



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

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.

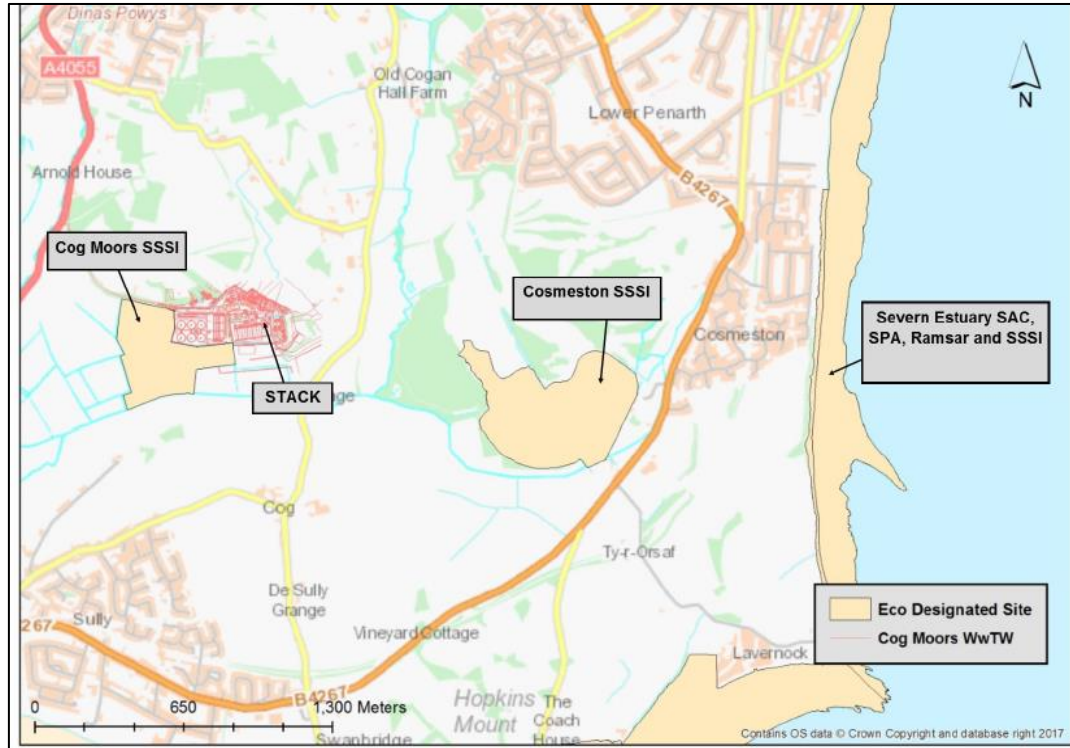
Blue text – examples, to be replaced with permission-specific information.

Ensure you have completed all sections.

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| 1. Natural Resources Wales area/region/ NPS hub: | South Central – Cardiff & Vale Environment Team |
| 2. Name of SSSI: | Cog Moors SSSI (Wales) 33WAL Cosmeston Lakes SSSI (Wales) 33WAS <i>Severn Estuary SSSI is outside of the 2 km buffering zone therefore has not been assessed in this Appendix 4 Form</i> |
| 3. Type of permission: | Environmental Permit Application |
| 4. Date for Natural Resources Wales permit determination: | 17/08/2020 |
| 5. Predicted 28 day date for response from NRW conservation/ecology (under S28 I(4)): | NRW: 28 days 18/05/2020 |
| 6. Natural Resources Wales reference no: | PAN-008163 |

