



## Development of Car Park

for



**CSH Transport & Forwarding**

**Sett End Road North,**

**Shadsworth Business park**

**Blackburn**

**BB1 2NW**



# DRAINAGE STRATEGY REPORT

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## 1.0 Overview

Planning permission has been granted by Blackburn & Darwen Borough Council under Planning Reference 10/17/0886 to construct new parking facilities for HGV's

The purpose of this report is to demonstrate that the drainage element of the site will be developed in line with Condition 4 of the planning approval.

## 2.0 Executive Summary

### 2.1 Proposed Drainage Strategy

A scheme has been designed to control flows and pollution draining from the site to ensure that the scheme is developed with minimal impact to the surrounding area and receiving public sewers and to and reduce flood risk to the site, neighbouring properties and downstream networks.

Currently the site has no formal drainage arrangements and rainfall is absorbed into the ground. The proposed strategy will be to control the volume, rate and quality of surface water runoff discharging from the site. A large proportion of the hard standing area will be constructed using permeable paving which will mimic the natural strategy currently operating on the site but when overwhelmed due to extreme weather events, surface water will be stored and treated on site then discharged at a rate as near as practical to existing Greenfield runoff rates.

The proposal will control the rate of surface water discharge from the site by restricting flows to 5 l/s with sufficient attenuation to contain up to the 100 year critical storm event + 30% for climate change. This approach will minimise the impact to the receiving sewers by attenuating at source to ensure that any surges in the discharge rate are avoided.

In line with PPG 3, a full retention separator Class 1 with alarm will be installed on the outlet of the surface water outfall to prevent silt and oils passing forward into the receiving sewer.

## 3.0 Existing Site

### 3.1 Existing Drainage Strategy

A visual survey of site has confirmed that there are no formal drainage arrangements on the site.

### 3.2 Existing Area

The existing site consists of an undeveloped piece of land. The area of the existing site that will be developed has been measured at 4,054m<sup>2</sup> or 0.4054 Ha.

Please refer to the Existing Site Plan in **Appendix 1** for details



### 3.3 Existing Greenfield Runoff Rates

Using the ICP SUDS Method the runoff rate generated from the existing site has been estimated. This equates to an existing greenfield runoff rate of 3.4 l/s

As the calculated rate is less than the recommended rate outlined in guidance issued by the Environment Agency, the drainage system has been designed to the recommended minimum rate of 5 l/s to ensure that blockages avoided which in turn reduces flood risk.

Please refer to the Greenfield Runoff Calculations in **Appendix 2** for details

## 4.0 Proposed Site

### 4.1 Proposed Development Area

The total development area within the site has been measured as stated above as 4,054m<sup>2</sup> or 0.4054 Ha

### 4.2 Proposed Drainage Strategy

The car park will be constructed partly with permeable paving to allow the site to drain naturally to ground in low intensity rainfall events.

However, in extreme weather events, it is likely that the permeable paving will be ineffective. To address any shortcoming, a surface water drainage system has been designed to attenuate flows generated by the whole site up to the 100 year event with an additional 30% for climate change.

Pass forward flows from this site will be controlled using a suitable flow control device such as an orifice plate or vortex control plate such as a hydrobrake.

### 4.4 Proposed Impermeable Area

The car park to be constructed which will produce three distinct areas. It is suggested that both the left hand and right parking bays are constructed using a suitable permeable paving system whereas the central access constructed using reinforced concrete.

Below is a summary of the impermeable areas

Description	Area
Left hand parking bays	1304 m <sup>2</sup>
Central Access area	1495 m <sup>2</sup>
Right hand parking bays	1255 m <sup>2</sup>
Total	4054 m <sup>2</sup> or 0.4054 Ha

Please refer to the Proposed Impermeable Area Drawing in **Appendix 3** for details



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## 5.0 Drainage Design

### 5.1 Design Principles

Flows have been restricted to a maximum pass forward flow of 5 l/s using a Hydrobrake flow control device. Other flow control; devices are acceptable if used according to the manufacturer's instructions.

The surface water drainage system has been designed to attenuate surface water runoff for the whole site up to the 1 in 100 year critical storm event with a 30% increase for climate change. This has been achieved by incorporating off-line cellular storage in the design.

Simulations have confirmed that the system is able to attenuate the runoff from the worst 100 year storm event with 30% for climate change and the design flow of 5 l/s is not exceeded.

Approximately two thirds of the site has been designed to incorporate permeable paving which will reduce the volume of surface water discharging to the public sewer, particularly under low intensity or short duration storm conditions.

Please refer to the calculations in **Appendix 4** for details of the storage requirements and

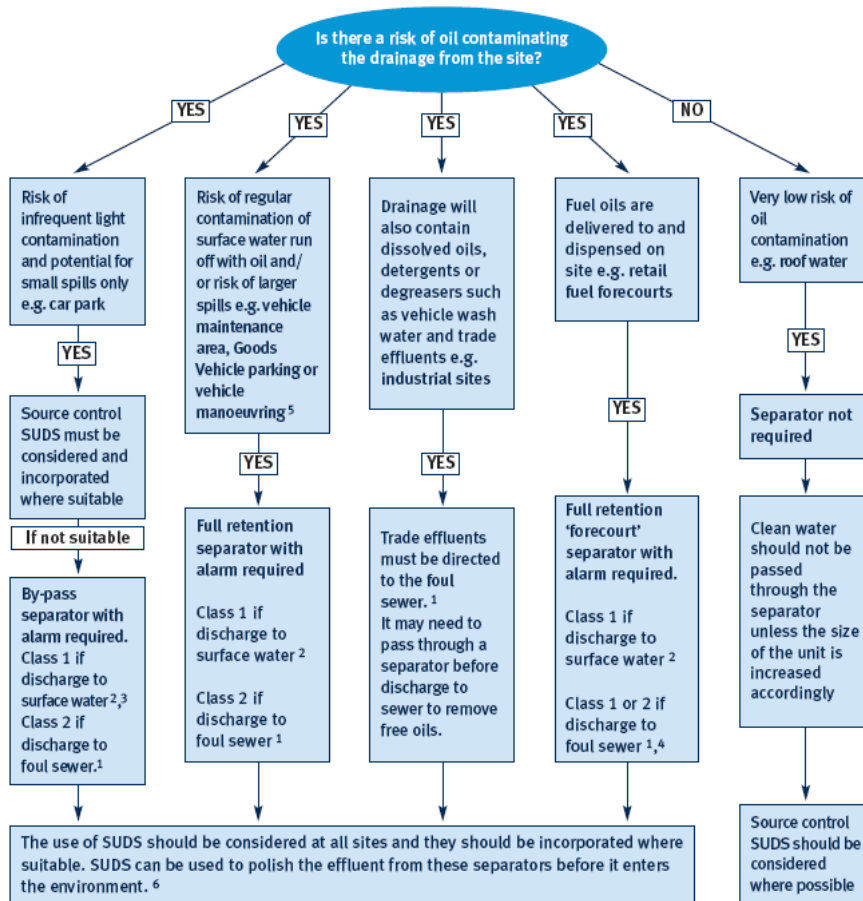
**Appendix 5** for the Design Drawing.



## 6.0 Pollution Control

### 6.1 Assessment

After considering the guidance set out in PPG 3 and following the flow diagram below it has been established that a full retention separator should be fitted to the outlet of the drainage system to ensure that no pollutants are passed forwards into the receiving sewer.



### 6.2 Recommendations

Consultations will be required with United Utilities to determine whether surface water will have to drain to the public foul or public surface water sewer. When confirmation has been received a Class 1 or Class 2 separator will be necessary to satisfy their requirements.

It is likely that a suitably sized Class 1 Full retention Separator with Alarm system will be specified by United Utilities to satisfy their requirements.

