

Appendix A



How Hill Trust - The Environmental Study Centre for the Broads Potential candidate for a Dark Sky Discovery Site **May 2021 DRAFT**

Address: How Hill Rd, Ludham, Great Yarmouth NR29 5PG

For an explanation of the criteria, see Appendix A.

This application was produced with assistance from Jon Tyler who is a local dark sky enthusiast and does not work for the Broads Authority.

Site name	How Hill
Size	Around 16,000 sqm This area is open space. There is a car park adjacent. Some parts of the large area will have better sightlines as the rest as it is a hill and there are trees nearby. One can easily walk away from those, across the field and get a sightline with few if any obstructions.
Darkness rating	How Hill has at least a Bortle Class of 4 (Rural/ sub-urban transition) Dark sky quality meter readings taken in April 2021 are near to 21 Magnitudes per Arc Second. See map at Appendix B. See readings data and methodology at Appendix C. This would mean that How Hill would easily qualify as a 2 Star (Milky way class) site for the Dark Sky Discovery award.
Sightlines	Most of the area has very good sightlines. See photos at Appendix D.
Public access	All times, open to public.
Wheelchair access	In dry conditions, fairly accessible. It is a grass field, but it is hard and dry. That being said, someone in a wheel chair could also use the track leading to Toad Hole Cottage. And they could even park near Toad Hole Cottage, which is a disabled car park for visitors and has surfacing acceptable for wheelchair usage to view the dark skies over the river and marshes.
Safety	The main area of grass – maybe some rabbit holes and a there is a slight slope, but nothing that is a deemed a major risk. It is the usual issue of slips, trips and falls in the dark. For nearer to Toad Hole Cottage, one could be near to water and that would need to be a consideration, but there is a clearly defined edge to the path. There is quay heading. There

	are some mooring posts, but these have glow in the dark discs at their base to help highlight their presence.
The nomination must be supported in writing by the landowner and local authority.	Ludham PC How Hill Trust NNDC BA

Appendix A: Explanation of criteria

1. Size. The Site should be 100m² (10mx10m) in area. This is small enough to be defined clearly by an 8 figure Grid Reference and large enough to be used by a visiting group of 30 people. In many cases, the Site will be part of a wider park or open space which has other locations which don't match the other criteria (e.g. darkness, sightlines, access, safety) in the same way as the core Site. For example, they may have better sightlines but not have wheelchair access. If so, you can explain this briefly in the Other Comments section of the form.

2. Darkness rating. The site must meet one of these levels:

- One Star Site: The seven main stars in Orion are visible to the naked eye. Typically this means away from, or shielded from, bright lights such as street lights, security lights or approaching car headlights.
- Two Star Site: The Milky Way is visible to the naked eye. This will be a much darker site only found in more rural areas.
- Ideally, please ask a local astronomy organisation such as a local club or university to confirm this rating. Local clubs in the UK can be found here www.fedastro.org.uk/fas/. If you are able to take a Sky Quality Measurement for the site, please include tell us the figure. Here are some guidelines on how to do this <http://darkskydiary.wordpress.com/2010/12/18/how-to-carry-out-a-dark-sky-survey/>.

3. Sightlines. The site should provide relatively good sightlines of the horizon in all directions. Typically this means away from tall building, trees and high ground. There is no absolute measure required here and you may find it helpful for a local astronomy group to help with this judgement.

4. Public access. Ideally, the site will be freely open to the public and have no cost during the hours of darkness.

5. Wheelchair access. The Site must be accessible to a wheelchair user. As explained above, the Site might be a short walk from other observing locations that do not meet this criteria.

6. Safety. The site must have been Risk Assessed by the nominating organisation. Please use your own Risk Assessment form. In Risk Assessing your site, hazards to be considered should include:

- Uneven or wet ground.
- Open water/steep drops.
- Traffic.
- Anti-social behaviour.

Any risks that you identify should be able to be mitigated by the information you provide in the Safety Notes on the form, in addition to the following general safety information that will be provided on the Dark Sky Discovery website:

- Visit with a group of people – it's safer and more fun!
- Check the website for the Site (linked from the google map) for the latest access information.
- Follow the countryside code for England, Scotland, Wales or North Ireland.

A Site for which the Risk Assessment identifies the need for hard measures such as installation of a fence or steps, will not meet this criteria.

Whilst the Science and Technology Facilities Council will recommend the site as a good place to see the stars, we do not accept any responsibility for any harm, injury, damage, loss or prosecution as a result of people visiting these sites.

