CRoW Appendix 4 (140_10_SD02)

CRoW Act 2000: Natural Resources Wales application for permission - Formal Notice

Cyfoeth Naturiol Cymru Natural Resources Wales

Natural Resources Wales Formal Notice.

Requirements of Section 28I of the Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act (CRoW) 2000.

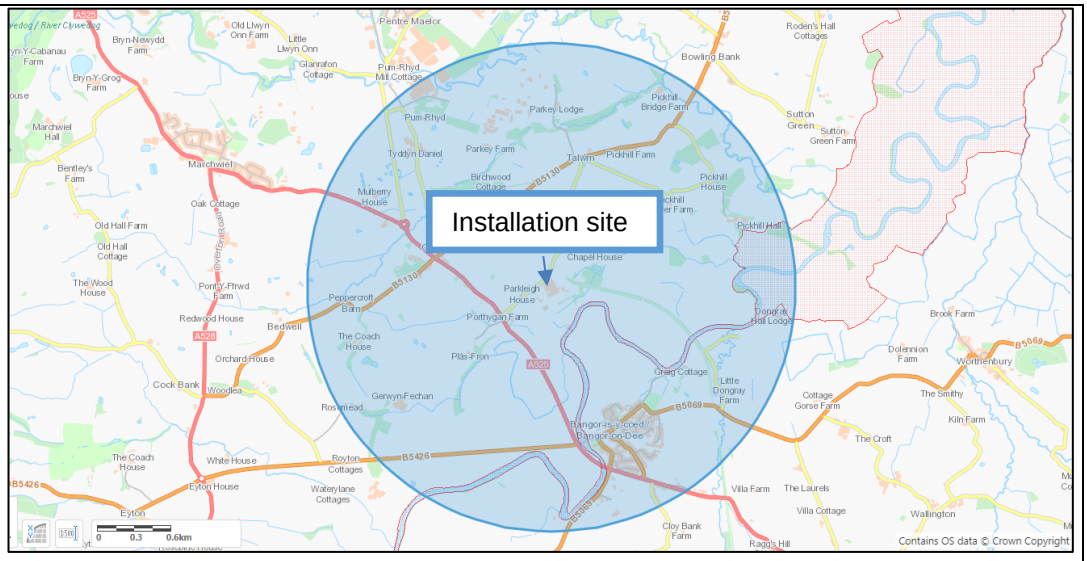
Duty in relation to granting any consent, licence or permit for activities likely to damage Sites of Special Scientific Interest (SSSI).

Guide to filling in this form for Natural Resources Wales staff:
To be completed by Permitting Officers for any applications for a permission which the Natural Resources Wales has considered under S28G duties to protect and enhance SSSIs. This applies to all proposed permissions within a SSSI, and to operations outside the SSSI boundary which are likely to damage its special features.
Refer to OI 140_10 'Applying the Countryside and Rights of Way (CRoW) Act 2000 to applications for permits with potential for impact on Sites of Special Scientific Interest (SSSI)', including the flowchart in Appendix 2.

Pink italic text – drafting notes, to be deleted before completion/consultation.
Blue text – examples, to be replaced with permission-specific information.
Ensure you have completed all sections.

1. Natural Resources Wales area/region/NPS hub:	Wrexham & Flintshire Environment Team – North-East **This form will also be sent to Natural England for information**
2. Name of SSSI:	Afon Dyfrdwy (River Dee) OBJECTID: 6630 SSSI_Name: Afon Dyfrdwy (River Dee) SSSI_ID: 2554.000000 SSSI_Code: 31WDW
3. Type of permission:	Environmental Permit Substantial Variation Application
4. Date for Natural Resources Wales permit determination:	21/05/2024
5. Predicted 28 day date for response from NRW conservation/ecology (under S28 I(4)):	NRW: 28 days: 04/04/2024 NE: 20 working days: 02/05/2024
6. Natural Resources Wales reference no:	PAN-020892
7. National grid reference:	SJ 38529 46718

