2024

SITE SPECIFIC PROPOSAL

CLIENT: CORK COUNTY COUNCIL
SITE ADDRESS: GLOUNTANE, CO. CORK
DATE:30/09/2024
PREPARED BY:AVRIL MULCAHY

Ireland
WASTE WATER
SEWAGE TREATMENT SYSTEMS

Site Suitability Assessment carried out to the EPA 2021 CoP

All recommendations and proposals are based from the EPA 2021 CoP

Cloverhill, Ballymartle, Riverstick, Co. Cork

Tel: 021-4771000 Fax: 021-4771015

www.irelandwastewater.ie

Suppliers of Euro Bio Sewage Treatment Systems: Rainwater Harvesting Systems: Pumping Stations: Effluent Tanks: Septic Tanks: Grease Traps: Oil/Petrol Interceptors

Farm

1.1 TREATMENT SYSTEM

The following loadings were calculated based on table 3 from the EPA small communities under the source of office/factory with canteen

Hydraulic Load	2 persons @ 60 l/person/day = 900 litres/day
Organic Loading:	2 persons @ 30g BOD_5/person/day = 360g BOD_5/day

We would recommend our specified 'Euro-Bio 6' Treatment System which has been tested about all aspects of the day to day running of the sewage treatment system under the I.S. EN 12566-3. The information attached provides you with details of our 'Euro-Bio 6', which can treat Normal Domestic Effluent for a maximum of 6 residents.

1.1 WASTEWATER QUALITY

Table 1. The 'Euro-Bio' system is designed around achieving:

	Biochemical Oxygen Demand BOD_5	Suspended Solids SS	Ammonia NH_4-N
Minimum Required from the EPA 2021 CoP	<20 mg/l	<30 mg/l	<20 mg/l
Euro Bio Performance	4 mg/l	11 mg/l	0.2 mg/l

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Ireland Waste Water has been providing domestic wastewater treatment systems to private and public sectors for the last 20 years. Ireland Waste Water manufactures precast concrete SBR waste water treatment systems in our factory in Riverstick, Co. Cork . Ireland waste Waters waste water treatment systems are certified to our current guidelines and regulations IS12566-3 & SR66. The "Euro-Bio" waste water sewage treatment system uses a type of activated sludge (suspended growth) process, known as an SBR (sequencing batch reactor) process. This is identical to the systems used in some large Local Authority treatment works, but on a smaller scale. From design to start-up Ireland Waste Water works with engineers, approving authorities, and the customer to provide systems which will satisfy the needs of the project, and produce high quality effluent. Ireland Waste Water incorporates not only proven, reliable treatment processes but also the latest technology available.

1.2 Disposal System

Site Assessment Findings

Depth of Trial hole	Trial hole excavated at 2.1 m below ground level
Water Table / Water Ingress	Water tableencountered at 1.8m below ground level
Soil Characteristics from the using British Standard 5930 (BSI, 2015)	**Layer 1 0.0m-0.2m Hardcore/gravel** **Layer 2 (0.2m-1.2m) Gravelly Silt Fill layer** **Layer 3 1.2m-2.1m Sandy Clay - Undisturbed ground**
Percolation Test Values	
Surface	
Sub-Surface	**3.61 (min/25mm)**

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1.2 Design of Percolation Area

Propose to install: Wastewater treatment system and Tertiary Treatment System and Infiltration /treatment area

System type: Euro Bio 6 Precast concrete SBR Wastewater treatment system IS EN12566-3&SR66

Circle 7 Tertiary Treatment system and infiltration area IS EN12566-7

Considering the factors of the percolation value being borderline acceptable proposing a SBR secondary waste water treatment system and tertiary filter is the most suitable option for this site. Proposing a Circle 7 has numerous benefits such as PIA E12566-7 (which is required in the EPA 2021 CoP and Building Regulations 2010 Rev2016) , Proven Performance, Smaller Infiltration area and low maintenance. Attached is a booklet outlining the advantages of a certified Tertiary Treatment Unit.

1.3 Design Calculation

The filtration area for after a Circle 7 can be calculated using table 10.1 in the EPA 2021 CoP. Please See Figure 1.0 for copy of the table in this report.

3.75 * 2= 7.5m2

- The final effluent from tertiary treatment systems shall be evenly discharged to a 300 mm deep gravel distribution area to the **(7.5m2)** infiltration area
- The gravel layer will be laid at approx. 0.600m of unsaturated soil distribution pipes from the filter are 100mm diameter within the gravel layer. Laid down at 1:200. 8mm holes are at 4,6,8 o clock at 75mm centres. These are pointing downwards.
- A geotextile membrane covers the ground layer and topsoil will be mounded on top to cover, protect and identify the location of the percolation area.

Inspection chamber

The Circle 7 filter has an inspection hatch for taking water samples. An inspection chamber before it discharges through the perforated pipe onto the distribution gravel. This is for maintaining and ensuring high quality effluent.

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Installation Sign off Requirements.

The installation of the mechanical aeration system and construction of the Infiltration area should be certified in compliance with the EPA 2021 guidelines and recommendations here by the engineer/architect competent person certifying the fitting if the treatment system on site.

1.4 ON-GOING MAINTENANCE OF THE EURO-BIO SYSTEM

We offer a maintenance contract to service and inspect the system annually. On each service the system is inspected thoroughly, a detailed Maintenance Service Sheet is completed and a copy handed to the customer.

If you have further queries, please do not hesitate to contact us.

Yours Truly,

_____

Mary Louise Mulcahy (MD Ireland Waste Water)

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Ireland WASTE WATER SEWAGE TREATMENT SYSTEMS

Suppliers of Euro Bio Sewage Treatment Systems: Rainwater Harvesting Systems: Pumping Stations: Effluent Tanks: Septic Tanks: Grease Traps: Oil/Petrol Interceptors Farm

Figure 1.0 Table 6.3 taken from the EPA Code of Practise 2021

Table 6.3: Minimum unsaturated soil and/or subsoil depth requirements

Infiltration/treatment area	Minimum depth (m)[a]		
	GWPR R1 and R2[1]	GWPR R2[2], R2[1], R2[4] and R3[1]	GWPR R3[2]
Percolation trenches and intermittent soil filters following septic tanks	1.2	2.0	Not acceptable
Polishing filters following secondary systems and infiltration areas following tertiary systems (other than below)	0.9	1.2	1.8
Drip dispersal systems where the percolation value is >75. Infiltration areas following tertiary systems where the tertiary treatment system is proved to reduce E. coli to 1,000 cfu/100 ml prior to discharge to the infiltration area.[b]	0.6	0.9	1.2

[a] These depths refer to the minimum depth of unsaturated soil and/or subsoil between the point of infiltration and the bedrock and the water table. The point of infiltration is at the base of the distribution gravel in all systems, except for (a) sand filter with underlying polishing filter where it is at the base of the basal gavel layer (Figure 8.4) and (b) drip dispersal where the tubing itself is the point of infiltration.

[b] Tertiary system tested using representative secondary effluent, 90% of values complying, no value exceeding by more than 30%.

