Resource Recovery and Renewable Energy Facility, Horsham, West Sussex
Flood Risk Assessment
On Behalf of Britaniacrest Recycling Ltd
Britaniacrest Recycling Ltd

Date: March 2018
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Quality Management

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This report contains only that available factual data for the Site which was obtained from the sources described in the text. These data were related to the Site on the basis of the location information made available to RPS and its sub-consultants by the client.

The assessment of the Site is based on information supplied by the client and on-site inspections by RPS and its sub-consultants. Relevant information was also obtained from other sources.

The report reflects both the information provided to RPS and its sub-consultants in documents made available for review and the results of observations and consultations by RPS staff and its sub-consultants.

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Executive Summary

S1 RPS has undertaken a Flood Risk Assessment (FRA) in accordance with the requirements of the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG ID7) for the environmental assessment of a proposed recycling, recovery and renewable energy (3Rs) facility at Wealden Brickworks, West Sussex.

S2 The entire development Site is located within EA and SFRA Flood Zone 1, classified as having a ‘low’ probability of flooding from fluvial sources.

S3 There is no historical evidence of flooding at the Site.

S4 The majority of the Site is at low susceptibility to surface water flooding. Localised sections within the site area are at low to high risk of surface water flooding.

S5 The susceptibility to groundwater flooding is low.

S6 The risk of flooding from infrastructure failure is considered to be low.

S7 The risk of flooding from reservoir failure has been assessed as low.

S8 The proposed development is defined as ‘Less Vulnerable’ in the NPPF and PPG, deemed appropriate for the present flood zone and the zone including climate change.

S9 The development has been steered to a sequentially appropriate area; therefore there is no requirement for either a Sequential or Exceptions Test.

S10 There will be an increase in less permeable area as a consequence of the proposed development. Surface water runoff will be controlled at an agreed runoff rate. Run-off rates will be controlled via a series of filter drains, permeable paving and underground storage features.

S11 Attenuation volumes have been determined using Micro Drainage simulation software. Calculations have been included in Appendix V of the Drainage Strategy.

S12 This FRA and supporting documentation shows that the proposed development at this location meets the requirements of the NPPF and associated Planning Practice Guidance.
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1 Scope of Work

1.1 Background

1.1.1 At the request of Britaniacrest Recycling Ltd, RPS has carried out a site-specific Flood Risk Assessment (FRA) to support the environmental assessment of a proposed resource recovery and renewable energy facility at Wealden Brickworks, West Sussex in accordance with the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) ID7.

1.1.2 The key objectives of the FRA are:

- To assess the flood risk to the proposed development and to demonstrate the feasibility of appropriately designing the development such that any residual flood risk to the development and users would be acceptable;
- To assess the potential impact of the proposed development on flood risk elsewhere and to demonstrate the feasibility of appropriately designing the development such that the development would not increase flood risk elsewhere; and
- To satisfy the requirements of the NPPF and Planning Practice Guidance which require FRAs to be submitted in support of planning applications for development over 1 ha in area.

1.1.3 Developments that are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. Current guidance on development and flood risk identifies several key aims for a development to ensure that it is sustainable in flood risk terms. These aims are as follows:

- The development should not be at a significant risk of flooding and should not be susceptible to damage due to flooding;
- The development should not be exposed to flood risk such that the health, safety and welfare of the users of the development, or the population elsewhere, is threatened;
- Normal operation of the development should not be susceptible to disruption as a result of flooding;
- Safe access to and from the development should be possible during flood events;
- The development should not increase flood risk elsewhere;
- The development should not prevent safe maintenance of watercourses or maintenance and operation of flood defences;
- The development should not be associated with an onerous or difficult operation and maintenance regime to manage flood risk. The responsibility for any operation and maintenance required should be clearly defined;
- Future users of the development should be made aware of any flood risk issues relating to the development;
• The development design should be such that future users will not have difficulty obtaining 
insurance or mortgage finance, or in selling all or part of the development, as a result of flood 
risk issues;
• The development should not lead to degradation of the environment; and
• The development should meet all of the above criteria for its entire lifetime, including 
consideration of the potential effects of climate change.

1.1.4 The FRA is undertaken with due consideration of these sustainability aims.

1.2 Project Scope

1.2.1 This FRA has the following structure:
• Section 2 identifies the sources of information that have been consulted in preparation of the 
report.
• Section 3 provides a hydrological review off the Site and undertakes a FRA of the proposed 
development scheme.
• Section 4 describes the Sites vulnerability status in line with the NPPF and PPG
• Section 5 describes the flood risk management measures that should be applied to the Site, 
where required.
• Section 6 provides a summary and conclusion to the report.
## 2 Sources of Information

