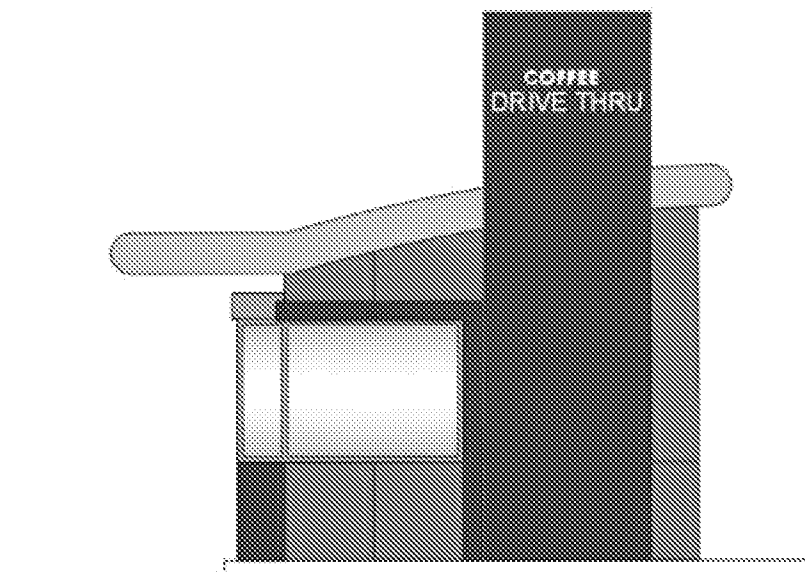


DRAINAGE STRATEGY AND CALCULATIONS



Client: **Rontec**

Site Address: **Service Station, Lyminster Road,
Littlehampton, BN17 7QQ**

Project Number: **21340**

Reference (Revision): **CALC01 (A)**

Date: **25.03.2022**

Author: George Dermentzoglou Date: March 2022

Checker: Seb Reid Date: March 2022

Job No.	21340	Sheet No.	i
Calcs by:	George D	Date	25.03.2022

CLIENT:	Rontec
PROJECT TITLE:	Crossbush
ARCHITECT:	Jennings Design

DESIGN PHILOSOPHY:

The existing site is a Service Station located in Crossbush, between Littlehampton and Arundel and it's bounded by Lyminster Road (A284) to the east and greenfields to the north, west and south. It includes a petrol filling station, a restaurant, a hotel and associated car park.

The proposals include the construction of a new Coffee Outlet Drive Thru at the east of the site, where is currently a landscaped area with trees and hedges. The development will also include an access - drive thru - road, waiting and delivery bays. The total site area is approximately 0.08 ha with a proposed impermeable area of 0.06 ha.

There is no existing surface water sewer in close proximity of the site and River Arun is located circa 1.0km north of the site. However, the existing site discharges its surface water into soakaways and therefore, infiltration is considered as the best option. The drainage strategy is proposing the discharge of surface water into an underground attenuation soakaway tank, with the location and size to be indicative only. Appropriate infiltration test results are required to confirm the infiltration rate and following that the soakaway design can be amended accordingly.

There is no information of an existing foul or combined water network within the site, however it is assumed that due to the size and use of the Service Station an existing outfall to an adopted Southern Water sewer should be present. A CCTV survey is required to confirm connectivity and the existing foul water outfall of the site.

In case that there is no existing outfall to be utilised, a new foul water run will be constructed within the access road to the southwest of the coffee shop to connect into an existing adopted FW manhole ref 7700 along a rising main which runs at the south boundary of the site. The route of the rising main and location of the manhole are based on Southern Water records and are indicative only. The proposed connection will require a S106 approval prior to any works.

Job No.	21340	Sheet No.	ii
Calcs by:	George D	Date	25.03.2022

CODES OF PRACTICE:

Drainage Outfalls	Proposed Discharge Outfall	SW -> Infiltration - Soakaway Tank FW -> Adopted Southern Water Sewer
	Soakaways Viable / Rate	Ground conditions and recorded infiltration rates support the use of soakaways. Rates to be confirmed by infiltration tests on site.
	Watercourse Available	River Arun 1.0 km north of the site
	Surface Water Sewer	No
	Foul Water / Combined Sewer	No
	Invert Level of Outfall	TBC for Foul Water
Drainage Assessment	Storm Event scenario	1:100 + 40% CC
	Total Site Area	800 m ² / 0.080 ha
	Existing Impermeable Area	0 m ² / 0 ha
	Proposed Impermeable Area	600 m ² / 0.06 ha
	Proposed Attenuation Storage	Estimated at 55 m ³
	Attenuation Storage Method	Underground Geocellular Soakaway Tank 8.0m x 5.0m x 1.5m deep (95% voids)
	Flow Control Unit	Not required
Drainage Details	M5-60 / R	19.000 / 0.348
	MADD	0
	Global Time of Entry	5 mins
	Summer / Winter Coeffs	1.0 / 1.0
SuDS Methods	Water Quality Methods Used	Gully and Sumps
	Hydrocarbon Interceptor	Not required
	Silt Capture	Yes, used at SW1.01 and drainage channels
	Ponds / Swales	None proposed
	Permeable Pavement	None proposed
Appendices	Environment Agency Flood Zone Map Dudleys Plan No 21340-100 (P2) Proposed Drainage Strategy MicroDrainage Quick Design of Infiltration System	

Flood map for planning

Your reference

Crossbush

Location (easting/northing)

502785/105813

Scale

1:2500

Created

17 Sep 2021 9:57

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 20 40 60m

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Quick Design: Infiltration Systems

Variables

Rainfall and Runoff

FSP Rainfall:

Return Period (years):

Region:

Map: M5-S0 (mm) Ratio R

Infiltration Structure

Cellular Storage:

Infiltration Coefficient Base (m/hr):

Infiltration Coefficient Side (m/hr):

Safety Factor:

Porosity:

☐ With Outflow

Maximum Discharge (l/s):

Enter Porosity between 0.10 and 1.00

Quick Design: Infiltration Systems

Results

Results are presented in paired rows. These represent maximum and minimum storage requirements for each size of structure.

Depth (m)	Net Vol (m ³)	Surface Area (m ²)	Ex/Fill Vol (m ³)	Half Drain (mins)
0.4	44.4	116.8	46.7	665
	42.5	111.9	44.7	654
0.6	47.5	83.4	50.0	946
	46.5	81.7	49.0	945
1.0	51.8	54.6	54.6	1401
	50.3	52.9	52.9	1398
1.5	55.7	38.1	58.7	1847
	54.3	38.1	57.4	1841
2.0	59.5	31.3	62.6	2184
	55.7	29.3	58.6	2168

Enter Porosity between 0.10 and 1.00