



SOIL CHARACTERISATION AND
SITE SUITABILITY ASSESSMENT REPORT
TE REF: 22/206 TE

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RATHFARNHAM
DUBLIN 16
D16T2P7

IN ACCORDANCE WITH
EPA CODE OF PRACTICE
WASTEWATER TREATMENT AND DISPOSAL
SYSTEMS SERVING SINGLE HOUSES 2021



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SITE CHARACTERISATION FORM FOR AN ON-SITE WASTEWATER TREATMENT SYSTEM

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1.0 GENERAL DETAILS (From planning application)

Name(S)	Nicola Lynch & Brian Dunne & Ciara Lynch & Richard o'Farrell	
Address of Correspondance	c/o Ruairi Finucane, Brock Finucane Architects 28, Lower Baggot Street Dublin 2	
Site Location and Townland	Lynbrook Whitechurch Rd Rathfarnham Dublin 16 D16T2P7	

Number of Bedrooms **Maximum Number of Residents:**

Comments on population equivalent

Proposed Water Supply:

Mains: **Private Well/Borehole** **Group Well/Borehole**

2.0 GENERAL DETAILS (From planning application)

Soil Type, (Specify Type):

Subsoil, (Specify Type):

Bedrock Type:

Aquifer Category: Regionally Important Locally Important Poor

Vulnerability: Extreme High Moderate Low

Groundwater Body: **Status**

Name of Public/Group Scheme Water Supply within 1km:

Source Protection Area: ZOC SI SO **Groundwater Protection Response:**

Presence of Significant sites (Archaeological, natural and historical):

Past experience in the area:

R1 = Acceptable subject to normal good practice. Site may be suitable for discharge to ground, if the minimum depths are met on the site and if there exists suitable percolation. As the soil type in the area is Grey Brown Podzolics (75% of the land area), and as the area is mapped as 'Low' Vulnerability. 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. Older wells in the area may also be at risk, if the minimum separation distances are not adhered to. Groundwater and wells are therefore the main targets, following the desk study. Given the response and the aquifer type, the site is potentially suitable for a conventional septic tank system 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.

¹This figure of 6 people refers to the potential 6 people maximum that will stay at the proposed dwelling at any one time. As per the Clarification to the design capacity requirements in Section 7 and Section 9 of the Code of Practice: Waste Water Treatment and Disposal Systems serving Single Houses (p.e. <10) (CoP) 4 double rooms is equivalent to 6PE as per the Clarification.

3.0 ON-SITE ASSESSMENT

3.1 Visual Assessment

Landscape Position	<i>Relatively Flat</i>			
Slope	<i>Steep <1:5</i>	<i>Shallow 1.5 to 1.20</i>	✓	<i>Relatively Flat</i>
Slope Comment	<i>Sloping in North direction</i>			

Surface features within a minimum of 250 metres (Distances to features should be noted in metres)

Houses	<i>Existing house located >10m north from the proposed percolation area (ppa) and is serviced by a conventional septic tank which requires to be upgraded.</i>
Existing Land Uses	<i>Garden Area</i>
Vegetation Indicators	<i>Grass is the predominant vegetation in the ppa and throughout the site.</i>
Groundwater Flow Directions	<i>North Direction</i>
Ground Condition	<i>Ground conditions are best described as dry and firm in the ppa.</i>
Site Boundaries	<i>Hedge is located to the south, east & west of the ppa. Existing house located to the north of the ppa.</i>
Roads	<i>Located road located >10m east from the ppa.</i>
Outcrops (Bedrock and/or subsoil)	<i>None Identified or Evident within the locality.</i>
Surface water ponding	<i>No Surface water ponding was evident in the ppa when examined on 24.03.22. It must be noted that weather conditions prior to the site assessment taking place was generally dry and mild conditions.</i>
Lakes	<i>None occur within 10m of the ppa.</i>
Beaches/Shellfish Areas	<i>None occur within 200m of the ppa.</i>
Wetlands	<i>None occur within 200m of the ppa.</i>
Karst Features	<i>None occur within 200m of the ppa.</i>
Watercourses/Streams	<i>Stream located >10m east of the ppa.</i>
Drainage Ditches	<i>None occur within 10m of the ppa.</i>
Springs	<i>None occur within 50m from the ppa.</i>

Wells

If a well is to be bored onsite it should be located at least 30m up-gradient from the ppa; this will therefore be outside the minimum separation distances of the Groundwater Protection Responses of GSI/EPA/DoELG and the EPA Code of Practice (2021).

As all the wells in the locality will therefore meet the required separation distances of the Groundwater Protection Responses of GSI/EPA/DoELG and the EPA Code of Practice (2021), none are deemed to be at risk from the proposed polishing filter's installation.

Integrate the information above in order to comment on:

1. The potential suitability of the site:

The site still seems suitable for discharge to ground.

2. Potential targets at risk:

Following the desk study surface water was thought not to be at risk; this was corroborated during the visual assessment.

There appears to be few issues with respect to impermeability. From this, surface water does not seem to be a potential target,

Groundwater is still a target following the visual assessment, unless the minimum depths required are met on the site and there exists adequate percolation.

3. The suitability of the site to treat the wastewater:

Following the visual assessment it is seen that all appropriate separation distances can be met and the site seems well drained, and pending confirmation of the presence of adequate depths of unsaturated soil and subsoil within the percolation area, as well as sufficient percolation rates under the site, the site should be suitable for treating wastewater adequately.

