

UTT/0232/09/FUL – GREAT CHESTERFORD

Installation of one wind turbine with access track, crane hardstanding & cable on land to the South West of Linton, Cambs. Permission for a further seven turbines is being sought from South Cambridgeshire District Council

Location: Land at Little Linton Farm South of Cambridge Road. GR/TL 538-448

Applicant: Mr David Linley

Agent: Mr David Linley

Case Officer: Ms K Hollitt 01799 510495

Expiry Date: 09/06/2009 (applicant agreed an extension of time to 23/06/2009)

Classification: MINOR (with an Environmental Statement)

NOTATION: Outside Development Limits.

DESCRIPTION OF SITE: The application site forms part of a larger development which would be located to the south west of the A1307 and the village of Linton, mostly within the administrative boundary of South Cambridgeshire District Council. The area within the Uttlesford District is accessed via a track running from the A1307, through the CamGrain grain storage facility to Catley Park. Catley Park was formerly a residential site with a dwelling and several outbuildings. All that remains on the site now are the outbuildings, in various states of repair, the landscaped gardens and two ponds. The application site is located to the south west of Catley Park and is an agricultural field surrounded by hedgerows and trees. To the south west are Cow Lane and a dwelling known as Crave Hall, approximately 800m from the position of the proposed turbine. The site is in an elevated position, being approximately 100m AOD (Above Ordnance Datum). The land falls to the south west with the villages of Great and Little Chesterford both being located at approximately 50m AOD. These villages are set within a valley with land rising again further south. To the east of the site the land undulates and the village of Hadstock is at approximately 70-80m AOD. To the west of the site the land falls sharply towards a wide open valley located approximately 10-40m AOD. To the north the land undulates to the north of the village of Linton and then falls away to the wide valley around the city of Cambridge. Members carried out a site visit on the morning of 20 May 2009.

The single turbine proposed in Uttlesford, Turbine 8 (T8) would be located approximately 3km from the outer edge (adjacent to the B184) of Great Chesterford; 2.2km from Chesterford Park; 3.8km from the outer edge (adjacent to the B184) of Little Chesterford; 1.7km from the edge of residential development in the core of Hadstock; 3km from Little Walden; 3km from the A11 which lies to the west; 4.4km from the Stump Cross junction of the M11/A11; 5km from the northern edge of Saffron Walden; 2km from Linton Zoo; 2.5km from the A1307 and the village of Linton lies to the north of the A1307; 3.2km from Hildersham; 3.8km from Great Abington; 4km from Hinxton. The B184 lies approximately 3km away and the B1383 is approximately 3.8km where it runs through Great Chesterford (London Road). Littlebury, Ashdon and Duxford are approximately 5km from the site.

Distances from individual properties (buildings and not property boundaries) are approximately: Park Farm – 1.4km; Crave Hall – 700m; Burtonwood Farm – 1.1km; Penn Farm – 1.1km. Abington Park Farm, located in South Cambridgeshire, is the nearest property to T8 and is approximately 2km from the site.

DESCRIPTION OF PROPOSAL: The application relates to the installation of one wind turbine (T8), forming part of a larger scheme for 8 turbines. The turbines would be 80m in height to the hub and would have three blades 45m long. At its full extent this would give an overall height of the turbine of 125m. The proposed turbine would be located on land

approximately 100m AOD and this would be the southernmost turbine in a line of four on land falling away to around 50m AOD. Another four turbines would be located to the northwest in a parallel line with the nearest turbine to T8 being approximately 520m. The overall distance between T8 and T2 (located nearest to Linton) is approximately 1750m. Access tracks would be constructed from the A1307 to each of the turbines and each turbine would require a concrete hardstanding for cranes which would be required during construction and final decommissioning and possibly during on-going maintenance. Cables would be run underground to a switch house and then to a local sub-station, both located in South Cambridgeshire and not forming part of this proposal. The turbines would be 2 megawatt (MW) with the overall development having the potential to deliver 16MW of renewable energy. This energy provision would equate to around a reduction of 18,000 tonnes of carbon dioxide annually when compared with more traditional power plants. If all machines operate equally then the Uttlesford carbon dioxide saving would equate to around 2250 tonnes annually.

A separate planning application has been submitted to South Cambridgeshire District Council concerning the other seven turbines proposed. This Council has been consulted on that application and a separate report covers that consultation. Similar arrangements exist whereby South Cambridgeshire could comment on this application.

APPLICANT'S CASE: The following documents have been submitted with the application:

An Environmental Statement covering the following issues:

- Project details
- Legislative context and the EIA process
- Energy and Planning Policies
- Site Selection
- Ecology and Ornithology
- Geology and Hydrology
- Landscape and Visual Character
- Cultural Heritage
- Archaeology
- Traffic and Access
- Noise and Vibration
- Shadow Flicker
- Electromagnetic Interference

In addition the following documents have been submitted:

- Design and Access statement
- Visualisations
- Arboricultural Implications Assessment
- Aircraft Routes and Airspace Supplement

A non-technical summary of the Environmental Statement is available.

RELEVANT HISTORY: Scoping Opinion (an indication by the local planning authority of the issues required to be covered in the Environmental Statement) in respect of a proposed wind farm given in October 2007.

CONSULTATIONS:

Highways Agency: No objection.

Essex County Council Highways: No objections. Comment relating to potential impact on Public Right of Way.

NERL Safeguarding: Does conflict with safeguarding criteria. Letter states that they will notify within 8-10 weeks of their operational assessment – still not received after 12 weeks. To be reported if received prior to the meeting.

Environment Agency: No objections subject to conditions. Bat and bird populations should be monitored and appropriate management plan required. Foundation Works Risk Assessment needs to be secured by condition. Condition required relating to piling and need to demonstrate no unacceptable risk to groundwater. Need to ensure cabling left in-situ does not contaminate water supplies.

Anglian Water Authority: Originally objected due to potential impact on microwave and UHF communication links. Objection subsequently withdrawn.

Essex County Council Archaeology: No archaeological recommendations.

Defence Estates: Object. Unacceptable interference to radar at Cambridge (Marshalls) Airport. MoD may recommend the turbines be fitted with aviation lighting.

English Heritage: No comments to make.

Civil Aviation Authority (CAA): Concerns about impact on radar performance at Cambridge Airport have yet to be mitigated. Anticipated amendment to international aviation regulatory requirement documentation will require that the rotor blades, nacelle and upper 2/3 of the supporting mast of wind turbines that are deemed to be an aviation obstruction should be painted white, unless otherwise indicated by an aeronautical study. It follows that the CAA advice on the colour of wind turbines would align with these international criteria. The Environmental Statement/Aviation and Radar Assessment Supplement does not adequately deal with some issues.

Duxford Imperial War Museum: Will not interfere with our Visual Flight Rule operation.

East of England Development Agency (EEDA): Support contribution to local renewables target.

National Grid: For proposed wind farms the distance between a turbine and overhead line shall be no less than five times the diameter of the turbine blade. The proposal represents a high risk to electricity network.

The Joint Radio Company: Does not foresee any potential problems on radio systems operated by utility companies.

UDC Environmental Health: Proposal has potential to cause detrimental health effects, a statutory noise nuisance under the Environmental Protection Act 1990, and loss of amenity to nearby residents. The health effects could arise as a result of sleep disturbance, and nausea caused by low frequency noise emitted by the turbine. Assuming this turbine will not be built on its own, the interactional effects of the 7 turbines in South Cambs on the noise from turbine 8 should also be considered when assessing the impact. Properties likely to be detrimentally affected are those in the western half of Hadstock village and approximately 10 individual properties within Hadstock and Great Chesterford parishes which are in a 2km radius of the turbine. Effects of very low frequency sound cannot be accurately predicted. High frequency sound will be absorbed by the atmosphere close to the turbines, low frequencies are able to travel relatively greater distances thereby affecting more properties. Closeness of T8 to neighbouring turbines may cause turbulent air flow which can be a source of low frequency sound. Reduction in noise has been incorrectly calculated and therefore the reduction in noise over distance would have been underestimated. Noise assessment has been carried out assuming steady airflow averaged over all directions. This does not happen in practice and the greatest impact would be when wind is blowing from turbine towards house. Noise produced at low frequencies is the type most likely to give rise to health effects as a result of sleep disturbance and “wind turbine syndrome” which is a collection of symptoms caused by interference with brain function. Sensitivity varies considerably and some may not be affected at all. Amplitude modulation is unpredictable

and nearly always occurs at night. The larger the turbines and the closer they are spaced the more likely it is to occur. Noise levels would be difficult to enforce. Guidance levels could be met but a statutory nuisance could still occur. Measured outdoor, night time background levels submitted are very low and likely to be even lower inside a property where the effects of the night time noise will be most noticed. Wind speed at a dwelling will often be considerably lower than the wind speed at the tip height of 125m. This difference, termed wind shear, is pronounced at night during stable air conditions due to cooling of the land. Under these circumstances the turbine rotates rapidly producing noise which is not masked by wind noise at ground level. Sound can be inaudible close to the turbine but noticeable at distance. Noise from construction of the turbine will be particularly noticeable during the piling phase and hours offered of 0700 to dusk are excessive. Shadow flicker would affect 2 properties (in Uttlesford from T8). There is no remedy under Environmental Protection Act 1990. Recommend conditions.

UDC Landscape Officer: Access tracks should be minimised and surfaced flush with surrounding levels to reduce their visual impact. Satisfied that the construction and operation of the wind farm would result in relatively minimal physical destruction to the pattern and fabric of the landscape. Landscape Character Assessment identified the open skyline of the valley slopes as visually sensitive and that new development would be potentially highly visible in both panoramic and cross valley views. Considered that such an assessment could be equally applied across the whole of the wind farm site. Site(s) comprises of gently sloping arable farmland characterised by an open field pattern with some field boundary hedgerows. Settlement pattern in the surrounding area is an inherent part of the fabric of the landscape. Village settlements are visually rich in historic buildings many of which are listed and within conservation areas. Such buildings and the character of conservation areas are visually highly sensitive to development. There would be an affect on the broader setting of a number of heritage features, in particular the Grade II* listed churches at Great and Little Abington and the conservation areas of Hadstock and Linton. There is a special connection between the parish churches and the broader landscape which is visually and culturally highly sensitive. The size and nature of the turbine structures is such that there would be an inevitable visual impact on the landscape and that the array would form a dominant element in the landscape. Visibility and impact are interrelated factors in the assessment of visual effects. The scale of development within the landscape is a fundamental issue. The impact will also be to a great extent determined by the ability of the landscape to absorb the development. Generally, large scale developments are better absorbed in large scale landscapes – distance and size of development are perhaps the most important factors. Peculiar to wind farm developments is the effect of the movement of the turbine blades which attracts attention and increases visibility over distance to such development. Consider that the proposed wind farm as a whole would have a detrimental visual impact on the character of the rural landscape and the broad setting of a number of listed buildings and conservation areas. The installation of the single wind turbine within Uttlesford would have a detrimental visual impact on the character of the rural landscape and the broad setting of the Hadstock conservation area.

UDC Sustainability Officer: Uttlesford only generates 3.3% of the electricity it uses indigenously. We are nowhere near 'doing our bit' relying almost entirely on distant power stations to keep our lights on. People living near those power stations bear the impacts for our benefit. The Linton Wind Farm would increase indigenous electricity generation in the combined Uttlesford and South Cambs by approximately 42GWh per year, an increase of 125% from present levels, taking the total to 6% overall. This is equivalent to the electricity needs of approximately 7,400 average Uttlesford homes. Arguments that wind power is in someway inefficient, does not produce useful amounts of power or does not reduce emissions because of the need for back-up power are false. Utility-scale wind turbines are effective, as evidenced by the massive increase in wind generated electricity in countries such as Spain, France, Denmark, Germany, China and India in the last decade, and by the UK Government support for them. The UK is well endowed with wind resource but lagging far behind in terms of exploiting it. Intermittency of wind is often cited as a problem.

