

Tricel Site Recommendation Report
Tricel Novo Package Plant and Pumped Soil Polishing filter (Percolation Area)

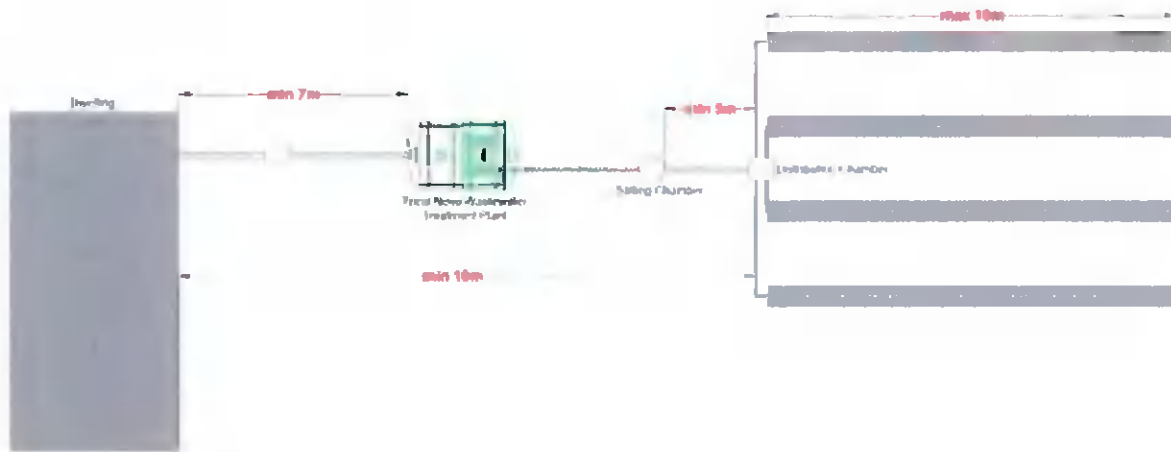


Date 19/04/2022
Report No: TSA_D_11634
Client Name Joseph Costello
Site Location & Townland Ballymaice, Bohernabreena, Dublin, Dublin

Thank you for choosing Tricel for your wastewater treatment requirements. This report contains the following information for your site and is based on a population of 7 and a subsurface/surface value of between 3-20.

Based on the information provided to us and using SR66 and the EPA Code of Practice: Wastewater Treatment and Disposal Systems Serving Single Houses (p.e. ≤ 10), the appropriate solution for treating wastewater on your site is a Tricel Novo Package Plant and Pumped Soil Polishing filter (Percolation Area).

Typical layout of a Tricel Novo Package Plant and Pumped Soil Polishing filter (Percolation Area):



Note:

In the above named site, a substitute wastewater treatment system may not be put in place of the following recommendation.

This recommendation only applies to the above named site based on the information supplied to Tricel.

A Site Characterisation Form should accompany this report. Tricel cannot be responsible for misinformation due to misleading information being received by us from clients.

