



Department for
Business, Energy
& Industrial Strategy

Kemsley Mill K4 Combined Heat and Power Generating Station Development Consent Order

Regulation 63 of the Conservation of
Habitats and Species Regulations 2017,
and

Regulation 28 of the Conservation of
Offshore Marine Habitats and Species
Regulations 2017

June 2019

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4.0 Habitats Regulations Assessment Overall Conclusions

1.0 Introduction

1.1 Background

1.1.1 This is a record of the Habitats Regulations Assessment (“HRA”) that the Secretary of State for Business, Energy and Industrial Strategy (“the Secretary of State”) has undertaken under the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”) and the Offshore Marine Conservation (Natural Habitats and Species) Regulations 2017 (“the Offshore Habitats Regulations”) in respect of the Development Consent Order (“DCO”) for the Kemsley Mill K4 Combined Heat and Power Generating System (the “Project”). For the purposes of these Regulations the Secretary of State is the competent authority.

1.1.2 The DCO, as applied for, would grant development consent for the construction and operation of a gas fired Combined Heat and Power (“CHP”) generating station with a gross electrical generating capacity of up to 73 MW and a steam generating capacity of 105MWth. The project would be located on land within the boundary of the Kemsley Paper Mill, near Sittingbourne in Kent. The Project would comprise:

- Work No. 1 – the construction of one combined cycle K4 generating station including one gas turbine and a heat recovery steam generator and additional plant components;
- Work No. 2 – the retention, connection into and continued use of a range of on-site existing infrastructure systems within the Mill complex including water pipework, water treatment plants, six package boilers and surface water outfalls, electricity and gas grid connections, a control room and fire pumps;
- Work No. 3 – a construction compound and laydown area;
- Work No. 4 – the retention and continued use of internal access and haulage road;
- Work No. 5 – the decommissioning (though not the removal) of the existing gas-fired, CHP generating station (K1); and
- miscellaneous works such as site clearance, temporary vehicle parking, construction fencing, the relocation of existing below ground apparatus (for example, drains and cabling).

1.1.3 The Project constitutes a nationally significant infrastructure project (“NSIP”) as defined by s.14(1)(a) of the Planning Act 2008 as it is a generating station with a capacity of over 50MW.

1.1.4 The Project was accepted by the Planning Inspectorate (“PINS”) on 26 April 2018 and Kevin Gleeson BA MCD MRTPI was appointed as the Examining Authority (“ExA”) for the application. The Examination of the Project application began on 17 July 2018 and was completed on 8 January 2019. The ExA submitted its report of the Examination, including its recommendation (“the ExA’s Report”), to the Secretary of State on 8 April 2019.

1.1.5 The Secretary of State’s conclusions on habitats and wild birds issues contained in this report have been informed by the ExA’s Report, amongst the other information sources described in section 1.3.

1.2 Habitats Regulations Assessment (HRA)

1.2.1 Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (“the Habitats Directive”) and Council Directive 2009/147/EC on the conservation of wild birds (“the Birds Directive”) aim to ensure the long-term conservation of certain species and habitats by protecting them from possible adverse effects of plans and projects.

1.2.2 The Habitats Directive provides for the designation of sites for the protection of habitats and species of European importance. These sites are called Special Areas of Conservation (“SACs”). The Birds Directive provides for the classification of sites for the protection of rare and vulnerable birds and for regularly occurring migratory species within the EU. These sites are called Special Protection Areas (“SPAs”). SACs and SPAs are collectively termed “European sites” and form part of a network of protected sites across Europe. This network is called Natura 2000.

1.2.3 The Convention on Wetlands of International Importance 1972 (“the Ramsar Convention”) provides for the listing of wetlands of international importance. These sites are called Ramsar sites. Government policy is to afford Ramsar sites in the United Kingdom the same protection as European sites.

1.2.4 In the UK, the Habitats Regulations transpose the Habitats and Birds Directives into national law as far as the 12 nautical mile (“nm”) limit of territorial waters. Beyond territorial waters, the Offshore Habitats Regulations serve the same function for the UK’s offshore marine area.

Regulation 63 of the Habitats Regulations 2017 provides that:

....before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in-combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, [the competent authority] must make an appropriate assessment of the implications for that site in view of that site’s conservation objectives.

And that: In the light of the conclusions of the assessment, and subject to regulation 64 [IROPI], the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

Regulation 28 of the Offshore Habitats Regulations contains similar provisions:

Before deciding to undertake, or give any consent, permission or other authorisation for, a relevant plan or project, a competent authority must make an appropriate assessment of the implications of the plan or project for the site in view of that site’s conservation objectives.

And that:

In the light of the conclusions of the assessment, and subject to regulation 29 [IROPI], the competent authority may agree to the plan or project only if it has ascertained that it will not adversely affect the integrity of the European offshore marine site or European site (as the case may be).