However, this is only a potential problem when wind power makes up a large percentage of total generation (20 – 30%+) but currently it does not (>2%). Independent report commissioned by Uttlesford Futures shows large scale wind turbines would work in Uttlesford and the site near Linton is one of the windiest in the district. The displacement of fossil-fuelled generate by the Linton Wind Farm would lead to a reduction in CO₂ emissions of approximately 18,000 tonnes per year. This is equal to 5 ½ times Uttlesford District Council's carbon footprint for its entire operation. This development will result in a reduction in CO₂ emissions whereas nearly all other proposals that come before Development Control represent increases in emissions if approved. All development control can do in these cases is minimise increases in emissions, either by refusing the proposal or by attaching conditions for better environmental performance.

UDC Policy: Since policy ENV15 was adopted, additional guidance has been published which must be a material consideration in deciding this application. The guidance would suggest that unless there are exceptional reasons to preclude the supply of renewable energy in this location then this application should be approved. If it is approved then appropriate conditions should be attached that the turbines will be removed and the land re-instated should the site cease operation.

The following consultees have not yet responded:

Natural England
Essex Wildlife Trust
Ministry of Defence
RSPB
BHS Eastern Region
Ofcom
BT Group
Orange PCS Ltd
Vodafone Limited
T-Mobile (UK) Ltd
O2
Cable and Wireless
The BBC
Ramblers Association
South Cambridgeshire District Council

PARISH COUNCIL COMMENTS: The following Parish Councils have been notified of the proposal.

Great Chesterford: Whilst mindful of the pressing need for more renewable energy sources considers that the visual impact of the turbines would be significant and that because insufficient regard has been given to the separation between the turbines and residences the possibility of a health risk to some residents cannot be excluded. Therefore object. Size of structures would dominate the surrounding countryside. Closeness to dwellings of some turbines is well within the recommended separation distance of 1.5km. There is insufficient evidence that being this close to dwellings would not cause health problems in noise, flicker and amplitude modulation. No evidence there is sufficient wind resource to make these turbines efficient. No evidence that this site is suitable other than the fact a farmer has given permission for the wind farm to be erected. ES states that although one of the turbines is right next to a SSSI that this is acceptable. How and why? Effect on television signal has not been addressed adequately. Many paths and bridleways through and close to the site. The building of the wind farm would have a detrimental effect on the enjoyment of these facilities and would be a loss of amenity. No separation of the one turbine in UDC. Having specifically asked for wind speed data this has been left out of the ES or not collected. No

mention of effect construction would have on Essex roads which was specifically asked for. No mention of alternative considered sites and reason for rejection of these sites. No comparison with offshore wind farms as was asked for.

Little Chesterford

Hadstock: Site is inappropriate as too close to human habitation. Most of Hadstock village houses, several of which are Grade II listed, are within 2km of turbines 8, 6 and 4 across open fields. Prevailing wind is from the west and turbine 8 is due west of the village centre. Concerned that there is a high risk that Hadstock village could be affected by low frequency noise, or other audio phenomena, resulting from the operation of the turbines. Could adversely affect the amenity of living in this quiet village. Risk of exposure throughout the parish to shadow flicker from the setting sun from turbines 4, 5, 6, 7 and 8. Moving blades would also disturb the visual tranquillity of the surrounding open countryside. Would pollute the rural scene with unnatural movement and reduce the quality of recreation on footpaths on and around the turbine site. View point 2 gives a misleading picture of the visibility of turbines from Hadstock as 7 out of 8 turbines are hidden by trees immediately in front of the camera. The footpath view would have been unobstructed had it been taken 30m to the west. A more representative footpath view would have been from the Icknield Way. A representative village viewpoint would be at 75m contour from which many households have an interrupted view. The wind farm proposal is a large-scale development which would dominate the landscape and set a precedent for further industrial development in the rural area along the county boundary.

Little Chesterford Parish Council: Strongly object. Wind turbines acknowledged as the most visually intrusive of any of the renewable energy generating technologies. Turbines will become the defining objects in the landscape and as alien commercial machines will bring a completely different industrial feel to one of the few remaining areas of open countryside. Area between Linton and Little Chesterford is a key amenity for residents of the parish who value it for the attractive landscape and as a chance to enjoy the countryside. Change of landscape character will be hugely detrimental to this parish. Concern about setting on many of the attractive listed buildings in the parish, in particular our Church of St Mary the Virgin. Will be an adverse effect on the overall setting of the parish. This is an attractive village and the impact of the turbines on the ridge will provide a visual impression alien to the historical context of the parish. Area of land covered by the site contains extensive and well used footpaths and bridleways. These are important to many villagers who use them for walking, running or riding. Aware that the British Horse Society is concerned about the effect of wind turbines on horses and has recommended minimum separation distances. In this case the developers have ignored these recommendations and placed the turbines closer to the main bridleway. Eight large turbines will have a displacement effect on birds and bats even if they do not inflict collision damage.

Saffron Walden Town Council: Strongly object on grounds of noise, environmental hazards, the effects of such wind turbines would have on wildlife, including birds, and the inappropriateness of the site given its location in one of the least windy areas and its ineffectiveness.

Linton Parish Council: Recommend refusal. Proposed turbines, by reason of their size and location, would neither respect, retain nor enhance the character of the local landscape, would damage distinctiveness of the individual landscape character of the area, would be readily visible from many points within the village conservation area, the only conservation area designated as "Outstanding" within South Cambridgeshire, and from within the curtilage of a larger number of the 123 listed buildings within the parish boundaries. The development would damage and not preserve or enhance listed buildings and their settings and would adversely affect the appearance and appreciation of the outstanding conservation area. The creation of low frequency noise and blade flick would be likely to damage the programme at Linton Zoo which has for many years been a leading centre for the breeding of rare and endangered species from a variety of habitats around the world. Proposed turbines are likely to generate noise which will have an unacceptable adverse impact on an area of countryside which is important for countryside recreation. Likely to generate noise which will

have an unacceptably adverse impact on the environment of existing development. Will create an unacceptable danger to the safe movement of traffic using the A1307. Parish is noted for its unusually poor television and radio reception. Proposed turbines lie directly between the aerial providing television to the village and the village. Evidence has been submitted by the applicant to demonstrate that the turbines may further degrade the quality of reception. Proposed turbines may have an adverse effect on the ecology and wildlife of the area in which they would be located. Likely to create a hazard for air traffic flying by Visual Flight Rules to and from Duxford airfield. Applicants have failed to evaluate this site against alternative sites which may be available, or to demonstrate that there are no alternative sites.

Hildersham Parish Council: Parish councillors expressed great disappointment that Enertrag had described our local landscape “as an area without any specific landscape value”. Area is a glacial valley created during the “East Anglian” ice age and is unique in Cambridgeshire, this makes the Granta valley a very special area of landscape. Hildersham Wood is not only a SSSI but is the last remaining ancient wooded area in a landscape that was originally fully wooded. Many people have chosen to live here because of the beauty of the area and the current lack of noise and light pollution. Whole of Hildersham and Linton Village College are within the 2km boundary of proposed turbines and the planning application would have immediately been rejected. This area of the country is known to have the worst available wind supply. Concern also expressed at impact on Linton Zoo. Concern at potential health impacts, noise and flicker problems. Loss of TV, radio and mobile phone signals also considered as a major concern. Impact on property values a concern. Impact of motorists being distracted as they approach the wind farm from either direction on the A1307 and surrounding back roads.

Great Abington Parish Council: Recommend refusal. Unknown health hazards particularly due to ultrasound and vibration. Turbines will be near a large number of houses in Great Abington, Linton and Hildersham. Visual impact on surrounding countryside will be great. Turbines will be very near the A1307 and will have visual impact particularly at Hildersham and Bartlow crossroads and this will present a distraction to drivers. Adverse effect on local wildlife, particularly the bat populations.

Hinxton Parish Council: Location is inappropriate for area and its proximity to residential buildings is of great concern.

Little Abington Parish Council: Concerns about impact on health, proximity to habitation, limited evidence that there is sufficient wind to generate a significant amount of renewable energy outweighs the disadvantage of visual impact on local landscape.

Pampisford Parish Council: Acknowledge the need for renewable energy however this small group of turbines is very close together and will impact on the landscape. Near the A1307, the animals at Linton Zoo, noise for local residents and loss of recreational amenities.

Bartlow Parish Council: Don't feel that as a community we should express a view so will not be commenting.

Balsham Parish Council: Object. Wind turbines will have an overbearing effect on village of Linton. Concern about the safety of the A1307. Unacceptable impact on Linton Zoo and Linton Village College.

Babraham Parish Council: Unable to make a recommendation due to the paucity of information provided which is specific to Babraham.

Horseheath Parish Council: Main objections were too close to Linton and Hadstock; low frequency noise; TV and mobile interference; distraction from A1307; negative effects on Linton Zoo.

Sawston Parish Council: Do not support because of the impact on the environment and the small amount of electricity going to be generated.

PUBLICITY: South Cambridgeshire District Council, working in conjunction with Uttlesford District Council has notified all the properties located within Great Chesterford, Little Chesterford and Hadstock parishes. This amounts to approximately 1000 properties. The application has also been advertised in line with Government requirements for a Major

application and an application accompanied by an Environmental Statement with site notices and a press advertisement.

This application forms part of a larger scheme comprising 8 turbines, 7 of which would be located within South Cambridgeshire District. The majority of representation letters refer to the development proposals as a whole and do not refer specifically to just Turbine 8.

1110 representations and a submission from Stop Linton Wind Farm have been received. Notification period expired 30 April 2009.

Representations against the application: A standard letter prepared by the Stop Linton Wind Farm Group was been widely used by those submitting representations and a copy is attached for information. 809 representations have been submitted using this letter. 282 additional representations have been received objecting to the proposals.

Stop Linton Wind Farm Action Group:

The StopLWF objection consists of 3 volumes. Volume 1 is their Interim Report covering a multitude of issues; Volume 2 is the Landscape Architect's Report and Volume 3 is a document of Blimp photographs.

See Section 1 – Summary from Volume 1 and Section 6 – Summary and Conclusions from Volume 2 attached at end of report.

Campaign to Protect Rural Essex:

Object. Would introduce an industrial plant into a rural area of great beauty. Objections relate to the visual impact of the turbine, to the unsuitability of the site for the development and the affect of the proposals on the local environment. Struck by the majesty of this ancient landscape and the wonderful view for miles around from the ridge on which the development is proposed. This giant plant would be a major intrusion into the landscape and would be visible for miles. Would have an overwhelming impact on the countryside immediately surrounding the turbine. This countryside consists of hedge-bound fields, ancient trees and uncultivated land part of which forms a nature reserve. The Icknield Way crosses this area. The construction of the turbine and its associated road and structures would destroy this rural scene. Proposals would have a devastating impact on the local wildlife. It is an accepted fact that wind turbines create excessive noise and vibrations which affect animals and birds to the extent that the locality soon becomes devoid of wildlife. This is an unacceptable threat to biodiversity in the area.

Hadstock Society:

No Mention is made of the fact that over a third of the buildings in the village are Grade II listed. Many of these would be within clear sight of the turbines, spoiling the visual amenity that these properties have enjoyed for hundreds of years. St Boltolph's Church is on high ground and is visited regularly by groups interested in its ancient history and association with St Boltolph and King Canute. Its visual amenity would be irrevocably spoilt and its unique visual surroundings ruined by the turbine proposal. In Scotland planning policy recommends a 2km separation of turbines from habitation. Parts of Hadstock are less than 1.3km from the nearest turbine, whilst all the village falls within the 2km curtilage. Enertrag admits that the Grade I listed St Boltolph's Church (1.6km distance) would fall within the 'moderate' level of disturbance, although the submission wrongly states that the church is to the west rather than to the east. With the prevailing wind coming from the west, does this mean that Enertrag have in fact underestimated the level of disturbance? Noise may affect the use of the Church or Village Hall.