### 2.1 Introduction

2.1.1 Table 1 below lists the information sources consulted during preparation of this report.

**Table 1: Information sources consulted during preparation of the report.**

<table>
<thead>
<tr>
<th>Data</th>
<th>Source</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site setting and hydrology.</td>
<td>OS Mapping 1: 50 000 Sheet 198: Brighton and Lewes Environment Agency (EA).</td>
<td>Area information, rivers and other watercourses, general site environs, built environment, catchment Information.</td>
</tr>
<tr>
<td>Geology.</td>
<td>BGS (online) Geology of Britain Viewer.</td>
<td>Site and area geology.</td>
</tr>
<tr>
<td></td>
<td>SLR, December 2013. Proposed Material Recycling Facility (MRF) At the Former Wealden Brickworks Site</td>
<td>Previous Flood Risk Assessment report.</td>
</tr>
</tbody>
</table>
## 2.2 Legislation and Guidance

**National Planning Policy Framework, March 2012.**

2.2.1 The National Planning Policy Framework (NPPF) sets out Government planning policies for England and how these are expected to be applied. The framework acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.

2.2.2 Paragraphs 99-104 set out the need for an appropriate assessment of flood risk.

2.2.3 The NPPF requires the application of a sequential risk-based approach to determining the suitability of land for development in flood risk areas, and that flood risk assessment should be carried out to the appropriate degree, at all levels of the planning process.

**Planning Practice Guidance, online.**

2.2.4 PPG ID7 Flood Risk and Coastal Change provides guidance to ensure the effective implementation of the NPPF planning policy for development in areas at risk of flooding.

2.2.5 PPG ID7 states that a site-specific FRA is required for all proposals for new development in Flood Zones 2 and 3 and for any proposal of 1 hectare or greater in Flood Zone 1. An FRA should consider vulnerability to flooding from other sources as well as from river and sea flooding, and also the potential for any increased risk of flooding elsewhere resulting from a development.

**Horsham District Council: Horsham District Planning Framework – November 2015.**

2.2.6 The document is the overarching planning document for Horsham district and replaces the Core strategy and general development control policies documents which were adopted in 2007.

2.2.7 The planning framework is prepared to deliver the needs of the district and the wider area to which the district relates. The document sets out the vision, objectives and strategy for the district over the coming years, and contains strategic policies and general planning policies.
which identify development locations to meet future housing, employment, retail and other needs in the district.

2.2.8 The policies relevant to hydrology and flood risk are outlined below;

*Policy 35 – Climate Change*

2.2.9 Development must be designed so that it can adapt to the impacts of climate change, reducing vulnerability, particularly in terms of flood risk, water supply and changes to the district’s landscape. Developments should adapt to climate change using the following measures:

- Provision of appropriate flood storage capacity in new building development;
- Use of green infrastructure and use of SuDS to help absorb heat, reduce surface water runoff, provide flood storage capacity and assist habitat migration;

*Policy 38 – Flooding*

2.2.10 Development proposals will follow a sequential approach to flood risk management, giving priority to development sites with the lowest risk of flooding and making required development safe without increasing flood risk elsewhere. Development proposals will:

- Take a sequential approach to ensure most vulnerable uses are placed in the lowest risk areas.
- Avoid the functional floodplain (Flood zone 3b) except for water-compatible uses and essential infrastructure.
- Only be acceptable in Flood Zone 2 and 3 following completion of a sequential test and exceptions test if necessary.
- Require a site-specific Flood Risk Assessments for all developments over 1 hectare in Flood Zone 1 and all proposals in Flood Zone 2 and 3.

2.2.11 Comply with the tests and recommendations set out in the Horsham District Strategic Flood Risk Assessment (SFRA).

2.2.12 Where there is the potential to increase flood risk, proposals must incorporate the use of sustainable drainage systems (SuDS) where technically feasible, or incorporate water management measures which reduce the risk of flooding and ensure flood risk is not increased elsewhere.

2.2.13 Consider the vulnerability and importance of local ecological resources such as water quality and biodiversity when determining the suitability of SuDS. New development should undertake more detailed assessments to consider the most appropriate SuDS methods for each site. Consideration should also be given to amenity value and green infrastructure.

2.2.14 Utilise drainage techniques that mimic natural drainage patterns and manage surface water as close to its source as possible will be required where technically feasible.
2.2.15 Be in accordance with the objective of the Water Framework Directive, and accord with the findings of the Gatwick Sub Region Water Cycle Study in order to maintain water quality and water availability in rivers and wetlands and wastewater treatment requirements.

2.2.16 The Horsham District Planning Framework has set out the Site as being within an area of employment Use.

**West Sussex County Council Local Flood Risk Management Strategy (2013 – 2018)**

2.2.17 The strategy sets out how West Sussex County Council as a Lead Local Flood Authority will work alongside other risk management authorities to deliver improvements. It represents a positive step forward for West Sussex County Council, enabling the County Council to prioritise and invest money in flood risk for local benefit.

2.2.18 The report has been prepared so West Sussex County Council meets its duties to manage local flood risk and deliver the requirements of the Flood Risk Regulations (2009). West Sussex County Council is defined as a Lead Local Flood Authority (LLFA) under the Regulations and the Preliminary Flood Risk Assessment (PFRA). The strategy and supporting annexes represents the first stage of the requirements of the Regulations.