See the last Row-Infiltration areas following tertiary systems, which is relevant to Circle 7

Figure 1.1 Table 10.1 taken from the EPA Code of Practise 2021

Table 10.1: Infiltration/treatment area and trench length design for tertiary treatment, per PE

Percolation values (PVs)	Pumped or underlying gravity discharge (Options 1 and 2)	Gravity discharge into 500 mm wide trenches (Option 3)	Low-pressure pipe distribution into 300 mm wide trenches (Option 4)	Drip dispersal system (Option 5)	Tertiary infiltration area (Option 6)
	Area required per person (m^2)	Trench length required per person (m)	Trench length required per person (m)	Area required per person (m^2)	Area required per person (m^2)
3 ≤ PV ≤ 20	≥7.5	≥6	≥6	≥5	≥3.75
21 < PV ≤ 40	≥15	≥12	≥12	≥14	≥7.5
41 < PV ≤ 50	≥30	≥17	≥17	≥16	≥15
51 < PV ≤ 75	≥50	≥19	≥19	≥22	≥25
76 < PV ≤ 90	–	–	≥28	≥34	–
91 < PV ≤ 120	–	–	–	≥54	–

See Option 6 (Tertiary Infiltration Area) which is relevant to the Circle 7 Calculations

2.0 EPA Site Charcterisation Form

1.0 General Details
2.0 General Details from planning application
3.0 On Site Assessment
4.0 Conclusion of site characterisation
5.0 Selected DWWTS
6.0 Treated System details
7.0 Site Assessor Details

IWW Engineer

SITE CHARACTERISATION FORM
COMPLETING THE FORM

Note: This form requires the latest version of Adobe Acrobat Reader

and on PC's Windows 7 or later. Windows XP produces errors in calculations

Step 1:

Goto Menu Item **File, Save As** and save the file under a reference relating to the client or the planning application reference if available.

Clear Form

Use the **Clear Form** button to clear all information fields.

Notes:

All calculations in this form are automatic.

Where possible information is presented in the form of drop down selection lists to eliminate potential errors.

Variable elements are recorded by tick boxes. In all cases only one tick box should be activated.

All time record fields must be entered in twenty four hour format as follows: HH:MM

All date formats are DD-MM-YYYY.

All other data fields are in text entry format.

This form can be printed out fully populated for submission with related documents and for your files. It can also be submitted by email.

Section 3.2 In this section use an underline _____ across all six columns to indicate the depth at which changes in classification / characteristics occur.

Section 3.4 Lists supporting documentation required.

Section 4 Select the treatment systems suitable for this site and the discharge route.

Section 5 Indicate the system type that it is proposed to install.

Section 6 Provide details, as required, on the proposed treatment system.

APPENDIX A: SITE CHARACTERISATION FORM

File Reference: CCC24

1.0 GENERAL DETAILS (From planning application)

Prefix: First Name: Cork County Council Surname:

Address:

Site Location and Townland: Glountane, Co. Cork

Number of Bedrooms: Maximum Number of Residents: 4

Comments on population equivalent

To calculate wastewater capacities, a typical daily hydraulic loading of 60 liters per person and 30BOD grams/litre should be used for Offices with a canteen as per EPA Small Communities Manual.
2*60=120/150=1pe 30*2=60/60=1PE

Proposed Water Supply:

Mains ☐ Private Well/Borehole ☑ To be bored on-site Group Well/Borehole ☐

2.0 GENERAL DETAILS (From planning application)

Soil Type, (Specify Type): Alluvium

Subsoil, (Specify Type): Alluvium

Bedrock Type: Gyleen Formation

Aquifer Category: Regionally Important | Locally Important Lg Poor

Vulnerability: Extreme ☐ High ☑ Moderate ☐ Low ☐

Groundwater Body: Ballinhassig East Status Poor

Name of Public/Group Scheme Water Supply within 1 km: Mains water in the area

Source Protection Area: ZOC ☐ SI ☐ SO ☐ Groundwater Protection Response: R1

Presence of Significant Sites (Archaeological, Natural & Historical): Please see attached 6" historic OS map in the photo report

Past experience in the area: I have no past experience within 1km in the proposed area.

Comments:

(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, and/or any potential site restrictions).

Information above was taken from Groundwater Data Viewer. https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=bc0dba38f3f5477c8fd400f66b5eedcd

R1=Acceptable subject to normal good practice (i.e. system selection, construction, operation and maintenance in accordance with this CoP)

Note: Only information available at the desk study stage should be used in this section.

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment

Landscape Position:	Foot of slope, Low lying ground		
Slope:	Steep (>1:5) ☐	Shallow (1:5-1:20) ☐	Relatively Flat (<1:20) ☑
Slope Comment			Site & Proposed percolation are

Surface Features within a minimum of 250m (Distance To Features Should Be Noted In Metres)

Houses:

There is a linear-style dwellings located approximately 70 meters north of the proposed percolation area. These houses are situated up-gradient and are connected to the mains water supply.

Existing Land Use:

Previously used as a vehicle parking area, it is currently not in use.

Vegetation Indicators:

None of concern

Groundwater Flow Direction: Assumed to be North to South

Ground Condition:

Gravel/hardcore under foot

Site Boundaries:

Fencing, entrance is at the North boundary.
Train tracks located at the South boundary.

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment (contd.)

Roads:

L3004 located at the North boundary

Outcrops (Bedrock And/Or Subsoil):

None within 250m of the Proposed Percolation area.

Surface Water Ponding:

No surface water ponding visible on site.

Lakes:

Assumed Marsh 180m South West from the proposed percolation area

Beaches/Shellfish Areas:

No Beaches/shellfish areas within 250m of the Proposed Percolation Area

Wetlands:

Unsure

Karst Features:

No Karst features within the site

Watercourses/Streams:*

No streams visible within the site and surrounding area.

None within 100m radius of the proposed percolation area.

***Note and record** water level

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment (contd.)

Drainage Ditches:*

No drainage ditches visible within the site and boundary.
No drainage ditches evident on road.

Springs:*

No springs known within the site and surrounding area

Wells:*

Proposed office unit will be served by a bored well.

Neighbouring houses are served by mains water.

The test holes will be excavated where the proposed percolation area will be located that willl be in accordance wit table 6.2 from the EPA Code of Practise 2021

Comments:
(Integrate the information above in order to comment on: the potential suitability of the site, potential targets at risk, the suitability of the site to treat the wastewater and the location of the proposed system within the site).

The site, initially, seems suitable for discharge to ground. As the soil type in the area is alluvium, surface water is not likely to be at risk around the site. Groundwater as a resource will be at risk if the minimum depths required are not achieved on the site, or if the percolation rate is too rapid. Given the response R1 and the aquifer type as LG , the site is potentially suitable for a mechanical aeration system serving the office unit with a canteen for a total of 2 staff, and discharge to ground, if the minimum depths required are met on the site, if the minimum separation distances can be met, and if the percolation rate is adequate.

***Note and record** water level

3.2 **Trial Hole** (should be a minimum of 2.1m deep (3m for regionally important aquifers))

To avoid any accidental damage, a trial hole assessment or percolation tests should not be undertaken in areas which are at or adjacent to significant sites, (e.g. NHAs, SACs, SPAs, and/or Archaeological etc.), without prior advice from National Parks and Wildlife Service or the Heritage Service.

Depth of trial hole (m): 2.1

Depth from ground surface to bedrock (m) (if present):

Depth from ground surface to water table (m) (if present): 1.8

Depth of water ingress:

Rock type (if present):

Date and time of excavation: 09-Sep-2024 09:00 Date and time of examination: 11-Sep-2024 11:45

Depth of Surface and Subsurface Percolation Tests	Soil/Subsoil Texture & Classification**	Plasticity and dilatancy***	Soil Structure	Density/ Compactness	Colour****	Preferential flowpaths
0.1 m	0.0m-0.2m Hardcore/gravel		Gravelly	Uncompact	Brown	Fill material encountered during excavation.
0.2 m						
0.3 m		T:1,2,2 R:50,50,60 D:Slightly	Gravelly	Uncompact	Brown	
0.4 m						
0.5 m						
0.6 m						
0.7 m						
0.8 m	Layer 2 (0.1m-1.2m) Gravelly Silt Fill layer					
0.9 m						
1.0 m						
1.1 m						
1.2 m						
1.3 m	Undisturbed ground 1.2m-2.1m Sandy Clay	T:2,3,3 R:60,70,70 D:Yes	Blocky	Soft & Compact	Dark Brown	
1.4 m						
1.5 m						
1.6 m						
1.7 m						
1.8 m						
1.9 m	Water table1.8m-2.1m)after 48 hours					
2.0 m						
2.1 m	END OF TRIAL HOLE	@2.1m BGL				
2.2 m						
2.3 m						
2.4 m						
2.5 m						
2.6 m						
2.7 m						
2.8 m						
2.9 m						
3.0 m						
3.1 m						
3.2 m						
3.3 m						
3.4 m						
3.5 m						

Likely Subsurface Percolation Value: 10-20

Likely Surface Percolation Value:

Note: *Depth of percolation test holes should be indicated on log above. ('Enter Surface or Subsurface at depths as appropriate).
** See Appendix E for BS 5930 classification.
*** 3 samples to be tested for each horizon and results should be entered above for each horizon.
**** All signs of mottling should be recorded.