Section 1: Information on the Novo Package Plant

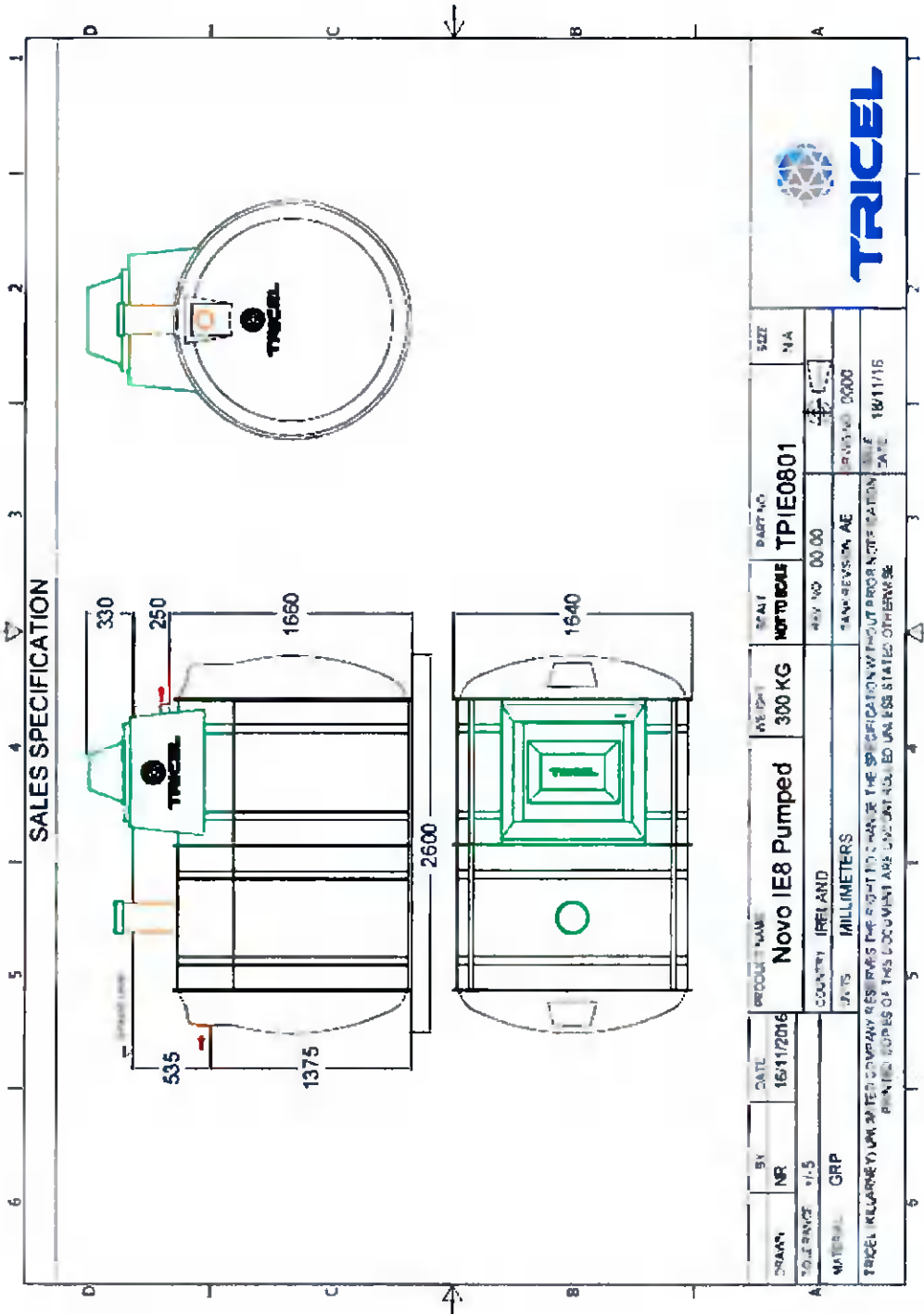
- Manufacturers report and sizing of the Tricel Novo Package Plant.
- Drawings of the Novo Package Plant.
- Pump selection and technical data
- Certification of the selected Novo Package Plant.
- Brochure on the Novo Package Plant.
- Optional Novo maintenance agreement.

For your site, we recommend a Novo IRL8 wastewater treatment plant which is designed to treat a maximum of 1200 litres of wastewater per day. The Tricel Novo range of wastewater treatment plants is fully in conformance with EN12566-3 and complies with SR66.

The Novo IRL8 has a capacity of 4000 litres, of which 1900 are in the primary chamber, this ensures a long desludging interval.

This solution contains a DOMO GRI11 pump based on an the Length of Rising Main 40 metres and Difference in Height of Rising Main 5 metres. A 38mm compression is supplied for connection to a rising main of 38mm internal bore pipework. Details and pump specifications are contained in Section 1.

Section 1





Submersible Electric Pumps for drainage of dirty water equipped with grinder system

DOMO GRI Series



The DOMO GRI series electric pumps are equipped with an extremely efficient and highly reliable grinder system. The grinder is able to macerate all the solids present in the sewage and to pass it through small discharge pipes (25 mm diameter).

DOMO GRI is available in the 1,1 kW power **DRIVELUB SEAL SYSTEM**.