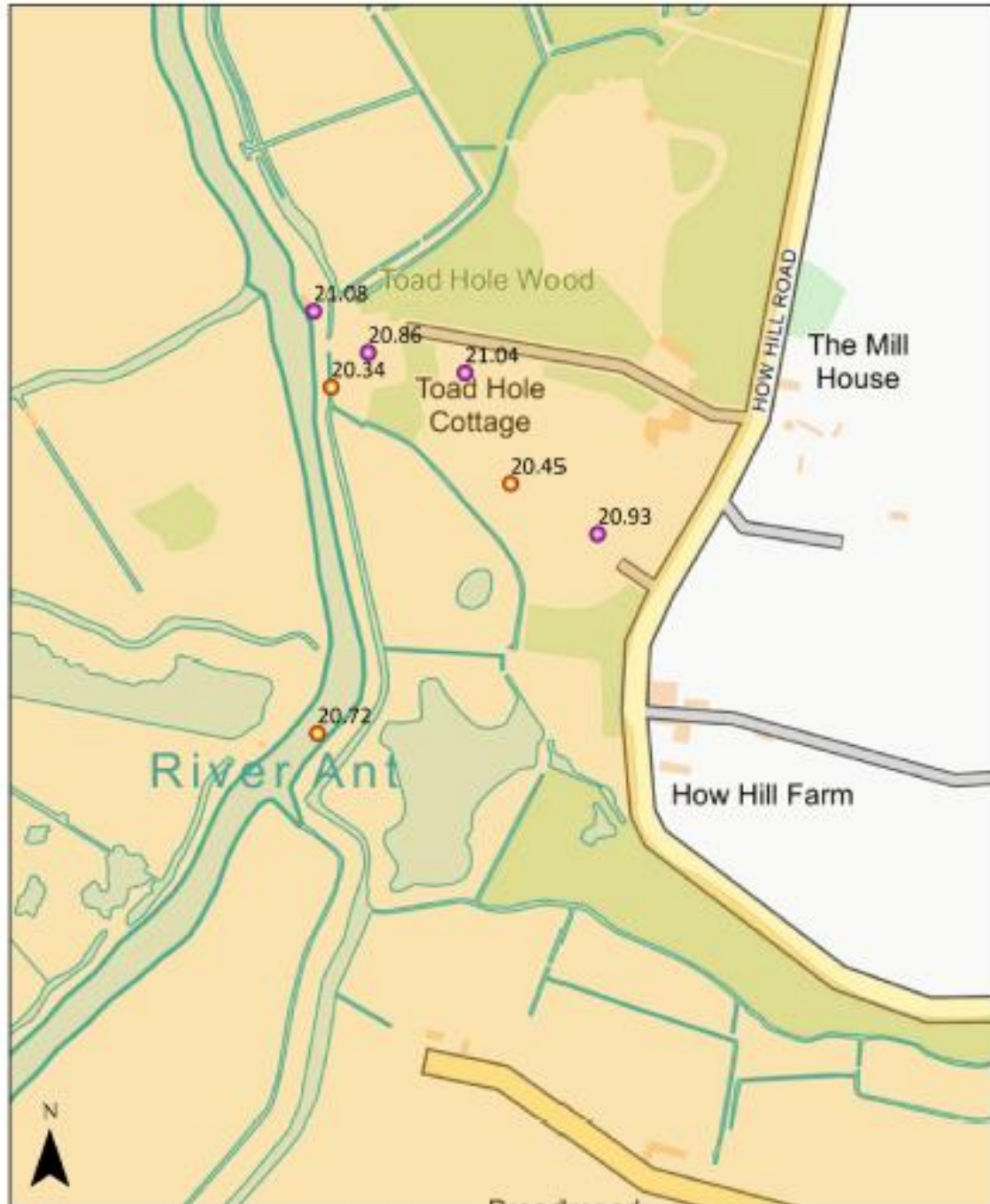
7. The nomination must be supported in writing by the landowner and local authority. For the local authority, the Parks and Open Spaces Department is likely to be the appropriate Department to approach for this support.

Appendix B – map showing location of readings

Dark sky readings taken at How Hill in 2015/16 and April 2021.

- 2015/2016 readings
- 2021 readings
- Zone 2 - 2015/16 surveys combined with CPRE Night Blight data to give dark sky zones

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Appendix C – methodology and readings

Visits were made, after 10pm on 12 April 2021. Astronomical twilight ended at 10pm that day according to the time and date website: [Sunrise and sunset times in Norwich \(timeanddate.com\)](http://timeanddate.com). That night was cloud free and there was no moon.

8 readings were taken using the Dark Sky Quality Meter. The lowest and highest readings were removed and the average of the other 6 used.

The readings at the various locations shown on the map in Appendix B are as follows:

How Hill 1	How Hill 2	How Hill 3	How Hill 4
Staithe near boat house	Outside Cottage	In field, near path to cottage	Near car park
21.03	20.65	20.73	20.53
21.05	20.73	20.86	20.62
21.06	20.76	20.93	20.9
21.07	20.83	21.07	20.91
21.08	20.87	21.09	21
21.12	20.96	21.09	21.07
21.12	21.03	21.18	21.09
21.12	21.1	21.97	21.1
21.08	20.86	21.04	20.93

Appendix D – photographs of How Hill

Standing on the track, looking over the marshes, showing the view from that point.



