

Water Neutrality Report

Fir Trees, Westward Lane, West Chiltington, RH20 2PA

For

Roger Shaw

Rev – **P2**

Reference **C3480**

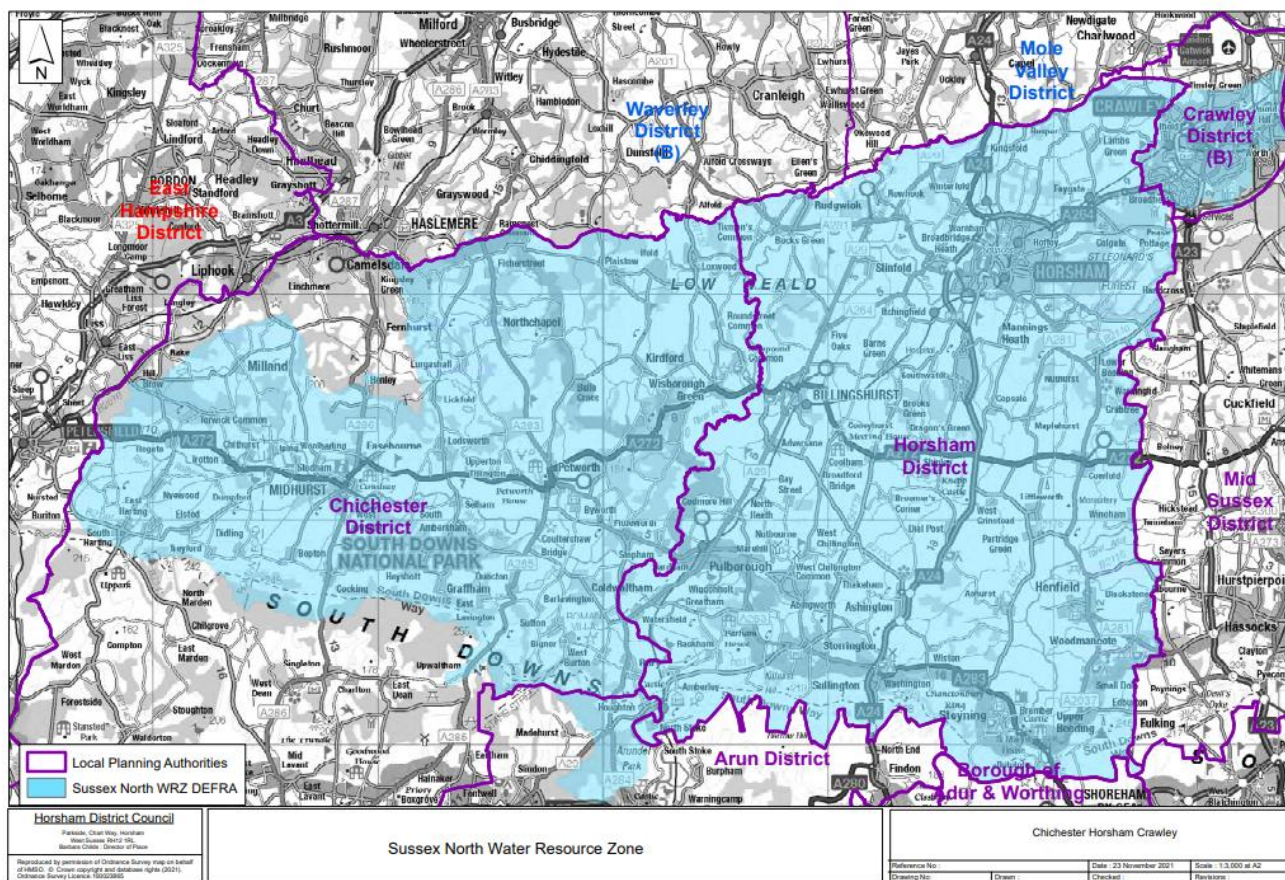
Date **25th March 2025**

Revision	Date of Issue	Comments	Prepared By	Checked By
P	03.12.2024	Initial Issue	LH	CS
P1	07.02.2025	Revised	LH	CS
P2	25.03.2025	Revised	LH	CS

1 Introduction

- 1.1.1 CGS Civils Ltd has been appointed by Roger Shaw to undertake a Water Neutrality Report for a proposed development at Fir Trees, Westward Lane in West Chiltington. The proposed scheme consists of the construction of a swimming pool within the garden of the existing Fir Trees.
- 1.1.2 The site falls within the Sussex North Water Supply Zone, in which Natural England have written to all authorities within the zone providing a position statement for applications which may place increased pressure on this zone. This explains that recent case law has established that abstraction from the Supply Zone may be having an impact on protected sites (Arun Valley Special Area of Conservations (SAC), Special Protection Area (SPA) and Ramsar site).
- 1.1.3 As a result, developments within this zone must not add to this impact, as such, the purpose of this report is to therefore provide an overview on the potential water usage changes on the site because of the proposed development, and to confirm that the site is water neutral.

Fig 1. Sussex North Water Supply Zone Area



- 1.1.4 The proposed development is located at OS Grid Reference TQ 08288 16534 and has the post code RH20 2PA

Fig 1. Site Location



1.1.5 Waterwise defined Water Neutrality as:

‘For every new development, total water use in the region after the development must be equal to or less than the total water uses in the region before the new development.’

1.1.6 Achieving water neutrality involves using a three-step approach. First, the demand for water from the new development must be reduced as far as is practicable, followed by the re-use of water; then the remaining demand should be offset within the region. Following this three-step approach allows the volume that requires offsetting to be reduced which ultimately reduces the cost of the overall scheme. This is noted within the Waterwise neutrality definition, which defines the three steps which should be undertaken in order to achieve water neutrality in their recent review dated January 2021.