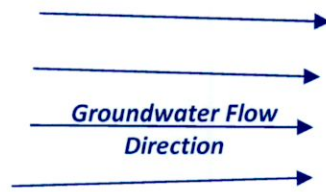
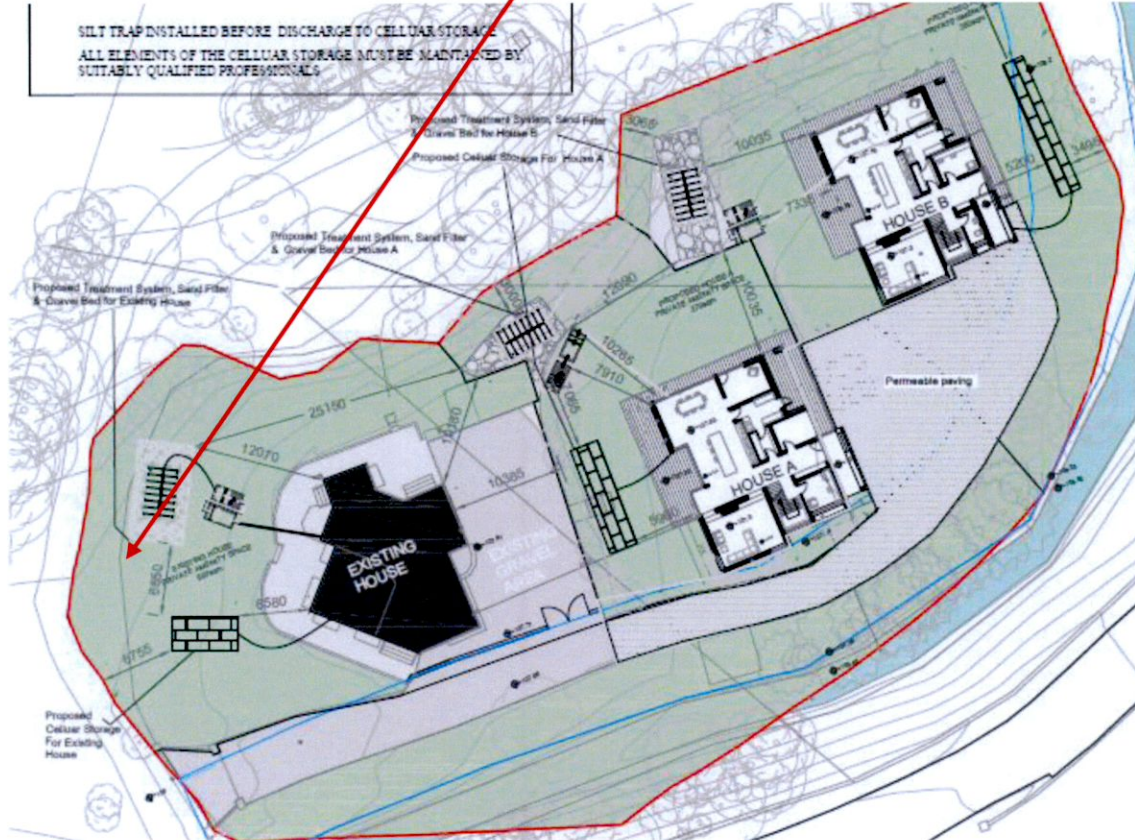
Existing Septic Tank to be Decommissioned



Sketch of site showing measurement to Trial Hole location and Percolation test Hole locations, wells and direction of ground water flow, proposed house (incl. distances from boundaries) adjacent houses, watercourses, significant sites and other features. North point should always be included.

SITE LAYOUT DRAWING SHOWING TEST HOLE LOCATIONS

Approximate Location of Trial Hole & Percolation Test Holes Examined on 24.03.22



3.2 Trial Hole

Should be a minimum 2.10m deep

Depth of Trial Hole	2.30m BGL				
Depth from Ground Surface to bedrock (m) if Present	None Encountered	Depth from Ground Surface to Water Table (m) if Present	1.80m BGL		
Depth of water ingress	1.80m BGL	Rock Type if Present	None Encountered		
Date and Time of Excavation	22.03.22	09.00	Date and Time of Examination	24.03.22	09.30

	Depth of surface & subsurface Test	Soil/Subsoil Texture Classification	Plasticity and Dilatancy	Soil Structure	Density Compactness	Colour	Preferential Flowpaths
0.1m	Depth of surface Test	Silt/Clay	Ribbons 30.40.40 1,1,2Threads	Crumb	Low	Brown	Root Encountered
0.2m							
0.3m							
0.4m							
0.5m	Depth of subsurface Test	Clay intermixed with stone	Ribbons 50.60.70 1,2,2Threads	Crumb	Medium	Brown	
0.6m							
0.7m							
0.8m							
0.9m							
1.0m							
1.1m							
1.2m							
1.3m							
1.4m							
1.5m							
1.6m							
1.7m							
1.8m							
1.9m							
2.0m							
2.1m							
		GWT	GWT	GWT	GWT	GWT	GWT

EVALUATION:

Weather conditions: Dry and Mild

According To The Flowchart For Describing Subsoil's based on BS5930:1999, the subsoil is best described as Clay intermixed with stone & Gravel

Groundwater was encountered in the trial hole at a depth of 1.80m BGL. Bedrock was not encountered in the trial hole.

Likely Subsurface Percolation Value:	<40.00 min /25mm
Likely Surface Percolation Value:	<40.00 min /25mm

*Note: Depth of percolation test holes should be indicated on log above (Enter Subsurface & Surface Depths as appropriate)

* See Appendix E for BS5930 Classification

** 3 samples to be tested

*** All signs of mottling should be recorded.

3.3a 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):	300	300	300
Depth from ground surface to base of hole (mm) (B):	700	700	700
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

Pre-soak	Date	23.03.22	23.03.22	23.03.22
start	Time	09.05	09.05	09.05
2nd pre-soak	Date	23.03.22	23.03.22	23.03.22
start	Time	14.50	14.50	14.50

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

Step 3 Measuring T₁₀₀

Percolation Test Hole	1	2	3
Date of Test	24.03.22	24.03.22	24.03.22
Time Filled to 400mm	10.00	10.00	10.00
Time Water Level at 300mm	11.08	11.11	11.16
Time to drop 100mm (T ₁₀₀)	68.00	71.00	76.00
Average T ₁₀₀			71.60

• If T₁₀₀ > 480mins then Subsurface Percolation value > 120 – site unsuitable for discharge to ground
 If T₁₀₀ ≤ 210mins then go to Step 4
 If T₁₀₀ ≥ 210mins then go to Step 5

Step 4 Standard Method (where $T_{100} \leq 210\text{min}$)

Percolation Test Hole	1			2			3		
Fill No.	Start Time at 300mm	Finish Time at 200mm	Δt (min)	Start Time at 300mm	Finish Time at 200mm	Δt (min)	Start Time at 300mm	Finish Time at 200mm	Δt (min)
1	11.09	12.20	71.00	11.12	12.25	73.00	11.17	12.36	79.00
2	12.21	13.35	74.00	12.26	13.44	78.00	12.37	14.01	84.00
3	13.36	14.55	79.00	13.45	15.07	82.00	14.02	15.27	89.00
Average Δt			74.60			77.60			84.00
	Average $\Delta t/4 =$ [Hole No. 1]		18.60	Average $\Delta t/4 =$ [Hole No. 2]		19.42	Average $\Delta t/4 =$ [Hole No. 2]		21.00

