Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations

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Green-winged orchids *Anacamptis morio* on a roadside verge (by kind permission of Mark Meijrink @ http://markmeijrink.wordpress.com)

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Natural England Internal Note on Ways of Working:

Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations

1. Introduction

1.1 This internal operational Guidance Note describes how Natural England advises competent authorities and others on the assessment of plans and projects (as required by the Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations')) likely to generate road traffic emissions to air which are capable of affecting European Sites[1].

The terms used throughout this note are referred to with regard to the Habitats Regulations assessment (HRA) procedure. The meaning of these terms is separate and distinct from the meaning of similar terms associated with Environmental Impact Assessment (EIA) procedures[2]. HRA and EIA can be compared as follows:

Framework	Relevance step	Detailed assessment step
Habitats Regulations Assessment	Likely Significant Effect Test	Adverse Effect Test
Environmental Impact Assessment	Screening	Significance Test

Natural England's Role as Advisor under the Habitats Regulations

1.2 Natural England plays several roles in the implementation of the Habitats Regulations, acting as an advisory 'nature conservation body' under Regulation 5 and as a 'competent authority' as defined under Regulation 7. As a competent authority, Natural England must formally assess new plans or projects which are (a) subject to the section 28 SSSI notice and consent procedures under Regulation 24 and (b) any plans or projects we are planning to undertake ourselves or give our authorisation or permission to under regulation 63.

[1] The term 'European Site' applies here to the following Protected Sites occurring in England; Special Areas of Conservation (SACs), candidate SACs, Special Protection Areas (SPAs), Sites of Community Importance (SCIs), potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified, or required, as compensatory measures for adverse effects on these European sites (see also page 28 of the National Planning Policy Framework 2012 and regulation 8 of the Habitats Regulations 2017.

[2] The EIA of certain projects under the EU Directive (2014/52/EU) on the assessment of the effects of certain public and private projects on the environment as transposed by the UK into various EIA Regulations covering town and country planning, infrastructure planning, forestry, agriculture and marine works (for an overview see https://www.gov.uk/guidance/environmental-impact-assessment)

1.3 This guidance is concerned with Natural England's other role as advisor to other competent authorities, acting as a '*nature conservation body*' according to regulation 5, also referred to in the Regulations as '*the appropriate nature conservation body*'. This definition also includes our sister agencies the Natural Resources Wales and Scottish Natural Heritage.

1.4 It is a statutory requirement under regulation 64(3) for competent authorities to consult Natural England for its views when they are carrying out an Appropriate Assessment (AA) and to '*have regard*' to any representations that we may make. Although there is no statutory requirement at the earlier step of determining 'likely significant effect', we are also likely to be consulted by other competent authorities for a 'screening opinion' or for further advice on the scope of an appropriate assessment, particularly where they do not have access to ecological expertise. This advice is increasingly delivered through Natural England's Discretionary Advice Service.

Who is this Guidance Note for?

1.5 This is internal guidance designed to assist Natural England staff when giving practical and proportionate advice to competent authorities and others about their assessment of the potential impacts from road traffic emissions on the qualifying features of European Sites. This Guidance Note has been prompted by the High Court judgment in Wealden v SSCLG [2017] ('the Wealden Judgment 2017').

1.6 It is worth noting the Dutch courts request for a preliminary ruling from the Court of Justice of the European Union ('CJEU') in C-294/17 on a series of questions relating to the implementation of the Dutch State's national nitrogen strategy[3] in light of the Habitats Directive. Any ruling subsequently provided by the CJEU is also likely to be of interest to the UK and may affect the contents of this guidance.

1.7 This Guidance Note has been drafted to reflect Natural England's current operational approach to advising competent authorities on air quality matters affecting European Sites. External stakeholders should be mindful that this note may be subject to review in light of operational feedback, new authoritative decisions and any subsequent reform of or changes to Natural England's general approach to giving its advice.

[3] See http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:62017CN0294

Why has this guidance note been made public?

1.8 This internal guidance has been made public for general information purposes to explain Natural England's approach to assessing the effects of road traffic emissions on European Sites particularly in light of the Wealden Judgment 2017. This version of Natural England's internal guidance note has been modified to remove references to Natural England internal information sources so that it is clear to an external audience.

1.9 Natural England has provided this general guidance to its staff on the factors to consider when advising a competent authority on the HRA of plans and projects generating road traffic and air pollution effects. It cannot cater for all situations and where local factors or information indicate that it would be inappropriate to rely on this guidance, it advises staff to seek further internal advice and/or advise that the plan or project should progress to appropriate assessment.

1.10 Publication of this internal guidance does not replace the need for competent authorities to consult Natural England where appropriate. Competent authorities and other third parties seeking Natural England's advice in relation to specific plans or projects should continue to consult Natural England in the usual way.

1.11 In addition to this guidance note, competent authorities and other third parties may also wish to seek the expert advice of other relevant statutory bodies as appropriate, such as the Environment Agency, and refer to other technical guidance on air quality matters or the Habitats Regulations Assessment process.

This internal Guidance Note includes Natural England's own interpretation of the law as it applies to air quality matters affecting European Sites. It does not constitute legal or professional advice to competent authorities or to any other third party. No warranty is given nor liability accepted for the contents of this internal Guidance Note. Competent authorities and other parties should seek their own legal advice.

What's covered by this Internal Guidance Note

1.12 This guidance outlines Natural England's approach to advising competent authorities on air quality assessment and identifies data sources to:

- allow competent authorities to have regard to these matters when they undertake their statutory duties and reach their conclusions on Habitats Regulations Assessments
- identify when Natural England is likely to advise no further assessment is required

- identify when Natural England is likely to advise detailed assessment and bespoke advice may be required, and,

- assist Natural England staff when drafting advice on potential impacts from air pollution.

1.13 **This guidance is applicable when Natural England gives its advice on plans and projects involving the following;**

- Emissions from road traffic likely to be generated by new development projects including residential, mixed use and industrial/commercial developments

- Emissions from road traffic likely to result from allocations in strategic Local Plans

- Emissions from proposed road schemes

What's not covered by this Internal Guidance Note

1.14 This guidance focusses on ecological receptors and does not cover human health.

1.15 This guidance is limited to plans or projects with road traffic emissions. It does not apply where the subject plan or project relates to non-road point sources or Environmental Permitting of intensive livestock units.

1.16 This guidance does not specifically cover nationally significant sites such as Sites of Special Scientific Interest (SSSIs), which are covered by a different regulatory framework. However, the general principles for air quality assessment outlined here for European Sites are likely to be equally relevant for this and other designations.

1.17 This guidance does not cover the further stages of the HRA process (tests for alternative solutions, imperative reasons of overriding public interest and compensation measures (stages 3 and 4 in Figure 1) which will be based on more bespoke advice and should be led by the competent authority responsible for the HRA.

2. Overview - how might European sites be adversely affected by air pollution?

2.1 Air pollution that typically affects habitat will include dust and particulate matter (PM), nitrogen oxides (NOx), ammonia (NH_3) and sulphur dioxide (SO_2). Each proposal type will have emissions typically associated with its specific activity. For example, ammonia is typically associated with farming or waste

management. Combustion sources such as industry or traffic are more likely to be associated with nitrogen oxides and particulate matter.

2.2 Generally speaking, the risks to qualifying features from air pollution (in simple terms) most frequently arise from:

a) The direct effects which arise when a pollutant which is dispersed in the air is taken up by vegetation (through pores on the surface called stomata). Pollutants taken up by vegetation can cause adverse impacts to plant health and viability. The relevant assessment benchmark for pollutant concentrations 'in the air' is referred to as a **critical level** expressed in units of µg/m^3 (micrograms per cubic metre).

b) There are indirect effects which arise when the pollutant settles onto the ground (referred to as 'deposition') causing nutrient enrichment of the soil ('eutrophication') or changes to the soil pH ('acidification'). These effects can decrease the ability of a plant to compete with other plants and can hinder the inherent capacity for self-repair and self-renewal under natural conditions. In other words, nitrogen acts as a fertiliser for plants that can thrive on high nitrogen levels and can dominate plant communities. The speed with which a given pollutant settles (or deposits) after it is released into the atmosphere is different for each pollutant, and is influenced by how dense (or heavy) the particles are. Some pollutants travel a long distance before deposition occurs whilst others will settle much closer to their source. Wind speed and direction will also have an influence on deposition properties.

   The relevant assessment benchmark for pollutant levels which settle from the air onto a surface (or deposit) is referred to as a **critical load** expressed in units of kilograms of nitrogen per hectare per year (Kg N/ha/yr) for nitrogen deposition or kilo-equivalents per hectare per year (Keq/ha/yr) for acid deposition**.**

2.3 The UK's Air Pollution Information System (APIS; http://www.apis.ac.uk/) provides an overview of deposition, air pollution effects on habitat and typical emissions arising from different proposal types in the APIS Starter's Guide to Air Pollution Sources. Further description of critical loads (deposition benchmarks) and critical levels (air concentration benchmarks) can be found on APIS Guide to Critical Loads and Levels. These topics are covered in more detail in subsequent sections of the guidance. All assessment stages rely on sufficient information to make a determination.

2.4 Road traffic is a source of NOx emissions, meaning that increases in traffic can represent a risk with regard to the potential effects associated with the exceedance of critical levels for sensitive vegetation. Traffic emissions can also be a short range contributor to nitrogen deposition.

3. Overview – an approach to the HRA of plans or projects with road traffic emissions

3.1 There are four stages to assessment for European Sites (see Figure 1). This guidance relates primarily to Stage 1 of the process and the scoping of a stage 2 appropriate assessment (as illustrated in Figure 1 below).