APPLICATIONS

- Pumping of sewage with suspended solids
- Emptying of septic tanks and residential pumps
- Draining of flooded areas
- Pumping water from a pressurized sewer network

SPECIFICATIONS

- **Maximum liquid temperature 35°C** with fully submerged pump
- **Dry motor**
- **Power cord H07RN-F**
 - single-phase with plug
 - three-phase without plug
- **Insulation class 155°C (F)**
- **IPX8 protection**
- **Maximum immersion depth 5 m**

• Versions

- Single-phase 220-240V, 50Hz 2 poles
- Three-phase 220-240V, 50Hz 2 poles
- 380-415V, 50Hz 2 poles

• Motor power

- **1,1 kW** single-phase and three-phase

• The single-phase versions feature

- **pre-assembled float switch** for automatic pump operation
- **built-in capacitor**
- **thermal overload protection** to stop pump supply in case of overheating

• DOMO GRI pumps feature

- **Rp 1" threaded delivery port** (female gas)
- **technopolymer PBT Impeller**
- **high resistance stainless steel grinder**

DRIVELUB SEAL SYSTEM

- Watertight electric motor protected by multiple seal system with **oil chamber**

A **V-ring** and **silicon carbide**

mechanical seal (extremely

resistant to wear and abrasion),

as well as a **lip seal** which is

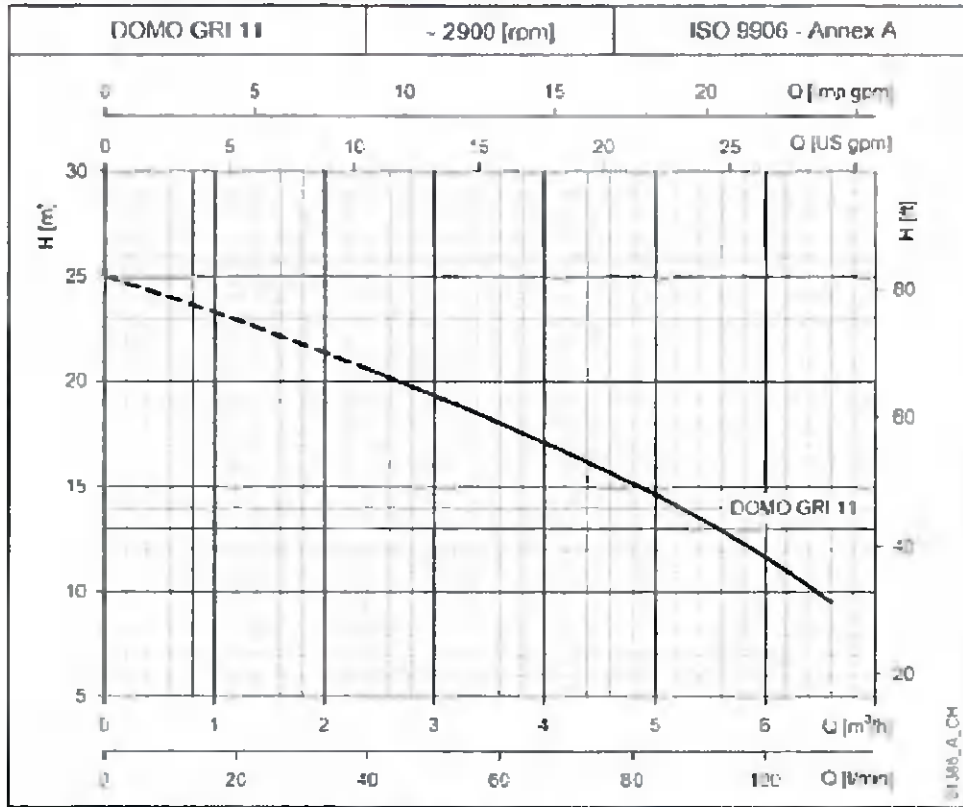
continuously lubricated by the

DRIVELUB system provide an

extreme barrier against infiltration



**DOMO GRI SERIES
 OPERATING CHARACTERISTICS AT 50 Hz**



HYDRAULIC PERFORMANCE TABLE

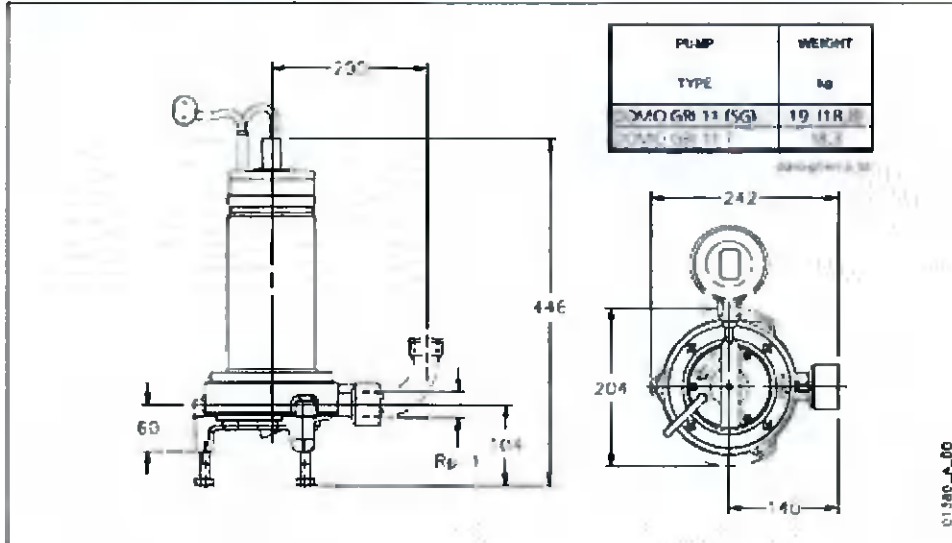
PUMP TYPE	RATED POWER		Q - DELIVERY										
			0	15	30	40	50	60	70	80	90	100	110
	kW	HP	0	0.9	1.8	2.4	3	3.6	4.2	4.8	5.4	6	6.6
H - TOTAL HEAD METRES COLUMN OF WATER													
DOMO GRI 11 50W	1.1	1.5	25.0	23.5	21.7	20.5	19.3	18.0	16.6	15.2	13.5	11.7	9.5

ELECTRICAL DATA TABLE

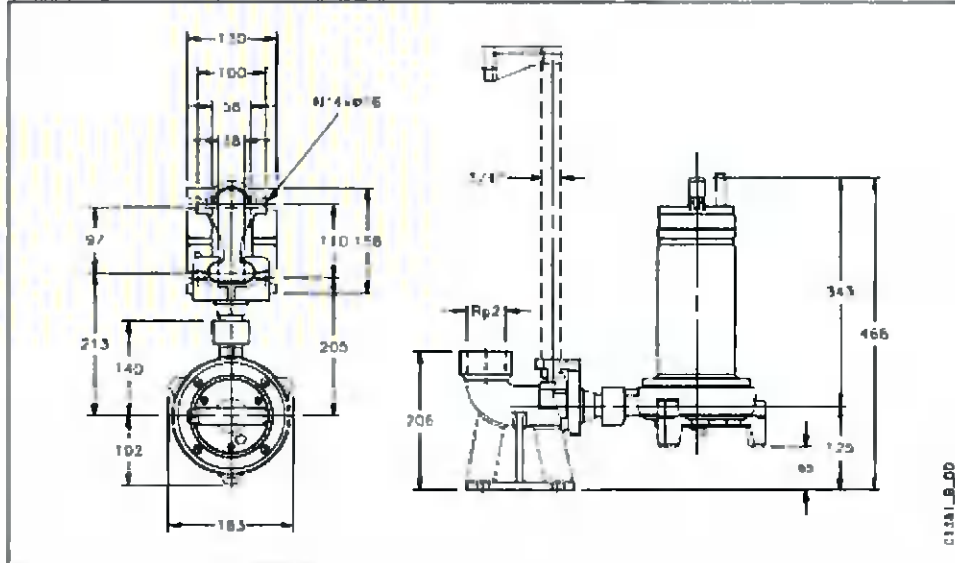
PUMP TYPE	ABSORBED POWER*	ABSORBED CURRENT*	CAPACITOR	PUMP TYPE	ABSORBED POWER*	ABSORBED CURRENT*	ABSORBED CURRENT*
SINGLE-PHASE	kW	220-240 V	µF/450 V	THREE-PHASE	kW	220-240 V	380-415 V
	A	A			A	A	A
DOMO GRI 11 50W	1.50	6.84	20	DOMO GRI 11 T	1.50	6.55	2.83



