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Director of Community Services
Lancashire CC
PO Box 100
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Preston PR1 0LD

B2065
4/5/18
FAO Steven Warren, LLFA

Dear Sirs
Clitheroe Light Engineering- new building proposals- 3/2017/1020
We refer to your comments of 13/4/18 - onsite percolation tests have now been carried out and we attach:-
1. Test results and photos.
2. BRE 365 soakage calculations and Fadum chart.
3. Drainage layout with pipe sizes.
4. Exceedance diagram.
5. Floodplain volume compensation drawing.

The drainage hierarchy (1) of soakaway, watercourse, drainage system has been followed and the percolation test results (2) show ground with limited soakage. New surface water runoff will connect to United Utilities public surface water manhole 1105 and an exceedance diagram is attached (3) showing runoff routes over the roads into Mearley Brook. In terms of sustainable drainage calculations the BRE 365 procedure spreadsheet shows that a 20m length soakaway 0.8m sidewall depth can cope with 2.76m3 of runoff in 24 hours. A site for a soakaway is to the west of the new building and as soakage is limited the cellular crate surface water storage of 25m3 will be placed here to at least soak some runoff into the ground as well as provide storage. Flow calculations are new hard area 1000m2 x 0.014 l/sec/m2 for a 1 in 2 year storm (Building Regs Approved document H) giving 14 l/sec, a 1 in 30 year runoff rate is 14 x 1.9 growth factor = 27 l/sec, 1 in 100 year runoff rate 14 x 2.5 GF = 35 l/sec, 1 in 100 year + 30% CC= 45.5 l/sec. (4). The HR Wallingford printout shows the storage volume. Post consent, detailed Microdrainage calculations and contract drawings showing drainage, slab levels, and road levels will be prepared for Building Regulations submission.

Yours faithfully

M.E. Lambert

M.E.Lambert

Test pits dug out and tested by CW/AD/DJ 1/5/18

Clitheroe Light Engineering

Water drainage test

PIT 2 LOCATION

Dug out to 1.600mm deep .
1500l of water was poured into the hole at 11.19am.
The hole never filled more than 800mm high whilst the water was being poured into the hole

Timed checks that have taken place:

	Time period	drop
1/5/18 11.20am @800mm		
12.30pm @510mm	1	290
1.30pm @480mm	1	30
2.30pm @440mm	1	40
3.30pm @400mm	1	40
4.30pm @380mm	1	20
19.30pm @300mm	3	80
20.30pm @255mm	1	45
2/5/18 06.00am Empty	9.5	255

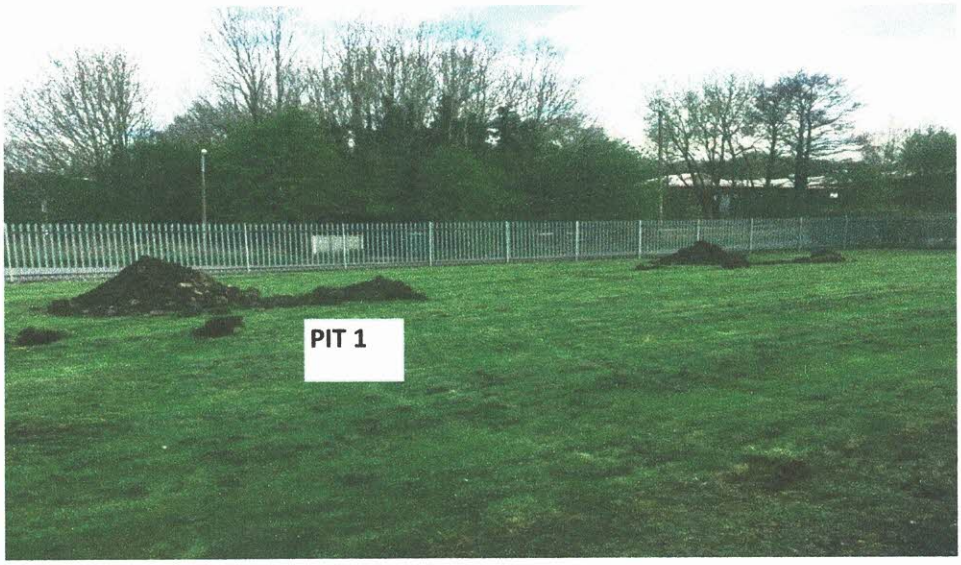
Test pits dug out and tested by CW/AD/DJ 1/5/18