Hadstock Society has taken into consideration the medical research showing that not only noise but vibrations from wind farms can lead to health problems, especially on vulnerable sections of the population. Several families within Hadstock fall into this category. This is the largest area of un-roaded land along the ridge between Thetford Forest Park at Icklingham/West Stow in Norfolk, and the Ridgeway at Streatley in West Berkshire, a distance of about 135 miles. It is a unique area of peace and quiet, and a natural resting point for birds in transit. Proposed windfarm would be detrimental to the well-being of birds by eliminating a safe haven of quiet and inactivity. Passage birds crossing above Hildersham Wood would be at an altitude close to the strike zone of the rotors on Turbine 8. Dotterel is rare and not recorded on Enertrag's surveys. The birds pass through this area in April and September stopping only for a few days. Other passage species are Golden and Green Plovers and Fieldfare and Redwing. Red Kites have been spotted to the west of Hadstock over the last two years. Currently several pairs of Buzzards in Linton, Hadstock and Bartlow as well as Hildersham Wood. Sky lark has only recently recovered in numbers on the site and we are concerned that local populations might decline if a wind farm were to be established.

Enertrag's survey takes little account of bat populations in the surrounding areas. Local records of Serotine, Natterers, Common Pipistrelle, Whiskered or Brands, and Barbastelles. Populations are likely to stray into the wind farm area and there would be risk of bats becoming disorientated by the turbulence and noises associated with the operating turbines. Consider there is a high risk that sensitive animals at Linton Zoo would be adversely affected by the various frequencies of noise that would be produced by the wind farm.

Enertrag comments that "Linton is an area without any specific landscape value". We would rather say that the Linton landscape is of softly rolling hills, with wide vistas of hedged fields and woodland. Turbines 5, 7 and 8 would destroy the specialness of this part of the landscape. Turbines 6 and 8 would tower over the public footpath to Hildersham Wood and turbines 6 and 7 would dominate the length of footpath around the west of Catley Park. The bridleway from Cow Lane, Great Chesterford, to the Grain Store at Linton would be very close to turbines 7, 5, 3 and 1. Horses might well object to going close to these rotating turbines. The Icknield Way long distance footpath runs roughly parallel to the East of the site, 500m from turbine 7 and 5, 1km from turbine 1. Views from this path over open countryside would be destroyed by turbines 1, 2, 3, 4 and 6. The scale of woodland views would be distorted by turbines 5, 7 and 8.

There are no forecasts of benefits from the proposals.

The documents state that the wind farm will affect the TV reception of the households in the area. A BBC internet tool shows that every turbine causes problems and more than one of them will require remedial work to be undertaken in all the homes of Hadstock. It is unclear what solutions Enertrag propose.

Enertrag report says that the majority of mobile phone companies "believe" that reception should not be affected. However the O2 supplier is the one which is most popular in the village and they have so far not offered a comment.

Cllr Chamberlain:

Object most strongly. In my capacity as ward councillor I have received copies of 102 letters of objection. Wish to state my support of all the points of objection made in these letters and for the views expressed by the Stop Linton Wind Farm Organisation and their members. I feel that the detrimental impact of this proposed development upon my ward and the area generally would be considerable and irreversible.

Damage to the visual amenity of the area – this area includes two Grade 1 listed churches as well as many residents in the villages of Hadstock, Linton, Abington and Hildersham whose enjoyment of the amenities of this area would be destroyed and for an unproven and increasingly unpopular technology.

Road safety issues relating in particular to the A1307. The stretch of this road between the Four Wentways roundabout and Haverhill has a terrible reputation for safety, in particular

near Linton. Would have thought it obvious that anything which could contribute to driver distraction is totally unacceptable and should be rejected. The risk of driver distraction resulting from rotating blades in the peripheral vision of drivers is a real danger. The risk of shadow flicker is well documented, to this should be added the reflection of light from the blades, resulting in a flash effect.

Site is in one of the lowest wind speed areas of the UK. Any electricity generated will be far outweighed by the costs involved in operating the turbines. There is no facility for storage of electricity generated so any not used immediately is wasted.

Noise and health issues. Various governments and organisations recommend separation distances of 2km, 1.5km and 1.5miles to nearest residences. The nearest residences to this site are a mere 700m and would inevitably suffer from the low frequency noise.

Area is notorious for poor TV and radio reception. The turbines as planned are in direct line with the Sandy transmitter.

Linton Zoo is a mere 1km from the nearest proposed turbine. It is well known that animals are more susceptible to certain sounds over long distances, one of these being the infrasound produced by turbines.

Concerned that this would set a precedent.

This site is relatively near to the Imperial War Museum at Duxford. Concerned that such large turbines in such close proximity could limit if not terminate the flying days. Wind turbines as proposed could have some impact on the review and consultation on flight paths in the area resulting from the expansion of Stansted Airport.

Proposals violate Uttlesford District Council's policy on Renewable Energy ENV15.

Cambridge Ramblers Association:

Concerned at proximity of turbines to Rights of Way. Understand that the distance of some turbines is less than that recommended. Concerned about impact on the landscape in the immediate vicinity in an area of designated landscape value. The turbines will be seen from more distant ridges and paths, even as far away as Elmdon. Concerned about the disruption to the path network during the construction of the turbines and service roads. Concerned about the short and long term impact on the wildlife and fauna of the area. Hildersham Wood is a SSSI and some of the turbines are surprisingly close to the wood.

Ickleton Society:

Detrimental impact on the landscape. The ridge on which they would be situated is in an area of open and gently undulating countryside and the turbines would be visible for miles around. This is one of the few remaining areas of land of any size in this vicinity in which it is possible to get some sense of remoteness. The turbines will have significant visual impact not only on the villages immediately surrounding the site but for a considerable distance in all directions. The footpaths and bridleways through and around the site are well used. The visual and noise impact of the turbines would ruin the experience for users of these paths. It may mean that it is no longer possible for many horses to use the bridleway. Opinions vary over the effect of noise from wind turbines on people living close to them. Given the uncertainty it seems to us that planners should err on the side of caution and ensure that wind farms are not located close to houses. Linton Zoo is particularly concerned about the effect of the low frequency noise and vibration that would come from the wind turbines and to which many animals and birds have shown to be sensitive. The proposals would have ecological impacts both during construction and subsequently. The turbines would cause the death of significant numbers of birds and bats. There have been many serious and fatal road accidents on the A1307 near Linton. A wind farm that is highly visible along this stretch will be a great distraction to drivers and could result in more road accidents. This is not a particularly windy part of the UK.

Linton Zoological Gardens:

It is well known that animals are much more attuned to their environment and are especially more sensitive to noise than humans. The Zoo is about 1km from the nearest turbine and we know that the Davis family have had to leave their home at Deeping St Nicholas, which is 930m away from smaller turbines, due to noise problems. Trying to get endangered species to breed is difficult enough and a lot of the success depends on creating exactly the right environment. Anything that disturbs that environment jeopardises the complete programme. The turbines would be a risk to our free flying displays of birds.

Wind is a universal resource capable of being harvested anywhere. There are thousands of potential sites for onshore wind farms where the impacts on countryside and people are much less. We on the other hand cannot up and move the Zoo. The noise consultants are not wildlife experts and undertake noise assessments for wind farm developers putting in planning applications for onshore wind farms. People have mentioned the turbine at Wood Green Animal Sanctuary but there is little similarity between domesticated and wild animals and Wood Green has a quick turn around of animals rather than a permanent breeding centre and their one turbine is much smaller. Enertrag have admitted that problems have occurred with elephants, cassowaries and okapi which leads to the question – what other wildlife may also be affected? They have done no additional analysis into the noise spectrum produced by wind turbines or the frequencies beyond the range of human hearing and this is dismissed on the basis that the volume will be below the capacity of the human ear, but what about animal ears?

Their own data shows that for certain wind strengths the noise from the turbines would be up to 10dB higher than the background noise. To claim that the noise from the road is a mitigating factor casts doubt on the robustness of their whole argument. Wind farm noise is much more intrusive than road noise because of its rhythmical impulsive nature. We feel it is only right to adopt the precautionary principle and the application should be refused.

Adequacy of the Environmental Statement:

Raw measured wind speed data at hub height is essential environmental data and in spite of the presence of an anemometry mast on the site, no such data has been provided. Developers have been criticized in the High Court for withholding requested wind speed data.

Insufficient information has been given in relation to the foundations. The lack of details in the foundation descriptions is unacceptable to the Trustees of the Pampisford Estate which faces a material risk to its hydrological interests.

Given the admitted vulnerability of the site and the adjacent land and the aquifer the deferral of the geotechnical survey is unacceptable. Considering the sensitivity of the aquifer and the adjacent SSSI to construction pollution, and to pollution subsequent to construction via run-off pathways created by the foundations of the wind turbines it is essential that detailed geotechnical surveys are provided.

The conclusions in relation to impacts on listed buildings, conservation areas or registered parks seem overly optimistic by stating they would be negligible. Overall I think the documents leave far too many questions unanswered or answered in a rather unsatisfactory manner.

Experts who have looked at Enertrag's noise specification have noted that their figures relating to the amount of wind at night is not correct. Enertrag say there is lower incidence of wind speed at night than in the day. I understand that this is not the case, that wind speed figures are higher at night in this area and if the application is passed on these inaccurate figures we shall find the wind is stronger than projected and so too will be the noise.

Air traffic impacts:

The "Aircraft Routes and Airspace Supplement" contains little useful information and uses information that is out-of-date. It shows an Air Traffic Zone around Fowlmere, which has not had an ATZ for over 5 years. Proposed turbines would be built on land lying over 350 feet above mean sea level (amsl) and so would reach to over 760ft amsl. Civil aircraft will normally be required by law to maintain a separation of 500ft meaning that aircraft would have to fly above 1260ft amsl to comply with this requirement. I regularly see Duxford traffic (both air-show and normal private aircraft) flying in the area of the proposed development and in this height range. In addition, military fast jets and helicopters occasionally transit the area at low level. Building a number of large obstructions in the form of a wind-farm would cause a hazard to both Duxford traffic and transiting military aircraft.

On cloudy days when flying south, small aircraft are required to stay in air space to the right hand side of the A1307 are in danger of colliding with turbines. There are reported incidents of this having happened in other areas including deaths to paragliders.

The large size of the proposed turbines will have an effect on the radar used at Cambridge (Marshalls) Airport, the developers have a responsibility to ensure that the air safety of the surrounding area is not affected. Also the proximity to the Imperial War Museum Duxford is of concern as the turbines are on the flight path of the historic aircraft that participate in the fly pasts at this world renowned aviation museum.

Construction:

Construction work will cause disruption and inconvenience in the surrounding area. Great concerns about the thousands of heavy goods vehicle movements that will be required during construction and for on-going maintenance. It is clear that the road infrastructure in this area is not sufficient to cope with the additional traffic.

Drainage:

Concerned that yet another area will be drained into River Granta which will further increase the risk of flooding in Hildersham, Great Abington, and elsewhere along river Granta and Cam. I would expect to see a full study on the effects of this, including any other developments that would potentially increase the water flow in Granta river.

There is a danger of flooding in Linton. Much work has been done to successfully minimize this threat but high water levels have even been seen this year. The huge amount of concrete necessary for the bases of the wind turbines will inevitably increase the rainwater run-off from the Hadstock side hills and upset an already fragile drainage system.

The so called dilapidated ponds in the area are probably artisan springs which have been interfered with by poor farming/drainage practices. An adjacent example in Paynes Meadow can be found. Once home to thousands of amphibians the diversion of such a spring and water course has caused increased flooding at lower parts of the village. It would be folly to interfere further in this area of a renowned glacial murrain of outstanding beauty.

We have been told that heavy and deep concrete foundations would be needed for the 125m high turbines. This would certainly affect the drainage on the fields being used but the extent is only being guessed at. During the last major floods in Linton much of the water came directly off the fields. There should be no risk that this might be made worse in the future by altering the run-off pattern.

Economic Issues:

A number of high tech electronic instruments are used in our processes and it is feared that the building of a wind farm immediately adjacent to the property where we are located will have serious effects on this business.

