

Broadford Bridge-1 Exploratory Well Site

## Non-Technical Summary



July 2012

## **1.0 INTRODUCTION**

- 1.1 Celtique Energie Weald Ltd (the Applicant) has submitted a planning application to West Sussex County Council (WSCC) for the exploration and appraisal of a potential oil or gas reservoir, referred to as the Willow Prospect, through the development of the Broadford Bridge-1 well site. Plan 1 shows the location and extent of the Application Site, which lies to the south of the B2133 Adversane Lane to the west of Broadford Bridge. Plan 1 shows the location and extent of the Application Site.
- 1.2 This report provides a non-technical summary (NTS) of the Environmental Statement (ES). The full findings of the ES and its supporting studies are presented in documents that can be viewed at the planning department of WSCC or at [www.celtiqueenergie.com](http://www.celtiqueenergie.com). Copies of the ES, Technical Appendices and NTS can be obtained on CD at a cost of £25 and are available from Jenny Massingham, Barton Willmore LLP, Elizabeth House, 1 High Street, Chesterton, Cambridge, CB4 1WB.
- 1.3 There is a history of oil and gas discoveries in West Sussex including the sites at Singleton, Storrington and Markwell's Wood, and having collected and analysed geological and seismic data from the area there may be further reserves in the Willow Prospect. Therefore the aim of the project is to establish whether there is oil or gas within the Willow Prospect, and whether these are in commercially viable quantities that could help to meet the energy needs of the country.
- 1.4 The ES has considered the likely significant environmental effects of the Proposed Development. The topics that have been assessed include the following;
- Ecological site surveys;
  - Landscape and visual appraisal from local viewpoints;
  - Predictions of noise levels, particularly from the drill rig and traffic;
  - Transport impact and access assessment;
  - Ground and groundwater protection analysis;
  - Lighting assessment;
  - Socio-economic assessment.
- 1.5 The ES identifies the significant environmental impacts arising from the Proposed Development on the environment. The construction and operation of the Proposed Development has the potential to cause adverse effects on the environment. The construction of the access road and well site compound would affect an area of existing

agricultural land on a working farm. However, due to the temporary nature of the Proposed Development, impacts are temporary and short term, and affect only a small area of land. However, there is an element of permanence to landscape impacts should the site be retained for production but eventually the site will be fully restored to its original use.

### **Proposed Development**

- 1.6 The Proposed Development involves the construction of a temporary well site within an enclosed compound to drill an exploratory borehole. Should hydrocarbons (oil or gas) be encountered, short term "drill stem" testing (DST) will be undertaken to assess economic viability. Should no hydrocarbons be encountered or upon completion of the drill stem testing, all structures, buildings and enclosures will be removed and the site restored. However, if suitable quantities of oil or gas are encountered, the borehole valve or "Christmas Tree", access and hardstanding will be retained whilst an application is prepared and submitted to WSCC for production.

### **Application Site**

- 1.7 The Application Site is located on pastureland (Grade 3) and is surrounded by mature woodland on all boundaries. The location of the Proposed Development has been carefully chosen to reduce its visual impact and was selected following the assessment of a number of alternative sites within a defined search area. This search area is identified following the evaluation of geological survey data and this is followed by an assessment of the planning, technical and environmental constraints and merits of the area and the potential sites.

## **2.0 EIA METHODOLOGY**

### **Assessment Methodology**

- 2.1 The EIA process is a systematic procedure undertaken to identify the potential environmental effects of a development. This enables the importance of predicted effects to be considered by the local planning authority (in this case WSCC) before a decision is made about the planning application. The prediction of such effects is made in relation to both the construction and the operation of the Proposed Development. The EIA process allows environmental effects to be considered at an early stage in the design of a development and for measures to be incorporated into the design that

would reduce, off-set or avoid any possibly significant negative effects.

2.2 Within the EIA process it is broadly accepted that significance reflects the relationship between:

- The actual change taking place to the environment (i.e. the 'magnitude' or severity of an effect); and
- The sensitivity, importance or value of the affected resource or 'receptor' (such as people or wildlife).

**Table 1: Significance Matrix**

Sensitivity/Value of Receptor	Magnitude of Effect		
	High	Medium	Low
<b>High</b> (England, UK, International)	Major	Major/ Moderate	Moderate
<b>Medium</b> (County, Regional)	Major/ Moderate	Moderate	Moderate/ Minor
<b>Low</b> (Local, District)	Moderate	Moderate/ Minor	Minor

2.3 The three levels of significance defined are:

- Major – an effect which, on its own, could have a material influence on the decision making process;
- Moderate – an effect which, on its own, could have some influence on decision making, particularly when combined with other similar effects; or
- Minor – an effect which, on its own, is likely to have a minor influence on decision making but when combined with other effects could have greater influence.

