

Sandra Edwards

From: Amanda Scholes on behalf of Planning.Responses
Sent: 15 October 2019 08:51
To: Planning Scanning
Subject: FW: Planning Consultation on A/132/19/DOC
Attachments: Soakaway Test Extract.pdf; P19.117 - Winter GW monitoring 01.10.19.pdf; Soil Summary.pdf

From: Andrew Wood [REDACTED]
Sent: 14 October 2019 14:03
To: Planning.Responses [REDACTED]
Subject: FW: Planning Consultation on A/132/19/DOC

A [REDACTED]

Andrew Wood MRTPI | Senior Planning Officer, Planning Department, Arun District Council |
Location: 1st Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LE
[REDACTED]

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Save the environment - think before you print.

From: Chris Slade [REDACTED]
Sent: 14 October 2019 13:33
To: Andrew Wood [REDACTED]
Cc: Laura Gibbons [REDACTED]; James Elsey [REDACTED]; Dean Muggeridge [REDACTED]
Subject: Re: Planning Consultation on A/132/19/DOC

Dear Andrew

Thank you for your email. As the Consulting Engineers, it has been passed onto us for a response.

I attach an extract from the geotechnical report indicating the soakaway test results and the first recordings of the ground water monitoring which began at the start of the month.

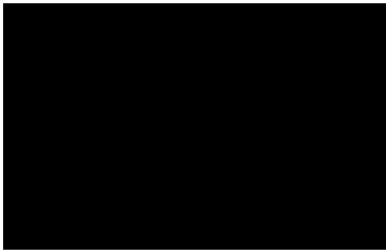
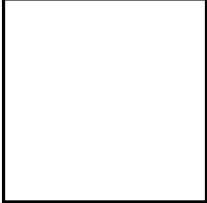
Due to time restrictions on site during the geotechnical testing, the geotechnical engineers only managed to perform one test for all three trial pits. Only TP1 drained fully with TP2 and TP3 being extrapolated. The results from TP1 was satisfactory however TP2 and TP3 were poor and should full testing have been carried out all results would have been poorer during the third test. Therefore, a full infiltration solution was discounted in favour of a hybrid solution i.e. partial discharge and infiltrating porous surfaces. This seems to be the most pragmatic approach given the varied geology.

The geotechnical Engineer working on this scheme also worked on the adjacent site and noted water levels rose to around 0.5m below ground level during peak GW levels. It is therefore anticipated that the groundwater will rise considerably higher than what is shown.

Kind regards

Chris Slade **FIHE**

CGS Civils Ltd



Drainage Design | SuDS | Flood Risk Assessments | Highways | External Works

Richard Cobden House | Lion Street | Chichester | West Sussex | PO19 1LW

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From: Andrew Wood <[REDACTED]>
Sent: 14 October 2019 11:55
To: James Elsey [REDACTED]
Cc: Planning.Responses <[REDACTED]>
Subject: FW: Planning Consultation on A/132/19/DOC

Can you please provide the following information as requested by the Drainage Engineers in the email below.

Thank you,

Andrew Wood

Andrew Wood MRTPI | Senior Planning Officer, Planning Department, Arun District Council |
Location: 1st Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

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From: Laura Gibbons <[REDACTED]>
Sent: 14 October 2019 11:29
To: Planning.Responses [REDACTED]
Cc: Andrew Wood [REDACTED]
Subject: RE: Planning Consultation on A/132/19/DOC

Engineers Comments Regarding Condition 4

No winter groundwater monitoring or infiltration testing results have been submitted. It is not appropriate to review the surface water drainage strategy without this information.

Engineers Comments Regarding Condition 6

It is not possible to review the proposed flows to watercourse until it has been proven if infiltration is viable or not.

Engineers Comments Regarding Condition 7

It is not appropriate to review maintenance arrangements until the surface water drainage strategy is agreed.

Please re-consult us once winter ground water monitoring and winter infiltration testing has been completed and results are provided. Please note, that this information may not be available until April after the winter monitoring period has ended.

Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

Laura Gibbons | Engineer (Drainage & Coastal), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre,
Maltravers Road, Littlehampton, BN17 5LF

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From: planning. [REDACTED]
Sent: 30 September 2019 13:51
To: Land Drainage [REDACTED]
Subject: Planning Consultation on A/132/19/DOC

To: Engineers (Drainage)

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

APPLICATION NO: A/132/19/DOC

Registered: 30-SEP-19

Site Address: Merry England Nursery Dappers Lane Angmering BN16 4EN

Description of Works: Approval of details reserved by condition imposed under ref
A/142/16/OUT relating to Condition Nos 4 - surface water drainage, 6
- flows to watercourses, 7 - SuDs system, maintenance of any

watercourse, 11 - Construction Management Plan, 12 - road safety audit, 14 - ecological, 17 - tree protection and 21 contamination.

The Council have received the above application to discharge conditions. I shall be pleased to receive any observations you may wish to make in respect of those conditions relating to your field of expertise.