A suitable system is supplied by Kingspan Klargestor. A brochure of their products is enclosed in **Appendix 6**. It is recommended that a Class 1 Model No NSFA010 with alarm or similar is fitted on the scheme.



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## 7.0 Management & Maintenance Plan

### 7.1 Ownership

As the drainage system will serve a single property, it does not qualify for adoption by the Statutory Undertaker so will remain in private ownership and it will be the duty of the property owner to perform all future maintenance duties/liabilities.

### 7.2 Maintenance Duties

All maintenance duties are to be performed by the owner of the site in line with timescales set out below. A maintenance log must be kept on site and updated when necessary to ensure that the Maintenance Plan is adhered to.

### 7.3 Monthly Inspections

- Carry out visual inspection of all ground level drainage features to identify any faults across the site. Carry out any remedial works where necessary.
- Monitor levels of pollutants contained within the separator and if necessary clean out.
- Continuously monitor the alarm system fitted to Full Retention separator and act when alarm is activated
- Test alarm system fitted to Full Retention Separator in line with manufacturers specifications

### 7.4 Annual Inspections

- Flow Control Manhole - inspect and clean sump removing the build-up of silt, debris and litter
- Flow control device – Carry out a visual inspection of the unit in line with manufacturers recommendations to ensure there are no blockages or faults impeding its performance
- Check the ground level in channel to ensure that silting has not occurred so that the designed storage volume is maintained.
- Carry out visual inspection of all ground level drainage features to identify any faults across the site. Carry out any remedial works where necessary
- Inspect roof channels and guttering and carry out any remedial works to ensure they are running freely.
- Test alarm system and carry out any remedial works fitted to Full Retention Separator in line with manufacturers specification to ensure it is fully operational

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# **APPENDIX 1**

## **Existing Site Plan**



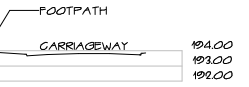
CSH TRANSPORT & FORWARDING LTD

SECTION AA

UNIT 5

UNIT 4

DUTTONS WAY



No	AMENDMENT	DATE

**GEOFF HOOK**  
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SURVEY DRAWING  
OF  
CSH TRANSPORT &  
FORWARDING LTD  
SETT END ROAD  
NORTH,  
BLACKBURN

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SCALE 1:500 DATE 10/6/17  
DRG No 2017/17/1

# **APPENDIX 2**

## **Greenfield Runoff Calculations**



Date 18 January 2018  
File

Designed By  
Checked By  
Source Control W.11.2

Micro Drainage

ICP SUDS Mean Annual Flood

Input

Return Period (years)	2	Soil	0.450
Area (Ha)	0.406	Urban	0.000
SAAR (mm)	1225.000	Region Number	10

**Results**      **l/s**

QBAR Rural	3.4
QBAR Urban	3.4
Q    2 years	3.2
Q    1 year	3.0
Q    30 years	5.8
Q    100 years	7.1

# **APPENDIX 3**

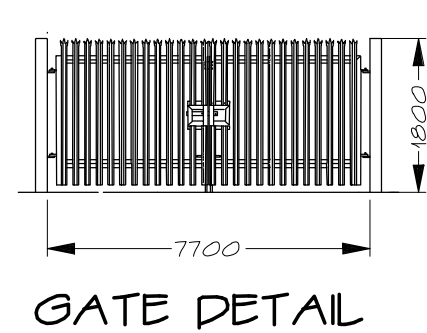
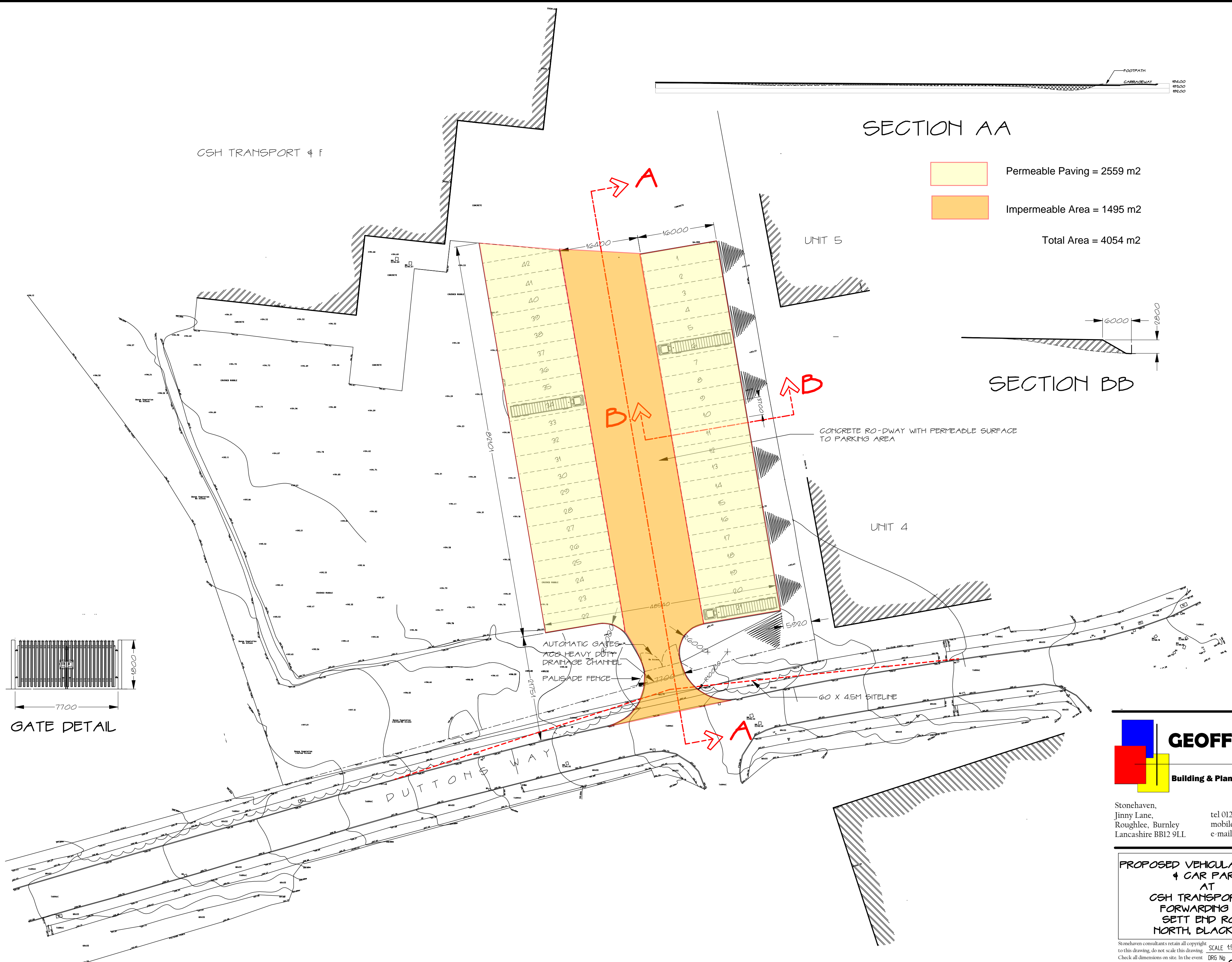
## **Proposed Impermeable Areas**

CSH TRANSPORT & F

### SECTION AA

- Permeable Paving = 2559 m<sup>2</sup>
- Impermeable Area = 1495 m<sup>2</sup>
- Total Area = 4054 m<sup>2</sup>

### SECTION BB



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**PROPOSED VEHICULAR ACCESS & CAR PARK AT CSH TRANSPORT & FORWARDING LTD SETT END ROAD NORTH, BLACKBURN**

