

Chapter Thirteen

ECOLOGY

INTRODUCTION

13.1 This chapter represents an addendum to the Ecology ES Chapter submitted by Savills in October 2008 in support of the planning application for Enviroparks (Hirwaun) Limited. The ES Addendum Chapter should be read in conjunction with Chapter 13: Ecology of the original ES. This addendum chapter has been produced to assess the potential for significant ecological effects relating to design changes to Phase 2 of the proposed development.

DEVELOPMENT PHASE 2 DESIGN CHANGES

13.2 Since the submission of the 2008 ES there have been changes to the proposed development. In summary, the main differences between the development approved in 2010 and the amended scheme applied for now are as follows.

- It is proposed that the gasification yard, pyrolysis building and engine house all shown separately in the 2010 scheme should all be consolidated into a single building. This would be achieved by raising the height of the consented but unbuilt building on the Fifth Avenue frontage of the site by two metres to an eaves height of 14.1 metres and a ridge height of 16.1 metres to accommodate a Fuel Storage Hall and Turbine Hall, and building a Gasification Hall to the north of this revised building, extending towards the centre of the site, with an eaves height of 16.5 metres and a ridge height of 18.5 metres.
- Raising the height of the consented but unbuilt emissions stack at the centre of the site from 40 metres to 45 metres to ensure the effective dispersion of atmospheric emissions without interference to air flow from the proposed Gasification Hall beneath. The stack would also be increased in diameter from 2.5 metres to a maximum 3.5 metres, which will enhance both its operational performance and structural integrity.
- Deletion of the consented anaerobic digestion tanks inside the western boundary of the site. This is because a similar facility has opened at Bryn Pica, nearby.
- The replacement of the consented but unbuilt green wall inside the south-western corner of the site with a belt of tree and shrub planting. The green wall had been proposed to conceal the open gasification yard. However, with the gasifiers located in the proposed Gasification Hall, this requirement falls away.

13.3 This ecology addendum chapter comprises the following:

- Update of the relevant legislation;
- An update of the baseline conditions at the application site, following recent ecological surveys;
- A review of the findings of the 2008 ecology chapter; and
- An updated impact assessment following design changes proposed in the current planning applications by EWL.

Information sources

2008 EIA:

13.4 This addendum chapter will consider the ecological baseline findings and impact assessment submitted within 2008 EIA. This assessment was supported by the following ecological studies.

- A Desk Study and an Extended phase 1 habitat Survey including an assessment of habitat suitable for protected species;
- The results of surveys for protected species for badgers, bats, breeding birds, great crested newts, marsh fritillary, reptiles, otters and water voles;
- Information and data gathered from any previous ecological works;
- Evaluation of the Application Sites in terms of its value to nature conservation;
- Assessment of the effects of construction and operation of the proposed development on the Application Sites existing ecological features;
- Recommendations for mitigation measures;
- Identification of residual effects once the appropriate mitigation measures were taken into account.

Additional Ecological Studies:

13.5 Since submission of the 2008 EIA, a number of additional Ecological Studies have been undertaken to comply with planning conditions required by BBNPA and RCTBC. These surveys were undertaken prior to the commencement of construction work for Phase 1 and have been referenced within the updated baseline conditions section detailed within this technical chapter.

- Arboricultural Survey (report ref: PF R57006004) including a Tree Protection Plan (drawing ref: D57006V102).
- Wildlife Protection Plan (report ref: R57006005) to provide the necessary protection measures to ensure the conservation status of habitats and species during construction.
- Reptile presence/absence surveys completed in 2008, 2012 and 2014 and a Reptile Mitigation Strategy was produced (report ref: R57006V001).
- Reptile translocation within the Site was completed in 2012 and 2014 to agreed refuge areas as detailed in the Reptile Mitigation Strategy (report ref: R57006V001).
- Erection of reptile fencing along the boundary of the Temporary Wildlife Protection Area (TWPA) (drawing ref: D57006V104) and subsequent alterations.
- Supervision of the erection of the perimeter security fencing to minimise effects on trees (August 2016).
- Ground works including ground breaking, soil spreading and seed spreading to improve the quality of reptile habitat within the TWPA.

