From: [redacted]
To: East Anglia Two
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SUFFOLK CHALK AQUIFER ADDITIONAL

Richard Reeves, AP EI1N AFP 133 / IP 2002765

Many thanks for reviewing the information presented below with reference to additional information requested for Deadline 5 supporting previous submissions on the importance and vulnerability of the aquifer contained in the continuous chalk layer underlying the East Anglian region in general, and with specific local relevance to [redacted] the long-standing grazing rights and vulnerable status of the livestock in the paddocks adjoining Ness House, and the centuries-long usage by farms, local businesses, and individuals.

I would very much like this submission and information to also be made available to Anglian Water and EDF, as organisations also likely to be adversely affected by the danger of the aquifer being compromised and polluted. The following additional information I believe has an immediate bearing on both the Applicant's proposed Landfall site choice, and the pre-consent archaeological surveys, comprising over 36 trenches and numerous deep boreholes immediately adjacent to the properties indicated above, which the Applicant is currently seeking to commence during the next two months, planned to extend into 2022.

The levels in the private water supply as measured by Veritas Water Engineers Ltd, the company retained by the Wardens Trust and Gimson family to install and maintain water purity for the [redacted] were reported as follows, measured on 26/01/2021: "The well is 13.1 m deep measured from floor level in the pump house, the rest water level (surface of the well water) is 11.7 m. hence a depth of 1.4 m of water in the well" The following two screenshots display the elevation above sea-level at site of the well at Ness House (map 1, upper) and at the proposed Landfall site, Thorpeness Point, at cliff edge (map 2, lower) Ness House : 46 ft / 13.8m above sea-level Landfall site cliff edge: 21ft / 6.3m above sea-level The extremely shallow depth of the water in the well at Ness House / Wardens, at 1.4m / 4.67ft is a clear indicator of the extensive lateral size of the Suffolk Chalk Aquifer. For such a shallow depth of water to supply, for a period of time that exceeds living memory, and in the case of Ness House, then known as The Tea House on 19th century o/s maps, and also in the case of Suffolk farmland usage, for a period that stretches back even further in time, and for the water source not have run dry must surely indicate a very substantial body of water.

In my previous submission for deadline 4, I quoted from, and referenced, two authoritative sources of information regarding the overall dimensions and vital importance of the Suffolk Chalk aquifer, a continuation of the single chalk-layer aquifer underlying, and supplying water to, the whole of the East Anglian region and beyond.

From the current readings at the Ness House / Wardens site, we can see that the rest water level, ie the surface of the water in the well, lies at no more than 2.1 m / 7ft above sea-level (calculation being ground elevation @13.8m minus depth below ground-level of surface of aquifer @ 11.7m) At the proposed Landfall point, the cliff edge at Thorpeness Point, this same differential between elevation above sea-level of ground surface and rest water level of the aquifer below ground surface, (6.3m minus 11.7 m) would place the aquifer at 5.4m below sea-level at the foot of the cliff / top of the beach. Again in my previous submission at Deadline 4, in the description of the Suffolk Chalk Aquifer quoted from Natural England, the chalk layer

containing the aquifer waters is described as lying on a gentle slope, running downward from NW to SE of the region, to continue its trajectory under the bed of the North Sea. The angle of this slope can be reasonably estimated by comparing the above / below sea-level figures quoted above, namely 2.1 m above sea-level at Ness House, sloping down by a net fall of 7.5m in the course of the approximately 1200m distance between Ness House and the proposed Landfall point, a gradient of 0.625m in 100m / 0.006 in 1.

At a depth of 5.4m below sea-level at the foot of Thorpeness cliff it might be thought that the aquifer might be below the level of HDD drilling proposed by the Applicant, which has referred to the under-beach level of the cable ducts as being 3m below beach level. However, seaward from the foot of Thorpeness cliff, both the beach and the subsequent sea-bed shelve at a far steeper gradient than that of the aquifer, the top-of the beach dropping over 3m in elevation in 50m travel to the shoreline, and the sea-bed then shelving to a depth of over 5m in a similar distance. It seems therefore extremely likely that the aquifer-bearing chalk level proceeds under the sea-bed at an angle that brings it in very close proximity to the sea-bed floor above it.

Without a specific geological survey of the depth under the sea-bed at which the aquifer lies, at frequent points of measurement between the proposed Landfall point and the planned "punch-out" point, it is impossible to say for certain at what exact depth the aquifer lies, along that trajectory. However, it is surely also clear that drilling down to a depth sufficient to undermine both cliff and beach at Thorpeness, the Applicant's HDD process cannot avoid piercing and boring through the aquifer from above. Equally clearly, the progress back up through the sea-bed strata to arrive at the "punch-out" point cannot avoid drilling through the aquifer for a second time from below, this time adding sea-water to the pollutants entering the major source of underground water-supply to the East Anglian region, and further afield.

As a specific, local example of how vulnerable the aquifer is to pollution, I can offer our own personal experience at the Ness House Cottage / Wardens site. For most of the years since moving here in 2007, the surrounding fields (currently adjoining Ness House and earmarked for industrialisation as part of the proposed cable-corridor) sustained mixed farming, alternating arable, root crops, and occasional single years of pig farming. For one period of no more than 3 years, pig-farming was unrelieved by intervening arable or root cropping. The result was that, for the first time in living memory - and the memories of our neighbour Dr Gimson's parents at that point went back over 8 decades - the water in the well became compromised as drinking water by pollutant corrosive elements leaching down into the chalk aquifer layer, resulting from extended presence of the pigs. It was as a result of this, on the advice and subsequent insistence of council authorities, that the filtration and purification equipment currently installed at the pump-house at Ness House was installed.

In addition, therefore, to damage and pollution from the HDD process, the extensive trenching and inevitable industrial waste and run-off from all the proposed works, from Landfall extending along the whole proposed cable-corridor, seem certain to severely compromise and possibly render unusable the local area's water supply, and in time that of the wider region. The question has been asked of the Applicant, in person by local landowners, and in writing at previous Hearings and for previous Deadlines - quite simply, what will they do to remedy this damage. Like many IP and AP contributors, I have been shocked to see vital and relevant questions such as this brushed aside by the Applicant with an answer that contains no specific information - merely the stock reply that Best Practice will be used, should anything go wrong. I respectfully request the Inspectorate to press the Applicant on this question. What we need to know, in the unhappy event of the project proceeding as planned, is what specific things the Applicant plans to do if our water supply is compromised - exactly how will they remedy the situation, and precisely when?