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MJA Ref: SS/22:0133/6430
HCC Ref: SWM/2021/0660
Email: stewarts@mjaconsulting.co.uk

1st November 2022

Dear Leanne,

Outline planning application for up to 43 dwellings, with access from Lower Road and associated landscaping, open space and allotments, and all other matters reserved at Land south of, Lower Road, and west of Old Manor Farm, Havant. APP/21/01071

We refer to the LLFA's comments in regards to the planning application for the above scheme. This letter considers the drainage related comments made on the 14th October 2022. For convenience, the responses are set out below, in the same order as the comments were made, while the corresponding responses are shown in bold text.

LLFA's Comment:

- Explanation for the increased number of borehole soakaways proposed,

MJA's Response: The original outline strategy was based on the same infiltration rate found at Phase 1 This was 1.0×10^{-4} m/s. After further testing it was found that the infiltration rate for Phase 2 at the same depth is lower at 1.48×10^{-5} m/s. The result of this is now eight boreholes.

LLFA's Comment:

- Explanation of the figures used for borehole depth in the Micro Drainage calculations and how this relates to available storage in the model,

MJA's Response: For simplicity and time sake, a total borehole depth was calculated and modelled as one single depth. The maximum depth micro-drainage allows a single borehole to be is 50 m. A total of 128 m of borehole is required (8 x 16 m). Since the bore diameter and infiltration rate are constant variables this is an acceptable design method.

LLFA's Comment:

- Evidence of the faster falling head rate into saturated chalk at a greater depth used for the design calculations

MJA's Response: Please see site investigation report 'GE20814/WP02/220518 Borehole Results'.



LLFA's Comment:

- *Revised calculations for the drainage system using appropriate data as necessary,*

MJA's Response: The calculations use 1.48×10^{-5} m/s as obtained from the falling head tests. Please see site investigation report 'GE20814/WP02/220518 Borehole Results'.

LLFA's Comment:

- *Calculations are to include the network and the attenuation pond and borehole soakaways, and provide acceptable half drain times,*

MJA's Response: The network will be modelled at detailed design stage once the levels onsite have been confirmed. The half drain time for the 1 in 10 year is greater than 24 hours though we provide enough storage for several 1 in 10 year events. The basin is modelled with no infiltration though in reality some will occur as the pond is unlined. Please see attached micro-drainage cascade calculations.

LLFA's Comment:

- *Evidence of any correspondence with the Environment Agency relating to the proposed surface water drainage design (particularly regarding infiltration capacity rather than groundwater protection),*

MJA's Response: Please see minutes from meeting with the EA regarding their acceptance of discharge of treated surface water directly into the saturated zone. The drainage strategy in terms of the treatment train is replicated on Phase 2 and they raised no issues with the infiltration rate.

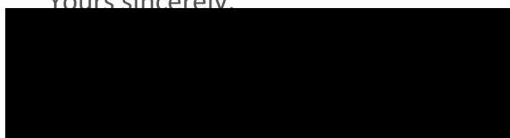
LLFA's Comment:

- *Confirmation that Network Rail will accept infiltration structures within 20 metres of its infrastructure.*

MJA's Response: The design had a 20 m offset from the train tracks but we have now updated the design so the 20 m easement is from the site boundary. This should avoid any uncertainty and guarantees we achieve the minimum 20 m easement.

I trust that the above and enclosed provides you with sufficient information for your purposes. If you need any more details, please do not hesitate to contact us.

Yours sincerely,



Stewart Smith
Drainage Engineer
FOR MJA CONSULTING

