

EXECUTIVE SUMMARY

This report has been prepared on behalf of Fridays Ltd to assist them in quantifying the likely net change in nitrogen and phosphorus losses at Reed Court Farm, Chainhurst Kent, between the current land use, which is mostly arable with grassland, and the proposed land use, which involves the development of a new free range layer hen unit.

This change in land use has the potential to increase or decrease the nitrogen and phosphorus leaching losses from the land, which in turn could impact on the water quality of the River Beult SSSI, which flows along the site's northern border. A standardised procedure for modelling nutrient losses from such developments does not exist, and therefore ADAS's expertise in agricultural farming practices, coupled with existing ADAS nutrient loss modelling tools, and other current research, was used to create a bespoke approach to modelling the likely losses of nitrogen and phosphorus.

The report begins by setting out the methodology that underpinned the approach to modelling, before confirming the results and the conclusions that can be made. Broadly the method involved gathering information regarding the current land use and management, in order to establish the current baseline of nutrient loss, and information about the proposed land use and management, to inform the likely potential losses if the development goes ahead as planned. This information was uploaded into the Farmscoper modelling tool to produce a modelled estimate of likely nitrogen and phosphorus losses. The approach was then refined using a combination of relevant research, expert opinion, and other numerical data provided by Fridays Ltd, to support other assumptions made.

The results of this modelling study predicted annual losses under the current management regime, for the development area, to average 31.7 kg ha⁻¹ for nitrate and 0.26 kg ha⁻¹ for phosphorus, with predicted losses from the proportion of land under arable management shown to be much greater. Under the future proposed management, predicted losses are shown to average 30.8 kg ha⁻¹ for nitrate and 0.21 kg ha⁻¹ for phosphorus.

Over the whole site area, should the poultry unit development go ahead, there is predicted to be a 74 kg net reduction in nitrate leaching (a 2% reduction from the baseline), and a 4.6 kg net reduction in phosphorous losses (a 17% reduction from the baseline). It is concluded that considering the results of this modelling study, the poultry development would lead to a net decrease in the phosphorus and nitrate leaching potential of the land, and hence would be unlikely to increase the nitrate and phosphorus levels within the River Beult SSSI.