Result of Test: Subsurface Percolation Value: 19.67 min/25mm

Comments

**Result of Subsurface Percolation: 19.67min/25mm.
Good Percolation Characteristics of the Surface Material.**

3.3b Surface Percolation for Soil

Step 1 Test Hole Preparation

Percolation Test Hole	1	2	3
Depth from ground surface to top of hole (mm) (A):	0	0	0
Depth from ground surface to base of hole (mm) (B):	400	400	400
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

Pre-soak start	Date	23.03.22	23.03.22	23.03.22
	Time	09.10	09.10	09.10
2nd pre-soak start	Date	23.03.22	23.03.22	23.03.22
	Time	15.00	15.00	15.00

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

Step 3 Measuring T₁₀₀

Percolation Test Hole	1	2	3
Date of Test	24.03.22	24.03.22	24.03.22
Time Filled to 400mm	10.10	10.10	10.10
Time Water Level at 300mm	10.51	10.55	11.01
Time to drop 100mm (P ₁₀₀)	41.00	45.00	51.00
Average T ₁₀₀			45.60

If T₁₀₀ > 480 minutes then Surface Percolation value > 90 – site unsuitable for discharge to ground
 If T₁₀₀ ≤ 210mins then go to Step 4
 If T₁₀₀ ≥ 210mins then go to Step 5

Step 4 Standard Method (where $T_{100} \leq 210\text{min}$)

Percolation Test Hole	1			2			3		
Fill No.	Start Time at 300mm	Finish Time at 200mm	Δt (min)	Start Time at 300mm	Finish Time at 200mm	Δt (min)	Start Time at 300mm	Finish Time at 200mm	Δt (min)
1	10.52	11.35	43.00	10.56	11.44	48.00	11.02	11.56	54.00
2	11.36	12.21	45.00	11.45	12.37	52.00	11.57	12.55	58.00
3	12.22	13.13	51.00	12.38	13.35	57.00	12.56	13.59	63.00
Average Δt	46.30			52.30			58.30		
	Average $\Delta t/4 =$ [Hole No. 1]		11.58	Average $\Delta t/4 =$ [Hole No. 2]		13.08	Average $\Delta t/4 =$ [Hole No. 2]		14.58
Result of Test : Surface Percolation Value	13.08		min/25mm						

Comments

Result of Subsurface Percolation: 13.08min/25mm.
Good Percolation Characteristics of the Surface Material.

4.0 CONCLUSIONS 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	1.200
Are all minimum separation distance met?	Yes
Depth of unsaturated soil and/or subsoil beneath invert of gravel (or drip tubing in the case of drip dispersal system)	0.90m
Percolation test results: Surface:	13.08min/25mm
Sub-surface:	19.67min/25mm
Not suitable for Development <input type="checkbox"/>	Suitable for Development <input checked="" type="checkbox"/>

Identify all suitable options

- | | |
|---|-------------------------------------|
| 1. Septic tank System (Septic tank and percolation area) (Chapter 7) | <input checked="" type="checkbox"/> |
| 2. Secondary Treatment System (Chapters 8 and 9) and soil polishing filter (Section 10.1) | <input checked="" type="checkbox"/> |
| 3. Tertiary Treatment System and Infiltration/treatment area (Section 10.2) | <input checked="" type="checkbox"/> |

Discharge Route

Groundwater

5.0 RECOMMENDATION:

Propose to install	Traynor Environmental recommends an O'Reilly Oakstown Treatment System or similar manufactured EN certified system and sand filter with gravel base layer. This will provide the site with tertiary effluent treatment.
And discharge to	Groundwater
Invert level of the trench/bed gravel or drip tubing (m)	0.30m Above Ground Level (AGL)

Site Specific Conditions (if any) e.g. special works, Site Improvement Works, Testing etc.

The tests showed that the site has a Sub-surface value rating of 19.67min/25mm indicating good percolation characteristics of the Sub-surface. A surface value rating of 13.08 min/25mm was attained indicating good percolation characteristics of the surface. Groundwater was encountered in the trial hole at a depth of 1.80m BGL. Bedrock was not encountered in the trial hole.

A purpose-built sand polishing filter and gravel layer should be constructed to ensure that there is a minimum of 0.90m of suitable percolating material between the base of the lowest part of the gravel base at all times. The distribution pipes used in this system will be smooth walled, have a diameter of 25mm, have 8mm holes drilled in them 300mm apart, and each pipe should be spaced parallel and 1000mm centre to centre apart. A gravel layer will also be required under the sand filter. Traynor Environmental Ltd also recommends that the O' Reilly Oakstown Treatment System and sand polishing filter and gravel bed construction is overseen by a suitable qualified and accredited person.

6.0 TREATMENT SYSTEM DETAILS

SYSTEM TYPE: Septic Tank System (Chapter 7)

Tank Capacity (m ²)	N/A	<i>Percolation Area</i>	<i>Mound Percolation Area</i>
		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)				Package Treatment Systems receiving raw wastewater (Chapter 9)	
Media Type	Area (m ²)	Deep of Filter (m)	Invert Level (m)	Type	Capacity PE
Sand/Soil	N/A	N/A	N/A	N/A	N/A
Soil	N/A	N/A	N/A		N/A
Constructed Wetland	N/A	N/A	N/A	Sizing of Primary Compartment	
Other	N/A	N/A	N/A	N/A	m ²

Polishing Filter: (Section 10.1)

Surface Area Sand Filter (m ²)	15	No. of Trenches	N/A
Option 1 – Direct Discharge Surface area (m ²)	45	Length of Trenches (m)	N/A
Option 2 – Pumped Discharge Surface Area (m ²)	N/A	Invert Level (m)	0.30m AGL

SYSTEM TYPE: O'Reilly Oakstown 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
Due to the limited space on site it is proposed to use a Sand Filter and Gravel Base	O'Reilly Oakstown Treatment System and sand polishing filter with gravel layer	Table 10.1: Infiltration/treatment area and trench length design for tertiary treatment, per PE

DISCHARGE ROUTE:

Groundwater	<input checked="" type="checkbox"/>	Hydraulic Loading Rate (l/m2. d)	900	Surface Area (m ²)	
Surface Water	<input type="checkbox"/>	Discharge Rate (m ³ /hr)	0.009		

QUALITY ASSURANCE:

Installation & Commissioning	On-going Maintenance
Recommend to be overseen by plant supplier.	Maintain and de-sludge annually

7.0 SITE ASSESSOR DETAILS

Company: Traynor Environmental Ltd

Prefix: Mr. First Name: Nevin Surname: Traynor

Address: Belturbet Business Park,
Creeny,
Belturbet,
Co. Cavan.

