

Report to: -
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November 2018 (v.2)

**RESPONSE TO AN OBJECTION RAISED BY
WOODLAND TRUST**

IN RESPECT OF:

**THE PROPOSED CONTINUATION OF A
QUARRY DEVELOPMENT
AT
THE EXISTING ATTLEBRIDGE QUARRY,
ATTLEBRIDGE,
NORFOLK
NR9 5TD**



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**RESPONSE TO AN OBJECTION RAISED BY WOODLAND TRUST IN RESPECT
OF:****THE PROPOSED CONTINUATION OF A QUARRY DEVELOPMENT AT THE
EXISTING ATTLEBRIDGE QUARRY, ATTLEBRIDGE, NORFOLK NR9 5TD****1. SUMMARY**

- 1.1.1 This report was produced by AEcol on behalf of CEMEX UK Materials Ltd for the Norfolk County Council Mineral Planning Officer, in order that they may respond to an objection raised by the Woodland Trust.
- 1.1.2 The report was written by Henry Andrews MSc CEcol MCIEEM in accordance with the Professional Code of Conduct set out by the CIEEM.
- 1.1.3 The report summarises the substance of the Woodland Trust objection and attends to each point by reference to: pertinent sections of legislative mechanisms; results and conclusions of environmental and ecological studies; and, reviews of relevant scientific accounts. In addition, bespoke illustrations of noise data that were not provided to the Mineral Planning Authority are also included.
- 1.1.4 The conclusions are as follows: -
- i. Although it is cited as a Plantation on Ancient Woodland Site (PAWS) within the Ancient Woodland Inventory (AWI), there is no evidence that the woodland known as Mileplain Plantation accords with the definition of PAWS within Standing Advice.
 - ii. The EcIA was performed entirely in accordance with the criteria of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* and to the highest standard.
 - iii. Notwithstanding the evidence that Mileplain Plantation is not an ancient site and should not be listed on the Ancient Woodland Inventory, the mitigation is entirely in accordance with the criteria of Standing Advice: *Ancient Woodland, ancient trees and veteran trees: protecting them from development*.
 - iv. The conclusion was that there were no grounds to predict the development will result in significant negative residual effects upon on- or off-site Valued Ecological Receptors (VER), nor are there grounds to suggest potential cumulative significant negative effects in combination with concurrent developments.

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- v. No project or site-specific supporting evidence appears to have been submitted by the Woodland Trust.
 - vi. All the weight of the considerable evidence reviewed and provided to the Mineral Planning Authority supports the conclusion of the EcIA, which is that there are no grounds to predict a likely significant effect upon Mileplain Plantation or the faunal species that may occupy the woodland.

Section 1 – End

Section 2 – End

2. INTRODUCTION

2.1.1 This report was produced by AEcol on behalf of CEMEX UK Materials Ltd for the Norfolk County Council Mineral Planning Officer, in order that they may respond to consultee observations, criticisms and requests for further information made by the Woodland Trust.

2.1.2 The report proceeds in a logical order as follows: -

- First, In Section 3, in order to provide a contextual background, the pertinent section of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* is summarised. Thereafter, the parties involved are identified and their qualifications are listed.
- Secondly, in Section 4 items within the wider objection are responded to individually.
- Thirdly, in Section 5 the findings of the response are ‘summed-up’ with a concise conclusion.

Section 2 – End

3. STATEMENTS OF COMPETENCE

3.1 Context

3.1.1 *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* states: -

PART 5

Environmental statements

18.- (5) *“In order to ensure the completeness and quality of the environmental statement –*

(a) the developer must ensure that the environmental statement is prepared by competent experts; and

(b) the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.”

3.2 Woodland Trust

3.2.1 The Woodland Trust is charitable organisation and, latterly, pressure group (see www.woodlandtrust.org.uk).

3.3 AEcol

3.3.1 AEcol is an independent ecological consultancy specialising in services to the quarrying industry. The practice has competence in Preliminary Ecological Appraisal, Ecological Impact Assessment, Habitat Regulations Assessment, habitat and species surveillance, as well as habitat restoration, monitoring and management (see www.aecol.co.uk).

3.3.2 This response was written by Henry Andrews MSc CEcol MCIEEM. In addition to a Master’s Degree in Biological Recording and Species Identification, he is a Chartered Ecologist and Full member of the Chartered Institute of Ecologists and Environmental Managers (CIEEM). Henry has 14 years’ experience of conducting Ecological Impact Assessment (EcIA) from Preliminary Ecological Appraisal through to successful application. He has competency in site assessment and has designed successful European Protected Species Licences (EPSL) in respect of development for a wide range of protected species, which included habitat creation, species translocation and post-development monitoring spanning 5, 10, 15 and 25 years plus. Henry holds

licences to manage Jersey cudweed *Helichrysum luteoalbum* and to survey for great crested newts *Triturus cristatus*, sand lizards *Lacerta agilis*, smooth snakes *Coronella austriaca*, common dormice *Muscardinus avellanarius* and all bat species in England. His chartered status was achieved by demonstrating specialist accomplishment in bat survey and analysis design, in which authoritative status was demonstrated in greater than the required number of disciplines. Henry is the author of the *Bat Tree Habitat Key* (Andrews *et al.* 2016) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals* (BTHK 2018) and was on the steering group for BS 8596 *Surveying for bats in trees and woodland – Guide*. As well as appearing as an expert witness in respect of bat survey, he has also given training in bat ecology and survey methods on behalf of the Bat Conservation Trust and to Forestry Commission, Natural Resources Wales, Environment Agency and National Trust staff.

Section 3 – End

4. RESPONSE TO OBJECTION

4.1 Items

4.1.1 This objection comprises the following: -

1. The perceived ‘ancient’ status of Mileplain Plantation;
2. Perceived conflict with the National Planning Policy Framework in respect of loss or deterioration of irreplaceable habitat;
3. Perceived conflict with Local Planning Policy;
4. The scale and duration of the development;
5. A range of potential impacts; and
6. The width of the stand-off proposed.