The turbines are likely not to be economically effective for much of the time. Their environmental impact will be out of all proportion to any possible energy producing benefits.

Health:

Growing body of evidence which shows the effect of living in close proximity to turbines may cause health issues. Young children and those with special needs are some of the most vulnerable yet the turbines are to be placed close by.

Shocked to hear that those living near these turbines will be exposed to flickering light which is one of the main causes of my wife and daughter's migraines.

Medial research is increasingly showing that noise problems from wind farms can lead to resulting health problems including Chronic Sleep Disorder, physical sensations of pulsation or pressure, nausea and depression. Low frequency noise can potentially lead to symptoms resembling Vibroacoustic disease. This can cause changes to the structure of the heart, lungs and blood vessels. Tinnitus has been shown to start or get worse in people living close to wind farms.

Research concludes that wind turbines can cause epilepsy up to 2km distant. This would include parts of Linton, Hadstock, Hildersham, possibly other villages and certainly the A1307. Detrimental effects of the flicker persist through closed eyelids and the only option is to avert one's gaze.

Pupils at the special needs school at Linton Village College who are susceptible to stroboscopic lights can be affected by the flicker caused by the wind turbines. Similarly these pupils can be affected by the impulsive, repetitive nature of wind turbine noise that can be audible as well as having a low frequency element that can be perceived but not heard because it is below the audible threshold. Some pupils who attend this school live locally and therefore will not have any respite from the effects.

It is no longer credible for Enertrag to brush aside wind turbine health impact. Properly conducted research of what has been identified as Wind Turbine Syndrome (WTS) has continued for a number of years. The most commonly reported WTS symptom is severe and prolonged sleep deprivation, which inevitably causes health to break down.

Heritage:

The geographic and historic significance of the area immediately affected within the Manor (of Great Chesterford) cannot be exaggerated. The Icknield Way passes through Great Chesterford and near to the location of the proposed wind farm. The Romans built an important military camp in Great Chesterford and a Romano-Celtic temple and subsequently developed the village as a walled town. The beauty of the area, together with its many historic connections with past centuries, makes it a precious part of the countryside for both the local community as well as for a wider public. The visual impact of the proposed wind turbines will be very significant and will materially alter the rural setting of this historic and peaceful part of the countryside.

The turbines will be built on open countryside which provides an unspoiled 'lung' between two important rural settlements, Linton and Great Chesterford, and a number of other villages and dwellings of considerable environmental or historic significance. The wind farm will be located within 5 kilometers of no less than 10 conservation areas, the peace, unspoiled nature and historic settings of which will be adversely affected by the development.

The proposed development will be visible from Pampisford Hall and its grounds, which is both a Grade II listed building and a Grade II* Registered Park and Garden. The special historic interest of the property will be harmed by the intrusion of the turbines into the designed views out of the park and garden. The principal view along the vista south east of the Hall will be particularly badly affected.

Linton is the only outstanding conservation area in south Cambridgeshire and I consider this will have a very detrimental effect with regards the visual impact and its effect on the local heritage.

Highway Safety:

Site would be in direct line of sight of drivers on A1307 which has a notorious safety record. These turbines are likely to lead to yet more accidents on a road that has already cost far too many local people their lives.

There is no UK statistic for accident rates on roads near wind farms. Understand from ROSPA that research done in Germany does show an increase in accident rates near turbines. The Caithness Wind farms website notes three fatal accidents in their area attributed by police to “drive distraction of turbines”. The Netherlands Road Safety Research Institute (SWOV) states that wind turbines should not be sited “where the road user must devote particular attention to the driving task” – surely this statement could have been written with the A1307 in mind. Highways Agency states that if turbines are placed near main roads they should be “mid link rather than at junctions” – surely that should rule out absolutely accident blackspots such as this stretch of the A1307.

Linton Zoo:

Destruction of lovely views from Zoo grounds. Fear the effect on the valuable animals most of which are extremely sensitive to noise and would certainly react unfavourably to the horrible noise created by the proposed powerful turbines.

No research has been provided to indicate that the zoo’s rare breeding programmes will not be adversely affected.

Linton Zoo’s internationally important endangered species programme, its popularity with visiting school parties and the general public make it a place deserving of protection. The ability of animals to detect sound and vibration unnoticed by human beings is well established. This sensitivity is a logical reason why wildlife disappears from former habitats when turbines arrive. It is not enough for Enertrag to assert that ‘there is no evidence of harm’.

Local Amenities:

Concerns that the proposal would have a profound effect on the operations of a local centre of Aviation Heritage, the Imperial War Museum, Duxford. The Museum is famed for its air shows, which I believe, might be jeopardized by such a significant structure adjacent to its flight path.

Noise:

The noise from the turbines sounds like a helicopter at a distance and can go on for sometime. Because the noise is low frequency it travels further, this can be several miles. The Danish government has stopped erecting on-shore turbines because of the health problems associated with the noise.

Enertrag would be legally allowed to inflict higher noise levels on local properties than that from which Camgrain Silos were recently asked to reduce following an investigation into their noise pollution.

Noise levels at night, particularly in the summer, would be unacceptable. There is already considerable night noise over Great Chesterford from the M11 motorway.

At least 20% of all wind farms in this country cause noise problems. According to a report commissioned by the DTI (now BERR) and carried out by Hayes McKenzie, the risk of high levels of aerodynamic modulation is believed to be greatest for sites where stable atmospheric conditions occur and tall wind turbines are proposed or operating. The report

concludes that in general these conditions are more likely to be found at sites in the UK on the eastern side of England.

Although Enertrag has played down the effect of the possible noise impact, numerous studies have demonstrated that there can be problems with noise for some individuals. One of the wind turbines is only 1300m from a large secondary school which houses a Specific Learning Difficulties section – this would seem to be totally inadvisable. My understanding is that there is still great doubt over the effects on health of exposure to low frequency sound within a few kilometers of large wind turbines. Many properties, much of Linton and most importantly, a large school lie immediately downwind of the prevailing wind direction. Because the implications for my own and other nearby properties was not explained to me, I allowed noise measurement test equipment to be installed in an open field 165 feet from my house. I believed the recordings were just part of general data gathering. My house is well sheltered by hedges and trees and distant road noise is muted unlike in the field location used for noise equipment. It was not until I read about the failings by noise testers involved with other wind proposals that I realized how flawed they were in my own case. I now understand that establishing accurate background noise levels for local residents is the purpose of the exercise. Should the application succeed, and noise problems occur, this data will be of critical importance to establish breaches. The readings taken are of extremely questionable value and are unsafe.

We already have considerable and increasing background noise from the A1307. The planned noise emission limit of 43dB from each turbine when combined with the pre-existing road noise from the A1307 seems likely to cause a considerable amount of misery to affected residents, and lead to degradation of the environment in what is a very unspoilt part of the country.

Developers are using the discredited ETSU-R-97 noise level guidance instead of the standard accepted by the World Health Authority.

My property is located approximately 700m from the nearest turbine and I am concerned that there will be a major impact on us from the noise. The wind farm developer has only taken limited sound readings. No readings were taken during the summer months and the winter readings were not taken when the noise would potentially be at its worst. The data that Enertrag have shown suggests that we will be exposed to disturbance close to the limits of ETSU sound guidelines. Given the apparent failure of the ETSU guidelines to protect other well known neighbours of wind farms I feel it is essential that a full and proper analysis of sound readings is taken before this proposal is seriously considered.

Scandinavian experience has shown that people living up to 2km distant from an inland wind farm consider their quality of life to have been severely affected. Many houses, businesses and schools are within this distance of the proposed development.

The prevailing wind direction carries sound from Camgrain and traffic from the A1307 across the village. These noise levels are already wholly unacceptable by a growing outraged population upon this issue alone.

Planning Policy:

Uttlesford Local Plan in Policy ENV15 does say that the district is only capable of accepting small scale renewable energy schemes. This application is plainly a large scale commercial scheme and we would expect the Council to follow its own local policy.

Public Rights of Way:

Both the Icknield Way Long Distance Footpath and the Icknield Way Bridleway are adjacent to, and pass nearby, the proposed development, all of which will be affected by possible dangers likely to be encountered at any industrial site (such as turbine accidents resulting in fragmentation of blades, ice build-up on blades, fire, etc). Turbine noise and shadow flicker may well affect use of bridleways by riders and horses. In every respect quiet peaceful enjoyment of the footpaths and bridleways will be fatally destroyed.

The plot the developer has secured is so small compared with the number of turbines they wish to build the turbines are dangerously close to the rights of way and any mechanical failure or flying ice could cause an accident. Even the BHS (British Horse Society) guidelines have been ignored in the bid to squeeze as much as possible from a handkerchief of land.

The Icknield Way, claimed to be the oldest road in Britain, is a national footpath and runs only a few hundred meters from the wind farm. In the section near Linton it also forms part of the European Path E2, which stretches from Galway to Nice. It is therefore of international importance and to consider putting a wind farm so close, impairing the enjoyment of the people using it is putting commercial priorities ahead of the local amenity. Rights of way could present a major health and safety issue to passers-by with "blade throw", where ice/debris could be thrown from the moving blades and "shadow flicker". Cannot understand why the wind farm developer has chosen to completely ignore the BHS guidelines on proximity of turbines to bridleways. The guidelines are there to ensure the safety of horse and rider. By ignoring them the wind farm could be potentially a hazard to horses and their riders.

Shadow Flicker:

PPS22 states shadow flicker will only affect properties within 10 rotor diameters of the wind turbine and in the UK must lay 130 degrees either side of north, relative to the wind turbine. The turbines being built are now much larger than when the published guidance was written and will have a correspondingly greater zone of flicker. Enertrag are using this outdated guidance as a way of playing down the likely impact. Concerned how shadow flicker will be mitigated at my property.

At the public meeting in Linton Enertrag had a list of 7 or 8 properties that would be potentially impacted by shadow flicker according to their calculations. In the application that state only 2 properties fall within the shadow flicker range of 9 turbine diameters.

Siting/Spacing:

Proposed site is in one of the lowest wind speed areas in the country and as such is unlikely to produce more than 25% of installed capacity. Cambridgeshire's 2010 target for wind capacity has been met through already operational wind farms.

In the Scoping Opinion Enertrag said "In order to work safely and efficiently a distance of 630m in the predominant wind direction and 450 in a lateral direction is required between turbines." In their application this has been revised to 500m and 350m respectively. The actual measurements in the predominant wind direction range from 493m and 607m and in the lateral direction between 423m and 490m. Recent reports of mechanical problems with turbines could well be caused by locating turbines too close together, and the effect of operating in an unduly turbulent air stream over a prolonged period. Turbulence is one of the obvious causes of the adverse low frequency noise effects from turbines. Having the turbines too close together must create additional noise when one blade is having to operate in the turbulent airflow downstream of another.

In Denmark and Germany which are far more advance in wind generation than the UK there are strict planning controls and regulations on the siting of turbines and their proximity to housing. These turbines would fail those international planning controls.

Visual Impacts:

It is beyond doubt that for any residents and visitors within a 5km radius of the site, the turbines would be major intrusion, and that Enertrag have tried to play down this impact by choosing viewpoints that are partially screened or utilizing the lie of the land to hide these monstrosities.

To say that the area is already marred by pylons and Camgrain is simply not true. Granted these are visible from Linton in certain places, but most of the pylons are not seen above the skyline. The silos are certainly not visible from Great Chesterford, Hadstock or Abingtons sides of the hill, nor from the many footpaths in the area. Four hundred foot turbines would be totally out of place on the hillside and be visible for thousands of square miles. From the footpath at the edge of the site, on a clear sunny day, the sun shines on Ely Cathedral. By the same reasoning, these turbines will be seen from Ely Cathedral.

This is one of the very few areas of such unspoilt beauty left in the area. Understand that as a nation we need to generate more green energy but surely turbines of this size can be placed off-shore or in a remote area with higher wind speed than those in this area.

