	No result		<30		No result		No result
Phenols µg/L	No result		<0.10		No result		No result

Appendix 3 – Finding Of No Significant Effects Matrix

Name of project or plan

Discharge associated with Rockchapel WWTP

Name and location of Natura 2000 sites

As given in Screening Matrix above

Description of the project or plan

Secondary treated effluent from the Rockchapel WWTP is released to the water column of the upper River Feale.

Is the project or plan directly connected with or necessary to the management of the sites (provide details)?

No

Are there other projects or plans that together with the project or plan being assessed could affect the sites (provide details)?

- Implementation of Nitrates Directive: Reduction in eutrophying run-off to Feale Catchment
- Shannon River Basin District Plan: Overall improvement in river water quality within catchment
- Kanturk Electoral Area Local Area Plan: Sustainable development of area with awareness of conservation interests of Upper Feale Catchment
- Operation of other WWTPs downstream of the Rockchapel agglomeration (Mountcollins/Abbeyfeale): Cumulative removal of enriching nutrients from Feale catchment

Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site

The Rockchapel treatment plant is operating close to its design capacity and generates an effluent that is slightly over the UWWT regulation thresholds.

Explain why these effects are not considered significant

The Rockchapel WWTP is not considered to be leading to any impacts to the Upper Feale. The river is currently considered to be in satisfactory ecological condition with good ecological

conditions recorded upstream and downstream of the discharge. Eutrophication does not appear to be a problem, and the nature of the river indicates that it possesses a relatively large assimilative capacity for BOD loading; biological recovery appears to be rapid.

The only two qualifying interests for the cSAC found in this eastern extent of the Natura 2000 site (salmon and otter) are present in good numbers in the sub-catchment and are not predicted to be being impacted in any way by the present effluent.

List of agencies consulted

Southwest Regional Management, National Parks and Wildlife Service

Shannon Regional Division, Inland Fisheries Ireland

Response to consultation

No response was received from Inland Fisheries Ireland during the consultation period. NPWS referred the consultant to the NPWS website and Site Synopsis.

Data collected to carry out the assessment

Desktop study and visual observations of River Feale in vicinity of Rockchapel village.

Who carried out the assessment?

Ryan Hanley Consulting Engineers for Cork County Council.

Sources of data

Water quality data from sampling points upstream and downstream of the discharge was gleaned from the Environmental Protection Agency website (www.epa.ie). The National Parks and Wildlife Service (NPWS) website (www.designatednatureareas.ie) was also queried in relation to areas and records of rare and protected species within the discharge receiving waters. Further information was collated from the Water Framework Directive website (www.wfdireland.ie).

The certificate application form already submitted by Cork County Council was consulted, in combination with water sampling data supplied by Kerry County Council in relation to various water quality standards. A number of other environmental reports submitted in relation to plans or projects in the region were also reviewed; these included Natura Impact Statements for several other WWTPs further downstream in the Feale catchment.

Level of assessment completed

Desktop study and visual observation of River Feale in vicinity of Rockchapel village

Where can the full results of the assessment be accessed and viewed?

Assessment to be submitted with certificate application and made available for download on the EPA website.