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SCALE 1:500 DATE 10/6/17  
 DRG No 2017/17/2D

# **APPENDIX 4**

## **Design Simulations**



Date 21 January 2018  
File cellular storage calcs.SRC  
Micro Drainage

Designed By  
Checked By  
Source Control W.11.2

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 419 minutes

Storm Duration (mins)	Maximum Control (1/s)	Maximum Filtration (1/s)	Maximum Outflow (1/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m <sup>3</sup> )	Status
15 Summer	4.1	0.0	4.1	192.3512	0.3512	80.1	O K
30 Summer	4.1	0.0	4.1	192.4798	0.4797	109.4	O K
60 Summer	4.1	0.0	4.1	192.6167	0.6168	140.6	O K
120 Summer	4.4	0.0	4.4	192.7453	0.7453	169.9	O K
180 Summer	4.5	0.0	4.5	192.8008	0.8008	182.6	O K
240 Summer	4.6	0.0	4.6	192.8248	0.8248	188.1	O K
360 Summer	4.7	0.0	4.7	192.8418	0.8418	191.9	O K
480 Summer	4.7	0.0	4.7	192.8453	0.8453	192.7	O K
600 Summer	4.7	0.0	4.7	192.8418	0.8418	192.0	O K
720 Summer	4.6	0.0	4.6	192.8348	0.8348	190.4	O K
960 Summer	4.6	0.0	4.6	192.8138	0.8138	185.5	O K
1440 Summer	4.4	0.0	4.4	192.7603	0.7603	173.3	O K
2160 Summer	4.2	0.0	4.2	192.6763	0.6763	154.2	O K
2880 Summer	4.1	0.0	4.1	192.5952	0.5953	135.7	O K
4320 Summer	4.1	0.0	4.1	192.4447	0.4447	101.4	O K
5760 Summer	4.1	0.0	4.1	192.3138	0.3137	71.5	O K
7200 Summer	4.1	0.0	4.1	192.2258	0.2257	51.4	O K
8640 Summer	3.9	0.0	3.9	192.1842	0.1842	42.0	O K
10080 Summer	3.6	0.0	3.6	192.1582	0.1583	36.1	O K
15 Winter	4.1	0.0	4.1	192.3952	0.3952	90.1	O K
30 Winter	4.1	0.0	4.1	192.5397	0.5397	123.1	O K
60 Winter	4.3	0.0	4.3	192.6953	0.6953	158.5	O K
120 Winter	4.7	0.0	4.7	192.8438	0.8438	192.4	O K
180 Winter	4.8	0.0	4.8	192.9113	0.9113	207.8	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	109.65	22
30 Summer	75.67	37
60 Summer	49.94	66
120 Summer	31.76	124
180 Summer	23.94	182
240 Summer	19.43	242
360 Summer	14.50	322
480 Summer	11.76	384
600 Summer	9.98	448
720 Summer	8.73	514
960 Summer	7.05	654
1440 Summer	5.21	928
2160 Summer	3.83	1344
2880 Summer	3.08	1736
4320 Summer	2.26	2508
5760 Summer	1.82	3176
7200 Summer	1.53	3824
8640 Summer	1.34	4496
10080 Summer	1.19	5240
15 Winter	109.65	22
30 Winter	75.67	36
60 Winter	49.94	64
120 Winter	31.76	122
180 Winter	23.94	180



Date 21 January 2018  
File cellular storage calcs.SRC  
Micro Drainage

Designed By  
Checked By  
Source Control W.11.2

Summary of Results for 100 year Return Period (+30%)

Storm Duration (mins)	Maximum Control (l/s)	Maximum Filtration (l/s)	Maximum Outflow (l/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m <sup>3</sup> )	Status
240 Winter	4.9	0.0	4.9	192.9433	0.9433	215.1	O K
360 Winter	5.0	0.0	5.0	192.9693	0.9693	221.0	O K
480 Winter	5.0	0.0	5.0	192.9678	0.9678	220.7	O K
600 Winter	5.0	0.0	5.0	192.9638	0.9638	219.7	O K
720 Winter	4.9	0.0	4.9	192.9533	0.9533	217.4	O K
960 Winter	4.9	0.0	4.9	192.9208	0.9208	210.0	O K
1440 Winter	4.6	0.0	4.6	192.8388	0.8388	191.2	O K
2160 Winter	4.3	0.0	4.3	192.7103	0.7103	161.9	O K
2880 Winter	4.1	0.0	4.1	192.5878	0.5878	134.1	O K
4320 Winter	4.1	0.0	4.1	192.3477	0.3477	79.3	O K
5760 Winter	4.1	0.0	4.1	192.1978	0.1977	45.1	O K
7200 Winter	3.5	0.0	3.5	192.1543	0.1543	35.2	O K
8640 Winter	3.1	0.0	3.1	192.1232	0.1233	28.1	O K
10080 Winter	2.8	0.0	2.8	192.1013	0.1013	23.1	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
240 Winter	19.43	236
360 Winter	14.50	344
480 Winter	11.76	406
600 Winter	9.98	472
720 Winter	8.73	548
960 Winter	7.05	704
1440 Winter	5.21	1010
2160 Winter	3.83	1448
2880 Winter	3.08	1872
4320 Winter	2.26	2600
5760 Winter	1.82	3112
7200 Winter	1.53	3824
8640 Winter	1.34	4504
10080 Winter	1.19	5152





Date 21 January 2018  
 File cellular storage calcs.SRC  
 Micro Drainage

Designed By  
 Checked By  
 Source Control W.11.2

#### Rainfall Details

Region	ENG+WAL	Shortest Storm (mins)	15
Return Period (years)	100	Longest Storm (mins)	10080
M5-60 (mm)	19.000	Summer Storms	Yes
Ratio-R	0.300	Winter Storms	Yes
Cv (Summer)	0.750	Climate Change %	+30
Cv (Winter)	0.840		