**DOMO GRI SERIES
 DIMENSIONS AND WEIGHTS**



INSTALLATION WITH SD LOWERING DEVICE



Certificate in accordance with SR66 for EN12566-Part 3



TREATMENT PERFORMANCE RESULTS

Tricel (Killarney)
 Ballyspillane Industrial Est., Killarney, Co. Kerry, Ireland

EN 12566-3
 Results corresponding to EN 12566-3 and S.R. 66
 PIA-SR66-1512-1062

Novo
 Submerged fixed film

Nominal organic daily load	0.26 kg/d		
Nominal hydraulic daily load	0.90 m ³ /d		
Material	Glass reinforced plastic		
Watertightness	Pass		
Structural behaviour (Calculation)	Pass (also wet conditions)		
Durability	Pass		
Treatment efficiency (nominal sequences)		Efficiency	Effluent
		COD	91.6 % 52 mg/l
		BOD ₅	95.9 % 11 mg/l
		NH ₄ -N	79.9 % 8 mg/l
		SS	95.3 % 16 mg/l
Number of desludging	Not more than once		
Electrical consumption	1.1 kWh/d		

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



Filmer Lane

July 2015

NOVO BROCHURE

Homeowners: Individual domestic installation



▶ The lightweight nature of the system allows for easy on-site delivery.



▶ No need for big excavators and large holes that damage your lawn or your garden.



▶ Very low visual impact from fully installed units.

Larger projects: Commercial installations up to 50PE



▶ These units are suitable for installation in existing basins, loading bays, ports etc. and have low maintenance and running costs.



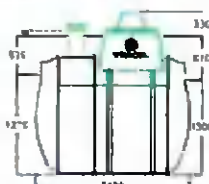
▶ Each unit is made of polyethylene (HDPE) and is made in a way to be easier when transporting the installation blocks.



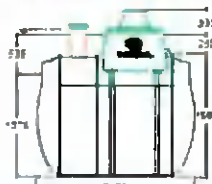
▶ Examples of fully installed Tricel Novo and alternative materials with the Tricel Novo.

Technical characteristics/ Plant dimensions

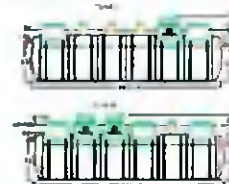
Model	Capacity (PE)	Length (m)	Width (m)	Height (m)	Weight (kg)	Weight (kg)	Power (kW)	Power (kW)	Power (kW)	Power (kW)	
ES1	1-6	1.1	1.64	2.24	140	170	1.375	1.3	0.55	60	
ES1-4	1-6	2.6	1.64	2.24	118	300	1.375	1.3	0.55	60	
ES2	7-8	2.6	1.64	2.24	118	300	1.375	1.3	0.55	80	
ES3	9-10	3.1	1.64	2.24	118	370	1.375	1.3	0.55	80	
ES3-4	9-11	3.6	1.64	2.27	118	400	1.375	1.3	0.55	100	
ES4	12-13	4.6	1.64	2.27	110	500	1.375	1.3	0.55	200	
ES4-4	12-14	6.6	1.64	2.27	250	700	1.35	1.3	0.56	200	
ES5	Tank A	10-10	2.6	1.64	1.04	150	300	1.35	1.3	0.66	
	Tank B	1.6	1.64	1.27	100	600	1.35	1.3	0.16	200 + 80	
ES6	Tank A	12-16	3.6	1.64	1.04	150	400	1.35	1.3	0.66	
	Tank B	1.6	1.64	1.27	150	700	1.35	1.3	0.16	200 + 80	
ES7	Tank A	16-16	5.6	1.64	1.17	150	600	1.35	1.3	0.66	
	Tank B	1.6	1.64	1.27	150	600	1.35	1.3	0.16	200 + 80	
ES8	Tank A	18-18	6.6	1.64	1.27	150	700	1.35	1.3	0.66	
	Tank B	1.6	1.64	1.27	150	700	1.35	1.3	0.16	200 + 110 + 80	



▶ 150 gravity riser
 For 150mm diameter gravity flow riser.



▶ 150 pumped riser
 For 150mm diameter pumped flow riser.