Rotating blades attract the eye making them much more noticeable than any static object of the same size. There are no natural or man-made objects of the same size anywhere in the surrounding area. These turbines will become the defining objects in the landscape and alien commercial machines will bring a completely different industrial feel to one of the few remaining areas of open countryside in a part of the country where the pressure of development is ever present.

Concern about the effect the turbines may have on the setting of the many attractive listed buildings in the parish (Little Chesterford), in particular our Church of St Mary the Virgin.

This is an attractive village and the impact of the turbines on the ridge will provide a visual impression alien to the historical context of the parish. There will also be intermittent views of blades and parts of turbines as you move around the village which will be visually disconcerting and out of character.

Guidance states that 2km is considered the distance within which visual impacts are likely to be a prominent feature, both Hildersham and Hadstock Grade I listed village churches are within this distance. Also large parts of these villages and Linton would suffer under this criterion.

Turbines 125m high located on land that is 75 to 105m above OD will truly dominate the countryside and have a significant visual impact and will alter views over many hundreds of square kilometers. Your eyes are attracted to them because of the rotation. Drivers of vehicles on long stretches of major high speed roads in the area (M11, A14) will see the wind turbines to varying degrees. As the view alters (hedges, trees, embankments and other features) drivers will be "looking out for the turbines". They will take their eyes off the road to see if blade tips are visible and to see if they are still rotating. Drivers on the A1307 cannot fail to be distracted by them.

The proposal is to site a number of very large wind-turbines in an area of Cambridgeshire's "best landscape" in such a way that they will be visible from both sides of the ridge on which they would be built, over-topping the skyline and completely spoiling the open, rural aspect of the countryside. The ridge between Linton and Great Chesterford contains some of the highest land in the locality and its skyline dominates the attractive views from both villages, and also from Little Chesterford. There have been other applications for wind-farm development in South Cambridgeshire in recent years, with varying implications for their effects on character and amenity, and in my opinion the Linton proposal would be more damaging to both than almost any of the others I have seen. I am fully aware of the need to seek methods of energy-capture that do not depend on fossil fuels, but it is the Council's duty to ensure that such developments are sited so as to minimize the detrimental effect on local amenity.

The Inspector in the North Dover appeal noted that the village was "on a downward slope and is largely orientated to face towards the turbine field". Mention of this applies precisely to Linton and surrounding villages. The full spread of turbines up on the hills, and parallel with Chalky Road, Great Abington, would give an overwhelming, almost 180 degree, panoramic view of them.

The countryside around here is beautiful, we even have hills which you do not see much in Cambridgeshire. I would hate to see the rural feel spoilt, and having turbines might well lead to further development that would just see Cambridge spreading out.

Viewed from the A1307 with its attendant ribbon development, the landscape might not appear at first glance to be of great importance, but once up on the ridge along the ancient Roman road, it becomes an impressive sweep of rolling chalk downland, particularly striking because Cambridgeshire is not known for this type of landscape. The scale of the windfarm would go far beyond anything we have yet seen in changing the fundamental nature of our surroundings, with its probable impact on wildlife, noise levels and the inevitable downgrading of the landscape. The sheer size of the turbines will seem claustrophobic planted on the sides of the hills above us. The rapid growth in population proposed for this part of the country makes it all the more important that the open spaces we have so near to cities should be preserved to provide respite from the noise and speed of modern living. The Roman road leads directly from Cambridge linking up here with the equally historic Icknield Way. It creates a natural lung enabling the city to breathe, used daily by walkers and cyclists.

If structures of the size proposed were to be located in a broader landscape and away from settlements their size would appear less dominant when viewed from a distance, but in the case of the proposed installation, such large structures set in a landscape characterized by varying elements of topography and agrarian management of a relatively dense nature would be viewed from close proximity and appear wholly overpowering. Not only would the proposed installation harm the visual amenity of the landscape I would contest that it would also harm the use of the adjacent countryside as an amenity for lawful recreational pursuits. The siting of some of the turbines appears to be uncomfortably close to both footpath and bridleway such that some users would be put off using these amenities and this would seem to be at odds with another of the objectives of the green belt policy which is to provide opportunities for outdoor sport and outdoor recreation.

On summer evenings the shadows these turbines will cast will ruin my ability to enjoy my garden.

Wildlife:

Great crested newts which have to be protected are in the area.

Our farm (Burtonwood Farm) borders the site and we have made considerable efforts within our farming operations to preserve as much of the natural habitat and close to the proposed site we have a wood and water meadow that has not been cultivated for many decades.

This has become a haven for wildlife of all kinds including rare birds and bats. I do not believe that this area has been assessed within the environmental impact assessment which leads me to believe that the overall environmental impacts may have been underestimated.

There are records of five bat species in the Linton area, including Serotines, a rare species restricted to Southern England. Research has revealed that bats can die as a result of barotraumas caused by severe injuries to the respiratory system consistent with a sudden drop in air pressure that occurs when the animals get close to turbine blades. Their lungs explode internally, leaving no external visible evidence of cause of death. They do not have to hit the blades. Bats are a protected species in the UK.

The turbines would stand close to an area of ancient woodland, which is also an SSSI.

There are fears for the effect on the breeding programme at Linton Zoo and the turbines would be a threat to birds and wildlife. The sound of skylarks over the fields in summer is just one of the things that makes this area special and just one of the species that could be threatened.

Representations in support of the application: 17 letters of support have been received.

Saffron Walden & District Friends of the Earth: Believe that to grant this application would be consistent with Uttlesford's leadership role in promoting climate change mitigation policies. The EIA shows that the negative impacts would be very small. The visual impact of the turbines is important but unlikely to have an amenity impact greater than the national grid power lines which pass nearby. Satisfied that there are no adverse health effects and

that the turbines proposed are properly sited so that any noise effects will not in residential and other sensitive properties exceed the normal range of local background noise. Not aware of any harmful effects on animals. Estimated risk to birds is very low. Although the contribution of the proposed wind farm will be small in national terms it will nonetheless make an essential contribution to the energy mix of the UK. Uttlesford has few means of contributing to this vital national effort to achieve sustainable energy security, but as the UK's highest per capital consumer of electricity this District would show national leadership in supporting this application.

Cambridge Friends of the Earth: Climate change is regarded by many as one of the most serious threats facing the world's environment, economy and society. We consider it is absolutely essential that renewable energy projects are allowed to progress. The UK benefits from 40% of Western Europe's wind energy resource which could provide the UK with an enviable diversity and security of supply, factors that form a key component of the Government's energy policy. The Regional Spatial Strategy requires 1192MW of installed capacity of renewable energy by 2010. Aware that there has been some local opposition. We are also aware that a lot of their fears surrounding the proposed development are based on misleading and inaccurate information and that it is actually only a vocal minority of people who feel that way.

Landscape:

The character of the landscape is already impacted by the pylon line and the large grain silo complex I see no reasonable grounds for objection on landscape or visual appeal grounds. It will not despoil the countryside. I support the building of these turbines which I would be able to see from my garden as I live in Hadstock.

Think that the existing electricity pylons at the Linton site are far worse visually than the proposed turbines.

The site is uninteresting country which will not suffer from erection of turbines in as much as an ugly line of pylons already passes alongside the site.

Need for Renewable Energy:

There is a need for use of renewable energy and the site chosen is suitable to the area. We need more independence in our future power supplies and must reduce our carbon consumption for the well-being of our planet. This gives us an opportunity to contribute to this.

Uttlesford has one of the highest carbon footprints of any authority in the country and should be actively seeking ways of reducing this.

Wind is a natural resource, free and always renewable and the technology is tried and tested. Such a natural resource reduces emissions by greenhouse gases and reduces damage caused by climate change arising from increasing levels of these gases in our atmosphere.

Global warming is a bigger problem than some selfish people who short-sightedly want to preserve their view. We all have to try a bit harder. These applications may not be brilliant but it is part of finding things which are.

Alternative ways of providing energy that reduce the emissions of greenhouse gases, especially CO₂, are urgently required in the UK if we are to fulfil our obligations to do so. In addition to this, with North Sea oil and gas a rapidly diminishing source of energy, alternative local sources of energy are very necessary for our energy security.

General Impacts:

Found local population at North Pickenham did not have any objections for noise, health or any other reasons. Wind speeds are higher near Linton and so productivity there is likely to be better than North Pickenham.

Not even in the small number of houses nearest will noise of any kind be noticeable. Linton itself is a mile away and Great Chesterford 3 miles.

Visited North Pickenham to assess noise levels. Within a few feet of the turbines very little sound could be detected by the human ear, or as measured by meters. Claimed they are bad for human/animal health. As a retired senior scientist I find such a claim hard to believe. Think the noise pollution would be far less than the A1307. The TV reception interference would be irrelevant since analogue is switched off soon.

Impacts on Wildlife:

See little potential impact on wildlife.

PLANNING CONSIDERATIONS: The main issues identified by officers are:

1. The principle of development and its contribution towards the renewable energy targets for the region (ULP Policy ENV15, RSS Policies ENG1, ENG2, PPS1, PPS22)

Planning applications must be determined in accordance with development plan policies, unless material considerations indicate otherwise. The development plan consists of the East of England Regional Spatial Strategy adopted in 2008, the eight saved policies of the Essex Structure Plan and the saved policies of the Uttlesford Local Plan adopted in 2005. Government guidance in the form of Planning Policy Statements or Guidance (known as PPS or PPG) are material considerations and may include new government policy that results in the development plan becoming outdated. The most significant PPS documents relating to this application are PPS22: Renewable Energy published in 2004, and PPS1: Delivering Sustainable Development published in 2005 and the Supplement to PPS1 published in 2007. The general thrust of government policy is to deliver sustainable development and the Supplement to PPS1 highlights the fact that there is a need to respond to the threat from climate change. This document specifically states in paragraph 39, "In the interim period before the development plan is updated to reflect the policies in this PPS, planning authorities should ensure proposed development is consistent with the policies in this PPS and avoid placing requirements on applicants that are inconsistent." Therefore significant weight must be given to central government policy which, in this case, supersedes the now outdated policies contained in the Uttlesford Local Plan.

The Regional Spatial Strategy (RSS) embraces the government's joint strategies of reducing carbon emissions and meeting renewable energy targets, especially as the East of England is particularly vulnerable to the threats of climate change and the level of development and the potential increase in contribution to emissions. Policy ENG1 requires local authorities to encourage the supply of energy from decentralised, renewable and low carbon sources. Policy ENG2 requires that by 2010 10% of the region's energy should come from renewable sources, increasing to 17% by 2020. This specifically excludes energy from offshore wind. Development proposals are required to meet European and international obligations to protect wildlife. These targets represent the requirement to have an installed capacity of renewable energy production of at least 820MW by 2010 and 1620MW by 2020.

Uttlesford Local Plan Policy ENV15 supports the provision of small-scale wind turbines and this is reinforced by the adopted SPD: Energy Efficiency and Renewable Energy. Although this application is for the single wind turbine which happens to be located in Uttlesford it has

to be considered in terms of the overall scale of the proposal which is much larger than that which may be considered acceptable in terms of Policy ENV15 and the SPD and as stated above the guidance contained the Supplement to PPS1 national policy supersedes the local policy. It should be noted however that Policy ENV15 was drawn up some time ago when proposals for wind farm development were not envisaged in Uttlesford. However technology has moved on and a study undertaken by Altechnica in January 2008 for Uttlesford Futures, concluded that unless it is severely constrained because of potential conflicts with aviation and/or radar (because of the proximity to Stansted Airport) wind energy in combination with other renewable energy sources has an important potential role to play in Uttlesford with regard to electricity provision which could result in a reduction of CO₂ emissions.

PPS22 sets out the government's strategy for increasing renewable energy provision and cutting carbon emissions. The Companion Guide identifies various environmental benefits to renewable energy schemes including the reduction of carbon emissions. Economic benefits include the increased security and reliability of supply and farm diversification.

The Supplement to PPS1 reinforces the government's policy in relation to climate change and requires local authorities to ensure opportunities for renewable and low-carbon sources of energy supply are maximised. As stated above, these policies must be given considerable weight.