Qualifications/Experience: BSc. Env, H.Dip I.T, Cert SHWW, EPA/FAS Course Certified
Professional Indemnity Insurance Holder (€1 million cover)

Date of Report: 12.04.22

Phone: 049 9522236 Fax: 049 9522808 E-mail: nevin@traynorenvironmental.com

Indemnity Insurance Number: 20/1/04786 (Renewed 12th July 2021)

Signed:



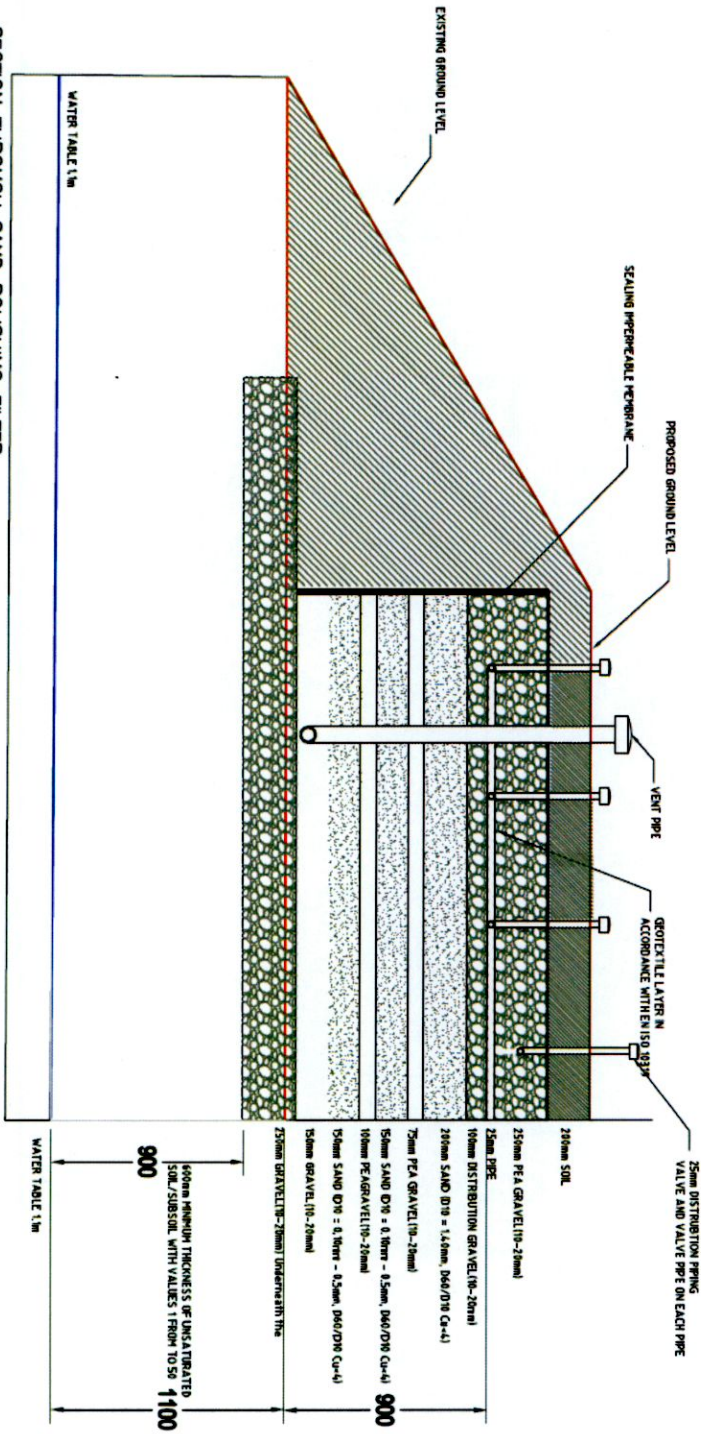
Nevin Traynor

BSc. Env, H.Dip I.T, Cert SHWW, EPA/FAS Cert.