2.3 **Climate Change**

*Flood risk assessments: climate change allowances (GOV.UK, online)*

2.3.1 In February 2016 the Environment Agency (EA) released online climate change allowances (LIT 5707), which updates the 2011 version of ‘Adapting to Climate Change: Advice to Flood & Coastal Risk Management. The climate change allowances are based on UKCP09 or research using UKCP09 data.

2.3.2 The document provides a central and upper estimate for increases in rainfall intensity as a consequence of climate change, outlined below.

**Table 2: Change to extreme rainfall intensity compared to a 1961-90 baseline**

<table>
<thead>
<tr>
<th>Applies across all of England</th>
<th>Total potential change anticipated for ‘2020s’ (2015-39)</th>
<th>Total potential change anticipated for ‘2050s’ (2040-2069)</th>
<th>Total potential change anticipated for the ‘2080s’ (2070-2115)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Estimate</td>
<td>10%</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Central Estimate</td>
<td>5%</td>
<td>10%</td>
<td>20%</td>
</tr>
</tbody>
</table>

2.3.3 The climate change guidance notes that the allowances provided have been derived from national scale research. There may be cases where local evidence supports the use of other local climate change allowances. With specific reference to changes to extreme rainfall LIT 5707 notes that UKCP09 provides useful information on change to rainfall across the UK.
2.3.4 For the purposes of this report RPS has added 20% and 40% climate change allowance for use in the development attenuation calculations.
3 Site Setting

3.1 Site Location

3.1.1 The Site is located at the previous Wealden Brickworks Site, Langhurstwood Road at NGR TQ 171 343, to the north of Horsham.

3.1.2 Access to the Site is gained via an access road off Langhurstwood Road.

3.2 Existing Development

3.2.1 The Site (Drawing 2) currently hosts a transfer station/materials recycling facility which processes construction, commercial, industrial & domestic waste, and processes inert materials, wood and green waste, as well as carrying out transfer and eventually baling operations on a c.3.8 ha parcel of land including:

Permeable area
- Grass 10,084 m²

Less Permeable area
- Buildings, concrete 22,620 m²

3.3 Proposed Development

3.3.1 It is understood that the planning application is for a resource recovery and renewable energy facility that will accept up to 230,000 tonnes of waste per annum and sort and, segregate that waste followed by thermal treatment of up to 180,000 tonnes per annum of the residual waste to generate electricity. The facility will produce approx. 21 MWe of electricity. The proposed development will include:

Permeable area
- Grassland Areas 3,006 m²

Less Permeable area
- Road/Car parking, Building etc. 26,003 m²

3.3.2 The proposed Site layout plan indicates that there will be an increase in less permeable area of 3,383 m² (c.15%) (Drawing 3).

3.4 Topographical Survey

3.4.1 The Site is relatively flat, falling from 51.30 mAOD within the north east corner to 47.50 mAOD within the south west corner of the Site.
3.5 **Hydrological Setting**

3.5.1 The closest watercourse to the proposed development is the Boldings Brook, which flows southwards in an open channel 125 m west of the Site and is a tributary of the River Arun.

3.5.2 A number of unnamed watercourses and ponds are within a 1 km vicinity of the application area. The ponds capture surface water runoff from the site and the surrounding area. Pond A (SLR FRA, December 2013) is located to the east of site and Pond B is to the north. Run-off from Pond A is currently being used as a water source for the adjacent Wienerberger brickwork factory. The ponds drain into the Bolding Brook via two culverts underneath the adjacent railway line. The ponds capture surface water runoff from the Site and the surrounding area while being used as a water source for the existing brickworks site.

3.6 **Fluvial and Tidal Flooding**

3.6.1 The Environment Agency’s (EA) online flood map indicates that the Site lies within Flood Zone 1 and therefore has a 'low probability' (less than 1 in 1,000 years) annually of flooding.

3.6.2 EA Rivers and Sea flood mapping (Figure 1), which takes into account the effect of any flood defences that may be in this area, indicates that the application area is at very low risk of fluvial or tidal flooding, with less than 1 in 1,000 (0.1%) change of flooding in each year.

![Figure 1 - EA Flood Map for Planners](image-url)
3.6.3 Tidal Flooding

Due to the position of the Site in relation to the Coast, tidal flooding is not considered significant.

3.7 Flood defences

3.7.1 The EA product 4 data (Appendix 1) and the Horsham SFRA indicate that the Site is not within a flood defence area.

3.8 Flooding from rising / high groundwater

3.8.1 British Geological Survey (BGS) online map (Accessed May 2016) indicates that the Site is directly underlain by the Weald Clay Formation (Dark grey thinly-bedded mudstones (shales) and mudstones with subordinate siltstones, fine- to medium-grained sandstones, including calcareous sandstone (e.g. Horsham Stone Member), shelly limestones (the so called "Paludina Limestones") and clay ironstones.).

