OFFICE OF CLIMATE, LICENSING & RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Directors	
From:	Seán O Donoghue/ Éimer Godsil	Environmental Licensing Programme
Date:	6 November 2014	
RE:	Application for a Waste Water Discharge Licence from Irish Water, for the agglomeration named **Carrigtwohill and Environs**, Reg. No. D0044-01.	

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of more than 10,000.
Licence application received:	14/12/2007
Notices under Regulation 18(3)(b) issued:	16/05/2008, 24/07/2013, 03/10/2013
Information under Regulation 18(3)(b) received:	01/09/2008, 20/08/2013, 25/10/2013
Site notice check:	03/01/2008
Site visit:	18/07/2013
Submission Received:	09/04/2008, Mr. D. Hugh-Jones, Atlantic Shellfish Limited.

1. Agglomeration

This application relates to the agglomeration named Carrigtwohill located in Co. Cork (See map in Annex 1).

The WWTP was designed to cater for a population equivalent (p.e.) of approximately 5,000. The current loading, comprising industrial, commercial and domestic waste water sources plus leachate from Rossmore and Youghal landfills, is estimated at 12,000 p.e. and is projected to increase significantly in the coming years. There are leachate storage tanks on site with a total capacity of approximately 220m^3. Average daily intake of leachate is 150m^3 (April 2007), which accounts for 6.7% of the total influent to the WWTP (for that time period). *Condition 4.12* of the RL requires the licensee to submit a proposal for the management of leachate at the plant. The sewerage system in Carrigtwohill is a partially separate/partially combined system.

The WWTP provides secondary treatment. Treatment at the plant consists of inlet screen and grit removal, surface aeration, oxidation ditch and secondary clarification and picket fence thickener for sludge drying. Given the current overloading and projected growth for the agglomeration, planning permission has been approved by An Bord Pleanála (2010) for the construction of a new plant. The Design/Build/Operate (DBO) contract for this project was signed in June 2014 and construction of the new plant is expected to commence in July 2015.
The new plant with a design p.e. of 30,000 will consist of inlet screening and grit removal, four (4) sequence batch reactors (SBR), with nitrogen removal occurring in the SBRs, phosphorous removal by sand filtration, sludge drying and dewatering. The design standards for the new plant are BOD 25mg/l, SS 35mg/l, Total Phosphorous (TP) 1mg/l, and Total Nitrogen (TN) 15mg/l.
An inspection of the agglomeration in July 2013 focussed on the treatment plant, pump stations, the primary discharge point and the receiving waters.

2. Discharges to waters

The final treated effluent discharges through the primary discharge point (SW002) to a waterbody named Lough Mahon (Harper's Island), in the Northern Channel of Upper Cork Harbour (see Annex 1 below). This waterbody is also known as Slatty Waters. The normal flow of treated effluent from the WWTP is quoted in the application as 3,180 m^3/day, while the maximum discharge is approximately 5,750 m^3/day. The final treated effluent quality from the WWTP in 2012 was not within the limits prescribed in the Urban Wastewater Treatment Regulations *for discharges to sensitive areas* (BOD 25mg/l, COD 125mg/l, suspended solids 35mg/l, Total Phosphorous 2mg/l, Total Nitrogen 15mg/l). The effluent monitoring results for 2012 for BOD, COD and suspended solids were frequently well in excess of these limits.

Since the making of the application the WWTP has been reconfigured. This reconfiguration involved modification from operation in series (i.e. two aeration and clarification streams operating sequentially) to operation in parallel (i.e. two aeration and clarification streams each treating separate effluent streams, which are split on leaving the inlet works and recombined prior to discharge). This has effectively doubled the treatment capacity of the plant, and eliminated the discharge of untreated effluent volumes, which were significant prior to the reconfiguration. However, the treated effluent does not meet the requirements of S.I. No. 254/2001 for sensitive waters for TP and TN.
There are no secondary discharges within the agglomeration.