3.2 Trial Hole (contd.) Evaluation:

TRIAL HOLE
Trial hole was excavated to 2.1 metres below ground level
Water table encountered at 1.8m below ground level.

Layer 1 0.0m-0.2m Hardcore/gravel
Layer 2 (0.2m-1.2m) Gravelly Silt Fill layer
Layer 3 1.2m-2.1m Sandy Clay - Undisturbed ground

Water table (1.8m-2.1m) after 48 hours
Sub-surface tests will be carried out, unable to excavate surface test holes due to gravel hardcore material.

3.3(a) Subsurface Percolation Test for Subsoil

Step 1: Test Hole Preparation

Percolation Test Hole	1	2	3
Depth from ground surface to top of hole (mm) (A)	500	600	800
Depth from ground surface to base of hole (mm) (B)	900	1,000	1,200
Depth of hole (mm) [B - A]	400	400	400
Dimensions of hole [length x breadth (mm)]	300 x 300	300 x 300	300 x 300

Step 2: Pre-Soaking Test Holes

		1	2	3
Pre-soak start	Date	09-Sep-2024	09-Sep-2024	09-Sep-2024
	Time	10:30	10:38	10:48
2nd pre-soak start	Date	09-Sep-2024	09-Sep-2024	09-Sep-2024
	Time	16:20	16:28	16:42

Each hole should be pre-soaked twice before the test is carried out.

Step 3: Measuring T_{100}

Percolation Test Hole No.	1	2	3
Date of test	11-09-2024	11-09-2024	11-09-2024
Time filled to 400 mm	11:49	11:56	12:00
Time water level at 300 mm	11:51	12:02	12:13
Time (min.) to drop 100 mm (T_{100})	2.00	6.00	13.00
Average T_{100}			7.00

If T_{100} > 480 minutes then Subsurface Percolation value >120 – site unsuitable for discharge to ground
If $T_{100} \leq 210$ minutes then go to Step 4;
If T_{100} > 210 minutes then go to Step 5;

Step 4: Standard Method (where $T_{100} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	Δt (min)
1	11:51	11:56	5.00	12:02	12:10	8.00	12:13	12:30	17.00
2	11:57	12:04	7.00	12:10	12:20	10.00	12:30	12:52	22.00
3	12:04	12:13	9.00	12:21	12:40	19.00	12:52	13:25	33.00
Average Δt Value			7.00			12.33			24.00
	Average Δt/4 = [Hole No.1]		1.75 (t_1)	Average Δt/4 = [Hole No.2]		3.08 (t_2)	Average Δt/4 = [Hole No.3]		6.00 (t_3)

Result of Test: Subsurface Percolation Value = 3.61 (min/25 mm)

Comments:

Varied results due to gravel fill layer.

Step 5: Modified Method (where $T_{100} > 210$ minutes)

Percolation Test Hole No.	1					
Fall of water in hole (mm)	Time Factor = T_f	Start Time hh:mm	Finish Time hh:mm	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T – Value = 4.45 / K_{fs}
300 - 250	8.1			0.00		
250 - 200	9.7			0.00		
200 - 150	11.9			0.00		
150 - 100	14.1			0.00		
Average	T- Value		T- Value Hole 1 = (T_1)			0.00

Percolation Test Hole No.	2					
Fall of water in hole (mm)	Time Factor = T_f	Start Time hh:mm	Finish Time hh:mm	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T – Value = 4.45 / K_{fs}
300 - 250	8.1			0.00		
250 - 200	9.7			0.00		
200 - 150	11.9			0.00		
150 - 100	14.1			0.00		
Average	T- Value		T- Value Hole 2 = (T_2)			0.00

Percolation Test Hole No.	3					
Fall of water in hole (mm)	Time Factor = T_f	Start Time hh:mm	Finish Tim§e hh:mm	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T – Value = 4.45 / K_{fs}
300 - 250	8.1			0.00		
250 - 200	9.7			0.00		
200 - 150	11.9			0.00		
150 - 100	14.1			0.00		
Average	T- Value		T- Value Hole 3 = (T_2)			0.00

Result of Test: Subsurface Percolation Value = 0.00 (min/25 mm)

Comments:

3.3(b) Surface Percolation Test for Soil

Step 1: Test Hole Preparation

Percolation Test Hole	1	2	3
Depth from ground surface to top of hole (mm)	0		
Depth from ground surface to base of hole (mm)			
Depth of hole (mm)	0	0	0
Dimensions of hole [length x breadth (mm)]	x	x	x

Step 2: Pre-Soaking Test Holes

Pre-soak start	Date			
	Time			
2nd pre-soak start	Date			
	Time			

Each hole should be pre-soaked twice before the test is carried out.

Step 3: Measuring T_{100}

Percolation Test Hole No.	1	2	3
Date of test			
Time filled to 400 mm			
Time water level at 300 mm			
Time to drop 100 mm (T_{100})	0.00	0.00	0.00
Average T_{100}			0.00

If T_{100} > 480 minutes then Surface Percolation value >90 – site unsuitable for discharge to ground
If $T_{100} \leq 210$ minutes then go to Step 4;
If T_{100} > 210 minutes then go to Step 5;

Step 4: Standard Method (where $T_{100} \leq 210$ minutes)

Percolation Test Hole	1			2			3		
Fill no.	Start Time (at 300 mm)	Finish Time (at 200 mm)	ΔT (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	ΔT (min)	Start Time (at 300 mm)	Finish Time (at 200 mm)	ΔT (min)
1			0.00			0.00			0.00
2			0.00			0.00			0.00
3			0.00			0.00			0.00
Average ΔT Value			0.00			0.00			0.00
	Average ΔT/4 = [Hole No.1]		0.00 (T_1)	Average ΔT/4 = [Hole No.2]		0.00 (T_2)	Average ΔT/4 = [Hole No.3]		0.00 (T_3)

Result of Test: Surface Percolation Value = 0.00 (min/25 mm)

Comments:

Due to a gravel hardcore layer, I was unable to carry out testing at the surface layer

Step 5: Modified Method (where $T_{100} > 210$ minutes)

Percolation Test Hole No. 1

Fall of water in hole (mm)	Time Factor = T_f	Start Time hh:mm	Finish Time hh:mm	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T – Value = 4.45 / K_{fs}
300 - 250	8.1			0.00		
250 - 200	9.7			0.00		
200 - 150	11.9			0.00		
150 - 100	14.1			0.00		
Average	T- Value		T- Value Hole 1 = (T_1)			0.00

Percolation Test Hole No. 2

Fall of water in hole (mm)	Time Factor = T_f	Start Time hh:mm	Finish Time hh:mm	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T – Value = 4.45 / K_{fs}
300 - 250	8.1			0.00		
250 - 200	9.7			0.00		
200 - 150	11.9			0.00		
150 - 100	14.1			0.00		
Average	T- Value		T- Value Hole 2 = (T_2)			0.00

