

Section A

Non-Technical Summary

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SECTION A: NON-TECHNICAL SUMMARY

Advice on completing this section is provided in the accompanying Guidance Note.

A non-technical summary of the application is to be included here. The summary should identify all environmental impacts of significance associated with the discharge of waste water associated with the waste water works. This description should also indicate the hours during which the waste water works is supervised or manned and days per week of this supervision.

The following information must be included in the non-technical summary:

A description of:

- the waste water works and the activities carried out therein,
- the sources of emissions from the waste water works,
- the nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment,
- the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the waste water works,
- further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused;
- measures planned to monitor emissions into the environment.

Supporting information should form **Attachment N° A.1**

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A Description of the Waste Water Works and the Activities Carried Out Therein

The sewerage system serving the town comprises a mixture of separate and fully combined drainage areas, with the town centre being mainly combined and the newer developments having separate foul and surface water systems. The main sewer conveying the discharges to the wastewater treatment works runs along the valley of the Proules River before heading east through the town centre where it connects with sewers serving the northern and eastern parts of the town.

Topographical constraints dictate that there are a number of pumping stations on the system, both to the north and the south of the town. Main pumping stations that serve the sewer network are:

- Ballybay Road PS (owned by County Council)
- Rye Valley PS (Privately owned)
- Magherabue Road PS (Privately owned)
- Railway Court PS (Privately owned)
- Castleblaney Road PS (Privately owned)

The Carrickmacross wastewater treatment plant (WWTP) is located at a site adjacent to the Ardee Road in Carrickmacross town and has a nominal design capacity to treat flows from a population equivalent (PE) of 12,150. Estimates of the load currently arriving at the works suggest that the average daily load corresponds to 23,000 PE with peak loads exceeding 43,000 PE arising on occasion. The difference between the population of Carrickmacross (some 4,500 people including environs) and the loads referred to above is accounted for by discharges from industry, commercial premises, shops, schools and other sources, excluding dwellings, which are collectively referred to as non-domestic discharges. Although the nominal capacity of the existing plant is only 12,150 PE as described above, the plant operators continue to treat the wastewater to the required standards by availing of a certain amount of redundancy in the original plant design, some temporary improvement works and the fact that most wastewater is of industrial origin.

The treatment plant treats all flows that arrive at the works to tertiary standards in accordance with the Urban Waste Water Directive 1994 as shown in the following table:

| Parameter | Effluent Limit |
|------------------|----------------|
| BOD | 25 mg/l |
| COD | 125 mg/l |
| Suspended Solids | 35 mg/l |
| Phosphate | 2 mg/l |

Table 1 – Effluent Discharge Limits

The existing WWTP was last upgraded in 1998. This work (referred to as Stage 3) included provision of an anoxic tank, a second oxidation ditch, 2 No. settling tanks and final effluent monitoring and sampling equipment.

In order to cope with flows above 3DWF storm storage has been provided at the WWTW. The volume of storm storage at the WWTW is approximately 450m³. In the event that the storm water holding tank is filled and the storm continues, the storm water tanks are operated as a pre-clarification tank without sludge removal. The overflow from the storm water storage tank is connected storm water drainage system that discharges to the Proules River.

A summary of the treatment process is presented below:

| | |
|----------------------|---|
| Inlet works | 2Duty/1Standby pumps, 2 No. mechanical screens with a grit removal system and flow measurement. |
| Biological Treatment | 1 No. anoxic tank, 2 No. oxidation ditches |
| Phosphorus Removal | Ferric Sulphate dosing |
| Secondary Settling | 3 No. 15m diameter final settlement tanks with half bridge sludge scraper. Sludge settled within the settlement tanks is withdrawn by gravity from each central sludge hopper to the return sludge pump sump. Surplus Activated Sludge (SAS) is pumped by 2 No. pumps (Duty/Standby) from the pump sump to the sludge blend/holding tank. Return Activated Sludge (RAS) is pumped 2 No. pumps (Duty/Standby) from the pump sump and is mixed with the incoming influent. |
| Tertiary treatment | 3 No. rapid gravity sand filters |
| Sludge Treatment | - 1 No. Picket Fence Thickener for thickening. - 2 No. Sludge Belt Presses with 2 No. sludge transfer pumps, 1 No. poly make-up unit with dosing pumps. |
| Effluent Discharge | 1 No. 450mm gravity outfall pipe to Blackwater River. |