For Traynor Environmental Ltd

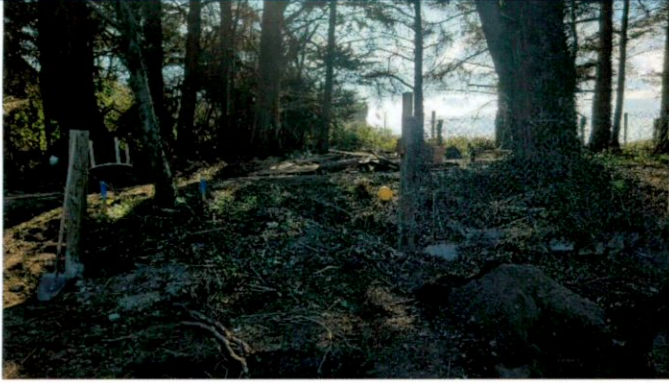
Cross Section

SECTION THROUGH SAND POLISHING FILTER
SCALE=1/50



8.0 SITE PHOTOGRAPHS

*Facing South From the
Trial Hole Excavation*



*Facing North From the
Trial Hole Excavation*



*Facing West From the
Trial Hole Excavation*



*Facing East From the
Trial Hole Excavation*



Trial Hole – Front View

Trial Hole – Side View



Percolation ("Sub-surface") Test 1



Percolation ("Sub-surface") Test 2



Percolation ("Sub-surface") Test 3



Percolation ("surface") Test 1



Percolation ("surface") Test 2



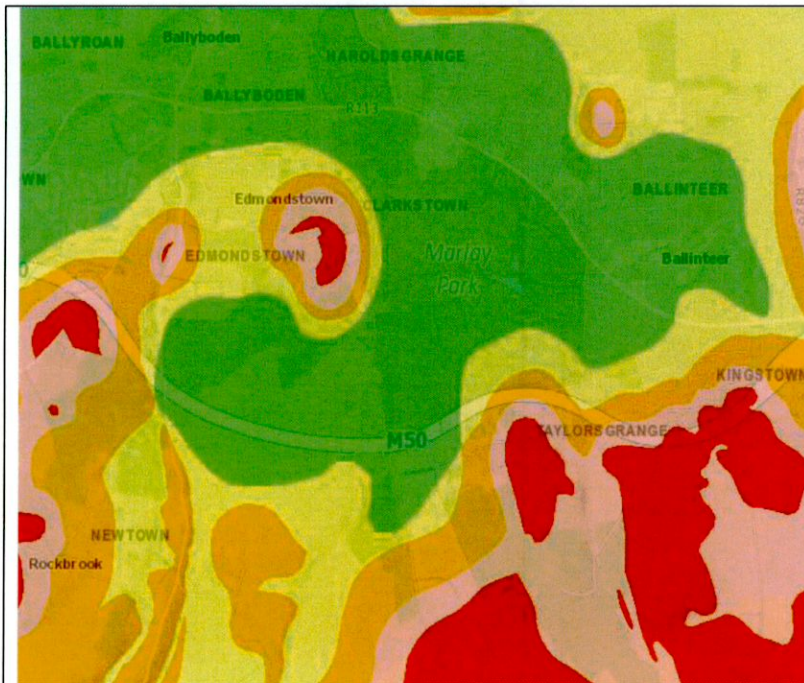
Maps Used As Part of the EPA Site Suitability Assessment

Groundwater/Aquifer Map



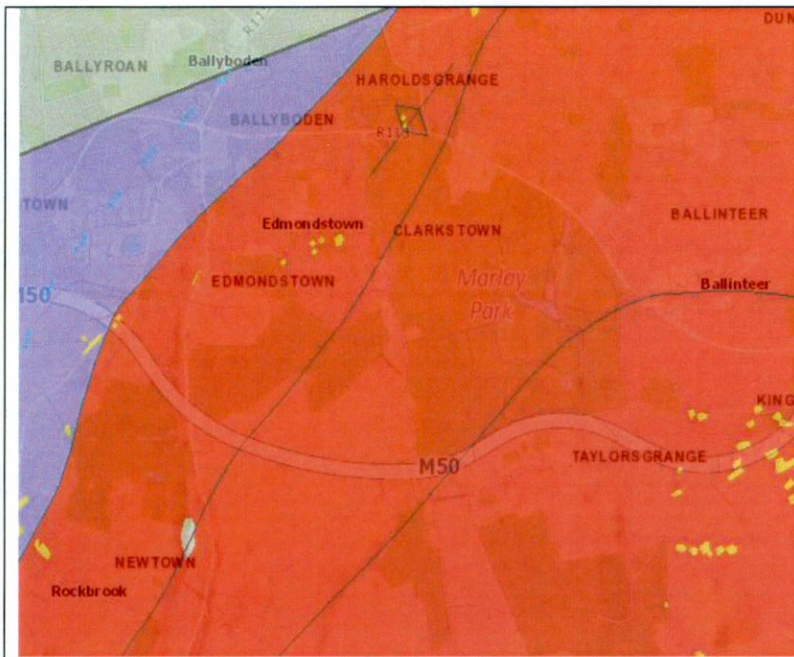
*From the GSI Groundwater
Aquifer Map Site is
classified as P1- Poor
Aquifer - Bedrock which is
Generally Unproductive
except for Local Zones*

Vulnerability Map



*From the GSI Vulnerability
Map Site is classified as
Low*

Bedrock Map

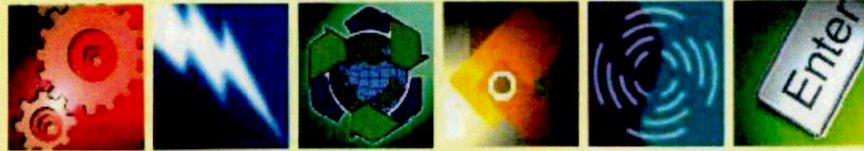


*From the GSI Bedrock Map
the Site is classified as GII-
Granites & other Igneous
Intrusive rocks*

Teagasc Subsoil Map



*From the GSI Teagasc
Subsoil Map Site is
classified as Fine loamy
drift with siliceous stones*



F/NSC 003535



FETAC
Further Education and
Training Awards Council
Comhairle na rÉadaíochtaí
Breiseoideachaí eagraí (2012-13)

National Skills Certificate (FAS)

Awarded to
Bronnta ar

Nevin Traynor

who has achieved the National Standards for
a bhain Caighdeán Naisiunta amach maidir le

Site Suitability Assessment for On-Site

Wastewater Treatment Systems

John O'Leary

Chief, FETAC

Stam McHugh

Chief Executive, FETAC



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PROFESSIONAL INDEMNITY INSURANCE

We confirm the following details relating to our client's Professional Indemnity Insurance:

Insured: Traynor Environmental Ltd

Address: Belturbet Business Park
Creeny
Belturbet
Co. Cavan
H14AY94

Lead Insurer(s): Axis Specialty Europe SE

Period of Insurance: 12 July 2021 to 11 July 2022

Policy Number: 20/1/04786

Limit of Indemnity: €1,500,000 any one claim and unlimited in the period of insurance

Signed:

Graeme Tinney
Chief Executive Officer
Griffiths & Armour Europe DAC

Date: 22 June 2021

The policy is subject to the insuring agreements, exceptions, exclusions, limitations, conditions and declarations contained therein. The above is accurate at the date of signature. No obligation is imposed herein on the signatory to advise of any alteration.

Directors: G Tinney C Evans (UK) D J Whalley (UK) T Cosgrove (Non-Executive)
Registered in Ireland No. 632268
Registered Office: Q House 108 Furze Road Sandyford Dublin 18 Ireland
Griffiths & Armour Europe Designated Activity Company is regulated by the Central Bank of Ireland

Disclosure

PROPOSAL

FOR

A

O'REILLY OAKSTOWN TREATMENT SYSTEM

PREPARED

FOR

NICOLA LYNCH & BRIAN DUNNE & CIARA LYNCH & RICHARD

O'FARRELL

LYNBROOK

WHITECHURCH RD

RATHFARNHAM

DUBLIN 16

D16T2P7

TRAYNOR ENVIRONMENTAL LTD

EPA SEWAGE LOADING SIZING CHART - Nicola Lynch & Brian Dunne & Ciara Lynch & Richard O'Farrell

