DATE / REF
18 JANUARY 2024
IS02-20031

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In response to concerns over effects to neighbouring properties, GIA has been appointed to provide an assessment of the potential shadows cast by the proposed design of the site at East Nethershields. In particular, it is understood that concerns have been raised in relation to any potential shadow cast towards two properties:

- Burn Farm, and
- Maiden Lea Cottage.

Overshadowing effects to neighbouring areas of amenity are generally assessed with reference to the BRE's publication 'Site Layout Planning for Daylight and Sunlight' (BR209:2022) which states in this summary at 3.3.17:

> *"It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21st March. If as a result of new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21st March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable."*

Methodology

To understand the potential effects to these properties, therefore, we have created a 3D model of the local terrain from Ordnance Survey information as shown in the below image:

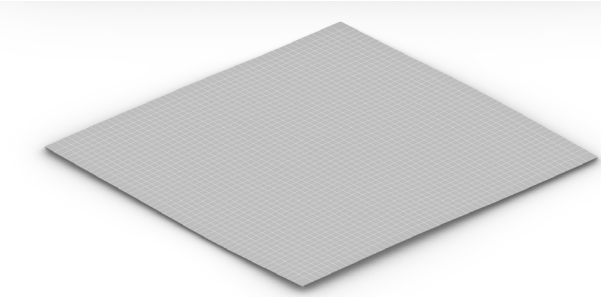


Figure 1: 3D model of existing terrain

With the terrain built, we proceeded to include 3D models of the trees proposed, based upon the height/spread and density suggested by Tilhill, understood to be representative of the typical height and spread of the relevant species at maturity. The height/spread modelled can be seen within page 2 of the enclosed technical assessment (Appendix 01).

The resultant model is shown below:

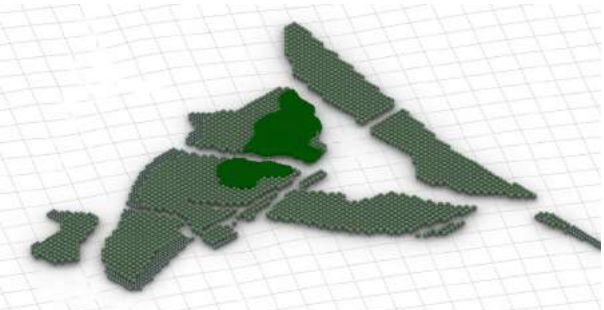


Figure 2: 3D model of existing terrain with proposed trees

With the above completed, specialist lighting simulation software was used to present the shadows cast across the terrain at hourly intervals on the 21st March (equinox) as well as the 21st December (winter solstice, representative of the winter and the longest shadows possible) and the 21st June (summer solstice, representative of summer and the shortest shadows possible). It is relevant to note here that the two solstices are presented for information only as the relevant guidance refers only to the mid point of the 21st March.

Finally, the images were compiled with aerial imagery to help understand the scale of shadow likely to be cast:

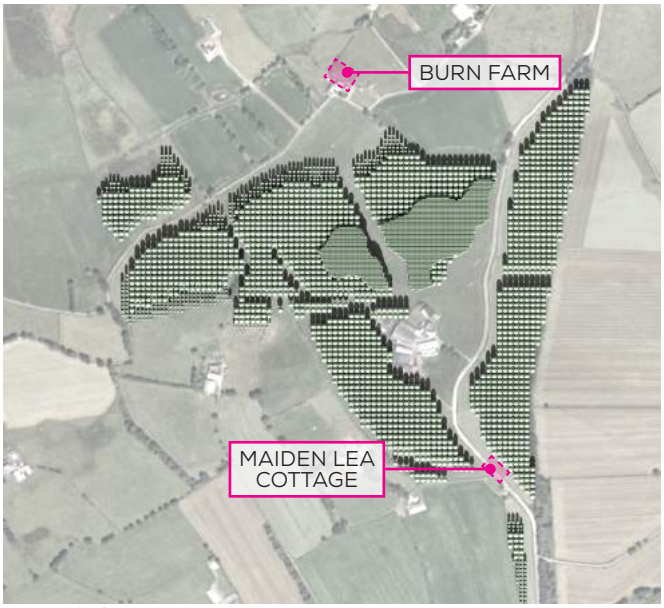


Figure 3: Shadows cast at midday on the equinox

For ease of reference, the two properties in question have been highlighted in the enclosed assessment.

Conclusions - Burn Farm

The assessment has shown no shadows will reach Burn Farm on the equinox and as such the proposal is fully compliant with the recommendations of BR209.

In addition, the assessment has shown no shadows to reach this property at the winter solstice when shadows are longest and so there will be no overshadowing of Burn Farm from the trees as proposed.

Conclusions - Maiden Lea Cottage

The assessment has shown that virtually no shadows will reach Maiden Lea Cottage on the equinox, with limited additional overshadowing occurring before 8:00 GMT. The effects are compliant with the recommendations of BR209.