#### Time / Area Diagram

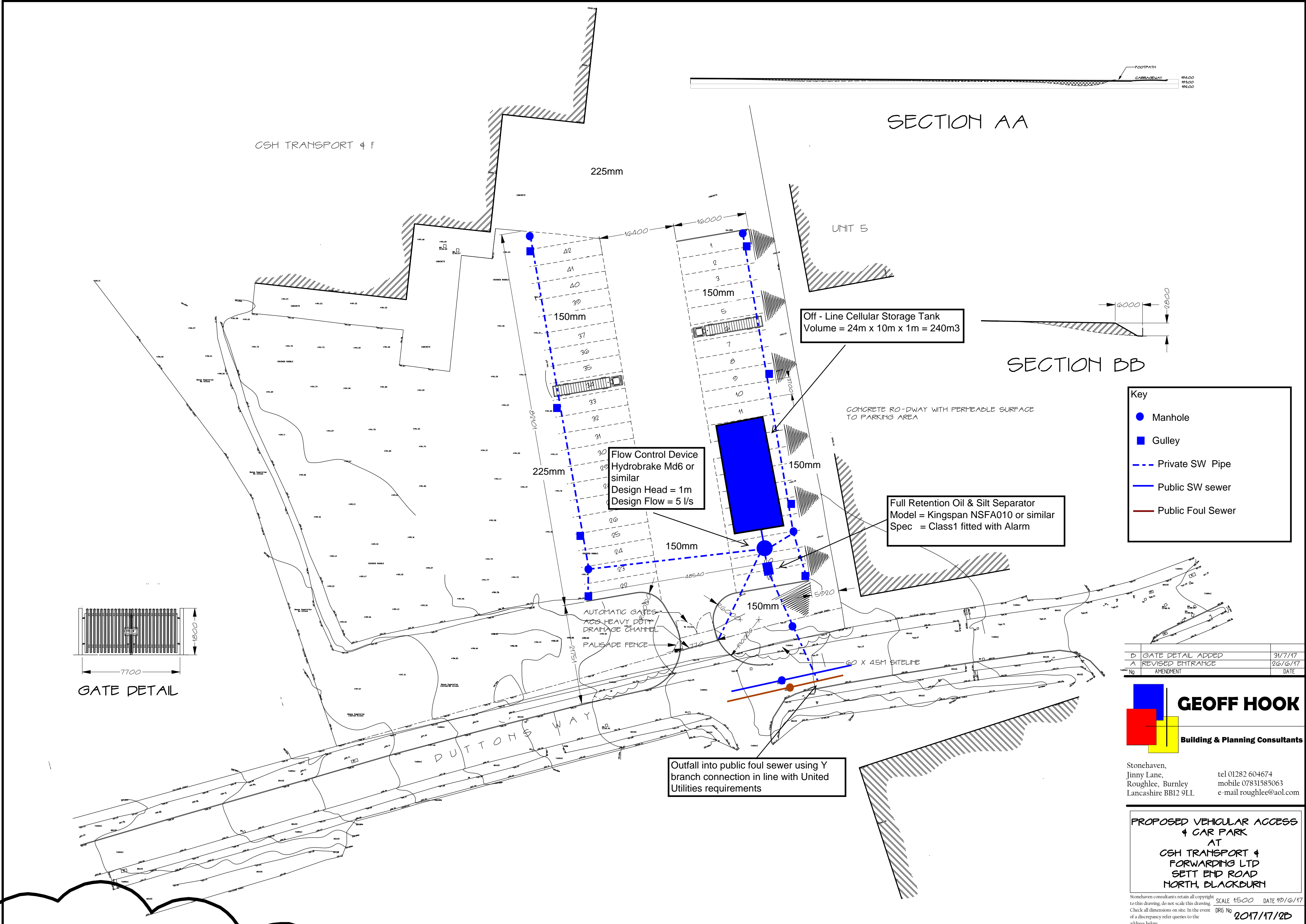
Total Area (ha) = 0.406

<b>Time (mins)</b>	<b>Area</b>	<b>Time (mins)</b>	<b>Area</b>
<b>from:</b>	<b>to:</b>	<b>from:</b>	<b>to:</b>
0	4	0.203	
		4	8
		0.203	



# **APPENDIX 5**

## **Design Drawings**



SECTION AA

SECTION BB

**Key**

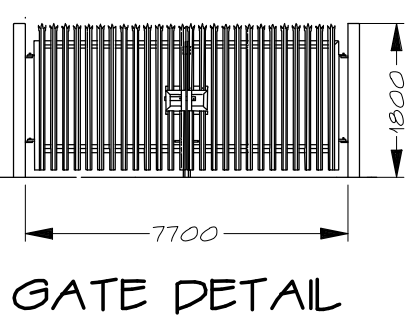
- Manhole
- Gully
- - - Private SW Pipe
- Public SW sewer
- Public Foul Sewer

Off-Line Cellular Storage Tank  
Volume = 24m x 10m x 1m = 240m<sup>3</sup>

Flow Control Device  
Hydrobrake Md6 or similar  
Design Head = 1m  
Design Flow = 5 l/s

Full Retention Oil & Silt Separator  
Model = Kingspan NSFA010 or similar  
Spec = Class1 fitted with Alarm

Outfall into public foul sewer using Y  
branch connection in line with United  
Utilities requirements



B	GATE DETAIL ADDED	31/7/17
A	REVISED ENTRANCE	26/6/17
No	AMENDMENT	DATE

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**PROPOSED VEHICULAR ACCESS  
& CAR PARK  
AT  
CSH TRANSPORT &  
FORWARDING LTD  
SETT END ROAD  
NORTH, BLACKBURN**

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address below. DRG No 2017/17/2D

# **APPENDIX 6**

## **Oil Separator Brochure**

# SEPARATORS

A RANGE OF FUEL/OIL SEPARATORS  
FOR PEACE OF MIND



*Klargester*

The Klargester logo features a stylized blue wave graphic above the word "Klargester" in a red, italicized, sans-serif font.

**60** YEARS OF  
Expertise &  
1955-2015 Innovation



# Separators

## A RANGE OF FUEL/OIL SEPARATORS FOR PEACE OF MIND

Get in touch for a **FREE** professional site visit and a representative will contact you within 5 working days to arrange a visit.  
**helpingyou@klargester.com** to make the right decision or call **028 302 66799**

Surface water drains normally discharge to a watercourse or indirectly into underground waters (groundwater) via a soakaway. Contamination of surface water by oil, chemicals or suspended solids can cause these discharges to have a serious impact on the receiving water.

The Environment Regulators, Environment Agency, England and Wales, SEPA, Scottish Environmental Protection Agency in Scotland and Department of Environment & Heritage in Northern Ireland, have published guidance on surface water disposal, which offers a range of means of dealing with pollution both at source and at the point of discharge from site (so called 'end of pipe' treatment). These techniques are known as 'Sustainable Drainage Systems' (SuDS).

Where run-off is draining from relatively low risk areas such as car-parks and non-operational areas, a source control approach, such as permeable surfaces or infiltration trenches, may offer a suitable means of treatment, removing the need for a separator.

Oil separators are installed on surface water drainage systems to protect receiving waters from pollution by oil, which may be present due to minor leaks from vehicles and plant, from accidental spillage.

Effluent from industrial processes and vehicle washing should normally be discharged to the foul sewer (subject to the approval of the sewerage undertaker) for further treatment at a municipal treatment works.

### SEPARATOR STANDARDS AND TYPES

A British (and European) standard (EN 858-1 and 858-2) for the design and use of prefabricated oil separators has been adopted. New prefabricated separators should comply with the standard.

### SEPARATOR CLASSES

The standard refers to two 'classes' of separator, based on performance under standard test conditions.

#### CLASS I

Designed to achieve a concentration of less than 5mg/l of oil under standard test conditions, should be used when the separator is required to remove very small oil droplets.

#### CLASS II

Designed to achieve a concentration of less than 100mg/l oil under standard test conditions and are suitable for dealing with discharges where a lower quality requirement applies (for example where the effluent passes to foul sewer).

Both classes can be produced as full retention separators. The oil concentration limits of 5 mg/l and 100 mg/l are only applicable under standard test conditions. It should not be expected that separators will comply with these limits when operating under field conditions.

### FULL RETENTION SEPARATORS

Full retention separators treat the full flow that can be delivered by the drainage system, which is normally equivalent to the flow generated by a rainfall intensity of 65mm/hr.

On large sites, some short term flooding may be an acceptable means of limiting the flow rate and hence the size of full retention systems.

### BYPASS SEPARATORS

Bypass separators fully treat all flows generated by rainfall rates of up to 6.5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, for example where the risk of a large spillage and heavy rainfall occurring at the same time is small.

### FORECOURT SEPARATORS

Forecourt separators are full retention separators specified to retain on site the maximum spillage likely to occur on a petrol filling station. They are required for both safety and environmental reasons and will treat spillages occurring during vehicle refuelling and road tanker delivery. The size of the separator is increased in order to retain the possible loss of the contents of one compartment of a road tanker, which may be up to 7,600 litres.