3.8.2 The bedrock is classified by the EA under the Water Framework Directive as unproductive strata, defined as “...rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow”.

3.8.3 The BGS Hydrogeology 1:625,000 scale map defines the bedrock under the application area as the Wealden Group. It characterises the bedrock as having essentially no groundwater.

3.8.4 The EA and Horsham SFRA note that there is no record of groundwater issuing at the surface in the area around the Site. No groundwater levels within the immediate Site area have been made available.

3.8.5 Based on the information outlined above the potential for groundwater flooding is considered to be low.

3.9 Source Protection Zones

3.9.1 EA mapping shows the Site is not located within a Source Protection Zone (SPZ).

3.10 Groundwater Vulnerability Zone

3.10.1 A section along the southern boundary of the Site is defined as Minor Aquifer Intermediate associated with a secondary A bedrock aquifer (Horsham Stone member – Sandstone).

3.11 Surface water flooding

3.11.1 EA surface water flood mapping (Figure 2 below) indicates that the majority of the Site is at ‘very low’ risk. Localised areas around small pools and existing buildings are defined as being in low to high risk zones. (High risk means that each year, this area has a chance of flooding of greater than 1 in 30 (3.3%)). The risk of flooding from surface water from the Site is considered low.
3.12 Reservoir Failure Assessment

EA mapping indicates that the Site is not at risk of reservoir flooding.

3.13 Sewer/Water Main Failure Assessment

Artificial drainage systems

Current drainage

3.13.1 A detailed drainage survey was commissioned and completed in April 2017. The survey indicate existing surface run-off is directed into the underground system by a series of hardstanding gullies and roof rainwater pipes, Drainage Survey drawings UAK3101_C-LG [sheets 1-4].

3.13.2 Site runoff is directed to the southwest corner of the site and discharged into, Boldings Brook via ‘Culvert A’ which passes beneath the rail embankment. There is no evidence of any flow control to limit discharge from site.

3.13.3 It is assumed that sewer and surface water drainage in the vicinity of the Site will have been designed to industry standards (e.g. Sewers for Adoption). However, the most common causes of flooding from sewers are; inadequate flow capacity, blockages, pumping station failures, burst water mains, water inflow from rivers or the sea, tide locking, siltation, fats/greases, and sewer...
collapse. Should any of these events occur there is a risk of flooding by surcharge where the flows are in excess of the sewer capacity (usually 1 in 30 year events or greater).

3.13.4 Under the Director General 5 register requirements all water companies are obliged to keep a record of properties that have been affected by sewer flooding. The Horsham SFRA confirms that the majority of the sewers within the district are designed to accommodate a storm event with a 3.3% annual probability. The SFRA indicates that the Site area has not been flooded due to drainage system failure.

3.13.5 Taking into account the above and absence of any historical sewer flooding the overall risk of flooding via artificial drainage system to the Site has been assessed as a low.

3.14 Infrastructure Failure Assessment

3.14.1 There is no risk of flooding from infrastructure failure.

3.15 Historical flood events

3.15.1 EA records indicate that no historical flood events have occurred on Site.

3.16 Present Flood Risk

3.16.1 The Site is at low risk of fluvial flooding. The main flood risk is surface water flooding from direct rainfall on the Site or from runoff from the railway line that bounds the western edge of the application area, however the risk is low (Figure 2).
4 Flood Risk Vulnerability Classification

4.1 Vulnerability Classification

4.1.1 In accordance with the Flood Risk Vulnerability Classification in Table 2 of the Planning and Practice Guidance Flood Risk and Coastal Change, the development is classified as ‘Less Vulnerable’ in flood risk terms.

4.1.2 The application Site is located within an area identified as Flood Zone 1. Table 3 of Planning Practice Guidance (Table 5 of this report) indicates that ‘Less Vulnerable’ uses are acceptable for locations in Flood Zone 1.

**Table 3: Flood Risk Vulnerability and Flood Zone ‘Compatibility’**

<table>
<thead>
<tr>
<th>Flood Risk Vulnerability classification (see Table 3 of Planning Practice Guidance)</th>
<th>Essential Infrastructure</th>
<th>Water Compatible</th>
<th>Highly Vulnerable</th>
<th>More Vulnerable</th>
<th>Less Vulnerable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td>Zone 2</td>
<td>Yes</td>
<td>Yes</td>
<td>Exception test required</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone 3a</td>
<td>Exception test required</td>
<td>Yes</td>
<td>No</td>
<td>Exception test required</td>
<td>Yes</td>
</tr>
<tr>
<td>Zone 3b Functional Floodplain</td>
<td>Exception test required</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**Key:** Yes: Development is appropriate, No: Development should not be permitted

*Proposed Development Classification*
5 Drainage

5.1 Surface Water and Drainage

5.1.1 The sustainable management of surface water is an essential element of reducing future flood risk to the Site and its surroundings.

