

Mr Jonathan Parsons
Arun District Council
1, Arun Civic Centre Maltravers Road
Littlehampton
West Sussex
BN17 5LF

Our ref: HA/2010/110850/01-L01
Your ref: Y/83/10/EIS
Date: 08 November 2010

Dear Mr Parsons

**SCOPING OPINION FOR RESERVOIR CONSTRUCTION FOR AGRICULTURAL PURPOSES
DOG LEG FIELD BILSHAM FARM BILSHAM LANE YAPTON**

Thank you for your consultation on this proposal. We have identified a number of issues which should be investigated as part of any Environmental Impact Assessment.

Flood Risk

A Flood Risk Assessment is required for any development over 1 hectare and should form part of any submission. The FRA would have to demonstrate that:

- downstream landowners property and life are not put at risk. Breach scenarios should be assessed,
- ensuring adequate hydraulic capacity to safely pass designed flood flows without overtopping the embankment or causing erosion
- suitable measures, such as spillways are included to pass extreme events.

We would also want to see sufficient buffer strips provided between the toe of embankments and any watercourse.

If the reservoir is “off-line” of any watercourses and will be capable of holding water above the lowest natural ground level, you should seek expert independent technical advice from a suitably qualified engineering consultant and be advised of the following:

Environment Agency
Guildbourne House Chatsworth Road, Worthing, West Sussex, BN11 1LD.
Customer services line: 08708 506 506
Email: enquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

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- Capacity of greater than 25,000 cubic metres

The Reservoirs Act 1975 provides a legal framework to ensure the safety of large raised reservoirs. It applies to reservoirs that hold at least 25,000 cubic meters of water above ground level. However, be advised that there are proposals to cover reservoirs of greater than 10,000 cubic meters. For further information please refer to our website: <http://www.environment-agency.gov.uk/business/sectors/118421.aspx>

- Capacity of less than 10,000 cubic metres

We would recommend that the design of any water retaining embankment follows the principles laid down in CIRIA Document 161 "Small Embankment Reservoirs" (ISBN 086017 461 1). It is also recommended that overflow arrangements are considered.

Ecology

The following points should be addressed within the Environmental Statement (ES):

- One of the most important elements which will need to be considered is ecological enhancement. Ecological enhancements are improvements over and above impact avoidance and mitigation. PPS9 'Biodiversity and Geological Conservation', seeks to avoid a net loss of biodiversity and to actively pursue opportunities to achieve a net gain of biodiversity across the region. Enhancements of existing habitats and habitat creation, particularly in line with local and UK BAPs should be explored.
- If mitigation is required it is important to assess how effective any measures are likely to be to establish whether the potential harm and risk posed to the environment by development will be addressed.
- Likely impacts (construction and operational) on water and wetland habitats on site and within the surrounding area, including potential impacts on the existing hydrology.
- Detailed, up-to-date ecological surveys (habitats and species) of the development site, undertaken at an appropriate time of year by a suitably qualified ecologist. The surveys should identify all wet habitats on and around the site, including less obvious wet grassland, marshy and boggy areas, as well as pond/ditches. We would expect to see justification and at least like for like compensation for any wetland habitat/feature loss (and terrestrial habitat for wetland species e.g. Great crested newt).
- The extent to which it is possible to avoid or mitigate against adverse effects, and any limitations of mitigation, including methods statements demonstrating how impacts will be minimised.
- Future site management of retained and created habitats, for the benefit of wildlife. Details of proposed post-development management and monitoring.

It is recommended that existing nature conservation features, within the development site, such as mature trees, hedgerows, watercourses and other features be incorporated into site design and protected from change.

Water Resources

In this area there is a presumption against new groundwater abstractions from the chalk. Surface water availability is also likely to be severely restricted to the winter months to safeguard lower summer flows. Winter storage however may be an option. Successful applications for new or significantly varied licences for surface water abstraction are also likely to have a local “hands-off” level restriction applied in order to protect low flows and flow variability.

The applicant will need to contact our national permitting centre (email to: enquiries@environment-agency.gov.uk , or telephone 08708 506506) regarding the filling of the reservoir, as it is likely they will require an abstraction licence. Further information on water abstraction can be found on <http://www.environment-agency.gov.uk/business/topics/water/32020.aspx>

Groundwater Protection

The site lies upon a principal Chalk aquifer with a potentially shallow water table. Although the site does not lie in a source protection zone, the potentially shallow water table and the exposed Chalk mean that groundwater vulnerability here is very high. Any development on the site should address risk to groundwater quality, both during and post development.

It is probable that this reservoir will be lined to prevent water within it from seeping away into the highly permeable Chalk. It is therefore important that the lining should be of suitable impermeability and thickness to prevent this happening. Also, if the reservoir is to be filled using a surface water abstraction, any leaching of groundwater into the reservoir would breach the license conditions and may result in it being revoked. The shallow groundwater almost certainly means that the proposed reservoir (and therefore its lining) will intercept groundwater at some point (spatially and/or temporally). For this reason it is important that the lining is constructed from non-contaminating materials (ideally sourced locally).

During construction de-watering of the area may be required. This should be considered in advance so that the time year during which construction takes place will minimise any de-watering required. A Hydrological Risk Assessment should be undertaken to assess the potential implications de-watering may have on any neighboring private water supplies dependent on groundwater.

In order to minimise disruption to groundwater flow directions in the area, sub-surface drainage under the reservoir may also need to be considered. This is especially important in preserving local ecology in nearby drainage ditches and surface water that is reliant on groundwater infiltration.

Please contact me if you have any questions on the above points.

Yours sincerely

pp. Mark Luker

Miss Catherine McLeod
Planning Liaison Officer

Direct dial 01903 703858

Direct e-mail planning.southdowns@environment-agency.gov.uk