

Medworth Energy from Waste Combined Heat and Power Facility Permit Application (EPR/HP3441QA/A001) – Response to Request for Further Information

1. Purpose of this note

An application for an environmental permit to operate the Medworth Energy from Waste Combined Heat and Power Facility (the 'EfW CHP Facility') was submitted by Medworth CHP Limited (the 'Applicant') to the Environment Agency (the 'EA') on 4 August 2022. As part of its Duly Made checks, the EA has requested further information by letter dated 15 March 2023. This note has been prepared to provide a response to the further information request from the EA

2. Response to further information request

The further information requested from the EA is set out in bold italic below with a response provided below each question sub-part.

1. Noise

a) Provide the raw data from the background sound level survey at each of the long term monitoring locations (LT1c, LT2 and LT3) in a spreadsheet or otherwise tabulated format. Include the time, date, LAeq, LMax and LA90 values for each individual 15 minute measurement.

Response: An Excel file "All_Raw_LT_Data_+_Weather_20230315.xlsx" has been attached to the covering email containing this response to the request for further information which provides the raw data in the requested format.

b) A discrepancy has been noticed between the SoundPLAN noise modelling files (ref. medworthModel_EP_App_20220713) submitted with the bespoke environmental permit application when compared with the noise contours and octave band modelling input data presented in the Noise Impact Assessment (NIA) - Doc Ref. 41310-WOOD-XX-XX-RP-ON-0006_SO_PO1. Input sound power levels and internal reverberant sound pressure levels have been included as broadband values rather than the octave band spectra presented in Appendix D of the NIA. Additionally, buildings external to the site that seem to have been modelled, as indicated in the noise contours in Figures D.1 – D.3 in Appendix D of the NIA, are not present in the submitted model. Provide an updated version of the SoundPLAN model that includes the octave band source data and buildings external to the site.

Response: Upon further review of the model files submitted with the permit application, it has been identified some errors have occurred during the file transfer/ preparation with incorrect files added to the zip file. The correct version of the SoundPLAN modelling files, which the NIA is based on, have now been uploaded to the file storage area referenced in the covering email supporting the response to the request for further information.

The contours in the graphics module in SoundPLAN will appear different to those provided in the NIA because the drawing files in the graphics module only contain the contours (and no buildings, etc) to allow export of the contours and creation of the figures in GIS software (to enable a consistent approach to figure production). Additionally, the colours applied to the contours are different in the

graphics module and in the figures presented in the NIA. A brief review of the daytime contours indicates these are identical as to those provided in Figure D1 in the NIA. Review of the calculation runs to produce the contours will show the input data used in the calculations, which can be reviewed in the geodatabase to confirm that buildings external to the site, were included in the contour calculations

2. Provide information in Application form Part B3

a) Update table 3.4 of “Supplementary Technical Information Report for Medworth CHP Ltd” to include measures that would prevent pollution in the event of a flood.

Response: An assessment of the potential risks associated with flooding, including the measures in place to reduce risk, is included in the “General site issues” section of Table 3-4 in the row labelled “Site flooding resulting in contaminated waste and other materials entering surface water drains”. However, the measures that would prevent pollution in the event of a flood are described below for convenience.

Whilst areas of the site are designated Flood Zone 3, the Flood Risk Assessment (FRA) contained within Appendix A12 of the permit application (“MVV Volume 6.4 ES Chapter 12 Hydrology Appendix 12A FRA.pdf”) identifies that the site of the EfW CHP Facility would remain dry during the design flood event (0.5% AEP plus climate change overtopping event) and the 0.1% AEP plus climate change overtopping event.

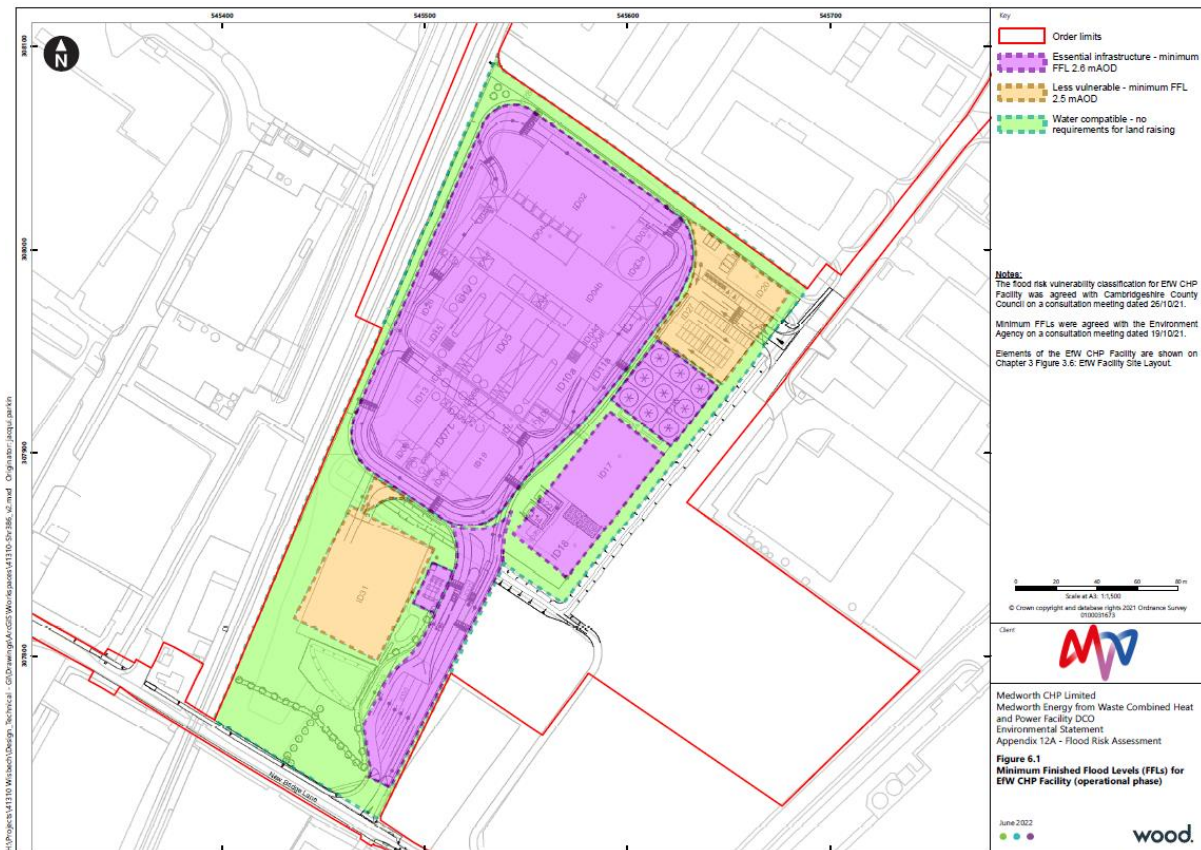
The only scenario under which there is a residual risk of flooding at the site of the EfW CHP Facility is the 0.1% AEP plus climate change tidal breach event.

