

## Technical Note

HASKONING UK LTD.  
WATER

To : Barton Wilmore/Celtique Energie  
From : Helena Wicks  
Date : 29<sup>th</sup> June 2012  
Checked by : Christopher Smith  
Approved by : Nick Taylor  
Our reference : 9X0727/N120227/303313/Hayw

**Subject : Broadford Bridge-1: Flood Risk and Surface Water  
Drainage Assessment**

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### Contents

1. Introduction.....	1
2. Background .....	1
3. Flood Risk.....	2
4. Surface Water Drainage.....	3

#### 1. Introduction

This Flood Risk Assessment report has been prepared by Royal Haskoning, on behalf of Celtique Energie (the Client) to provide flood risk advice in relation to the siting and construction of a temporary well site.

The scope of the works included the assessment of flood risk to and consideration of the surface water drainage proposals for the site. The scope was developed through correspondence and discussions with the Environment Agency and has informed the details contained within this report. The Environment Agency indicated their approval of the proposed development and the mitigation measures in the written correspondence found to the rear of this report as **Appendix A**.

The government policy on planning and development is set out within the National Planning Policy Framework (NPPF), published in March 2012. The guidance on flood risk within the NPPF retains key elements of Planning Policy Statement 25: Development and Flood Risk (PPS25), which was revised in March 2010. Its aims are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding and wherever possible to direct development away from areas at highest risk.

It is anticipated that the assessment will be submitted to the local planning authority to support a planning application and therefore the advice contained in this report is in accordance with the guidance set out in the NPPF and accompanying Technical Guidance document.

#### 2. Background

The Assessment Site (known as Woodbarn Farm) is located within the boundary of Horsham District Council (HDC) and West Sussex County Council (WSCC). In addition, planning applications for mineral developments are determined by WSCC.

A company of Royal Haskoning



The Proposed Development (Broadford Bridge-1) is for the temporary development of an exploratory well site on land at Woodbarn Farm, Adversane Lane, Broadford Bridge, Billingshurst RH14 9ED (NGR 509066 121774). The site is 2.12 ha (5.23 acres) comprising of an access road of 0.73ha (1.80 acres) and a drill site of 1.34 ha (3.31 acres).

The development comprises of the construction of a temporary well site including access track and ancillary infrastructure, for the exploration, testing and evaluation of hydrocarbons in the Willow Prospect. The proposed development includes the following, provided as a preliminary indication of the onsite infrastructure required;

- Site clearance involving the excavation and removal of top soil;
- Temporary screening bunds on the southern and western boundaries of the well site compound to store excavated topsoil and subsoil;
- Access track constructed using crushed stone;
- A drilling rig and ancillary drilling equipment for construction of an exploratory borehole;
- Staff car park to provide up to 12 spaces within the compound but outside of the drilling area;
- Concrete chamber sunk into the ground acting as a Cellar to include large diameter pipework as a starting point for drilling;
- Purpose built tanks for the storage of semi-dry drilling mud and rock cuttings;
- External lighting to drill rig including rig floor, mud tanks and pumps, catwalk, doghouse and site cabins;
- On site water storage tankers and a portable skip for on-site refuse collection;
- Erection of 7 Portable cabins providing temporary office accommodation and essential 24-hour staff living accommodation and laboratories;
- Noise attenuation and dust control procedures will operate on site including effective silencers and damping down runways as the weather dictates.

It is important to note that the application is for temporary drilling works that are expected to last for 6 weeks, with a maximum duration of 10 weeks and therefore there will be no long-term impact as a result of the proposed development.

### **3. Flood Risk**

A review of the Environment Agency Flood Zone map (see Figure 1) has identified that the site is located within Flood Zone 1, which is classified as 'Low Probability' and defined as:

"This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding in any year (<0.1%)".

The NPPF Technical Guidance identifies various types of development and assigns a flood risk vulnerability classification; however this is not considered to be significant with regard to the Proposed Development as the guidance also identifies that all land uses are appropriate in this zone.

