Section 2. Project Description

2.1 Catchment Description

Ennis town is the county town of Clare, located on the main route between Limerick & Galway. There are a number of small to medium sized industries and a significant amount of commercial business located within the town and associated environs, a high proportion of which are commercial businesses serving the tourist industry. Ennis is in the centre of one of Europe’s most scenic environments with a mixture of land and seascapes providing a backdrop to a host of outdoor pursuits. There are a number of internationally renowned golf courses within easy reach of the town, which is well served by a range of hotels, guesthouses, bars and restaurants.

The majority of Ennis town and its environs is currently served by two municipal wastewater treatment plants (WWTP’s), located at Clonroadmore to the east of the town, off the Ennis-Quin road (R469) and at Clareabbey to the South of the town, adjacent to the N85 link road, off Ennis by-pass. A map of the catchments served by these two treatment plants is provided as Appendix A. The Clonroadmore plant serves the central, northern and western catchments of Ennis town. The Clareabbey plant serves the southern and eastern catchments of the town.

2.2 Project Description

The existing Clonroadmore WWTP is a 2-stream activated sludge plant, without primary sedimentation, and has a designed treatment capacity for a population equivalent of 17,000. An assessment of the hydraulic and biological loading at the plant, indicates that the current loading in the system is of the order of 26,000 population equivalent. An examination of current catchment population and non domestic water demand would also confirm this figure. Taking account of the shortfall in existing treatment capacity and projected population growth for the catchment, an upgrade in the existing treatment plant is required to ensure the discharge from the existing system can comply with the regulatory requirements of the Urban Waste Water Treatment Regulations 2010 and the requirements imposed on the plant operation by the Waste Water Discharge Licence D0048-01, issued by the EPA on 2nd September 2009, under the Waste Water Discharge Authorisation Regulations 2007 (see Appendix B).

The WWTP comprises the following sections (see Appendix C for site layout drawings, flow diagrams design summary indicating the existing and upgraded
Flow through the existing system is constrained by limitations in the design of the clarifier on Stream 1 in the system. This restriction in the throughput volume which can be handled in the treatment chain means that increasing volumes of influent wastewater are diverted to the storm water tanks. These tanks overflow to the River Fergus after primary settlement treatment only. The design philosophy for the proposed increase in capacity is to maximise the efficacy of existing process units and provide additional infrastructure on-site so as to increase capacity of the works without compromising the site boundary.

The current proposal seeks to increase the capacity of some of the existing treatment components (e.g. primary and secondary treatment tanks) and add appropriate supporting infrastructure (e.g. connecting pipelines), so that the facility treatment capacity can be increased to treat an estimated final p.e. of up to 30,150. The proposed increase in scope of secondary treatment of wastewater at the site, would generate additional sewage sludge for processing and ultimate disposal. Thus, an upgraded sludge treatment facility, utilising a picket fence thickner would also be required on-site to deal with this waste stream (see Appendix C).

The wastewater treatment plant footprint will be increased but the overall site itself will not be enlarged. The existing site perimeter boundary will not be breached by any proposed development covered in this upgrade. The current application includes a proposal to continue to discharge to River Fergus via the existing outfall pipework, and the transfer of sewage from the catchment will also continue via the existing sewer infrastructure.

The proposed upgrading works at the plant will include the following:
- Rehabilitation of the storm balance tanks and upgrade of inlet control works
- Installation of screens on the storm overflows
- Installation of agitators in the storm tanks to keep solids in suspension
- Upgrade flow control through the system
- Install flow meters on overflow pipes
- Increase in volume of the aeration tanks by increase in tank depths (from 3.5 to 3.75 metres).
- Increase in aeration to 50 kW per tank (increase of 13 kW per tank) to achieve treatment standard required.
- Upgrade in return activated sludge pumps as required
- Dosing of aeration tanks to reduce phosphate levels in the final discharge (and install associated storage tanks for phosphorus removal)
- New clarification tank on Stream 1 (23.5m diameter circular clarifier) with associated pipework and control
- Decommissioning existing Stream 1 clarifier beds
- Install splitter chamber to share flows from the aeration tanks to the clarifiers
- Install tertiary filtration equipment
- Increased sludge handling capacity in the system (by installation of 8m diameter picket fence thickener)
- Install effluent flow measurement and monitoring equipment

A full description of the existing plant and the proposed upgrading works is provided in Appendix C.