Percolation Test Hole No. 3

Fall of water in hole (mm)	Time Factor = T_f	Start Time hh:mm	Finish Time hh:mm	Time of fall (mins) = T_m	$K_{fs} = T_f / T_m$	T – Value = 4.45 / K_{fs}
300 - 250	8.1			0.00		
250 - 200	9.7			0.00		
200 - 150	11.9			0.00		
150 - 100	14.1			0.00		
Average	T- Value		T- Value Hole 3 = (T_2)			0.00

Result of Test: Surface Percolation Value = 0.00 (min/25 mm)

Comments:

3.4 The following associated Maps, Drawings and Photographs should be appended to this site characterisation form.

1. Discovery Series 1:50,000 Map indicating overall drainage, groundwater flow direction and housing density in the area.
2. Supporting maps for vulnerability, aquifer classification, soil, subsoil, bedrock.
3. North point should always be included.
4. (a) Scaled sketch of site showing measurements to Trial Hole location and
   (b) Percolation Test Hole locations,
   (c) wells and
   (d) direction of groundwater flow (if known),
   (e) proposed house (incl. distances from boundaries)
   (f) adjacent houses,
   (g) watercourses,
   (h) significant sites
   (i) and other relevant features.
5. Site specific cross sectional drawing of the site and the proposed layout[1] should be submitted.
6. Photographs of the trial hole, test holes and site including landmarks (date and time referenced).
7. Pumped design must be designed by a suitably qualified person.

[1] The calculated percolation area or polishing filter area should be set out accurately on the site layout drawing in accordance with the code of practice's requirements.

4.0 CONCLUSION of SITE CHARACTERISATION

Integrate the information from the desk study and on-site assessment (i.e. visual assessment, trial hole and percolation tests) above and conclude the type of system(s) that is (are) appropriate. This information is also used to choose the optimum final disposal route of the treated wastewater.

Slope of proposed infiltration / treatment area:

Are all minimum separation distances met? ✓

Depth of unsaturated soil and/or subsoil beneath invert of gravel (or drip tubing in the case of drip dispersal system)

Percolation test result: Surface: Sub-surface: 3.61

Not Suitable for Development **Suitable for Development** ✓

Identify all suitable options

1. Septic tank system (septic tank and percolation area) **(Chapter 7)** — No
2. Secondary Treatment System **(Chapters 8 and 9)** and soil polishing filter **(Section 10.1)** — Yes
3. Tertiary Treatment System and Infiltration / treatment area **(Section 10.2)** — Yes

Discharge Route[1]

Site is suitable for discharge to ground as there is sufficient depth of unsaturated soil and or subsoil as per table 6.3 in the EPA Code Of Practice 2021.

5.0 SELECTED DWWTS

Propose to install: Tertiary Treatment System and Infiltration /treatment area

and discharge to: Ground Water

Invert level of the trench/bed gravel or drip tubing (m)

Site Specific Conditions (e.g. special works, site improvement works testing etc.

Propose to Install
A Secondary Waste Water treatment System and Prefabricated tertiary treatment system
System type: Euro Bio 6 Precast Concrete SBR Wastewater treatment system I.S.EN12566-3 & SR66
Circle 7 Packaged prefabricated tertiary treatment unit I.S. EN12566-7

The area of the infiltration can be calculated using table 10.1 in the EPA Code of Practice 2021.
=2pe*3.75=7.5m2

Please see Ireland Waste Waters site specific proposal for more details on loading calculations, design calculations, specs and drawings

[1] A discharge of sewage effluent to "waters" (definition includes any or any part of any river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial) will require a licence under the Water Pollution Acts 1977-90. Refer to Section 2.4.

6.0 TREATMENT SYSTEM DETAILS

SYSTEM TYPE: Septic Tank Systems (Chapter 7)

Tank Capacity (m^3)		Percolation Area		Mounded Percolation Area	
		No. of Trenches		No. of Trenches	
		Length of Trenches (m)		Length of Trenches (m)	
		Invert Level (m)		Invert Level (m)	

SYSTEM TYPE: Secondary Treatment System (Chapters 8 and 9) and polishing filter (Section 10.1)

Secondary Treatment Systems receiving septic tank effluent (Chapter 8)

Media Type	Area (m^2)*	Depth of Filter	Invert Level
Sand/Soil			
Soil			
Constructed Wetland			
Other			

Packaged Secondary Treatment Systems receiving raw wastewater (Chapter 9)

Type: Euro Bio 6 (EN12566-3)

Capacity PE: 6

Sizing of Primary Compartment: 3.73 m^3

Polishing Filter*: (Section 10.1)

Surface Area (m^2)*		Option 3 - Gravity Discharge Trench length (m)	
Option 1 - Direct Discharge Surface area (m^2)		Option 4 - Low Pressure Pipe Distribution Trench length (m)	
Option 2 - Pumped Discharge Surface area (m^2)		Option 5 - Drip Dispersal Surface area (m^2)	

SYSTEM TYPE: Tertiary Treatment System and infiltration / treatment area (Section 10.2)

Identify purpose of tertiary treatment	Provide performance information demonstrating system will provide required treatment levels	Provide design information
Percolation value is 3.61, Although this is a suitable result, this is borderline to being unsuitable as the discharge to groundwater is fast.	The Circle 7 Tertiary Treatment unit is certified to the EN12566-7. The circle 7 contains a PIA GmbH cert. Please see attached supporting document booklet showing the PIA GmbH part 7 cert.	The final effluent from the Circle 7 tertiary treatment systems shall be evenly discharged to a 600mm deep gravel distribution area (pea gravel, 12–32 mm),

DISCHARGE ROUTE:

Groundwater	✓	Hydraulic Loading Rate * ($l/m^2.d$)		Surface area (m^2)	
Surface Water **		Discharge Rate (m^3/hr)			

* Hydraulic loading rate is determined by the percolation rate of subsoil

** Water Pollution Act discharge licence required

6.0 TREATMENT SYSTEM DETAILS

QUALITY ASSURANCE:

Installation & Commissioning

Proper construction and installation of all DWWTSs is essential to ensure effective treatment of domestic waste water, and homeowners are ultimately responsible for the operation and maintenance of their DWWTS

All materials used in the construction of the works should comply with the requirements of the Building Regulations, 2010 (and subsequent amendments) and the relevant TGDs, particularly TGD H – Drainage and Waste Water Disposal (DEHLG, 2016).

Construction and installation should be supervised and certified by an appropriately trained and qualified person and the work documented as evidence in case of future planning related inspection.

On-going Maintenance

The DWWTS must be operated and maintained by its owner so that domestic waste water or sewage effluent does not emit, discharge, seep, leak or otherwise escape from the system, or part thereof. The Euro Bio 6 contains a large pre-chamber so desludging with our systems is every 5-7 years depending on occupancy. Ireland Waste Water offers maintenance contracts to the homeowner. To be in accordance with manufactures instructions. De sludging frequently (5-7 years) with Ireland Waste Water precast concrete tanks. The owner must obtain evidence of de-sludging or a receipt from the authorised contractor each time their tank is de-sludged and such evidence or receipt shall be retained for a period of five years De-sludging must be carried out by a contractor authorised under the Waste Management (Collection Permit) Regulations 2007 as amended by the Waste Management (Collection Permit) (Amendment) Regulations 2008 and contents disposed of in accordance with all relevant national legislative requirements or directions pertaining at the time [apart from specific provision for farmers to de-sludge their own tank and use the sludge in agriculture (subject in turn tocompliance with Sewage Sludge and Good Agricultural Practice Regulations)]. Failure to comply is an offence.