Showing the surface of the car park.



Standing in the middle of the field, looking back towards the car park.



Looking across the field, towards the car park.



Showing the area near to the water's edge and near to the disabled car park.



Showing the disabled car park.



Showing the surface of the area near to the water. Also showing the kind of view that would be on offer.

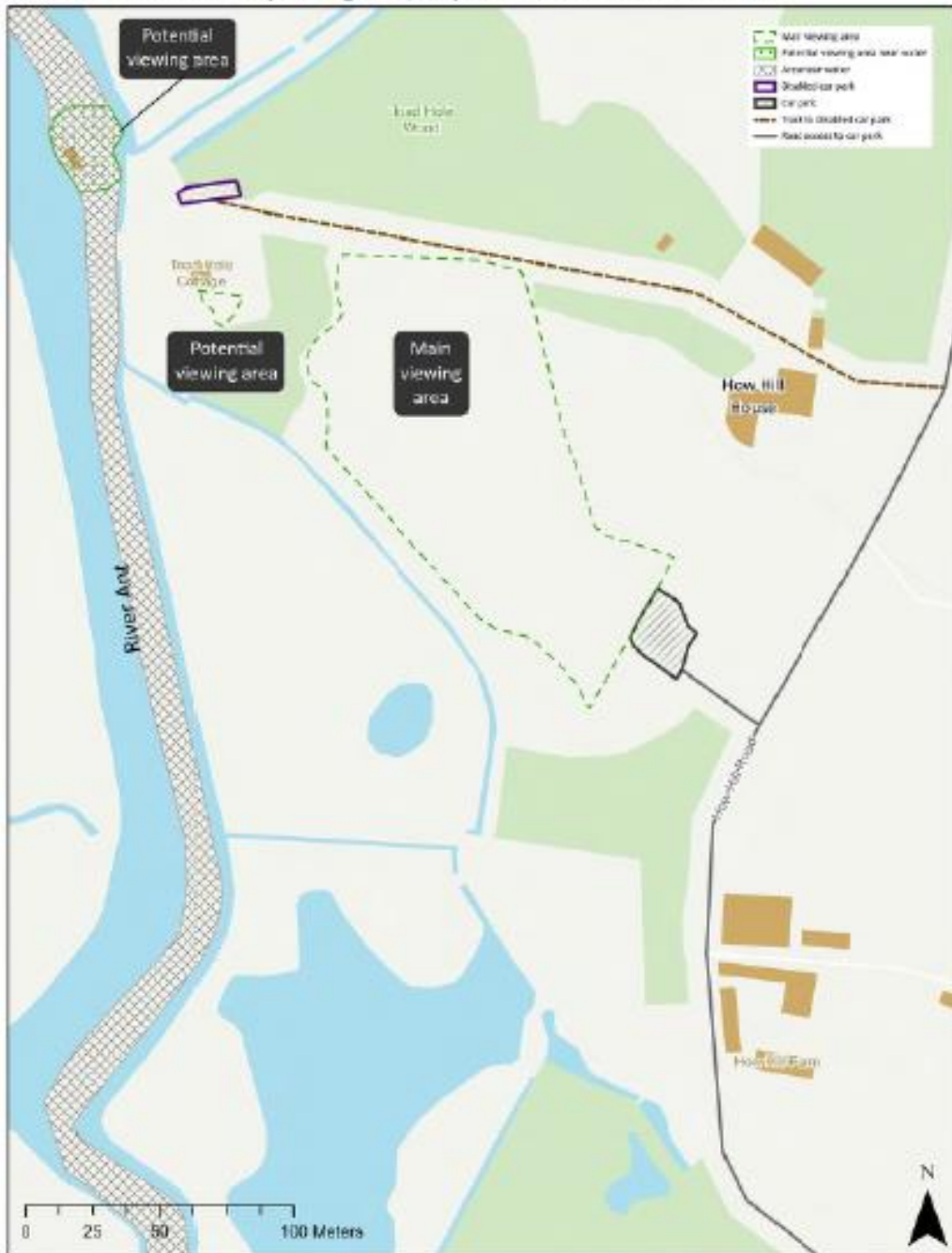


This track runs along the field, from the road to the disabled car park. The field and views are to the left of the photo.



Appendix E – an annotated map showing relevant parts of the How Hill area

How Hill - Potential dark sky viewing areas, car parks and other relevant features



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Appendix F – Letters of support from Landowner, Parish Council and Local Authority

Appendix G – Risk Assessments