5.1.2 Undeveloped sites generally rely on natural drainage to convey or absorb rainfall, the water soaking into the ground or flowing across the surface into watercourses.

5.1.3 The effect of development is generally to reduce the permeability of at least part of the Site, which markedly changes the site’s response to rainfall. Without specific measures to manage surface water volume of water and peak flow rate are likely to increase. Inadequate surface water drainage arrangements can threaten the development itself and increase the risk of flooding to others.

5.1.4 Surface water arising from a developed site should, as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development while reducing the risk of flooding at the site and elsewhere, taking climate change into account.

5.2 Legislative background

5.2.1 Following the implementation of the Flood and Water Management Act 2010 local flood risk has become the responsibility of the Local Planning Authority. The Act places new duties on upper tier Councils, by designating them as Lead Local Flood Authorities (LLFAs) for the coordination of local flood risk management in their respective administrative areas.

5.2.2 From April 6 2015 the responsibility for drainage and surface water management design approval resides with the local planning authority and should be submitted as part of the planning process.

5.2.3 The local planning authority has responsibility for the approval of proposed drainage systems in new developments and redevelopments. Approval must be given before any developer can commence construction. In order to be approved, the proposed drainage system would have to meet national standards for sustainable drainage.

5.2.4 The local planning authority is also responsible for adopting and maintaining SuDS which serve more than one property, which they have approved. The Highways Authorities will be responsible for maintaining SuDS in public roads to National Standards.

5.2.5 The SuDS Manual C753 sets out the criteria by which the form of drainage appropriate to any particular site or development can be determined, as well as requirements for the design, construction, operation and maintenance of SuDS.

5.2.6 Additional guidance for the use of SuDS is provided via CIRIA and BRE in the following:
5.2.7 Additional guidance for the use of SuDS is provided via CIRIA and BRE in the following:

- C522 Sustainable Drainage Systems- Design Manual for England and Wales
- C523 Sustainable Drainage Systems- Best practice
- C156 Infiltration Drainage – Manual of Good practice
- BRE365 Soakaway design

5.3 Runoff Calculations

5.3.1 An assessment of the current and proposed runoff rates was undertaken to determine the surface water attenuation requirements for the Site in line with The SuDS Manual (2015), which indicates that for previously developed sites the flow rate discharged from the Site must not exceed that prior to the proposed development for the:

- 1 in 1 year event;
- 1 in 30 year event; and
- 1 in 100 year event.

5.3.2 The rates of runoff were determined using the current ‘industry best practice’ guidelines as outlined in the Interim Code of Practice for SuDS. The Defra/EA recommended methodology for sites up to 50 hectares in area is the Institute of Hydrology Report 124 method (IoH 124). The runoff rates were calculated using the Micro Drainage software suite.

Current Runoff Rate

5.3.3 As noted in section 3.13, as detailed drainage survey was undertaken in April 2017. The survey identified that the hardstanding areas are drained by a series of gullies and roof rainwater pipes shown on Drainage Survey drawings UAK3101_C-LG [sheets 1-4]. Run-off is conveyed through the onsite drainage network to a culvert in the southwest corner prior to discharging into Boldings Brook, approximately 400m west of site.

5.3.4 Calculations pertaining to existing discharge rates are presented in associated Drainage Strategy (Appendix 10.4 to Chapter 10 of the Environmental Statement).

Post-development Runoff Rate

5.3.5 The proposed surface water drainage scheme is shown on the Surface and Foul Water Drainage Layout drawing NK018074-RPS-XX-DR-D-0300 contained in Appendix III of the Drainage Strategy. This includes building roof and external circulation and parking areas.

5.3.6 All surface run-off will be discharged through the existing outfall pipes identified on the current drainage layout.

5.3.7 Calculations pertaining to existing discharge rates are presented in Appendix V of the Drainage Strategy.
5.4 Sustainable Drainage Options

5.4.1 The NPPF and associated Planning Practice Guidance ID7, CIRIA C753 SuDS Manual (2015), Horsham District Planning Framework (2015) and West Sussex Local Flood Risk Management Strategies promote sustainable water management through the use of SuDS. A hierarchy of techniques is identified:

1) Prevention – the use of good site design and housekeeping measures on individual sites to prevent runoff and pollution (e.g. minimise areas of hard standing).

2) Source Control – control of runoff at or very near its source (such as the use of rainwater harvesting).

3) Site Control – management of water from several sub-catchments (including routing water from roofs and car parks to one/several large soakaways for the whole site).

4) Regional Control – management of runoff from several sites, typically in a detention pond or wetland.

5.4.2 The implementation of SuDS as opposed to conventional drainage systems, provides several benefits by:

- Reducing peak flows to watercourses or sewers and potentially reducing the risk of flooding downstream;
- Reducing the volumes and frequency of water flowing directly to watercourses or sewers from developed sites;
- Improving water quality over conventional surface water sewers by removing pollutants from diffuse pollutant sources;
- Reducing potable water demand through rainwater harvesting;
- Improving amenity through the provision of public open spaces and wildlife habitat; and
- Replicating natural drainage patterns, including the recharge of groundwater so that base flows are maintained.