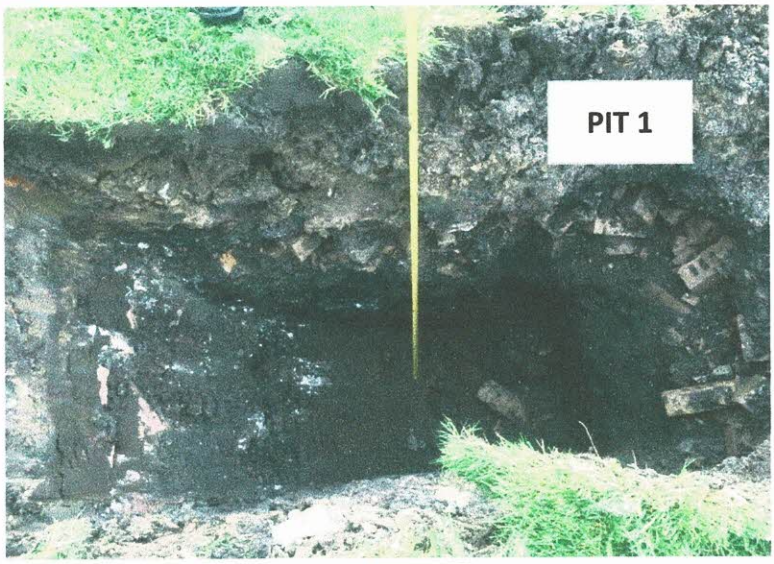
Clitheroe Light Engineering

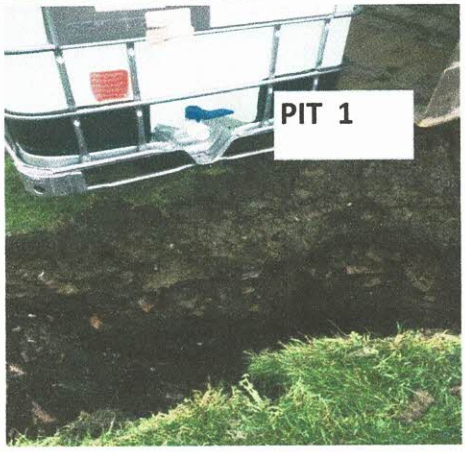
Water drainage test

PIT 1 LOCATION

Dug out to 1.500mm deep .
1500l of water was poured into the hole at 09.33am.
The hole never filled more than 600mm high whilst the water was being poured into the hole







Timed checks that have taken place:

	Time period	drop
1/5/18 09.33am @600mm		
	1	360
10.33pm @240mm		
	1	65
11.33pm @175mm		
	1	30
12.33pm @145mm		
	1	45
1.33pm @100mm		
	1	40
2.30pm @60mm		
	1	15
3.30pm @45mm		
	1	35
4.30pm @10mm		
	3	10
7.30pm Empty		

Table 11.1
Permeability and Drainage Characteristics of Soils*

Coefficient of Permeability k in cm per sec (log scale)	10^{2}	10^{1}	1.0	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}
Drainage	Good						Poor		Practically Impervious			
Soil types	Clean gravel		Clean sands, clean sand and gravel mixtures			Very fine sands, organic and inorganic silts, mixtures of sand silt and clay, glacial till, stratified clay deposits, etc.			"Impervious" soils, e.g., homogeneous clays below zone of weathering			
					"Impervious" soils modified by effects of vegetation and weathering							
Direct determination of k	Direct testing of soil in its original position—pumping tests. Reliable if properly conducted. Considerable experience required											
	Constant-head permeameter. Little experience required											
Indirect determination of k			Falling-head permeameter. Reliable. Little experience required			Falling-head permeameter. Unreliable. Much experience required			Falling-head permeameter. Fairly reliable. Considerable experience necessary			
	Computation from grain-size distribution. Applicable only to clean cohesionless sands and gravels									Computation based on results of consolidation tests. Reliable. Considerable experience required		

* After Casagrande and Fadum (1940).

HR Wallingford
Working with water

Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by: michael lambert
Site name: upbrooks cle
Site location: clitheroe

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the SuDS Manual, C753 (Ciria, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the drainage scheme.

Site coordinates
Latitude: 53.87501° N
Longitude: 2.37916° W

Reference: 6325598
Date: 2018-03-16T16:48:49

Methodology	FEH Statistical

Site characteristics

Total site area (ha)	0.12
Significant public open space (ha)	0
Area positively drained (ha)	0.12
Pervious area contribution (%)	30
Impermeable area (ha)	0.1
Percentage of drained area that is impermeable (%)	83
Impervious area drained via infiltration (ha)	0
Return period for infiltration system design (year)	10
Impervious area drained to rainwater harvesting systems (ha)	0
Return period for rainwater harvesting system design (year)	10
Compliance factor for rainwater harvesting system design (%)	66
Net site area for storage volume design (ha)	0.12
Net impermeable area for storage volume design (ha)	0.1

* Where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50 % of the 'area positively drained', the 'net site area' and the estimates of Qbar and other flow rates will have been reduced accordingly.