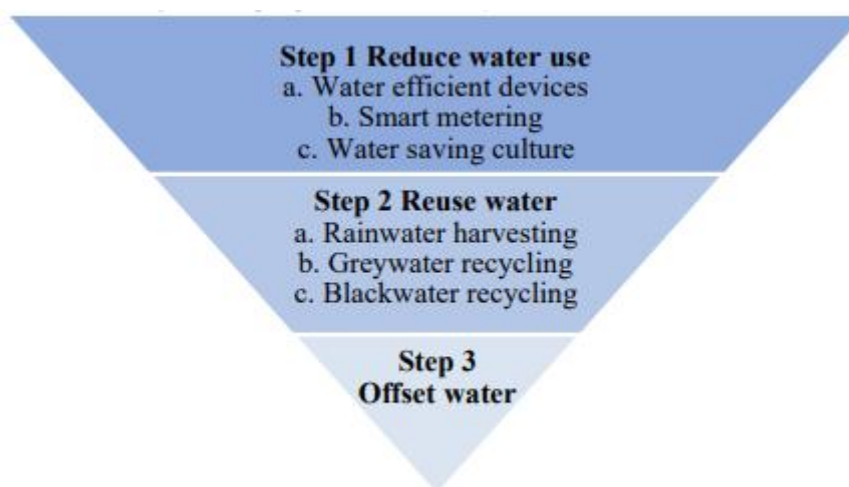
- Reduce water demand in the new development through improvement in efficiency.
- Re-use water, wherever possible.
- Offset the remaining water demand from the new development if required.

1.1.7 The report will be split into the following sections:

- A Review of Water Neutrality demand reduction
- A calculation of estimate water usage from proposed development
- Identification of measures that can be first used to reduce this demand
- Identification of measures that can be used to re-use water
- Establish solutions to offset that demand in order to achieve neutrality.

1.1.8 This report will follow the methods documented within ‘A Review of Water Neutrality in the UK’ carried out by Waterwise in January 2021. The document provides details on how developments can achieve water neutrality by utilising the 3-stage approach.

Fig 2. 3-stage approach



1.1.9 Some increase in water demand within the region from planned development during the local plan period is inevitable. However, it can be minimised by making the site as water efficient as possible.

1.1.10 Per Capita Consumption (PCC) is used as a measure of water use and is the volume of water that is used by one person in one day. It is usually measured in litres per person per day (l/p/d). The average PCC within Southern Water’s ‘Sussex North Water Resource Zones (WRZ)’ is 135 l/p/d. Homes without a water meter consume on average 160 l/p/d and for homes with a water meter, consume on average 131 l/p/d.

1.1.11 Part G of the Building regulations currently states that new build housing should achieve a minimum of 125 l/p/d. A tighter target of 110 l/p/d can be requested if the local authority can establish a clear need based on available evidence.

1.1.12 The table below indicates different demand scenarios including Southern Water’s Target 100 Ambition to achieve 100 l/p/d, as well as further scenarios where water demand is cut more dramatically.

Table 1 PCC Demand Scenarios

Demand Scenario	Per Capita Consumption (l/p/d)
British Flows and Loads	150
Building Regulations Standard	125
Building Regulations Optional	110
Target 100	100
Realistic Achievable	85
Ambitious	62

1.1.13 The benefits of water neutrality are wide ranging, from financial and reputational to environment and social. For a new domestic building, they could include:

- **Saving Water** – Over 100,000 litres of water can be saved per year for each water neutral home built
- **Saving Carbon** – A significant CO2 saving can be achieved by reducing the demand for hot water for baths, showers, basins, dishwashers and washing machines
- **Saving Money** – Both water and energy bills will reduce
- **Reducing environmental impact** – Decreasing water abstracted from rivers and groundwater sources
- **Improved Resilience** – For the future by minimising the additional pressure on water resources
- **Enabling future housing growth** – In water scarce areas by reducing the impact of new homes and buildings
- **Reducing discharge to sewage** – by using less water, collecting rainwater and recycling greywater, less water is discharged to the drainage network
- **Short pay-back time** – After approximately 5 years the saving of water neutrality will outweigh the costs of doing so.

2 Executive Summary

2.1.1 The Proposed scheme will consist of the construction of a swimming pool within the rear of Fir Trees.

2.1.2 As proven within this report, the use of rainwater harvesting will result in a water neutral site.

Table 2 Water Usage Comparison

Proposed Scheme water usage prior to mitigation	67.5 l/day
Proposed scheme water usage post mitigation	0 l/day
Proposed Scheme water usage equal to or lower than existing site	Yes

3 Calculation of estimated water usage from the proposed development

- 3.1.1 Before any necessary steps to achieve water neutrality can be determined, the total water demand for the proposed development must first be calculated. The proposed scheme will consist of the construction of an outdoor swimming pool within the rear of Fir Trees. The swimming pool will not require a complete refill following the initial fill and will only require topping up following evaporation/backwashing.
- 3.1.2 The following calculations will only cover the initial fill and the top-up following evaporation/backwash. Despite the pool having a UV cover installed, there is no way to enforce its usage, therefore evaporation must be taken into account within the calculations. It is anticipated that the proposed pool will lose an approximate depth of 1.25mm every 24 hours due to evaporation.
- 3.1.3 The proposed pool will be 10m long x 5m wide with an approximate constant water depth of 1.5m. It can therefore be calculated that the water demand for this proposed pool is 62.5 l/day to mitigate against the loss of evaporation. For the sake of the calculations, it is assumed that the pool will remain uncovered so the water demand will accumulate throughout the entire year.

$$5\text{m} \times 10\text{m} \times 0.00125\text{m}$$

$$= 0.0625\text{m}^3/\text{day} \text{ or } 62.5 \text{ l/day} \text{ or } 22,828.125 \text{ l/year}$$

- 3.1.4 The pool can hold 82.5m³ or 82,500 l of water and this water will be required to be offset as initial fill. It should be noted that once the pool is full, it will not need to be re-filled. The water within the pool will be present throughout the lifetime of the swimming pool, however, to prove willing, the client will offset this initial demand over a period of 5 years. This results in an additional demand of 45.2 l/day.
- 3.1.5 **It should be noted that the water used for the initial fill of the pool will be provided by a tanker that has supplied water from outside the Sussex North Water Resource Zone. This will therefore not have an impact on the water neutrality issue and will not be included within this calculation.**
- 3.1.6 There will be an approximate loss of 100-150 litres per month or 5 l/day due to backwashing. It is proposed that the pool backwash is pumped into a small holding tank which can then be treated and re-used within the pool to remove the requirement to top up after backwashing.
- 3.1.7 This results in a total increase in water demand of **67.5 l/day** for the proposed pool.