1.2.5 This application is not directly connected with, or necessary for, the management of a European site or a European marine site. The Habitats Regulations require that, where the

project is likely to have a significant effect (“LSE”) on any such site, alone or in-combination with other plans and projects, an appropriate assessment (“AA”) is carried out to determine whether or not the project will have an adverse effect on the integrity of the site in view of that site’s Conservation Objectives. In this document, the assessments as to whether there are LSEs, and, where required, AAs, are collectively referred to as the HRA.

1.3 RIES and Statutory Consultation

1.3.1 Under the Habitats Regulations and the Offshore Habitats Regulations the competent authority must, for the purposes of an AA, consult the appropriate nature conservation body and have regard to any representation made by that body within such reasonable time as the authority specifies.

1.3.2 Natural England (“NE”) is the Statutory Nature Conservation Body (“SNCB”) for England and for English waters within the 12 nm limit. The Joint Nature Conservation Committee (“JNCC”) is the SNCB beyond 12 nm, but this duty has been discharged by NE following the 2013 Triennial Review of both organisations (Defra, 2013). However, JNCC retains responsibility as the statutory advisor for European Protected sites that are located outside the territorial sea and UK internal waters (i.e. more than 12 nm offshore) and as such continues to provide advice to NE on the significance of any potential effects on interest features of such sites.

1.3.3 The ExA prepared a Report on the Implications for European Sites (“RIES”), with support from the Planning Inspectorate’s Environmental Services Team. The RIES was based on matrices provided by the Applicant and relevant information provided by Interested Parties. The RIES documented the information received during the Examination (up until 22 October 2018) and presented the ExA’s understanding of the main facts regarding the HRA to be carried out by the Secretary of State.

1.3.4 The RIES was published on PINS planning portal website and the ExA notified Interested Parties that it had been published. The RIES was issued to ensure that Interested Parties, including the SNCBs, were consulted formally on habitat regulations matters, as required under regulation 63(3) of the Habitats Regulations and regulation 28(4) of the Offshore Habitats Regulations.

1.3.5 The Secretary of State is content to accept the ExA’s recommendation that the RIES, and consultation on it, represents an appropriate body of information to enable the Secretary of State to fulfil his duties in respect of European sites.

1.3.6 In addition to the RIES, this HRA was compiled using evidence from the application documents and consultation responses, which are available on the Planning Inspectorate’s Nationally Significant Infrastructure Project web pages. Key documents include the Kemsley Mill K4 Combined Heat and Power Generating Station: No Significant Effects HRA Report (“NSER”), which was submitted as part of the Application, and the HRA Report (HRAR), which was submitted at Deadline 2 of the examination. Amendments were made to this report at Deadline’s 5 and 6. Information from these documents is summarised and referenced in this report.

2.0 Likely Significant Effects

2.1 Background

2.1.1 Under regulation 63 of the Habitats Regulations and regulation 28 of the Offshore Habitats Regulations, the Secretary of State must consider whether a development will have an LSE on a European site, either alone or in combination with other plans or projects.

2.1.2 The following assessment addresses only the construction and operation of the Project. The Secretary of State recognises that powers are in place for decommissioning effects of K4 to be addressed fully by the relevant authorities prior to decommissioning, and in light of more detailed information on decommissioning processes and environmental conditions at that time. The Secretary of State therefore considers that it is reasonable not to include a detailed discussion on the decommissioning effects of K4 in this report and notes that decommissioning is not a barrier to the application being granted.

2.2 Likely Significant Effects Assessment

2.2.1 The Applicant used a 10km radius from the development to identify the European Sites for assessment. Due to the 10km limit, no transboundary sites were taken forward for assessment. The use of a 10km radius follows air emission guidance published by the Department for Environment, Food & Rural Affairs (“DEFRA”) and the Environment Agency (“EA”). All sites identified within this radius are listed below.

- The Swale Special Protection Area (SPA);
- The Swale Ramsar site;
- Medway Estuary and Marshes SPA;
- Medway Estuary and Marshes Ramsar site;
- Thames Estuary and Marshes SPA;
- Thames Estuary and Marshes Ramsar site;
- Queendown Warren Special Area of Conservation;
- Outer Thames Estuary SPA

2.2.2 Qualifying features and Conservation Objectives were provided by the Applicant in its HRAR.

2.2.3 For each of the above listed sites, the Applicant assessed whether the following impact pathways would occur during the construction and operation of the Project. An assessment was then made to determine if an occurring impact pathway would be likely to have a significant effect on the European site. The comments below summarise this assessment.

Direct loss or damage of habitats used by interest features

2.2.4 The Project will not cause any direct loss or damage of habitats used by interest features because the Project site already consists of hard standing. Therefore, this impact pathway will not result from the Project alone and by extension in-combination effects can also be ruled out.