Similarly, on the summer solstice some shadows will reach Maiden Lea Cottage in the early mornings and late afternoon when the sun is at a particularly low angle. This would however only occur for short periods of time and no shadows will be cast over Maiden Lea Cottage between 8:00-20:00 BST.

On the winter solstice shadows are longer and the assessment has shown the potential for shadows to reach partially Maiden Lea Cottage in the morning for a short period of time. However, all the trees casting this shadow are deciduous in nature and so, with sunlight filtering through the bare branches in winter, this is an extreme worst-case scenario. The second study enclosed showing the effect of the bare trees helps to indicate the very minor nature of this shadow.

Overall, there is the potential for some shadows to be cast over Maiden Lea Cottage in the early mornings and late afternoons across the year, but this will occur for short periods of time and for the vast majority of the day no shadows will be cast over Maiden Lea Cottage. As such, the effects of the proposal on Maiden Lea Cottage are fully compliant with the guidance set out within BR209 and would be considered negligible.

APPENDIX 01

TRANSIENT OVERSHADOWING ASSESSMENT

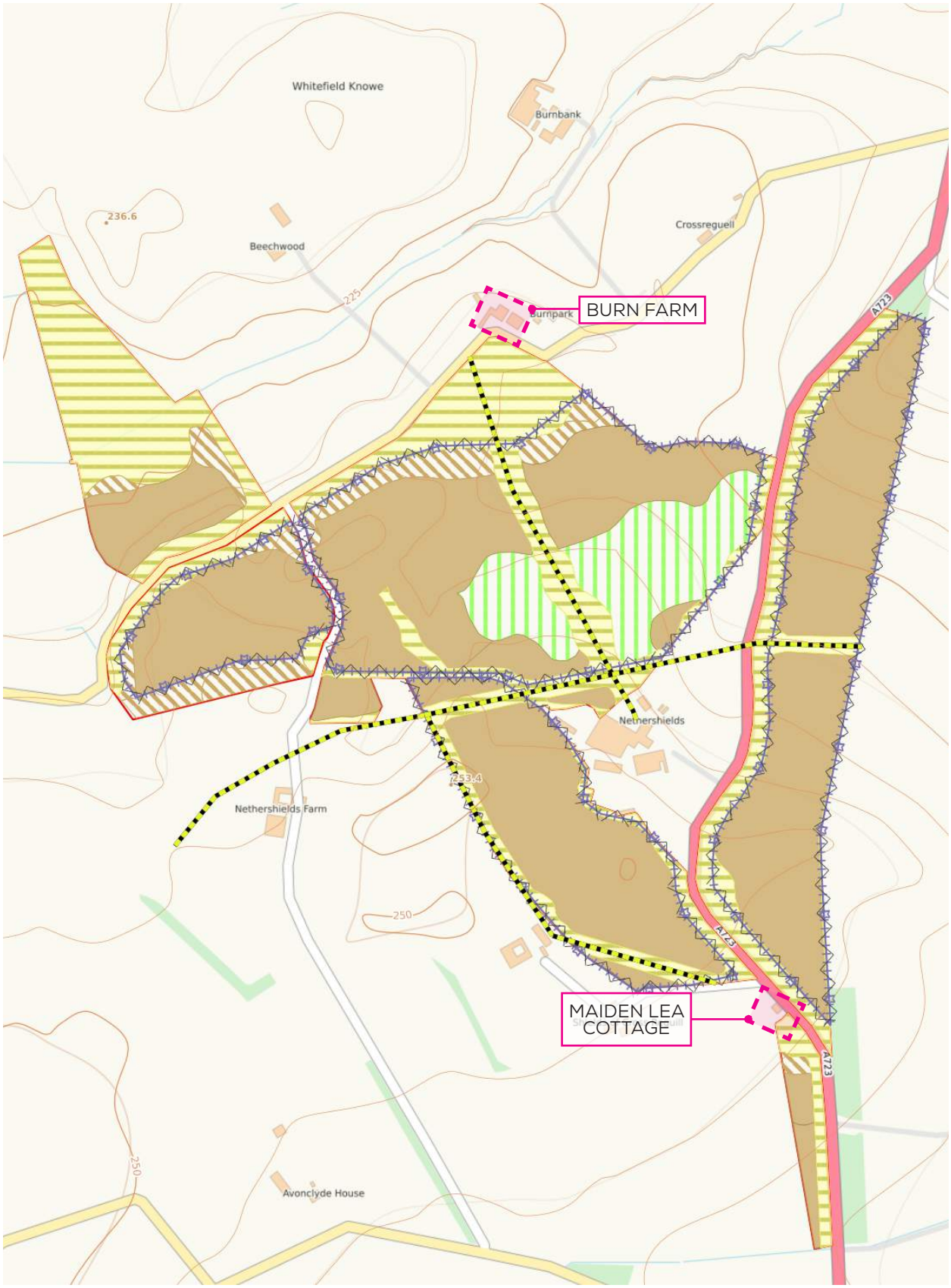
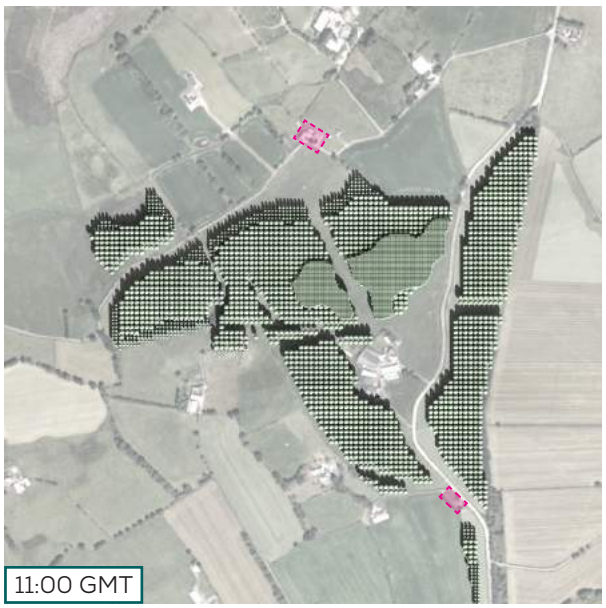