Situation	Source	Litres/day Person	BOD5 g/d Person	PE Organic Loading	Number of Persons	Population (Organic)	Hydraulic Loading (Lit)	Organic Loading (gr)	Population (Hydraulic)
Domestic	Normal Resident	150	60	1.00	6	6	900	360	6.00
Industrial	Office and/or factory without canteen	30	20	0.33		0	0	0	0.00
	Office and/or factory with canteen	60.0	30.0	0.5		0	0	0	0.00
	Open Industrial Site e.g. Quarry	40.0	25.0	0.4		0	0	0	0.00
School	Non- residential with cooking on-site Students	60.0	30.0	0.5		0	0	0	0.00
6hr Shock	Non- residential with no-cooking on site	35	20	0.33		0	0	0	0.00
Football clubs	Players incl. showers	30	20	0.33		0	0	0	0.00
	Spectators - Toilet blocks	8	10	0.17		0	0	0	0.00
Amenity Sites	Restuarants	15	15	0.25		0	0	0	0.00
	Function rooms	10	10	0.17		0	0	0	0.00
	Toilet blocks (per use)	8	10	0.17		0	0	0	0.00
	Toilet blocks (long stay car parks)	10	15	0.25		0	0	0	0.00
	Golf clubs	25	15	0.25		0	0	0	0.00
	Squash, with club house	25	15	0.25		0	0	0	0.00
	Swimming	10	10	0.17		0	0	0	0.00
						6	900	360	6.00

Loadings	
Population Org	6.00PE
Hydraulically	6.00PE

Treatment System Proposed: O'Reilly Oakstown Treatment System, Sand Filter & Gravel Base

Date: 12th April 2022

Applicant Name: Nicola Lynch & Brian Dunne & Ciara Lynch & Richard O'Farrell

Site Address: Lynbrook, Whitechurch Rd, Rathfarnham, Dublin
16

Design Capacity: Maximum number of residents: 06
No. of single bedrooms: 00
No. of double bedrooms: 04

A representative of *O'Reilly Oakstown Ltd* has assessed the Soil Test Report and confirms the suitability of their Oakstown BAF 8PE Wastewater Treatment System to treat effluent being discharged from the above proposed dwelling based on the residential demands submitted to us above.

1. Waste Water Treatment System Design Details:

- Maximum Daily Design Loadings as per client

Max No. of users	Flow Litres/day/person	Total Hydraulic Load	BOD5 (grams/day/person)	Total Organic Loading (grams/day)
6	150	900 litres	60	360

Total Organic Loading	0.36kg BOD/day
Total Hydraulic loading	0.90m ³ /day

- Average treated effluent standard - see performance results on **EN-12566-3 certification** attached

BOD	8mg/litre
TSS	12mg/litre
Ammonia	13mg/litre

- Proposed system details: ► **Oakstown BAF 8 P.E.**

Volume of Total Plant	8m ³
Volume of Primary Sedimentation Chambers	4m ³
Volume of Secondary Aeration Chamber	2m ³
Volume of Biomeia	1.0m ³

2. Wastewater Treatment system description:

The Oakstown BAF 8 PE is designed to provide proven, cost effective primary and secondary wastewater treatment in robust steel reinforced concrete tanks.

The primary sedimentation chamber has substantial capacity (4m³) to allow anaerobic digestion to occur naturally while letting sludge settle on the tank floor.

Once primary treatment has taken place the effluent is further degraded in the aeration chamber where oxygen enriched wastewater provides ideal conditions for aerobic bacteria to thrive.

Before pumping to the percolation area the clear water is left to further settle in the clarifier chamber to eliminate any remaining settle able solids.

3. Guarantee and warranties:

O'Reilly Oakstown provide a 12 month maintenance service contract on all systems from date of first occupation. We provide a 24 month warranty on all parts.

4. Percolation:

The percolation area designed must conform to the requirements of Table 10.1 of EPA Code of Practice 2021 Wastewater Treatment and Disposal System serving single houses.

The percolation area requirements are as follows:

Sub Surface value 19.67 as per Site Characterisation Form.

Surface value: 13.08 as per Site Characterisation Form.

Depth from ground surface to water table: 1.80m BGL

Depth from ground surface to winter groundwater level: None Encountered

Depth from ground surface to bed rock: None Encountered.

Sand Polishing Filter & Gravel Base: As per Traynor Env Report

Sand Polishing Filter & Gravel Base must be covered in 25-40mm drainage stone.

Sand Polishing Filter & Gravel Base must be covered in geo-textile cover then in topsoil.

► See Site Characterisation report for percolation area details.

5. Client Responsibilities unless included in our quotation:

- Excavation and backfill.
- Construction of the percolation / polishing filter as recommended by the site engineer on the Site Characterisation report and/or drawing.
- Provision of access for delivery by hi-ab truck to within 3 metres of the excavation.
- Provision of a power ducting from the tanks to the house/garage.
- Mounting and connection of control panel to mains power in the house/garage.

6. Operation and Maintenance:

The client is responsible for the operation and maintenance of the wastewater treatment system in accordance with the owner's manual supplied by O'Reilly Oakstown.

Please do not hesitate to contact us if there are any further queries.

Yours sincerely,



Institute for
Wastewater
Technology

PERFORMANCE RESULTS

O'Reilly Oakstown Environmental
Oakstown, Trim, Co. Meath, Ireland

EN 12566-3 Annex A, B, C
"Small wastewater treatment systems for up to 50 PT"

Small wastewater treatment system Oakstown BAF System
submerged aerated fixed film bioreactor


Nominal organic daily load	0.38	kg/d	
Nominal hydraulic daily load	1.20	m ³ /d	
Material	steel reinforced concrete		
Watertightness	pass		
Crushing resistance	pass		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
	COD	93.0 %	46 mg/l
	BOD ₅	97.5 %	8 mg/l
	NH ₄ -N	61.0 %	13 mg/l
	SS	96.7 %	12 mg/l
Electrical consumption	2.0	kWh/d	

Performance tested by:

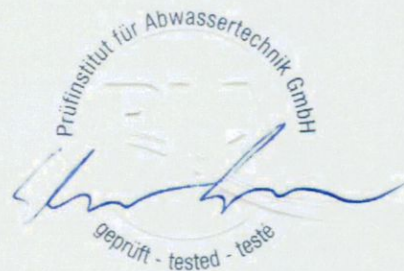
PIA - Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
D-52074 Aachen

Certified according to
ISO 9001:2000



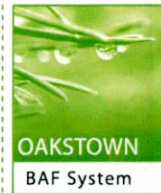
Notified Body number: 1739 

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



Elmar Lancé

October 2011



INSTRUCTIONS

Site Preparation and Excavation Instructions O'Reilly Oakstown BAF 8PE Wastewater Treatment System.