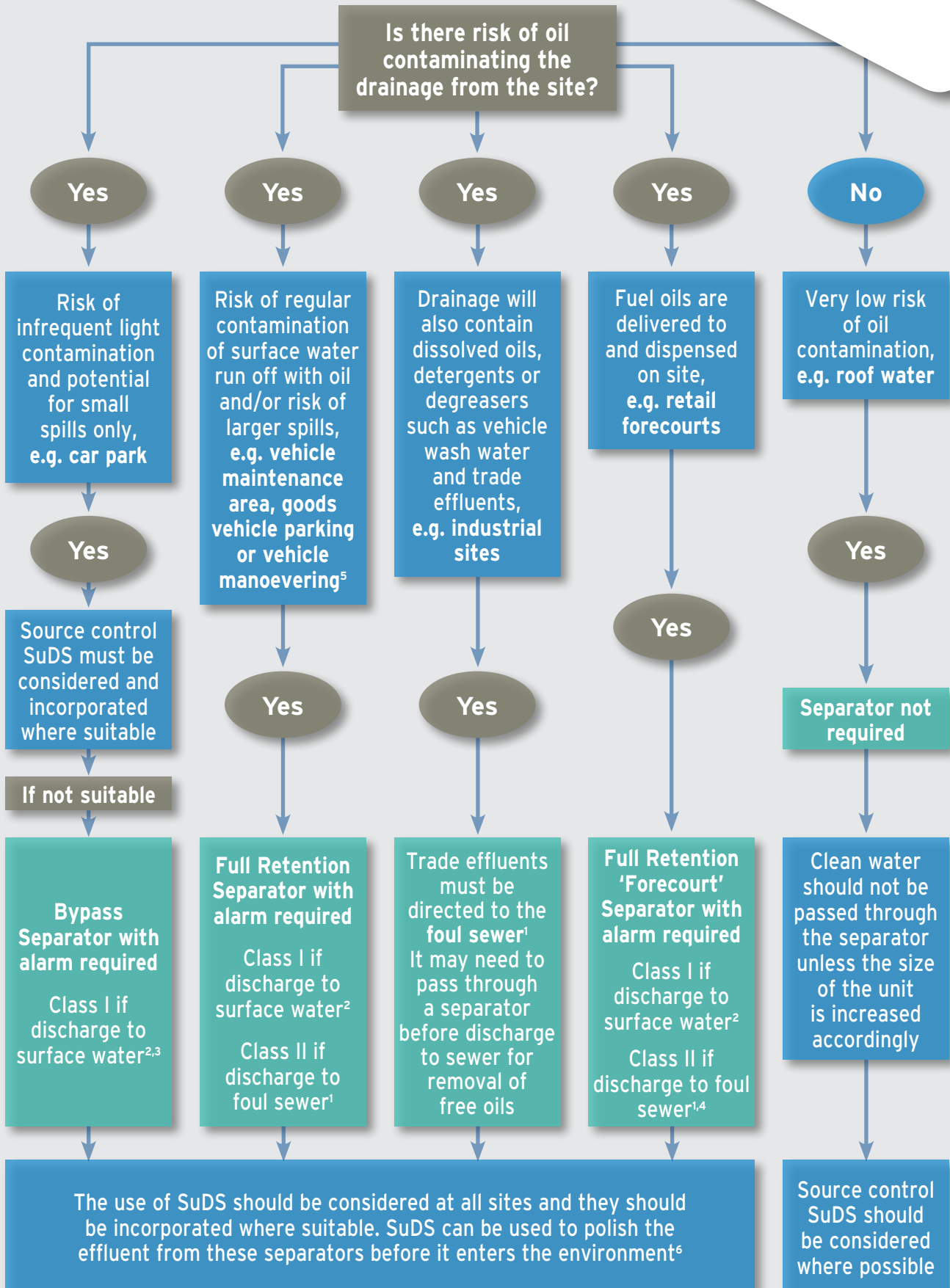
### SELECTING THE RIGHT SEPARATOR

The chart on the following page gives guidance to aid selection of the appropriate type of fuel/oil separator for use in surface water drainage systems which discharge into rivers and soakaways.

For further detailed information, please consult the Environment Agency Pollution Prevention Guideline 03 (PPG 3) 'Use and design of oil separators in surface water drainage systems' available from their website.

Kingspan Klargester has a specialist team who provide technical assistance in selecting the appropriate separator for your application.





1 You must seek prior permission from your local sewer provider before you decide which separator to install and before you make any discharge.

2 You must seek prior permission from the relevant environmental body before you decide which separator to install.

3 In this case, if it is considered that there is a low risk of pollution a source control SuDS scheme may be appropriate.

4 In certain circumstances, the sewer provider may require a Class 1 separator for discharges to sewer to prevent explosive atmospheres from being generated.

5 Drainage from higher risk areas such as vehicle maintenance yards and goods vehicle parking areas should be connected to foul sewer in preference to surface water.

6 In certain circumstances, a separator may be one of the devices used in the SuDS scheme. Ask us for advice.



# Bypass NSB RANGE

## APPLICATION

Bypass separators are used when it is considered an acceptable risk not to provide full treatment, for very high flows, and are used, for example, where the risk of a large spillage and heavy rainfall occurring at the same time is small, e.g.

- Surface car parks.
- Roadways.
- Lightly contaminated commercial areas.

## PERFORMANCE

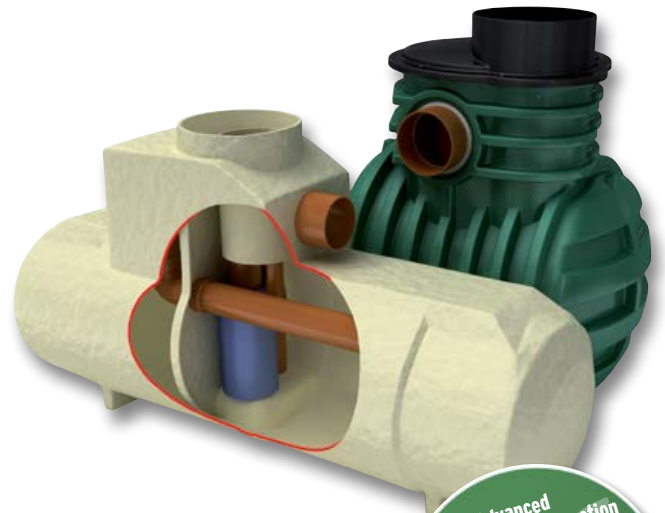
Klargester were one of the first UK manufacturers to have separators tested to EN 858-1. Klargester have now added the NSB bypass range to their portfolio of certified and tested models. The NSB number denotes the maximum flow at which the separator treats liquids. The British Standards Institute (BSI) tested the required range of Kingspan Klargester Bypass separators and certified their performance in relation to their flow and process performance assessing the effluent qualities to the requirements of EN 858-1. Klargester bypass separator designs follow the parameters determined during the testing of the required range of bypass separators.

Each bypass separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Oil storage volume.
- Silt storage capacity.
- Coalescer.

The unit is designed to treat 10% of peak flow. The calculated drainage areas served by each separator are indicated according to the formula given by PPG3  $NSB = 0.0018A(m^2)$ . Flows generated by higher rainfall rates will pass through part of the separator and bypass the main separation chamber.

Class I separators are designed to achieve a concentration of 5mg/litre of oil under standard test conditions.



## FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Oil alarm system available (required by EN 858-1 and PPG3).
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size bypass separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the flow is not pumped.
- The drain invert inlet depth.
- Pipework type, size and orientation.

## SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	PEAK FLOW RATE (l/s)	DRAINAGE AREA (m <sup>2</sup> )	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STANDARD FALL ACROSS (mm)	MIN. INLET INVERT (mm)	STANDARD PIPEWORK DIA.
				SILT	OIL								
NSBP003	3	30	1670	300	45	1700	1350	600	1420	1320	100	500	160
NSBP004	4.5	45	2500	450	60	1700	1350	600	1420	1320	100	500	160
NSBP006	6	60	3335	600	90	1700	1350	600	1420	1320	100	500	160
NSBE010	10	100	5560	1000	150	2069	1220	750	1450	1350	100	700	315
NSBE015	15	150	8335	1500	225	2947	1220	750	1450	1350	100	700	315
NSBE020	20	200	11111	2000	300	3893	1220	750	1450	1350	100	700	375
NSBE025	25	250	13890	2500	375	3575	1420	750	1680	1580	100	700	375
NSBE030	30	300	16670	3000	450	4265	1420	750	1680	1580	100	700	450
NSBE040	40	400	22222	4000	600	3230	1920	600	2185	2035	150	1000	500
NSBE050	50	500	27778	5000	750	3960	1920	600	2185	2035	150	1000	600
NSBE075	75	750	41667	7500	1125	5841	1920	600	2235	2035	200	950	675
NSBE100	100	1000	55556	10000	1500	7661	1920	600	2235	2035	200	950	750
NSBE125	125	1250	69444	12500	1875	9548	1920	600	2235	2035	200	950	750

■ Rotomoulded chamber construction ■ GRP chamber construction \* Some units have more than one access shaft – diameter of largest shown.

# Full Retention NSF RANGE

## APPLICATION

Full retention separators are used in high risk spillage areas such as:

- Fuel distribution depots.
- Vehicle workshops.
- Scrap Yards

## PERFORMANCE

Kingspan Klargester were the first UK manufacturer to have the required range (3-30 l/sec) certified to EN 858-1 in the UK. The NSF number denotes the flow at which the separator operates.

The British Standards Institute (BSI) have witnessed the performance tests of the required range of separators and have certified their performance, in relation to their flow and process performance to ensure that they met the effluent quality requirements of EN 858-1. Larger separator designs have been determined using the formulas extrapolated from the test range.

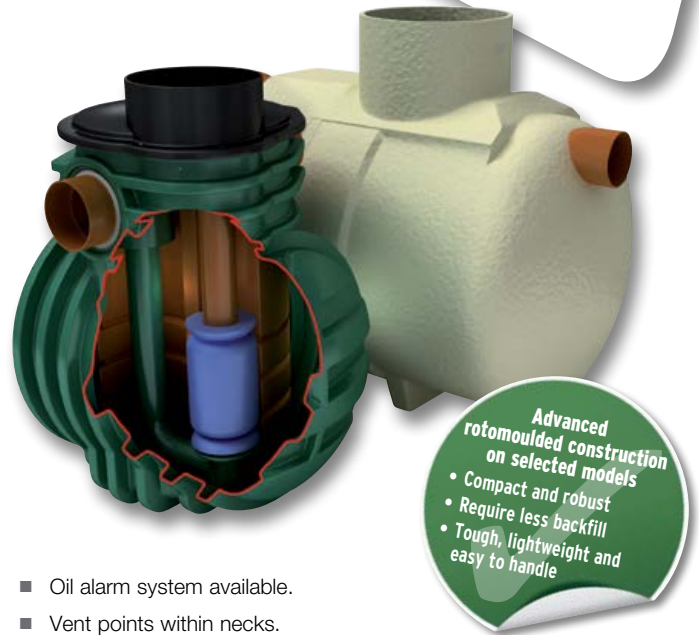
Each full retention separator design includes the necessary volume requirements for:

- Oil separation capacity.
- Oil storage volume.
- Silt storage capacity.
- Coalescer (Class I units only).
- Automatic closure device.

Klargester full retention separators treat the whole of the specified flow.

## FEATURES

- Light and easy to install.
- Class I and Class II designs.
- 3-30 l/sec range independently tested and performance sampled, certified by the BSI.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.



- Oil alarm system available.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.
- GRP or rotomoulded construction (subject to model).

To specify a nominal size full retention separator, the following information is needed:-

- The calculated flow rate for the drainage area served. Our designs are based on the assumption that any interconnecting pipework fitted elsewhere on site does not impede flow into or out of the separator and that the influent is not pumped.
- The required discharge standard. This will decide whether a Class I or Class II unit is required.
- The drain invert inlet depth.
- Pipework type, size and orientation.

## SIZES AND SPECIFICATIONS

UNIT NOMINAL SIZE	FLOW (l/s)	DRAINAGE AREA (m <sup>2</sup> ) PPG-3 (0.018)	STORAGE CAPACITY (litres)		UNIT LENGTH (mm)	UNIT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT	MIN. INLET INLET (mm)	STANDARD PIPEWORK DIA. (mm)
			SILT	OIL						
NSFP003	3	170	300	30	1700	1350	1420	1345	500	160
NSFP006	6	335	600	60	1700	1350	1420	1345	500	160
NSFA010	10	555	1000	100	2610	1225	1050	1000	500	200
NSFA015	15	835	1500	150	3910	1225	1050	1000	500	200
NSFA020	20	1115	2000	200	3200	2010	1810	1760	1000	315
NSFA030	30	1670	3000	300	3915	2010	1810	1760	1000	315
NSFA040	40	2225	4000	400	4640	2010	1810	1760	1000	315
NSFA050	50	2780	5000	500	5425	2010	1810	1760	1000	315
NSFA065	65	3610	6500	650	6850	2010	1810	1760	1000	315
NSFA080	80	4445	8000	800	5744	2820	2500	2450	1000	300
NSFA100	100	5560	10000	1000	6200	2820	2500	2450	1000	400
NSFA125	125	6945	12500	1250	7365	2820	2500	2450	1000	450
NSFA150	150	8335	15000	1500	8675	2820	2550	2450	1000	525
NSFA175	175	9725	17500	1750	9975	2820	2550	2450	1000	525
NSFA200	200	11110	20000	2000	11280	2820	2550	2450	1000	600

■ Rotomoulded chamber construction   ■ GRP chamber construction

# Washdown & Silt

## APPLICATION

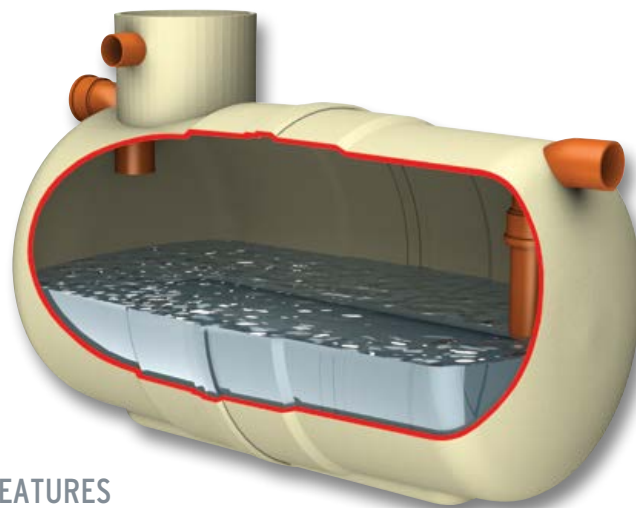
This unit can be used in areas such as car wash and other cleaning facilities that discharge directly into a foul drain, which feeds to a municipal treatment facility.

If emulsifiers are present the discharge must not be allowed to enter an NS Class I or Class II unit.

- Car wash.
- Tool hire depots.
- Truck cleansing.
- Construction compounds cleansing points.

## PERFORMANCE

Such wash down facilities must not be allowed to discharge directly into surface water but must be directed to a foul connection leading to a municipal treatment works as they utilise emulsifiers, soaps and detergents, which can dissolve and disperse the oils.



## FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.

## SIZES AND SPECIFICATIONS

REF.	TOTAL CAPACITY (litres)	MAX. REC. SILT	MAX. FLOW RATE (l/s)	LENGTH (mm)	DIAMETER (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STANDARD FALL ACROSS UNIT (mm)	MIN. INLET INVERT (mm)	STANDARD PIPEWORK DIA. (mm)	APPROX EMPTY (kg)
W1/010	1000	500	3	1123	1225	460	1150	1100	50	500	160	60
W1/020	2000	1000	5	2074	1225	460	1150	1100	50	500	160	120
W1/030	3000	1500	8	2952	1225	460	1150	1100	50	500	160	150
W1/040	4000	2000	11	3898	1225	460	1150	1100	50	500	160	180
W1/060	6000	3000	16	4530	1440	600	1360	1310	50	500	160	320
W1/080	8000	4000	22	3200	2020	600	2005	1955	50	500	160	585
W1/100	10000	5000	27	3915	2020	600	2005	1955	50	500	160	680
W1/120	12000	6000	33	4640	2020	600	2005	1955	50	500	160	770
W1/150	15000	7500	41	5435	2075	600	1940	1890	50	500	160	965
W1/190	19000	9500	52	6865	2075	600	1940	1890	50	500	160	1200

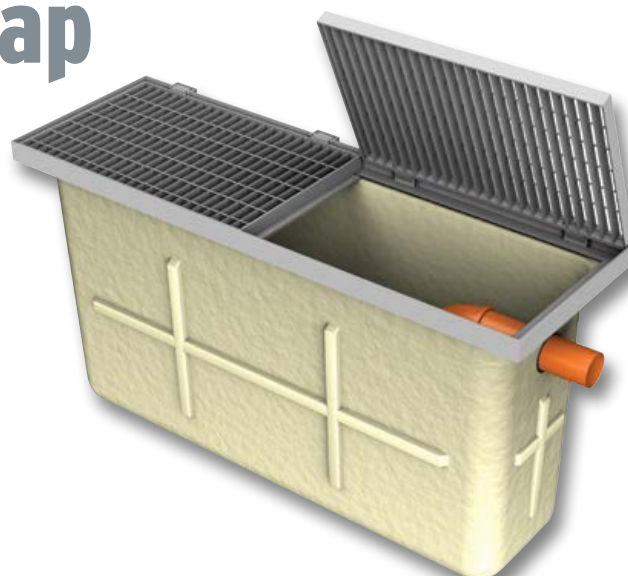
# Car Wash Silt Trap

## APPLICATION

Car Wash silt trap is designed for use before a separator in car wash applications to ensure effective silt removal.

## FEATURES

- FACTA Class B covers.
- Light and easy to install.
- Maintenance from ground level.



# Forecourt

## APPLICATION

The forecourt separator is designed for installation in petrol filling station forecourts and similar applications. The function of the separator is to intercept hydrocarbon pollutants such as petroleum and oil and prevent their entry to the drainage system, thus protecting the environment against hydrocarbon contaminated surface water run-off and gross spillage.

## PERFORMANCE

Operation ensures that the flow cannot exit the unit without first passing through the coalescer assembly.

In normal operation, the forecourt separator has sufficient capacity to provide storage for separated pollutants within the main chamber, but is also able to contain up to 7,600 litres of pollutant arising from the spillage of a fuel delivery tanker compartment on the petrol forecourt. The separator has been designed to ensure that oil cannot exit the separator in the event of a major spillage, subsequently the separator should be emptied immediately.

## FEATURES

- Light and easy to install.
- Inclusive of silt storage volume.
- Fitted inlet/outlet connectors.
- Vent points within necks.
- Extension access shafts for deep inverts.
- Maintenance from ground level.

## SIZES AND SPECIFICATIONS

ENVIROCEPTOR CLASS	TOTAL CAP. (litres)	DRAINAGE AREA (m <sup>2</sup> )	MAX. FLOW RATE (l/s)	LENGTH (mm)	DIAMETER (mm)	ACCESS SHAFT DIA. (mm)	BASE TO INLET INVERT (mm)	BASE TO OUTLET INVERT (mm)	STD. FALL ACROSS UNIT (mm)	MIN. INLET INVERT (mm)	STD. PIPEWORK (mm)	EMPTY WEIGHT (kg)
I	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
II	10000	555	10	3963	1920	600	2110	2060	50	400	160	500
I	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500
II	10000	1110	20	3963	1920	600	2110	2060	50	400	200	500



- Class I and Class II design.
- Oil storage volume.
- Coalescer (Class I unit only).
- Automatic closure device.
- Oil alarm system available.

## INSTALLATION

The unit should be installed on a suitable concrete base slab and surrounded with concrete or pea gravel backfill. See sales drawing for installation.

If the separator is to be installed within a trafficked area, then a suitable cover slab must be designed to ensure that loads are not transmitted to the unit.

The separator should be installed and vented in accordance with Health and Safety Guidance Note HS(G)41 for filling stations, subject to Local Authority requirements.

# Alarm Systems

British European Standard EN 858-1 and Environment Agency Pollution Prevention Guideline PPG3 requires that all separators are to be fitted with an oil level alarm system and that it should be installed and calibrated by a suitably qualified technician so that it will respond to an alarm condition when the separator requires emptying.

- Easily fitted to existing tanks.
- Excellent operational range.
- Visual and audible alarm.
- Additional telemetry option.



## PROFESSIONAL INSTALLERS

### Kingspan Klargester Accredited Installers

Experience shows that correct installation is a prerequisite for the long-lasting and successful operation of any wastewater treatment product. This is why using an installer with the experience and expertise to install your product is highly recommended.



Services include :

- Site survey to establish ground conditions and soil types
- Advice on system design and product selection
- Assistance on gaining environmental consents and building approvals
- Tank and drainage system installation
- Connection to discharge point and electrical networks
- Waste emptying and disposal

Discover more about the Accredited Installers and locate your local expert online.

[www.kingspanenviro.com/klargester](http://www.kingspanenviro.com/klargester)



## CARE & MAINTENANCE

### Kingspan Environmental Services

Who better to look after your treatment plant than the people who designed and built it?



Kingspan Environmental have a dedicated service division providing maintenance for wastewater products.

Factory trained engineers are available for site visits as part of a planned maintenance contract or on a one-off call out basis.

To find out more about protecting your investment and ensuring peace of mind, call us on:

**0844 846 0500**

or visit us online:

[www.kingspanenvservice.com](http://www.kingspanenvservice.com)



## COMMERCIAL WASTEWATER SOLUTIONS

- **BIODISC® & ENVIROSAFE**  
HIGH PERFORMANCE SEWAGE TREATMENT SYSTEMS
- PACKAGE PUMP STATIONS
- **PUMPSTOR24** PUMPING SYSTEMS
- OIL/WATER SEPARATORS
- BELOW GROUND STORAGE TANKS
- GREASE & SILT TRAPS

## RAINWATER SOLUTIONS

- BELOW GROUND RAINWATER HARVESTING SYSTEMS
- ABOVE GROUND RAINWATER HARVESTING SYSTEMS

### Klargester

UK: College Road North, Aston Clinton, Aylesbury, Buckinghamshire HP22 5EW

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email: [klargester@kingspan.com](mailto:klargester@kingspan.com)

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Visit our website [www.kingspanenviro.com/klargester](http://www.kingspanenviro.com/klargester)



In keeping with Company policy of continuing research and development and in order to offer our clients the most advanced products, Kingspan Environmental reserves the right to alter specifications and drawings without prior notice.