Assessment methodology

13.6 This addendum chapter follows the methodology set out in chapter 13 of the 2008 EIA.

13.7 As a result of the field surveys and ecological data gathered for the Application Site and adjacent habitats, the ecological features were evaluated in terms of their nature conservation value using the criteria set out in The Institute of Ecology and Environmental management (IEEM) 'Guidelines for Ecological Impact in the United Kingdom' (Ref/ 13.3)

13.8 With respect to the assignment of a value for habitats and species within the Application site, the guidelines state that tabulated boundaries between different values become difficult to define within precision due to the range of factors influencing the definition of value e.g. habitat quality, geographic location, size of populations etc. Thus the guidelines suggest an approach involving professional judgement based on available guidance and information and expert advice.

13.9 The value of an ecological resource has been determined within a defined geographical context. The following frame of reference has been used: International; UK; National (e.g. Wales); Regional (e.g. South-Wales); County (e.g. Powys); District (e.g. Rhondda Cynon Taff); Local; and, within Zone of Influence (e.g. project site of immediate area). Using this geographical context, the value of habitats or species can be assessed using the criteria outlined in Table 13.1.

13.10 Once the value of an ecological resource has been determined the significance of the effect on the resource can be assessed. The IEEM guidelines define a significant impact in the ecological terms as '*...an impact (adverse or positive) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative impacts.*'



Table 13.1: Guidance on determining the nature conservation value of features (after IEEM Guidelines for Ecological Impact Assessment, 2006)

| Value | Scale | Criteria |
|------------|-------------------------|--|
| Very High | International | High importance and rarity. International scale and limited potential for substitution (e.g. SAC, SPA, Ramsar sites) |
| High | UK/ National | High importance and rarity, national scale or regional scale with limited potential for substitution. (e.g. SSSI or National Nature Reserve) |
| Medium | Regional/County | High or medium importance or rarity, local or regional scale and (limited) potential for substitution (Local Nature Reserves, county wildlife sites) |
| Low | District / Local | Low or medium importance and rarity, local scale such as hedges, woodlands and ponds. |
| Negligible | Within Zone of Interest | Very low importance and rarity. Examples include areas of built development, amenity grassland, rye-grass leys or arable fields. |

13.11 Following the collation of the ecological baseline information, the likely effects of the Proposed Development were assessed, based on the existing knowledge of the design and against the criteria provide in Table 13.2.

13.12 The assessment of the potential effects of the Proposed Development takes into account both on-site and off-site effects, such as those that may occur on adjacent areas of ecological value. Effects can be permanent or temporary and can include direct loss of wildlife habitats, fragmentation and isolation of habitats, disturbance to species, changes to key features and changes to the local hydrology and/or water quality.

13.13 The significance of an adverse effect (or a beneficial result) is the product of magnitude of the effect and the value or sensitivity of the ecological feature affected (see Table 13.1). High levels of significance are generally ascribed to large effects on features of high nature conservation value. Low levels of significance are ascribed to small effects on features of high nature conservation or large effects on features of lower nature conservation value as shown in Table 13.2.

13.14 The effects can be either beneficial, where there is an advantageous or positive effect on the environmental resource or receptor, or adverse, where there is a detrimental or negative effect on the environmental resource or receptor. Using the terms outlined above and in Table 13.2 the criteria presented in Table 13.3 has been used to assess the significance of adverse and beneficial effects in ecological resources or receptors.

Table 13.2: Significance matrix

| | | Magnitude of Impact | | |
|-------------------|---|-----------------------|---------------------|---------------------|
| | | High | Medium | Low |
| Value of Receptor | Very high to High (International/UK/England) | Major | Major/ Moderate | Moderate |
| | Medium (County/Regional) | Major / Moderate | Moderate | Moderate / Minor |
| | Low (Local/District) | Moderate | Moderate / Minor | Minor |
| | Zone of Influence (Site or Immediate Area) | Minor / Negligible | Negligible | Negligible |

Table 13.3 Likely significance effects criteria

| Effect | Criteria |
|------------------|---|
| Major Adverse | <p>Loss of, permanent damage to or adverse impact on integrity of any part of a site of international or national importance;</p> <p>Loss of a substantial part of key feature of a site of county importance;</p> <p>Loss of favourable conservation status (FCS) of a legally protected species;</p> <p>Loss or damage to a population of nationally rare or scarce species.</p> |
| Moderate Adverse | <p>Temporary disturbance to a site of international or national importance, but no permanent damage;</p> <p>Loss of or permanent damage to any part of a site of county importance;</p> <p>Loss of a key feature of local importance;</p> <p>A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable;</p> <p>Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or county level.</p> |
| Minor Adverse | <p>Temporary disturbance to a site of county value but no permanent damage;</p> <p>Loss of, or permanent damage to, a feature within some ecological value in a local context but has no nature conservation designation;</p> <p>A minor impact on legally protected species but no significant habitat loss or reduction or reduction in FCS;</p> <p>A minor impact on populations of nationally rare or scarce species or species that are notable at a regional or county level.</p> |