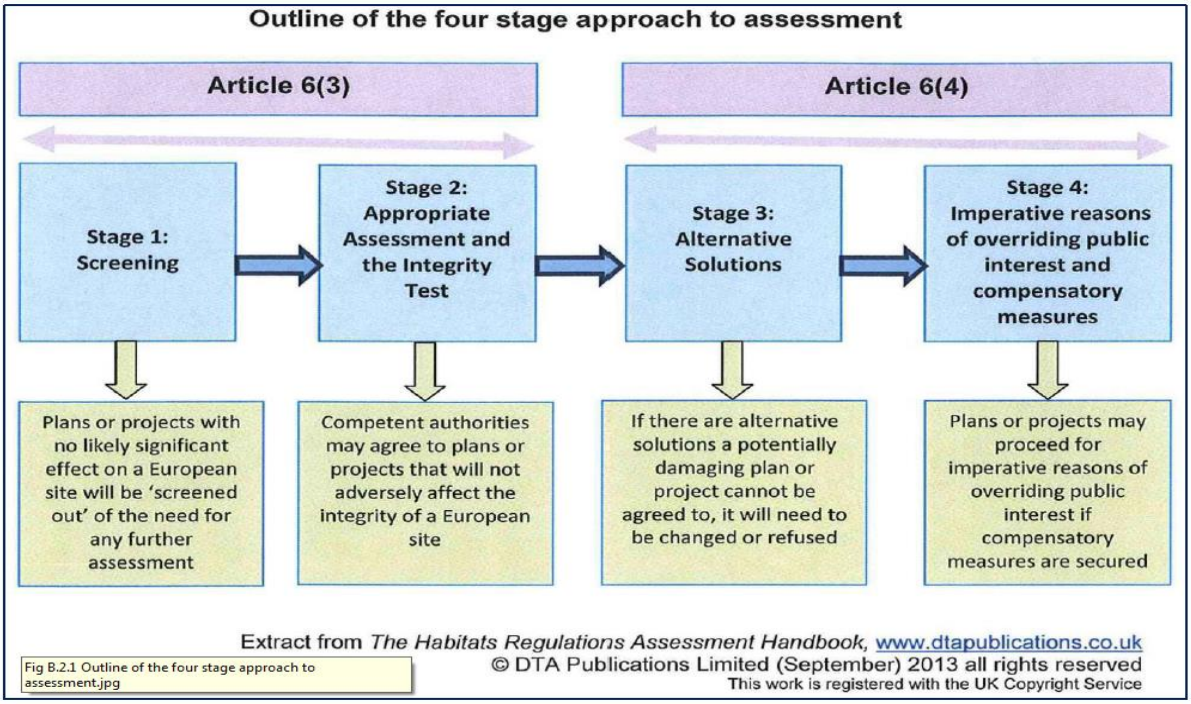


Figure 1: Overview of the Habitats Regulations Assessment procedures

3.2 Under the Habitats Regulations, it is the competent authority[4] who must carry out an appropriate assessment of any plan or project which is either not directly connected with or necessary to the management of a European Site and which is likely to have a significant effect on a European site. A competent authority should therefore decide for itself as to the likelihood of a significant effect on a site (stage 1 of Figure 1 above), but it is often the case that it may seek advice on this from Natural England (see section 4 below).

3.3 Furthermore, there is a statutory requirement for a competent authority to formally consult Natural England for the purposes of an appropriate assessment (Stage 2 in Figure 1 above). This is the only statutory input required from Natural England during the HRA process under the Habitats Regulations.

[4] The Habitats Regulations define a 'competent authority' as including any Minister of the Crown, government department, statutory undertaker, public body of any description or persons holding public office, or any person exercising those functions (regulation 7(1)).

Staff should be aware that, in accordance with Government's guidance on competent authority co-ordination when applying the Habitats Regulations, it is generally permissible for a competent authority to adopt, if it can, the assessment, reasoning and conclusions of another competent authority relating to the same plan or project, thus avoiding unnecessary duplication of effort. Staff are therefore encouraged to advise competent authorities to first check, at an early stage, the extent to which this might apply in relation to assessing road traffic emissions from an individual proposal. For example, the likely effects of a development proposal might have already been considered by a HRA of a Local Plan made by the same or another competent authority.

3.4 When specifically **advising** a competent authority at this screening stage of HRA as to whether the road traffic emissions associated with a plan or project are likely to have a significant effect on a European site, Natural England suggests a sequential approach can be taken to quickly filter out those proposals posing no credible risk.

3.5 Firstly it considers the evidence about emission types and distance that emissions are likely to travel to identify whether a plan or project might pose a risk to a European site (***step 1***).If a proposal gives rise to emissions that are likely to reach a designated site, the screening assessment should, secondly, consider the sensitivity of the qualifying feature(s) at the designated site (***step 2***). Next, if the necessary information is available, establish the feature's location and its likely exposure to emissions (***step 3***) to confirm the presence or absence of a credible risk.

3.6 Where there is the potential for interaction between a sensitive feature and emissions, ascertain either the predicted increase in flow of road traffic associated with the plan or project ('AADT flow') or the predicted process-contribution as a % of the pollution benchmark to act as a screening threshold alone (***step 4a***) and, where the threshold is not exceeded alone, in-combination (***step 4b & 4c***). These steps inform a decision as to whether a more detailed 'appropriate assessment' is required. The requirement to specifically consider the risks of 'in-combination' effects is explained further starting at paragraph 4.31. Together, these steps represent the "likely significant effect" or "screening" stage. If a proposal alone is above the likely significant effect thresholds, there is no need to also look for the risk of in-combination effects before proceeding to the appropriate assessment stage.

3.7 If the likelihood for significant effect cannot be ruled out, Natural England should advise the competent authority that an appropriate assessment is needed (***step 5***). Appropriate assessment is intended to be proportionate to the risk from a plan or project and does not always require detailed modelling or large amounts

of reporting. The appropriate assessment should focus on assessing more precisely the ecological impacts of the emissions on the site in view of its qualifying features and conservation objectives. It should take into account any detailed modelling that is or becomes available, the best available evidence as to ecological impacts, background levels and likelihood for future reductions. Natural England will be consulted by the competent authority for the purposes of the assessment and asked for its advice (***step 6***).

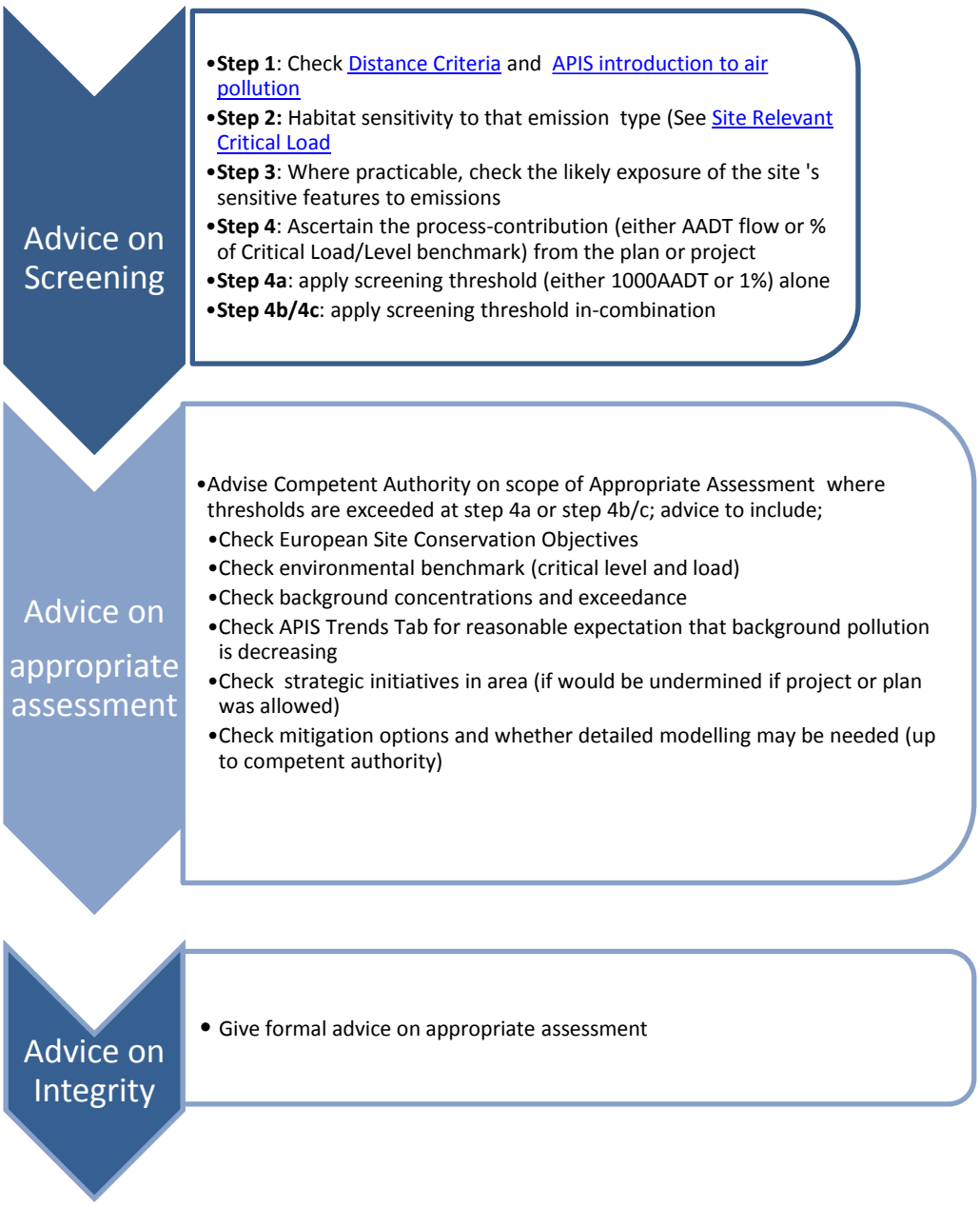
3.8 Natural England can direct competent authorities to further information they will find useful for undertaking an appropriate assessment and further guidance to inform the scope of an appropriate assessment is given in Section 5. It is at this stage that we would also detail why a likely significant effect could not be ruled out either because of the risk to a European site from the plan or project 'alone' or due to a risk of 'in-combination' effects.