5.5 Drainage Strategy

5.5.1 The general drainage strategy for the proposed site is based on SuDS, in accordance with CIRIA C753 ‘The SuDS Manual’ to reduce the impact on the receiving watercourse.

5.5.2 Provision is made in the form of filter drains, permeable paving and underground storage. The type of underground structure will be agreed during the construction contract and is likely to be cellular, plastic arch or large diameter pipes, although other system suitability may be explored.

5.5.3 Attenuation volumes have been determined using Micro Drainage simulation software. Calculations are presented in Appendix V of the Drainage Strategy.
6 Summary and Conclusions

6.1 Summary

6.1.1 A site-specific FRA in accordance with the NPPF and PPG ID7 has been undertaken for the proposed c.3.8 ha site at Wealdon Brickworks, West Sussex to inform the environmental assessment of a proposed resource recovery and renewable energy facility.

6.2 Flood Risk

6.2.1 EA and Horsham Council SFRA mapping shows that the Site is entirely located in Flood Zone 1 and is consequently at ‘low’ risk of flooding.

6.2.2 There is no historical evidence of flooding at the Site.

6.2.3 The majority of the Site is situated within low probability of surface water flooding. Localised areas within the Site are within medium and high risk areas.

6.2.4 The Site susceptibility to groundwater flooding has been assessed as low.

6.2.5 The risk of flooding from reservoir failure has been assessed as low.

6.2.6 The proposed development is appropriate for the present flood zone and the zone including climate change.

6.2.7 There is no requirement for either a Sequential or Exceptions Test as set out in the National Planning Policy Framework and PPG.

6.2.8 There will be a c.15% increase in less permeable area as a consequence of the proposed development. Surface water runoff will be controlled at an agreed runoff rate. Run-off rates will be controlled via a series of filter drains, permeable paving and underground storage features.

6.2.9 Attenuation volumes have been determined using Micro Drainage simulation software. Calculations have been included in Appendix V of the Drainage Strategy.

6.3 Conclusion

6.3.1 This hydrological assessment and supporting documentation illustrates that the application area is at low risk of fluvial flooding and not subject to a Sequential Test as required by the NPPF and Planning Practice Guidance.
References


DEFRA, October 2006. Flood and Coastal Defence Appraisal Guidance FCDPAG4 Economic Appraisal Supplementary, Note to Operating Authorities – Climate Change Impacts.


Ordnance Survey 1:10,000 Scale Electronic Data Mapping for assessment area.


Notes
1. This drawing has been prepared in accordance with the scope of RPS’s appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
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Legend
- Site Boundary
Appendix 1

Correspondence
Jonathan Morley

From: SSD Enquiries
Sent: 22 June 2016 14:41
To: Angus Kerry
Cc: SSD Enquiries
Subject: 160622 SSD15825 The Wealdon Brickworks, Langhurstwood Road, Horsham

Dear Angus

Thank you for your enquiry which is receiving attention. It will assist the technical teams if you could provide a site map in due course.

We have provided links below where some of this information is available online as Open Data. We have also provided other links to sources for data and additional comments.

We will contact you again with the outstanding flood and flood history information.

Kind regards

Cherry Weeks
Customers & Engagement | Solent and South Downs Area | Environment Planning and Engagement
Environment Agency | Guildbourne House | Chatsworth Road | Worthing| West Sussex | BN11 1LD
Tel: 
email:

www.gov.uk/floodsdestroy

DO YOU KNOW WHAT TO DO? [Image]

From: Angus Kerry
Sent: 10 June 2016 13:13
To: Enquiries, Unit;
Subject: 160614/DM09 Environmental Information Request: The Wealdon Brickworks, Langhurstwood Road, Horsham, West Sussex (National Grid Reference: 517089, 134302).

Dear Sirs,

Environmental Information Request: The Wealdon Brickworks, Langhurstwood Road, Horsham, West Sussex (National Grid Reference: 517089, 134302).

We are currently conducting a flood risk assessment for a development at The Wealdon Brickworks, Langhurstwood Road, Horsham, West Sussex. (see attached plan).