4.1.2 Each aspect of the above’s objection is reviewed and married with a response in the following subsections.

4.2 Mileplain Plantation perceived PAWS status

4.2.1 The Woodland Trust state that: -

“The Woodland Trust objects to the planning application in question on the basis of damage and potential loss to Mileplain Plantation (grid ref: TG148168), a Plantation on Ancient Woodland Site (PAWS) designated on Natural England’s Ancient Woodland Inventory (AWI).”

4.2.2 The current Standing Advice comprises *Ancient woodland, ancient trees and veteran trees: protecting them from development*. The Advice states plainly that it relates to *“...any area that’s been wooded continuously since at least 1600 AD.”* Woodlands that are perceived as having existed pre-1600 are listed on the Ancient Woodland Inventory.

Introduction to the Ancient Woodland Inventory (AWI)

4.2.3 In the late 1970’s ancient woodland (woodland that appeared to have been present in the landscape for centuries and possibly since tree cover first developed in the British Isles) began to be recognised as an important nature conservation resource that was coming increasingly under threat from modern forestry practices and agricultural intensification and expansion.

4.2.4 Responding to this, the early 1980’s saw the development by the then Nature Conservancy Council of the Ancient Woodland Inventory (AWI), which aimed to

record the total resource of land with tree cover present continuously since at least 1600 AD. For practical reasons, the Inventory only considered sites of at least 2 ha in size and the method used to identify ancient woods was mainly cartographical with early Ordnance Survey maps used to deduce age.

4.2.5 As no natural woodland unmodified by human activity (wildwood) exists in the UK, all woodland is strictly “semi-natural”. However, this classification is not useful when trying to describe differences in human influence. The term ‘semi-natural’ was therefore applied to woods that display relatively high levels of naturalness. By combining the two concepts of age and human influence the following terminology was adopted for the AWI: -

- Ancient Semi Natural Woodland (ASNW) (land which has continuously held tree cover comprising native species since at least 1600 AD);
- Plantation on Ancient Woodland Sites (PAWS) (where the site has been continuously wooded since pre-1600 AD but the native woodland has been replaced by non-native species);
- Recent semi-natural (woodland comprising native species planted or developing on previously un-wooded ground post-1600 AD); and
- Recent plantation (most recent monoculture plantations).

4.2.6 After the AWI was published, it was recognised by Goldberg, Peterkin and Kirby (2011), specialists in this field, that the cartographical evidence-base was flawed. As a result, errors occurred in the identification of sites, and some woods that are not of ancient origin remain in the Inventory.

Mileplain plantation

4.2.7 The Cultural Heritage Assessment submitted as Chapter 12.0 and Appendix G of the ES unequivocally demonstrates the boundary that is included in the Ancient Woodland Inventory was taken from an 1837 tithe map (NPS Archaeology 2013); 237 years later than the 1600 AD qualifier.

4.2.8 In fact, the earliest evidence of any woodland having existed at that location comprises Faden’s map of Norfolk, which was published in 1730 (NPS Archaeology 2013). This is still significantly later than the evidence required to justify the inclusion of Mileplain Plantation in the Inventory. However, the map legend refers to the wood as ‘Clump of firs’ which suggests a conifer plantation.

4.2.9 As Rackham points out within *Ancient Woodland: its history, vegetation and uses in England* (Rackham 1980), coniferous softwoods were not grown in England pre-1600, but were at that time imported from eastern Europe. It is suggested that ‘fir’ might relate to silver fir *Abies alba*, Norway spruce *Picea abies* and even Scots pine *Pinus sylvestris* (Rackham 1980, Forestry Commission 1957). Silver fir was

introduced in 1603 (Hanson 1911, Brimble 1948) and was being extensively planted by 1797 (Forestry Commission 1957). Norway spruce may have been introduced as early as 1548 (Hanson 1911, Forestry Commission 1957). Whilst native to the highlands of Scotland, Scots pine is considered an alien in the context of Norfolk but would certainly have been a common plantation tree in Norfolk in 1730.

- 4.2.10 The boundary of the 1730 section of woodland known as ‘Clump of firs’ and the extent of woodland shown on the 1837 tithe map, are shown in relation to the application boundary at Figure 4.1.