Design criteria

Volume control approach	Use long term storage

	Default	Edited
Climate change allowance factor	1.3	1.3
Urban creep allowance factor	1.1	1.1
Interception rainfall depth (mm)	5	5
Minimum flow rate (l/s)	5	5

Qmed estimation method	Calculate from BFI and SAAR
BFI & SPR estimation method	Specify BFI and SPR manually

	Default	Edited
Qmed (l/s)	1.66	--
Qbar / Qmed Conversion Factor	1.075	1.075
HOST class	---	N/A
BFI / BFIHOST	0.354	0.354
SPR / SPRHOST	0.41	0.41

Hydrology

	Default	Edited
SAAR (mm)	1241	1241
M5-60 Rainfall Depth (mm)	20	20
'r' Ratio M5-60/M5-2 day	0.3	0.3
Rainfall 100 yrs 6 hrs	70	
Rainfall 100 yrs 12 hrs	96.6	
FEH/FSR conversion factor	1.15	1.15
Hydrological region	10	
Growth curve factor: 1 year	0.87	0.87
Growth curve factor: 10 year	1.38	1.38
Growth curve factor: 30 year	1.7	1.7
Growth curve factor: 100 year	2.08	2.08

Site discharge rates

	Default	Edited
Qbar total site area (l/s)	--	1.79
Qbar net site area (l/s)	--	1.79
1 in 1 year (l/s)	--	5
1 in 30 years (l/s)	--	5
1 in 100 years (l/s)	--	5

Estimated storage volumes

	Default	Edited
Interception storage (m^3)	--	4
Attenuation storage (m^3)	--	25
Long term storage (m^3)	--	0
Treatment storage (m^3)	--	12
Total storage *(excluding treatment)* (m^3)	--	29

Lancashire County Council

Phone: 0300-123-6780
Email: Suds@lancashire.gov.uk

Date: 13th April 2018

APPLICATION CONSULTATION RESPONSE

Application Number:	3/2017/1020
Location:	Unit A to C Up Brooks, Clitheroe, BB7 ~~9SE~~ 1PL
Grid Ref:	E 375182, N 442128
Proposal:	Proposed new production unit

Thank you for inviting the Lead Local Flood Authority (LLFA) to comment on the above application. The Flood and Water Management Act 2010 sets out the requirement for LLFAs to manage 'local' flood risk within their area. 'Local' flood risk refers to flooding or flood risk from surface water, groundwater or from ordinary watercourses.

Comments provided in this representation, including conditions, are advisory and it is the decision of the Local Planning Authority (LPA) whether any such recommendations are acted upon. It is ultimately the responsibility of the Local Planning Authority to approve, or otherwise, any drainage strategy for the associated development proposal. The comments given have been composed based on the current extent of the knowledge of the LLFA and information provided with the application at the time of this response.

Lead Local Flood Authority Position

In the absence of adequate information to assess the principle of surface water drainage associated with the proposed development, we object to this application and recommend refusal of planning permission until further information has been submitted to the local planning authority.

Reason

The application lies within Flood Zone 2 and Flood Zone 3 defined by the Planning Practice Guidance as having a medium and high probability of flooding. Therefore the proposed scale of development may present risks of flooding on-site and/or off-site if surface water run-off is not effectively managed. The lack of the following detailed information in relation to surface water drainage means the LLFA cannot

assess whether the development proposal meets the requirements of Paragraph 103 of the NPPF or Paragraph 80 of Section 10 of the PPG in principle :

Hierarchy for Surface Water Disposal

- Evidence that the surface water run off is discharged as high as possible in the Planning Practice Guidance (PPG) drainage hierarchy

Site and Drainage Layout

- Proposed site plan showing exceedance routes and building slab level

Site investigation report, including the results for each SuDS feature of :

- Boreholes or Trial Pits
- Infiltration (Permeability) Testing
- Factual Ground Investigation Report (GIR)
- Geotechnical Design Report (GDR)

Drawings and Calculations

- Details of inlets, outlets and flow controls
- Long and cross section drawings of proposed drainage system(s), including design levels
- Details of appropriate water quality treatments

Sustainable Drainage System Flow Calculations (PDF files showing the input and output data for flow calculations) and Storm Simulation Plan for :

- 1 in 1 year;
- 1 in 2 year;
- 1 in 30 year and;
- 1 in 100 year + climate change as per latest EA guidance

Attenuation Volume Calculations

- Breakdown of attenuation volume calulations in oversize pipes, manholes and attenuation tank

The submission of basic information on how surface water is intended to be managed is vital if the local planning authority is to make informed planning decisions. In the absence of the above detailed information regarding surface water management, the flood risks resulting from the proposed development are unknown and this is therefore sufficient reason in itself for a refusal of planning permission.

Overcoming Our Objection : You can overcome our objection by submitting the following information :

1. Evidence that the Planning Practice Guidance for drainage hierarchy has been followed
2. Geotechnical site reports.

3. Detailed drainage drawings including plan showing exceedance routes.
4. Sustainable drainage system flow calculations.
5. Attenuation volume calculations.

We ask to be re-consulted following the submission of additional information addressing surface water drainage proposals. We will provide you with comments within 21 days of receiving formal re-consultation.

Yours faithfully,

Steven Warren
Lead Local Flood Authority