Appendix D

ASSESSEMENT OF ON-SITE WASTEWATER TREATMENT SYSTEM

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January 7, 2025

Existing Development at Isertkelly North, Kilchreest, Co. Galway

1. INTRODUCTION

Envolution was requested by Isertkelly Ltd. to assess the condition of the existing on-site wastewater treatment system at a rock extraction quarry in Isertkelly North, Kilchreest, Co. Galway (the site).

It is understood that the system was constructed and installed c.2007, and as a result the appropriate guidelines would have been the EPA Water Treatment Manuals:

a. EPA Manuals: Treatment. Systems for Single Houses (2000);
b. EPA Manuals: Treatment Systems for Small Communities, Business, Leisure Centres and Hotels (1999).

2. VISUAL INSPECTION

A visual inspection of the condition of the on-site wastewater treatment system was conducted on 7th January, 2025. The area overlying the percolation area had been overgrown with weeds and briars, which were cleared in advance of the visual inspection.

The inspection confirmed the presence of a twin-chamber concrete septic tank, a downstream distribution chamber, and percolation pipes. The components of this installation are as outlined below, and can be seen in the photos contained in Appendix A – Photographs.

2.1 Septic Tank

The visual inspection noted that the septic tank appeared to be in a good state of repair, although T-pieces were missing on the inlet (Photo 1) and the outlet (Photo 2) pipes. A baffle wall (Photo 3) is in situ between the two chambers of the tank. Although no vents were observed on the tank, the manhole cover provides a sufficient void over the top of the access shaft as to allow for the movement of air and the venting of gases.

No riser sections were in situ, making visual inspections and access for maintenance straightforward. The operating liquid level was such that would suggest the tank is not exfiltrating effluent to the environment, and although it is unlikely that the tank is cracked, this could not be confirmed from a visual inspection.

The tank is 2.0m internal diameter, with a working liquid depth of 1.7m. The usable capacity of the septic tank is therefore 5,340 litres.

The septic tank is located in excess of 7m from the development served, which is as per the recommendations outlined in the EPA Code of Practice. There are no domestic dwellings in the vicinity of the septic tank.

2.2 Distribution Chamber and Percolation Area

The visual inspection of the system confirmed the presence of a distribution chamber (Photo 4), with one inlet and three outlet pipes. The percolation area consists of three 10m runs of distribution pipes, totalling 30m, with visible vent stacks to delineate the ends of the pipes (Photo 5). The pipes are 110mm smooth-wall slotted wavin pipes. Although the condition and performance of the percolation cannot be commented on and is omitted from this report, no odours or nuisance was noted in the vicinity of the percolation area.

The percolation area is located in excess of 10m from the development served, which is as per the recommendations outlined in the EPA Code of Practice.

3. HYDRAULIC LOADING CALCULATIONS

The table below, which is based on the recommended wastewater loading rates from commercial premises (as outlined in EPA 1999), sets out the total population equivalent (PE) and the required length of percolation trench for the development:

Peak Loading	No. of Persons	Hydraulic Loading Rate (l/person.d)	Hydraulic Load (l/d)	PE	Perc. Length (m)
Open industrial site e.g. quarry (excluding canteen)	4	40	160	1.1	19.2
Toilet blocks (per use)	10	5	50	0.3	6.0
Total			**210**	**1.4**	**25.2**

The septic tank design capacity in litres can be calculated from the following formula:

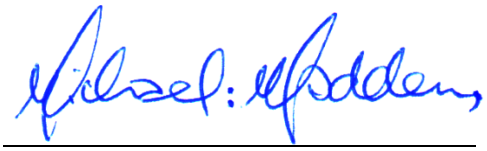
$$C = (150 \times PE) + 2{,}000$$
$$= (150 \times 1.4) + 2{,}000$$
$$= 2{,}210\ litres$$

Best practice now dictates that a minimum design capacity of 2,600 litres should be provided on sites where the population is 4 PE or less. In any event, the capacity of the installed septic tank of 5,340 litres is well in excess of the minimum required.

The recommended length of the percolation trench, based on the guidance contained in the EPA Code of Practice: Domestic Wastewater Treatment Systems (Population Equivalent ≤10) (2021), is 25.2 linear metres. The installed length of percolation trench is 30m, which is in excess of the recommended length based on the development's loadings.

4. CONCLUSIONS

1. The appropriate guidelines for the installation of the on-site system would have been the EPA Manuals; EPA 1999 and EPA 2000.
2. The septic tank meets the best practice requirements / recommendations:
    a. It has twin chambers and being set back appropriately from development served;
    b. It is adequately sized and appears to be in good working order.
3. The septic tank is followed by a distribution chamber and three 10m runs of percolation piping, totalling 30m:
    a. The condition and performance of the percolation cannot be commented on and is omitted from this report.



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For Envolution

Date: 7th January 2025

APPENDIX A – PHOTOGRAPHS

PHOTO 1. SEPTIC TANK INLET

PHOTO 2. SEPTIC TANK OUTLET

PHOTO 3. BAFFLE WALL

PHOTO 4. DISTRIBUTION ACCESS JUNCTION

PHOTO 5. PERCOLATION AREA, WITH VENTS VISIBLE AT THE ENDS