4 Step 1 – Identifying measures that can be used to reduce this demand

- 4.1.1 There is no scope of reducing the demand via water efficient devices.

5 Step 2 – Identify measures that can be used to re-use water

5.1.1 Once the water demand has been reduced via the installation of water efficient products, water reuse should be considered. The term ‘water reused’ refers to the capture, treatment (if it is required) and the use of alternative water supplies for non-potable purposes. It includes:

- Rainwater and surface water harvesting
- Greywater recycling (typically the used water from baths, showers and hand basins)
- Wastewater recycling.

5.1.2 The installation of water reusing technology has the potential to save significant amounts of water; for example, 24% of water in the home is used for flushing the toilet and only 4% externally in the garden meaning a water reuse system could save at least a quarter of the demand if it was installed for these purposes. Depending on the quality and the system installed, it could also be possible to re-use water for a washing machine which accounts for 12% of total water usage.

Table 8 Practical Summary of Step 2

Step 2: Reuse Water			
Rainwater Harvesting	Small scale water butt	Rainwater Harvesting system for individual homes and buildings	Large scale surface water harvesting
Greywater Recycling		Small systems for individual homes	Largest scale systems for commercial and mixed-use sites

5.1.3 In this instance, rainwater harvesting is proposed to provide water to the swimming pool for use to top-up following evaporation/backwash. In this particular case, rainwater is to be harvested from the northern section of the existing roof and there is sufficient roof area to provide **95 l/day**. As only 67.5 l/day is required to account for evaporation/backwash, then the proposed pool can be water neutral based off rainwater harvesting alone.

Fig 3. Harvested roof area



- 5.1.4 The installation of water reusing technologies will further reduce the water demand on site, depending on the harvesting tank installed. The proposed roof area is sufficient to provide the required water to the property via a rainwater harvesting tank as well as has sufficient capacity for a 35-day drought period. **See Appendix C.**

Table 9 Part G rainwater collection calculator

Rainwater Collection Calculation	
Collection Area (m ²)	67
Yield Coefficient	0.8
Depth of rainfall (mm/year)	899
Daily rainwater collection (litres)	132
Number of occupants	1
Daily Rainwater per person (litres)	132

- 5.1.5 A calculation is to be made to ensure that the rainwater harvested is greater than the rainwater demand within the dwelling. The following is a calculation for 5% of the annual rainwater yield and has been calculated using Rainfall data from the National River Flow Archive which provides annual rainfall data as recorded by the Met office and follows the intermediate approach as detailed within BS 8515:2009.
- 5.1.6 Using the rainfall catchment data provided by the National River Flow Archives, the closest station point to the site is 41009 – Rother at Hardham:



- 5.1.7 The latest data available for this station is SAAR 1961-1990, which shows that the depth of rainfall in the area is 899mm.

$$Y_R = A \times e \times h \times n \times 0.05$$

Where:

Y_R = the annual rainwater yield (l)

A = The collecting area (m²)

e = yield coefficient (%)

h = depth of rainfall (mm)

n = hydraulic filter efficiency

$$\underline{\underline{2288.9}} = 67 \times 0.8 \times 899 \times 0.95 \times 0.05$$

- 5.1.8 In order to ensure there is sufficient roof area, another calculation from BS 8515:2009 must be carried out in order to calculate the annual demand within the property. The following is a calculation for 5% of the annual non-potable water demand.

$$D_N = P_d \times 365 \times 0.05$$

Where:

D_N = the annual non-potable water demand (l)

P_d = The daily requirement per person (l)

$$1231.8 = 67.5 \times 365 \times 0.05$$

- 5.1.9 To ensure there is sufficient area to allow a 35-day drought storage, an extra 35 days is to be included:

$$\underline{1350} = 67.5 \times 400 \times 0.05$$

- 5.1.10 From the above water calculations, we have:

- Proposed water usage rate of 67.5 l/day
- Which can then be reduced to a proposed water usage rate of 0 l/day following the installation of rainwater harvesting.

- 5.1.11 The client is willing to install a 3000l rainwater harvesting tank to allow the top up of the swimming pool post evaporation/backwash.

5.2 Rainwater Harvesting Tank Maintenance Specification

5.2.1 Rainwater Harvesting Tank

In order to maintain the functioning of the rainwater harvesting tanks, the following maintenance requirements should be adhered to:

Operation and maintenance requirements for rainwater harvesting tanks		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Ensure that all inlets and outlets are clear of debris and blockage	Weekly
	Remove debris inlets and outlets	Weekly
	Inspect first flush diverter to ensure it is working correctly and not clogged	Weekly – Clean if necessary
	Clean Filter screens	Monthly – Replace if damaged
	Inspect the tank for sediment build-up and any signs of algae	Monthly
	Inspect roof and gutters and clear of all debris	Every 3 months
	Inspect pump for any signs of wear or damage and test to ensure it is functioning correctly	Every 3 months
	Check bottom of the tank for sediment build-up and clear if necessary	Every 6 months
	Ensure all downpipes are clear and functioning correctly and clear if necessary	Every 6 months
	Test water	Every 6 months
	Thorough tank cleaning – drain tank, scrub interior and rinse	Annually or as required
	Service the pump and filtration system and replace any worn parts	Annually
	Inspect overflow to ensure it is working correctly and clear any obstructions	Annually
Monitoring	Monitor Water levels	Annually
	Inspect for pests e.g mosquitoes and take measures to prevent	As required

6 Step 3 – Offsetting remaining water demand

- 6.1.1 The proposed pool will be water neutral via rainwater harvesting. The proposed harvesting tank will be utilised to provide water to the pool for top up following evaporation and backwash.