3.9 A summary flowchart has been produced in *Appendix A* to this guidance, which is linked to the screening steps described in more detail below. It can help to guide staff in coming to a view as to the advice to be given on the assessment of plans or projects.

3.10 Staff should note that this document and the flowchart only provides general guidance on the factors to consider when advising a competent authority on the HRA of those plans and projects generating road traffic and air pollution effects. It cannot cater for all situations. Where there is information available that indicates it would be inappropriate to rely on this guidance (for example, there is uncertainty in the evidence base, there are development clusters that need to be accounted for or specific local evidence is available which undermine the application of this guidance), it will be necessary to consider whether further internal advice is needed and/or whether we should advise that the plan or project should progress to appropriate assessment. This adapted advice will need to be explained on a case by case basis.

Figure 2: Overview of stages and steps when advising a competent authority on the HRA of a road traffic project or plan

For road traffic emissions the distance criteria applied is 200m. Distance criteria applied to other emission sources is available on request and under review;



4. Advice on Screening for Likely Significant Effects

4.1 The purpose of the screening stage of the HRA process is to initially identify the risk or the possibility of significant adverse effects on a European site which could undermine the achievement of a site's conservation objectives and which therefore require further detailed examination through an appropriate assessment (see also paragraph 4.3 below). If risks which might undermine a site's conservation objectives can clearly be ruled out (based on the consideration of objective information), a proposal will have no likely significant effect and no appropriate assessment will be needed.

4.2 The Habitats Regulations place the responsibility for the screening decision as to whether appropriate assessment is required on the competent authority (see, for example, the text of regulations 63 and 105). There is no statutory requirement for a competent authority to seek or to rely on Natural England's screening opinion – it can come to its own view on likely significant effect. However, a competent authority, and/or the promoters or proposers of a plan/project, may request Natural England's advice on screening at formal consultation or at pre-application stages (under our Discretionary Advice Service). This section is intended to cover such circumstances.

4.3 In undertaking an assessment of 'likely significant effects' under the Habitats Regulations, authoritative case law has established that:

- An effect is likely if it '*cannot be excluded on the basis of objective information'*[5]
- An effect is significant if it '*is likely to undermine the conservation objectives'*[6]
- In undertaking a screening assessment for likely significant effects '*it is not that significant effects are probable, a risk is sufficient'….* but there must be credible evidence that there is '*a real, rather than a hypothetical, risk''*[7]*.*

4.4 The Advocate General's opinion in *Sweetman* also offers some simple guidance that the screening step '*operates merely as a trigger'* which asks *'should we bother to check?''*[8]*.*

4.5 As such, when determining whether air pollution from a plan or project has a 'likely significant effect' upon a given qualifying feature under the Habitats Regulations, the extent to which there are risks of air pollution that might undermine the conservation objectives for the site is central.

4.6 It is recommended that Natural England staff follow the sequential steps 1 – 5 outlined below to apply this screening procedure when Natural England is asked

[5] Case C127-02 *Waddenzee* (refer para 45)
[6] Case C127-02 *Waddenzee* (refer para 48)
[7] Boggis v Natural England and Waveney DC [2009] EWCA Civ 1061 (refer paras 36-37)
[8] Case C 258/11 *Sweetman* Advocate General Opinion (refer paras 49-50)

to advise competent authorities on the risks of air quality impacts within the framework of a HRA.

Step 1: Does the proposal give rise to emissions which are likely to reach a European site?

4.7 Any emissions from road traffic associated with a specific proposal and the proximity to European sites should be considered in the consultation documents. If they are not, further information should be requested from the competent authority consulting Natural England.

4.8 A key factor to consider at this initial screening step for air pollution assessment is the distance between an emission source and the receptor (in this case a European site). Emissions to air may have effects over both long and short ranges depending on the size, source and nature of the emission.

4.9 Distance-based criteria have been established for several sectors to identify consultations requiring consideration for potential effects from air pollution. These are listed on Natural England's Technical Information Exchange (TIE) air pollution pages (Distance Criteria) and currently under review[9].

4.10 With regard to potential risks from road traffic emissions, Natural England and Highways England are in agreement that protected sites falling within 200 metres of the edge of a road affected by a plan or project need to be considered further. This is based on evidence presented in ENRR580 (Bignal *et al.* 2004[10]) and is consistent with more current literature (Ricardo-AEA, 2016[11]). However, where (unusually) there is a credible risk that air quality impacts might extend beyond 200 metres from a road, Natural England may advise that additional sites should also be scoped into the HRA.

4.11 The distance between roads where increased traffic levels are predicted and specific designated sites can be checked using Magic.

4.12 If the consultation does not fall within the distance criterion for designated sites (i.e. 200m for road traffic proposals), no further steps of the assessment are necessary. Such proposals are likely to have no effect on sites at all and so do not need to be subject to assessment in-combination with other plans and projects. A screening conclusion of no likely significant effect on the site can be advised with regard to the risk of road traffic emissions affecting air quality.

[9] Available upon request
[10] BIGNAL, K., ASHMORE, M. & POWER, S. 2004. *The ecological effects of diffuse air pollution from road transport*. English Nature Research Report No. 580, Peterborough.
[11] RICARDO-AEA, 2016. *The ecological effects of air pollution from road transport: an updated review*. Natural England Commissioned Report no.199.

Step 2: Are the qualifying features of sites within 200m of a road sensitive to air pollution?

4.13 The qualifying features of European Sites can be identified by reference to Natural England's formal advice on their Conservation Objectives, which include a definitive list of legally-qualifying features. These objectives are available here. Alternatively a list of qualifying features can also be found by searching for the European Site on Designated Sites View.

4.14 There are several ways to establish whether a qualifying feature is sensitive to the type of air emissions expected from a proposal. These range from broad, internationally agreed pollution benchmarks (critical loads and levels) to site specific information such as survey data.

4.15 APIS provides key information about feature sensitivity to specific pollutants:

- by broad category (habitat, ecosystem and species) and,
- by qualifying feature on each designated European site (Site Relevant Critical Loads Search Tool).

4.16 Where none of a site's qualifying features are considered to be sensitive to a pollutant, then no further assessment is required for that pollutant. For example a chalk river will not typically be sensitive to acid deposition because of its natural buffering capacity. In these circumstances a screening conclusion of no likely significant effect on the site can be reached with regard to air quality.

Where at least one of a site's features is known to be sensitive, further screening is advised at step 3 (where information is available) or at step 4. Where there is uncertainty over the sensitivity of the feature in close proximity to a road affected by the plan or project, then a precautionary approach should be taken with an assumption made that the feature may be sensitive.

Step 3: Could the sensitive qualifying features of the site be exposed to emissions?

4.17 Usually, only those European sites present within 200m of the edge of a road on which a plan or project will generate traffic will need to be considered when checking for the likelihood of significant effects from road traffic emissions (but see also paragraph 4.10).

4.18 Many sites are designated for several different qualifying features. Not all features are present within a given location within the site. In some cases, a road surface and its adjacent verges may be included within a designated site boundary. This does not necessarily mean that it, and its associated verges, will be of nature conservation interest and form part of a qualifying feature. The

inclusion of the hard surface of a road and/or its adjacent verges might simply have been unavoidable when denoting a boundary and included simply for convenience. These areas will therefore constitute 'site-fabric'[12], being of no special nature conservation interest. Conversely, at some sites, roadside verges may have been deliberately included within a site boundary and be an integral part of a designated habitat. Therefore, a site's conservation objectives are unlikely to apply equally to all parts of a site and a competent authority may need to be made aware of this as necessary.

4.19 An early understanding of the spatial distribution of features within a site can help to decide whether or not appropriate assessment will be required. This is particularly relevant as contributions to air pollution from a road will typically decrease with distance away from that road (e.g. Ricardo-AEA, 2016[13]). Where the applicant has provided reliable and precise information that models the likely deposition of road-based pollutants in relation to the distribution of a site's features and any sensitive qualifying features are not present within the area to be affected by emissions (and Natural England's advice is that there is no conservation objective to restore the features to that area), it will be relatively straightforward to ascertain that the plan or project poses no credible air quality risk to it.

Where no information is provided that is able to sufficiently predict the deposition of pollutants in relation to the site's sensitive features, further screening is advised at step 4.

4.20 Information about the precise location of features within sites may be available from a variety of sources. Preferably, up to date ecological information will have been provided by the applicant to the competent authority as part of the submitted proposal being consulted upon. This may include further survey and spatial information about the location of Protected Sites, the distribution of sensitive features and their sensitivity to emissions from a road that, subject to our checks and validation, could be relied upon to inform this step.

Information is held in Natural England's Designated Sites System Viewer about the spatial location of individual features. Each feature is assigned to an underpinning monitoring 'unit' for condition reporting purposes. If a sensitive feature is not assigned to a unit (or intended to be restored to the unit) within the distance criterion then effects can be screened out. (Note that the current

[12] 'Site-fabric' is a general term used by Natural England to describe land and/or permanent structures present within a designated site boundary which are not, and never have been, part of the special interest of a site, nor do they contribute towards supporting a special interest feature of a site in any way, but which have been unavoidably included within a boundary for convenience or practical reasons. Areas of site-fabric will be deliberately excluded from condition assessment and will not be expected to make a contribution to the achievement of conservation objectives.

[13] Ricardo-AEA, 2016. The ecological effects of air pollution from road transport: an updated review' (NECR199).

reportable condition of a feature, based on latest condition assessment information, should not be used to justify screening out effects on a feature.)

4.21 If none of the site's sensitive qualifying features known to be present within 200m are considered to be at risk due to their distance from the road, there is no credible risk of a significant effect which might undermine a site's conservation objectives. The screening thresholds adopted in step 4 below need not be applied and no further assessment is required. In these circumstances, a screening conclusion of no likely significant effect on the site can be advised with regard to air quality.