Uttlesford as a district is currently producing around 3.3% of its electricity indigenously and South Cambridgeshire is producing around 2.3%. The proposed wind farm would increase indigenous electricity generation by around 125%, to a total of around 6% overall. Whilst the majority of the overall scheme falls within the area covered by South Cambridgeshire, the proposed turbine within Uttlesford would make a positive contribution towards the production of renewable energy within the district. In addition the overall scheme would result in the reduction of carbon emissions by around 18,000 tonnes per year. The one turbine within Uttlesford would, assuming all turbines operate equally, account for 2250 tonnes. As a comparison this would equate to around 70% of Uttlesford District Council's carbon footprint for its entire operation (buildings, business transport and diesel used for our vehicle fleet). The proposal clearly complies with the Government's policies and makes a contribution towards the region's minimum renewable energy targets as set out in the RSS, although it is unlikely it would be installed in time to contribute towards the 2010 target should planning permission be granted. There is no development plan target for renewable energy generation in Uttlesford, however, at present.

2. The impact on the character of the rural area, listed buildings and conservation areas (ULP Policies S7, ENV1, ENV2, PPG15)

The Supplement to PPS1 requires planning authorities to ensure that any local approach to protecting landscape and townscape is consistent with PPS22 and does not preclude the supply of any type of renewable energy **other than in the most exceptional circumstances**. PPS22 acknowledges that the landscape and visual effects will vary on a case by case basis accordingly to the type of development, its location and the landscape setting. It also acknowledges that wind turbines are likely to have the greatest visual and landscape effects although these will vary according to the size and number of turbines and the type of landscape involved. The general thrust of the advice is that the **positive** environmental impacts through the generation of renewable energy and the reduction of carbon emissions must be weighed against the visual impacts of the proposal and a judgement made as to whether or not the visual impacts are so adverse as to outweigh the positive environmental impacts.

Policy S7, and government policy contained in PPS7, has a presumption against development in the rural areas with a requirement to protect the countryside for its own sake.

Planning permission will only be given for development that needs to take place there and will only be permitted if its appearance protects or enhances the particular character of the part of the countryside within which it is set or there are special reasons why the development in the form proposed needs to be there. A wind turbine of this scale can due to its size only be developed within a rural area. Government advice detailed above indicates that there are special reasons why the development needs to be located in the rural area and take the form of the design proposed. As such the proposed development is considered to be an exception to the development restraint policy for this area, providing it would not cause significant detrimental harm to the character of the rural area which outweighs the positive benefits of the renewable energy provision and carbon emission savings.

The application site is on a ridge between the Granta valley and the Cam valley. The height of the land is around 100mAOD. The Landscape Character Assessment produced for the Uttlesford area identifies the site as being within the Cam River Valley. The key characteristics of the area are:

- Rolling, open landscape of chalky boulder clay with wide views from higher ground.
- Well vegetated river banks with shrubs, trees and water meadows along the winding narrow river corridor.
- Large-scale downland reflecting late enclosure, with rectilinear field pattern.
- Low hedges and few trees mainly in small copses.
- Ancient town of Saffron Walden.
- Dispersed settlements on valley sides connected by busy B roads.

The visual characteristics include the fact that valley sides descend quite steeply from rolling arable fields to the river and its tributaries and dramatic views are possible from the ridges. Intimate views within the lower slopes of the river valley floor and the intimate scale of villages and towns contrast with large-scale modern agriculture. The open skyline is described as being visually sensitive to change, likewise the intimate views from the river valley floor to the valley sides from adjacent Landscape Character Areas.

This landscape contributes towards the setting of the villages around the application site, most noticeably Hadstock and Great Chesterford in Uttlesford and Linton, Hildersham and Great and Little Abington beyond in the area of South Cambridgeshire. These villages have a wealth of listed buildings and conservation areas. Advice contained in PPG15 and supported by Local Plan Policies ENV1 and ENV2 requires local authorities to protect the setting and character of the conservation areas and listed buildings.

The proposed turbine would be located approximately 3km from the outer edge of Great Chesterford and 1.7km from the edge of residential development in the core of Hadstock. Other villages with historic centres characterised by listed buildings and conservation areas and isolated listed buildings are also located within a 5km radius from the proposal and therefore a potential impact on their setting. Again a balance needs to be established between protecting the historic environment and the positive benefits which would arise from the proposal. Similarly, the concerns relating to visual impact will also need to be balanced against the widespread harm that climate change itself will cause.

This type of proposal is obviously new to officers and members and a visit to North Pickenham wind farm (a development sharing some characteristics with the proposed Linton Wind Farm) has been carried out to enable a better understanding of the scale of the proposals and the potential impact within the landscape. In addition officers have carried out a visit to the Fenland district and seen all the wind farm developments in that area. These wind farm developments visited are generally within wide open flat landscapes that accommodate the visual characteristics due to the expanse of the horizon. Naturally within

the immediate vicinity of each wind farm the visual impacts are greater due to the scale of the development.

The proposed turbine would be located towards the top of the ridge running along the valley and would be on land approximately 100m AOD. The natural lie of the landscape, and a fundamental part of its character, results in the villages being located on low lying ground nestled around the ridge. The proposed turbine would be around 125m tall to tip and higher than any other structure within the immediate vicinity. The ridge is clearly visible over a wide area covering several kilometres. The height of the application site, together with the height of the proposed turbine would result in a scale of development that would be visible to varying degrees over an extensive area. The impact of the proposal would be more defined to the north and west where the land levels fall significantly and then level out. The villages of Great and Little Chesterford are on land approximately 50m lower than the application site and the village of Hadstock is on land approximately 30m lower. This would result in the proposed development being around 155-185m to tip above the settlements. The natural topography of the land to the south and east will provide some natural screening to some villages, particularly in the core. Notwithstanding this there would be a visual impact on the conservation area of Hadstock with the turbine appearing as a dominating structure on the skyline behind the picturesque cottages within the core of the village, in particular within the conservation area. The Hadstock Parish Plan (2007) identifies the views from the centre of the village outwards towards open farmland as being a valued characteristic of the village.

Beyond the immediate vicinity, due to the scale of the proposal, there would be long distant view of the turbine and in some areas this may affect the visual characteristics of the landscape when viewing important buildings, such as Saffron Walden church.

Turning now to the visual impact in relation to recreational use of the area, the landscape provides a wealth of public rights of way. Between the village of Linton and the proposed site of T8 there are two public rights of way providing direct links. In addition there is a footpath running from the village of Great Abington which joins with the footpath running approximately 100m from T8. A further two footpaths running from the A11 area near Pampisford also feed into this grid of public rights of way. The Icknield Way is a long distance footpath and forms part of this network. Further to the north of the site is a Roman Road running from the Gog Magog Hills in the west and passing through Wandlebury Park and to the north of Linton. Within Uttlesford there is a network of public rights of way joining up with those in South Cambridgeshire. T8 would be located within a field having public rights of way running along the northern, southern and western boundaries at distances of approximately 100m, 180m and 200m respectively. The nature of the landscape results in long distance views of T8, particularly from the north and west of the site. Within the immediate landscape, particularly in the area around Great Chesterford and from the M11/A11, the B1383 and the B184 and the wealth of public rights of way within the vicinity of the site, the proposed turbine would appear to be a dominating structure. This would be exacerbated by the height of the land and the general topography of the area. This is discussed more fully under section 6.

It is officer's opinion that the proposal would have a detrimental visual impact on the character of the rural landscape and the broad setting of the Hadstock conservation area. In addition, it would result in a significant visual impact on the wealth of public rights of way within the area and this would be harmful to the recreational use of the area. These visual impacts would, on balance, be sufficient to outweigh the positive contribution the proposal would have as set out above.

3. The potential impact on residential amenity and health through noise, vibration and shadow flicker (ULP Policy GEN4, PPG24)

Noise:

The issue of noise covers various different aspects and these will be dealt with in turn.

Construction Noise:

As with any development there would be noise during the construction period. This is a normal part of the development process and can have potentially adverse impacts on residential amenity but would be a short-term impact. The nature of this development would require piling and extensive concrete foundations to be laid to support the proposed turbine. The applicant states that the hours of work would be 7am to 7pm or dusk. This is considered to be excessive and therefore detrimental to residential amenity. However, this could be controlled by condition and Environmental Health considers that restricting construction work to 0730 to 1830 Monday to Friday and 0800 to 1300 on Saturday would be appropriate.

Mechanical Noise:

Mechanical noise would be generated by the gearbox, generator and other parts of the drive train within the turbine. Modern turbines are significantly quieter than the early generation of turbines and since the 1990s there has been a significant reduction in mechanical noise from turbines. As such this type of noise is unlikely to result in a detrimental impact on residential amenity. Mechanical noise could increase due to wear and tear on the turbine and it would be essential for regular maintenance to ensure that this would not occur.

Aerodynamic Noise:

Aerodynamic noise is produced by the passage of the blades through the air and is generated by pressure variations within the air which fluctuate at acoustic frequencies. In wind turbines such fluctuating pressure is caused by flow turbulence. The frequency of the noise generated depends on the size of the turbulent eddies; broadly speaking large eddies produce low frequency noise and small eddies generate higher frequencies. Mostly the character of aerodynamic noise is broad band, that is it does not contain a distinguishable note or tone, but is of more random character and is generally heard as a 'swish'. Blade swish is not completely steady but is modulated at the rate at which the blades pass a fixed point, for example the turbine tower. In some cases the fluctuation of this noise is amplified and results in a noise phenomenon known as amplitude modulation (AM). Research carried out by Salford University suggests that AM is or has occurred at some wind farms in the UK, but the reasons for this have not been clearly established. Despite extensive research into noise from fans, aircraft and propellers, sound generation by turbulence is still not understood. Most importantly, there are no existing models by which AM can be predicted.

Wind speed is measured at a rate of metres per second (m/s). Questions have generally been asked as to what this equates to in terms that people can generally understand. The table below helps to explain this. Wind turbines operate between wind speeds of around 4m/s and 12 m/s.

m/s	Miles per hours	Beaufort Scale	Description
1	2.237	1	Light air: Direction of wind shown by smoke drift but not by wind vanes
2 – 3	4.474 – 6.711	2	Light breeze: Wind felt on face; leaves rustle; ordinary vanes moved by wind
4	8.948	3	Gentle breeze: Leaves and small twigs in constant motion; wind extends light flag
5 – 7	11.185 – 15.659	4	Raises dust and loose paper; small branches are moved
8 – 9	17.896 – 20.133	5	Fresh breeze: Small trees in leaf begin to sway; crested wavelets form on inland waters
10 – 12	22.37 – 26.844	6	Strong breeze: Large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty
13	29.081	7	Near gale: Whole trees in motion; inconvenience felt when walking against the wind

Paragraph 22 of PPS22 states that ETSU-R-97 (The assessment and rating of noise from wind farms) should be used to assess and rate noise from wind energy development. This document is based on research carried out at least 12 years ago on the effects of turbines up to 30m high in urban environments, where background noise levels are considerably higher than in a rural environment. Some representations have raised concerns that this assessment has been used and not WHO (World Health Organisation) criteria. Research has recently been carried out in relation to noise at wind farms in the UK and the government has reaffirmed the advice that ETSU-R-97 should be the basis for noise assessments.

ETSU-R-97 states that noise from the wind farm should be limited to 5dB(A) above background noise for both day time and night time. However, in low noise environments (where background noise levels are below 30 dB L_{A90}) the day time level of the $L_{a90,10min}$ of the wind farm noise should be limited to an absolute level within the range of 35-40d(B)A. The actual value chosen within this range should depend on a number of factors:

- The number of dwellings in the neighbourhood of the wind farm
- The effect of noise limits on the number of kWh generated
- The duration and level of exposure

The recommended fixed limit for night time is 43d(B)A. In low background noise areas (below 30dB L_{A90}) it is not considered necessary to restrict noise levels to below an $L_{A90, 10min}$ of 33dB. The reasoning behind this absolute limit is that if an environment is quiet enough so as not to disturb the process of falling asleep or sleep itself, then it ought to be quiet enough for the peaceful enjoyment of one's patio or garden.