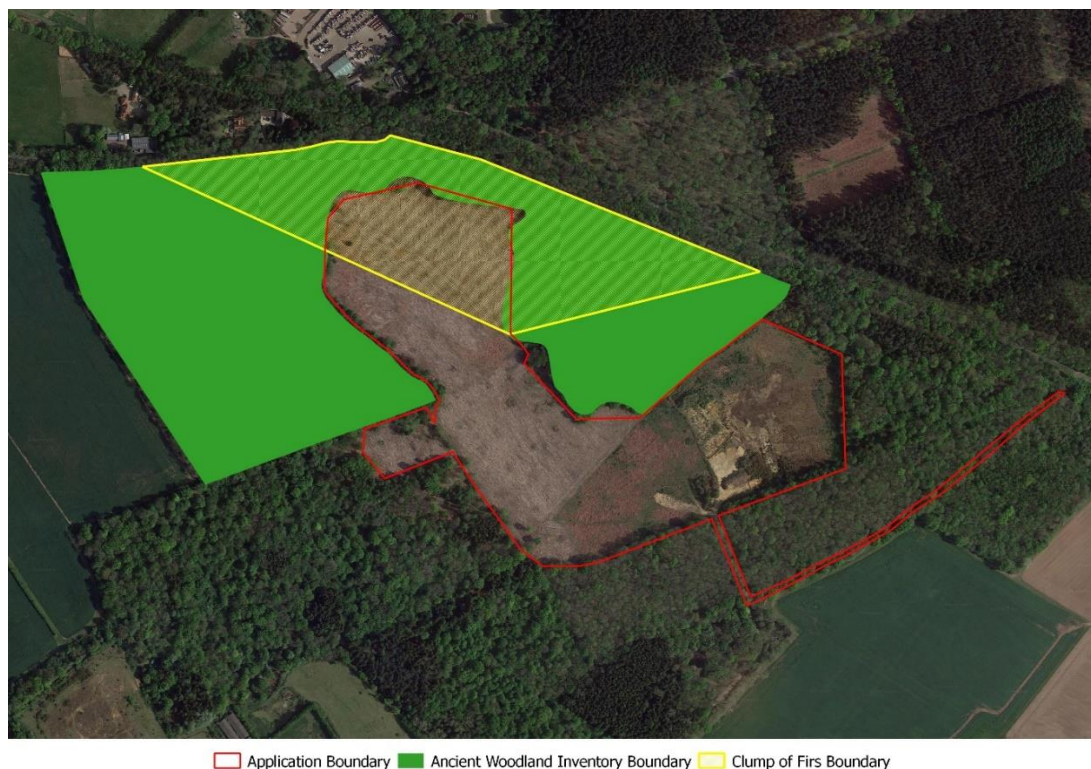


Figure 4.1. Illustration of the erroneous Ancient Woodland Inventory boundary that originates in 1837, and the woodland known as Clump of Firs that originates in 1730.

- 4.2.11 It may therefore be reasonably inferred that Mileplain Plantation is and always has been a coniferous plantation that in any case came into existence 130 years after the 1600 qualifying date required by the Standing Advice.
- 4.2.12 There is therefore a body of evidence to suggest this woodland should not be included in the Ancient Woodland Inventory, and that policies and advice contained within NPPF and the Development Plan which refer to Ancient Woodland are not material to the determination of the planning application to which this response relates.

4.3 National Planning Policy Framework

4.3.1 Woodland Trust open their objection by citing paragraph 175 of the National Planning Policy Framework, which states: -

“When determining planning applications, local planning authorities should apply the following principles: -

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists”

4.3.2 Notwithstanding, for this section of the policy to be relevant in the context of this application, Woodland Trust would have to objectively demonstrate that there were specific grounds to predict that the development would be likely to result in “...the loss or deterioration...” of woodland.

Part 5; Section 18

“(3) An environmental statement is a statement which includes:

*(d) a description of the **likely** significant effects of the proposed development on the environment;*

*(e) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset **likely** significant adverse effects on the environment;”*

and

Part 12; Section 64

*“(1) Where an authority of the Secretary of State has a duty under these regulations, they must perform that duty in an **objective manner**...”*

4.3.3 The Environmental Statement has already demonstrated that the development will not result in any likely significant off-site effects. No project or site-specific evidence has been provided by the Trust to the contrary that the Company is aware of.

4.4 Local Planning Policy

4.34.1 The Trust further cites Norfolk County Council's Core Strategy and Minerals and Waste Development Management Policies Development Plan Document, as follows:

-

Development Management Policy DM1 – Nature conservation

“Development that would harm locally designated nature conservation and geodiversity sites and/or habitats, species or features identified in UK and Norfolk biodiversity and geodiversity action plans, will only be permitted if it can be demonstrated that sufficient measures to mitigate harm to the site, habitat(s) and/or species can be put in place, preferably in advance of development... ..Potential adverse impacts off-site, caused by water contamination, changes to hydrology and/or air pollution, will also need to be considered.”

4.4.2 It is noted that the Trust have not identified how Mileplain Plantation might experience any likely significant negative effects as a result of the proposed development, and specifically what those effects might be; nor that the mitigation measures proposed would be insufficient to mitigate likely or significant harm to the adjacent woodland.

4.4.3 In fact, the submitted Ecological Impact Assessment (EcIA) has demonstrated that there are no grounds to suggest a likely significant negative effect upon the integrity of Mileplain Plantation, nor the species present within Mileplain Plantation and the application boundary (see AEcol 2017).

4.5 The development

4.5.1 The Trust suggests that: -

“This application would feature significant quarrying activity around areas of ancient woodland...”

4.5.2 Notwithstanding the fact that the weight of evidence is that Mileplain Plantation is not ancient, no definition of what threshold constitutes ‘significant quarrying activity’ is offered. As no such objectively determined threshold exists, one might adopt the EIA threshold of 25 ha identified within Schedule 1 of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017*. The application boundary submitted for Attlebridge Quarry encompasses a footprint of 17.75 ha; below that set for mandatory EIA and, adopting the 25 ha threshold, therefore below the threshold

of significance. The development itself is anticipated to take place over five years; it is up to the Mineral Planning Officer to decide whether this represents a significant period of time in the context of a quarrying development or a woodland. The development proposed would be one of the smallest within the Company's portfolio of sites both in terms of output and lifespan. In the Company's view this does not amount to 'significant' quarrying activity.

4.6 Impacts

4.6.1 A list of perceived impacts resulting from the proposed development is presented that the Trust considers will result in negative effects upon the woodland. The impacts suggested are as follows: -

1. Direct loss of ancient woodland habitat and soil;
2. Indiscriminate lopping/felling of overhanging trees;
3. Expose the woodland and its plant and animal populations to environmental impacts, comprising: -
 - a. Alteration to the quality and quantity of ground water and surface water.
 - b. Dust.
 - c. Exhaust fumes.
 - d. Noise.
4. Loss of local biodiversity due to the negative effect of environmental impacts;
5. Fragmentation; and
6. Cumulative impacts resulting from concurrent developments.

Direct loss of ancient woodland habitat and soil

4.6.2 It should be noted that the development does not lie within 'ancient woodland', but adjacent to an area of woodland that is erroneously designated as a PAWS and will not physically enter it.

4.6.3 In fact, the operational boundary includes a 15 m stand-off from the PAWS boundary, and this is in excess of the trees in some areas, as illustrated on Drawing No. 02D PHASE 2 RESTORATION V2.LSS (presented at Figure 4.2 on the following page) and all subsequent phases. Notwithstanding the fact that there is no evidence that Mileplain Plantation is qualified as ancient within the criterion of the Standing Advices, the 15 m stand-off is in line with that recommended.