4.22 If, at this stage, there is uncertainty over the presence or absence of the feature in close proximity to a road affected by the plan or project, then a precautionary approach should be taken with an assumption made that the feature may be present and step 4 undertaken.

Step 4: Application of screening thresholds

4.23 If a proposal has not been screened out by steps 1-3, the next step is to consider the risk from the road traffic emissions associated with the plan or project. Depending on the information available, this could be expressed in terms of either the predicted average annual daily traffic flow ('AADT' as proxy for emissions) or the predicted emissions themselves (the actual process-contribution). Each of these parameters have guideline thresholds to check whether the predicted change is likely to be significant (e.g.1000 AADT for traffic numbers or 1% of critical load or level for emissions). This information should have been provided to the competent authority by the applicant.

4.24 The use of the AADT screening threshold is advocated by Highways England in their Design Manual for Roads and Bridges[14] (DMRB) to check whether more detailed assessment of the impact of emissions from road traffic is required. This non-statutory or guideline threshold is based on a predicted change of daily traffic flows of 1,000 AADT or more (or heavy duty vehicle flows on motorways (HDV) change by 200 AADT or more).

4.25 The AADT thresholds do not themselves imply any intrinsic environmental effects and are used solely as a trigger for further investigation. Widely accepted Environmental Benchmarks for imperceptible impacts are set at 1% of the critical load or level, which is considered to be roughly equivalent to the DMRB thresholds for changes in traffic flow of 1000AADT and for HDV 200AADT. This has been confirmed by modelling using the DMRB Screening Tool that used average traffic flow and speed figures from Department of Transport data to calculate whether the NOx outputs could result in a change of > 1% of

[14] HIGHWAYS ENGLAND. Design Manual for Roads and Bridges Volume 11 Section 3, Part 1 - Air Quality

critical/load level on different road types. A change of >1000 AADT on a road was found to equate to a change in traffic flow which might increase emissions by 1% of the Critical Load or Level and might consequentially result in an environmental effect nearby (e.g. within 10 metres of roadside).

As a result, the AADT thresholds and 1% of critical load/level are considered by Natural England's air quality specialists (and by industry, regulators and other statutory nature conservation bodies) to be suitably precautionary, as any emissions below this level are widely considered to be imperceptible and, in the case of AADT, undetectable through the DMRB model. There can therefore be a high degree of confidence in its application to screen for risks of an effect.

If there is already detailed, locally-based modelling available about the plan or project that shows the 1% of the environmental benchmark is *not* exceeded, even if 1000 AADT is, then this level of precision is sufficient to override the use of the very generic 1000 AADT guideline threshold above.

Remember that 1000 AADT has been adopted here to simply help trigger when to look further where traffic projection data is the sole means of assessment - it does not immediately mean there *will* be an effect.

Considering the effect of avoidance and mitigation measures already incorporated into the plan/project

4.26 In a recent authoritative decision in C-323/17 *People Over Wind*, the CJEU concluded that it is not appropriate, at the screening stage of a HRA, to take account of measures intended to avoid or reduce the harmful effects of the plan or project on a European Site. This overrules previously established UK case law in *Hart*[15] which concluded that incorporated measures could be taken into account at this screening stage when judging the risk of a significant effect. These matters can now only be taken into account as part of the appropriate assessment stage of a HRA.

4.27 Where Natural England's advice is requested at the screening stage, it should ensure that the competent authority and/or the promoters or proposers of a plan or project have clearly identified the nature of the plan or project under review and whether there are avoidance and/or mitigation measures that are to be excluded from the screening assessment. Where Natural England considers there is doubt in these matters, the precautionary principle should be applied and these matters should *not* be taken into account when Natural England is advising

[15] Hart District Council v Secretary of State for Communities and Local Government, Luckmore Ltd and Barratt Homes Limited and Taylor Wimpey Developments Limited and Natural England [2008] EWHC 1204(Admin))

on applying the thresholds below to judge likely significant effect. Natural England should explain the reasoning for its advice, however the competent authority, as the decision maker, is entitled to disagree with this advice and reach its own reasoned and cogent decision.

Step 4a: apply the threshold alone

4.28 First consider the effects of the plan or project 'alone' against the screening threshold. Where a proposal is considered to have a likely significant effect because it breaches the screening threshold alone it should go through to an appropriate assessment 'alone' (at least initially). There is no need to consider the potential for in-combination effects (at steps 4b/c below) at this screening step as an appropriate assessment is needed in any event.

4.29 If the predicted change in traffic flow is less than 1000AADT (or the level of emissions is <1% of the critical load/level), the associated emissions are not likely to have a significant effect alone but the risk of in-combination effects should be considered further (go to step 4b/c).

4.30 At this stage, this is irrespective of the current background levels and whether critical load or level values are currently being exceeded or not. This is because 1% of the environmental benchmark or 1000AADT is considered to be so small that anything less than this will be, in any event, not likely to be perceptible and significant. We would advise that current background levels are considered later should appropriate assessment be needed.

Step 4b: apply the threshold in-combination with emissions from other road traffic plans and projects

4.31 Where a proposal is *below* the screening threshold *alone* at step 4a above (i.e. <1000 AADT or <1% depending on information available), step 4b must be considered to apply the same screening threshold 'in-combination'. This step is explicitly included here to reflect the requirements of the Habitats Regulations and in response to the recent clarification provided in the Wealden Judgment 2017.

4.32 This is also because projects and plans that increase road traffic flow have a high likelihood of acting together, or in-combination, with other plans or projects that would also increase traffic on the same roads. Vehicles generated by different plans or projects can end up on the exact same road(s) (forming a line source of emissions) within or close to the same site. In these cases, it is difficult to justify use of a threshold alone for determining likelihood for significant effect by applying it solely to the project being assessed. The threshold should be applied in-combination.

4.33 An in-combination effect is one which does not represent a likely significant effect 'alone' but, when added to similar effects from other live plans and projects, becomes significant.

4.34 The Wealden Judgment 2017 found that the use of the 1000 AADT guidelines (the proxy for 1% (on road) of the critical level/load (for the receiving habitat)) as the sole means of catering for in-combination effects lacked coherence, particularly where other figures are known which, when added together, would cause that threshold to be exceeded. From that, the Court concluded that where the likely effect of an individual plan or project does not itself exceed the threshold of 1000 AADT (or 1%), its effect must still be considered alongside the similar effects of other 'live' plans and projects (see paragraph 4.44 below) to check whether their added or combined effect on a site could be significant. The threshold itself was not questioned.

4.35 Natural England recognises that at both the screening and appropriate assessment stages of a HRA, the likely effects of a plan or project need to be thought about individually and in combination with other relevant plans or projects. This is a legal requirement of the Habitats Regulations and it helps to ensure that European sites are not inadvertently damaged by the additive effects of multiple plans or projects.

4.36 It may be very obvious that there are no other plans or projects which are 'live' at the time of the assessment (see 4.44 below) whose effects could act together with the subject proposal. A competent authority should clearly record this in their assessment in such cases. Natural England's advice is that where evidence concerning other live plans and projects is available, such as increases in road traffic from other plans or projects that will affect the same roads being assessed, the 1000 AADT threshold should also be applied to their combined value to screen for in-combination effects.

4.37 Natural England staff may be asked by a competent authority to advise on the scope of an in-combination screening step and how far they should look for other road traffic plans and projects which may be relevant to their risk assessment. In Natural England's view, staff in a competent authority can apply their professional judgment when considering this. An exhaustive search for relevant plans and projects by a competent authority is normally required to comply with the Habitats Regulations. However, a pragmatic approach to identifying the most pertinent ones may need to be taken where there is a large number of proposals. It might be reasonable to *initially* limit a search to those plans and projects which are of most direct relevance to the subject plan or project under HRA. This may be those which are simply the closest to the site or within a certain distance from it, or the most influential in nature).

4.38 Once screening thresholds have been exceeded to indicate that there is a risk of a significant combined effect from the subject proposal and other plans or projects and an appropriate assessment is warranted, the search for other live plans/projects may stop. This may mean that more minor plans or projects can be excluded from the in-combination assessment being undertaken.

4.39 This search should not be limited to other plans or projects being proposed within the jurisdiction of that competent authority; other relevant proposals affecting the same European Site(s) may occur within adjoining local planning authority areas for example.

4.40 Where the in-combination effect of the subject plan or project with more than one plan or project is greater than the 1000 AADT (when using traffic flow data) or 1% (when using emissions data) threshold, appropriate assessment is advised.

Step 4c: apply the threshold in-combination with emissions from other non-road plans and projects

4.41 When considering the potential for in-combination effects, a competent authority should also recognise that different proposal types ('sectors') and different pollutants (e.g. ammonia (NH_3), nitrogen oxides (NOx and NO_2)) can combine together to have the same or similar effect on a given area of habitat. By way of example, nitrogen deposition on a site can result from both the emissions of ammonia from a farm source and also from emissions of nitrogen oxides from a traffic source, with both having an eutrophication effect.

4.42 Where the in-combination effect of the subject plan or project with other road traffic plans or projects has not exceeded the relevant 1000 AADT (or 1%) threshold, we should advise the competent authority to look further for any other insignificant effects of live **'**non-road' plans/projects to check that the 1% threshold is not exceeded in this way.

4.43 Where the in-combination effect of the subject plan or project with one or more plan or project is greater than the 1% threshold, appropriate assessment is advised.

4.44 It is generally well-established that the scope of an in-combination assessment is restricted to plans and projects which are 'live' at the same time as the assessment being undertaken. These can potentially include:

- The incomplete or non-implemented parts of plans or projects that have already commenced;
- Plans or projects given consent or given effect but not yet started.
- Plans or projects currently subject to an application for consent or proposed to be given effect;

- Projects that are the subject of an outstanding appeal;
- Ongoing plans or projects that are the subject of regular review and renewal
- Any draft plans being prepared by any public body
- Any proposed plans or projects that are reasonably foreseeable and/or published for consultation prior to application

As stated above, when considering this scope, competent authorities can be mindful of the assessment, reasoning and conclusions included in any previous HRAs for these plans or projects.