Change in Habitat Management Regime

2.2.5 Habitat Management Regimes will be unaffected due to the distance between the Project and all of the European sites identified. Therefore, this impact pathway will not result from the Project alone and by extension in-combination effects can also be ruled out.

Loss of future space to allow for managed realignment

2.2.6 The Project will not cause loss of land for managed realignment. Therefore, this impact pathway will not result from the Project alone and by extension in-combination effects can also be ruled out.

Urbanisation

2.2.7 The Project will not increase urbanisation given the Project's location in an existing backdrop of industrial buildings. Therefore, this impact pathway will not result from the Project alone, and by extension in-combination effects can also be ruled out.

Air Quality Dust

2.2.8 Dust will be generated during construction of the Project, but not during operation. It is anticipated that the majority of dust generated during construction would be deposited in the area immediately surrounding the source (up to 50m away) and that no change in the level of exposure is expected beyond 300m from the site. The only European site within 300m of the Project is the Swale SPA and Ramsar. A significant effect on this SPA cannot be excluded without further assessment or mitigation. Dust from construction is not likely to have an effect on any other European sites as no others lie within 300m.

Air Quality Transport

2.2.9 According to the Department for Transport's Transport Analysis Guidance, the contribution of vehicle emissions from the roadside to local pollution levels is not significant beyond 200m from a road¹. No European sites lie within this radius so it can be concluded that this impact pathway will not result from the Project alone and by extension in-combination effects can also be ruled out.

Air Quality Emissions

2.2.10 The Applicant's approach to the assessment of air quality emissions was described in Appendix 5.4 of the ES and the HRAR. Further clarification was provided in a letter to the Secretary of State dated 7 June 2019²³.

2.2.11 Central to the Applicant's assessment were the Applicant's air emission modelling outputs (dispersion modelling), which included a contribution from K1 with the contribution of K4 then added on top of this, essentially double counting the emissions. As K4 is a more efficient replacement of K1, any in-combination effects on designated sites with other plans and projects will be less than any impacts currently experienced, once K1 ceases to function.

2.2.12 Notwithstanding this eventual decrease in overall effect, the Applicant modelled the concentrations of pollutants (Nitrous Oxides (NOx), Nitrogen Deposition (derived from NOx) and Acid Deposition (derived from NOx)) at each European site.

¹ Department for Transport. (2009). Transport Analysis Guidance – WebTAG Unit 3.3.3: Local Air Quality

² <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010090/EN010090-000785-Kemsley%20Mill%20CHP%20Generating%20Station%20HRA%20Consultation%20Letter%20of%2023%20May%202019.pdf>

³ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010090/EN010090-000787-RPS%20Technical%20Note%20re%20BEIS%20Question%20dated%2023.05.19.pdf>

2.2.13 Two key outputs modelled were the predicted environmental concentration of each pollutant (“PEC”) and the development’s process contribution (“PC”) to that.

2.2.14 Information about the relative sensitivity to the modelled air pollutants of the European sites’ qualifying interest habitats and plant species, and habitats supporting qualifying interest fauna species, was then obtained from the Air Pollution Information System (“APIS”).

2.2.15 The critical levels and critical loads, used as tools for helping to assess the risk of air pollutants on habitats, were obtained from APIS. Critical levels (e.g. for effects from NO_x) are not assessed on a habitat or species-specific basis; rather they are assessed against standards which are applied for all habitat types and locations. For NO_x, these standards are 30 µg m⁻³ as an annual average. Effects relating to acid and nutrient nitrogen deposition are considered on a habitat and species-specific approach, against the specific critical loads listed in APIS.

2.2.16 The screening approach to determine whether the PCs were insignificant, or required further assessment, was undertaken by comparing the PCs, and where necessary PECs, against the percentages of the critical levels / loads as set out in guidance from DEFRA and the Environment Agency called “Air emissions risk assessment for your environmental permit” (“DEFRA/EA Guidance”). This guidance provides a significance criterion of 10% of the relevant short-term benchmark, (critical level and/or critical load), if available, and 1% of the relevant short-term benchmark. If the short-term benchmark is exceeded, further detailed modelling is required. However, the guidance also states that if the long-term benchmark is under 1% of the environmental standard and the PEC is less than 70% of the environmental standard, then emissions are considered to be insignificant, but in-combination effects must still be considered further. This is also the case in situations where the long-term environmental standard is breached but the PEC is calculated to be less than 70%.

2.2.17 The Applicant’s modelling showed that the maximum NO_x PC is below 1% of the critical level for all relevant⁴ European sites except the Swale SPA/Ramsar. However, the PEC for the Swale SPA/Ramsar was calculated to be 47% of the critical level, so whilst the 1% criteria was exceeded, the PEC remained below 70%.

2.2.18 In respect of nitrogen and acid deposition, modelling showed that the PC would be below 1% of all critical loads for all relevant European sites.