Figure 4.2. Drawing No. 02D PHASE 2 RESTORATION V2.LSS

Indiscriminate lopping/felling of overhanging trees

4.6.4 With respect to the potential for ‘indiscriminate lopping/felling of overhanging trees’ Woodland Trust suggests: -

“Where the wood edge overhangs proposed quarry areas, the long-term retention of trees on the woodland edge will be threatened with indiscriminate lopping/felling where they are considered safety issues. This results in a reduction of the woodland canopy and impacts to the woodland edge, exposing the core woodland area to further impacts.”

4.6.5 This statement is speculative as no lopping or felling is proposed. CEMEX propose a 15 m stand-off and the Mineral Planning Authority might reasonably propose a planning condition in respect of any safety works potentially required during the operational life of the quarry. This would be entirely acceptable to CEMEX UK Materials Ltd.

Effects of alterations to the quality and quantity of ground and surface water

4.6.6 With respect to the potential for ‘effects of alterations to the quality and quantity of ground and surface water’ Woodland Trust suggest: -

“Hydrological changes will result in alterations to the quality and quantity of ground water and surface water. This will result in adverse impacts on the characteristics and quality of the adjacent woodland’s water sources from pollution/contamination and also affect the wood’s soil conditions.”

- 4.6.7 The EcIA set out clearly in Section 6, Subsection 6.3 that there will be no working below the water-table and *“there are no grounds to suggest any significant on- or off-site effects upon ecological VER as a result of hydrological impacts”* (AEcol 2017). This reasoned conclusion was based on the evidence provided within: -

ESI Ltd 2017. *Attlebridge Quarry: Hydrogeological Impact Assessment*. ESI Ltd, Shrewsbury (see Chapters 9.3 and 10, and Appendices D and E of the ES)

- 4.6.8 The Trust has provided no evidence in contradiction of the findings within the above parts of the submitted ES. Notwithstanding; under the criteria of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* the EcIA, which is a component part of the Environmental Statement, must assess the likely significant effects. This has been achieved and no such effect is predicted.

Dust impacts and effects

- 4.6.9 With respect to the potential for ‘dust impacts and effects’ Woodland Trust suggest: -

“Pollution occurring from by-products of the quarrying activity e.g. dust, airborne soil particles from the movement, storage and stripping of soils, transport emissions, and chemical impacts from works. These can alter the composition of plant communities through differentially stimulating or changing competitive interactions that determine relative species abundance and diversity.”

and

“Some of the main by-products of quarrying are noise and dust pollution. Ancient woodland flora is particularly sensitive to dust. Dust has a major deleterious impact on epiphytic lichens with all bar the most resistant species dying at high dust concentrations. Lichens form part of the complex ecosystem that make up ancient woodland and their health can be used as a good indicator of the quality of the rest of the habitat. Studies have shown that trees are also affected by dust pollution, suffering reductions in height growth and also in shoot, root and needle growth.”

- 4.6.10 The Woodland Trust have themselves produced two wide-ranging reviews of the effects of development impacts upon Ancient Semi Natural Woodland, comprising: -

1. Corney P, Smithers R, Kirby J, Peterken G, Le Duc M & Marrs R 2008. *Impacts of nearby development on the ecology of ancient woodland*. The Woodland Trust

and

2. Ryan L 2012. *Impacts of nearby development on ancient woodland – addendum*. The Woodland Trust

4.6.11 In the 2008 review, the evidence cited in support of the suggestion that dust pollution might have an effect upon Ancient Semi-Natural Woodland (ASNW) comprises one scientific paper and relates to one Austrian limestone quarry which included a cement works¹.

4.6.12 The 2012 review opens with an admission that that none of the evidence reviewed included the impacts of quarrying.

4.6.13 Neither of the Woodland Trust reviews cite Farmer (1991) which, although nearly 30 years old, still represents the most comprehensive evidence-base with respect to the effects of dust impacts on vegetation.

4.6.14 Farmer (1991) identifies that dust falling onto plants can have direct physical and chemical effects. The combination of direct and indirect impacts may result in changes in the vegetation communities. Although all plants are susceptible, epiphytic lichen and sphagnum² dominated communities are the ones that have proven most sensitive of those that have been studied (Farmer 1991). These changes may have negative effects upon the existing fauna the communities support, ranging from vertebrate graziers all the way down to soil invertebrates (Farmer 1991).

4.6.15 Farmer (1991) specifically identifies that mineral extraction is the main process that regularly causes dust problems, ranging from the quarrying itself to the various processing operations. The evidence of negative effects is, however, restricted to limestone quarries and in particular those with cement plants.

4.6.16 In respect of trees, heavy cement/lime dust may cause necrosis of the leaves of trees and bark peeling, as well as a general reducing in growth, pollen germination and fruit production (Farmer 1991). In addition, ivy *Hedera helix* appears to respond positively to cement dust which may further stress the tree as well as adversely affecting epiphytic lichens, mosses and liverworts, which themselves trap dust on their rough surfaces (Farmer 1991).

¹ The only other paper described the effect of lead smelting in Czech Republic.

² The so-called ‘bog’ or ‘peat mosses’.