There are five wastewater pumping stations (PS) within the agglomeration. There are two emergency overflows associated with these pumping stations. These overflows will only activate in the event of pump failures. The influent flows by gravity to the pump stations, from where it is pumped to the WWTP. All pump stations have duty and stand by pumps. There are two stormwater overflows, both located at pump stations, within the agglomeration. Increased influent volumes generated as a result of rainfall are currently retained within the sewers feeding the PSs. As part of the upgrade, increased stormwater holding capacity will be installed at the Old Cobh Road and IDA Estate pumping stations. These will have a capacity to store 3 DWF for 2 hours, which equates to 520m^3 at the IDA PS, and 400m^3 at the Old Cobh Road. This will enable the WWTP to treat influent retained in these tanks during storm events. When the capacity of these tanks is exceeded the overflows will discharge to a stormwater sewer, which will in turn discharge via the existing primary discharge outfall to Slatty Waters. The RL requires that any stormwater overflows must conform to the criteria as set out in the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995 and any other guidance as may be specified by the Agency. The programme of infrastructural improvements required under Condition 5.1 of the RL

requires an assessment of all storm water overflows (Condition 5.2.3) and preparation of an implementation plan as necessary (Condition 5.3).

Schedule A: Discharges & Discharge Monitoring of the recommended licence (RL) specifies the Emission Limit Values (ELVs) to which the primary discharges, both existing (SW002) and proposed (SW001) from the Carrigtwohill agglomeration must conform. The ELVs are aimed at providing a high degree of protection to the receiving water body. Monitoring of the discharges will take place as per this schedule of the RL.

3. Receiving waters and impact

The following table summarises the main considerations in relation to the receiving water, Lough Mahon (Harper's Island), downstream of the primary discharge. This waterbody is classified under the Water Framework Directive (WFD) as a 'transitional water'.

Table 1: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Lough Mahon (Harper's Island)	WFD Code: IE_SW_060_0700
Applicable Regulations	UWWT Regulations [Note 1] Surface Water Regulations [Note 2]	Not in compliance Not in compliance
Designations	Nutrient Sensitive Water Great Island Channel SAC Cork Harbour SPA	Lough Mahon Site code: 001058 Site code: 004030
EPA monitoring stations	EPA Code: TW05003156LE5350	2.4km west of SW001 in Lough Mahon (Harper's Island)
WFD status	Moderate (2011)	Good status by 2021
WFD Risk Category	1a	At risk of not achieving good status

Note 1: Urban Wastewater Treatment Regulations, as amended, 2001.
Note 2: European Communities Environmental Objectives (Surface Water) Regulations 2009 (as amended).

The Transitional and Coastal Action Plan (TrAC) published by the South Western River Basin District (SWRBD) lists Lough Mahon (Harper's Island) as a waterbody at risk from land based point source pressures and identifies overflows from the WWTP as a point source potentially putting this transitional waterbody at risk. These overflows have ceased since the reconfiguration of the WWTP since the making of the application. This reconfiguration involved modification from operation in series (i.e. two aeration and clarification streams operating sequentially) to operation in parallel (i.e. two aeration and clarification streams each treating separate effluent streams, which are split on leaving the inlet works and recombined prior to discharge). This has effectively doubled the treatment capacity of the plant, and eliminated the discharge of untreated effluent volumes.
The document also identified the waterbody as having moderate ecological status at present.

The Office of Environmental Assessment (OEA) carried out ambient monitoring for the period 2010 - 2012 for the purposes of the trophic status assessment scheme (TSAS). The resulting trophic status for this waterbody is Intermediate and the area is breaching Winter and Summer DIN and oxygenation conditions. In the previous TSAS assessment in 2007 - 2009 the result was also Intermediate as the area was breaching the criteria for Winter DIN and Winter MRP. The 2010 – 2012 monitoring results indicate that the receiving water is not in compliance with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended), due to a breach of the dissolved oxygen lower limit and winter and summer DIN.
The applicant conducted modelling of the impact of the discharge on water quality in Cork Harbour, and supplied a report on the modelling as part of the application. The model estimated the impact of the existing discharge and was also used to determine the appropriate discharge location, discharge periods (i.e. tidal or continuous) and effluent treatment standards for the proposed upgrade scheme. The model aimed to predict, with a view to minimisation of, the combined impact of the Carrigtwohill and Carrigrennane (i.e. Cork City, D0033-01) discharges.
The model selected was MIKE 21, which was developed by the Danish Hydraulic Institute. A hydrodynamic module and a water quality module were run simultaneously to predict the impact on water quality. Both modules were calibrated and validated against field measurements. A variety of scenarios were modelled, varying for tidal conditions, outfall discharge rates and effluent quality, discharge location and discharge periods among others. Wind conditions, fresh water discharges, coliform and BOD decay rates were inputted in addition to bathymetry and boundary (land) data.
The modelling results led to the conclusion that better local dispersion (i.e. within Slatty Estuary) would be achieved with an outfall location at North Point (SW001), than at the existing discharge location near Slatty Bridge (SW002). With regard to discharge periods, the model also concluded that, while there was some localised improved dispersion with tidal discharging, the limited benefits achieved were not justified by the associated increased cost of effluent storage prior to discharge.
With regard to effluent quality, the results indicate that a cBOD effluent concentration of 25 mg/l will not cause any exceedance of the 4 mg/l (transitional waters) water quality standard (WQS) in the receiving waters. Similarly, a 1 mg/l Total Phosphorus concentration in the effluent will give rise to a 0.06 mg/l orthophosphate concentration (i.e. the WQS concentration) 900m downstream of the discharge location. Modelling of coliforms indicate no impact on any of the designated shellfish areas in Cork Harbour.