2.2.19 To address in-combination effects the applicant described several existing and proposed developments (in addition to K4 and K1) that have the potential to contribute air emissions:

- Kemsley K1;
- Kemsley AD Plant (planning ref SW/11/1291);
- Kemsley K3 SEP (planning ref SW/10/444);
- Advanced thermal conversion and energy facility (planning ref SW/15/500348); and
- Natural gas-fuelled reserve power plant (planning ref 18/500393/FULL); and
- The proposed power upgrade to K3 and Wheelabrator Kemsley North (WKN) Waste to Energy Facility (reference EN010083).

2.2.20 In line with the Applicant’s assessment for the project alone, the in-combination assessment looked at NO_x, nutrient nitrogen and acid deposition at each relevant European site.

⁴ This does not include the Outer Thames SPA because the APIS website the APIS website (www.apis.ac.uk) describes the habitat as inshore sublittoral sediment, which provides wintering habitat for the red-throated diver. APIS states that this habitat is not sensitive to increases in NO_x or nitrogen deposition or acid deposition.

NOx in-combination

2.2.21 Taking the Swale SPA and Ramsar as the nearest designated site, the applicant demonstrated that the combined operational emissions of the above listed plans and projects would result in a PEC of $20.54 \mu\text{g.m}^{-3}$, which is below the critical level of $30 \mu\text{g.m}^{-3}$.

2.2.22 The Applicant did not calculate a PEC for the other more distant designated sites, instead presenting ambient NOx concentrations ("AC") for each site. All ACs were below the critical level of $30 \mu\text{g.m}^{-3}$ (the highest AC was $24.42 \mu\text{g.m}^{-3}$ at Medway Estuary and Marshes SPA/Ramsar). In view of this information it can be ascertained that sufficient headroom exists at these more distant sites before the critical level would be exceeded.

Nutrient Nitrogen Deposition In-combination

2.2.23 The Applicant presented a cumulative PEC for all interest features associated with all relevant designated sites – see the table provided by the Applicant in a letter to the Secretary of State on 7 June 2019.

2.2.24 For the majority of interest features, the cumulative PEC nutrient nitrogen deposition rates were below the minimum critical load and/or the in-combination PC did not exceed 1% of the minimum critical load.

2.2.25 For those interest features where the cumulative PEC was above >70% of the critical load but <100%, the applicant considered that there would be no cumulative effect on the basis that critical loads are defined as " a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge" (definition taken from APIS) and that the critical loads used above are the minimum presented on APIS.

2.2.26 The following exceptions (i.e. where cumulative PEC was above 100% of the critical load) were recorded by the applicant. For each, the Applicant provided a rationale supporting the conclusion that cumulative nutrient nitrogen deposition would not likely to have a significant effect, despite a critical load exceedance:

- **Eurasian reed warbler and reed bunting at The Swale SPA and hen harrier/merlin for the Medway Estuary & Marshes SPA.** These species are associated with both reedbed and grazing marsh habitats within which they breed (in the case of the reed warbler and reed bunting) and forage. Both habitats are not considered very sensitive to nutrient nitrogen deposition; the APIS website incorporates reedbed with other wetland habitats such as marsh and fens. It notes that the minimum critical load for these habitats ($15 \text{ kgN.ha}^{-1}.\text{yr}^{-1}$) is most appropriate at higher latitudes rather than the low latitudes of Kent. Reedbeds are, by their nature, monospecific, dominated by common reed. As such, their susceptibility to competitive exclusion by other graminoid species is low. The upper end of the critical load range is therefore considered more appropriate for these habitats. Using the upper critical load for this habitat of $30 \text{ kgN.ha}^{-1}.\text{yr}^{-1}$ is therefore more appropriate meaning that any cumulative PEC will not exceed the critical load and, as such, cumulative effects in combination with K4 would not be significant. With respect to hen harrier and merlin, the $10 \text{ kgN.ha}^{-1}.\text{yr}^{-1}$ critical load used represents upland habitats (including, heathland) that these species are also associated with elsewhere in the country and that will be naturally more nutrient poor and therefore more susceptible to species composition change due to atmospheric nitrogen input than the grazing marsh habitats over which they forage during winter in Kent. The majority of such habitats within the Medway system are agriculturally-improved and therefore the upper end of the critical load range is therefore considered

more appropriate for these habitats of $30 \text{ kgN}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$. On this basis, any cumulative PEC will not exceed the critical load and, as such, cumulative effects in combination with K4 would not be significant.