-
- 4.6.17 In respect of epiphytic communities, the concern in respect of ancient woodland relates to the high bark pH brought about by limestone/cement dust, to the detriment of uncommon assemblages of lichens (e.g. Gilbert 1976).
- 4.6.18 Notwithstanding the evidence that Mileplain Plantation is not an ancient woodland, Attlebridge Quarry is not a limestone quarry, nor will the quarry include a cement plant. The quarry will extract sand and gravel, both of which have significantly larger dust particles than those of limestone/cement dust due to the nature of the processing of the ‘as dug’ aggregate. The trees surrounding Attlebridge Quarry are growing in the gravel substrate, and it is therefore not likely that this material being deposited as dust in the area of their root mats would have any perceivable effect upon their vitality. This is because the dust will be chemically identical to the soils the trees are already growing in. The adjacent woodland is not known to hold any sensitive bryophyte or lichen communities. In any case, monitoring of the impacts of dust resulting from gravel extraction at East Burnham Quarry on Burnham Beeches Special Area of Conservation, has been performed annually by Wardell Armstrong for 28 years (i.e. it started in 1990). Lichens within Burnham Beeches have been studied in relation to the impact of dust from the quarry every year. No triggers for action have ever been exceeded and the monitoring continues, despite an Appropriate Assessment performed in 2006 concluding that “*dust emissions are predicted to be too low to affect significantly existing dust deposition levels...*” (Buckinghamshire County council 2006).
- 4.6.19 The EcIA in respect of Attlebridge Quarry set out clearly in Section 6, Subsection 6.3 that “*there are no grounds to suggest any significant on- or off-site effects resulting from air quality impacts*” (AEcol 2017). This reasoned conclusion was based on evidence provided within: -

EA Ltd 2017. *Air Quality Assessment associated with the variation of conditions to allow continued extraction at Attlebridge Quarry, Reephams Road, Attlebridge, Norfolk NR9 5TA*. EA Ltd, Stretton under Fosse

- 4.6.20 The Trust has provided no evidence in contradiction of EA Ltd’s findings. Under the criteria of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* the EcIA, which is a component part of the Environmental Statement, must assess the likely significant effects. This has been achieved and no such effect is predicted.

Exhaust fume impacts and effects

- 4.6.21 With respect to the potential for ‘exhaust fume impacts and effects’ Woodland Trust suggest: -

“The necessary use of heavy machinery as part of site clearance/preparation and extraction will result in an increase in heavy-load vehicles going to and from the site. In the UK, nitrogen oxides are produced primarily by vehicle emissions. Increasing nitrogen can alter the outcome of competitive interactions, changing the character of woodland vegetation, largely in terms of species composition. There is evidence from woods across Britain that species increasing in cover are more likely to be associated with high nutrient status conditions. Some species have shown consistent increases, e.g. nettle, rough meadow grass and pendulous sedge, or decreases in abundance correlated with modelled nitrogen changes.”

- 4.6.22 The Trust refers to “...evidence from woods across Britain...” but does not identify any specific evidence-base, nor do they cite any scientific link between vehicle emissions contributing to changes in woodland vegetation.
- 4.6.23 Natural England have produced guidance for competent authorities on the assessment of road traffic emissions under the Habitats Regulations (Natural England 2018). In the guidance they identify the air pollution that typically affects habitat as: particulate matter (PM); nitrogen oxides (NO_x), ammonia (NH₃) and sulphur dioxide (SO₂).
- 4.6.24 Ammonia is associated with farming and waste disposal (Natural England 2018), and may therefore be scoped-out from this assessment. The remaining pollutants are associated with the burning of fossil fuels and may therefore be reasonably be included in this assessment.
- 4.6.25 There is the potential for effects upon vegetation when sufficient airborne pollutants settle on the ground (referred to as ‘deposition’) and cause nutrient enrichment (i.e. eutrophication) or acidification (Natural England 2018). Traffic emissions can be a short-range contributor to nitrogen deposition (Natural England 2018). At significant levels, nitrogen deposition can indeed cause localised eutrophication.
- 4.6.26 The Air Quality assessment performed by EA Ltd did not report any grounds to suggest that traffic emissions might have the potential to exceed critical loads, or result in any perceptible change to the pH of soils.
- 4.6.27 Considering the situation in context, Mileplain Plantation is immediately to the south of the Reephram Road, and to the east of the Felthorpe Road. Traffic entering and leaving Attlebridge Quarry will do so under the canopy of Foxburrow Plantation and be trapped in the immediate vicinity of an existing haul road that historically serviced a landfill to the south-west. Save for exceptional local purchases, the quarried material will exit to the east on the Reephram Road and thereby travel away from Mileplain Plantation. This situation is illustrated at Figure 4.3 on the following page.