| Effect | Criteria |
|---------------------|--|
| Negligible | No effects on sites of international, national or county importance; Temporary disturbance or damage to a small part of features of local importance; Loss of or damage to land of negligible nature conservation value; No reduction in the population of legally protected, nationally rare nationally scarce or notable (regional/county level) species on the site or its immediate vicinity. |
| Minor Beneficial | A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before or where new habitats exceeds in area the habitats lost. |
| Moderate Beneficial | Larger scale new habitats (e.g. net gains over 1ha in area) created leading to significant measureable gains in relation to the objectives of biodiversity action plans. |
| Major Beneficial | Major gains in new habitats (net gains of at least 10ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the habitats Directive or Annex I of the Birds Directive. |

LEGISLATION UPDATE

13.15 There have been changes to the legislation in relation to ecology and nature conservation since the 2008 ES was prepared.

13.16 The most notable of these is the Conservation of Habitats and Species Regulation 2010. This legislation has been introduced to consolidate the various amendments made to the Conservation (Natural Habitats) Regulation 1994.

13.17 The Conservation of Habitats and Species Regulations 2010 protects animals listed on Schedule 2 and plants listed on Schedule 5 of the Wildlife and Countryside Act, also known as European Protected Species. The Regulations allow the designation and protection of Special Areas of Conservation (SACs), Special Protection Areas (SPA's) and RAMSAR sites. These are collectively known as Natura 2000 sites. A development which would have an adverse effect on the conservation interests for which a Natura 2000 area has been designated should only be permitted where:

- there is no alternative solution;
- and there are imperative reasons of over-riding public interest, including those of a social or economic nature.

13.18 Where a priority habitat or species (as defined in Article 1 of the Habitats Directive) would be affected, prior consultation with NRW is required unless the development is necessary for public health or safety reasons. These conditions also apply to any European Protected Species that may be present.

13.19 The Environment (Wales) Act 2016 has been introduced to serve a number of purposes, with Section 6 being relevant to biodiversity and is known as the Biodiversity and resilience of Ecosystems Duty. The Act outlines the duties of the Public Authority to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.

13.20 Actions that could be considered to comply with Section 6 of the Act include using native trees and shrub planting, the provision of nest sites and bat boxes, and allowing areas of grassland to grow to provide for invertebrates and birds.

13.21 These legal and policy changes have been considered in the revised scheme impact assessment.

BASELINE CONDITIONS

Designations

13.22 The 2008 ES Chapter assessed the effects of the proposed development on designated sites within 2km of the of the Application site. There are five statutory designated sites within 2km and include:

- Blaen Cynon Special Area of Conservation (SAC) approximately 100m to the east;
- Cors Bryn-y-Gaer Site of Special Scientific Interest (SSSI) approximately 100m to the east;
- Woodlands Park and Pontpren Site of Special Scientific Interest (SSSI) approximately 700m to the north-east;
- Coedydd Nedd a Melte Special Area of Conservation (SAC) approximately 1.1km to the west; and,
- Dyffrynoedd Nedd a Melte a Moel Penderyn Site of Special Scientific Interest (SSSI) approximately 1.1km to the west.

Habitats

13.23 The habitats present within the Application Site remain broadly unchanged since the 2008 ES chapter. Full descriptions of these habitats can be found within Chapter 13 of the 2008 ES and consist of:

- Bare ground;
- Broad-leaved plantation;
- Broad-leaved semi natural woodland;
- Dense scrub;
- Dry ditch;
- Fence;

- Hardstanding;
- Introduced shrub;
- Marshy grassland;
- Running water;
- Scattered broad-leaved trees;
- Scattered scrub; and,
- Semi-improved neutral grassland.

13.24 Since the submission of the 2008 ES, construction works for Phase 1 are largely completed with the exception of the Phase 1 car park.

13.25 A reduced temporary SUDS attenuation swale was constructed as part of Phase 1, which will be replaced by the full scale attenuation and landscape area along the southern boundary which was identified in the original consented site plan. This will be constructed as part of the phase 2 works and will provide the required mitigation for the loss of reptile and amphibian habitat elsewhere on the Site.

13.26 During Phase 1, mitigation was provided for reptiles and amphibians through good quality habitat being retained within the TWPA.