2.4 Effects are also described as:

- Adverse – detrimental or negative effects to an environmental resource or receptor; or
- Beneficial – advantageous or positive effect to an environmental resource or receptor.

- 2.5 Where an effect is considered to be not significant or have no influence, irrespective of other effects, this is classified as “negligible”.

### **Determining the Content of the ES**

- 2.6 'Scoping' involves focusing the study (and hence the ES) on those issues of greatest potential significance. The scope (content) of the ES was established at the start of the assessment process and was formed following discussions with WSCC and a review of the Proposed Development and Application Site by the project team. As a result of this exercise it was concluded that the following environmental issues should be assessed within the ES:

- Landscape and Visual Impact;
- Ecology;
- Transport and Access;
- Noise;
- Ground and Groundwater Protection;
- Lighting; and
- Socio-Economics.

- 2.7 The Scoping Report also concluded that the following environmental issues should be scoped out of the ES:

- Air Quality;
- Vibration;
- Flood Risk, Hydrology and Drainage;
- Archaeology (Heritage Statement to accompany the planning documents);
- Agricultural Land and Soils; and
- Waste.

### **Consultation Process**

- 2.8 Consultation has been undertaken with the appropriate authorities as the Proposed Development has evolved (e.g. WSCC, Horsham District Council, the Environment Agency, Natural England and the local highway authority). This has helped to inform the design of the proposals. In addition, in June 2012, Celtique held a two-day public exhibition event at the Billingshurst Community and Conference Centre. Prior to the event, the following initiatives were carried out in order to maximise public attendance;

sending invitation letters to 6,660 residents living within a three-mile radius of the proposed well site; writing letters to key stakeholders within the local community; and securing advertisement in the local newspaper.

- 2.9 Prior to its public exhibition, Celtique held briefing meetings with the parliamentary representative for the site Nick Herbert, MP for Arundel & South Down; and West Chiltington Parish Council. Meetings were also offered to a number of local political representatives.

### **Cumulative Effects**

- 2.10 There are no schemes in the area with the potential for cumulative effects, and no potential schemes were identified in WSCC Scoping Opinion, therefore no further cumulative assessment has been undertaken in the ES.

## **3.0 APPLICATION SITE**

- 3.1 The Application Site for the project lies in the County of West Sussex and the District of Horsham and falls within the jurisdiction of WSCC. The Application Site consists of Grade 3 agricultural land and, with the exception of the field's northern boundary, is enclosed from the surrounding countryside by woodland blocks. The Proposed Development will affect land which is predominantly rural with a patchwork of agricultural fields, farms and outbuildings dominating the landscape. There are also a number of small, rural towns and villages in the vicinity including Broadford Bridge, Billingshurst, Pulborough and West Chiltington.

## **4.0 THE PROPOSED DEVELOPMENT**

- 4.1 The Proposed Development is made up of four separate phases – construction, drilling, testing and retention or restoration. These phases might not be carried out consecutively depending on for example, the availability of equipment or staff, the need for maintenance or off laboratory testing, and the applicability of the Phases is also dependent upon whether oil and gas, or neither are encountered. The following phases are as follows.

### **Phase 1: Construction of the Access Road and Well Site**

- 4.2 Phase 1 will involve vegetation and soil clearance with soil retained on site in separate

top and sub soil bunds. The access road will consist of a tarmac entrance off the B2133 Adversane Lane with the remainder of the road consisting of crushed stone with soil bunds and drainage where required. The internal well site surface will be formed with crushed stone compacted on top of a synthetic layer falling to a perimeter ditch which will be lined with an impermeable membrane to prevent ground contamination. A concrete "cellar" will be constructed at site level comprising of a reinforced concrete chamber sunk into the ground with its top surface being level with the main site level, with an initial section of large diameter pipework built into its base to provide a starting point for operations.

### **Phase 2: Mobilisation of the Drill Rig and Drilling Operations**

- 4.3 The rig used will not be known until a contractor has been selected and the rig becomes available but we have based our evaluation on an MR7000 type as having the worst case impact of rigs likely to be used. The rig will be brought onto site in sections and constructed on site with the associated infrastructure including water tanks, pipe store, mud and fuel tanks, 24 hour staff living accommodation including mess, shower and WC. Drilling will be 24 hours a days, 7 days a week for the safety of the well and to make the operation as efficient as possible, with staff working 12 hour shifts. The tubing which will be set inside the drilled well and the drilling programme have been designed in accordance with industry practice and water supplies will be stored in tanks and delivered by tankers.
- 4.4 Mud and rock cuttings and the contents of the surface water ditches will be collected in purpose built tanks, located on either a concrete pad or in skips and transported from the site by road for disposal at an authorised waste disposal facility. Normally 20 staff are on site during drilling operations and staff parking is provided within the Application Site. For the health and safety of the rig crew, lighting will be required during the hours of darkness. This lighting will be designed to be sensitive to the local environment, through sensitive orientation to face inwards and downwards to minimise obtrusive light.