2.3 Site Description
The proposed upgrade for the Clonroadmore WWTP will take place within the existing boundary of the treatment plant. No change is proposed for the present location of the outfall for treated wastewater to the River Fergus. A map indicating the location of the Clonroadmore facility is provided as Appendix E.

2.4 Need for the Project
The primary need for this project is to maintain compliance with the WWDA licence issued by the EPA to Clare County Council in September 2009. The existing facility does not have the capacity to treat incoming flows to the relevant water quality legislation, in particular the Urban Waste Water Treatment Regulations, European Communities Environmental Objectives (Surface Water) Regulations 2009 and the objectives of the Water Framework Directive. This proposal will ensure compliance with the above statutory requirements and in particular the requirements of the Waste Water Discharge
Licence issued by the EPA on 2\textsuperscript{nd} September 2009 (D0048-01), under the Waste Water (Discharge Authorisation) Regulations 2007 (see Appendix B).

In 2002 the Ennis Main Drainage and Flooding Study was prepared by Consulting Engineers, JB Barry & Partners and White Young Green. This report concluded that there was a deficiency in waste water treatment infrastructure for Ennis and its environs The principal relevant recommendations from the Main Drainage section of this report were as follows:

1. Existing wastewater treatment plants should be decommissioned and a new 50,000 p.e. plant constructed adjacent to the existing plant at Clareabbey.
2. Treated effluent to be transferred by pipeline from the new plant to the Fergus Estuary south of Clarecastle.
3. Construction of sewer and tunnel between the existing Tulla Road and Francis Street Pumping Stations.
4. Strengthening and augmentation of the existing sewer network.
5. Reconstruct and re-equip Francis Street Pumping Station, pumping to the new Clareabbey wastewater treatment plant.

Based on the above Ennis Urban District Council applied on 16\textsuperscript{th} January, 2003, to An Bord Pleanála for approval of the Environmental Impact Statement in accordance with Section 175 of the Local Government (Planning & Development) Act 2000 and Article 118 of the Local Government (Planning & Development) Regulations 2001. This approval was granted on 19\textsuperscript{th} December 2003 (PL58EF 2006). Details of the An Bord Pleanála Report, direction and Order are contained in Appendix F of this document. The main change was to move the location of the outfall further south in the Fergus Estuary. The land purchase for the proposed treatment site has been completed.

The 2002 Main Drainage Preliminary Report was approved with conditions by the Department of the Environment, Heritage and Local Government in September 2006.

Current Water Pricing Policy would suggest that 30% of the capital cost contribution would have to be provided by Clare County Council. The DEHLG approved construction costs for these works as follows:
Table 2: Approved Budget Breakdown

The total approved scheme budget cost is €75,645,880. The total approved cost also includes for items such as land purchase costs, design fees, wayleaves, legal fees and contact supervision. Based on this the monies to be provided by Clare County Council would be in the region of €22,500,000. In the current economic context Clare County Council will be unable to fund this amount now or at any time in the foreseeable future.

Circular L6/09 (Appendix T) from the DEHLG requested that local authorities review the provision of water/wastewater infrastructure schemes contained in the Water Services Investment Programme (WSIP). The main points of this circular were to ensure that all schemes:

- have continuing relevance in light of the programme priorities;
- reflect an appropriate scale of works in light of these priorities and timescale for delivery;
- are appropriately phased;
- are affordable and offer value for money;
- and are the most cost effective solution to addressing the problem.

A front loaded approach involving the simultaneous construction of treatment, pump stations and network is no longer considered the most cost effective or affordable solution for Clare County Council. The recommendations of the 2002 Ennis Main Drainage project is currently under review. Under the 2010-2012 Water Services Investment Programme (WSIP) this scheme has been approved to advance through the planning stage (Appendix T).

In terms of future strategy, the upgraded WWTP will serve the needs of the agglomeration until at least 2022. This proposal to upgrade the existing facility at Clonroadmore takes account of the urgent requirement to provide for adequate treatment capacity at Clonroadmore to serve the needs of the present and medium term economic development of Ennis town. Any further treatment capacity required beyond 2022 will be catered for at an expanded

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>WWTP DBO</td>
<td>€46,679,301</td>
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<tr>
<td>Tulla Road PS &amp; Tunnel</td>
<td>€7,187,967</td>
</tr>
<tr>
<td>Network</td>
<td>€4,202,948</td>
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<tr>
<td>Pumping stations</td>
<td>€1,854,113</td>
</tr>
<tr>
<td>Total</td>
<td>€59,942,329</td>
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WWTP at Clareabbey. This project for treatment of the wastewater load arising in the agglomeration takes account of the operational status of the existing treatment facilities, and takes account of the likely requirements of the agglomeration in the short to medium term. Without this proposal the economic development of Ennis and it’s Environs will be severely hampered.