Fig. 01: Map -Tilhill

Open ground
Native broadleaves - height 20m / 10m wide / planted at a density of 1600/he.
Native broadleaves - height 15m / 5m wide / planted at a density of 1100/he.
Conifers - height 25m / 5m wide / planted at a density of 2500/he.

TRANSIENT OVERSHADOWING ASSESSMENT
21ST MARCH (07:00 - 17:00 GMT)




13:00 GMT


14:00 GMT


15:00 GMT


16:00 GMT


17:00 GMT

TRANSIENT OVERSHADOWING ASSESSMENT
21ST JUNE (06:00 - 20:00 BST)


12:00 BST


13:00 BST


14:00 BST


15:00 BST


16:00 BST

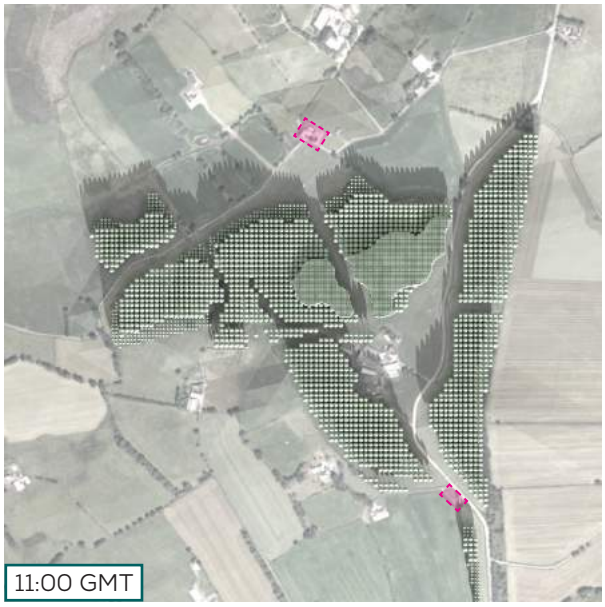

17:00 BST

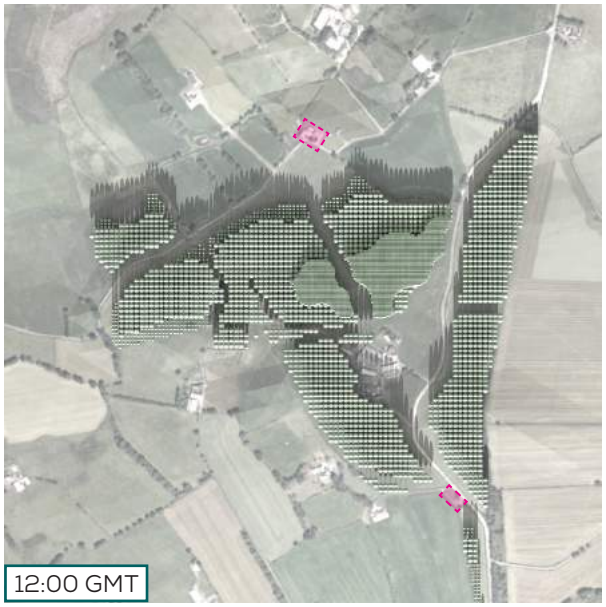

18:00 BST


19:00 BST


20:00 BST

TRANSIENT OVERSHADOWING ASSESSMENT
21ST DECEMBER (09:00 - 15:00 GMT)





TRANSIENT OVERSHADOWING ASSESSMENT - BARE DECIDUOUS TREES
21ST DECEMBER (09:00 - 15:00 GMT)

For further details please contact us on:

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