The RL has set emission limit values (ELVs) of 25 mg/l for cBOD, 125 mg/l for chemical oxygen demand (COD) and 35 mg/l for suspended solids (SS). These limits are in accordance with UWWT Regulations and are considered achievable by modern plant design standards. Though a reconfiguration of the plant has taken place, which doubled the treatment capacity, the plant is currently overloaded. Effluent monitoring results for 2013 indicate that the effluent does not meet the requirements of the Urban Waste Water Treatment Regulations, (as amended) 2001 for TN and TP and currently will not meet the ELVs set in the RL for TN and TP. However the proposed upgrade will include phosphorous removal by sand filtration and anoxic nitrogen removal in the SBRs, the improvements as specified in *Schedule C* of the RL will enable the effluent to achieve standards of 7-25mg/l for TN and 0.5-1mg/l for TP.

The proposed upgrade will cater for 30,000 p.e. initially but will be constructed in modules, such that two additional increases, each of 15,000 p.e., will be catered for, if required, in the future. Stormwater holding capacity will also be installed as described above. This will ensure

that the ELVs set in the RL will be achievable on operation of the new plant. The design specifications for the proposed plant (Phase I) are BOD 25mg/l, SS 35mg/l, Total Phosphorous 1mg/l, Total Nitrogen 15mg/l.
The RL also requires that the discharge shall meet standards of 15 mg/l for TN and 2 mg/l for TP, in order to meet the regulatory requirements for sensitive waters (See Section 7). From the 1st January 2017, an ELV of 1 mg/l is set for TP on the basis of the modelling, as discussed above. An ELV of 0.5mg/l is set for orthophosphate in the RL as the 1 mg/l TP limit is expected, based on the modelling results, to be sufficient to ensure the EQS for orthophosphate is achieved.
Under European Communities Environmental Objectives (Surface Waters) Regulation 2009, as amended, ortho phosphate and BOD are the primary nutrients of concern for transitional waters and the standard for 'Good' status in the receiving waters is ≤0.04mg/l P where the waterbody is>17% salinity. The standard for BOD is ≤4mg/l. The standard for "Good" status of Dissolved Inorganic Nitrogen (DIN) in coastal waters is ≤0.25/mg/l in accordance with European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended). DIN is the sum of Total Oxidised Nitrogen (TON) plus ammonia. The new WWTP will be able to achieve 5-20mg/l for TON and 2-5mg/l for ammonia in the final effluent, therefore ELVs for TON of 20mg/l and for ammonia of 5mg/l have been set in the RL, as drafted.
Though TN and TP are not both required to be specified for sensitive waters as per the Urban Waste Water Regulations and though DIN is not listed in the Surface Water Regulations for transitional waters, in this case both are included in *Schedule A* as winter and summer DIN were breached for the coastal water of Cork Harbour and ortho phosphate is the limiting nutrient for the receiving water.

4. Ambient Monitoring

Schedule B.2: Receiving Water Monitoring of the RL specifies the parameters, analysis method and frequency for which ambient monitoring of the primary discharge shall be carried out. The requirements for ambient monitoring in *Schedule B.2: Receiving Water Monitoring* are sufficient to ensure that there will be no deterioration in the status of the receiving water as a result of the discharge.

5. Combined Approach

The Wastewater Discharge (Authorisation) Regulations (2007, as amended) specify that a 'combined approach' in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations (2001, as amended) and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made. The RL as drafted gives effect to the principle of the Combined Approach as defined in Wastewater Discharge (Authorisation) Regulations (2007, as amended).