Ancillary equipment at the WWTP also includes the following:

- Odour Treatment Unit with extractor fans.
- SCADA system covering all the plant including sludge treatment process.
- Main Distribution Boards are equipped with a connection to a mobile generator, to be used in case of a power failure.
- Buildings - Inlet and sludge building, electricity transformer building, laboratory and control room building with fire alarm and security alarm systems.

The Carrickmacross WWTP is currently operated by a Monaghan County Council. The plant is manned during the working week 8.00am - 5.30pm (Monday - Friday) by a plant manager and 2 No. operators. During out of hours the SCADA system will send alarms to a mobile phone of the person on standby.

The Sources of Emissions from the Waste Water Works

The pollution load for the Carrickmacross agglomeration arises from the following areas:

- The local Population
- The local Industries (Rye Valley Foods)
- Schools

The pollution load from these sources varies with daily, weekly and seasonal. The sewage from all industries is collected via the public sewer and treated in conjunction with domestic waste at the waste water treatment plant.

The nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effects of the emissions on the environment.

The final effluent is discharged into the River Proules. At this moment the WWTW discharge averages approximately 1,944m³/d to the river.

Monaghan County Council proposes to extend the existing wastewater treatment works to treat wastewaters from both domestic and industrial sources in Carrickmacross Town and its environs. The existing WWTP is operating above its design capacity and the proposed extension is required to provide additional capacity to cater for the existing loads and for the future loads expected to arise as the town continues to expand. It is proposed to extend the existing WWTP to 44,000 PE to cater for the longer development of the town.

The treatment process will continue to be a tertiary standard and will result in a substantial reduction in the polluting capacity of the raw sewage. The proposed treatment plant will treat all flows that arrive at the works to tertiary standards in accordance with the Urban Wastewater Treatment Regulations (SI No. 254 of 2001) as shown in the following table:

| Parameter | Concentration | Minimum Reduction (%) |
|------------------|---------------|-----------------------|
| BOD | 6.5 mg/l | |
| COD | 125 mg/l | 90 |
| Suspended Solids | 10 mg/l | |
| Total Phosphorus | 0.2 mg/l | |
| Total Nitrogen | 15 mg/l | 70-80 |
| Total Ammonia | 1 mg/l | |

Table 2 - Proposed Effluent Discharge Limits

Environmental Impacts

An Environmental Impact Statement was carried out for the Expansion of Carrickmacross Wastewater Treatment Plant in June 1993 by Ryan Hanley & Company, consulting engineers. This report stated:

"4.1 WATER QUALITY

1. *In Chapter 4 it was established that the Proules River, Lough Naglack and Monalty Lake are polluted to varying degrees. One of the major point sources of pollution was shown to be the existing wastewater treatment works. The Stage 3 Works will result in the following improvements in the receiving waters.*

2. *In the River Proules, water quality will improve significantly as a result of the Stage 3 Works:*

- *BOD5 concentrations downstream of the outfall will be lower and there will be a substantial improvement in water quality in the river.*
- *Dissolved Oxygen concentrations will increase.*
- *Orthophosphate and nitrogen concentrations will decrease significantly.*
- *The biological quality rating of the river downstream of the works will recover to a higher rating.*
- *Weed growth on the river banks will decrease.*
- *Runoff from the lands opposite the works will cease as will pollution associated with this runoff (cessation of temporary pumping).*

3. In Lough Naglack the following improvements in water quality are anticipated:

- Increase in the dissolved oxygen concentration.
- Reduction in BOD5 and bacterial concentrations.
- Reduction in enrichment/eutrophication due to discharges from the works.
- Reduction in chlorophyll a concentrations.