# **APPENDIX 7**

## **Planning Conditions**



## TOWN AND COUNTRY PLANNING DECISION NOTICE

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TOWN AND COUNTRY PLANNING ACT  
1990

### THE APPLICATION

Applicant:  
Mr Stuart Haworth  
C S H Transport Ltd  
Sett End Road North  
BLACKBURN  
BB1 2NW

Agent:  
Geoff Hook  
Stonehaven Stonehaven Stonehaven  
Jinny Lane  
Roughlee  
Burnley  
BB12 9LL

### Full Planning Application

FOR:  
Construction of a new site access and HGV parking area

AT:  
C S H Transport Ltd, Sett End Road North, BLACKBURN, BB1 2NW

APPLICATION REFERENCE NUMBER: **10/17/0886**

The application was received: **18 July 2017**

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### THE DECISION

Date of Decision: **25 September 2017**

In pursuance of their powers under the  
above Act, the Council

### PERMITS

The above development in accordance with  
the details given on the application form and  
submitted plans. Permission is given subject  
to the following CONDITIONS:

- 1 The development hereby permitted shall be begun before the expiration of three years from the date of this planning permission.  
REASON: To comply with Section 92 of the Town and Country Planning Act 1990 as amended by Section 51 of the Planning and Compulsory Purchase Act 2004.
  
- 2 The vehicular sightlines, as detailed on drawing 2017/17/2B, received 31st July 2017, shall not at any time be obstructed by any building, wall, fence, hedge, tree, shrub or other device exceeding a height greater than 1 metre above the crown level of the adjacent highway.  
REASON: In the interests of highway safety, in accordance with the requirements of Policy 10 of the Blackburn with Darwen Borough Local Plan Part 2
  
- 3 The new vehicular link to Duttons Way shall only be used as an egress from the application site.  
REASON: In the interests of highway safety, in accordance with the requirements of Policy 10 of the Blackburn with Darwen Borough Local Plan Part 2
  
- 4 Prior to commencement of the development hereby approved, a surface water drainage scheme shall be submitted to and approved in writing by the Local Planning Authority. The scheme must detail how oil and sediments will be prevented from entering the surface water connection discharge points, as well as future management and maintenance of the proposals. The development shall be implemented in accordance with the approved details, prior to the first use of the approved development.  
REASON: To ensure a safe form of development that poses no unacceptable risk of pollution to water resources or human health in accordance with Policy 9 of the Blackburn With Darwen Borough Local Plan Part 2
  
- 5 This consent relates to the submitted details marked received 31st July 2017 (drawing reference: 2017/17/1; 2017/17/2A; 2017/17/2B and 2017/17/3) and to any subsequent amendments approved in writing by the Local Planning Authority.  
REASON: To clarify the terms of this consent.

**REASONS FOR GRANTING PLANNING PERMISSION:**

1	Section 38 (6) of the 2004 Act	Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that applications be determined in accordance with the development plan unless material considerations indicate otherwise. The proposal represents an appropriate land use within a designated Primary Employment Are, is of appropriate
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		design and appearance and would not be detrimental to highway safety in accordance with Policies 8, 9, 10 and 11 of the Blackburn with Darwen Local Plan Part 2
2	Requirement to say how we have worked with the applicant in a positive and proactive way	The Local Planning Authority operates a pre-planning application advice service. All applicants are encouraged to engage with the Local Planning Authority at pre-planning application stage. As part of the determination of this planning application the Local Planning Authority has worked pro-actively and positively with the applicant ensuring all the issues have been resolved. The Local Planning Authority has considered the application and where necessary considered either the imposition of planning conditions and/or sought reasonable amendments to the application in order to deliver a sustainable form of development in accordance the NPPF.

Your attention is drawn to the NOTES attached and to the following:

1.
 

1	A process has been introduced by The Department for Communities and Local Government for dealing with material and non-material amendments to planning permissions. For more information please contact the case officer or consult the Planning Portal website <a href="http://www.planningportal.gov.uk">www.planningportal.gov.uk</a>
2	This permission refers only to that required under the Town and Country Planning Acts and does not include any consent or approval under any other Enactment, Byelaw, Order or Regulation. Before commencing development you are advised to check the requirements of the Building Regulations. Section 31 of the County of Lancashire Act 1984 (access for the Fire Brigade) also applies. For information please contact the Building Surveyors, telephone 01254 505022. Additionally, if you wish to carry out building work which involves work along a party boundary the Party Wall Etc Act 1996 comes into force. You must find out whether your works falls within the Act by contacting your Solicitor, and if it does, you must notify all affected neighbours.
3	The Construction (Design & Management) Regulations 2015 The development hereby approved may be subject to the Construction (Design and Management) Regulations 2015 which govern health and safety through all stages of a construction project. The Regulations require clients (i.e. those, including developers, who commission construction projects) to appoint a planning supervisor and principal contractor who are competent and adequately resourced to carry out their health and safety responsibilities. Clients have further obligations. Your designer will tell you about these and your planning supervisor can assist you in fulfilling them. Further information is available from the Health and Safety Executive Infoline 0845 345 0055.
4	This consent is granted subject to conditions and it is the owner and the person responsible for the implementation of the

	<p>development who will be fully responsible for their compliance throughout the development and beyond.</p> <p>If there is a condition that requires work to be carried out or details to be approved prior to the commencement of the development this is called a "condition precedent". The following should be noted with regards to conditions precedent:</p> <p>(a) If a condition precedent is not complied with, the whole of the development will be unauthorised and you may be liable to enforcement action.</p> <p>(b) In addition if a condition precedent is breached, the development is unauthorised and the only way to rectify the development is the submission of a new application. If any other type of condition is breached then you will be liable to a breach of condition notice.</p>
5	<p>There are fees associated with the discharge of planning conditions. These fees apply to all requests for (1) the discharge of one or more conditions on the same permission, or (2) the written confirmation of compliance with a condition or conditions. Any number of conditions may be included on a single request. Fees are: £28 for householder developments, and £97 for all other developments. There is no fee relating to the discharge of conditions imposed on Listed Building applications. Please send your fee with your request, as requests that are received without the appropriate fee will be returned unanswered. To request a discharge of condition please use the forms on <a href="http://www.blackburn.gov.uk">www.blackburn.gov.uk</a> or apply to the Council in writing. Please ensure that your letter or form clearly identifies the relevant permission and the condition(s) concerned. Local Planning Authorities have to deal with all requests within 8 weeks. Fees will be refunded if a response is not sent within 12 weeks from the date of receipt.</p>
6	<p>This consent requires the construction, improvement or alteration of an access to the public highway. Under the Highways Act 1980, Section 184, the Highway Authority must specify the works to be carried out. Only the Highway Authority or its appointed agent can carry out these works, and therefore, before any access works can start, you must contact the Highway Authority by telephoning 01254 273487, or by writing to the Capita Property Consultancy Section, Highways &amp; Transportation, Capita Blackburn Business Centre, Castleway House, 17 Preston New Road, Blackburn BB2 1AU quoting the planning application number above.</p>
7	<p>The granting of planning permission does not entitle a developer to obstruct, move, or disturb the surface of any public footpath, bridleway, byway open to all traffic or a road used as a public path. Any proposed stopping-up or diversion of a public right of way should be the subject of an Order under the appropriate Act. Failure to comply with the above may render the developer liable to action by the Highway Authority.</p>
8	<p>The granting of planning permission does not entitle a developer to obstruct, move, or disturb the surface of any public footpath, bridleway, byway open to all traffic or a road used as a public path. Any proposed stopping-up or diversion of a public right of way should be the subject of an Order under the appropriate Act. Failure to comply with the above may render the developer liable to</p>

action by the Highway Authority.

PLEASE NOTE:

Town and Country Planning (Written Representations) Regulations 1987

In accordance with the provisions of these Regulations, in the event of an appeal, the Local Authority's copy of the completed appeal form should be sent to :

The Director of Growth & Development, Blackburn with Darwen Borough Council,  
Town Hall, Blackburn. BB1 7DY

A handwritten signature in black ink, appearing to read 'I.R.', is centered on the page.

Ian Richardson,  
Director of Growth & Development  
Blackburn with Darwen Borough Council.