

Matthew Symons

From: Matthew Symons
Sent: 09 October 2019 17:57
To: Matthew Symons
Subject: FW: Land off Berry Hill Rd, Adderbury (30394)
Attachments: 8800 Infiltration Testing Letter Report September 2019 RED.pdf; Berry Hill Network 1 191009.pdf; Berry Hill Network 2 191009.pdf; Berry Hill Road Infiltration Basin.pdf; 30394_1_Preliminary S.W.Drainage Layout.pdf

Ironside Farrar have been commissioned by Hollins Strategic Land to undertake a preliminary drainage design to support the Outline Planning application for residential development at the above site.

PRELIMINARY SW DRAINAGE DESIGN

Hollins Strategic Land have submitted an Outline Planning Application to Cherwell District Council for a residential development on land to the north of Berry Hill Road, Adderbury.

In support of the application, a Flood Risk Assessment and Drainage Management Strategy was prepared by Betts Hydro and submitted (Reference HYD250_BERRY.HILL.ROAD.FRA & DMS).

This report suggested the surface water drainage for the site should be to soakaways as this is the first step on the drainage hierarchy and the next alternative, discharge to a watercourse, would involve crossing third party land.

As the Lead Local Flood Authority, Oxfordshire County Council, were consulted on the FRA and the surface water drainage proposals.

In their response, dated 16th January 2018 they confirmed that whilst they had no objection in principle to the proposal to drain the site to soakaways, they did lodge an objection on the basis that this option had not been fully proved due to a lack of infiltration testing in accordance with BRE365. In the absence of an alternative drainage arrangement, it was felt this issue was too critical.

Hollins Strategic Land therefore commissioned Brownfield Solutions Limited to undertake infiltration testing to BRE Digest 365 as required by Oxfordshire CC.

Three locations were tested within the site on 10th September 2019; a copy of their letter report is attached for reference.

It can be seen from the investigation that two of the locations, SA101 and SA103 were determined as being suitable for the use of infiltration techniques as they returned results of 1.3×10^{-4} m/s and 1.48×10^{-4} m/s respectively.

From the trial holes it can be seen the results were obtained in a gravelly layer believed to be weathered bedrock. The third location, SA102, was located further to the north of the site and did not locate such a layer; results at this location were not suitable for infiltration.

Using the results of the Infiltration testing, Ironside Farrar have prepared the attached Preliminary SW Drainage Layout – drawing no. 30394/1.

The layout incorporates both conventional underground surface water sewers in the estate access roads together with open swales that serve the highway drainage and convey flows from the sewers to an on-line infiltration basin located within open space to the north of the development area.

Hydraulic calculations have been undertaken and are attached to indicate the proposed drainage network will convey all events up to and including the 100 year return period event with an allowance for climate change of 40%. FEH rainfall has been used and a 10% allowance for Urban Creep has been factored into the impermeable areas. As the basin is located in the centre of the site, the result from SA103 of 1.48×10^{-4} m/s has been used in the calculation for the infiltration basin.

This result was the minimum infiltration rate returned for this location and represents the worst case scenario. The depth of the basin has been set at approximately 1m deep to ensure the base will be set in the gravel layer which was proved by the investigation.

The basin sides will be 1:3 maximum and a low flow channel provided in the base.

At the present time, no infiltration has been assumed in the upstream swales; Oxfordshire CC also permit the use of permeable carriageways in the adopted highway and the use of these can be investigated at detailed design stage to provide improved SuDS measures.

Regards

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