7.0 SITE ASSESSOR DETAILS

Company: Ireland Waste Water

Prefix: Ms First Name: Avril Surname: Mulcahy

Address: Ireland Waste Water HQ
Cloverhill, Ballymartle, Riverstick
Co. Cork

Qualifications/Experience: FETAC certified Site Assessor

Date of Report: 30-Sep-2024

Phone: 0214771000 E-mail eng@irelandwastewater.ie

Indemnity Insurance Number: RPI 34074

Signature: Avril Mulcahy

Section 3.4 Lists supporting documentation required.

3.0 Photo Report

Includes supporting maps from groundwater data viewer, pictures from the on-site assessment ,visual assessment and trial hole test.

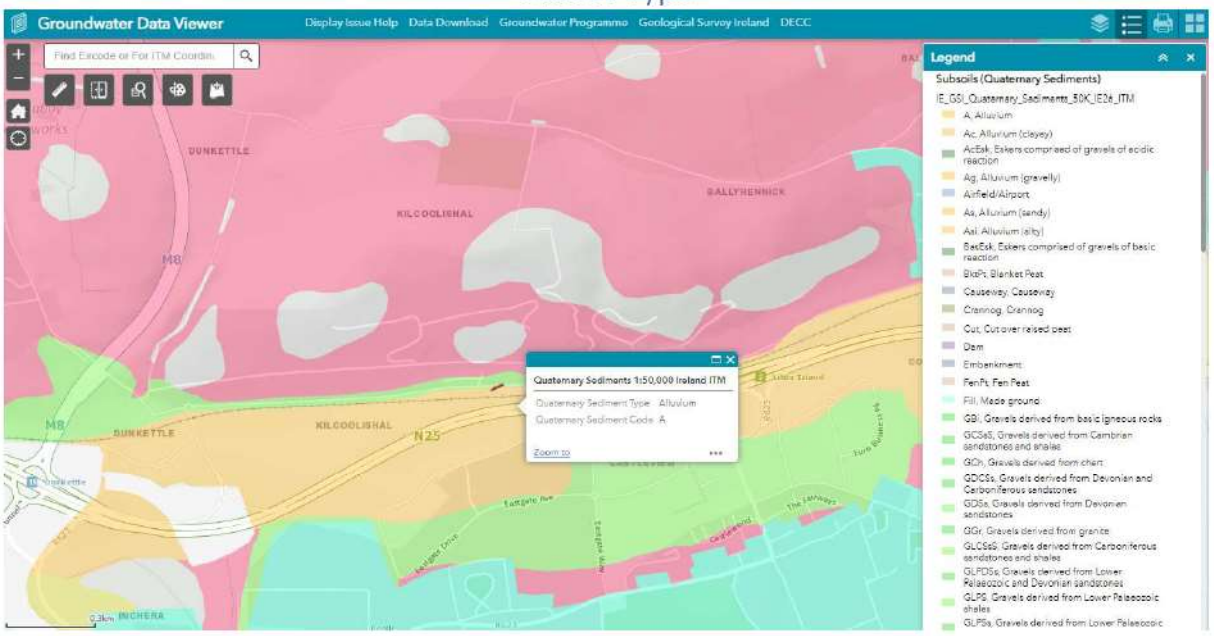
IWW Engineer

Contents

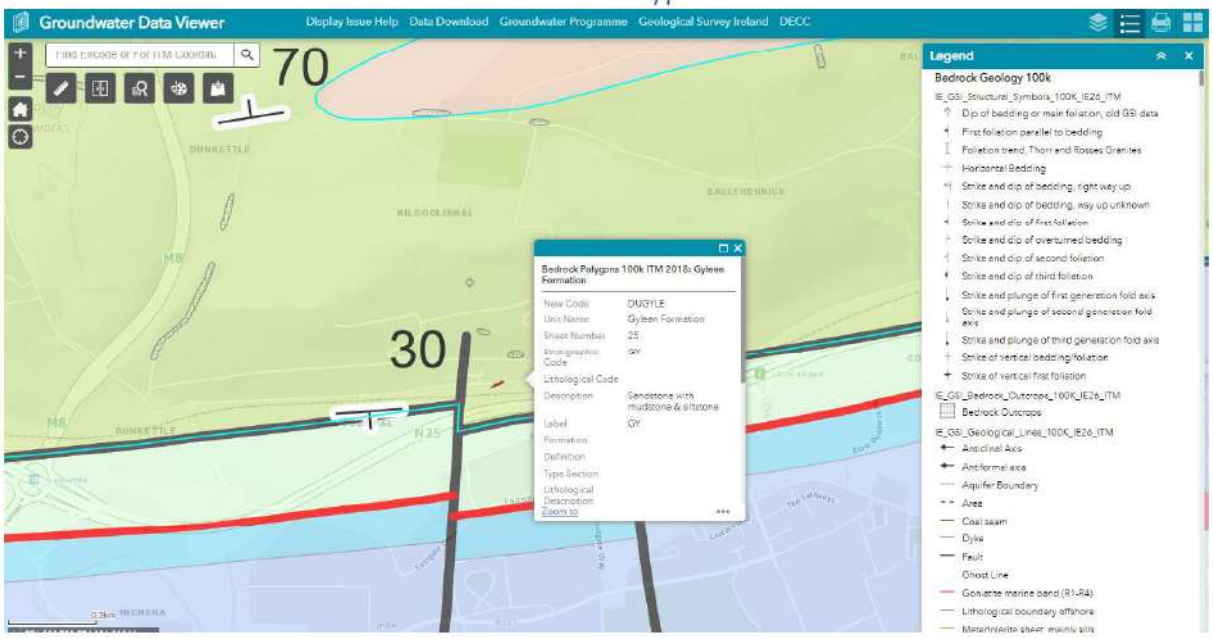
Ground Water Data Viewer supporting Screen Clippings