[Click here to view the Discharge of Condition application](#)

[Click here to view conditions on original application - click on decision tab](#)

Should you have any comments to make, these should be sent by replying to this email by 14th October 2019.

www.arun.gov.uk/planning

Please be aware that any comments you may make will be available on our website so please do not insert personal details or signatures on your reply.

In the absence of a reply within the period stated, I shall assume that you have no observations to make.

The officer dealing with this application is Andrew Wood who can be contacted on telephone number

Thanking you in anticipation

Planning Case Officer
Arun District Council

post_con_email

<http://www.arun.gov.uk>

DX 57406 Littlehampton

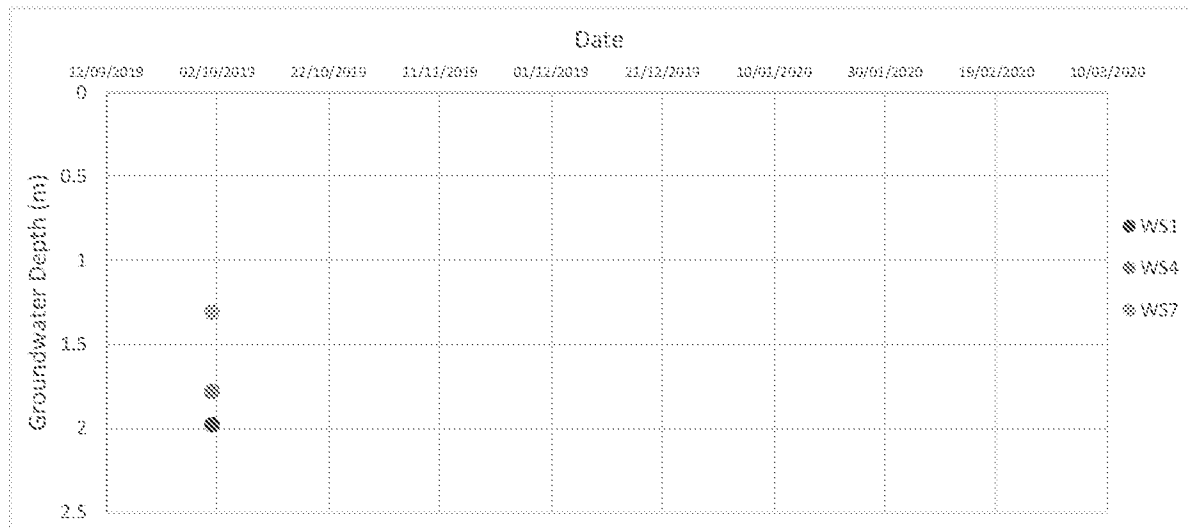
You can view Arun District Council's Privacy Policy from <https://www.arun.gov.uk/privacy-policy>

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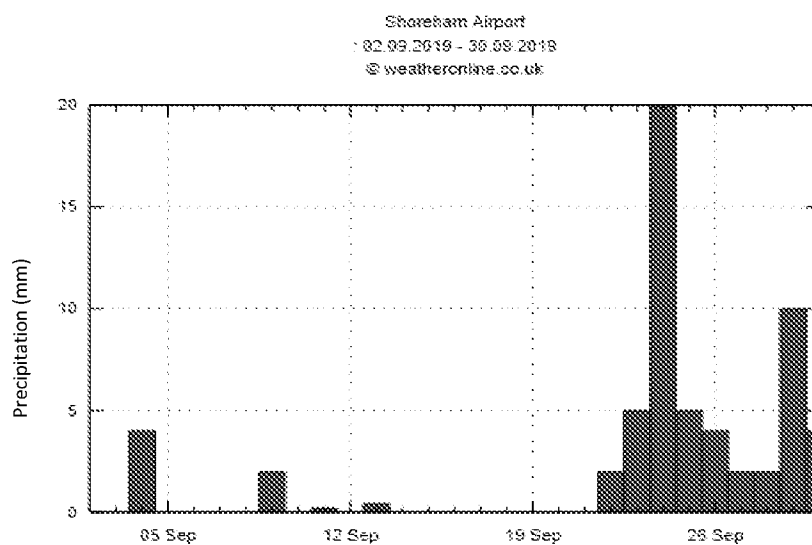
Winter Groundwater Monitoring Record

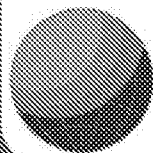
Project: P19.117	Start Date: 01/10/2019
Site name: Merry England	End Date: TBC

Date		01/10/2019	01/11/2019	01/12/2019	01/01/2020	01/02/2020	01/03/2020
WS1	Base Depth (m)	2.88					
	Groundwater Depth (m)	1.98					
WS4	Base Depth (m)	3.88					
	Groundwater Depth (m)	1.78					
WS7	Base Depth (m)	3.13					
	Groundwater Depth (m)	1.31					



Precipitation over Monitoring Period to date





The four tests completed in the London Clay Formation bedrock material range from N=12-17, indicative of stiff consistency clay soils, which is considered complimentary to the logging description.