- **Breeding little and common tern at the Medway Estuary & Marshes SPA.** In respect of these interest features, the ambient deposition rate already exceeds the minimum critical load. The minimum critical load used is $8\text{-}10 \text{ kgN}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$ listed on APIS as representing acid stable dune grasslands. This is a habitat that both species do breed on in other parts of the country, but it does not occur within the Medway Estuary system; both species instead breed on the many salt marsh islands (Burntwick Island, for example) that occur in the river channel. As such, a more appropriate critical load would be that for early-pioneer salt marsh of $30 \text{ kgN}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$. Using this figure, the cumulative PEC is only circa 48% of the critical load meaning that the cumulative PEC does not exceed the critical load and, as such, cumulative effects in combination with K4 are not significant.
- **Shingle & sea cliff on The Swale Ramsar and Medway Estuary & Marshes Ramsar.** The closest area of this habitat type within the Swale Ramsar site is on the eastern end of the Isle of Sheppey some 12 km from any of the developments considered. While modelling has not been undertaken in this location, given the distance, cumulative effects are considered very unlikely. The data presented in the letter to the Secretary of State (7 June 2019)²³ combines the maximum PCs from each development to give a summed PC. This is highly conservative as there would be very little geographic overlap between where these maximum rates of deposition occurred, especially given the large area of the two sites in question; none of them will occur 12 km from K4. The nearest shingle habitats to K4 within the Medway Estuary & Marshes Ramsar are to the north west, on the north of Deadman's Island and the southern edge of the Isle of Grain where the Medway meets the Thames Estuary & Marshes Ramsar. While some shingle beaches may be potentially susceptible to atmospheric nitrogen inputs, in particular where the shingle is stable and becoming vegetated, the shingle that occurs in these locations within the Medway is mostly tidal, being inundated by sea water on a twice-daily basis. This means that, in this location, they are considered to be insensitive to atmospheric nutrient nitrogen deposition with their nutrient status controlled by that of the inundating tide.

Acid Deposition – In-combination

2.2.27 Whilst acid deposition was modelled for the Project alone, the supporting habitats of the three Ramsar sites in the study area are not sensitive to acid deposition. Therefore, there is no potential for in-combination effects at these sites as they are not sensitive to acid deposition. Similarly, although APIS provides critical load function data for some of the bird interest features of the SPAs, it also notes that there is “no expected negative impact on the species due to impacts on the species' broad habitat” from acid deposition. On this basis, therefore, there are no potential in-combination effects due to acid deposition on any of the SPAs.

2.2.28 Queendown Warren SAC is designated for its orchid-rich calcareous grassland habitat, occurring on a south-facing escarpment of the North Downs. Being calcareous in nature, the soils are inherently very well buffered against acidification with a critical load of $4.856 \text{ keq}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$. The current background acid deposition at this site is $1.1 \text{ keq}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$, meaning that there is substantial headroom before any in-combination effect may occur. Given the distance from the projects considered ($>10 \text{ km}$), and correspondingly small rates of associated acid deposition, there will be no potential for in-combination effects on this site from such deposition.

Air Quality Emissions Conclusions

2.2.29 In view of the ambient concentrations of pollutants at the relevant European sites, the Applicant's modelling outputs and the effect the predicted process contributions on the relevant critical levels and loads, and in view of the rationale provided by the applicant where those critical levels and loads have been exceeded, it can be concluded that this impact pathway from the alone or in-combination with other plans or projects is not likely to have a significant effect, on any European site.

Water Quality

2.2.30 The quality of the water entering Natura 2000 and Ramsar sites is an important determinant of habitat condition and hence the species they support. Poor water quality can have a range of ecological impacts.

2.2.31 Likely significant effects on the Swale SPA/Ramsar site cannot be excluded due to the relatively close proximity of the nearest boundary to the proposed site.

2.2.32 There is a substantially greater separation distance between the proposed site and other designated sites. This means that direct effects on water quality by the Project are either not possible as there is no direct mechanism by which they could occur, or dilution effects mean they would not be significant. This means that they can be screened out, as no likely significant effects alone and in-combination are anticipated.

Hydrological Changes

2.2.33 The Project site is currently drained via a series of drainage channels which are already in place and being used as part of the existing K1. K4 will use the same system. Therefore, no hydrological changes to terrestrial areas of any European site is expected. Therefore, this impact pathway will not result from the Project alone and by extension in-combination effects can also be ruled out.

Disturbance

2.2.34 Disturbance can be caused by activity, recreation, noise and lighting. Because of the relative complexity of these issues, and their ability to have impacts on waterbirds within several hundred metres depending on the nature of the activity and the receptors, likely significant effects due to this impact pathway cannot be excluded at the Swale SPA/Ramsar without further assessment and/or application of mitigation as necessary.

2.2.35 For other designated sites, the separation distances between their boundaries and the proposed site means that disturbance impacts can be screened out, as no likely significant effects are anticipated.

Introduction or spread of non-native invasive species

2.2.36 The movement of people and traffic, as well as importation of material and plants to a site, can result in the introduction of non-native species to a site. The only non-native invasive species currently known to be in the area, though not on the Proposal site, is Japanese Knotweed. No importation of material is required to build K4 and no final planting is proposed that could inadvertently import non-native invasive species to site.