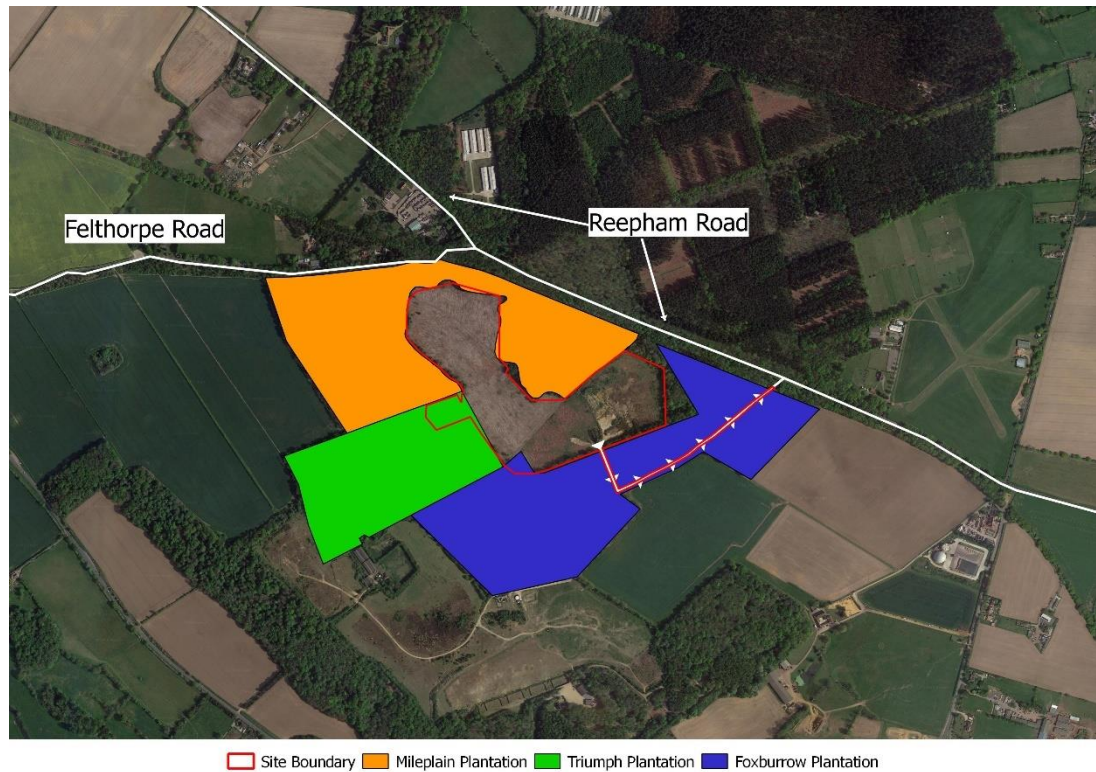


Figure 4.3. The location of Mileplain Plantation in respect of the Reepham and Felthorpe Roads and the direction of quarry traffic.

4.6.28 Any change in the vegetation adjacent to the Reepham and Felthorpe Roads resulting from traffic emissions can be predicted to have already occurred and be functionally permanent. Impacts in respect of Attlebridge Quarry can be predicted to be of far lesser magnitude, intermittent (i.e. the movements will not be constant over 24 hours, nor will they occur on all seven days in a week). The potential for an effect resulting from the impact of traffic emissions is negligible.

4.6.29 The EcIA was performed entirely in accordance with the criteria of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* and is a component part of the Environmental Statement. The Air Quality assessment performed by EA Ltd did not report any grounds to suggest a likely significant effect upon Mileplain Plantation.

Noise impacts and effects

4.6.30 With respect to the potential for ‘noise impacts and effects’ Woodland Trust suggest that: -

“Noise associated with quarrying activity comes from a range of sources, mostly involving large machinery and vehicles. Noise levels will be elevated and likely remain

constant over time. They are likely to limit the distributions of animal species that are intolerant of noise and negatively affect their reproductive success near to woodland edges.”

4.6.31 The EcIA set out clearly in Section 6, Subsection 6.3 that “*There are no grounds to suggest any significant on- or off-site effects resulting from noise impacts*” (AEcol 2017). This reasoned conclusion was based on the evidence provided within: -

WBM Acoustic Consultants 2017. *Attlebridge Quarry, Norfolk Noise Assessment Report*. WBM Acoustic Consultants, East Haddon.

4.6.32 Nevertheless, the applicant requested WBM produce contour plots for routine operations (i.e. day-to-day running) and temporary operations (i.e. soil stripping, bund formation etc.). These are provided at Figure 4.4 on page the following page.

4.6.33 As a broad interpretation, WBM suggest: -

- At noise levels over 70db LA_{max} significant disturbance to faunal species is likely;
- Noise levels between 55-70db LA_{max} would be perceptible to wildlife and might disrupt behaviour; and
- Noise levels below 55db LA_{max} would be unlikely to have a significant disturbance effect.

4.6.34 While the routine noise levels will remain below the 55db LA_{max} threshold likely to cause displacement, it has been accepted that the temporary noise levels may be disruptive. Nevertheless, the noise levels within the woodland do not exceed the 70db LA_{max} that would be likely to result in significant disturbance.

4.6.35 The WBM approach is generic and does not consider individual faunal species. The Trust have themselves attempted a review of noise disturbance upon faunal species. The authors cite no relevant evidence³, but do vaguely hypothesise that disturbance in the UK may be sufficient to limit deer browsing⁴ (see Corney *et al.* 2008). However, in order to provide Minerals Planning Authority will an evidence-supported prediction of the likely effect of noise disturbance resulting from the development, the ecology of the species was reviewed in respect of their sensitivity to noise disturbance.

4.6.36 The S41 Species; common toad *Bufo bufo* has been recorded within the development footprint. Common toads are the only ‘woodland’ amphibian. As males do not call to

³ The evidence cited relates to an individual study that described caribou behaviour in the vicinity of a gold mine in Newfoundland

⁴ Professor Oliver Rackham was regarded as one of the world authorities on Ancient Woodland. At the Bat Conservation Trust Woodland Symposium held on 18th November 2014, the author of this report asked him what one thing would swing the state of Ancient Woodland in the British Isles. His reply was simple; “*kill Bambi*”. Limiting deer browsing might therefore be thought of as wholly positive.

attract females to breeding ponds (Wells 1977) the potential for a significant negative effect due to noise disturbance is negligible.