To undertake the assessment RPS wish to obtain the following information:
- Confirmation of Flood Zone (electronic MapInfo Version if possible); https://data.gov.uk/data/search?q=Environment+Agency+flood+map
- Confirmation of the most recent Strategic Flood Risk Assessment (SFRA); Local Authority
- SFRA Flood zone extents for the area (electronic MapInfo Version if possible); Local Authority
- EA and SFRA Flood Hazard, surface water and reservoir flood risk mapping including water depths for the area;
- A online link to or copy of the most recent SFRA, including associated drawings, maps and appendices; Local Authority
- Mapping and records for any surface water assets owned or maintained;
- Any existing river and/or tidal levels, for the 100 year, 100 year with climate change, 200 year, 200 year with climate change, 1000 year, and 1000 year with climate change flood events;
- Any gauged flow records for river networks in close proximity to the site, with associated estimated return periods; http://www.gaugemap.co.uk/
- Any Flood Modelling data undertaken within a 1 km radius of the site;
- Details of any historical flood events;
- Details of existing or planned flood alleviation and defences in this area; https://www.gov.uk/government/collections/flood-risk-management-current-schemes-and-strategies
- Details of any flooding due to drainage problems associated with the site, including flood levels, flood extents and any available anecdotal information;
- Details of any recorded groundwater levels in the area, and groundwater vulnerability of the area; We have no groundwater monitoring in or around the area provided. Please check via guagemap http://www.bgs.ac.uk/home.html http://www.gaugemap.co.uk/; https://data.gov.uk/dataset/gsni-1-250k-groundwater-vulnerability-metadata https://data.gov.uk/dataset/aquifer-designation-dataset-for-england-and-wales
- Details of any groundwater flooding issues in the area, including flood levels, flood extents and any available anecdotal information;
- Details of aquifer designation, soil classification, and Source Protection Zones in this area; and https://data.gov.uk/dataset/source-protection-zones-merged1 http://www.bgs.ac.uk/home.html
- Any other flooding related data and/or reports held in relation to the site and immediate area. Please can you be more specific.

Please would you inform me of any data costs that may be incurred as soon as possible.

Should you have any queries please do not hesitate to contact me.

Yours sincerely,

for RPS

Angus Kerry
Dear Angus,

Thank you very much for your enquiry, I would like to apologise for our late response. Further to the interim response that we provided to you on 22 June, please find attached the water abstraction information that you requested.

This information is supplied subject to the notice which can be viewed via the following link

We are committed to providing a professional customer service. Please help us understand more about what is important to you by completing our two minute survey

Kind regards,

Thomas Baker | Customers & Engagement Officer | Solent and South Downs Area | Environment Planning and Engagement
Environment Agency | Guildbourne House | Chatsworth Road | Worthing | BN11 1LD

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Click here to report this email as spam
Dear Mr Kerry

**Freedom of Information Act 2000**

I refer to your request for information in relation to The Wealdon Brickworks, Langhurst Wood Road, Horsham. Your request is being processed under the Environmental Information Regulations 2004.

I am now in a position to respond to you as follows.

Many of the questions will need to be answered by the Environment Agency (EA) and I see the original enquiry was directed to them too. However, I have answered the questions, see below, which relate to WSCC as Lead Local Flood Authority (LLFA)

- **Confirmation of the most recent Strategic Flood Risk Assessment (SFRA);**
  The current WSCC Strategic Flood Risk Assessment (SFRA) can be found on our website:
  Our current WSCC Local Flood Risk Management Strategy can be found on our website:

- **Mapping and records for any surface water assets owned or maintained;**
  We (WSCC) do not hold records of our underground assets. A copy of our road gully location records is attached.

- **Details of any historical flood events;**
  We (WSCC) have no details of any historical flood events in or adjacent to the site. This should not be taken that this site has never suffered from flooding, only that it has never been reported to the LLFA.

- **Details of existing or planned flood alleviation and defences in this area;**
  We (WSCC) are not aware of any existing or planned flood alleviation and defences in this area.

- **Details of any flooding due to drainage problems associated with the site, including flood levels, flood extents and any available anecdotal information;**
We (WSCC) have no details of any flood events in or adjacent to the site. This should not be taken that this site has never suffered from flooding, only that it has never been reported to the LLFA.

- Details of any groundwater flooding issues in the area, including flood levels, flood extents and any available anecdotal information;
  We (WSCC) have no details of any groundwater flooding issues in or adjacent to the site. This should not be taken that this site has never suffered from flooding, only that it has never been reported to the LLFA.

- Any other flooding related data and/or reports held in relation to the site and immediate area.
  We (WSCC) have no flood related data or reports for this location. This should not be taken that this site and surrounding area has never suffered from flooding, only that it has never been reported to the LLFA.

If you are unhappy with the way your request has been handled, you may wish to ask for a review of our decision under our complaints procedure via our website.

If you are not content with the outcome of your complaint, you may apply directly to the Information Commissioner for a decision. Generally the ICO cannot make a decision unless you have exhausted our complaints procedure. The ICO can be contacted at the Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF.

Please remember to quote our reference number above in any further correspondence.

Yours sincerely,
Paula Buckland

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From: Angus Kerry
Sent: 10 June 2016 13:13
To: Freedom of Information Act
Subject: Environmental Information Request: The Wealdon Brickworks, Langhurstwood Road, Horsham, West Sussex (National Grid Reference: 517089, 134302).

Dear Sirs,

Environmental Information Request: The Wealdon Brickworks, Langhurstwood Road, Horsham, west Sussex (National Grid Reference: 517089, 134302).