2.2.37 The issue of introducing and spread of non-native species is therefore screened out from further consideration in this assessment on the grounds of not likely to have a significant effect.

2.3 Likely Significant Effects: Secretary of State's Conclusions

2.3.1 On the basis of the above, the Secretary of State considers that the Project is likely to have a significant effect on the Swale SPA and Ramsar when considered alone and in combination with other plans or projects. An AA is required to determine if changes to water quality, increased levels of dust during construction, and increased disturbance during construction will have an adverse effect on these sites.

3.0 Appropriate Assessment

3.1 Appropriate Assessment Methodology

3.1.1 The purpose of this AA is to determine whether or not an adverse effect on the integrity on the Swale SPA and Ramsar can be ruled out as a result of the application alone or in combination with other plans and projects in view of the site's conservation objectives and using the best scientific evidence available.

3.1.2 If the competent authority cannot ascertain the absence of an adverse effect on integrity within reasonable scientific doubt, then under the Habitats Regulations, alternative solutions should be sought. In the absence of an acceptable alternative, the project can proceed only if there are imperative reasons of overriding public interest ("IROPI") and suitable compensation measures identified.

3.2 Swale site description and SPA Conservation Objectives

3.2.1 Due to the protection afforded by the SPA and Ramsar designation, this AA considers both sites together.

3.2.2 The boundary of The Swale SPA/Ramsar site lies 275m to the east of the area covered by the Project.

3.2.3 The Swale Estuary separates the Isle of Sheppey from the Kent mainland. To the west it adjoins the Medway Estuary, to the east the outer Thames Estuary. It consists of a complex of grazing marsh with ditches, intertidal saltmarshes and mud-flats. The grazing marsh is the most extensive in Kent and there is much diversity both in the salinity of the dykes (which range from fresh to strongly brackish) and in the topography of the fields.

3.2.4 The intertidal flats are extensive, especially in the east of the site, and support a dense invertebrate fauna. These invertebrates, together with beds of algae and Eelgrass *Zostera* spp., are important food sources for waterbirds. Locally there are large Mussel *Mytilus edulis* beds formed on harder areas of substrate. The wide diversity of coastal habitats combine to support important numbers of waterbirds throughout the year.

3.2.5 The diverse mix of habitats within the Swale, support internationally important populations of wintering birds. It supports outstanding numbers of waterfowl with some species regularly occurring in nationally or internationally important numbers. The Swale SPA was classified in 1985 and extended in 1993.

3.2.6 During severe winter weather elsewhere, the Swale can assume even greater national and international importance as a cold weather refuge. Wildfowl and waders from many other areas arrive, attracted by the relatively mild climate, compared with continental European areas, and the abundant food resources available.

3.2.7 The Conservation Objectives for the SPA are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- the extent and distribution of the habitats of the qualifying features;
- the structure and function of the habitats of the qualifying features;
- the supporting processes on which the habitats of the qualifying features rely;
- the population of each of the qualifying features; and,
- the distribution of the qualifying features within the site.

3.2.8 As described in Section 2, an AA is required in view of the above conservation objectives, to determine if changes to water quality, increased levels of dust during construction, and increased disturbance during construction will have an adverse effect on these sites.

3.3 Assessment of Increased Levels of Dust during Construction – Project Alone

3.3.1 Whilst studies suggest most dust from construction/demolition of the Project would be deposited in the area immediately surrounding the source (up to 50m, which is outside the boundary of the Swale SPA/Ramsar site), and that no change in level of exposure is expected beyond 300m from the site, this does mean that some impacts are possible within the Swale SPA/Ramsar boundary, which is located 275m to the north east of the Proposal site.

3.3.2 To mitigate this impact, the developer has committed to several measures, as outlined below:

- commitment to the considerate contractor's scheme;
- minimisation of dust generation wherever appropriate (e.g. cutting rather than breaking);
- damping down when conditions require;
- wheel and body washing of vehicles where appropriate; and
- vehicles carrying material to be sheeted as required.

3.3.3 In view of these mitigation measures, the Secretary of State is satisfied that there will be no adverse effect on site integrity of the Swale SPA/Ramsar as a result of the Project's dust emissions during construction.

3.4 Assessment of Increased Levels of Dust During construction – In-combination

3.4.1 No in-combination effects are likely given that dust emissions will be prevented with the above measures in place. An adverse effect in-combination can therefore be ruled out.

3.5 Assessment of Water Quality – Project Alone

3.5.1 Poor water quality can result in a range of impacts. These include:

- at high levels, toxic chemicals and metals can result in immediate death of aquatic life, and can have detrimental effects even at lower levels, including increased vulnerability to disease and changes in wildlife behaviour;
- some industrial chemicals and components of sewage effluent are suspected to interfere with the functioning of the endocrine system, possibly having negative effects on the reproduction and development of aquatic life; and

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- eutrophication, the enrichment of plant nutrients in water, increases plant growth with high levels of macroalgal growth potentially smothering the mudflats used as feeding areas by qualifying bird species. The decomposition of organic matter that often accompanies eutrophication can deoxygenate water. In the marine environment, nitrogen is the limiting plant nutrient and so eutrophication is associated with discharges containing available nitrogen.