7 Conclusion

- 7.1.1 To summarise:

- The proposed development will use on average **67.5 l/day** prior to any mitigation techniques.
- Re-using the water through rainwater harvesting tanks can further reduce the water demand down to **0 l/day**
- The site is water neutral.

8 Appendices

8.1 Appendix A:

Rainwater Harvesting Tank Size Calculator:

COLLECTABLE ROOF AREA (M ²)					
Main Building	Width:		Length:		Rain Collection Area: 0 m ²
Extension one	Width:		Length:		Rain Collection Area: 0 m ²
Extension Two	Width:		Length:		Rain Collection Area: 0 m ²
Extension Three	Width:		Length:		Rain Collection Area: 0 m ²
Or the total roof area, if you already know it:			67	Total area of collectable roof space:	67 m ²
Select Your Region	England SE & Central			Average rainfall per year in your region:	64 L
Collectable rainwater per annum in litres - discounted by 20% to account for water loss					34304 L

USE OF RAINWATER IN THE BUILDING			
Number of people or bedrooms in the building -	people:	1	bedrooms:
☐ Number of clothes washing cycles per day (50 litres each)	0.00 Cycles	0.00	L
☐ Number of toilet flushes per day (4.42 flushes per person, average 5 litres each)	0.00 Flushes	0.00	L
Outdoor use in litres, per person per day (recommended 5 litres per person per day)	68	68.00	L
Amount of water you require every day		68	L
Amount of water you require every year	DEMAND	24820	L

FINAL FIGURES		
How many days drought protection do you need? Typically 21 (18 minimum)	35	
Capacity of water storage in litres required for drought protection	2380.00	L
The lesser of YIELD (blue) or DEMAND (green) per annum	24820	L
Therefore, volume of rainwater storage required	2380	L

CONCLUSION		
Is there sufficient roof water available:	YES	
Recommended tank size from our shallow dig range:	F-Line Range:	3000 LITRE F-LINE TANK

8.2 Appendix B:

Example Rainwater Harvesting Tank Brochure:



Carat Rainwater Harvesting solutions



RAINWATER HARVESTING

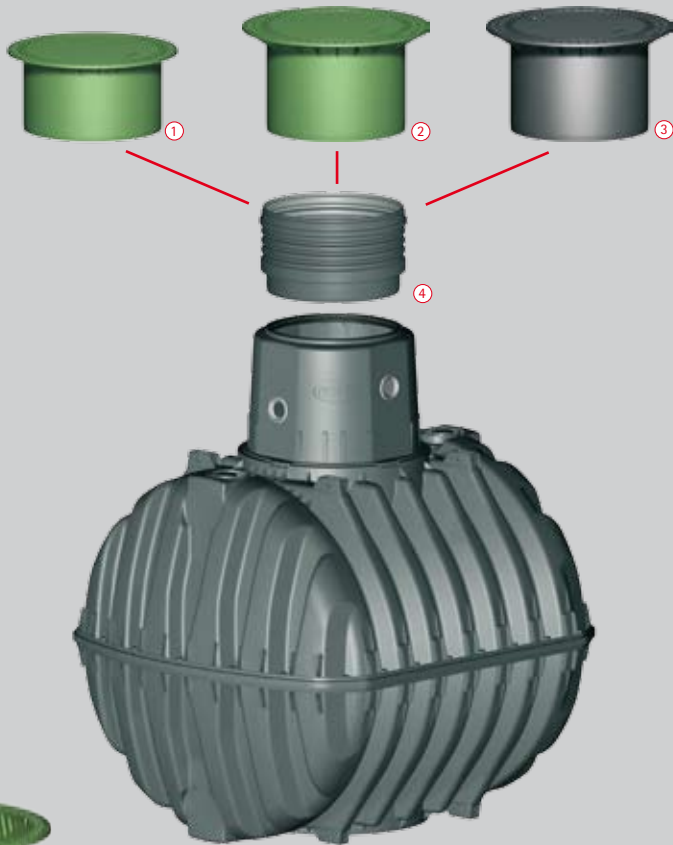
WASTEWATER SYSTEMS

RAINWATER RETENTION

DRINKING WATER RESERVOIRS

Benefits of the Carat System

Flexible, stackable, user-friendly and better for the environment



① Mini telescopic dome shaft with PE lid

Designed for non-vehicle loading and ideal for garden use, the shaft can be adjusted from 750 – 950 mm and tilted up to 5% to sit flush with the ground level. Includes a PE lid with child safety lock. This item is supplied in green.

② Maxi telescopic dome shaft with PE lid

Designed for non-vehicle loading and ideal for the Complete Package (Eco-Plus), the shaft can be adjusted from 750 – 1,050 mm and tilted up to 5% to sit flush with the ground level. Includes PE lid with child safety lock. This item is supplied in green.