4. In Monalty Lough:

- Improvement in water quality.
- Reduction in bacterial concentrations.
- Reduction in chlorophyll a concentrations.

5. The impact of additional treatment on water quality will be beneficial and no negative impacts are anticipated on the receiving waters.

6. During the construction period, the Contractors will be required to adopt measures which will minimise the risks of discharge of silt and/or contaminant to the River Proules. These measures will include:

- bunding of fuel storage tanks
- use of settlement lagoons
- use of electrical pumps for dewatering "

It is necessary to consider that the effluent quality meets the requirements stated in the Urban Waste Water Directive 1994.

A new Environmental Impact Statement is carried out for the proposed Expansion and Upgrading of Carrickmacross Wastewater Treatment Plant in March 2006 by T.J. O'Connor & Associates Consulting engineers. This report is enclosed with this application.

The Proposed Technology and Other Techniques for Preventing or, Where This Is Not Possible, Reducing Emissions from the Waste Water Works

Technologies

In the WWTW at Carrickmacross a sufficient number of standby pumps, fans, etc. is provided in order to ensure continuation of the wastewater and sludge treatment and to comply with all environmental standards in case of equipment failures or breakdowns. Standby equipment is installed, ready for take over, or available in stock on site.

Standby diesel generators or generator sockets in control panels are provided to enable the plant to operate during mains electric power failure thereby preventing untreated emissions from entering the receiving aqueous environment.

Techniques

A Performance Management System (PMS) is in the process of being implemented at the Carrickmacross Wastewater Treatment Plant. This Performance Management System is developed by the Water Services National Training Group (WSNTG). The PMS provides a uniform approach to dealing with all relevant performance management issues, including Independent Compliance Audits, Management of Change, Dispute Resolution, Public Relations, Emergency Procedures and Reporting Procedures.

Monaghan County Council will perform the Operation of the WWTW in accordance with the Performance Management System and maintains the design performance capability of the existing treatment plant.

Further measures planned to comply with the general principle of the basic obligations of the operator, i.e., that no significant pollution is caused

Prevention of pollution

Any alteration upgrading of the existing infrastructure undertaken by Monaghan County Council shall not increase the potential to cause pollution in the environment. In particular any alterations to the wastewater treatment plant will be designed to enable any operator of the facility to prevent pollution of the environment by the following potential contaminants:

- Surface water run-off
- Spillages
- Solid Waste

Toxic Substances

Monaghan County Council shall ensure that any modification or alterations to the plant do not increase the impact by any toxic substances. All chemicals and dangerous substances must be stored safely at all times and all appropriate safety measures must be taken to ensure against leakage and spillage in accordance with the relevant Health and Safety Legislation.

Measures planned to monitor emissions into the environment

The current operators use a paper template for sampling and analysis of the incoming raw sewage, outgoing effluent, sludge and other by products such as screenings. Sampling Procedures are in place and Sampling Schedules are available to monitor the emissions to the environment.

Monaghan is in the process of implementing the PMS as a template, procedures and procedures for sampling and analysis. This system is expected to be operational in January 2008. Sampling procedures will be in accordance with the PMS and applicable Irish and EU Regulations.

Regular independent laboratory analysis is undertaken to monitor compliance with the requirements. Samples are taken at the same well defined point at the inlet and outlet of the treatment works. The sample is stored in a refrigerator to minimize degradation between collection and analysis.