8. Description of proposal:	Maelor Foods Limited are applying to vary Permit EPR/AB3591ZQ to increase their poultry processing facility capacity from 1 million birds per week to 2 million birds per week by installing a second processing line, a new module handling system and an additional chiller plant inside the existing buildings. The changes proposed will include the upgrading and improving of their existing effluent treatment plant to cope with the increased arisings of effluent, and also increase the sites treated wastewater discharge volume into the River Dee. The site lies in an agricultural area. The village of Bangor-on-Dee lies approximately 1km to the south-east. The site currently operates four boilers with the proposed increase in processing capacity requiring one additional boiler. The applicant has submitted detailed air dispersion modelling. Emission rates provided by the consultant are based on technology specifications and information provided by the operator. Emissions of oxides of nitrogen (NOx) from each modelled source based on the provided parameters indicates a constant emission concentration of 40 mg/m^3. The increase in processing capacity will also require an additional chemical scrubber with associated fifteen metre stack to treat processing line emissions; extending the existing wastewater treatment plant (WWTP) with an upgrade of the associated chemical scrubber and requiring the addition of a fifteen-metre stack; and a new sludge dewatering plant. There are no *new* point source releases to water, land or sewer from changes proposed to the existing installation, however wastewater from the additional processing line and associated areas will be treated in the existing wastewater treatment plant (WWTP) with additional capacity and tertiary treatment added. Changes proposed will also increase the sites treated wastewater discharge volume into the River Dee. Current permit limits are as follows: • Current average daily flow 1,200 m3/d • Current maximum daily flow 1,500 m3/d • BOD 20 mg/l • Total suspended solids 30 mg/l • Ammonia 5 mg/l • Orthophosphate 2.5 mg/l • pH 6 to 9 • Iron - mg/l • Chloride - mg/l • Temperature 30 °C Proposed new limits for discharge to surface waters: • Proposed average daily flow 2,400 m3/d • Proposed maximum daily flow 3,120 m3/d • BOD 10 mg/l • Total suspended solids 15 mg/l • Ammonia 2 mg/l • Orthophosphate 1 mg/l • pH 6 to 9 • Iron - mg/l • Chloride - mg/l • Temperature 30 °C



9. Is the proposed activity within (wholly or partially) the SSSI boundary?	No *The installation is located approximately:* *100m from SSSI_Afon Dyfrdwy (River Dee)* *Effluent from ETP discharges into River Dee*
10. Has there been any pre-application discussion or correspondence with NRW conservation / ecology	No

11. What aspect(s) of the proposed permission may damage the features which are of special interest for the SSSI?

CYNGOR CEFN GWLAD CYMRU (naturalresources.wales)
sssi_2554_map030.pdf (naturalresources.wales)
sssi_2554_pdo_en001.pdf (naturalresources.wales)

The following 'Operations Requiring Consent' (or other activities associated with the permission) that may cause damage) are relevant to the proposed permission.

Discharge of treated effluent and airborne deposition.

The pollutants emitted to air of concern for SSSI are Oxides of nitrogen (expressed as nitrogen dioxide) and sulphur dioxide leading to potential long term and short-term nitrogen oxide and longer-term sulphur dioxide airborne impacts, potential long term nutrient nitrogen deposition and potential long term acidity deposition impacts.

Two scenarios have been considered in the submitted air quality modelling:
• Total emissions to air from existing normal operating conditions.

• Total emissions to air from proposed operations following implementation of upgrades required to accommodate the processing capacity increase.

APIS states there are no comparable habitats with established acidity critical load estimates available for SSSI_Afon Dyfrdwy. The Nutrient Nitrogen Critical Load is 3-10 kgN/ha/yr.

The AQIA dispersion modelling considered the short term 99.79th percentile of NO2 hourly averages and the annual long term NO2 averages for comparison against the associated National Air Quality Objectives (AQOs) at residential receptors while the predicted annual and daily (24 hour) average NOx at habitat receptors was compared against the Environmental Standards for the protection of conservation areas.

The predicted long (annual) and short term (24 hour) PCs at habitat receptors are all below 1% of the long and short term environmental standards for protected conservation areas respectively.

Modelling checked by AQN indicates that the predicted short term PC may exceed 1% at the River Dee and Bala Lake SSSI and SAC (short term: 3.6%), this remains below 10% of the short term environmental standard for protected conservation areas. Modelling also did not indicate that the Predicted Environmental Concentrations (PEC) were likely to exceed 70% of the long and short term environmental standards at habitat receptors.

Technical review of the AQA concluded that following the changes required to accommodate the increase in processing capacity, the predicted long (annual) and short term (24 hour) PCs at habitat receptors will all be below 1% of the long- term and short-term environmental standards for protected conservation areas respectively. The review indicated that the predicted short-term PC may exceed 1% at the River Dee and Bala Lake SSSI and SAC (short term: 3.6%), however this remains below 10% of the short-term environmental standard for protected conservation areas.

PC of nitrogen deposition (N-dep) at habitat receptors is below 1% of the lower critical load (CLo) with the exception of three receptors representing the River Dee and Bala Lake SSSI and SAC (maximum: 2.4%), however the PC due to emissions from the proposed new boiler alone account for less than 1% of the N-dep critical load at these three receptors (maximum: 0.4%). AQN assessment confirmed that whilst checks indicated that the maximum PC may exceed 1% of the N-dep CLo at the River Dee and Bala Lake SSSI and SAC (maximum: 2.8%), the contribution from the proposed new boiler alone is unlikely to exceed 1% of the CLo.

The pollutants emitted to surface waters of concern for downstream river quality of SSSI are BOD, ammonia, orthophosphate, iron, chloride, and pH.

For the full assessment and all the proposed limits please see attached assessment: 'PAN-020892 WFD Assessment New Form'.