ETSU-R-97 requires data to be collected at the nearest noise-sensitive properties to enable the background noise levels to be established and then project the potential noise levels of the wind farm. Noise levels should be collected for day time and night time and in winter and summer. In Uttlesford there are two noise-sensitive properties (dwellings) in close proximity to the proposal, Crave Hall, Great Chesterford (800m) and Penn Farm, Hadstock (1.1km). Noise measurements were taken at both properties but only a winter survey was undertaken at Crave Hall. The measuring equipment was located to the west of Penn Farm on open lawn more than 10m from any building façades. At Crave Hall the equipment was located at

the eastern side of the property on the edge of an open lawn approximately 7m from the building façade.

The results of the surveys for these properties are as follows:

Pen Farm Winter Survey: Background $L_{A90,10min}$ noise levels range from a low of 20-38dB L_{A90} at low wind speeds, rising to levels of 46dB L_{A90} at a wind speed of 10m/s. Measured data indicates that background noise levels are correlated with wind speed. Additionally the time history information suggests a slight influence from distant traffic noise.

Pen Farm Summer Survey: Background $L_{A90,10min}$ noise levels range from a low of 17-36dB L_{A90} at low wind speeds, rising to levels of 41dB L_{A90} at a wind speed of 8m/s. In a similar fashion to the winter survey, measured data from the summer survey indicates that background noise levels are correlated with wind speed, but are additionally slightly influenced by distant traffic noise.

Regression: Summer day time analysis indicates that the prevailing background noise levels range from 28-30dB at cut-in wind speeds, rising to approximately 36dB at a wind speed of 8m/s. Night time background noise levels range from 27-28dB at cut-in speed, rising to approximately 34dB at a wind speed of 8m/s.

Assessment: Winter: The predicted noise levels indicate that the proposed wind farm noise levels will meet the Lower Amenity Hours Noise Criterion within ETSU-R-97 and the requirements for night time operation. The proposed wind farm may be audible at this location for cut-in wind speeds up to wind speeds of approximately 12m/s, when downwind of the proposed site. Predicted internal noise levels at night will range from 16dB L_{Aeq} at cut-in wind speeds up to 30dB L_{Aeq} at a wind speed of 8m/s when windows are open for ventilation. With windows closed, internal noise levels due to turbine operations are unlikely to exceed 20dB L_{Aeq} at wind speeds above 8m/s.

Summer: The predicted noise levels indicate that the proposed wind farm noise levels will meet the Lower Amenity Hours Noise Criterion within ETSU-R-97 and the requirements for night time operation. The proposed wind farm may be audible at this location for cut-in wind speeds up to wind speeds of approximately 12m/s, when downwind of the proposed site.

Crave Hall Winter Survey: Background $L_{A90,10min}$ noise levels range from a low of 20-44dB L_{A90} at low wind speeds, rising to levels of 51dB L_{A90} at a wind speed of 15m/s. Measured data indicates that background noise levels are reasonably correlated with wind speed.

Crave Hall Summer Survey: No summer survey was carried out at this property.

Regression: Winter day time analysis indicates that the prevailing background noise levels range from 33dB at cut-in wind speeds (3-4m/s) rising to approximately 46dB at wind speeds of 12m/s. Night time regression analysis indicates that the prevailing background noise levels range from 27-28dB at cut-in speeds, rising to approximately 45dB at a wind speed of 12m/s.

Assessment: Winter: The predicted noise levels indicate that the proposed wind farm noise levels will meet the Lower Amenity Hours Noise Criterion within ETSU-R-97 and the requirements for night time operation. The proposed wind farm may be audible at this location for cut-in wind speeds up to wind speeds of approximately 12m/s, when downwind of the proposed site. Predicted internal noise levels at night will range from 17dB L_{Aeq} at cut-in wind speeds up to 31dB L_{Aeq} at a wind speed of 8m/s when windows are open for ventilation. With windows closed, internal noise levels due to turbine operations are unlikely to exceed 21dB L_{Aeq} at wind speeds above 8m/s.

Summer: The predicted noise levels indicate that the proposed wind farm noise levels will meet the Lower Amenity Hours Noise Criterion within ETSU-R-97 and the requirements for night time operation. The proposed wind farm may be audible at this location for cut-in wind speeds up to wind speeds of approximately 12m/s, when downwind of the proposed site.

(Note – the summer assessment has been based on the data collected from Pen Farm)

Notwithstanding the information contained in the Environmental Statement (ES) indicating that the proposals should not result in any direct impacts on neighbouring noise-sensitive properties there are some concerns about the calculations and the collection of the data.

The reduction of noise with distance downwind from the turbine has been calculated in the report using 6dB per doubling of distance from the source. This is correct for a single turbine which is a point source and may prove to be accurate for the proposal being considered. However, there is also the potential for an additional 7 turbines to be constructed and in this case the single turbine becomes part of a line source, where the reduction is only 3dB per doubling of distance, hence the reduction of noise with distance from the wind farm as a whole will have been underestimated. There has been no attempt within the ES to separate out the potential noise impacts.

The measured outdoor, night time background levels submitted are very low and likely to be even lower inside a property where the effects of the night time noise will be most noticed. Concern is expressed that the noise data was collected at a distance away from the elevation facing the proposed wind farm. Data collected closer to the dwelling could be lower than that collected from the garden which is more exposed and therefore potentially more likely to result in high background readings. In addition, the wind speed at a dwelling sheltered by outbuildings will often be considerably lower than the wind speed at the tip height of 125m. This difference, termed wind shear, is pronounced at night during stable air conditions due to cooling of the land. Under these circumstances the turbine rotates rapidly producing noise which is not masked by wind noise at ground level. These conditions are likely to be more pronounced by the topography of the area, particularly as the proposed turbines would be located on higher ground than the surrounding villages. Hadstock is located in a valley and therefore could potentially be more adversely affected by this noise. It should be noted that these conditions will be present for longer during the months when daytime is shorter, resulting in turbine noise outside the normal hours of sleep. As turbine noise is projected horizontally, deflecting towards the ground at distance from the turbine, sound can be inaudible close to the turbine but noticeable at distance. Therefore, properties located within a 2km distance from the proposed turbine could be affected by the noise levels, particularly if the other 7 turbines were constructed alongside it.

Low Frequency Noise:

Low frequency noise is mostly associated with 'downwind turbines' with the rotor on the downwind side of the tower. All current and proposed commercial wind farms in the UK have turbines with rotors upstream of the tower and these do not usually generate low frequency noise. Infrasound is normally below the normal range of human hearing. Research carried out by the International Electrotechnical Commission indicates that wind turbines with an upwind motor generate very faint infrasound with a level far below the threshold of perception. Additional research carried out on behalf of DEFRA (Department for Environment, Food and Rural Affairs) also states that the peak infrasound level from a large wind turbine system is well below the discomfort level associated with low frequency noise. The Companion Guide to PPS22 also indicates that ground transmitted low frequency noise is not of sufficient level to be harmful to human health. Therefore low frequency noise is unlikely to result in a loss of residential amenity.

Concern has been expressed about the potential impacts of low frequency noise on animals, in particular the breeding programme at Linton Zoo. Wind turbines and wind farms are a mature technology and they have widespread use particularly in countries such as Denmark and Germany. There is no evidence of wind farms having adverse impacts on animals and in the Fenlands it was seen that a livery yard is operating in very close proximity to a wind farm. The proposed turbine would be located approximately 2km from Linton Zoo and is therefore the most distant from the Zoo and potentially the least likely to cause disturbance

to animals. Therefore, whilst the concerns are noted there are insufficient grounds to refuse the application on this basis.

Vibration:

Vibration levels fall rapidly from turbines and the guidance contained in the Companion Guide to PPS22 indicates that research carried out at a modern wind farm showed that vibration levels 100m from the nearest turbine were a factor of 10 less than those recommended for human exposure in critical buildings (i.e. laboratories for precision measurement). Therefore it is unlikely that vibration would affect residential amenity.

Shadow Flicker:

Shadow flicker is a particular phenomenon that is caused by wind turbines. Under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. This would only affect properties within 130 degrees either side of north, relative to the turbines. Turbines do not cast long shadows on their southern side. Shadow flicker is likely to impact on properties meeting the 130 degrees criteria where they are located within 10 rotor diameters of a turbine. In this instance the turbine would have a rotor diameter of 90m and shadow flicker could be a potential problem within 900m. The Environmental Statement indicates that Crave Hall would be located approximately 850m south west from T8 and therefore has the potential to be affected by shadow flicker. This property is screened by trees and vegetation. The applicant has assessed this potential impact and the results indicate that a possible 56-61 shadow days per annum at worst case maybe experienced at windows to the north and east of the property, due to the screening and time (very early in the morning) of the potential flicker this is seen as a negligible impact. In all cases, a worst-case scenario is calculated which presumes that the sun is shining fully and the wind is in the prevailing direction to that property. It is likely that in reality only 25% or less of the worst-case scenario figures would occur. Twenty-five percent is approximately up to 15 days on which early morning shadow flicker would occur.

Shadow Receptor	Possible Impact	Shadow days per annum	Times of day	Turbine(s) that could cause the possible impact	Shadow hours per annum	Maximum shadow minutes per day	Assessment
Crave Hall – North elevation	Negligible impact	61	05:00 – 06:00	8	22:55	0.29	Good tree/hedge coverage around the property
Crave Hall – East elevation	Negligible	56	05:00 – 06:00	8	23:32	0.29	Good tree/hedge coverage around the property

T8 is unlikely to cause any detrimental impact on other properties within the vicinity in relation to shadow flicker. The impacts on Crave Hall are considered to be negligible and the potential impacts can be controlled by condition.

Concerns have been raised about the potential impacts on the health or well-being of local residents and children, particularly at the special needs school at Linton College. Some of these concerns relate to epilepsy. The National Society for Epilepsy advises that only 3.5%

of the 1 in 200 people in the UK who have epilepsy suffer from photosensitive epilepsy. The frequency at which photosensitive epilepsy may be triggered varies from person to person but generally it is between 2.5 and 30 flashes per second (hertz). Most commercial wind farms in the UK rotate much more slowly than this, at between 0.3 and 1.0 hertz. Therefore, health effects arising from shadow flicker will not have the potential to occur unless the operating frequency of a particular turbine is between 2.5 and 30 hertz and all other pre-conditions for shadow flicker effects to occur exist. Linton College is not within an area that would be affected by shadow flicker from T8.

4. The potential impact on telecommunications, television reception and radar operations through electromagnetic interference (PPS22)

Electromagnetic interference has the potential to affect various forms of signal, be it telecommunications or television signals. In addition wind turbines may affect the operation of radar by showing up as “scatter” on the radar.

Telecommunications:

The developer has carried out consultations to establish whether the proposed wind farm as a whole would impact on local telecommunication links. The result of this consultation exercise has required the relocation of one of the proposed turbines (the report does not indicate which turbine) to reduce the potential impact. The Joint Radio Company has responded to their consultation by stating they foresee no issues. None of the other consultees have responded and it is therefore assumed that they have no comments to make in relation to the proposals. Anglian Water Authority initially objected due to the potential impact on microwave and UHF signals for their properties but has subsequently withdrawn this objection in relation to T8. Therefore it is not envisaged the proposals would have a detrimental impact on telecommunications.

Television reception:

The Environmental Statement acknowledges that there would be some impact on television reception in the area, particularly relating to transmissions from Sandy Heath, Sudbury and Cambridge transmitters. The scale of the potential impact is not given in any detail although representation letters indicate that a large number of properties are likely to be affected. Notwithstanding this, where television reception is affected there are technological solutions available, although the high number of listed buildings within the area may pose some issues in achieving this technological resolution. A document produced on behalf of the Renewables Advisory Board and BERR advises that impacts on television reception could be controlled by condition and a legal agreement requiring a bond from the applicant to carry out any remedial works required. In this particular case there would be an issue as to whether or not the impact would be caused by T8 if the 7 turbines located in South Cambridgeshire were constructed or whether it is a cumulative impact.