▶ Gravity 150 riser
 Suitable for commercial installations with 150mm diameter.

Tricel Novo riser options for deep installation

Tricel offer 3 different manhole riser heights to suit different invert/inlet levels. Manhole risers allow for the positioning of the treatment plants at the depth which is optimum to each individual installation. Wastewater is gravity fed from the home to your treatment plant. The inlet pipe's position from the premises determines the excavation depth for the WWT plant. Tricel offer a choice of manhole risers 250mm/500mm/750mm to help with installation where site conditions require a flexible solution.

**Tricel Novo: Wastewater Treatment System
 Service Agreement**

Establishing a regime of yearly inspections and maintenance is advised to ensure that your Tricel Novo continues to perform to the same high standards throughout its lifetime. The service agreement covers travel, the service and the labour cost of servicing only. Other labour costs are excluded, as are all replacement parts.

Tricel (Killarney) Unlimited Company, Ballyspillane Industrial Estate, Killarney, Co. Kerry, V93 X253, Ireland ("the Company") enter this Tricel Novo service agreement with the Customer named below

Customer Details:			
Name:			
Address:		Address of Site: (if other)	
Telephone No.:			
Date of Tricel Novo Order:			
Work Order No.:			
Date of Delivery of Tricel Novo:			
Date of System Commissioning:			
Service Agreement Fee Paid:			
Date of Service Agreement Commencement:			
Unit Serial No.:			

During routine servicing, the service technician will perform a series of checks and procedures:

Checks:

- The air-diffuser is monitored to check for sufficient dispersion of air.
- The sludge return system is functioning correctly.
- The covers and locks are in place and in good condition.
- General appearance and condition of the treatment system is good.

Procedures:

- The blower is tested.
- The blower filter is replaced.
- The system alarm is tested.
- The pump and float-switch are tested (if applicable).
- The vents are cleared of any blockages.
- The sludge level in the primary chamber is measured.

Notes:

- Full inspection labour is covered (including any immediate minor system adjustment required) This service agreement does not cover the cost of any labour or materials that may arise as a result of this inspection.
- Components that require replacing will incur additional charges.
- All service agreements exclude de-sludging.

Tricel (Killarney) Unlimited Company trading as Tricel

March 2017

Section 2: Information on the disposal route

The proposed solution for disposal is percolation trenches which consists of a series of pipework which distributes the effluent for treatment using in situ subsoil.

Based on a Population of 7 and a percolation value of 3-20 on the site, the chosen polishing filter for this site is percolation trenches. The minimum amount of pipe required will be 42m. This is based on trench length required per person for the given percolation value as stated in table 10.1 of the EPA Code of Practice 2021.

It recommends that each percolation trench should be equal in length and no longer than 10m

Please see attached the accompanying documents in Section 2 for the Percolation area

- Percolation area separation distances
- Construction Requirements

The location and construction of the percolation area is the responsibility of the site engineer. A full site layout drawing should accompany this report.

The EPA CoP 2021 outlines the design, siting and construction requirements for percolation areas.

The tables below outline some of the key factors to take into consideration when designing and locating a polishing filter.

Table 6.2: Minimum separation distances from the entire dewatering

Features	Minimum separation distance (m)	
Public road or driveway adjacent to the site boundary	10	
Down gradient domestic well	10 < PV < 30 usually SAND or GRAVEL dominated material	40
	Depth of soil/subsoil > 2.0 m between invert level and bedrock, and water table > 2.0 m	40
	Depth of soil/subsoil 2.0-8.0 m between invert level and bedrock, and water table > 2.0 m	30
	Depth of soil/subsoil > 8.0 m between invert level and bedrock, and water table > 2.0 m	20
	10 < PV < 30 usually SILT or SAND- or silty GRAVEL dominated material	45
	Depth of soil/subsoil 1.0-8.0 m between invert level and bedrock	40
30 < PV < 126 usually SILT/CLAY- or CLAY- dominated material	Depth of soil/subsoil 1.0-3.0 m between invert level and bedrock	40
	Depth of soil/subsoil > 3.0 m between invert level and bedrock	30
Alongside domestic well	25	
Up gradient domestic well	15	
Kiln feature	15	
Lake or reservoir	50	
Watercourse/stream	10	
Open drain or drainage ditch	10	
Adjacent tank/plant and percolation area, polishing filter or infiltration area	10	
On site dwelling house	7 m (adjacent) 10 (free water surface constructed wetland) 10 (infiltration treatment area)	
Neighbouring dwelling house	7 m (adjacent) 25 (free water surface constructed wetland) 10 (infiltration treatment area)	
Surface water (pond/lake)	5	
Road	4	
Slope break/fall	4	
Trees	3	
Site boundary	3	
Heritage features, NEASAC (SPA)	See note	