Soil Type

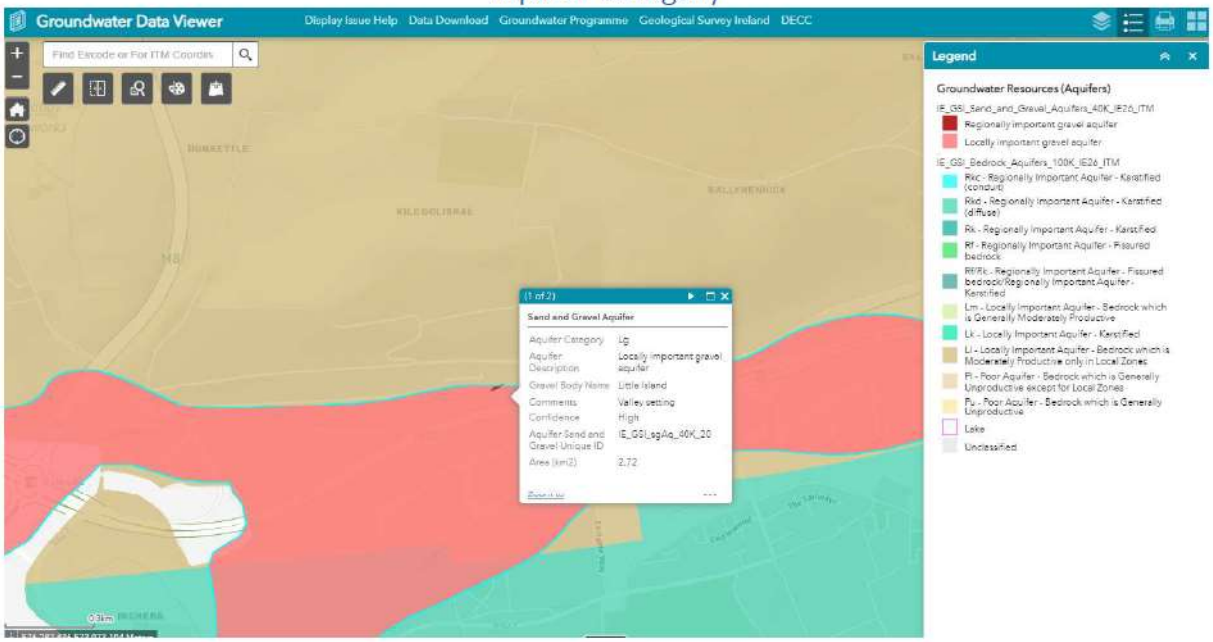
Subsoil Type



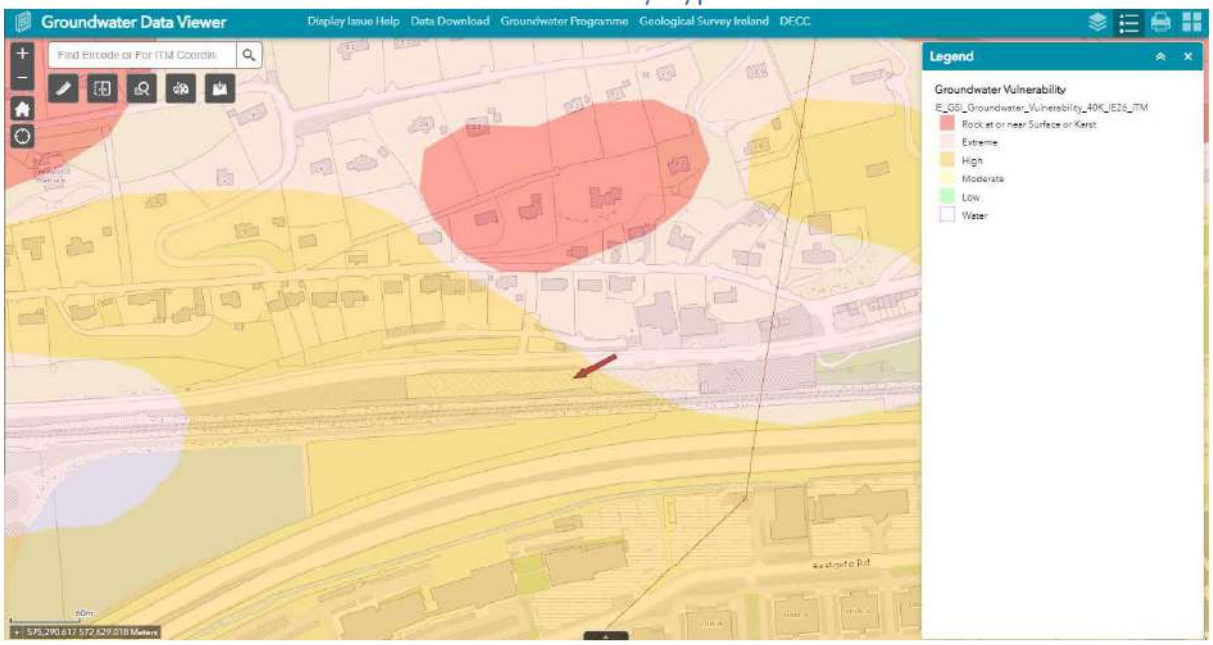
Bedrock Type



Aquifer Category



Vulnerability Type



Presence of Significant Sites (Historic OSI Map)

