1. INTRODUCTION

Ormonde Organics have engaged Bowe Consulting Engineers to provide Civil Engineering design services for the proposed introduction of an Anaerobic Digestion process into an existing facility located in Killowen, Portlaw, Co. Waterford.

The following report details the design criteria used for the design of the storm, foul and water services associated with the proposed development.

The proposed site is located in the townland of Killowen covers an area of some 56,816m^2. The proposed development consists of construction of a number of portal frame type building and associated paving.

2. STORM SEWER DESIGN

The pipe network for the catchment has been modelled using the rational method. The pipe sizes and gradients have been designed to ensure a minimum partial velocity of 0.75lt/sec. The surface water network has been designed to both a 1 in 2 and a 1 in 30 return period in accordance in accordance with "BS8301: 1985 code of practice for building drainage" and in accordance with "Recommendations for site Development works" (Department of the Environment).

See appendix A for storm water calculation sheets.

The existing facility has a total existing roof and hardstanding area feeding into the existing drainage system of 18609m^2. The proposed extension will have a total area of roof and hardstanding of 6992m^2.

The existing discharge from site has been calculated using the Colebrook White equation, as follows,

- ➔ Site hardstanding = 18609m2
- ➔ Impermeability factor = 0.765
- ➔ Rainfall intensity = 50mm/hr
- ➔ Pipe diameter = 300mm
- ➔ Roughness coefficient = 0.6
- ➔ Pipe gradient = 1:36
- ✓ Thus max. existing discharge rate from (Colebrook White) = 185lt/s

We used the Institute of Hydrology Report No. 124 to calculate the permissible outflow (Greenfield runoff) from the proposed additional hardstanding area located within the extended site boundary. Based on an annual average rainfall for Portlaw of 1115mm (taken from Met Eireann records) we calculated the permissible outflow at 10.9l/sec.

See appendix A for permissible outflow calculations.

Using this outflow and the maximum rainfall figures for specific return periods from 5min to 48hours we have been able to calculate the attenuation volume required for a 1 in 100 storm event. The required volume is 243m^3.

See appendix A for attenuation volume calculations.

Within planning drawings we have shown the layout of a standard StormTech stormwater storage tank.

See BCE drawing no.10P536-50 & 55 for the layout of proposed drainage services on site and for associated drainage details.

We have proposed the introduction of a second bypass interceptor for the site. This will filter storm water generated from the proposed extension.

See appendix A for bypass interceptor details.

3. FOUL SEWER DESIGN

We have proposed a system for onsite treatment of the effluent form the proposed development. The existing septic tank and percolation area has to be removed to make way from the proposed extension.

We propose that sewerage from the facility will drain under gravity along existing site drains to a proposed holding and pumping chamber located next to the existing biofilter. The effluent will be pumped to a secondary treatment tank and allowed to percolate within a mounded percolation bed.

Please see appendix B for a copy of our site suitability assessment report.

4. WATER SUPPLY

It is proposed to relocate the existing private well away from its current location, as proposed building extension works cover the current location of the well.

5. FIRE FIGHTING

The site is serviced by an existing fire water retention tank. See BCE drainage drawing (ref.no.50) for details of its location.

Signed: _____ Date: 4th of November 2011

CONTENTS

APPENDIX A

- Storm and foul drainage design to BS8301:1985.
- Permissible outflow calculations to the Institute of Hydrology Report No. 124.
- Attenuation volume calculations.
- The proposed By-pass interceptor details.

APPENDIX B

- Site suitability assessment report.

BOWE CONSULTING ENGINEERS
CIVIL & STRUCTURAL

SITE SERVICES REPORT

Civil Engineers
Report

PLANNING

For

Ormonde Organics
Proposed
Anaerobic Digester Facility

This report takes into account the particular instructions and requirements of our Client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

ISSUE REGISTRATION:

Project: Ormonde Organics, Killowen, Portlaw, Co. Waterford. **Project No:** 10P536-C.06

Rev.	Date	Purpose of Issue/Nature of Revision	Prepared by.	Issue Authorised by.
	04/11/2011	Planning report – issued to Client	BD	IB

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BOWE Consulting Engineers
Civil and Structural

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