③

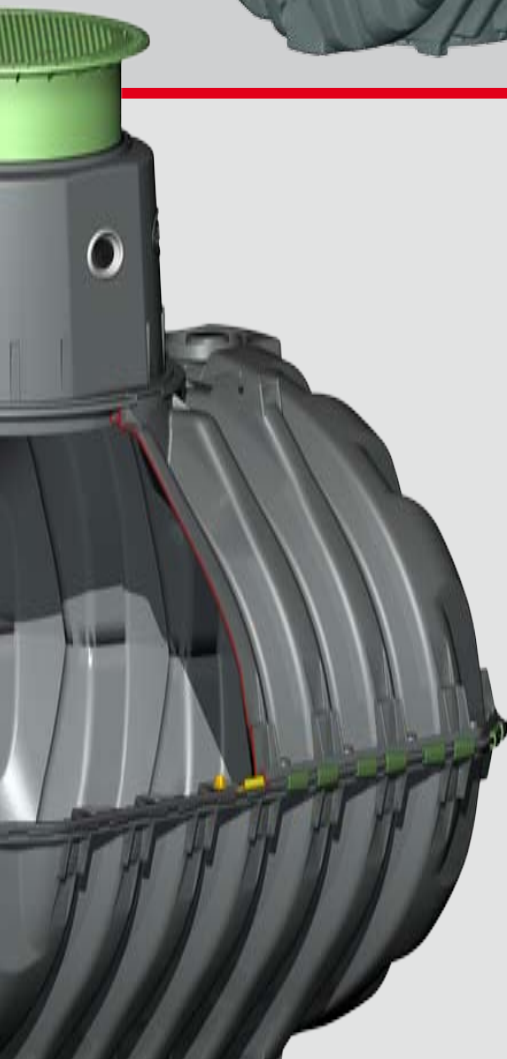
Vehicle loading telescopic dome shaft with cast iron lid

Designed for vehicle loading applications, the tank can be adjusted from 750 – 1,050 mm and tilted up to 5% to sit flush with the ground level. Includes child-safe cast iron cover. This item is supplied in dark grey.

④

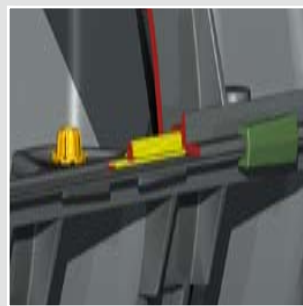
Extension

For use with the telescopic dome shaft to increase the height of the lid from 1,000 – 1,500 mm. Always refer to installation instructions when using this item.



Logistical advantages of the Carat

The Carat tank consists of two half shells which can be stacked on top of each other, allowing multiple tanks to be stacked on a single pallet for shipping. For example, it is possible to stack five 6,500 ltr Carat tanks, or nine 2,700 ltr Carat tanks on a single pallet. This allows a standard 40 ft. shipping container to house a total tank volume of up to 130,000 ltrs! The tanks unique stacking feature directly reduces transport costs and environmental impact from vehicle emissions, whilst allowing shipments to any destination in the world.



Easy and safe assembly

- The patented quick connection (illustrated in green), allows the Carat tank to be assembled without screws in only few minutes. Disassembly is possible at any time.
- The first-class EPDM material used in the profile sealings (illustrated in yellow), has been laboratory tested to last more than 25 years.
- The centering bolt (illustrated in orange) assures the accurate and easy assembly of the two half shells preventing any leaks

The Carat

The first Rainwater underground tank of its kind!

Unique manufacturing process

The GRAF Carat underground tank is unlike any other underground tank in the world. It is the largest tank of its kind to be manufactured by injection compression moulding. This technique provides the tank with unbeatable stability and ensures that each component is produced with the highest of accuracy.

Unlike other underground tanks, the wall thickness is equal in all areas of the tank. The production tolerances are kept to a minimum, resulting in a product of the highest quality, which is strong, accurate, reliable and extremely user-friendly.

To manufacture the Carat range, one of the worlds largest injection moulding systems had to be developed.



The Carat underground tank is made from Duralen®, a high quality material that is extremely rigid and impact resistant, therefore ideally suited for producing underground tanks. With very low warping characteristics and high stiffness, this material provides high stability and a unique life expectancy. Duralen® can also be easily recycled which reduces waste and environmental impact.

Duralen®

The modular Carat system

Choose your tank size

NEW

Carat, vehicle bearing underground tank

Size 2,700 – 13,000 litres
(700 – 3,400 US-Gallons).

Designed to be used in conjunction with the vehicle loading telescope dome shaft. The access dome is designed in accordance to DIN testing.

Illustration shows 4,800 litres
(1,250 US-Gallons) tank with
cast iron telescopic dome shaft for
vehicle loading



15
years
warranty

EINSTIEGSDOM
nach
DIN
EINSTIEGSDOM

TUV
TECHNICAL
Production monitored
certified design

European
Patent
0870877

US
Patent
5878907

Volume

Litres	US-Gallons
2,700	700
3,750	1,000
4,800	1,250
6,500	1,700
7,500*	2,000*
9,600*	2,500*
13,000*	3,400*

* Set consisting of two Carat underground tanks

Technical data

Dimensions/weight	2,700 L 700 US-Gallons	3,750 L 1000 US-Gallons	4,800 L 1,250 US-Gallons	6,500 L 1,700 US-Gallons	7,500 L* 1,850 US-Gallons	9,600 L* 2,500 US-Gallons	13,000 L* 3,400 US-Gallons
Length	2,080 mm (81.9 inches)	2,280 mm (89.8 inches)	2,280 mm (89.8 inches)	2,390 mm (94.1 inches)	Set consisting of two Carat underground tanks		
Width	1,565 mm (61.6 inches)	1,755 mm (69.1 inches)	1,985 mm (78.1 inches)	2,190 mm (86.2 inches)			
Height (including tank dome)	2,010 mm (79.1 inches)	2,200 mm (86.6 inches)	2,430 mm (95.7 inches)	2,710 mm (106.7 inches)	 For dimensions see 3,750 L tank*	 For dimensions see 4,800 L tank*	 For dimensions see 6,500 L tank*
Height of tank dome	610 mm (24.0 inches)						
Internal Ø tank dome	800 mm (31,5 inches)						
Weight	120 kg (265 lbs.)	150 kg (331 lbs.)	185 kg (408 lbs.)	220 kg (485 lbs.)			
Load							
Max. axle load	Car-bearing						
Earth covering	800 – 1,200 mm (31.5 – 47.2 inches)				see 3,750 L tank	see 4,800 L tank*	see 6,500 L tank*
Groundwater							
Groundwater stable	up to the middle of the tank						
Required earth covering	800 mm (31.5 inches)				see 3,750 L tank	see 4,800 L tank	see 6,500 L tank