EV: percolation value
 The suitability for surface water drainage should be based on down gradient of the infiltration treatment area. It should be ensured that 10m distance is maintained from neighbouring storm water disposal areas or soakaways.
 † Tree roots may lead to PIPs developing. The canopy spread indicates potential root coverage.
 ‡ The distances required depend on the importance of the feature. Therefore, advice should be sought from the local authority and/or from the the Department of Housing, Local Government and Heritage, specifically the National Monuments Service and the National Parks and Wildlife Service.

Table 6.2 EPA CoP 2021: Minimum separation distances

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	-

Table 10.1 from EPA CoP 2021 - Loading rates for the soil polishing filter

Table 7.3: Requirements of a percolation trench (gravity feed)

Percolation trench characteristics	Requirements
Slope of pipe from tank to distribution device	1 in 40 for earthenware or concrete 1 in 60 for uPVC
Slope of percolation trench from distribution device	1 in 200
Length of percolation pipe in each trench	18 m maximum
Minimum separation distance between percolation trenches	2 m (2.5 m centre to centre)
Diameter of pipe from septic tank to distribution device	100–110 mm
Percolation pipes ^a	100 mm bore, perforated (typically at 4, 6 and 8 o'clock) smooth wall PVC drainage pipes with perforations of 8 mm diameter at about 75 mm centres along the pipe or pipes with similar hydraulic properties Maximum of six pipes per distribution device
Width of percolation trench	500 mm
Depth of percolation trench	Ideally, about 850mm ^b below ground surface depending on site (as per Figures 7.1 and 7.3)
Depth of unsaturated soil and/or subsoil beneath percolation trench and above the bedrock and the water table	Minimum 1.2 m for GWPRs of R1 or R2 ¹ . Minimum 2.0 m for GWPRs of R2 ² , R2 ³ , R3 ¹ or R3 ²
Backfilling of percolation trench (see Figure 7.1)	300 mm of 12–32 mm washed gravel or broken stone aggregate on invert, pipe laid at a 1 in 200 slope surrounded by 12–32 mm clean washed gravel or broken stone aggregate and with 150 mm of similar aggregate over pipe; geotextile layer followed by topsoil to ground surface
Geotextile	Geotextile should be in accordance with EN ISO 10319
Access/inspection points and vents	These are recommended for the ends of the percolation pipes. The covers should be visible and installed to prevent entry of water. They may also be used for rodding or scouring purposes
<p>a Before installation the holes in the percolation pipe should be inspected to check that they are the correct size and free from debris.</p> <p>b The percolation pipes may be located at a shallower depth, provided that a minimum of 450 mm of material is placed above the pipes to provide the required protection against damage from above</p>	