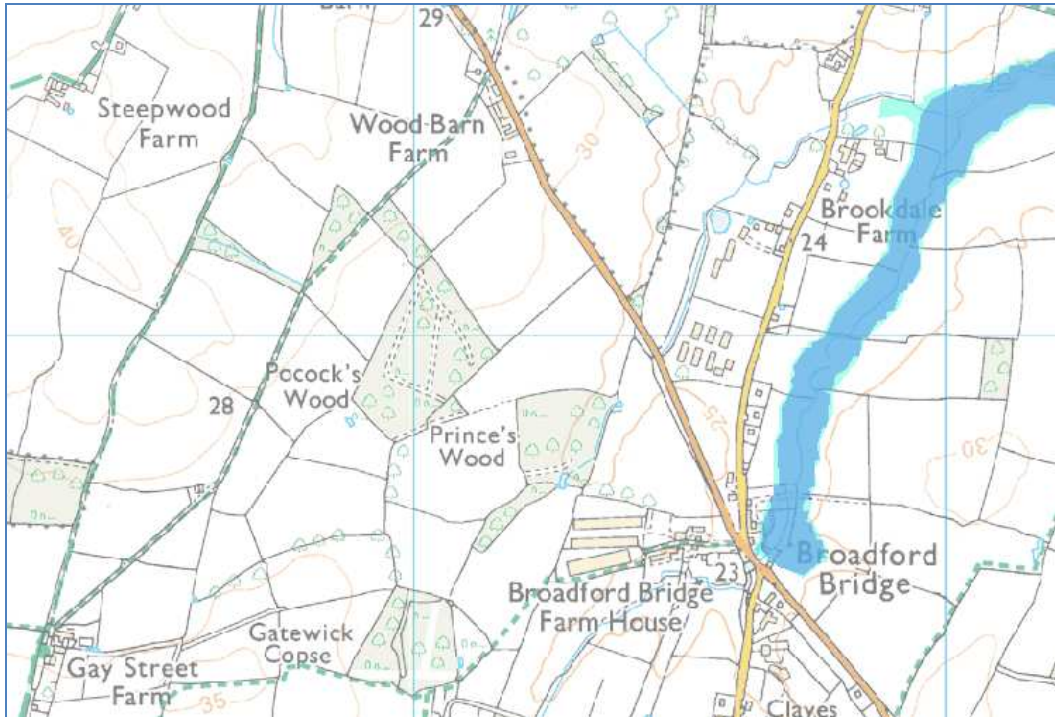


Figure 1: Extract of the Flood Zone map from the Environment Agency website (downloaded 24/02/2012)

Correspondence between Helena Wicks (Royal Haskoning) and Grant Moffatt (Development and Flood Risk Officer, Environment Agency) dated 7<sup>th</sup> February confirmed that:

*“...any Flood Risk Assessment would need to concentrate on surface water issues in this instance”.*

Therefore, based on the guidance from the Environment Agency and the limited risk of flooding to the site this Flood Risk Assessment report focuses on surface water drainage on and from the site.

#### **4. Surface Water Drainage**

Following on from the initial correspondence (described above) and telephone discussion between Royal Haskoning and the Environment Agency, an email was issued to Grant Moffatt, Development and Flood Risk Officer, Environment Agency dated 17<sup>th</sup> February 2012. The correspondence detailed the proposed surface water drainage strategy for the site. For ease of reference the information issued to the Environment Agency has been reproduced as follows:

- *The access road will consist of a tarmac entrance off Adversane Lane with remainder of access road consisting of crushed stone with soil bunds to the north with drainage where required.*
- *The internal well site surface will be formed with crushed stone compacted on top of a geotextile layer and to a normal fall to a perimeter interceptor ditch.*
- *Interceptor ditches will be lined with a Bentomat geomembrane falling to a corner sump area.*



- *The contents of the surface water collection ditch and compound sump would be emptied as necessary and transported by road tanker for disposal at an approved location.*

In addition to the above, information was obtained from the engineer designing the drainage as follows:

- *The surface water drainage ditches are lined using Bentomat to seal the ditches which provides a flexible but highly effective seal.*
- *The ditches and “sump” area are designed to retain storm water during the 1 in 10 year event due to the limited lifespan of the development (4 – 6 weeks). The water will be tankered away from site, as necessary, on the basis that there might be a contaminant that has not been identified rather than allowing this to discharge directly into the ground.*
- *In addition, the storage provision allows for there being a “blow-out” on the site and this storage exceeds the 1 in 100 year storm. If there was a 1 in 100 year storm the storage is such that the site would be approximately 25mm under water.*

Following submission of the above information a response was received on 20<sup>th</sup> February 2012 indicating that:

*“In view of the short time that they plan to be on site I have no concerns in respect to your surface water proposals”.*

Details of the written correspondence between Royal Haskoning and the Environment Agency are found to the rear of this report as **Appendix A**.

Based on the correspondence with the Environment Agency and a review of the proposed development, it is considered that based on the temporary nature of the development and its location within Flood Zone 1 it is appropriate in terms of flood risk. Additionally, measures will be implemented to ensure that there is no impact on or from the development as a result of increase surface water runoff.