What 'plans and projects' are already included in the nationally modelled background?

APIS provides information about background pollution concentrations for each European site through the Site Relevant Critical Load Tool (on the Concentrations/Deposition tab). Projects and plans operational **on or before** dates included in background pollution data on APIS are typically considered as an integral part of the background. These should **not** be included as projects or plans for in-combination assessment as this would effectively be double-counting the emission sources.

4.45 It is the role of the competent authority, not Natural England, to acquire sufficient knowledge and information on other plans and projects that are included within an in-combination assessment to enable it to make a fair and reasonable assessment of the likelihood of a significant combined effect. This may mean the plan or project proposer may be asked by the competent authority to provide or compile this.

4.46 Sources of information that project proposers or competent authorities can use to identify plans or projects that might act in-combination include:

- Planning Portals to locate applications awaiting permissions
- Environmental Permits Register of Applications and Register of Issued Permits
- Local plans (including brownfield registers with permission in principle) and any allocations not yet permitted.

4.47 In general terms, it is important for a competent authority to remember that the subject plan or project remains the focus of any in-combination assessment. Therefore, it is Natural England's view that care should be taken to avoid unnecessarily combining the *insignificant* effects of the subject plan or project with the effects of other plans or projects which can be considered *significant* in their own right. The latter should always be dealt with by its own individual HRA

alone. In other words, it is only the appreciable effects of those other plans and projects that are not themselves significant alone which are added into an in-combination assessment with the subject proposal (i.e. ‘don’t combine individual biscuits (=insignificant) with full packs (=significant)’).

4.48 As stated above, an exhaustive search for relevant non-road plans and projects is normally required to comply with the Habitats Regulations. Where there is likely to be a large number of other live plans or projects which could all potentially fall within the scope of an in-combination assessment, it is Natural England’s view that staff in a competent authority can apply their professional judgment when considering this. It might be that a pragmatic approach to identifying the most pertinent ones may be required from the competent authority. It might be reasonable to initially limit a search to those plans and projects which are of most direct relevance to the subject plan or project under HRA (i.e. the likelihood of that plan or project’s effects impacting upon the same site in-combination with the proposed plan or project). This may be those which are simply the closest to the site or within a certain distance from it, or the most influential in nature.

4.49 As above, should screening thresholds be exceeded to indicate that there is a risk of a significant effect, this may mean that more minor plans or projects become immaterial to the in-combination assessment and can be discounted.

Similarly, this search should not be limited to other plans or projects being proposed within the jurisdiction or administrative boundaries of that competent authority; other relevant proposals affecting the same European Site(s) may occur within adjoining local authority areas for example.

Step 5: Advise on the need for Appropriate Assessment where thresholds are exceeded, either alone or in-combination

4.50 This can be summarised below:

Traffic Proxy or Process Contribution from a plan or project alone	**Advice on screening for likely significant effect**	**Is Appropriate Assessment required by the competent authority?**
More than 1000 AADT (or >1% of critical level/load)	There is a risk of a significant effect on air quality alone	Yes
Less than 1000 AADT (or <1% of critical level or load)	There is a risk of an appreciable effect on air quality but is unlikely to be significant alone and screen for in-combination effect	<u>Either</u> No – advise that appropriate assessment is not required if: • no other plans/projects can be identified that would act in-combination, or • **together** they add up to **less than** 1000 AADT (or 1% of critical level/load) <u>Or</u> Yes – advise that appropriate assessment is required if: • other plans/projects can be identified that would act in-combination, and • **together** they add up to **more than** 1000 AADT (or 1% of critical level/load)

5. Advising competent authorities on the scope and content of an Appropriate Assessment

About this section

5.1 This section aims to provide Area Team staff with further assistance when giving their advice to a competent authority on the scope and content of an appropriate assessment examining the likely effects of road traffic emissions.

5.2 This is not intended to provide a definitive or exhaustive checklist of factors to consider. A competent authority is entitled to make use of additional information and to seek the additional advice of others.

5.3 At this stage of HRA, it is a statutory requirement for competent authorities to formally consult Natural England '*for the purposes of*' an Appropriate Assessment (AA) and to '*have regard*' to any representations that Natural England may make. This consultation may include advice about further information that may be required from the applicant and advice as to whether the scope of the appropriate assessment fully addresses the likely risks to the site(s).

5.4 Typically, Natural England's expert advice is given significant weight; however a competent authority, as the decision maker, is also entitled to disagree with Natural England's advice and reach its own reasoned and cogent conclusion at Appropriate Assessment.

5.5 This section highlights a number of factors, in no particular order, that we could usefully advise a competent authority as being relevant for consideration in an assessment. It does **not** recommend sequential steps or provide definitive guidance about how or to what degree these factors should inform an assessment, which will depend on the facts and circumstances of each case.

Introduction

5.6 Having previously identified a risk or a possibility of a significant effect from a plan or project (either alone or in-combination), the purpose of the appropriate assessment stage is to more precisely assess the likely effects identified and to inform a conclusion as to whether an adverse effect on site integrity can be ruled out.

5.7 The 'integrity' of a site should be taken to mean the coherence of its ecological structure and function, across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was, or will be, designated or classified. A site can also be described as having a high degree of integrity where '*the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and self-renewal*

under dynamic conditions is maintained and a minimum of external management is required' (European Commission, 2000[16]).

5.8 Whilst the assessment should be an objective one which is contiguous with but more detailed than the previous screening stage, it should always be 'appropriate' in terms of its scope, content, length and complexity to the plan or project under assessment. This was recently reiterated by the Supreme Court decision in the case of *Champion*[17] which clarified:

'Appropriate' is not a technical term. It indicates no more than that the assessment should be appropriate to the task in hand: that task being to satisfy the authority that the project will not adversely affect the integrity of the site concerned'.

5.9 It should not be assumed that appropriate assessment will necessarily involve detailed and complex monitoring or modelling work. Whilst complex work *might* be necessary in fully understanding what will happen to a site if the plan or project goes ahead, and asking whether that would be consistent with maintaining or restoring a site's integrity, it is equally possible that a fairly concise and straightforward assessment might be entirely 'appropriate'.

5.10 This section provides some information on additional factors which may be relevant to the scope of an appropriate assessment that seeks to assess the impacts from air pollution in a more detailed manner to ascertain whether there will be an adverse effect on site integrity. The impacts resulting from a change in the atmospheric concentration or deposition of pollutants as a result of the plan or project might include:

- Changes in the species composition of a designated or supporting habitat, especially in nutrient poor ecosystems, with an (unnatural) shift towards species associated with higher nitrogen availability (e.g. leading to the dominance of tall grasses);
- Reduction in the species richness of designated habitat
- Damage or loss of sensitive lichens and bryophytes (which may be strongly typical of a designated habitat) which receive their nutrients largely from the atmosphere
- Increases in nitrate leaching and changes in soil nutrient status which may affect the structure and function of a designated or supporting habitat

[16] EUROPEAN COMMISSION, 2000. Managing Natura 2000 Sites (section 4.6.3).
[17] Champion v North Norfolk DC [2015] UKSC 52 (refer para 41)

5.11 Further technical guidance about the ecological impacts from road transport can also be found in the Natural England research report 'The ecological effects of air pollution from road transport: an updated review' (NECR199[18]).

5.12 The competent authority is therefore likely to require both ecological and air quality advice in order to undertake their appropriate assessment.

The use of thresholds at the appropriate assessment stage

5.13 At the previous screening stage, Natural England has advised that a threshold equivalent to 1% of the critical load/level can be applied as a guideline to initially check which road traffic plans and projects might require appropriate assessment. At appropriate assessment stage, Natural England recommends that this same 1% threshold is *not* used as a means of determining whether there is an adverse effect on site integrity from a road traffic project. Other factors are relevant which may mean that a plan or project that exceeds the 1% screening threshold can still demonstrate no adverse effect on site integrity through an appropriate assessment.

Issues recommended for further consideration by an appropriate assessment:

Consider whether the sensitive qualifying features of the site would be exposed to emissions

5.14 Where no information was available at the screening stage to consider the emissions from road traffic and the distance to sensitive qualifying features of sites within 200m of the road, this should be investigated further as part of the appropriate assessment.

5.15 This may require the applicant to provide further information about the actual predicted emissions at the behest of the competent authority to inform this assessment.

5.16 This is particularly relevant to this stage as contributions to air pollution from a road will typically decrease with distance away from that road (e.g. Ricardo-AEA, 2016[19]). Therefore, if, upon closer examination, the qualifying feature which is considered to be sensitive is shown not to be present within the area predicted to be affected by emissions (and Natural England's advice is that there is no

[18] RICARDO-AEA, 2016. *The ecological effects of air pollution from road transport: an updated review*. Natural England Commissioned Report no.199.
[19] Ricardo-AEA, 2016. The ecological effects of air pollution from road transport: an updated review' (NECR199).

conservation objective to restore the feature to that area), it will be relatively straightforward to ascertain that the plan or project poses no credible risk to it and there is unlikely to be an adverse effect on the site's integrity.

5.17 Similarly, it may be possible at this stage to demonstrate that, despite their proximity, the sensitive features will actually only be exposed to emissions that are <1% of the Critical Load/Levels (both alone and in-combination) due to their distance from the affected road(s).