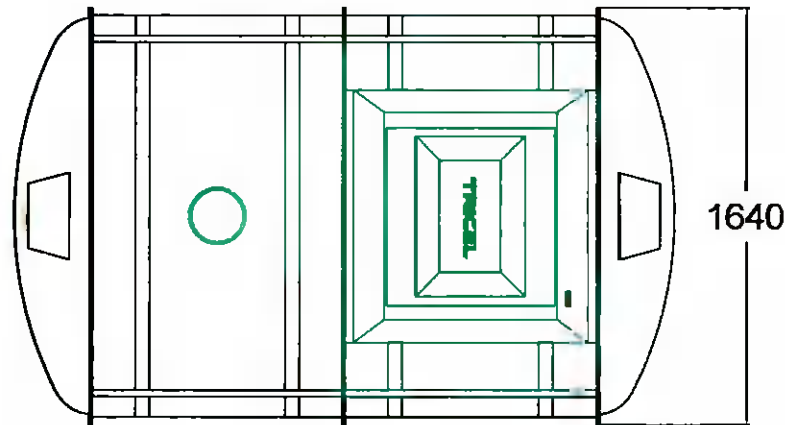
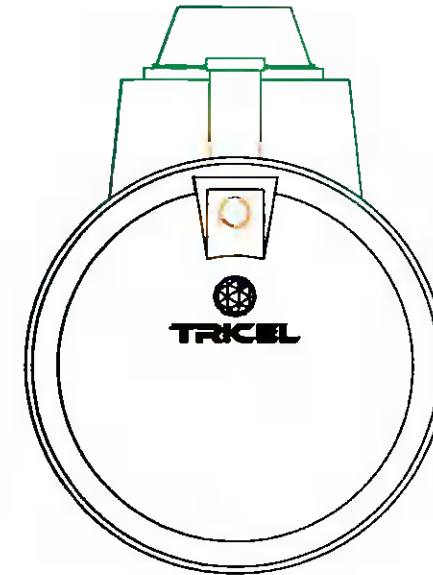
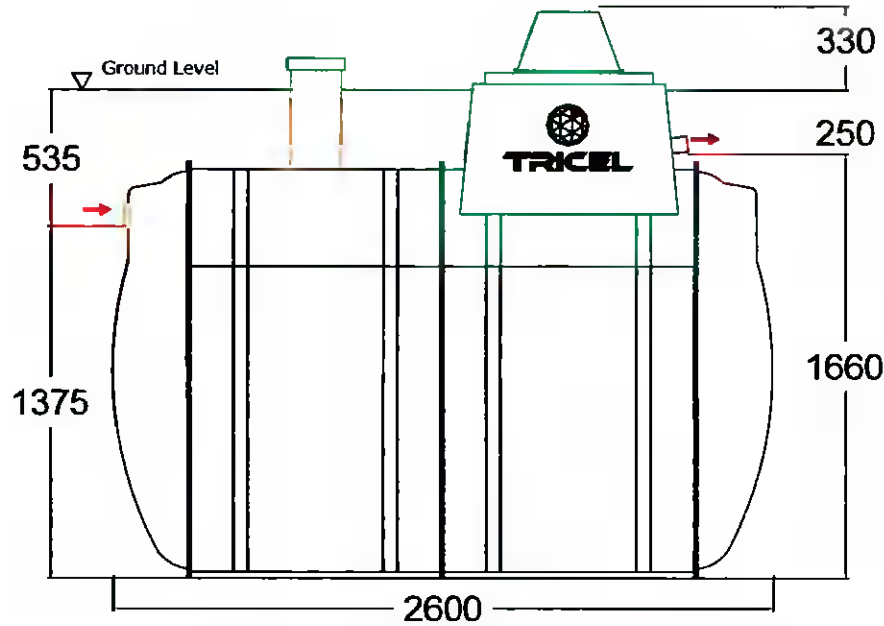
Table 7.3 EPA CoP 2021: Construction of percolation trenches. For secondary treated waste water, the maximum length of percolation pipe in each trench should be 10m as outlined in section 10.1.1 option 3

Terms and conditions:

Tricel cannot accept responsibility for incorrect site details or calculations as these are based on user inputs which are outside of Tricel control.

Full terms of website use are available at www.tricelsiteassessor.ie/TermsOfWebsiteUse

SALES SPECIFICATION



	BY	DATE	PRODUCT NAME:	WEIGHT:	SCALE	PART NO:	SIZE
DRAWN:	NR	16/11/2016	Novo IE8 Pumped	300 KG	NOT TO SCALE	TPIE0801	N/A
TOLERANCE: +/-5			COUNTRY: IRELAND	REV. NO. 00.00			
MATERIAL: GRP			UNITS: MILLIMETERS	TANK REVISION: AE			DRWG NO: 0000
TRICEL (KILLARNEY) UNLIMITED COMPANY RESERVES THE RIGHT TO CHANGE THE SPECIFICATION WITHOUT PRIOR NOTIFICATION. PRINTED COPIES OF THIS DOCUMENT ARE UNCONTROLLED UNLESS STATED OTHERWISE						ISSUE DATE: 18/11/16	