7. National
grid
reference:

NGR: 316121, 169662



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| <p>8. Description of proposal:</p> | <p>Dŵr Cymru Cyfyngedig propose to install an Advanced Anaerobic Digestion (AAD) plant with an associated Combined Heat and Power plant as an extension to their existing Wastewater Treatment Works Anaerobic Digestion plant. The AAD facility is a newly permitted installation as the existing Cog Moors WwTW AD plant had been operating under a waste exemption (T21). Cog Moors treats wastewater from a large geographic area and correspondingly generates a substantial volume of sewage sludge. The proposed AAD plant will supplement existing digesters and provide additional capacity. The proposed process overview is as follows; imported and indigenous sludges are combined in the Thermal Hydrolysis Plant which uses steam generated from two natural gas boilers to increase the temperature and control the pressure to pre-treat the sludge, the sludge is then cooled via water coolers and then undergoes Anaerobic Digestion. Biogas will be produced during Anaerobic Digestion which will be transferred to a gas holder and then via a siloxane removal plant to the two Combined Heat and Power engines to be used a fuel to produce electricity. Any unused biogas will be flared off in the emergency waste gas flare.</p> <p>The primary emissions from the installation are emissions to air from the combustion sources. There are two natural gas/biogas fuelled boilers (each boiler is 4.408 MWth input) and two biogas fuelled combined heat and power engines (each engine is 3.679 MWth input), which gives an aggregated total of 16.17 MWth input for the installation. Therefore, these combustion sources are all subject to the Medium Combustion Plant Directive, the CHP engines are subject to the Specified Generator regulations as they produce electricity. The two natural gas/biogas boilers primary pollutants are oxides of nitrogen (NOx) and carbon monoxide (CO) and sulphur dioxide SO₂ (when running on biogas) and the two biogas CHP engines primary pollutants are NOx, CO and SO₂. Detailed atmospheric dispersion modelling has been completed for both boilers and engines at full maximum operational hours (8760) hours this provides a conservative approach. The two boilers are capable of operating on both natural gas or biogas, but expected to operate almost always on natural gas, there is a higher NOx emission rate associated with natural gas therefore the modelling of NOx emissions has been completed using 100 % natural gas as the fuel for the boilers as a worst-case scenario approach. There are only emissions of SO₂ when the boilers operate with biogas as a fuel therefore modelling of SO₂ emissions has been completed using 100 % biogas as the fuel for the boilers as a worst-case scenario approach.</p> <p>There is one discharge to sewer, all process and any contaminated surface water will be returned to the head of the Cog Moors Wastewater Treatment Works.</p> <p>There are no emissions to ground or water of process effluent.</p> |
| <p>9. Is the proposed activity within (wholly or partially) the SSSI boundary?</p> | <p>NO</p> <p><i>The installation site is situated directly adjacent to SSSI Cog Moors (see map above)</i></p> |
| <p>10. Has there been any pre-application discussion or correspondence with NRW conservation/ecology</p> | <p>NO</p> |
| <p>11. What aspect(s) of the proposed permission may damage the features which are of special interest for the SSSI?</p> <p>The following 'Operations Requiring Consent' (or other activities associated with the permission) that may cause damage) are relevant to the proposed permission.</p> | |

Air emissions from combustion processes. Increased NO_x and SO₂ airborne concentrations. Nutrient nitrogen deposition and acid deposition. There are no discharges to surface water or ground.

The following SSSI features and mechanisms of impact have been considered to assess the likelihood of damage:

This form has been completed using the following documents as reference:

- Cog Moors Site of Special Scientific Interest: Your Special Site and Its Future
- Llynnoedd Cosmeston/Cosmeston Lakes Site of Special Scientific Interest: Your Special Site and Its Future

SSSI Features:

Cog Moors SSSI Special Features

- Species-rich neutral grassland
- A population of bulbous foxtail
- A population of pepper saxifrage

Cosmeston Lakes SSSI Special Features

- Starry Stonewort

Mechanisms of Impact:

Toxic Contamination – increased NO_x and SO₂ airborne concentrations.