6. Programme of Improvements

The applicant has in place a programme of improvements for the agglomeration. The programme of improvements required to be carried out by the licensee as outlined in *Schedule C* of the RL are: increased treatment capacity at the plant, phosphorous removal and upgrade of pumping stations to include installation of stormwater holding. The RL as drafted requires that these works be completed by 31st December 2016 in order to ensure compliance with the emission limit values as set out in *Schedule A: Discharges & Discharge Monitoring of the RL.*

7. Compliance with EU Directives

In considering the application, regard was had to the requirements of Regulation 6(2) of the Wastewater Discharge (Authorisation) Regulations (2007, as amended) notably:

Drinking Water Abstraction Regulations

There are no drinking water abstractions downstream of the discharge from the Carrigtwohill WWTP.

Sensitive Waters

Lough Mahon is designated as sensitive under the UWWT Regulations, 2001 as amended. ELVs for Total Nitrogen and Total Phosphorus have been set in the RL. Given that both nutrients have been responsible for an intermediate trophic status in recent years, ELVs have been set for both parameters in the RL. The Urban Wastewater Treatment Regulations, 2001 (as amended) set limits of 2mg/l for TP and 15mg/l for TN for agglomeration with 10,000 – 100,000pe which discharge to sensitive waters.

Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. In particular, *Condition 3: Discharges* provides conditions regulating discharges to waters. *Schedule A: Discharges & Discharge Monitoring* specifies limit values for those substances contained within the waste water discharge. Those limits specified in the RL are determined with the aim of achieving good water quality status by 2021.

In addition, the Carrigtwohill agglomeration discharges approximately 1 km from the boundary of the Great Island North Channel designated shellfish waters, and approximately 8 km from the boundary of the Rostellan designated shellfish waters. However the geography of the waterways (see Annex 1) dictates that significantly greater travel distances are involved from the discharge point to the shellfish waters. The Great Island North Channel and Rostellan West, North and South Pollution Reduction Programmes all identify the Carrigtwohill WWTP as a key pressure.

Shellfish Waters are on the Register of Protected Areas, under Article 6 and Annex IV of the Water Framework Directive. One of the stated objectives of this Directive (recital 51) is to 'ensure a level of protection at least equivalent to that provided in certain earlier acts'. Condition 5.6, 5.7 & 5.8 of the RL, as drafted, require the licensee to assess the impact of the discharge on the shellfish waters and to install UV disinfection, or other appropriate disinfection, where appropriate; thereby, aiming to ensure that Lough Mahon will meet the relevant specifications for designated shellfish waters.

European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended)

The ambient monitoring data supplied by OEA demonstrates non-compliance in the receiving water with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended). The RL, as drafted, includes emission limit values to ensure that the treatment provided by the plant is sufficient to satisfy the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

Urban Waste Water Treatment Directive [91/271/EEC]

Carrigtwohill WWTP does not comply with the requirements of the Urban Waste Water Treatment Directive, in terms of the level of treatment provided. The RL, as drafted, has regard to the requirements of the Urban Waste Water Treatment Directive.

Dangerous Substances Directive [2006/11/EC]

The applicant has provided once-off sampling results for 9 of the 19 dangerous substances in the primary discharge for the purposes of the licence application. The measured concentrations are not considered significant when compared to the relevant environmental quality standards (EQSs) for ambient water. The measured concentrations of chromium, cyanide and zinc in the primary discharge comply with the relevant environmental quality standards, expressed as annual average values and maximum allowable concentrations, whereas for other parameters the EQS was exceeded, or the laboratory limits of detection were too high to determine compliance.

Condition 4.23 of the RL requires the licensee to identify the priority substances for monitoring by undertaking a risk-based assessment in accordance with "*Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*" issued by the Agency. Monitoring for any identified priority substance shall be carried out as required by the Agency. Condition 4.13 requires the licensee to investigate the sources of priority substances detected and to take measures to reduce or eliminate these substances from the primary discharge.

Birds Directive [79/409/EEC] & Habitats Directive [92/43/EEC]

The Carrigtwohill WWTP discharges directly into the Great Island Channel SAC[1] Site Code: 001058. The site is protected for priority habitats listed under Annex 1 of the Habitats Directive. It is also selected for protection of species listed under Annex II of the same directive. The site is designated an SPA[2], Cork Harbour SPA Site Code: 004030, under the Birds Directive for the conservation of wild birds.

