



From: Alistair Harris <[REDACTED]>
Sent: 17 June 2019 15:56
To: Simon Davis <Simon.Davis@arun.gov.uk>
Cc: Adam O'Brien <[REDACTED]>
Subject: AL/33/19/RES Barnside, Hook Lane

Dear Simon

Please see below and attached which demonstrates categorically that there is sufficient areas for storage within the submitted layout for site to be adequately drained, even if winter soakage testing were to demonstrate zero permeability.

Please pass this information onto Laura Gibbons, I trust this will resolve the position and enable you to make positive progress with the RM application.

Kind regards

Alistair

From: aquacallidus <[REDACTED]>
Sent: 17 June 2019 15:47
To: Alistair Harris <[REDACTED]>
Cc: Adam O'Brien <[REDACTED]>
Subject: RE: AL/33/19/RES Barnside, Hook Lane

AI

What Laura seeks is confidence that if Winter permeability was nil then there is sufficient room within the current layout to provide the necessary storage ie confidence that the proposed layout can be supported.

To this ends I have attached a calculation for draining the whole site to a geocellular tank located above the max GWL and buried under the central grassed area. The grassed area is 850m² so for a 0.4 height storage crate at 95% void provides 323m³ of storage. The critical event for storage is 10 hours which requires 306m³ so the available buried storage potential is more than adequate. The pond could also be enlarged as originally proposed and would provide 0.5m depth over and average footprint of 380m² above GWL ie potential for a further 190m³ Thus on site there is hypothetically potential for at least 510m³. This is greater than the runoff volume with a zero discharge rate as the design storm is only 477m³.

In summary it is certain that the proposed layout can be supported. Winter permeability tests will be undertaken in due course and maximum use made of available permeability. If there is any shortfall from this (up to and including 100% ie no permeability) then this will be provided as attenuation storage within the site.

Kind Regards

Andy Traves



[REDACTED]

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Project No.: 1833
Project Title: Hook Lane

Rectangular Detention Tank Assessment to CIRIA C753

No infiltration

Site Location: Westergate

Catchment ID: gross hypothetical

$r = 0.30$ (range 0.12 to 0.45)

$C_v = 1.00$

Drained Area = 3400 m²

Design storm 1 in = 100 year

Runoff volume uplift = 40 % for climate change

Technical Assessment

Base area = 850.0 m²

Base axis Length $L_x = 850.00$ m

Base axis Length $L_y = 1.00$ m

Discharge rate = 2.0 l/s

Tank depth = 0.40 m

tank porosity = 95 %

Tank volume = 323.0 m³

Design volume = 323.0 m³

M5-60 Rainfall = 20 mm

Storm Duration	5 min	10 min	15 min	30 min	1 hr	2 hr	4 hr	6 hr	10 hr	24 hr
(secs)	300	600	900	1800	3600	7200	14400	21600	36000	86400
$r = 0.3$ Value Z1	0.34	0.49	0.59	0.77	1.00	1.25	1.57	1.78	2.12	2.84
Rainfall M5 (mm)	6.8	9.8	11.8	15.4	20.0	25.0	31.4	35.6	42.4	56.8
M100/M5 gf Value Z2	1.83	1.91	1.94	1.99	2.03	2.01	1.96	1.93	1.87	1.76
Rainfall M100 (mm)	12.5	18.7	22.9	30.7	40.6	50.3	61.5	68.5	79.3	100.2
with climate uplift (mm)	17.5	26.1	32.0	43.0	56.8	70.4	86.1	96.0	111.1	140.3
RUNOFF (m³)	59.3	88.9	108.9	146.1	193.3	239.2	292.8	326.2	377.6	476.9
inflow rate (l/s)	197.8	148.1	121.0	81.2	53.7	33.2	20.3	15.1	10.5	5.5
storage rate (l/s)	195.8	146.1	119.0	79.2	51.7	31.2	18.3	13.1	8.5	3.5
Discharge (m³)	0.6	1.2	1.8	3.6	7.2	14.4	28.8	43.2	72.0	172.8
Req'd STORAGE (m³)	58.7	87.7	107.1	142.5	186.1	224.8	264.0	283.0	305.6	304.1
Residual drain time (h)	8.2	12.2	14.9	19.8	25.8	31.2	36.7	39.3	42.4	42.2