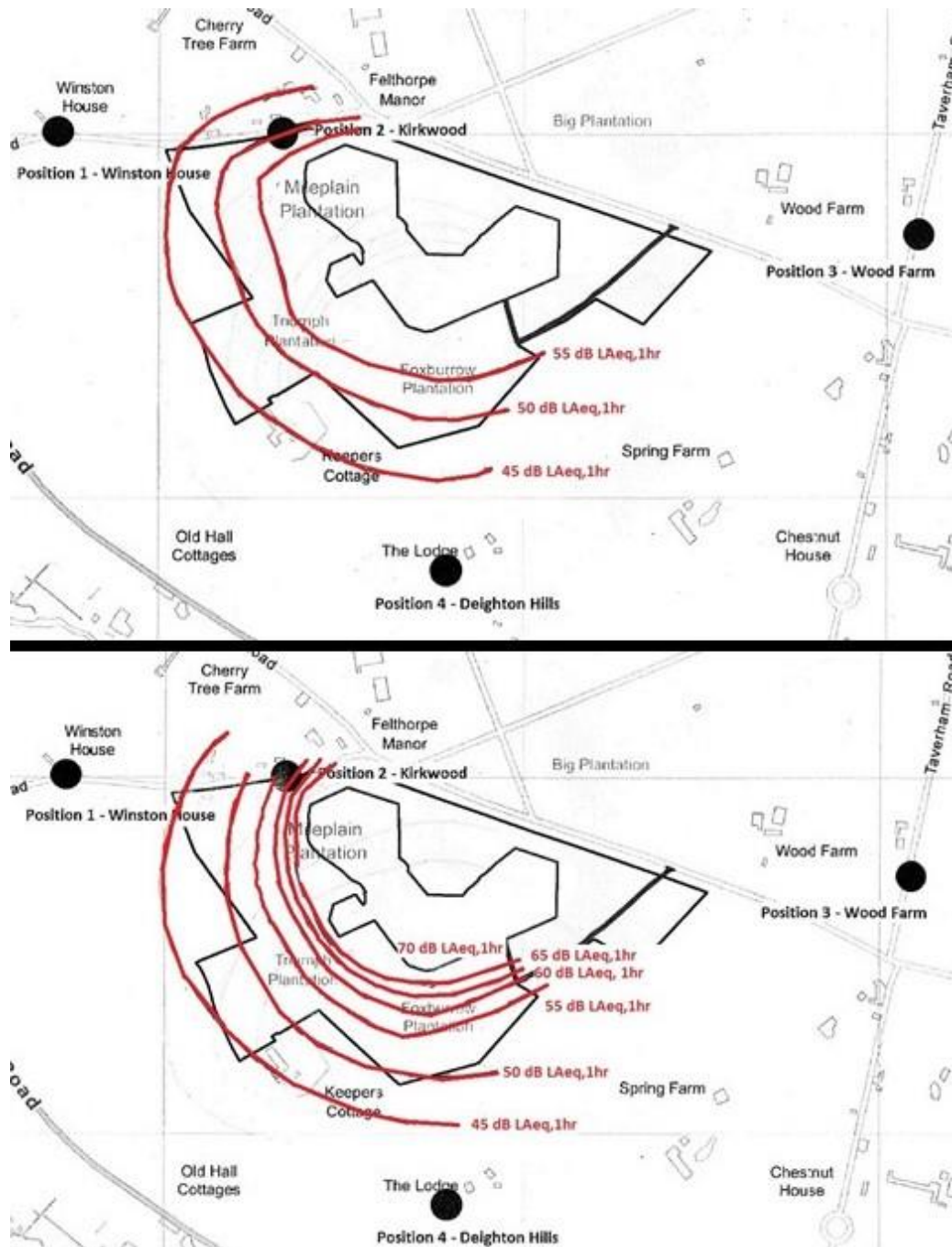


Figure 4.4. Sound contours for routine operations (top) and temporary operations (bottom).

4.6.37 The presence of slow-worms *Anguis fragilis*, common lizards *Zootoca vivipara* and grass snakes *Natrix natrix*, all of which are legally protected and S41 Species, has

-
- been established by survey. However, the presence of reptiles in operational gravel- and sand-pits is commonplace, and includes all the species native to the British Isles (AEcol own data). It is therefore improbable that Attlebridge Quarry would result in any displacement effect whatsoever.
- 4.6.38 Fuller (1982) presented evidence to show that bird communities in lowland woodlands comprise a core of only 11 bird species, of which eight (comprising: wren *Troglodytes troglodytes*, robin *Erithacus rubecula*, blackbird *Turdus merula*, song thrush *Turdus philomelos*, willow warbler *Phylloscopus trochilus*, blue tit *Cyanistes caeruleus*, great tit *Parus major* and chaffinch *Fringilla coelebs*) are ubiquitous and three (comprising: wood pigeon *Columba palumbus*, dunnock *Prunella modularis* and starling *Sturnus vulgaris*) occur at equal density when the structure is suitable. Song thrush, dunnock and starling are S41 Species, but all 11 species are common and widespread and none are listed on Schedule 1 of the *Wildlife & Countryside Act 1981* (& as amended).
- 4.6.39 Furthermore, Hockin *et al.* (1992) suggested there is a tendency for many bird species to habituate to activities that are found to pose no threat, especially those that are regular or repeated in nature, slow-moving or fixed in location (all characteristics of quarry developments). For example, wildfowl will habituate to gas-guns over time and their desertion effect is short-lived (e.g. Natural England 2011).
- 4.6.40 In the context of Attlebridge Quarry, the only mammals of conservation priority that might conceivably perceive quarry noise, are hedgehogs *Erinaceus europaeus*, badgers *Meles meles* and roosting bats.
- 4.6.41 Hedgehogs, badgers and bats are nocturnal and will therefore be active when the quarry is silent. The potential for significant negative effects relates solely to the impact of noise disturbance while the animals are at rest.
- 4.6.42 Hedgehogs occupy many urban situations and traffic noise and floodlighting have no perceivable displacement effect (The Mammal Society 2012). The potential for Attlebridge Quarry to result in any significant negative effect is negligible.
- 4.6.43 Overall, badgers appear entirely unconcerned by noise or vibration and frequently colonise quarry screening bunds and soil-storage mounds (AEcol own data). For example, occupied main setts and complexes of annex, subsidiary and outliers have been recorded within and abutting limestone quarries in Derbyshire and Somerset, gravel-pits in Wiltshire and within a railway embankment serving a long standing cement plant and latterly a rail connected landfill in Cambridgeshire (AEcol own data).
- 4.6.44 Although the bats native to the UK variously use ultrasound to navigate and hunt, they can all hear down to *c.* 10 kHz (Altringham 2011) which is within the range of human
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hearing. It might therefore be predicted that bats would be every bit as irritated by noise as humans when trying to sleep.

4.6.45 The only study to look at the effect of noise upon roosting bats, found that torpid greater mouse-eared bats *Myotis myotis* were more disturbed by the noise of conspecifics and vegetation than by anthropogenic noise, and soon habituated to repeated and prolonged noise exposure (Luo *et al.* 2014).