- When choosing the location to dig, first consult your **Site Characterisation Report** as submitted to the planning authority. This will show the proposed location of the system and the design of the percolation area in detail. It will also note the presence of rock or a high water table, in which case a rock-breaker or water-pump can be organised in advance. It is important to observe the EPA Separation Guidelines as shown below. See [table 1](#). These show the minimum distance the system and percolation area may be from the house etc.

FEATURE	MINIMUM SEPARATION (m)	
	Oakstown BAF Sewage treatment System Recommendations	
	Oakstown BAF Sewage treatment System	Irrigation Area
Dwelling served	7 ⁽¹⁾	10 ⁽³⁾
Adjacent dwelling	7 ⁽¹⁾	10 ⁽³⁾
Wall	3 ⁽¹⁾	3
Road	4 ⁽¹⁾	4
Site boundary	3 ⁽¹⁾	3
Portable water source	10	30 - 100 ⁽²⁾
Watercourse	10	10

TABLE 1

- Ensure that there is a solid unimpeded access for the Oakstown truck back to the hole. Clear any build up of clay from around the hole to allow the truck to reverse to within one metre of the hole.
- In very wet conditions, it is best to leave the last few bucketfuls to be dug when the truck arrives. If the ground is rocky, it is advisable to dig the hole ahead of time to minimise delays on-site.
- Ensure there are no power lines or other hazards above the excavation site.
- We recommend an inspection chamber (AJ) be fitted just before the BAF Unit.

Digging Instructions

- Generally the Oakstown BAF 2-Tank System is installed side by side as follows: See [Diagram 1](#). Dig a hole 3300mm (11ft) square. This comfortably accommodates both tanks and leaves space to fit the connecting pipes. The depth of the hole for the first tank is 1500mm (5ft) below the inlet pipe.

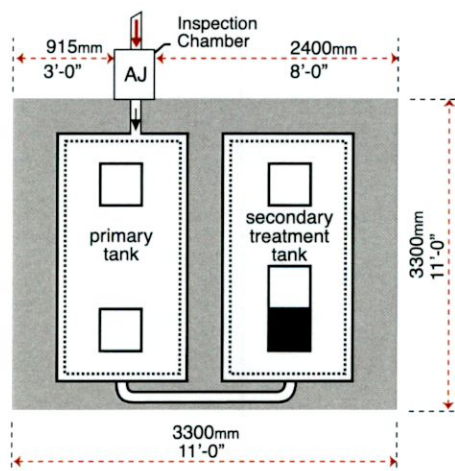
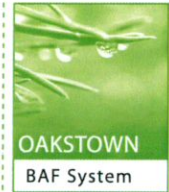


DIAGRAM 1

Two Tank BAF Unit as shown from above



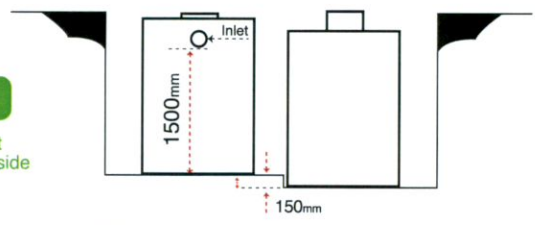
INSTRUCTIONS

Site Preparation and Excavation Instructions O'Reilly Oakstown BAF 8PE Wastewater Treatment System.

The second tank sits 150mm (6inch) lower as shown in **Diagram 2**:

DIAGRAM 2

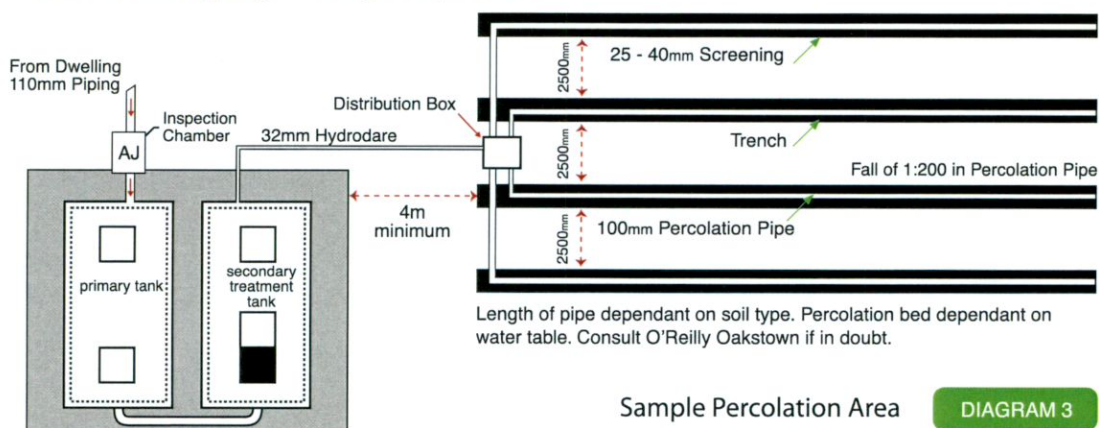
Two Tank BAF unit as shown side by side



- 7 When fitting tanks in **tandem**, dig a hole 6700mm (22ft) long by 1825mm (6ft) wide. Again dig 1500mm (5ft) below the invert for the first tank and drop 100mm (4inch) for the second tank.
- 8 Although it is not essential, a bed of screenings will help to ensure a level surface for each tank.
- 9 Before fitting the connecting pipe, backfill between and around the tanks with clay. Compact the clay underneath the connecting pipe with the digger bucket and cover the pipes with sand/gravel when fitted, to prevent the pipe sinking under pressure.
- 10 Please make sure that the **final finished ground** level is 75mm (3inch) below the top of the risers to prevent flooding of the electronic controls in exceptionally wet weather. If in doubt, we can hold off on commissioning the system until landscaping is finished and fit extra risers then if required.
- 11 Our driver will leave sufficient 7-Core Cable to reach the house. Our technician will commission the system by installing the air pump, water pump and electronic controls and wiring them at the system. He will leave the "internal panel" for connection by your electrician to the mains with the most senior person on site. If there is nobody on site, it will be left inside the "Green Box" on the system itself.