Garden Comfort package

The simple garden solution with submersible pump system



Carat Garden Comfort underground tank package



- Simple to install and use
- Use a simple hose connection socket and pressure sensitive pump for automatic water activation, purposely designed for the Gardena® system
- Low visual impact
- Reduces electricity consumption by using a pressure drop activation system, so that electricity is only used when required

Scope of supply

- ① Carat underground tank
- ② Mini telescopic dome shaft for pedestrian loading with an adjustable PE lid
- ③ Filter package 2, consisting of:
 - Internal Universal Filter 3
 - Inflow stilling system for controlling the water inflow
 - Overflow siphon and rodent guard
 - Spannfix pipe connection sleeve
- ④ Garden Comfort pump package, consists of:
 - Integra-Duo® 1100 Submersible pump, with protection against dry running and automatic Start / Stop function
 - Floating water extraction unit
 - Water hose connection box
 - 10 m of pressure hose

Volume

Litres	US-Gallons
2,700	700
3,750	1,000
4,800	1,250
6,500	1,700
7,500*	2,000*
9,600*	2,500*
13,000*	3,400*

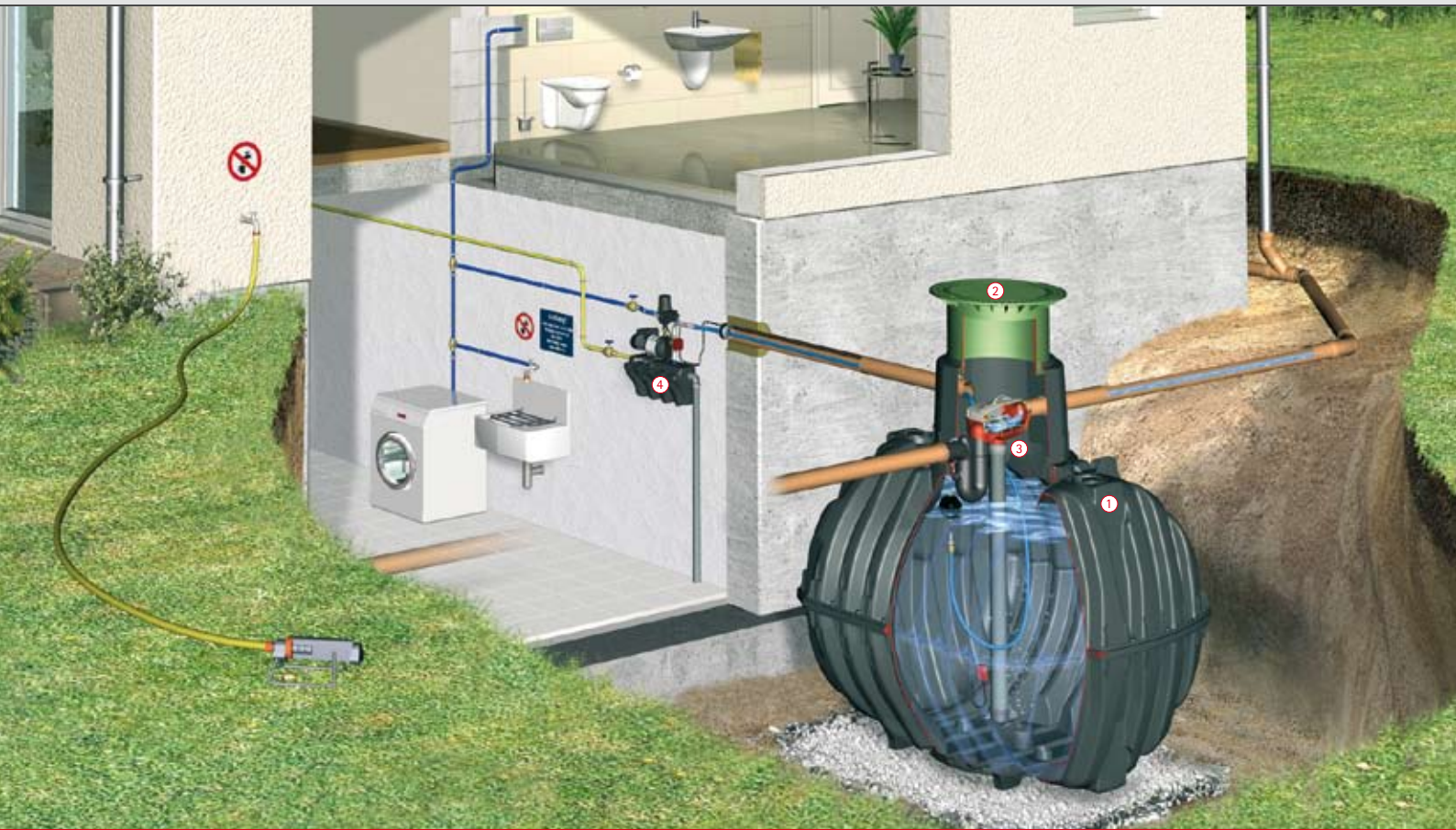
* Set consisting of two Carat underground tanks



Vehicle loading version available on request

Eco-Plus package

The ideal solution for use in the home and garden



Carat underground tank package

Eco Plus



- Economic package solution
- Patented filter technology and in-house pump system with automatic switch-over to mains water supply
- Easy to assemble due to modular components
- Float switch controlled
- Only one cover viewable on the surface