Radar:

Wind turbines and wind farms can affect military and civil air traffic movement in two ways; firstly as a physical obstruction to low flying aircraft, necessitating mitigation either by the wind farm developer or by the aviation sector; secondly, through effects on aeronautical radar systems. As large, moving structures, wind turbines can appear on radar screens as ‘radar clutter’ and such ‘radar returns’ from multiple turbines can sometimes be interpreted as fast moving objects, mimicking the returns from aircraft themselves. Where such effects are acceptable or can be mitigated sufficiently the development may be considered acceptable. Defence Estates and NERL Safeguarding have issued objections to the proposals due to the potential adverse impact on radar operations. NERL Safeguarding

stated in its objection that a full report would be issued within 8-10 weeks from its initial response. At the time of writing this report this full response had not been received despite being some time after the 8-10 week period stated. Any further response received relating to this matter will be reported verbally. Notwithstanding the late submission of a full response from NERL Safeguarding it is considered that the outstanding issues relating to radar operations are sufficient to warrant refusal of the scheme.

5. The potential impact on biodiversity and wildlife (ULP Policy GEN7, PPS9)

PPS9 places a statutory duty on local planning authorities to consider the potential impacts of development proposals on biodiversity. Impacts could arise from the use of the land, construction impacts or operational impacts. The application site is predominantly arable land and is located approximately 110m from an important woodland and 650m from the edge of a County Wildlife site located adjacent to Crave Hall. Hildersham Wood, located in South Cambridgeshire, is approximately 750m from the position of T8. Hildersham Wood is a SSSI.

An ecology and ornithology survey forms part of the Environmental Statement submitted with the application. The area of search for the ecology survey includes the County Wildlife site at Crave Hall and also the SSSI of Hildersham Wood. Bird surveys were carried out over a 2 year period and included 4 winter surveys, 7 summer surveys and 11 surveys totalling 42 hours at each of two vantage points. These vantage points provided good visibility across the northern and southern parts of the site. Bat surveys were carried out and included 2 dawn surveys and 5 dusk surveys. Other protected species were also carried out and baseline assessments of the SSSIs and County Wildlife sites within 1km of the application site. The results of the surveys indicate that the wind farm as a whole would have a negligible/neutral impact on the SSSIs and County Wildlife sites. There would be a minor adverse impact on hedgerows due to the requirement to remove a small section of hedgerow in the South Cambridgeshire area to allow for the construction of an access track. Impacts on other habitats would be negligible/neutral. A similar conclusion was drawn in relation to potential impacts on a large number of bird species although a minor negative/minor adverse impact was identified in relation to the Common Buzzard and Quail. A negligible/neutral impact is envisaged in relation to bats and a minor negative impact/minor adverse effect on badgers due to potential injury during construction. Mitigation measures are proposed for potential impacts on nesting Quail and enhancement measures for existing habitats are also proposed. A post-construction monitoring programme is also proposed and this would relate to birds and bats. It is proposed that the monitoring programme would be carried out in years 1, 4, 7 and 10.

The statutory consultees in relation to biodiversity issues have not responded to this application. It is therefore considered that they have no concerns in relation to the proposal and that the ecological survey is robust and the mitigation measures are adequate. Some concern has been expressed in relation to the potential impacts on Hildersham Wood but as T7 is in closer proximity it is considered that this turbine is likely to have a more direct impact and this would be something for South Cambridgeshire to consider.

6. Traffic and highway issues, including impacts on public rights of way (ULP Policy GEN1)

Construction traffic:

The proposal would result in the transportation of substantial structures from the port to the site. The size of the structures would limit the vehicular movements to a predetermined route and this is likely to be from Felixstowe dock, along the A14, onto the A11 south to connect to the A1307. The distance from the A11 along the A1307 to the site access is

approximately 3 miles. The Highways Agency has stated that they have no objection to the proposals. Cambridgeshire County Council Highway's Department have not responded to the proposal and Essex County Council Highway's Department has no objections to the proposal.

Impact on the A1307:

A large number of representations have raised concerns about the potential impact the proposed wind farm once built would have on driver safety on the A1307. They are concerned that the rotating blades would provide a distraction to drivers and increase the potential for accidents along a stretch of road that is already notorious as being an accident black spot. T8 would be located approximately 2.6km from the A1307 and would be the turbine located the furthest away from this stretch of road. It would be approximately 3km from the B184 and the A11 and approximately 2km from the road passing through the centre of Hadstock. T8 would therefore be visible within the landscape but should be sufficiently remote from the major traffic routes to limit the potential for driver distraction. As stated in the Companion Guide to PPS22 drivers are faced with a number of varied and competing distractions during any normal journey and at all times drivers are required to take reasonable care to ensure their own and others' safety. Wind turbines should therefore not be treated any differently from other distractions a driver must face and should not be considered particularly hazardous. There are now a large number of wind farms adjoining or close to road networks and there has been no significant history of accidents at them. In various appeal decisions it has been noted that Inspectors often take this approach in relation to highway safety. Notwithstanding this advice, it is noted that the Inspector considering the appeal in relation to the Boxworth and Conington wind farm, located adjacent to the A14, concluded that the proposal, exceptionally, would have a harmful impact on road safety. Obviously the other turbines, in particular T1 and T2 would be located in a closer proximity to the A1307 and may have a greater impact on highway safety than T8 but this is a matter for South Cambridgeshire to consider.

Impact on Public Rights of Way:

The proposed access track running between T2, T4, T6 and up to Catley Park is currently a public right of way. This would provide access to T8. The access is on land within the South Cambridgeshire District and the suitability of the access and the potential impacts the wind farm would have as a whole must be considered by that authority.

Concern has been expressed in representations about the proximity of the wind turbines to the public rights of way, in particular the local bridleways and the impact this would have on horses. Safety concerns for people using the public rights of way have also been expressed, in particular in relation to potential failure of the turbine or as a result of ice throw from rotating blades.

The Companion Guide to PPS22 states that although a wind turbine should be a stable structure it may be advisable to achieve a set-back from roads and railways of at least fall over distance, so as to achieve maximum safety. As stated above T8 would be located in excess of 2km from the nearest highway and this would therefore more than satisfy this criteria. In relation to public rights of way the Companion Guide to PPS22 indicates that the British Horse Society has suggested a 200m exclusion zone around bridle paths to avoid wind turbines frightening horses. It should be noted that the British Horse Society has now revised this separation distance to 3 times the height of the turbine, in this case 375m. However, PPS22 also states that this recommended separation distance is not a statutory requirement. Similarly there is no statutory separation distance between a wind turbine and a public right of way. Often fall over distance is considered an acceptable separation, and

the minimum distance is often taken to be that the turbine blades should not be permitted to oversail a public right of way.

The ES states that significant effects on landscape character are largely limited to the immediate vicinity of four public rights of way. The ES also states that the effects on landscape character would extend to 3km and visual impacts to 6km. Within a 5km radius the proposal is considered to have a major/modern effect on public rights of way. T8 would be located in a field that has public rights of way on all sides. On the eastern side of the field is a bridleway, approximately 170m from the proposed turbine. Emphasis on separation distances has been expressed by Inspectors in recent appeal decisions. This area has a wealth of public rights of way, many of which appear to meet along the edges of the field where T8 is proposed. The network of paths appears to emphasise the prominent position of this ridge and therefore its attractiveness for recreational purposes. Indeed in the Hadstock Parish Plan (2007) 76% of residents stated that they used the local public rights of way. Whilst the proposed turbine would not oversail any public rights of way, it would fall short of the recommended separation distance from the bridleway, being less than the recommended 200m. In addition T8 would be located within fallover distance of the public right of way to the north. T8 would therefore have a significant effect on the recreational enjoyment of this area, in particular the long distance footpath the Icknield Way.

7. Other issues the Committee wanted considered:

The efficiency of the scheme was questioned by some Members. It is clearly set out in government policy, in particular PPS22, that the efficiency of the scheme is not a material consideration. This is a matter for the developer to consider when preparing a scheme to ensure that the project would be viable. As set out above, the proposed site has one of the highest wind speed areas within the Uttlesford district. Members also questioned whether a less prominent position would be as efficient. An Environmental Statement should consider if there are reasonable alternatives or adjustments to the submitted scheme that would achieve the planning objectives of the proposed development but avoid or minimise any significant adverse environmental effects. In the case of this proposal, an alternative site with significantly lower wind speed would not be regarded as a reasonable alternative, and this authority must ultimately consider the proposal on the basis on the scheme before it.

The distance between turbines and the potential impact on efficiency has been raised. The Companion Guide to PPS22 indicates that separation distances will depend on various factors including the prevailing wind direction. As a general rule turbines need to be positioned so that the distances between them are around 3-10 rotor diameters. This would equate to distances of 270m and 900m based on this proposal. If turbines are placed too close to each other this will result in an inefficient operation and places more strain on the turbines due to turbulence. The applicant states that operational considerations require that turbines are separated by a distance of 500m in the predominant wind direction and 350m in a lateral direction to ensure maximum power generating capacity. These figures are lower than those shown in the Companion Guide where in Figure 5 it shows separation distances of 4 x and 6 x rotor diameters. This would equate to 360m and 540m. T8 would be approximately 520m from T6 and 670m from T7. These separation distances fall within the criterion specified by the applicant and the Companion Guide to PPS22. As such it must be assumed that the separation distances are sufficient in relation to T8.

CONCLUSION: The proposed development would make a positive contribution towards the renewable energy provision targets in the development plan and reduction in carbon emissions and the proposal would comply with national and regional policies. However, it incumbent on the local planning authority to consider the environmental effects when considering specific applications for development, and to weigh these against the support in the development plan and other material planning considerations. Members will need to

determine whether the effects of the proposed turbine T8 identified in this report are so adverse as to warrant greater weight than the fact that it would contribute to renewable energy generating capacity in accordance with the development plan. It is officers' view that, on balance, the proposals would result in an adverse impact on the character of the rural area and the historic environment, in particular detracting from the recreational enjoyment of the public rights of way and having a detrimental impact on the setting of Hadstock conservation area. There are deficiencies in the collection of the data and the consequent predictions of noise impacts and the assessment of their significance. In addition, it would appear that no allowance has been made for the topography of the area and the height of the proposed turbine and the potential impacts this would have on noise levels at noise-sensitive properties. Objections have been received from statutory consultees about the impact on radar operations and these are required to be resolved prior to the local authority granting consent.

RECOMMENDATION: REFUSAL REASONS

1. Notwithstanding the positive aspects of the proposal in contributing towards regional and national targets for renewable energy and reduction in carbon emissions, the scale of the proposal, together with the topography of the site will result in a significant harm to the area. The proposed turbine would be located on a prominent ridge in a rural area where there is a wealth of public rights of way. The siting of the turbine would lead to a loss of visual amenity in the area potentially resulting in detracting from the recreational enjoyment of the area. In addition the turbine would appear as a visually prominent feature having a detrimental impact on the character of the Hadstock Conservation Area and the setting of the listed buildings. The proposals would be contrary to the adopted Uttlesford Local Plan Policies ENV1 and ENV2, advice contained in PPG15. The environmental impacts of the proposal are not satisfactorily addressed as required by PPS22 and PPS1.

2. The background noise data has been collected from positions not immediately adjacent to an elevation of the noise-sensitive properties and as such background noise levels are likely to be higher than if they had been measured adjacent to the dwelling. In addition, no consideration appears to have been given to the potential for wind speeds at noise-sensitive properties to be lower than those at the turbine, a fact that could be exacerbated by the topography of the area. As such there is the potential for the proposed turbine to operate at noise levels that would exceed the criteria set out in ETSU-R-97 and this would also be contrary to ULP Policy GEN4.

3. Objections in relation to operational impacts on radar have been received from Defence Estates and NERL Safeguarding. PPS22 places the onus on the applicant to demonstrate that the proposal would have no adverse effect on aviation interests and this has not been demonstrated.

Background papers: see application file.