Nutrient enrichment – nutrient nitrogen deposition from NO_x emissions

Acidification – acid deposition from NO_x and SO₂ emissions

Smothering – from NO_x and SO₂ emissions, particulate matter is not a pollutant of concern from these combustion sources

(i) Decision

1. SSSI Cog Moors

Toxic Contamination

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SSSI Cog Moors. The maximum long-term process contribution (PC) is >1 % (6.8 %) and PEC is <70 % (43.5 %) of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is >10 % (34.0 %) of the short-term critical level. The PEC is 63.4 % of the short-term critical level and < 100 % therefore there is unlikely to be an exceedance of the short-term critical level and the impact from the short-term NO_x emissions can be considered not significant.

SO₂: A long-term critical level of 10 µg/m³ SO₂ (annual) has been assumed for SSSI Cog Moors. The maximum long-term process contribution (PC) is >1 % (7.8 %) and PEC is <70 % (45.2 %) of the long-term critical level therefore long-term impact from SO₂ emissions can be considered insignificant.

Nutrient Enrichment

The minimum nutrient nitrogen critical load value of 20 kgN/ha/yr (neutral grassland) has been assumed for SSSI Cog Moors, this was confirmed by correspondence with an conservation specialist, see email attached. The maximum nitrogen deposition process contribution is =1 % (1.0 %) and PEC <70 % of the lower critical load value, therefore long-term nutrient nitrogen enrichment impacts can be considered insignificant.

Acidification

The acid deposition critical load values of 0.3 kEq/ha/yr (Min N), 4.4 kEq/ha/yr (Max N) and 4.1 kEq/ha/yr (Max S) have been assumed for SSSI Cog Moors. The maximum total acid deposition process contribution is >1% (2.3 %) and PEC is <70 % (22.7 %) of the critical load function. Therefore, long term acid deposition impacts can be considered insignificant.

Smothering

See above for impacts from nutrient enrichment and acidification.

2. SSSI Cosmeston Lakes

Toxic Contamination

NO_x: A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (hourly) have been assumed for SSSI Cosmeston Lakes. The maximum long-term process contribution (PC) is >1 % (4.4 %) and PEC is <70 % (36.2 %) of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is >10 % (12.8 %) of the short-term critical level. The PEC is 38.2 % of the short-term critical level and <100 % therefore there is unlikely to be an exceedance of the short-term critical level and the impact from the short-term NO_x emissions can be considered not significant.

SO₂: A long-term critical level of 10 µg/m³ SO₂ (annual) has been assumed for SSSI Cosmeston Lakes. The maximum long-term process contribution (PC) is >1 % (4.5 %) and PEC is <70 % (35.3 %) of the long-term critical level therefore long-term impact from SO₂ emissions can be considered insignificant.

Nutrient Enrichment

The minimum nutrient nitrogen critical load value of 15 kgN/ha/yr (lowland calcareous grassland) has been assumed for SSSI Cosmeston Lakes. The maximum nitrogen deposition process contribution is <1 % therefore long-term nutrient nitrogen enrichment impacts can be considered insignificant.

Acidification

The acid deposition critical load values of 1.1 kEq/ha/yr (Min N), 5.1 kEq/ha/yr (Max N) and 4.0 kEq/ha/yr (Max S) have been assumed for SSSI Cosmeston Lakes. The maximum total acid deposition process contribution is >1 % (1.3 %) and PEC is <70 % (5.0 %) of the critical load function therefore long-term acid deposition impacts can be considered insignificant.

Smothering

See above for impacts from nutrient enrichment and acidification.

- (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 **SSSI Cog Moors**.
- (ii) The proposed permission is **not likely to damage** any of the flora, fauna or geological or physiological features which are of special interest at **SSSI Cosmeston Lakes**.

Natural Resources Wales is minded to:
Issue the permission

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| 12.Name and job title of Natural Resources Wales officer: | Rebecca Williams Permitting Officer, Installations & RSR |
| 13.Date form sent to NRW conservation/ecology | 20/04/2020 |
| 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 |
| 15.Name and job title of NRW conservation/ecology officer: | Miguel Ortuno-Sanchez Officer 2 – Cardiff and Vale Environment Team |
| 16.Date of receipt of NRW conservation/ecology response: | 4-5-20 |