The principal control measure incorporated into the design of the EfW CHP Facility to reduce the risks of flooding during this scenario is to designate and design areas containing essential infrastructure with finished floor levels (FFL) above the peak floodplain water level at the site during the 0.1% AEP plus climate change tidal breach event.

Areas of the site considered to be essential infrastructure include, but are not limited to:

- Waste vehicle queuing area and gatehouse/weighbridge.
- Tipping hall and waste bunker.
- Boiler house.
- Turbine hall.
- IBA enclosure.
- APC building and APCr storage area.
- Switchgear building, main transformer and 132 kV switching compound.
- Diesel tanks and urea tanks building.
- Water treatment plant.
- Emergency diesel generator.
- Induced draft fan cabin.
- Air cooled condenser.

The figure overleaf displays the areas of the site defined as essential infrastructure in purple (replicates Figure 6.1 in the FRA).



Areas of the site identified as essential infrastructure are the only areas where potentially polluting substances (PPS) may be stored. Ensuring PPS are stored in areas where the FFL is above the peak floodplain water level at the site during the 0.1% AEP plus climate change tidal breach scenario is considered to represent an effective control measure that will ensure a low likelihood of pollution during a flooding event. This measure will also ensure that the essential infrastructure elements remain operational and safe in times of flood whilst waste and other raw materials are on site.

The minimum FFLs and residual risk criteria for assessing risks to essential infrastructure specific to the local area were agreed with the Environment Agency during a consultation meeting on 19 October 2021.

Notwithstanding this principal control measure which, in isolation, ensures the environmental risk associated with flooding events is low, other measures have also been incorporated into the design and operation of the EfW CHP Facility to further reduce this risk. For example:

- Potentially polluting substances will be stored in secure storage vessels or enclosures with secondary containment provided in accordance with CIRIA C736 where appropriate, thus reducing the risk of release in the event of localised flooding.
- There will be a minimum stand-off distance from the edge of HWIDB adopted drains to ensure ongoing access for maintenance. On-site drains will be regularly inspected to ensure they are kept free of debris to prevent blockage and surface flooding in flash flood events.
- Sub-surface components of the EfW CHP Facility, such as the waste bunker, will be watertight (designed to achieve a minimum tightness class 2 in accordance with BS EN 1992-3) to prevent water ingress and minimise the risk from groundwater flooding. The bunker will also be designed to ensure there is sufficient dead weight within the concrete

walls and base of the bunker to resist uplift (floating) due to the hydrostatic pressures that can develop due to the presence of high groundwater levels.

- As part of the management system to be developed for the EfW CHP Facility, an Emergency Response Plan will be developed that addresses actions to be taken, and assigns responsibility for these actions, in the event of site flooding, to minimise the effects of flooding on the operation of the installation, ensure the safe evacuation of employees and, if required, a safe controlled, shutdown of the Facility. However, the principal design measure previously described will ensure essential infrastructure remains dry during the operational lifetime.

b) Confirm the rated thermal input (MWth) of the emergency diesel generator

Section 4.13.2 of the supplementary technical information report provides relevant design information pertinent to the emergency diesel generator (EDG). The design requires a single 3 MVA generator. As a specific model of generator had not been selected at the time of submission and, hence, the model specific electrical efficiency unknown, an estimated rated thermal input of 6 MWth was indicated based on a typical level of efficiency for a compression ignition engine (~43% electrical efficiency).

Further consideration of the EDG design post submission indicates a Caterpillar 3516E generator would meet the required duty. This generator has a maximum fuel consumption at 100% load of 614.6 l/h. Based on a typical net calorific value of diesel of 42.6 MJ/kg and density of 0.84 kg/l from the Digest of UK Energy Statistics¹, this equates to a net rated thermal input of 6.13 MWth.

As described in the initial application, the selection of the specific model of 3 MVA generator to be used would be made by the EPC Contractor during detailed design. However, the nominal rated thermal input is still expected to remain ~ 6 MWth.

3. Provide information in Application form Part B6

You have identified in your application potential emissions to sewer from the regeneration of the ion exchange unit process effluent during maintenance. Stating that emissions will be neutralised prior to release, and subject to an agreed discharge consent, however on review of form B6 this has not been fully completed. Complete form B6, completing all relevant sections.

Response: An updated version of form B6 has been attached to the covering email containing this response to the request for further information.

¹ <https://www.gov.uk/government/statistics/dukes-calorific-values>