Consider the European Site's Conservation Objectives

5.18 The Habitats Regulations state that appropriate assessments of plans and projects must be undertaken '*in view of that site's conservation objectives*'. **The 'key question' for the appropriate assessment is, in view of these objectives, can it be ascertained that, should the plan or project go ahead, there will be no adverse effect from it on the site's integrity so that the site's conservation objectives will not be undermined.**

5.19 In England, Natural England provides formal advice on European Site Conservation Objectives, their purpose being in part to enable their effective use in HRAs and to expedite decision-making by competent authorities[20]. This advice is made publically available for all European terrestrial sites and European marine sites. This advice complements, but is broader than and different to, the narrower range of attributes and targets as set out in our SSSI 'Favourable Condition Tables' which are used for our own monitoring purposes to report on 'condition' status.

5.20 For Special Areas of Conservation, with reference to '*the key question'* above, the conservation objectives are to '*ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring…'.*

The conservation objectives for any given site then go on to list a series of core attributes which form part of a site's integrity to be 'maintained' *or* ' restored'. When considering the risks associated with air pollution to a SAC, the attribute most likely to be undermined is '*the structure and function (including typical species) of qualifying natural habitats'*. These structural and functional changes might *in turn*, lead to changes to other attributes but most impacts from air pollution follow as a consequence of the structural and functional changes which are therefore of primary importance.

[20] Defra, 2012. Report of the Habitats and Wild Birds Directives Implementation Review. Pages 26-27.

5.21 Special Protection Areas (SPA) are different; the qualifying features are the bird populations for which the site has been classified. The conservation objectives 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…'.*

As with SACs, the conservation objectives then go on to list a series of core attributes which form part of that site's integrity to be 'maintained' or 'restored'. When considering the risks associated with air pollution to a SPA, the attribute most likely to be 'undermined' is '*the structure and function of the habitats of the qualifying species'* (N.B. there is not reference to typical species in the case of SPA supporting habitat).

Where a Natural England Area Team has provided further **Supplementary Advice about a European Site's Conservation Objectives**, air quality will, where appropriate, be highlighted as a specific attribute of a site's structure and function with regard to any air quality sensitive features.

The conservation objective for the air quality attribute will typically be to ensure that, over the long-term, air pollutants are either maintained below or restored to below the site-relevant Critical Loads and Levels given on APIS. The inclusion of this objective in this advice on conservation objectives reflects the condition threat that exceedance poses. The objective will be tailored to distinguish where air quality should be maintained or restored dependent on whether these air quality benchmarks are currently being exceeded or not. Over time, this advice should be updated accordingly by Area Teams in light of best available information.

These objectives do not affect our existing condition assessments of these sites as air quality benchmarks do not currently inform condition reporting directly; the effects of exceedance might, over time, show up when measuring specific attributes of a habitat's structure e.g. the dominance of nitrogen-tolerant species or a decline in the extent of bare ground.

The trajectory of deposition and concentration trends illustrated on APIS is perhaps a better measure of whether the air quality objectives for a site are likely to be met or not.

NOTE OF CAUTION

When considering the sensitivity of SPA qualifying features, the extent to which changes to the structure and function of the *supporting* habitats might represent a risk to the integrity of an SPA will vary significantly, depending on the ecological role that the structure and function of a supporting habitat plays in maintaining the population for which the site has been classified. The site relevant critical load pages on APIS provide information on the sensitivity of each SPA feature.

5.22 When considering the 'key question' above in view of the conservation objectives, it follows that a decision as to whether a proposal 'undermines' the conservation objectives (or not) should also be informed by whether the conservation objectives are to 'maintain' or to 'restore'.

Where background levels show the site is not currently exceeding relevant air quality benchmarks and the conservation objectives are to maintain the concentrations and deposition of air pollutants either at current levels or below the relevant benchmarks

5.23 Where there is currently no exceedance of relevant benchmarks (such as Critical Loads and Levels – see also para 5.31) the site's conservation objectives are to 'maintain the concentrations and deposition of air pollutants at current levels or below the relevant benchmarks' to protect the site's integrity in respect of air pollution. As such, a new plan or project could undermine the conservation objectives of such a site where it leads to a deterioration in air quality that is significant in the context of the site, even where that site is below a critical load or level. The evidence presented by Caporn *et al.* (2016)[21] in NECR 210 shows that small contributions of nitrogen deposition from the air have the potential to lead to *more* significant changes in vegetation composition where a site is below but near to the Critical Load, compared to a site which significantly exceeds a critical load. The appropriate assessment will need to examine such risks, and likely effects, in more detail.

5.24 Even where an additional contribution is small (e.g. <1% of critical load/level but >1% of the critical load/level in-combination), a competent authority should undertake a more considered assessment with regard to sites that are currently meeting their conservation objectives (which is considered to be appropriate to the specific circumstances).

Where the background levels show the site is already exceeding relevant air quality benchmarks and the conservation objectives are to 'restore the concentrations and deposition of air pollutants to within benchmarks'.

5.25 Where the conservation objectives are to 'restore the concentrations and deposition of air pollutants to within benchmarks' (i.e. where the relevant benchmarks such as Critical Loads/Levels are *already* exceeded) they will be *undermined* by any proposals for which there is credible evidence that further emissions will compromise the ability of other national or local measures and initiatives to reduce background levels.

[21] CAPORN, S., FIELD, C., PAYNE, R., DISE, N., BRITTON, A., EMMETT, B., JONES, L., PHOENIX, G., S POWER, S., SHEPPARD, L. & STEVENS, C. 2016. *Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance*. Natural England Commissioned Reports, Number 210.

5.26 An exceedance alone is insufficient to determine the acceptability (or otherwise) of a project**.** Exceedance will represent a threat to the condition and integrity of the site. Hypothetically, it could be argued that any increase above a currently exceeded state compromises the extent to which improvements from other initiatives will deliver the restoration aims of the conservation objectives as any additional pollution could slow the rate at which progress is made towards meeting the relevant air quality benchmarks.

5.27 In terms of whether an 'adverse' effect can be ruled out, the Advocate General's Opinion in *Sweetman*[22] indicated that, in her view, a plan or project involving *'some strictly temporary loss of amenity which is capable of being fully undone'* would not be an adverse effect on integrity. By comparison, the *'lasting and irreparable loss'* of part of the SAC feature in *Sweetman*[23] was ruled to be an adverse effect on integrity.

5.28 In practice, where a site is already exceeding a relevant benchmark, the extent to which additional increments from plans and projects would undermine a conservation objective to 'restore' will involve further consideration of whether there is credible evidence that the emissions represent a real risk that the ability of other national or local measures and initiatives to otherwise reduce background levels will be compromised in a meaningful manner. This is a judgement to be taken by the competent authority which should be informed by, amongst others, the extent to which any declining national trends in air pollution or strategic work to tackle emissions affecting the site more locally might otherwise lead to improvements, the rate at which such improvement are anticipated to be delivered, any credible evidence on the extent of the impacts of a plan or project and whether those impacts can properly be considered temporary and reversible.

Consider background pollution

5.29 European sites are unlikely to be pristine in terms of air quality effects, and our advice will therefore be mindful of the current condition of the site's features and the site's long-term conservation objectives. Factors already affecting the site which are not related to the plan/project being assessed count as the current prevailing or background conditions. These factors may be having an adverse effect independent of the proposal being assessed (and should be addressed separately) but nevertheless may be currently undermining the site's resilience to new and additional pressures.

5.30 The background condition of the site will provide some further context to judging the risk of an adverse effect on integrity. This section explores where to obtain

[22]Advocate General Opinion in Case C-258/11 *Sweetman* (refer paras 58-61)
[23] Case C258-11 *Sweetman* (refer para 56)

background concentrations of air pollution to take into account as prevailing conditions.

(a) Review the Environmental Benchmarks ('critical loads and levels') and feature sensitivity to nitrogen

5.31 Habitats have varying sensitivity to air pollution effects. APIS provides environmental benchmarks for habitat either through the Site Relevant Critical Load Tool or the Habitat/pollutant impacts Tab on the home screen. These benchmarks are called critical loads or levels.

5.32 Critical levels and loads are set to take account of very long term contributions of pollution (20 – 30 year timeframe). Critical loads in particular are expressed as a range because they cover the situation across Europe for each nitrogen sensitive habitat. This range has to account for the variation in topography and precipitation/climate across Europe. In the UK, APIS outlines the part of the critical load range that is most appropriate based on available evidence (UK Indicative Critical Load Values).

5.33 Check whether the habitat being assessed has an environmental benchmark to assist with the assessment. If there is no benchmark on APIS that could mean there is lack of data. Absence of a benchmark is not assurance that a specific feature is insensitive to air pollution.

5.34 In addition, check and consider a feature's sensitivity to nitrogen more precisely. Some features and sites are much more sensitive to nitrogen than others; NECR 200 identifies three categories of sensitivity for traffic emissions; high (5-10 CL range), medium (10-20 CL range) and low (20-30 CL range).

5.35 Whilst the main impact mechanism of concern is through acid and nutrient nitrogen deposition (covered below), many assessments consider direct toxicity to vegetation from NOx. In this case the first relevant question to ask is the extent to which the relevant critical level might be exceeded as a result of the plan/project (either alone or in-combination with other plans and projects).

5.36 Ricardo-AEA (2016) in NECR200[24] found that background concentrations of NO_x in rural areas away from roads are typically in the range 15 – 20µg/m^3 i.e. some way off exceeding the critical level of 30µg/m^3.

Note that APIS provides background NOx values which are averaged over a 5km grid square. This means that higher levels along the roadside (but within a European site boundary) can be missed.

[24] RICARDO-AEA, 2016. *Potential risk of impacts of nitrogen oxides from road traffic on designated nature conservation sites*. Natural England Commissioned Report no. 200.

5.37 NECR200 measured designated site exposure to NOx from road traffic taking account of other background sources of NOx for 2011 and predicted 2020 data. High (>30µg/m^3), medium (> 25µg/m^3) or low (<25µg/m^3) categories of exposure to NOx from road traffic are identified based on a combination of road traffic NOx and background levels. Whilst this is a national snapshot in time (based on modelled data available at the time of the study in 2014), it could provide useful contextual data to supplement site specific data from APIS. Further information is provided here at NECR200.