Scope of supply

- ① Carat underground tank
- ② Maxi telescopic dome shaft for pedestrian loading with an adjustable PE lid
- ③ Filter package 3, consisting of:
 - Internal Optimax-Pro (self-cleaning) filter
 - Inflow stilling system for controlling the water inflow
 - Overflow siphon and rodent guard
 - Spannfix pipe connection sleeve
- ④ Eco-Plus pump package consists of:
 - Water supply control unit
 - Floating water extraction unit
 - DN 100 wall duct
 - Labelling set
 - Suction pipe

Volume

Litres	US-Gallons
3,750	1,000
4,800	1,250
6,500	1,700
7,500*	2,000*
9,600*	2,500*
13,000*	3,400*

*Set consisting of two Carat underground tanks



Vehicle loading version available on request

Internal filter technology

NEW

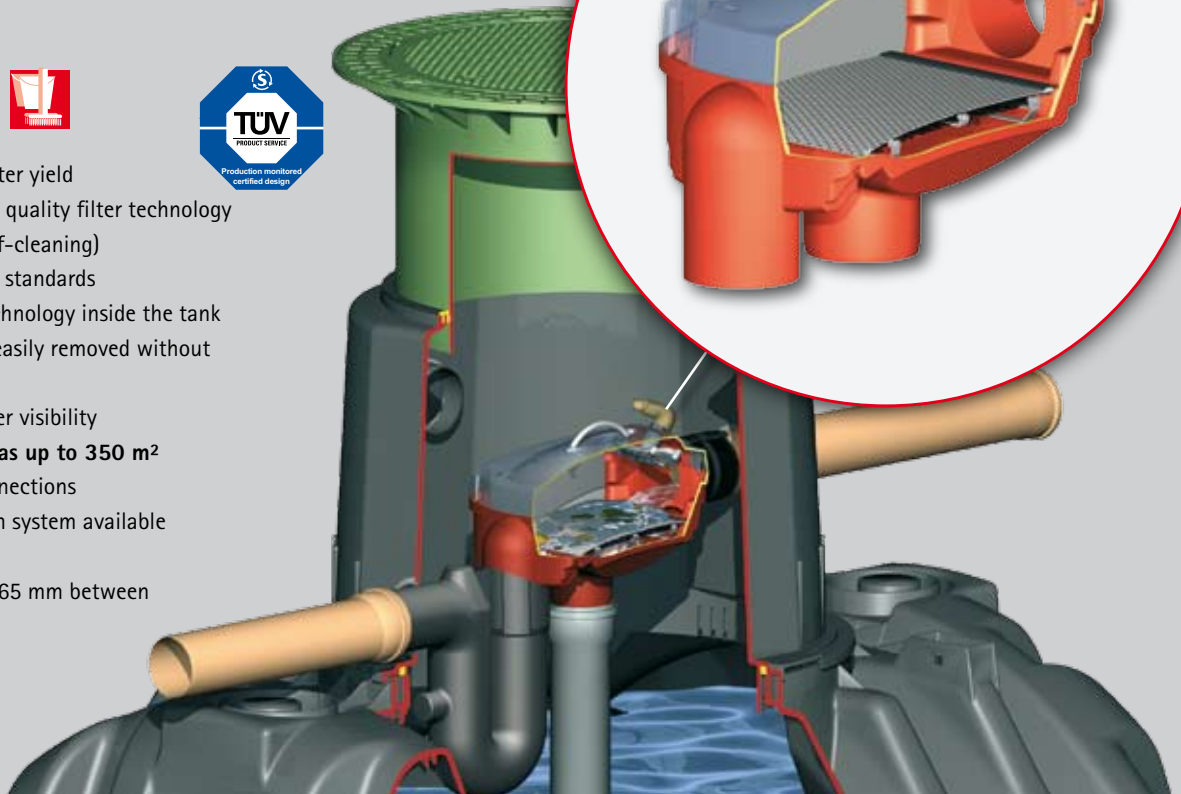
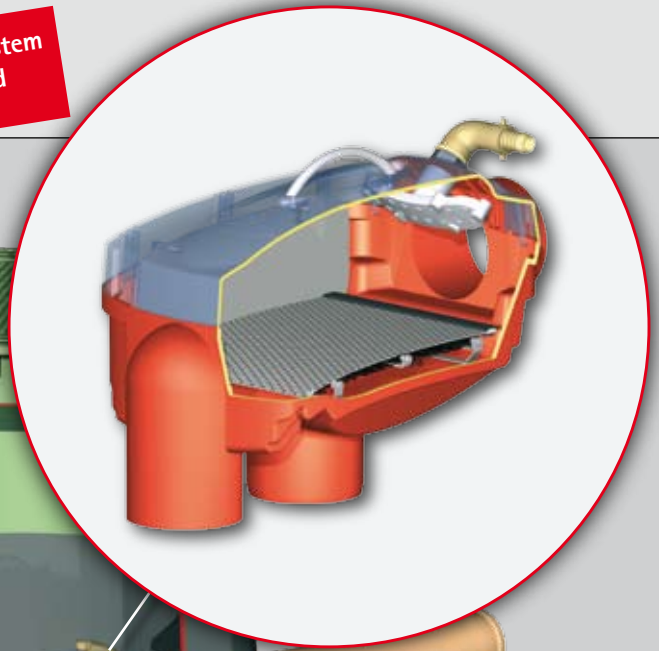
Efficient cleaning system
with high water yield

Optimax Pro, self-cleaning Filter

Advantages



- Provides over 95% water yield
- Utilises patented, high quality filter technology
- Low-maintenance (self-cleaning)
- TÜV-tested to German standards
- Space-saving filter technology inside the tank
- Filter housing can be easily removed without the need for tools
- Transparent lid for filter visibility
- **Can manage roof areas up to 350 m²**
- Standard 100 mm connections
- Self cleaning Opticlean system available as an optional extra
- Low offset height of 165 mm between inlet and outlet