2.5 Design Considerations
This application deals with the necessary upgrading of wastewater treatment facilities at Clonroadmore WWTP. In a general sense, wastewater treatment plants are designed with two objectives in mind. The first objective is to treat whatever volume of wastewater will arrive at the treatment plant. This volume is termed the “hydraulic load to the treatment plant“. The second objective is to treat whatever is transported by or within the wastewater itself. Wastewater typically contains a large component of biodegradable material, and this is termed the “organic load to the treatment plant“. The ultimate goal of the treatment plant is to discharge a treated effluent, which will have as low an environmental impact as is reasonably possible, and comply with all relevant legislative requirements.

In terms of design, a treatment plant must have the capacity to deal with both the hydraulic and organic loads anticipated over its lifetime. The hydraulic load will determine the physical size of the units and pipe-work within the plant while the organic load is treated by appropriate physical and biological processes. In addition to the organic load, wastewater generally also contains non-biodegradable material, such as grit and plastics, which are removed by physical processes (e.g. screening).

The wastewater arriving at the Clonroadmore WWTP consists of a mixture of waste flows from various sources, including domestic, commercial and industrial. Added to this are flows due to surface water drainage and flows due to infiltration into the drainage network from groundwater. While, ideally, surface water and infiltration should not be allowed enter the wastewater drainage network, some degree of infiltration is inevitable and must be allowed for in the design of a WWTP. The design loads relating to the wastewater treatment plant are tabulated below:

<table>
<thead>
<tr>
<th>Design Loadings</th>
<th>30,150 PE</th>
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<tbody>
<tr>
<td><strong>Hydraulic Loading</strong></td>
<td></td>
</tr>
<tr>
<td>DWF</td>
<td>Unit</td>
</tr>
<tr>
<td></td>
<td>Infiltration</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Total</td>
<td>6,784 m³/d</td>
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</tbody>
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<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Peak Inflow to Works (Formula A)</td>
<td>401 l/s</td>
<td></td>
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<tr>
<td>Peak Load to Treatment</td>
<td>3 DWF</td>
<td></td>
</tr>
<tr>
<td>Full Flow to Treatment + Supernatant Return</td>
<td>188 l/s + (20 l/s)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Organic Loading</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>Unit</td>
<td>60 g /PE/day</td>
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<tr>
<td>Total</td>
<td>1810 Kg/d</td>
<td>267 mg/l</td>
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<tr>
<td>TSS</td>
<td>Unit</td>
<td>70 g/PE/d</td>
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<tr>
<td>Total</td>
<td>2,111 kg/d</td>
<td>311 mg/l</td>
</tr>
<tr>
<td>TKN</td>
<td>Unit</td>
<td>12 g/PE/d</td>
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<tr>
<td>Total</td>
<td>362 kg/d</td>
<td>53 mg/l</td>
</tr>
</tbody>
</table>

**Table 3: WWTP Proposed Design Loadings.**

A design report on the proposed works is contained in Appendix C of this EIS.

### 2.6 Construction

It is envisaged that construction will take approximately 12 months and that it will start in 2011 subject to statutory approvals. Construction activities will normally be restricted to 07.00 - 19.00 hours on weekdays and 07.00 - 13.00 on Saturday mornings. Working outside of these hours will not be permitted without prior permission from Clare County Council. It is expected that all construction will be undertaken within the site boundary and hence confined to the WWTP site.

The existing access to the WWTP will be satisfactory during the construction works and no disturbance is anticipated to arise associated with site access during these works, such as could require any additional nuisance to the public. The contractor will be required to ensure the management of deliveries and of equipment at the site.
Due to the nature of the work envisaged, it is anticipated that only a small amount of soil/spoil (or other wastes) will be generated as part of the proposed construction, but any such waste that is generated will be redeployed in site landscaping or disposed of to a suitable licensed or permitted facility.

Plate 1: View east from Clonroadmore WWTP, towards River Fergus
Plate 2: View of storm tank (1 of 2) at Clonroadmore WWTP

Plate 3: View west, towards Fergus Manor, from Clonroadmore WWTP