End.

**Appendix A:**

**Environment Agency  
Correspondence**

## Wicks, H. (Helena)

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**From:** Moffatt, Grant <grant.moffatt@environment-agency.gov.uk>  
**Sent:** 20 February 2012 10:42  
**To:** Wicks, H. (Helena)  
**Subject:** RE: Willow-1 Flood Risk comment

Helena,

In view of the short time that they plan to be on site I've got no concerns in respect to your SW proposals.

many regards

Grant

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**From:** Wicks, H. (Helena) [mailto:h.wicks@royalhaskoning.com]  
**Sent:** 17 February 2012 09:43  
**To:** Moffatt, Grant  
**Subject:** RE: Willow-1 Flood Risk comment

Grant

Further to your email and also our telephone conversation I have been able to ascertain some more details from the Client regarding the proposed surfaces and drainage. Although the access tracks etc are all going to be permeable there will be an impermeable layer placed underneath them. I have attached some of the planning drawings that are of particular relevance and the details I have obtained are as follows:

- The access road will consist of a tarmac entrance off Adversane Lane with remainder of access road consisting of crushed stone with soil bunds to the north with drainage where required
- The internal well site surface will be formed with crushed stone compacted on top of a geotextile layer and to a normal fall to a perimeter interceptor ditch
- Interceptor ditches will be lined with a Bentomat geomembrane falling to a corner sump area
- The contents of the surface water collection ditch and compound sump would be emptied as necessary and transported by road tanker for disposal at an approved location.

In addition, to the above information I have spoken to the engineer designing the drainage and he has confirmed the following:

- The surface water drainage ditches are lined using Bentomat to seal the ditches which provides a flexible but highly effective seal.
- The ditches and "sump" area are designed to retain storm water during the 1 in 10 year event due to the limited lifespan of the development (4 – 6 weeks). The water will be tankered away from site, as necessary, on the basis that there might be a contaminant that has not been identified rather than allowing this to discharge directly into the ground.
- In addition, the storage provision allows for there being a "blow-out" on the site and this storage exceeds the 1 in 100 year storm. If there was a 1 in 100 year storm the storage is such that the site would be approximately 25mm under water.

As you can see there has been a fair bit of thought and design etc put into the temporary exploratory works and so I plan, as per our telephone conversation, to provide this information in a short one page note for submission to the planning authority. If you have any further thoughts then please let me know as we are keen to ensure we cover as many of the potential issues etc in advance of the submission of the planning application.

Regards

Helena

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**From:** Moffatt, Grant [<mailto:grant.moffatt@environment-agency.gov.uk>]  
**Sent:** 07 February 2012 12:00  
**To:** Wicks, H. (Helena)  
**Subject:** RE: Willow-1 Flood Risk comment

Helena,

I agree that any FRA would need to concentrate on SW issues in this instance.

Basically all you will need to do is to demonstrate to us that there is no increased flood risk from your site for a range of return periods up to the 1 in 100 yr extreme rainfall event. If run-off flows are increased then we would expect some form of SuDs system to be included within your design.

Overall I think that we are looking at a fairly basic FRA, with some calculations to demonstrate that you can achieve the above.

many regards

Grant

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**From:** Wicks, H. (Helena) [<mailto:h.wicks@royalhaskoning.com>]  
**Sent:** 02 February 2012 15:54  
**To:** Moffatt, Grant  
**Cc:** Smith, C A (Christopher)  
**Subject:** Willow-1 Flood Risk comment  
**Importance:** High

Click [here](#) to report this email as spam.

Grant

I am not sure if you are the correct contact for Development and Flood Risk in West Sussex, but if you're not then can you let me know who I need to send this email onto or talk to on the phone?

We have a temporary proposal that we wish to gain comment on from the EA at the earliest opportunity. The site is 1.93ha but is shown as being in Flood Zone 1 and is for temporary drilling works comprising 4 – 6 weeks. The site is off Adversane Lane, the nearest postcode is RH14 9EB and the Grid Ref: 508997,121747. I would assume that any FRA that is submitted to planning will be require to focus on the management of surface water on the site for the temporary period that they are operational; however I am not clear on the level of detail you would require to ensure that the planning process is appropriately followed.

As I am sure you understand the project is currently confidential and therefore we are limited as to the information that we are able to provide; however I hope the above is sufficient to provide you with the details of the location and the planned works.

Regards

Helena

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Flood Risk Consultant

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