SSSI Afon Dyfrdwy (River Dee) features
The whole of the River Dee is also designated a SAC. Special features of the SSSI include:

- Running The Afon Dyfrdwy (River Dee) SSSI supports the following habitats and species listed in the EC
- Habitats Directive (Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild
- Fauna and Flora):
- Rivers with floating vegetation often dominated by water crowfoot - Annex I
- Otter – Annex II & IV
- Sea lamprey – Annex II
- River lamprey – Annex II & V
- Brook lamprey – Annex II
- Atlantic salmon – Annex II & V
- Bullhead – Annex II
- Freshwater pearl mussel – Annex II & V
- Grayling – Annex V

1. **SSSI Afon Dyfrdwy (River Dee) (ENGLAND & WALES)**

Mechanisms of Impact: Water emissions only
Toxic Contamination –Water emissions: direct and indirect impacts from addition of pollutants into river due to surface water discharge.

Nutrient Enrichment –Water emissions: addition of nutrients (nitrogen and phosphorus) due to surface water discharge and dissolved oxygen.

Acidification –Water emissions: acidification of receiving watercourse.

Changes in thermal regime – Water emissions: changes in temperature due to surface water discharge.

Siltation – Water emissions: deposit of suspended solids due to surface water discharge.

Turbidity – Water emissions: release of suspended solids due to surface water discharge.

Changes in salinity regime – No impact pathway as there will be no saline content within the effluent.

Habitat Loss – No impact pathway as there is no destructive work occurring at the SSSI as part of this proposal.

Entrapment – No impact pathway as there is no water abstraction activity.

Physical damage – No impact pathway as there is no physical work occurring at the SSSI as part of this proposal. The discharge pipe is already in situ.

Smothering – No impact pathway.

Disturbance (Noise) - No impact pathway as noise is not expected to be significant at the SSSI.

(i) Decision

(ii) Air Emissions

Using UK Atmospheric Dispersion Modelling System (ADMS) modelling software, the applicant assessed changes required to accommodate the increase in processing capacity. The predicted short term PC may exceed 1% at the River Dee and Bala Lake SSSI and SAC (short term: 3.6%), but remains below 10% of the short term environmental standard for protected conservation areas. modelling did not indicate that the Predicted Environmental Concentrations (PEC) were likely to exceed 70% of the long and short term environmental standards at any receptor.

Based on the assumption that all contributing sources and source characteristics used in the dispersion modelling are representative of actual operating conditions and that nothing has been excluded from consideration, changes are considered acceptable.

(iii) Water Emissions

SSSI_Afon Dyfrdwy (River Dee)

(i) Toxic Contamination –

The discharge will have undergone tertiary treatment prior to discharge.
Mean Flow= 2856384 m3/day 33.06m/s
Q95 = 769824m3/day 8.91m/s
Refer to 'PAN-020892 WFD Assessment New Form' for full assessment.

(ii) Nutrient Enrichment

Elevated levels of BOD, ammonia and phosphorus can cause excess algae growth which can in turn reduce dissolved oxygen levels within the receiving watercourse. A review of current and proposed water quality in the receiving watercourse has been undertaken to ensure the proposed emission limits are acceptable in terms of the Habs Directive and WFD. Refer to 'PAN-020892 WFD Assessment New Form' for full assessment. Increased discharge proposed by the applicant as detailed in document Appendix 9: Maelor Foods Wrexham - Proposed Increased Discharge Impact Assessment - Final Report table 2.3 for BOD 10mg/l, Ammonia 2mg/l and Phosphorus 1000ug/l (1mg/l) considered acceptable.

(iii) Acidification

No change proposed to existing pH limit – which will remain 6 to 9

(iv) Changes in thermal regime

As per the 2015 Water Framework Directive 'Temperature Standards for Rivers', the 98%ile annual river temp for 'High' class in salmonid rivers should be 20 degrees celcius, there should also be no increase/decrease in river temperature above 2 degrees celcius. The current limit on the permit is 31 degrees celcius. No change proposed to the temperature of the discharge, thus considered will have negligible effect on the temperature of the receiving watercourse.

(v) Turbidity and Siltation

There is currently a limit of 30 mg/L for suspended solids (SS) on the discharge. Maximum discharge limit set will be reduced to 15 mg/L in line with the treatment specifications of the new ETP, thus offering betterment.

(i) The proposed permission is **not likely to damage** any of the flora, fauna or geological or physiological features which are of special interest at **Afon Dyfrdwy (River Dee).**

Natural Resources Wales is minded to: Issue the permission

12. Name and job title of Natural Resources Wales officer:	Lucinda Hall Permitting Officer, Installations & RSR
13. Date form sent to NRW conservation / ecology	04/04/2024 sent to NRW and NE for information
For Natural Resources Wales use only, once NRW conservation/ecology response received	
14. NRW conservation/ecology comment on assessment:	i) NRW conservation/ecology advise the operation can go ahead ii) ~~NRW conservation/ecology advise the operation can go ahead with conditions~~ ~~iii) NRW conservation/ecology advise against permitting the operation~~ Please ensure that the NRW conservation/ecology response is attached to this Formal Notice.
15. Name and job title of NRW conservation/ecology officer:	Nia Baker, People and Places Officer
16. Date of receipt of NRW conservation/ecology response:	5/6/2024