3.5.2 Because the Swale SPA/Ramsar site is within 275m of the proposed development, measures are required to prevent the release of contaminated water into the SPA, directly or otherwise.

3.5.3 A site-wide surface water pollution prevention system will be developed to prevent the discharge of any contaminated surface water from the site, as per the details set out in Article 9 of the DCO. The key measures to prevent water pollution are as follows:

- the surface water drainage, including the primary gravity drainage channels and associated systems will remain the responsibility of DS Smith and will continue to use existing drainage channels currently in use for K1;
- appropriate treatment (e.g. settlement) and pollution prevention measures (e.g. interceptors) will be provided to prevent polluted flows from being discharged into any of the designated sites (SPA/Ramsar);
- any chemical storage on site will be suitably bunded; and,
- process water from the Proposed Development will be neutralised in a desiccated sump and transferred to the existing waste water treatment plant within the Mill site. This is operated under an existing permit (EPR BJ7468IC-V009) which sets pH and water temperature limits (amongst others) for discharge into The Swale. The volume of water discharged will not be any higher than the levels of that which currently exist on K1 with all outputs to The Swale monitored regularly under the terms of the existing permit.

3.5.4 Implementation of these measures during construction and operational phases of the Project limits the risk of a significant pollution incident. In view of these mitigation measures, the Secretary of State is satisfied that there will be no adverse effect on site integrity of the Swale SPA/Ramsar as a result of the Project due to changes in water quality.

3.6 Assessment of Water Quality – In-combination

3.6.1 No in-combination effects are likely given that water quality changes will be prevented with the above measures in place. An adverse effect in-combination can therefore be ruled out.

3.7 Assessment of Disturbance – Project Alone

Activity

3.7.1 The movement of people and plant during both the construction phase and operation of the Project may be visible to waterbirds using the intertidal areas of the Swale SPA/Ramsar site. Such activity can disturb birds through causing increased anxiety and flight.

3.7.2 There is a limited potential for disturbance to waterbirds to be caused by activity associated with the Project because:

- the closest part of the Proposal site which could potentially result in activity disturbance is approximately 275m from boundary of the Swale SPA/Ramsar site;

- the nearest intertidal zones of the Swale to the Proposal site already receive a high degree of visual protection from the Proposal site due to the presence of the intervening development;
- concentrations of waterbirds occurring on the opposite shore of the Swale are over 800m from the Proposal site and separated from it by the Swale channel and seawall.
- the reedbed, which supports breeding and roosting Marsh Harrier within the Paper Mill (>400 m from the Project site), is within 100m of the proposed haul road from the laydown area. However, disturbance to Marsh Harrier will be low because:
- the haul road is already heavily trafficked by HGVs associated with the activities of the Paper Mill;
- the regular disturbance from activity on the track way immediately to the north of the reedbed running to the Knauf gypsum jetty. This can involve up to 30 20-tonne tipper lorry movements an hour with vehicles travelling at speed up the private road. No impact (in the form of flight from nest) of such lorry movement on the breeding pair of Marsh Harrier was observed during surveys in either 2009 or more recently in 2016 (RPS 2016); and,
- the fact that marsh harriers are frequently tolerant of human disturbance (Ruddock and Whitfield 2007).

3.7.3 In view of this assessment, the Secretary of State is satisfied that there will be no adverse effect on site integrity of the Swale SPA/Ramsar as a result of general activity associated with the Project.

Recreational Use

3.7.4 The potential for disturbance to SPA/Ramsar Citation species from recreational activities by either construction or subsequent operational staff is considered low. Whilst there is access to the Saxon Shore Way from the wider Kemsley Paper Mill, currently very little or no use is made of this by Kemsley Mill staff. It is possible that there will be increased recreational usage made of the Saxon Shore Way during both construction of the site, as Sittingbourne is within potential travel distance over lunch break. However, Milton Creek is outside the SPA and it anticipated that few if any construction and operational staff will access the Swale SPA.

3.7.5 In view of this assessment, the Secretary of State is satisfied that there will be no adverse effect on site integrity of the Swale SPA/Ramsar as a result of recreational activity associated with the Project.

Noise

3.7.6 The Project site has the potential to generate noise during both site preparation and construction stages, notably as a result of ground clearance, vehicle movements and piling. Very loud noise (which can be defined as greater than 80 dBLA_{max}) and percussive noises have the potential to disturb birds, increasing time spent alert and in flight, reducing the available time to feed and increasing mortality.

3.7.7 Loud but discontinuous noises, as can be produced by machinery during construction processes, have been shown to cause disturbance when that noise is above certain recorded levels.