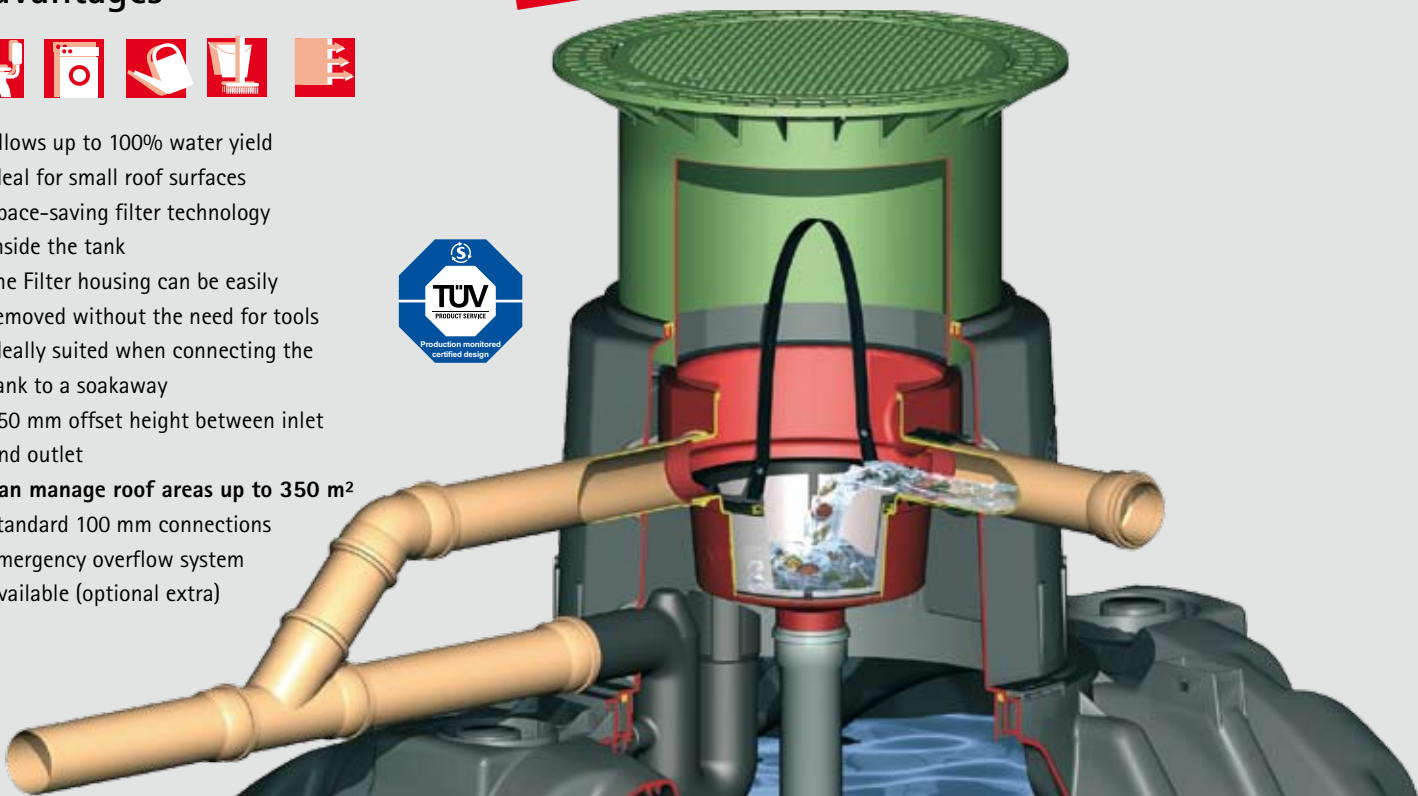
Universal Filter 3

Advantages



up to 100%
water yield

- Allows up to 100% water yield
- Ideal for small roof surfaces
- Space-saving filter technology inside the tank
- The Filter housing can be easily removed without the need for tools
- Ideally suited when connecting the tank to a soakaway
- 250 mm offset height between inlet and outlet
- **Can manage roof areas up to 350 m²**
- Standard 100 mm connections
- Emergency overflow system available (optional extra)





GRAF – Setting the standards in quality



Production site at Teningen (Germany) near Freiburg



Production site at Dachstein (France)

High Quality Manufacturing

GRAF has invested more than € 20 million in a new production site specially set up for the new CARAT range. The new facility has an approximate surface area of 155,000 m² – that equals 31 football pitches – one of the most modern production facilities for plastic products in the world

For over 40 years, Otto Graf GmbH has been offering high-class plastic products to its customers. In 1974 GRAF developed its first pioneering range of rainwater harvesting products. Now GRAF is recognised as Germany's number one rainwater harvesting brand and proudly presents the new premium Carat range of the tanks. A range which is manufactured in one of the most modern and efficient plastic manufacturing facilities in the world!

RAINWATER HARVESTING



STORMWATER MANAGEMENT



AGRICULTURAL CONTAINERS



SEWAGE TREATMENT PLANTS



Warranty clause:

The warranty mentioned in this brochure only refers to the tank in question and not to the accessories. Within the warranty period we grant free replacement of the material. Further benefits are excluded. Pre-condition for warranty benefits are proper handling, assembly and installation according to the mounting guidelines.

N.B. Protect tanks from frost when installed above-ground! In case of groundwater installation, please contact us for further information previous to the purchase!

For all indications of measurements in this brochure we reserve a tolerance of +/- 3%. The useful volume of the tanks may be up to 10% lower than the tank capacity, according to the connecting option.

Technical modifications and further development of the different products are subject to change. Errors excepted.

Otto Graf GmbH
Kunststofferzeugnisse
Carl-Zeiss-Straße 2-6
79331 Teningen / Germany

Phone: + 49(0) 76 41/5 89-0
Fax: + 49(0) 76 41/5 89-50
info@graf-online.de
www.graf-online.de



© Otto Graf GmbH, Teningen, Germany
Reproduction – also in extracts –
only with written authorisation.