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## **SITE REPORT**

DATE: 11/05/2021

Client: Mr John Honey/Mr Paul Smith

Site: New Build site, Netherton Farm, Harewood End, Herefordshire. HR2 8LA

Author: Tim Fycun

### **Foul drainage for 2 No. 4 Bed New Build Houses.**

#### **FOUL DRAINAGE**

The site has plans for 2 x 4 Bed domestic houses. The site is located in an area with no mains sewer connection available so will require an off mains sewage system. Under the British Water flows and loads a 4 bed house is classified as a 6 persons. This means the total population on the site will be 12 persons. It is proposed to install a sewage treatment plant tested and certified to BSEN12566-3 to service both properties and the treated final effluent from the sewage treatment plant would run into a drainage field in the field behind the site. The drainage field would be more than 50m from the nearest watercourse and there are no visible hydrological pathways from the site to any watercourse

The flow from 2 x 4 bedroom houses as per the current edition of British Water Flows and Loads is 150L per person. So a 2 x 4 bedroom (12 x 150L) houses would have a maximum daily discharge of 1.8m<sup>3</sup> (1800L). Under the EA Binding rules 2015 a discharge under 2m<sup>3</sup>/Day to ground does not require an EA discharge license.

## Percolation Test Report

TEST DATE: 11/05/2021

A test hole was dug on site to a depth of approx.2500mm to establish water table depth. The water table was not visible at a depth of 2500mm (See Pic No1)

Firstly three holes were excavated approximately 1000mm square by 500mm deep. A 300mm x 300mm x 300mm hole was then excavated in the bottom of each hole. The 300mm hole was then filled with water and allowed to soak away overnight. The next day the timing trials were conducted again in line with Part H of building regulations. Each 300mm hole was filled and then timed from 75%(225mm) to 25% (75mm)full (150mm). The time was recorded in seconds and the test was conducted 3 times for each hole. The total times are added and an average calculated and then divided by 150 to give a time for the water to drop 1mm also known as the Percolation value (VP)

The soil type on site was a sandy/clay soil. The weather on the day of testing was overcast with heavy rain showers. The previous week had been dry with intermittent heavy rain showers.

### **TRIAL HOLE ONE TIMINGS (Sec)**

1. 6600 seconds
2. 7200 seconds
3. 7800 seconds

### **TRIAL HOLE TWO TIMINGS (Sec)**

1. 7200 seconds
2. 7500 seconds
3. 7800 seconds

### **TRIAL HOLE THREE TIMINGS (Sec)**

1. 6300 seconds
2. 7200 seconds
3. 7500 seconds

The 9 Trial Hole timings are then added and divided by 9 to give an average time for the site ( $65'100/9 = 7233.33$ .) This is then divided by 150 to give the time it takes for the water to drop 1mm and this is the percolation value (VP). This figure was  $7233.33/150 = 48.22$ .

The area of drainage field required is calculated by the following formula.

$$AT \text{ (Area)} = P \text{ (Population)} \times VP \text{ (Percolation value)} \times 0.25 \text{ (Septic Tank)}$$

This equates as following,  $12 \times 48.22 \times 0.20 = 115.73\text{m}^2$ . Drainage area required  $115.73\text{m}^2$

The drainage area is divided by the trench width (600mm) to calculate the linear trench length required as per the BS6297 guidelines. The linear metres of trench required is 192.88m. The 600mm wide trenches should be layed out with a 1m interspacing between each trench. The pipework must be 110mm perforated sewer pipe with 300mm of 30-50mm clean stone beneath the pipe and 50mm over the pipe, a geotextile membrane should then be layed over the stone before backfilling with soil. The pipework should be layed in a gradient no more than 1:200. Each trench should be no longer than 30m.

This would equate to 7 x 28m long 600mm wide trenches inter connected in a closed loop system. The total drainage area would be  $257.6\text{m}^2$ .

Pic1 – Test Hole for Groundwater 2500mm deep



Pic 2 Test Hole 1



Pic 3 Test Hole 2



Pic 4 Test Hole 3