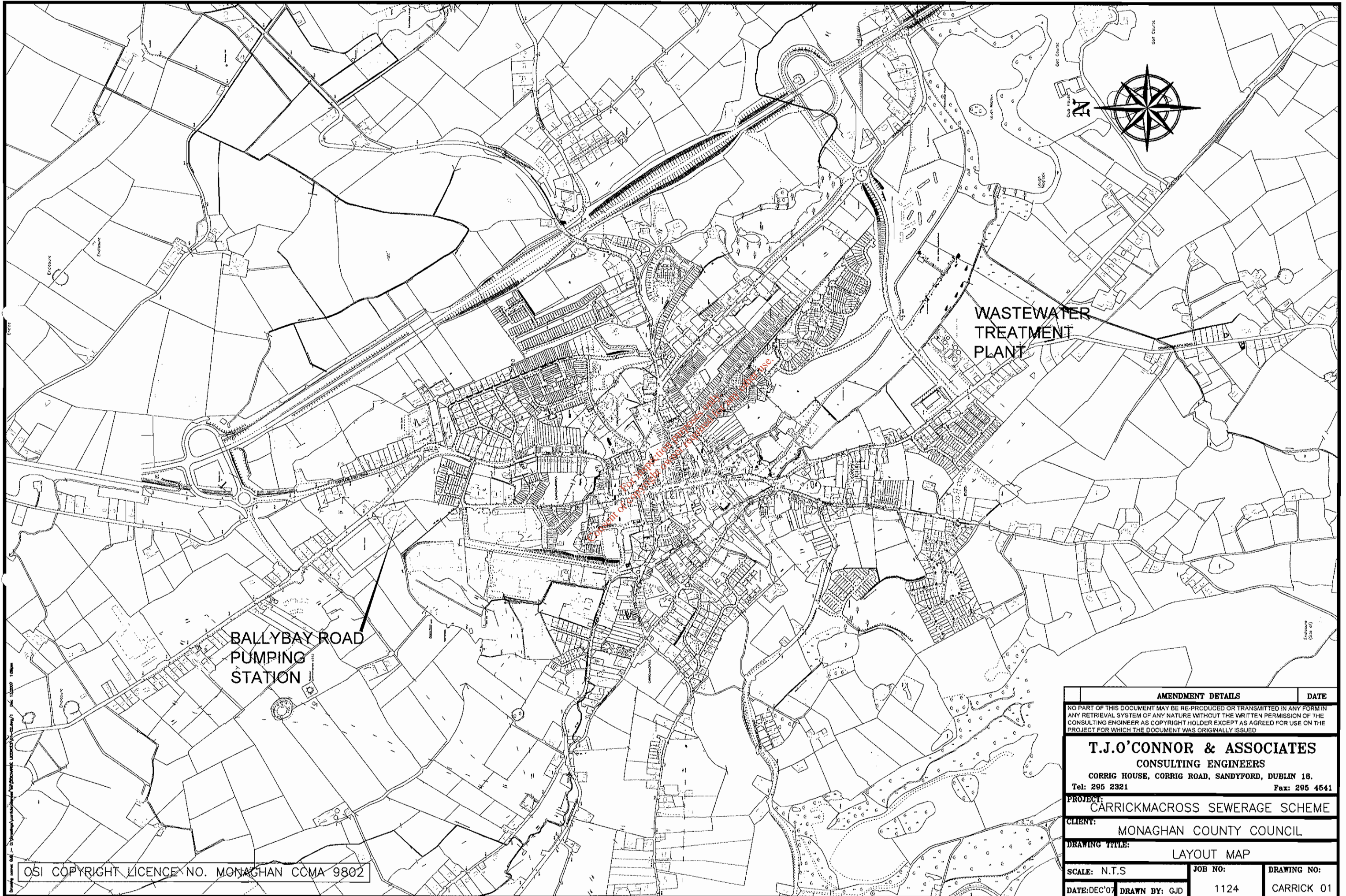
The sampling of the statutory samples is in accordance with the following procedures:

- All samples are representative of the appropriate stream.
- Samples are fixed, stored and handled as per standard methods. Analysis of the samples are undertaken within 24 hours and reported to Monaghan County Council within 48 hours. Exceptions are BOD, metals and pathogen, which are reported within 7 days.

The monitoring and recording of the status of all parameters appropriate to proper control and operation of the plant is carried out.