The Great Island Channel SAC stretches from Little Island to Midleton and compared to the rest of Cork Harbour is relatively undisturbed. The main habitats of conservation interest are the sheltered tidal sand and mudflats and Atlantic salt meadows, both habitats listed on Annex I of the EU Habitats Directive. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. Green algal species occur on the flats and the soft muds support a range of macro-invertebrates. Salt marshes are scattered through the site and are all of the estuarine type on mud substrate. All the mudflats support feeding birds. The site is extremely important for wintering waterfowl and wintering waders. Shelduck are the most frequent duck species and there are also large flocks of Teal and Wigeon. The numbers of Grey Plover and Shelduck are of national importance. The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. While the main land use within the site is aquaculture (Oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

Cork Harbour SPA site comprises most of the main intertidal areas of Cork Harbour. Owing to the sheltered conditions in Cork Harbour the intertidal flats are often muddy in character, green algae species occur on the flats and the muds support a range of macro-invertebrates. The site also includes some marginal wet grassland areas used by feeding and roosting birds and the salt marshes scattered through the site provide high tide roosts for birds. Cork Harbour has a nationally important breeding colony of Common Tern and a range of passage waders occurs at the site regularly in autumn. Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable.

[1] SAC: Special Area of Conservation designated under the *Habitats Directive,* Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

[2] SPA: Special Protection Area designated under the *Birds Directive*, Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on European Sites. In this context, particular attention was paid to the European sites at Great Island Channel SAC 001058 and Cork Harbour SPA 004030 and the Agency considered, for the reasons set out below, that the activity is not directly connected with or necessary to the management of those sites as European Sites 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 for the following reasons; the primary discharge is directly into Great Island Channel SAC and to Cork Harbour SPA, effluent quality for 2012 does not comply with the UWWT Regulations nor the Surface Water Regulations, the SWRBD TrAC lists the receiving water Lough Mahon as 'at risk from overflows from the discharge' from the Carrigtwohill agglomeration, the receiving waterbody is at 'moderate' ecological status, under the Water Framework Directive Lough Mahon has a risk score of 1a - at risk of not achieving good status and Trophic Status Assessment 2010-2012 states the waterbody breaches winter and summer DIN and oxygenation conditions.
The Agency has completed the Appropriate Assessment and has determined based on best scientific knowledge in the field and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 and 2013, pursuant to Article 6(3) of the Habitats Directive, that the activity will not adversely affect the integrity of European Sites, in particular Great Island Channel SAC and Cork Harbour SPA, having regard to their conservation objectives and will not affect the preservation of those sites at favourable conservation status if carried out in accordance with this Licence and the conditions attached hereto for the following reasons: improvements to the treatment works to be completed as per Schedule C of the RL by 31st December 2016 - increased capacity at the plant, the installation of phosphorous removal, sufficient stormwater holding at the stormwater overflows in the agglomeration, modelling of the impact of the discharge on Cork Harbour indicates that the proposed primary discharge point location results in increased assimilative capacity and increased effluent dispersion.
In light of the foregoing reasons, the Agency is satisfied that no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of the Great Island Channel SAC and Cork Harbour SPA.

Environmental Impact Assessment Directive [85/337/EEC]
An EIS and a copy of the planning approval were submitted in accordance with the Wastewater Discharge (Authorisation) Regulations (2007, as amended). In assessing the application regard was had to the matters mentioned therein in so far as they related to the risk of environmental pollution of Lough Mahon (Harper's Island) from the waste water discharges associated with this agglomeration. Should any further EIS be required as part of any programme of improvements, it will be dealt with as per Condition 1.8 of the RL.

Environmental Liabilities Directive [2004/35/EC]
Condition 7.2 of the RL satisfies the requirements of the Environmental Liabilities Directive in particular those requirements outlined in Article 3(1) and Annex II of 2004/35/EC.

8. Cross Office Liaison

Robert Wilkes of the Office of Environmental Assessment (OEA) provided a trophic status assessment for the receiving waters, which proved useful for the assessment of the receiving water quality and setting requirements in the RL. Shane O Boyle (OEA) was consulted regarding the trophic status assessment and the modelling of the receiving water conducted by the applicant.

Advice and guidance issued by the Technical Working Group (TWG) was followed in my assessment of this application. Advice and guidance issued by the TWG is prepared through a detailed cross-office co-operative process, with the concerns of all sides taken into account. The Board of the Agency has endorsed the advice and guidance issued by the TWG for use by licensing inspectors in the assessment of wastewater discharge licence applications.