Photos from the Field Study & percolation test

Proposed Percolation Area

Excavating trial hole

Trial hole

Trial hole after 48 hours

Fill from trial hole at surface layer

Fill from trial hole at sun-surface layer

Sub-surface Test hole 1

Depth of sub-surface test trench 1

Sub-surface Test hole 2

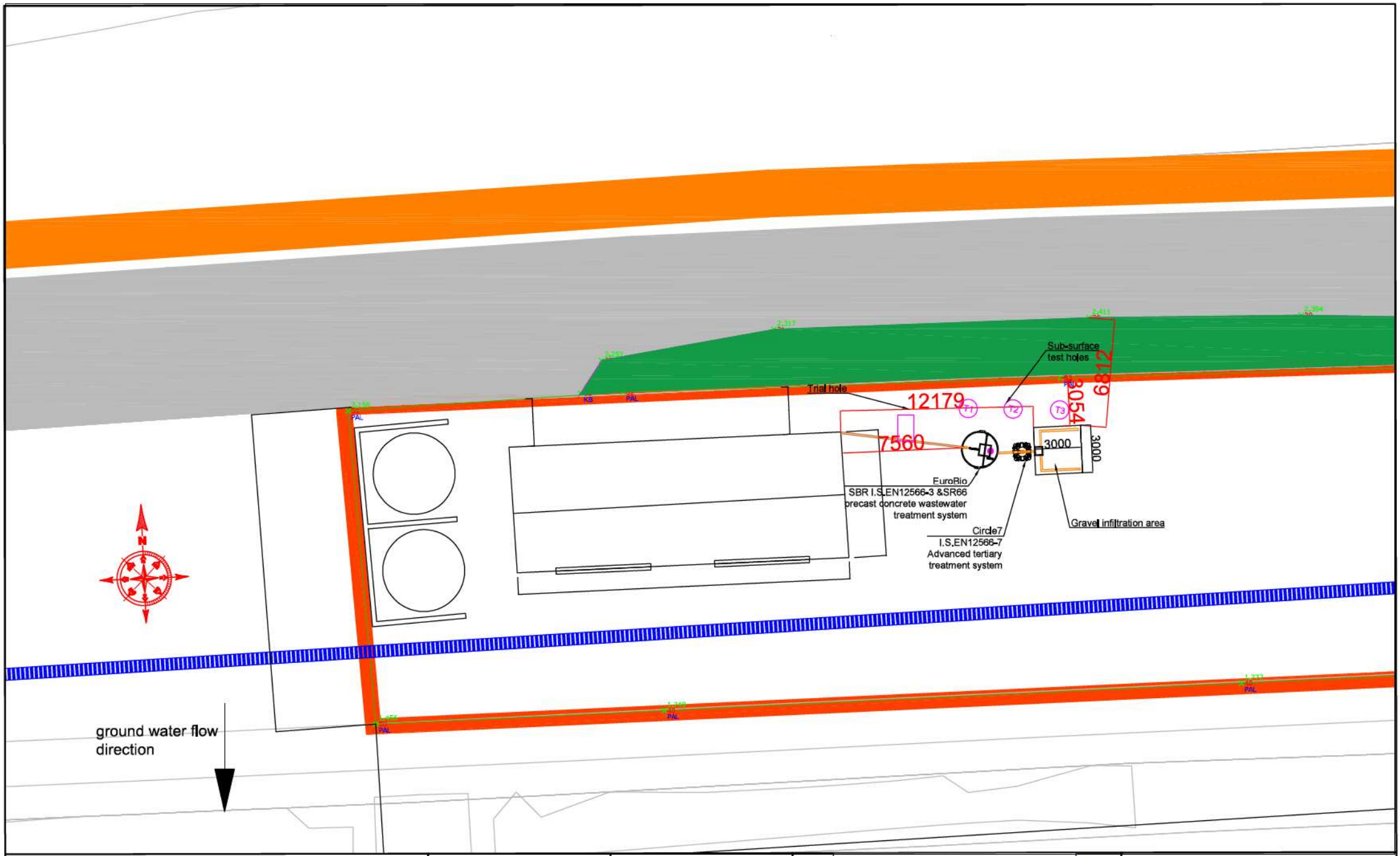
Depth of sub-surface test trench 2

Sub-surface Test hole 3

Excavated sub-surface test holes 1,2 and 3

Sub-surface test hole 2 after pre-soak

Sub-surface test hole 3 after pre-soak



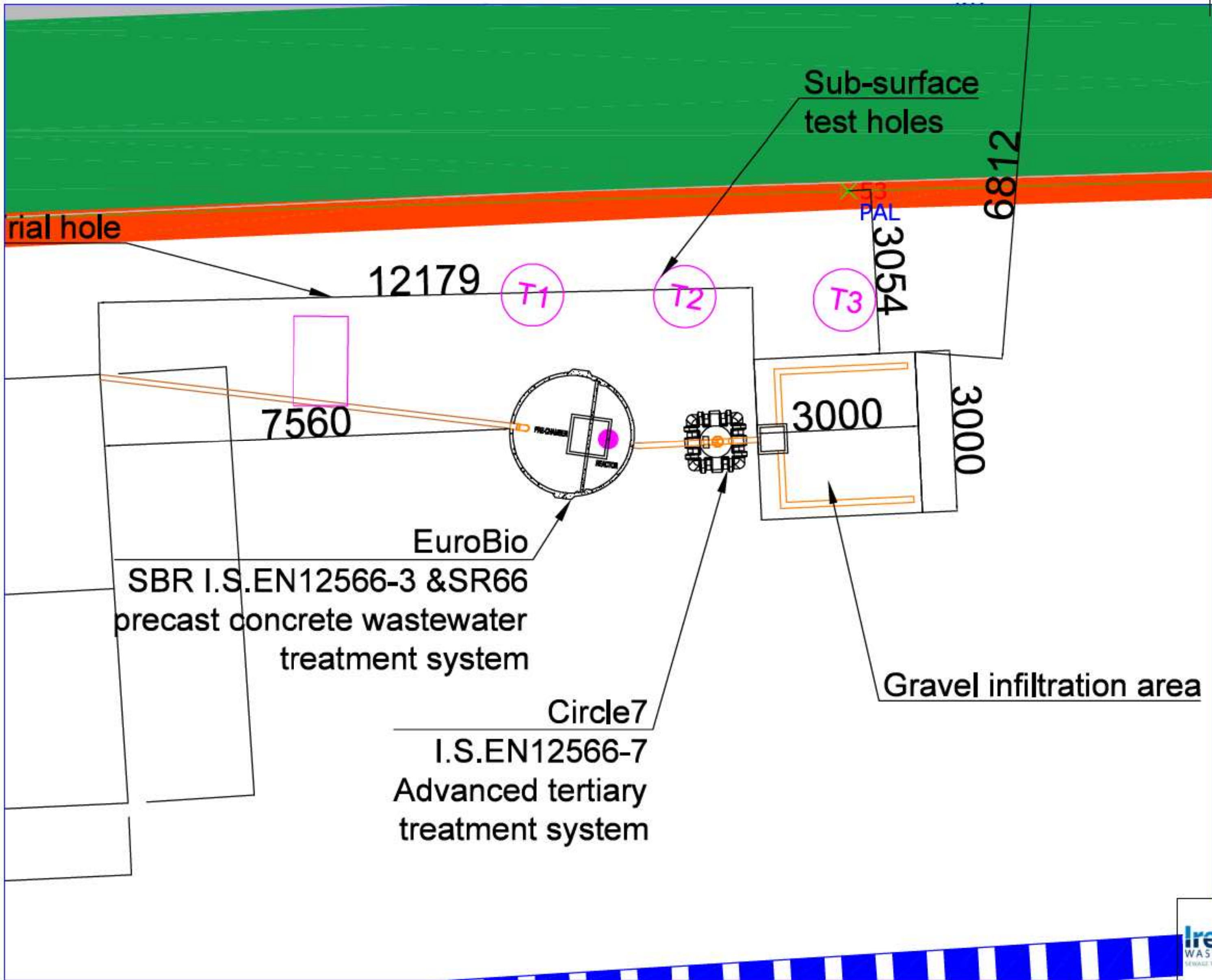
Site Layout Plan

All dimensions in milimeters

p.e.	2
Scale	1:300
Drawn	30-09-2024

Ireland WASTE WATER SEWAGE TREATMENT SYSTEMS

Cloverhill, Ballymartle,
Riverstick, Co. Cork
T: 021 - 477 1000
F: 021 - 477 1015
E: sales@irelandwastewater.ie



Notes

EPA Site Characterisation Form Summary
Total PE=2
Trial hole depth; 2.1m BGL (Water table at 1.8m BGL)
Percolationvalues; 3.61 (min/25)

Proposed to Install; Euro Bio 6 (I.S. EN12566-3 & SR66) precast concrete treatment unit, to a Circle 7 (I.S. EN12566-7) advanced tertiary treatment filter discharged to a infiltration area which is 9m2

The infiltration area is sized as per table 10.1 in the EPA CoP2021.
2*3.75=7.5m2

- The final effluent from tertiary treatment systems shall be evenly discharged to a 300 mm deep gravel distribution area to the infiltration area
- The gravel layer will be laid at approx. 0.600m of unsaturated soil distribution pipes from the filter are 100mm diameter within the gravel layer. Laid down at 1:200. 8mm holes are at 4,6,8 o clock at 75mm centres. These are pointing downwards.
- A geotextile membrane covers the ground layer and topsoil will be mounded on top to cover, protect and identify the location of the percolation area.

Installation Sign off Requirements.

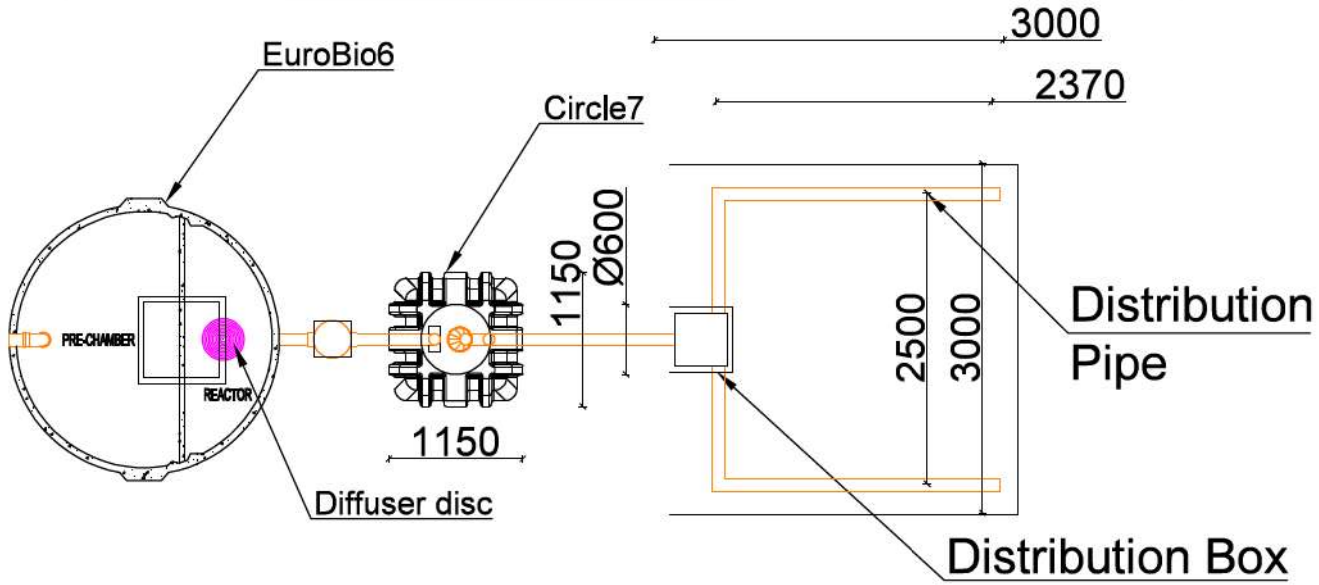
The installation of the mechanical aeration system and construction of the Infiltration area should be certified in compliance with the EPA 2021 guidelines and recommendations here by the engineer/architect competent person certifying the fitting if the treatment system on site.