4.6.46 In fact, bats of a wide range of species are known to roost in situations where there is periodic and long-duration high-amplitude noise disturbance⁵, such as caves in quarries (lesser horseshoe-bats *Rhinolophus hipposideros*); ancillary/plant/factory structures in quarries (serotine *Eptesicus serotinus*, Daubenton's bats *Myotis daubentonii*, common pipistrelles *Pipistrellus pipistrellus*, brown long-eared bats *Plecotus auritus*, lesser horseshoe-bats and greater horseshoe-bats *Rhinolophus ferrumequinum*); saw-mills (Daubenton's bats), within and adjacent to bell towers (noctules *Nyctalus noctula*, common pipistrelle and soprano pipistrelles *Pipistrellus pygmaeus*), road bridges (lesser horseshoe-bats), and even derelict buildings and trees on artillery and tank ranges (barbastelle *Barbastella barbastellus*, serotine, Natterer's bats *Myotis nattereri*, whiskered bats *Myotis mystacinus*, noctules, common pipistrelles, soprano pipistrelles, grey long-eared bats *Plecotus austriacus* and brown long-eared bats) (all AEcol own data).

4.6.47 Overall, the tolerance of roosting bats to daytime noise and vibration generally appears higher than that tolerated by sleeping humans.

4.6.48 In summary, there are no grounds to predict a likely significant negative effect in respect of any species of conservation priority as a result of the development proposed.

Loss of biodiversity

4.6.49 With respect to the potential for a 'loss of biodiversity' Woodland Trust suggest: -

"Sensitive ancient woodland species will be exposed to disturbance by noise, lighting, vibration, and other activities during the quarry's operation."

"Many species within ancient woodland are adapted to the relatively unchanging conditions within ancient woodland and are unable to adapt to new enforced conditions leading to more generalist species dominating the specialist woodland species."

4.6.50 There is no evidence to support the suggestion that Attlebridge Quarry will result in any loss of faunal biodiversity within Mileplain Plantation as there is no evidence the

⁵ All Henry Andrews own data.

development will result in either disturbance or change to the woodland, as considered above.

Fragmentation

4.6.51 With respect to ‘fragmentation’ Woodland Trust suggest: -

“Fragmentation as a result of the separation of adjacent semi-natural habitats, such as small wooded areas, hedgerows, individual trees and wetland habitats, will similarly impact on woodland wildlife.”

4.6.52 A cursory look at the development plans will immediately reassure that this development will not result in any fragmentation whatsoever.

Cumulative impacts

4.6.53 With respect to ‘cumulative impacts’ Woodland Trust suggest: -

“Any effect of development can impact cumulatively on ancient woodland – this is much more damaging than individual effects.”

4.6.44 Cumulative impacts were robustly assessed at Subsection 10.10 of the EcIA, which concluded that there are no grounds to suggest potential cumulative significant negative effects as a result of the development of Attlebridge Quarry in combination with concurrent developments (AEcol 2017). No evidence to the contrary has been offered.

4.7 Buffer zone

4.7.1 With respect to ‘buffer zones’ Woodland Trust state: -

*“Natural England’s aforementioned Standing Advice recommends “leaving an appropriate buffer zone of semi-natural habitat between the development and the ancient woodland (depending on the size of the development, **a minimum buffer should be at least 15 metres**)”.*

*“However, considering the scale and intensity of the proposed development the applicants need to be considering a **buffer of at least 100 m** between any planned working areas and the ancient woodland. Ideally the buffer zone should comprise a semi-natural strip planted with at least 50% tree cover. It is apparent that implementing a buffer of 100 m to the ancient woodland in this case would considerably limit the available areas for extraction. As such we consider that this*

area is inappropriate for proposed quarrying activity and cannot feasibly be undertaken without severe impacts on the adjacent ancient woodland. Therefore, this planning application should be refused planning permission.”

- 4.7.2 The assessment performed at Section 4.2 concludes that Mileplain Plantation is not an ancient site and should not be on the AWI. The assessments performed in Section 4.6 of this text demonstrate that no ‘buffer-zone’ is required, but only a stand-off in order to provide a Root Protection Zone. Notwithstanding the fact that the woodland is not ancient, this judgment is entirely in accordance with Standing Advice: *Ancient Woodland, ancient trees and veteran trees: protecting them from development*.
- 4.7.3 The Trust appear unaware that this is not a ‘green field’ site and quarrying has already taken place at Attlebridge Quarry. The operation has demonstrated that a 15 m stand-off was sufficient to safeguard trees on a section of the southern margin of Mileplain Plantation and on a section of the northern margin of Foxburrow Plantation. It is therefore concluded that the 15 m stand-off proposed from all areas of woodland will be adequate to safeguard the trees and soils.

Section 4 – End

5. CONCLUSION

- 5.1.1 Although it is cited as a Plantation on Ancient Woodland Site (PAWS) within the Ancient Woodland Inventory (AWI), there is no evidence that the woodland known as Mileplain Plantation accords with the definition of PAWS within Standing Advice.
- 5.1.2 The EcIA was performed entirely in accordance with the criteria of *The Town and Country Planning (Environmental Impact Assessment) Regulations 2017* and to the highest standard.
- 5.1.3 Notwithstanding the evidence that Mileplain Plantation is not an ancient site and should not be listed on the Ancient Woodland Inventory, the mitigation is entirely in accordance with the criteria of Standing Advice: *Ancient Woodland, ancient trees and veteran trees: protecting them from development*.
- 5.1.4 The conclusion was that there were no grounds to predict the development will result in significant negative residual effects upon on- or off-site Valued Ecological Receptors (VER), nor are there grounds to suggest potential cumulative significant negative effects in combination with concurrent developments.
- 5.1.5 All the weight of the considerable evidence reviewed and provided to the Mineral Planning Authority supports the conclusion of the EcIA, which is that there are no grounds to predict a likely significant effect upon Mileplain Plantation or the faunal species that may occupy the PAWS.

Section 5 – End

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Section 6 – End