9. Submissions

One submission was received on this application, from Mr D Hugh-Jones of Atlantic Shellfish Ltd., Rossmore, Carrigtwohill, Co. Cork. The issues raised in the submission are summarised below, however as this is a lengthy submission, the submission itself should be referred to for greater detail on the specific points raised.

Mr Hugh-Jones states that the discharge to Slatty Waters from Carrigtwohill WWTP should not be licensed. The basis for his opinion is as follows:

- A very high proportion of the volume of effluent discharged is untreated sewage. Mr Hugh-Jones submitted copies of discharge records from the plant, which indicate that in 2006 about 44% of the volume discharged was effluent which had bypassed the plant as a result of the plant being unable to cope with the volumes of influent. This is a result of poor urban planning.
- Mr. Hugh-Jones cites various figures for influent flows to the WWTP and for overflows from the EIS accompanying the application. These figures appear significantly lower than the corresponding figures recorded for 2006, and in the case of overflows differences of up to 30 fold are evident. However the EIS does acknowledge that the overflow operates continuously, even in dry weather, and Mr Hugh-Jones states that this is totally unacceptable given that the receiving water is "tiny and enclosed".
- The EIS concludes that the plant is severely overloaded, cannot meet its current consent standards, and that there is a low level of dilution available at the current discharge location. As this location is also an SAC, SPA, and NHA, Mr Hugh-Jones states that the discharge location must be one of the worst imaginable, and expects, given this situation, that licensing this discharge will not be contemplated until the plant has been upgraded and the discharge can meet the standards specified in the planning consent.
- He also contends that at times no treatment at all is taking place in the plant, based on records of sludge disposed of at Rossmore Landfill. Records held by the landfill indicate a large variation in the amount of sludge disposed of monthly, with no sludge at all being sent for disposal for some months. He concludes that this can only be the case if no sludge is generated at the plant, which in turn means that no treatment took place during these periods, and all effluent discharged at these times was therefore untreated.
- The licence application does not provide full information on the extent of overflows from the plant, or the most up to date effluent monitoring results (results were provided for 2001 and 2002). Regarding the sampling regime in place, the application is contradicted by the EIS regarding the ability to adequately sample the influent. Mr

Hugh-Jones also points out the absence of important information in the application regarding average daily primary discharge volumes, stormwater and emergency overflows, and points out that the sensitive nature of the receiving waters, and its designation as an SAC, SPA and NHA need to be considered when looking at the discharge.

Response:
With regard to effluent bypassing the WWTP, subsequent to the making of the application the WWTP was reconfigured from operation in series to operation in parallel, as described in Section 3 above, which has effectively doubled the treatment capacity of the plant, and eliminated the discharge of untreated effluent volumes.
The EIS states that stormwater overflows *operate consistently, even in dry weather*, this is no longer the case as these overflows have ceased since the reconfiguration of the WWTP.
The RL requires the WWTP plant to be upgraded by 31st December 2016. This will ensure that the ELVs specified in the RL can be achieved. As discussed above, the ELVs set for the primary discharge will help to ensure that the discharge does not prevent the receiving waters from attaining its WFD objective of good status by 2021.
With regard to the flow figures quoted in the EIS, the applicant has supplied updated effluent flow figures for Quarter 1 of 2013. These indicate an average effluent flow of 3,180 m^3/day, which is consistent with the elimination of WWTP bypasses due to the reconfiguration of the plant. The location of the primary discharge referred to by Mr. Hugh-Jones is required in the RL to be relocated to the point identified in the EIS as the best location in terms of dispersion of the effluent.
Regarding the issue of historical sludge production figures, and the performance of the treatment plant, the WWTP upgrade required by the RL will ensure there is adequate capacity to treat the influent received, such that the discharge can meet the ELVs, and therefore not impact negatively on receiving water quality. Condition 4 of the RL also requires regular influent sampling in addition to continuous and flow proportional composite effluent sampling which will provide good information on plant performance. With regard to consideration of the designation of the receiving waters as nutrient sensitive, and as Natura 2000 sites, these considerations have been made in assessing this application, and are discussed above.

10. Charges
The RL sets an annual charge for the agglomeration at €7,113.78*,* and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

11. Recommendation
I recommend that a Final Licence be issued subject to the conditions and for the reasons as set out in the attached Recommended Licence.

Signed

Éimer Godsil

Environmental Licensing Programme

Annex 1: Map showing location of Carrigtwohill existing and proposed primary discharge points.

Map showing locations of Natura 2000 sites and designated shellfish areas in Cork Harbour.