Site Layout Map

Proposed WWTS, tertiary unit and infiltration area

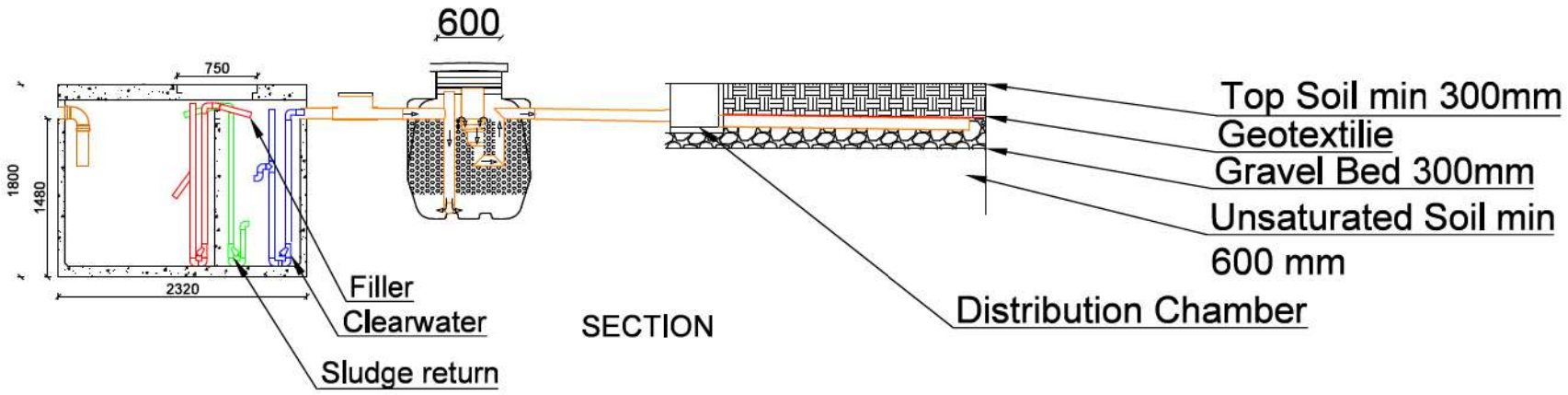
Ireland WASTE WATER
021-4771000

SCALE 1:500



PLAN VIEW

Distribution pipes from the Circle 7 filter are 100mm diameter within the gravel layer and lid down at 1:200. 8mm orifices at 4, 6, and 8 o'clock at 75mm centres are pointing downwards. A geotextile membrane covers the gravel layer and topsoil will be mounded on top to the cover.



SECTION

Section and Plan

All dimensions in milimeters

p.e.	2
Scale	1:100
Drawn	AM 30/09/2024

Ireland WASTE WATER SEWAGE TREATMENT SYSTEMS

Cloverhill, Ballymartle,
Riverstick, Co. Cork
T: 021 - 477 1000
F: 021 - 477 1015
E: sales@irelandwastewater.ie

Prüfinstitut für Abwassertechnik GmbH

TREATMENT PERFORMANCE RESULTS

Initial type test performed by **utp umwelttechnik pöhnl GmbH**
Distributed by **Ireland Waster Water**
Coverhill, Ballymartle, Riverstick, Co. Cork

EN 12566-3 Annex B

Results corresponding to EN 12566-3 and S.R. 66
PIA-SR66-1704-1037, PIA2008-074B36, shared itt

Small wastewater treatment system Euro Bio$_D$
Sequencing batch reactor (SBR) process (initial type test)
in combination with Eloy Water concrete tanks

Nominal organic daily load	0.26 kg/d		
Nominal hydraulic daily load	0.90 m³/d		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
	COD	94.5 %	35 mg/l
	BOD_5	98.6 %	4 mg/l
	NH_4-N*	99.2 %	0.2 mg/l
	SS	96.5 %	11 mg/l
Number of desludging	Not more than once		
Electrical consumption	0.7 kWh/d		

*determined for temperatures ≥ 12°C in the bioreactor

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
52074 Aachen, Germany

This document replaces neither the declaration of performance nor the CE marking.

Notified Body No.: 1739

Certified according to ISO 9001:2008

DAkkS Deutsche Akkreditierungsstelle D-PL-17712-01-00

Prüfinstitut für Abwassertechnik GmbH
geprüft - tested - testé

Elmar Lancé April 2017

Prüfinstitut für Abwassertechnik GmbH

TREATMENT PERFORMANCE RESULTS

Initial type test performed by **Eloy Water s.a.**
Distributed by **Ireland Waster Water**
Coverhill, Ballymartle, Riverstick, Co. Cork

EN 12566-3 Annex A and C
Results corresponding to EN 12566-3 and S.R. 66

PIA-SR66-1704-1037, shared itt
Euro Bio$_D$
Concrete Tank for SBR process in combination with utp SBR treatment kit

Material	Concrete
Watertightness	Pass
Structural behaviour (Pit test)	Pass (also wet conditions)
Durability	Pass

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
52074 Aachen, Germany

Certipro
Boeretang 200
2400 BE-MOL
Belgium

This document replaces neither the declaration of performance nor the CE marking.

Notified Body No.: 1739

Certified according to ISO 9001:2008

DAkkS Deutsche Akkreditierungsstelle D-PL-17712-01-00

Prüfinstitut für Abwassertechnik GmbH
geprüft - tested - testé

Daniel Verschitz April 2017

Certificate

311.01C02.e

Ireland Waste Water
Cloverhill, Ballymartle, Riverstick, Co. Cork, Ireland

EN 12566-7, Annex A
Small wastewater treatment systems for up to 50 PT

Small wastewater treatment system Circle 7
Advanced tertiary treatment filter

Test report PIA2019-T7-311S08.e

Nominal organic daily load (influent)	0.01 kg BOD_5/d		
Nominal hydraulic daily load	0.9 m^3/d		
Material	Polyethylene		
Treatment efficiency		Efficiency	Effluent
(nominal sequences)	COD	32.9 %	43 mg/l
	BOD_5	50.3 %	7 mg/l
	SS	58.4 %	12 mg/l
	Set. $S._{120}$	94.5 %	< 0.1 ml/l
Electrical consumption	0 kWh/d		
Number of desludging	0		

Performance tested by:

PIA – Prüfinstitut für Abwassertechnik GmbH
Hergenrather Weg 30
52074 Aachen
Germany

This document replaces neither the declaration of performance nor the CE marking.

Notified Body No.: 1739

DAkkS Deutsche Akkreditierungsstelle D-PL-17712-01-00

PIA - Sustainable Certification

geprüft - tested - testé

Martina Wermter March 2019

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Dámhachtain Breisoideachais agus Oiliúna
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Oiriúnacht Suíomh Láithreáin i gcomhair Cóireáil Fuoílluisce
Site Suitability for Wastewater Treatment

le Pas
with Pass

Bronnta ar
Awarded to

AVRIL MULCAHY

ar
on

14 Feabhra 2021
14 February 2021

Príomhfheidhmeannach
Chief Executive QQI

6S2241
F1714783
38906N

Bronnta ag Dearbhú Cáilíochta agus Cáiliochtaí Éireann faoi Chuid 4 den Acht um Cháilíochtaí agus Dearbhú Cáilíochta (Oideachas agus Oiliúint) 2012
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