Attachment No. A.1
Supporting Information

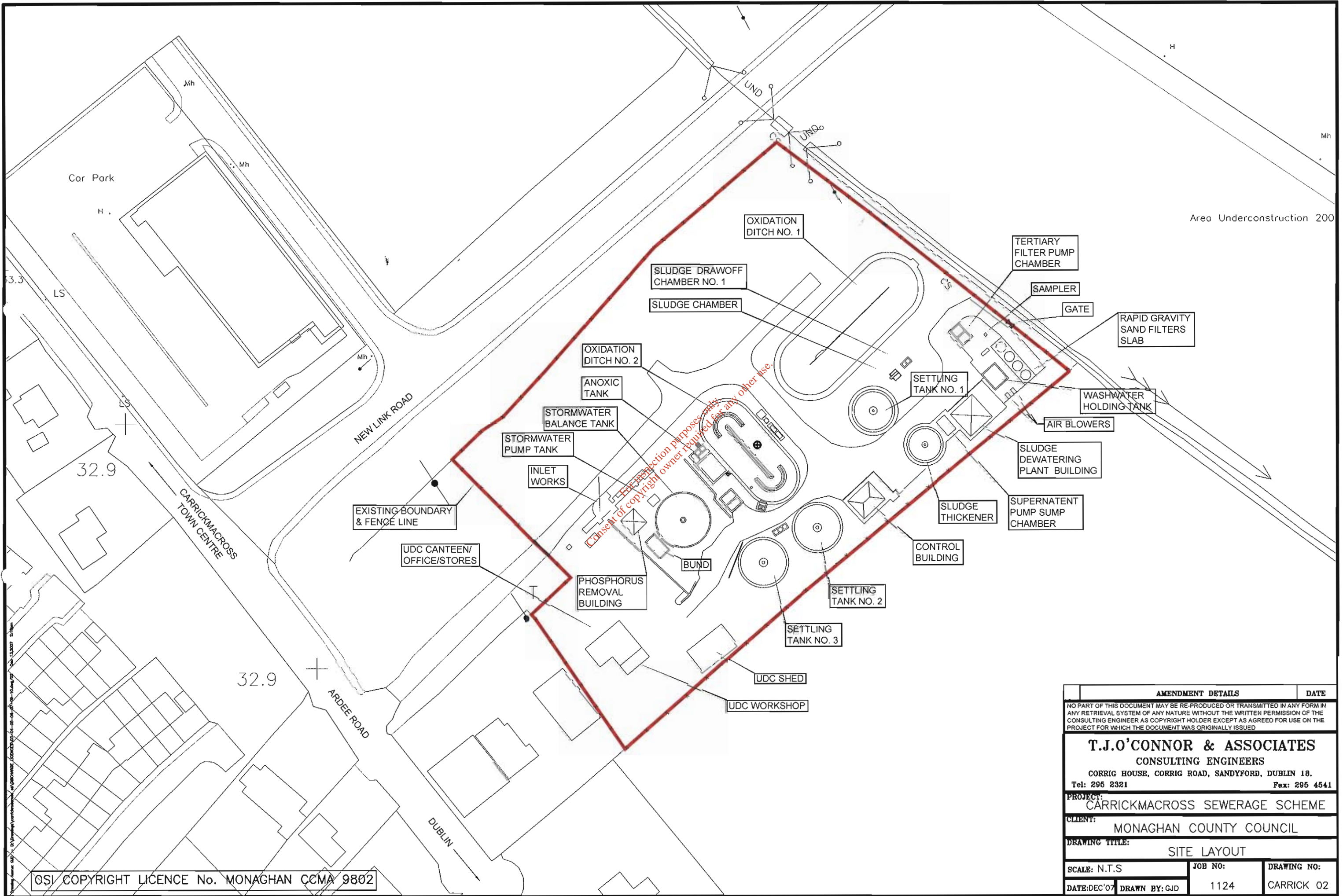
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