3.7.8 Birds have been shown to habituate to regular, loud noise events, although this may vary between species.

3.7.9 Short, sharp percussive noise produced during construction processes by for instance the hammering in of metal piles, have also been shown to cause disturbance.

3.7.10 The Swale's reedbed habitat lies close to the Project site and supports breeding (and wintering) Marsh Harrier, which is listed on The Swale SPA as a component species of the breeding bird assemblage

3.7.11 Modelling of the noise levels expected during the loudest operation during construction (percussive impact piling) has been undertaken with contours of anticipated L_{Amax} levels (in dB) plotted. These show that the reedbed that supports the Marsh Harrier would be subject to noise levels between 50 and 55 dBL_{Amax}, which is below the impact threshold. Therefore, it is highly unlikely that noise disturbance during construction would have a significant effect on the Marsh Harrier population.

3.7.12 The other habitat in close proximity to the Project is the intertidal area. The main intertidal areas of the Swale Ramsar/SPA used by wintering citation birds recorded by the foreshore monitoring are over 275m from the source of significant noise events. Modelling of the noise generated by the loudest events during construction (percussive piling) has been undertaken. The highest noise that would be received by birds using the SPA/Ramsar is between 65 and 70 dBL_{Amax}, covering an area of some 20 ha within the designated site.

3.7.13 In order to ensure that birds using this intertidal area are not subject to disturbance that could compromise their ability to survive through increased flight responses, the following piling strategy was agreed with Natural England:

- No impact piling is to take place between the months of January and February inclusive;
- Limited impact piling is permissible in the months of November and December provided that any impact piling activity does not accrue to more than a total of 10 days consecutively or otherwise; and
- Impact piling is permissible unrestricted outside of these time periods.

3.7.14 Under normal operating conditions, the Proposed Development will produce a low hum, rather than any loud, sudden noises that might elicit a disturbance response from nearby interest-feature birds using the intertidal areas of The Swale. It will furthermore not result in noise levels of greater than 55dB L_{Amax} within the SPA.

3.7.15 A noise modelling exercise with respect to the emergency release valve (as the only activity associated with the operation of the Proposed Development that would produce such a noise) showed that, at the nearest point within The Swale SPA/Ramsar, the noise level would be around 69 dBL_{Amax}. While this level is towards the upper end of the impact threshold, it would only occur very infrequently and only in an emergency event. K4 will include an oversized dump condenser that is not present within K1. This will decrease the need to operate the emergency release valve compared to the current situation for K1 (less than 4 times per annum).

3.7.16 Noise generation during demolition will be subject to similar controls on both timing and methodology to ensure a conclusion of no adverse effect can be reached.

3.7.17 In view of the above assessment, and the proposed measures, the Secretary of State is satisfied that there will be no adverse effect on site integrity of the Swale SPA/Ramsar as a result of noise associated with the Project.

Lighting

3.7.18 Lighting during the construction, operational and demolition phases of the proposed development has the potential to disturb the qualifying species of the Swale SPA/Ramsar site. Available research indicates that ecological impacts following introduction of lighting could potentially include:

- disruption of the daily rhythms of some species of plant resulting in changes in growth and flowering times;
- prolonged settling of nocturnal insects resulting in reduced feeding, breeding and egg laying;
- reduced ability of female moths such as the Ground Lackey Moth to attract males and increased mortality of larvae due to delayed or failure to produce wintering pupae; and
- disruption of nocturnal bird behaviour such as roosting and feeding.

3.7.19 Although there is limited data on the extent to which the area covered by the application is used by birds at night, given that the site is currently hardstanding with an existing CHP Plant, it is considered highly unlikely that any SPA/Ramsar citation species would be using the Project site.

3.7.20 Further to this, given the distance of the proposed development to the SPA/Ramsar, and that there is further development between the Project Site and designated sites; light from the proposed development does not have the potential to illuminate either the terrestrial or inter-tidal habitats above that which it is currently. As per the relevant requirement within the DCO, all lighting will be designed as per best practice standards to ensure that no additional light spill above the current situation would occur.

3.7.21 In view of the above assessment, and proposed measures, the Secretary of State is satisfied that there will be no adverse effect on site integrity of the Swale SPA/Ramsar as a result of lighting associated with the Project.

3.8 Assessment of Disturbance – In-combination

3.8.1 No in-combination effects are likely given that the above analysis demonstrates that disturbance from the project alone can be avoided. An adverse effect in-combination can therefore be ruled out.

4 Habitats Regulations Assessment Overall Conclusions

4.1 The Secretary of State has considered carefully all the information presented within the Project application and the representations made by all stakeholders. On the basis of his AA findings he has concluded that the Project, alone and in-combination with other plans or projects, will not have an adverse effect on any European site. This conclusion is consistent with the advice provided by Natural England during the Examination of the Project.