13.27 Additional works during 20015/16 impacted part of the TWPA, resulting in the need to modify the TWPA perimeter.

13.28 Additional mitigation works were undertaken during August and September 2016 to ensure that habitat for reptiles and amphibians was, and continues to be adequately protected.

SUMMARY OF THE 2008 IMPACT ASSESSMENT

13.29 Chapter 13: Ecology of the 2008 ES concluded that *'with appropriate mitigation, the ecological effects resulting from the proposed Development will primarily be negligible to minor adverse at a site to County level. The inclusion of habitats within the Landscape Zone will result in predominantly minor beneficial effects at a local level'*.

13.30 The residual operational effects of the proposed development on statutory sites of nature conservation and ancient woodlands after appropriate mitigation were assessed as being negligible.

13.31 The residual operational effects of the Proposed Development on habitats after appropriate mitigation were assessed as being negligible with the exception of adjacent habitats and habitats in landscaping areas from the increase in traffic and exhaust, and the local ecosystem, which were assessed as being minor adverse. Landscaping areas were assessed as having a permanent reversible minor beneficial impact.

13.32 The residual operational effects of the proposed development on species after appropriate mitigation were assessed as negligible.

On-site effects

13.33 The likely significant ecological effects of the amended scheme layout, now proposed, have been assessed based on the baseline conditions at the proposed development site,

13.34 Changes to the development layout are within the footprint of the previous scheme. Effects on species and habitats within the site are therefore unlikely to change.

13.35 Planning conditions for the original scheme included the requirement to produce a Wildlife Management Plan for the site, detailing how all of the recommended ecological mitigation measures would be implemented. This Wildlife Management Plan has now been operational for over two years. It is recommended that the Wildlife Protection Plan is updated to allow for the layout changes within the site and any alteration to the construction phases. Additional mitigation measures might be required and will be implemented as necessary.

13.36 The amended development proposed in the current planning application do not affect the northern portion of the site. Accordingly, neither the Provisional Wildlife Protection Area nor the Temporary Wildlife Protection Area would be affected. Suitable protection measures have been agreed with BBNPA and these will be implemented prior to the commencement of construction.

Off-site effects

13.37 At present the effects of pollutant deposition upon surrounding ecologically sensitive sites has not been undertaken. A summary of the air quality impact assessment, relating to statutory protected sites is detailed below. This assessment is detailed in full in Chapter 9.

13.38 Air quality modelling has been undertaken for the new scheme. Previously no significant adverse effects had been predicted on any of the nearby statutory protected nature conservation sites. The 2016 Air Quality Dispersion model is presented in Appendix 9.6. This has been undertaken to address changes to the proposed design.

13.39 Air quality emissions within 10km of Statutory Protected Sites (SPAs, SACs, Ramsar sites and SSSIs) must meet both of the following criteria if they are to be assessed as insignificant and therefore not requiring further assessment:

- the short-term Process Contribution (PC) is less than 10% of the short-term environmental standard for protected conservation areas;
- the long-term PC is less than 1% of the long-term environmental standard for protected conservation areas.

13.40 The proposed stack at the centre of the Enviroparks site is 45m high and would be fitted with abatement systems including selective non-catalytic reduction for the reduction of NO_x, lime dosing for the reduction of acid gases, and activated carbon dosing for the reduction of dioxin and heavy

metals discharges. These levels have been modelled at 25 protected sites within a 10km radius of the Enviroparks site.

13.41 The Air Quality Assessment predicts that this should reduce NO_x levels (as NO₂) by more than 75% at the nearby Blaen Cynon Special Areas of Conservation (SAC) and over 50% at Coedydd Ned a Mellte SAC. Small increases in NO_x are expected at Cwm Cadlan and Bryn Bwch but these are well below 1% of the Air Quality Standard.

13.42 However, the effect of the proposed emissions cleaning process and the corresponding reduction in NO_x will be to deposit small quantities of ammonia at the Blaen Cynon and Cwm Cadlan SACs. Ammonia did not form part of the emissions from the currently consented scheme because no physical abatement techniques were used, and so was not modelled within the 2008 ES or the additional information which was provided in 2009.

13.43 As noted in the dispersion modelling report, the presence of ammonia within the flue gas is a function of the inclusion of selective non-catalytic reduction techniques to abate emissions of Oxides of Nitrogen. Such abatement was considered for the original scheme but was not included. However, under the current proposals this abatement method is proposed because it is considered to represent Best Available Techniques for the gasification technologies now proposed.