6.4.3 Soil Infiltration Testing

Soil infiltration testing was completed within TP1, TP2 and TP3 in accordance with the testing standards identified in BRE 365: 2016 'Soakaway Design'. The tests included the squaring of the pit sides before filling with potable water, the subsequent decline in water level was measured to allow determination of the coefficient of permeability (k); using this testing method, the rate of outflow between 75% and 25% effective depths are used to determine the infiltration rate.

The table below summarises the test results.

Test ref	Test Depth (m)	Initial fill level (mbgl)	Time at 75% fill depth (mins)	Time at 25% fill Depth (mins)	K (m/s)
TP1	1.40	0.53	40	180	1.4×10^{-5}
TP2	2.00	0.90	330 (estimated)	990 (estimated)	3.1×10^{-6} (Estimated)
TP3	1.70	0.83	55	240 (estimated)	1.1×10^{-5} (Estimated)

These results indicate 'good' and in TP2 'poor' drainage on the basis of table 14.1 'Soil Mechanics in Engineering Practice', Terzaghi, Peck and Mesri (after Casagrande and Fadum (1940)).

Please note that these results are based on a single test, and infiltration rates may be slower during saturated conditions, as simulated in second and third fill tests scenarios.

8.0 LABORATORY TESTING

8.1 Geotechnical Testing

8.1.1 Atterberg Limits and Natural Moisture Content

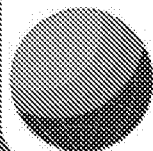
In total, seventeen disturbed samples of the underlying soils were submitted for determination of their Natural Moisture Content (NMC) with ten subsequently analysed for Plasticity Index (PI).

The samples tested for NMC were selected from depths between 0.30m and 3.50mbgl. Results ranged between 7.7% and 31%.

The results within the upper Head Deposits indicate Liquid Limits between 34% and 54%. Once the portion retained on the 425µm sieve had been taken into account (4-88%), the Modified PI results lie between 3% and 26%.

Within the London Clay Formation soils results indicate Liquid Limits between 74% and 78%. Once the portion retained on the 425µm sieve had been taken into account (0-4%), the Modified PI results lie between 47% and 51%.

Based upon these results the Head Deposit soils are of variable low to intermediate and locally intermediate-to-high plasticity. In accordance with the NHBC guidance (chapter 4.2 'Building Near Trees') these soils have variable



6.0 GROUND CONDITIONS

6.1 Soils

The following table summarises the strata conditions encountered during the intrusive works:

Stratum	Depth Range Encountered	Detail Description
Made Ground	GL – max.0.25m	Variable material generally described as either gravelly Silt / Clay or gravelly Sand. This material is limited to locations TP3, TP4, TP7 and WS4; predominantly representative of reworked topsoil with scattered detritus described as terracotta, brick, plastic and glass. In WS4 the Made Ground is associated with the sand paddock and is described as gravelly Sand, with gravels of sandstone. CBR test locations CBR2-CBR4 encountered Made Ground soils described as sandy gravel of brick and concrete to a maximum depth of 0.30mbgl associated with the existing access road.
Topsoil	GL – max. 0.30m	Discernable across most exploratory locations, below a surface of grass, the initial soils across the majority of exploratory hole locations were described as Sand or Silt Topsoil, locally with flint gravels.
Sandy SILT / Silty SAND (Head Deposit)	GL-0.30m to 0.60-2.30m	Generally described as stiff to very stiff / compact light brown sandy Silt or silty Sand. Locally with flint gravels and becoming gravelly toward the base of the stratum. This material is considered to be representative of an upper horizon within the Head Deposits.
Gravelly CLAY (Head Deposit)	0.60-0.95m to 1.80-3.00m	Encountered as a firm to stiff and locally stiff consistency material, this is described as brown slightly sandy to sandy, slightly gravelly to gravelly Clay. This stratum is limited to exploratory locations TP2, TP7, WS4, WS5 and WS6, which indicate that this material may be more prevalent across the northern and northwestern areas of the site.
Clayey Gravel (Head Deposit)	0.60-3.00m to 2.40->5.00m	Encountered as dense and locally very dense brown speckled grey clayey Gravel of flint.
Silty Clay (London Clay Formation)	2.40-3.90m to >5.00m	Encountered as stiff and locally very stiff consistency brown, becoming grey silty Clay. Locally encountered as thinly laminated and closely fissured.

Please refer to the stratigraphic logs contained within Appendix B for a more detailed description.

6.2 Groundwater

Groundwater was not encountered within all exploratory holes, however records across the site indicate levels of 1.50-3.33mbgl. On the basis of plans provided this is considered to equate to approximate elevations of 17.10-18.7mAOD.

Borehole locations WS1, WS4 and WS7 were installed to allow subsequent winter groundwater monitoring, which will be detailed in a subsequent report.

6.3 Visual and Olfactory Observations of Contamination

Minor anthropogenic materials were observed in the Made Ground soils. In location WS4 at a depth of 2.15-2.30mbgl a moderate hydrocarbon odour and grey / black staining was observed within the Head Deposit.