Percolation

- 12 It is important to refer to the relevant **Site Characterisation Report** for size and design of the percolation area. The following diagram is only a simple outline.



Length of pipe dependant on soil type. Percolation bed dependant on water table. Consult O'Reilly Oakstown if in doubt.

Sample Percolation Area **DIAGRAM 3**
(NOT TO SCALE)

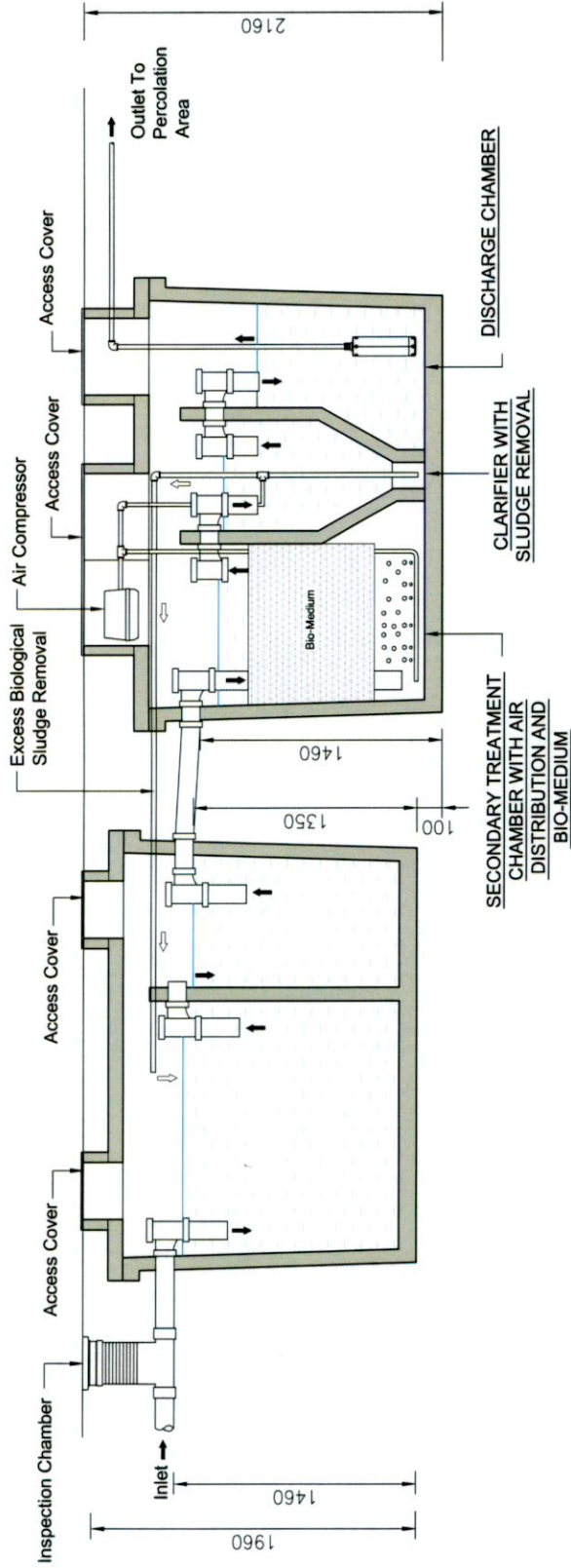
Maintenance

- 13 Please call O'Reilly Oakstown when moving in or when the system has been connected. Our technician will carry out a site visit to ensure the system has been wired, switched on and the risers are above the surrounding topsoil. A technician will visit the site to carry out a full service towards the end of the first year.

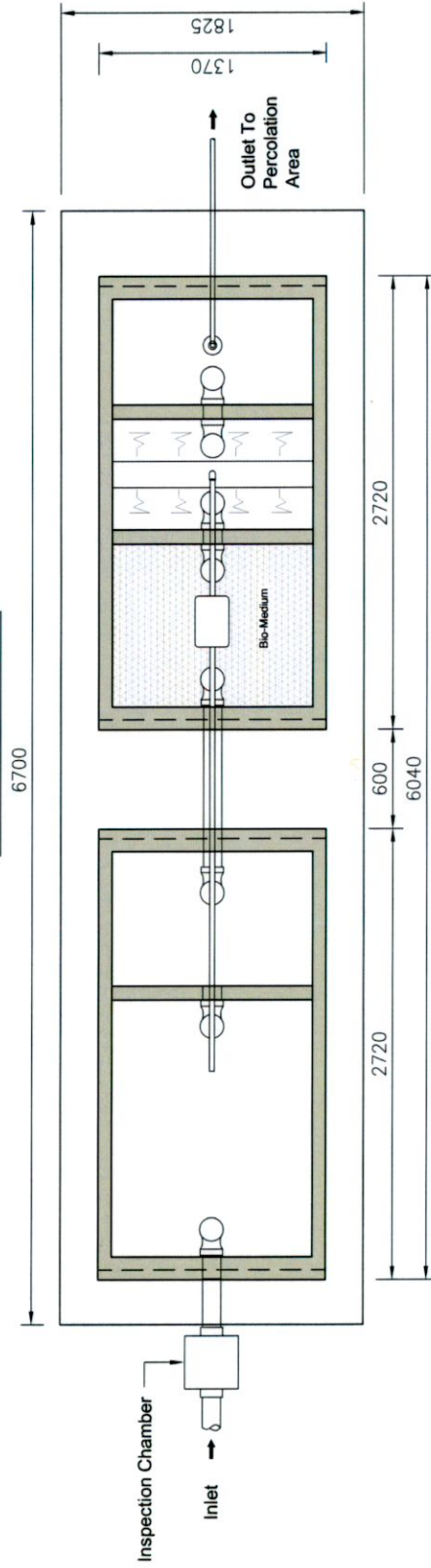
10PE BAF SYSTEM

TWO CHAMBER PRIMARY HOLDING TANK

THREE CHAMBER BAF UNIT



Sectional Elevation



Plan View

PROJECT:	O'REILLY OAKSTOWN ENVIRONMENTAL LTD. BAF - WASTEWATER TREATMENT SYSTEMS		
	O'REILLY OAKSTOWN TRIM, Co. MEATH Email: info@oreillyoakstown.com Tel: (046)9431389 Fax: (046)9437054		
TITLE:	10PE BAF SYSTEM	DWG NO:	OAKS 109
DRAWN:		REV:	2
CHECKED:		SCALE:	N.T.S.
		DATE:	16/03/15