13.44 Ammonia levels are at 0.34% at the Coedydd Ned a Mellte SAC and less than 0.2% at all other sites within a 10km radius of the Enviroparks Site, and are therefore not considered to be significant.

13.45 The deposition of ammonia at Blaen Cynon SAC is expected to be at a rate of 1.27% of the Air Quality Standard (AQS). At Cwm Cadlan the expected rate will be 1.04% of the AQS. The Air quality assessment considers any rate in excess of 1% of the AQS as being 'not insignificant'.

13.46 The long term Process Contribution for NO_x at Blaen Cynon and Cwm Cadlan is than 1% so it has been necessary to calculate the Predicted Environmental Concentration (PEC) at these locations. These levels are then checked against the standard for European Protected Sites. While the long term PC is greater than 1% at these two sites, the PEC is less than 70% of the Environmental Standard. At these levels no further assessment is required.

13.47 The air dispersion modelling shows that the cumulative impacts of total nitrogen (NO_x and NH₃ combined) remain low at the protected sites. The dry deposition of total nitrogen as a percentage of Lower Critical load is 4.58% at Blaen Cynon and less than 1% at other sites. This would suggest that the overall combined effect for nitrogen deposition would not increase from the levels reported previously. These figures imply that the significance of the impact of total nitrogen on the protected sites remains of negligible significance.

13.48 The predicted levels of arsenic and cadmium at Blaen Cynon SAC remain in excess of 1% of AQS, however the updated design is predicted to reduce these levels approximately 50% from the previous approved scheme. The updated design therefore represents an improvement.

13.49 In accordance with the Habitat Regulations (Conservation of Habitats and Species Regulations 2010), an Appropriate Assessment must be undertaken where a project has the potential to result in adverse impacts upon on a European Protected Site(s). An Appropriate Assessment will

be required for the proposed development to determine the level of effects on Blaen Cynon SAC, Cwm Cadlan SAC, and Coedydd Nedd a Melte SAC.

SUMMARY

13.50 The background figure for air pollutants far outweighs any process contribution from the proposed development. There will be no significant effect on the integrity of the SAC from the operation of the plant.

13.51 The air pollutant levels at Cwm Cadlan SAC and Coedydd Ned a Mellte SSSI will not affect their integrity.

13.52 Existing mitigation measures will be adequate with respect to on and off-site requirements as detailed in the previous planning conditions and obligations from both local authorities. These include a financial contribution of £205,031 that EWL has made to the conservation group Butterfly Conservation for the management of local grassland habitats.

13.53 There are not considered to be any revised construction impacts from the proposed development.

13.54 The revised Residual Impacts of the operational phases of the Proposed Development have been summarised below in Table 13.4.

Table 13.4: Summary of findings

| Site | Previous Residual Impact from original development | Impact from new development | Updated Mitigation | Updated residual impact from development |
|---|--|---|---|---|
| Completed development (Operational Effects) | | | | |
| Effects on Statutory Sites of Nature Conservation Importance | | | | |
| Blaen Cynon SAC | Probable negligible impact at international level | Deposition of ammonia and NO _x | Continue mitigation proposals as in previous ES and planning obligations currently in place | Probable negligible impact at international level |
| Cwm Cadlan SAC | Probable negligible impact at international level | Deposition of ammonia and NO _x | Continue mitigation proposals as in previous ES and planning obligations currently in place | Probable negligible impact at international level |

| Site | Previous Residual Impact from original development | Impact from new development | Updated Mitigation | Updated residual impact from development |
|---|--|---|---|---|
| Cors Bryn-y-Gaer SSSI | Probable negligible impact at national level | Deposition of ammonia and NO _x | Continue mitigation proposals as in previous ES and planning obligations currently in place | Probable negligible impact at national level |
| Coedydd Nedd a Melte SAC & SSSI | Probable negligible impact at international level | Deposition of ammonia and NO _x | Continue mitigation proposals as in previous ES and planning obligations currently in place | Probable negligible impact at international level |
| Woodlands park and Pontpren SSSI | Probable negligible impact at national level | Deposition of ammonia and NO _x | Continue mitigation proposals as in previous ES and planning obligations currently in place | Probable negligible impact at national level |
| Dyffrynoedd Nedd a Melte a Moel Penderyn SSSI | Probable negligible impact at national level | Deposition of ammonia and NO _x | Continue mitigation proposals as in previous ES and planning obligations currently in place | Probable negligible impact at national level |