### **Phase 3a: Short Term Testing and Evaluation - Gas**

- 4.5 Should gas be discovered, a short term testing and evaluation programme would be required to give an indication of the presence and pressure of the gas discovered. This would be carried out with the rig on location and would begin with a short flow of gas from the borehole into the onsite separator tank, to remove any water or other liquids, before the routine flare programme is undertaken. A routine flare programme involves

piping the gas from the separator to the flare and testing the flow rate of the gas for no longer than 2 weeks, with the rig on site. This process requires just a small amount of gas which would then be burnt off by the burners rather than released untreated into the atmosphere.

### **Phase 3b: Short Term Testing and Evaluation - Oil**

- 4.6 Should oil be discovered, a DST would be required to give an indication of the presence and quality of oil discovered in the reservoir and this would be carried out with the rig on location for up to 2 weeks. Depending on the results from the first two weeks of testing, up to a further 12 weeks of testing may take place on site but would be carried out without the rig. Other than the rig and flaring equipment, oil testing requires the placement of storage tankers and separators within the well site compound, to enable processing of the oil. Natural crude oil always contains an element of gas and water which must be separated prior to testing. The oil is passed through the separator from the storage tanks, and any gas is flared off.

### **Phase 4a: Restoration**

- 4.7 Should neither oil nor gas be discovered, or should testing conclude that commercial production is not suitable, the well will be abandoned by plugging the borehole in accordance with the procedures set by the governing body for the industry – the Department for Energy and Climate Change (DECC). The steel tubing which is set inside the well, would be cut approximately 1.5m below the surface and capped with a steel plate and decommissioning of the rig would take approximately 3 days. All structures including welfare and support buildings, the rig, storage tanks, the well cellar and ditch lining will be removed, and any remaining drilling mud, cuttings and waste removed from the site. The land would be returned to its former use, using best silvicultural practice and native soils from the stored sub and top soil bunds. The site surface would be re-formed using the stored soils and allowed to regenerate naturally.

### **Phase 4b: Retention**

- 4.8 If further off site testing is required, the site will be retained until the results of the tests conclude whether the site can be taken into production or should be restored. Should the results of Phase 3 indicate that there are producible quantities of oil and gas in the reservoir, the site will be retained whilst an application for production is prepared and submitted to WSCC. During retention the well would be capped in accordance with DECC procedures, and welfare and support building, the drill rig and storage tanks



would be removed. Any remaining drilling mud, waste and other materials removed from the borehole, would be removed from the site. The perimeter ditches, linings, cellar, security fencing, access road and well site compound including parking would be retained for future use pending the further grant of planning permission for production.

## **5.0 ENVIRONMENTAL IMPACTS**

5.1 The ES sets out the potential effects of the Proposed Development and the actions necessary to minimise the impact on the environment. The significant environmental impacts and the measures to reduce their adverse effects are as follows;

### **Ecology**

5.2 The Application Site does not fall within any areas designated for nature conservation value and the Application Site has been assessed as being land of low ecological value, although Prince's Wood to the east is designated as Ancient Woodland. Habitat losses will be restricted to the temporary loss of areas of low nature conservation value including arable land. No designated statutory or non-statutory sites of nature conservation value would be significantly affected by the Proposed Development.

5.3 Construction of the Proposed Development has the potential to adversely affect fauna and flora on the site and without proper controls could risk wider impacts on adjoining land. Indirect impacts include a potential temporary and reversible displacement of birds and foraging bats from a small area of woodland edge habitat due to increased noise and light levels during the 10 week drilling period (Phase 2) in particular. Ecological monitoring would be carried out during the Proposed Development to further mitigate impacts.

5.4 Other potential minor, temporary and indirect effects would be avoided and minimised through control of construction methods and design. The site would be monitored to detect protected and/or notable species (particularly badger and nesting birds) in close proximity to working areas. New planting during restoration would offset minor losses to hedgerow habitats and would enhance the ecological value of the site for breeding birds and local bat populations.