We are currently conducting a flood risk assessment for a development at The Wealdon Brickworks, Langhurstwood Road, Horsham, West Sussex. (see attached plan).

To undertake the assessment RPS wish to obtain the following information:
· Confirmation of Flood Zone (electronic MapInfo Version if possible);
· Confirmation of the most recent Strategic Flood Risk Assessment (SFRA);
· SFRA Flood zone extents for the area (electronic MapInfo Version if possible);
· EA and SFRA Flood Hazard, surface water and reservoir flood risk mapping including water depths for the area;
· A online link to or copy of the most recent SFRA, including associated drawings, maps and appendices;
· Mapping and records for any surface water assets owned or maintained;
· Any existing river and/or tidal levels, for the 100 year, 100 year with climate change, 200 year, 200 year with climate change, 1000 year, and 1000 year with climate change flood events;
· Any gauged flow records for river networks in close proximity to the site, with associated estimated return periods;
· Any Flood Modelling data undertaken within a 1 km radius of the site;
· Details of any historical flood events;
· Details of existing or planned flood alleviation and defences in this area;
· Details of future defence upgrades and/or shoreline management plans/policies;
· Details of any flooding due to drainage problems associated with the site, including flood levels, flood extents and any available anecdotal information;
· Records of any surface and groundwater discharges, abstractions including private licences and pollution incidents;
· Details of any recorded groundwater levels in the area, and groundwater vulnerability of the area;
· Details of any groundwater flooding issues in the area, including flood levels, flood extents and any available anecdotal information;
· Details of aquifer designation, soil classification, and Source Protection Zones in this area; and
· Any other flooding related data and/or reports held in relation to the site and immediate area.

Please would you inform me of any data costs that may be incurred as soon as possible.

Should you have any queries please do not hesitate to contact me.

Yours sincerely,

for RPS

Angus Kerry

Angus Kerry BSc (Hons), MSc, FGS
Graduate Hydrologist - RPS Planning & Development
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Dear Mr Kerry

**Freedom of Information Act 2000 and Environmental Information Regulations 2004**

**Request for Information: Wealdon Brickworks, Langhurstwood Road, Horsham – Flood Risk Assessment**

Thank you for your Information Request Form (FOI and EIR) dated 10 June 2016 concerning the above. The request has been handled under the Environmental Information Regulations 2004 as the information relates to land use and is therefore of an environmental nature.

We have dealt with your request in accordance with our duty to make available environmental information on request under part 2 (5) Environmental Information Regulations 2004 (EIRs), which entitles you to be provided with a copy of any information held by a public authority. Please note that under part 3 of the EIRs a public authority may refuse to disclose environmental information if an exception under Regulation 12 (4) or 12 (5) applies and in all circumstances of the case the interest in maintaining the exception outweighs the public interest in disclosing the information.

The initial Strategic Flood Risk Assessment was published in June 2007. A revision of the SFRA was undertaken and published in April 2010. Copies of both of these documents are available to view and download on our website via the following link: [https://www.horsham.gov.uk/planningpolicy/planning-policy/background-documents/strategic-flood-risk-assessments](https://www.horsham.gov.uk/planningpolicy/planning-policy/background-documents/strategic-flood-risk-assessments)

All of information that is held by Horsham District Council, which may fall within the remit of your request, is contained within the SFRA. None of the information held is available in an interactive electronic format.

Flood Zones are identified on the Horsham District Planning Framework Policies Map, adopted November 2015. Copies of these maps are available to view and download on our website via the following link: [https://www.horsham.gov.uk/planningpolicy/planning-policy/horsham-district-planning-framework](https://www.horsham.gov.uk/planningpolicy/planning-policy/horsham-district-planning-framework)

Appendix D of both the 2007 SFRA and the 2010 Revision states the source of each data type. Horsham District Council does not hold any additional information, other than that already contained within the SFRA, as the Council is not the originating authority for the majority of the data. Please contact the data provider, as detailed in Appendix D, directly for any further information.
For clarification; Appendix D of the June 2007 SFRA states that the Council Drainage Department supplied data in relation to reservoirs and large water bodies; I have been advised by the Council Drainage Engineer that this information is no longer held.

If you are dissatisfied with this response and wish to request a review of our decision or make a complaint about how your request has been handled you should write to Mr Paul Cummins, Head of Legal & Democratic Services, Parkside, Chart Way, Horsham, RH12 1RL or by email to

Your request for internal review should be submitted to us within 40 working days of by receipt by you of this response. Any such request received after this time will be considered at the discretion of the Head of Legal & Democratic Services.

If having exhausted the review process you are not content that your request or review has not been dealt with correctly, you have the right to appeal to the Information Commissioner at Wycliffe House, Water Lane, Wilmslow, SK9 5AF. Further details of this process are available on the ICO website at www.ICO.org.uk

Yours sincerely

Natasha Robinson
Administrative Technical Support Officer