**CONDITION 13 DISCHARGE**

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| 13. The building hereby permitted shall not be occupied until surface water drainage works have been implemented in accordance with details that have been submitted to and approved in writing by the Local Planning Authority.<br>Before these details are submitted an assessment shall be carried out of the potential for disposing of surface water by means of a sustainable drainage system and the results of the assessment provided to the Local Planning Authority.<br>Where a sustainable drainage scheme is to be provided, the submitted details shall:<br>i) provide information about the design storm period and intensity, the method employed to delay and control the surface water discharged from the site and the measures taken to prevent pollution of the receiving groundwater and/or surface waters;<br>ii) include a timetable for its implementation; and provide a management and maintenance plan for the lifetime of the development which shall include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime. |

Biomass UK No.2 Limited has instructed its main contractor, Galliford Try, to implement the following drainage scheme for the Project Site:

1. High level roof drainage will be collected through the use of a Syphonic rainwater collection system such as Wavin Quickstream. This system will bring rainwater down to ground floor level discharging into a vented manhole i.e. grated cover connected to the underground drainage infrastructure. The underground drainage network will connect into the existing ABP drainage system at an agreed position at the site boundary.
2. Rain water which falls onto roads and hard standings will be captured via point or in line drainage systems incorporating trapped gullies as required by the Planning Conditions. Collected surface water will be linked underground to the drainage system and will pass through an oil separator, as required by the Planning Conditions, prior to attenuation on site.
3. Water which accumulates on the Process Area will be collected using either point or inline drainage systems. Collected water will then pass into the process water attenuation tank before being pumped via a measurement chamber into the site outfall~~.~~ Drawing number Barry_01_DWG_01_20145_C shows the arrangement of the Attenuation Tank which also describes the size and allowances for both surface water and the retention of water in the event of a fire. Also attached is the P&ID of the system for reference Barry_01_DWG_19_70009_D.
4. Generally all underground pipe-work will comprise uPVC or vitrified clay pipes up to a diameter of 225mm. Larger pipes (should they be required) are likely to be concrete. Should higher temperature drainage water be anticipated, pipe-work will be designed and constructed from high density polyethylene. The detailed layout of the system and pipework is shown on the attached drawings Barry_01_DWG_01_20131_E, 20132_E, 20133 E_ and 20134_E.
5. Foul drainage from the office/administration area and blowdown from the process will be collected into a separate foul system and discharged into an existing ABP Sewer at the site boundary in line with local authority regulations.
6. A foul water drainage system shall be connected to the existing foul drainage network. In absence of further information the following treatment provisions are currently included in the Contract sum:

   § Water retention pit to allow cooling of the water, if requested provided with a cold water inlet connection.

§ PH measurement and a provision to adapt the pH of the drain water by adding chemicals.

7. For information purposes the following items (as a minimum) within the plant will be connected to the foul water sewer:

§ Toilets

§ Showers

§ Sinks

§ Gutters throughout the plant

§ The blowdown tank (to which the plant condensate drain system is connected)

§ The water treatment concentrate discharge

§ Turbine drains

In response, Galliford Try, have carried out detailed design work and advise as follows:

§ The surface water drainage network has been designed for a variety of return periods and storm durations, ranging from a 1:1 year storm event (+20%[1] climate change), 1:30 year storm event (+20% climate change) and a 1:100 year storm event (+20% climate change) with durations between 15 minutes and 10080 minutes (7 days), as detailed in GHDL surface drainage design calculations BARRY_01_REP_01_20063 (attached). The system was designed to prevent any flooding of manholes for a 1:30 return period, and to prevent any flooding from the site for a 1:100 return period. It is recognised that the latest guidelines call for +30% climate change allowance. The design specification and drawings have assumed +20% as this was the requirement when the Planning Application was first submitted in 2015. This change is not considered detrimental to the present design because the Attenuation Tank also makes allowance for water produced from the fire protection sprinkler systems. Hence there is considered to be adequate capacity for this provision. It should also be noted that there is a 100% duty/standby pumping system so that in the event of the loss of one pump the standby pump automatically operates.

§ Surface water runoff is collected by high level gutter systems with downpipes, or by positive drainage to ACO Qmax channel drains or gullies. Plastic drainage pipes, resistant to industrial effluents, oils, petrol, diesel, road salts and de-icing agents, direct collected runoff through a full retention oil separator for storage before discharge in a Tubosider attenuation tank (652 m3). An integral pumping station within the Tubosider tank discharges the surface water to the local ABP existing surface water drainage network at a ~~restricted rate, advised by PCML, of 3 l/s.~~ restrictedrate, of 3 l/s following discussions with Associated British Ports. The attached design specification, Barry_01_REP_01_20063_A, which include the relevant calculations take full account of the discharge rate of 3l/sec and demonstrate that this is sufficient to accommodate the conditions on the site. The interceptor specified is sized for the total drainage area and

[1] With reference to the following Environment Agency website, https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#table-2, a 60 year design life (scheme lifetime between 2055-2085) would provide a 20% increase for climate change which has been implemented in the design. Our drainage design accommodates an appropriate attenuation volume suitable for the storm period with a 20% allowance for climate change (note the size of the attenuation is sized for the fire water attenuation). Note that a 30% climate change increase is only a requirement for schemes with a lifetime between 2085-2115 (prior to February 2016). As planning permission was granted in July 2015, prior to the introduction of the 2016 climate change allowances, a 20% climate change allowance is the applicable %.

complies with the anticipated flow rates. The discharge point can be seen on "Plan BARRY_DWG_01_DWG_01_20134_E surface water drainage" accompanying this application.

§ Due to site space constraints, and due to the areas of impermeable hardstanding and roof areas, there would be limited use of SuDS applied to the site. The drainage design implemented accommodates an appropriate attenuation volume suitable for the site and storm period with a 20% allowance for climate change with all pollutants contained within the interceptor system provided.

The installation and construction work is planned to be concluded by 'Construction Completion' of the plant in time for commissioning to commence by the end of 2017.

The installed drainage system, being located within the plant site, falls to Biomass UK No.2 Limited to manage and maintain across its life. For this purpose Biomass UK No.2 Limited has retained Outotec (UK) Limited as its Operations & Maintenance Contractor for the life of the plant.

None of such on-site arrangements will be adopted by any public authority or statutory undertaker.

**Attached Drawings & Documents**

TUB15257e.pdf
BARRY_01_REP_01_20063_A.pdf
BARRY_01_REP_01_20030_A.pdf
BARRY_01_DWG_01_20136_C.pdf
BARRY_01_DWG_01_20135_A.pdf
BARRY_01_DWG_01_20134_E.pdf
BARRY_01_DWG_01_20133_E.pdf
BARRY_01_DWG_01_20132_E.pdf
BARRY_01_DWG_01_20131_E.pdf
Barry_01_DWG_01_20145_C.pdf
Barry_01_DWG_19_70009_D.pdf