## **Landscape**

- 5.5 The most significant adverse landscape effects are during the construction and operational phases, but are temporary and short term. There is an element of permanence to the landscaping effects if the site is retained for production. However, this will be mitigated through the eventual restoration of the site using the stored soils, and returning the Application Site to its former use and a greenfield site. The most significant adverse effects will occur during the construction, and drilling phases due to the loss of the agricultural landscape within the Application Site affecting both land use and landscape character. The Proposed Development does however, respect the existing field patterns and respect the root protection zones of existing trees to the site boundary and within the site itself.

## **Visual Effects**

- 5.6 With the benefit of the flat and existing mature woodland, there is no single clear view into the Application Site. The Proposed Development has adverse visual effects but these are temporary and only apply during mobilisation and drilling when the rig is on site. Due to the height of the rig, up to 36m, these effects cannot be mitigated but other visual impacts can be partly mitigated by proposed soil embankments and hedge planting. If retention of the Application Site is required following the finding of oil or gas, the removal of much of the operational structure and equipment from the site reduces the significant visual effects of the construction and operational phases.

## **Noise**

- 5.7 The existing noise environment around the Application Site is anticipated to be relatively quiet due to the rural nature of the area. There is not anticipated to be any impacts from vibration and this was "scoped out" of the ES following consultation with WSCC. The noise level will be influenced by the proximity of the Application Site to roads and other sources of agricultural noise. Due to the large separation distance between the Application Site and the closest noise sensitive premises, the predicted noise levels from on site operations will be below the proposed noise limits, for all phases of the Proposed Development, thus a negligible effect is expected.
- 5.8 Potential effects from noise associated with the additional road traffic and how this may affect local residents, were assessed separately from on site activity. The increased traffic flows due to the Proposed Development were predicted to increase road traffic noise levels by a maximum of 0.3dB (decibels – the unit that sound is measured in)

which is judged to have a negligible effect. Although no significant effects are predicted, generic mitigation measures including the use of silencers or enclosures and quiet, modern equipment which will be turned off when not in use combined with noise monitoring, will be undertaken as part of the Proposed Development.

### **Transport and Access**

- 5.9 The main period for traffic movements is during construction of the Proposed Development. Delivery of the drill rig and equipment would generate traffic movements on local roads in the vicinity of the Application Site. However, these impacts would be temporary and short-term. During operation, traffic movements would be limited. There would be occasional deliveries and removals of materials but these are expected to have a negligible impact and the surrounding network which is considered capable of accepting such movements. During the removal of the drill rig and equipment, and restoration of the Application Site, the same vehicle movements associated with construction and mobilisation would apply.

### **Ground and Groundwater Protection**

- 5.10 The Proposed Development is to be drilled through a sequence of geological formations that are well defined and understood. There are no major aquifers present and a limited local reliance on groundwater for water supplies. The risk of groundwater pollution is therefore inherently low but is reduced further by the incorporation of mitigation measures such as use of industry standard water-based, non-toxic drilling fluids which are used to flush out any material from the borehole. Proposals to close off and seal the well, will ensure no pollution risk exists in the long-term.
- 5.11 The risk of local ground and surface water contamination will be removed by well-engineered site preparation, including the use of layers of synthetic material to prevent ground contamination, and the capture of all surface runoff via a ditch system. The slight risk of an effect on soil moisture in the nearby area of ancient woodland will be mitigated by drainage arrangement that allow upstream runoff to pass beneath the access road.

### **Lighting**

- 5.12 During the construction, operation and decommissioning phases, the principal lighting impacts are likely to be associated with the need for temporary lighting associated with the illumination of the site area and work areas. It is anticipated that there may be

some adverse lighting effects on Wood Barn Farm during the drilling operations. In order to mitigate such temporary impacts on surrounding sensitive receptors the lighting requirements at the Site during the construction, operation and decommissioning phase will be managed. Installed lighting will involve the use of well located, modern light fittings which are directionally controlled and will be in accordance with current best practice standards and County Planning Authority requirements. Light nuisance (spill) will not extend a significant distance from the site boundary due to the downward orientation of the lighting, soil bunds, equipment and surrounding woodland.

### **Socio-Economics**

- 5.13 The Proposed Development is anticipated to generate employment for approximately 57 people during construction and operation. Some local economic benefits will be introduced to the District through the procurement of locally supplied services and materials. Moreover, the Proposed Development supports agricultural diversification and provides a steady income to supplement an existing agricultural business.

## **6.0 CONCLUSION**

- 6.1 Whilst the ES has identified some potential adverse environmental effects, these are temporary and short term, and can be mitigated and monitored. Having regard to the assessment contained in this ES, it is considered that, subject to the implementation of the mitigation measures, the Proposed Development would not have any significant adverse impact on the environment such that the planning application should be refused.