5.38 When considering the impacts of a plan or project in relation to critical levels, it is important to understand the distance from the road that the critical level is exceeded and whether this represents a credible risk to qualifying features. We may wish to advise for example on how site boundaries have been defined and how the conservation objectives should be interpreted and applied to roads and road verges within a site boundary (see also step 3 in the screening stage above).

(b) Check for exceedance of Environmental Benchmarks

5.39 Exceedance of the benchmarks is determined by comparing the CBED (the 'Concentration Based Estimated Deposition' model) results (at 5km or 1km grid resolution) with critical levels or loads. Through this very direct approach for determining exceedance, more than 80% of the area of sensitive European Sites is currently in this exceedance state. This approach does not account for variability within the 5km grid square.

5.40 National maps to demonstrate where habitat sensitive to air pollution is predicted to be above its environmental benchmarks are available on Defra's UK AIR website[25].

5.41 Whilst most sensitive European Sites will be in this exceedance state, it does *not* automatically mean that further plans or projects affecting them would have an adverse effect on site integrity. Rather, it provides another piece of information to consider when determining whether a proposal might have a benign impact on site integrity and be acceptable or whether a conclusion of no adverse effect on site integrity cannot be reached by the assessment.

(c) Consider trends and whether there is evidence to indicate that background levels are decreasing

5.42 Acquiring information on whether local background pollution levels are declining or not can provide useful context to an appropriate assessment.

[25] 2013-2016 exceedances are in Defra AQ0826

5.43 This is available on the APIS Site Relevant Critical Load Tool and background concentrations are displayed under the “Trends” tab. This trend data currently covers the deposition and concentration trends over at least the last 8 years of national modelling. It is updated annually, though background trends are a 3-year average to account for weather variation (e.g. year 2005 is the average of years 2004, 2005 & 2006). The trend data is provided for maximum and minimum air concentrations (NOx, SOx, ammonia) as well as deposition (nutrient nitrogen and acid). A precautionary approach is to use the maximum value.

5.44 For deposition there are 3 sets of maximum and minimum values related to 3 rates of deposition:

- Moorland (or knee-high vegetation)
- Forest (or anything taller than knee high)
- Grid Average (average deposition for 5km grid square across habitat types)

5.45 Which value you use will depend on what type of habitat you are looking at. Figure 3 shows an example of nitrogen deposition trends at Breckland SAC. Nationally predicted declines in nitrogen deposition on heathland at Breckland SAC from 27 kg N/ha/year in 2005 to 24 kg N/ha/year in 2014 could mean that some increases in nitrogen from a plan or project (alone and in combination) may not impede this downward trend. Taking into account all relevant factors and information, it may be possible to consider some increases as temporary and reversible, which would be unlikely to undermine site objectives. In other words, we can still expect - even with the plan/project – the overall environmental loading will return to below critical level and loads within an appropriate timeframe.

5.46 While this may be a useful factor to consider in some cases, it should not be applied blindly. A range of matters will remain relevant, including whether any local survey evidence indicates that it is unsafe to rely on national modelling or where there are development clusters which would mean that any headroom that may be available should be more closely monitored or cannot be confidently relied on.

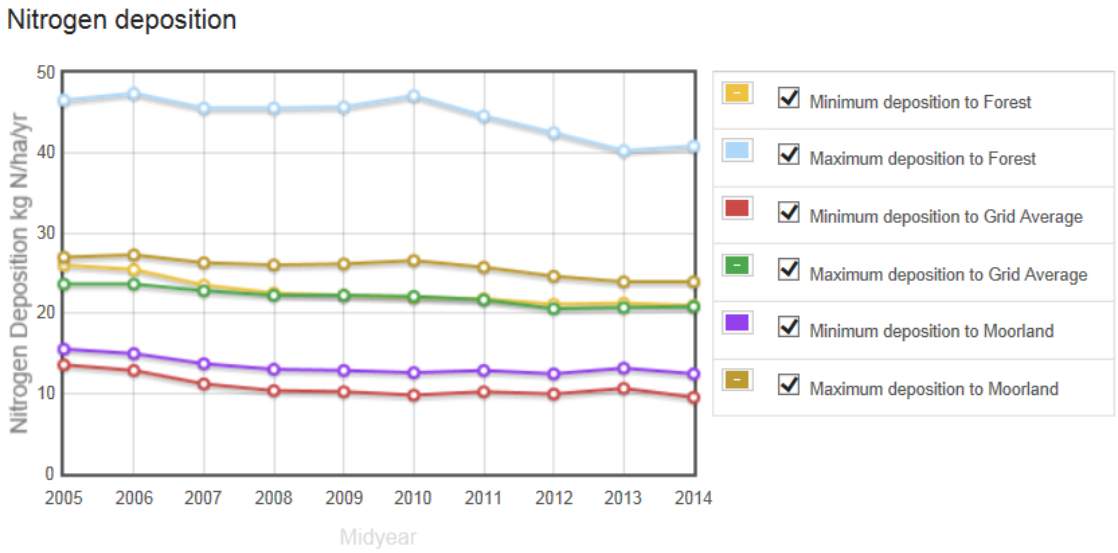


Figure 3: APIS Trends Tab for Breckland SAC Nitrogen Deposition

Consider the designated site in its national context

5.47 NECR200 provides contextual information to help inform relative risk within a wider national context. It provides an analysis of SAC and SSSI exposure to NOx from road traffic (taking into account other background sources of NOx), for 2011 and 2020 (based on 2014 modelling data).

5.48 It provides a relative categorisation of SSSI and SAC site exposure to road traffic NO_x in a national context and a relative risk categorisation of SACs based on exposure and site sensitivity. Whilst the data is a snapshot in time based on 2011 data and modelled 2020 data, it does provide a national context for local decision makers when assessing local plans and local development in relation to road traffic impacts on designated sites.

Consider the best available evidence on small incremental impacts from nitrogen deposition

5.49 When assessing likely adverse effects on site integrity, the Natural England Commissioned Report 210: *Assessing the effects of small increments of atmospheric nitrogen deposition (above the critical load) on semi-natural habitats of conservation importance* (referred to above) may be of relevance.

5.50 This research shows that habitats that have already been subject to high background nitrogen deposition can develop an effective tolerance to the effects of further deposition. However, this evidence is not appropriate for use to justify further exceedance on designated sites alone, without also considering all available factors and information and where this would undermine the

conservation objectives to reverse this and restore pollutant levels to within an acceptable level.

5.51 The objective of this report was to examine recent vegetation survey data to understand the relationships that exist between species (composition and richness) and nitrogen deposition, and to determine the effect of incremental increases in nitrogen. Vegetation data were analysed from 226 sites, collected over 8 surveys of 5 UK priority habitats for conservation (sand dune, bog, lowland heath, upland heath, acid grassland). Further evidence was gained from published survey data and the network of UK nitrogen addition experiments.

5.52 This report provides detail about how much additional nitrogen might lead to a loss of one species on the following habitats (although in the case of bogs and sand dunes there was either insufficient information to develop a dose-response curve or the measure of effect (loss of one species) was too coarse to make a determination):

- Upland heath
- Lowland heath
- Bog (non-curvilinear response)
- Acid grassland
- Sand dunes

For certain habitats this information can inform a more precise assessment of the likely effect. The implications of any such predicted effects on overall species-richness should then be further evaluated in light of the site's Conservation Objectives to inform the conclusion of the appropriate assessment.

Consider the spatial scale and duration of the predicted impact and the ecological functionality of the affected area

5.53 The likely duration of any emission-impact(s) and the potential for recovery/reversibility of that impact are important factors to consider further when determining whether it is possible to demonstrate no adverse effect on integrity. For example, a conclusion of no adverse effect on integrity may be able to be reached in the case of a short-lived effect from which the site/feature can quickly recover (e.g. a peak caused by construction traffic).

5.54 The anticipated duration of any potential air quality impact, the ability for the affected feature to absorb or recover from that impact and the likely timescale of any anticipated recovery may be an important consideration in the assessment. The longer or more uncertain the feature's likely recovery time from an impact, the more difficult it may be to demonstrate no adverse effect on integrity.

5.55 A Natural England research report (NECR205) on how small scale effects[26] on European Sites have been considered in decision-making is of relevance here. Where the spatial extent of the affected area is small then the risk to the integrity of the site needs to be approached in a reasonable and proportionate manner. The Research Report concluded that:

'In the case of small scale effects on a qualifying Annex 1 habitat type for which a SAC had been designated, the decisions reviewed suggest that it is the relative importance of the area affected in terms of the rarity, location, distribution, vulnerability to change and ecological structure which is most influential. The contribution the affected area made to the overall integrity of the site (and hence that site's contribution to the conservation status of that habitat type at a member state level) exerted a stronger influence over decision makers than the spatial extent of the effect.

In the case of small scale effects on a supporting habitat for a species (whether a designated SAC species or a classified SPA species), the decisions reviewed suggest it is the ecological functioning of that supporting habitat which is most influential: that is, what ecological function the affected area was performing, or could perform, and it's importance to the population of the species for which the site had been designated / classified.'

Consider site survey information

5.56 Information available from site surveys will be relevant to an appropriate assessment. In particular any information which might indicate evidence of existing impacts from air pollution from similar sources which might introduce reasonable scientific doubt as to the absence of such adverse effects should the plan or project in question be permitted.

5.57 Such information which is available at the stage of the HRA could also enable a more detailed review of the likely exposure of sensitive features to emissions.

Consider national, regional and local initiatives or measures which can be relied upon to reduce background levels at the site

5.58 Where an existing national, regional or local initiative can be relied upon to lead to the reduction in background levels of pollution at a site, the competent authority should assess the implications of a plan or project against an improving background trend.

[26] CHAPMAN, C. & TYLDESLEY, D. 2016. *Small-scale effects: How the scale of effects has been considered in respect of plans and projects affecting European sites - a review of authoritative decisions*. Natural England Commissioned Reports, Number 205.

5.59 In order to rely on the fact that national, regional or local initiatives will positively affect the environmental context within which a decision is taken on a plan or project (at appropriate assessment), a high degree of certainty is required in order to satisfy the precautionary nature of the legislation. Competent authorities should consider in their assessment the full details of the national, regional or local initiatives that they intend to rely on in an HRA and ensure that they are confident that such schemes will be implemented and achieve the results predicted within the relevant timescales.

5.60 An appropriate assessment would need to consider whether the additional contribution against a reliably predicted declining background level would adversely affect the integrity of the site in question. This question would be informed by a judgement by the competent authority over any delay that the new plan or project might introduce to the timeframe within which the benchmark might have otherwise been achieved (had the plan or project not been consented) and whether it considers any delay would be acceptable or not (having regard to Natural England's advice).

5.61 Examples of strategic work could include:

- Measures to implement Shared Nitrogen Action Plans (SNAPs) that are measured and demonstrated as a certainty, not simply an aspirational plan of potential measures. See Improvement Programme for England's Natura 2000 Sites Atmospheric Nitrogen Theme Plan IPENSTP013.
- National projections given in reports on NE Evidence Catalogue (NECR200 roads report)
- National Policy resulting in emission reductions (e.g. Clean Air Zones, Ultra-low emission zone actions) – these would need to have measureable outcomes for emissions that are certain; again they cannot be aspirational only.
- Evidence of uptake of emission-reduction measures in local agri-environment schemes (whilst recognising the timeframe of any commitments)

Note the request of the Dutch courts for a preliminary ruling from the CJEU in C-294/17 on the Dutch national nitrogen programme (see earlier paragraph 1.6).

Consider measures to avoid or reduce the harmful effects of the plan or project on site integrity

5.62 In a recent decision in C-323/17 *People Over Wind*, the CJEU concluded that any measures intended to avoid or reduce the harmful effects of the plan or project on a European Site should be taken into account at the appropriate assessment stage, rather than the preceding screening stage.

5.63 A submitted proposal subject to appropriate assessment by a competent authority may already contain such measures that have already been voluntarily proposed by the applicant. Further 'additional' mitigation measures can also be imposed by that competent authority on the proposal by way of formal conditions or restrictions subject to which a permission or authorisation may be given. These may be different to or go further than any mitigation measures already proposed by the applicant.

5.64 However, it is relevant to consider these matters at the appropriate assessment stage and Natural England may wish to advise a competent authority on such measures.

5.65 Avoidance and mitigation measures must be capable of preventing adverse effects on site integrity over the full lifetime of the plan or project. To be viable, such measures should be considered to be effective, reliable, timely, guaranteed and of sufficient duration.

5.66 As a result, the inclusion of these measures should be supported by evidence and confidence that they will be effective and that they can be adequately secured and legally enforced to ensure they are strictly implemented by the plan/project proposer.

5.67 Examples of plan/project specific measures to mitigate air quality effects might include;

- Traffic management measures which reduce emissions at source e.g. road speed reduction measures aimed at reducing impacts on sensitive sites/features
- Planting of wooded shelterbelts or other types of green barriers such as trees, green walls and hedges to intercept and limit the dispersal of traffic emissions to sensitive sites/features.

Consider any likely in-combination effects with other live plans and projects from other sectors

5.68 Where a plan or project has been screened in for appropriate assessment based on the likelihood of it having a significant effect alone, it should initially be subject to appropriate assessment on this basis.

5.69 If, after considering and applying any further mitigation measures to the plan or project, the competent authority considers that the risk of residual effects remain which are appreciable (i.e. not inconsequential) but no longer adverse in their own right, then a further in-combination assessment of these residual effects would be required at this stage to check for a combined adverse effect (see principles included in step 4b/c).

5.70 Other plans or projects that could add to the road traffic effects of the subject plan or project and have a cumulative effect on a particular site could originate from other sectors (e.g. applications for intensive livestock permits or industrial installations).

6. Giving Natural England's advice to the competent authority for the purposes of the appropriate assessment

6.1 The competent authority must have regard to any representations that Natural England makes about its assessment and can give its views considerable weight in coming to its decision[27]. However, Natural England's advice on an appropriate assessment is not binding and it does not have to be given such weight if cogent reasons can be given by a competent authority for departing from it[28].

6.2 Competent authorities may consult Natural England on their final appropriate assessment and the conclusions that have been reached Natural England's response will represent its formal opinion, as the appropriate nature conservation body, on the effects of the proposals on the integrity of the European Site(s) in accordance with the Habitats Regulations.

6.3 Natural England should advise on the competent authority's conclusion reached by its appropriate assessment. Where we do not agree with the conclusions of the assessment, we should explain why not with clear and credible reasoning. We may wish to advise on further modifications/conditions/restrictions that could, in our view, enable the competent authority to conclude no adverse effect on the integrity of the site, for instance.

6.4 Where an adverse effect on a European site's integrity cannot be ruled out by a competent authority, despite the application of additional mitigation, it does not necessarily follow that the plan or project will not be permitted. In accordance with the Habitats Regulations, the competent authority (in conjunction with the project proposers and the relevant Government department) could then consider whether the proposal can satisfy stages 3 and 4 of the Habitats Regulations Assessment (consideration of alternative solutions and imperative reasons of overriding public interest) subject to securing the necessary compensatory measures. In these circumstances, the competent authority should initially be referred to current Government guidance on applying these stages of HRA.

[27] See (Ashdown Forest Economic Development LLP v SSCLG, Wealden District Council [2014] EWHC 406 (Admin) at paragraph 110)

[28] See R (Akester) v. DEFRA [2010] EWHC 232 (Admin) at paragraph 112; Wealden DC v. SSCLG [2016] EWHC 247 (Admin) at paragraphs 91 and 95; DLA Delivery v. Lewes District Council [2015] EWHC 2311 at paragraph 32; Mynydd y Gwynt at paragraph 20.

6.5 Natural England staff should act in accordance with Part 7 of Natural England's Non-Financial Schedule of Delegations when giving its advice to competent authorities on the appropriate assessment of certain plans and projects.

For further information about the content of this guidance note, please contact Natural England Planning Consultations Team at consultations@naturalengland.org.uk.

Appendix A: Summary Flowchart – advising on steps for HRA of plans/projects with road traffic emissions

Stage	Flowchart step		Supplemental evidence/ basis for judgment
Initial screening for credible risk of an effect	**1**	Check Distance criteria - could significant emissions reach a protected site? *Yes* = move to Step 2 *No* = no further HRA required	Industry standards based on likely distance for modelled emissions (scoping model); often related back to significance threshold Distance Criteria – 200m for roads and available upon request; note this is currently under review APIS Introduction to Air Pollution
	2	Check the sensitivity of qualifying habitats or supporting habitat of qualifying species. Are habitats in proximity sensitive to the emission type? *Yes* = move to Step 3 *No* = no further HRA required	APIS Site relevant Critical Loads and Levels (based on literature and professional judgement) http://www.apis.ac.uk/srcl
Detailed screening for determining whether screening thresholds are appropriate	**3**	Check habitat likelihood to be exposed to emissions Are the sensitive habitats where emissions are predicted to be? *Yes or Unsure* = move to Step 4a *No* = no further HRA required	Use application documents to understand predicted emissions (magnitude and location if available). If not available, assume emissions reach entire site in proximity. Investigate location of habitats determined as sensitive in Step 2. Use MAGIC priority habitat layers (internal staff: if necessary contact Site responsible Officer for advice to understand if sensitive habitats are present).
Applying screening thresholds	**4a**	Apply Screening Threshold Alone *If below threshold alone* = move to step 4b. *If above* = move straight to step 5.	Ascertain the Process Contribution (PC) or proxy increase in traffic from the plan or project (emissions and predicted deposition or AADT flow). This can be determined through application document, screening model results, detailed model results and information from APIS. Apply Screening threshold (1% of critical level or load or 1000AADT) alone.

Stage	Flowchart step		Supplemental evidence/ basis for judgment
	4b	Apply Screening Threshold In-combination with other traffic/roads *If below threshold in-combination* = move to step 4c. *If above* = move straight to step 5.	Use information from competent authority to determine if there are plans or projects in the pipeline (not in background pollution) that should be considered in-combination for emission from roads/ increase in traffic. For instance, add traffic increases/ emissions & deposition from other Local Plans together and apply 1000 AADT/ 1% to that sum.
	4c	Apply screening threshold in-combination across sectors *If below threshold in-combination*= no likely significant effect can be advised and no further assessment is required. *If above* = move to step 5.	Use information from other competent authorities (Planning Portal or Environmental Permitting register) to determine if there are nearby permissions that would have an in-combination effect with the roads being assessed. When all relevant proposals together (in-combination) fall below the 1% or 1000 AADT level of change, there is reasonable rationale to consider the proposal unlikely to have a significant effect.
Advise Appropriate Assessment is required and contribute scoping advice	**5**	Provide supporting evidence to Competent Authority (scoped as appropriate) Proceed to Step 6 when requested by competent authority and sufficient information is available to provide advice	• Check distance of sensitive habitats from emissions • Check European Site Conservation Objectives • Check environmental benchmark (critical level and load) • Check background concentrations and exceedance • Check APIS Trends Tab for reasonable expectation that background pollution is decreasing • Assess likely scale and duration of impacts on habitats from emissions • Check strategic initiatives in area (if would be undermined if project or plan was allowed) • Check mitigation options and whether detailed modelling may be needed (up to competent authority) • Consider any residual effects (after mitigation where practicable) and check for in-combination effects with other plans/projects
Advice on the appropriate assessment	**6**	Competent Authority has provided an Appropriate Assessment conclusion When requested by competent authority and information is available to provide advice	Give formal advice on appropriate assessment – provide reasoning for our advice