From: [redacted]
To: East Anglia Two
Subject: Responses to Secretary of State
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Richard Reeves, AP EA1N AFP 133 / IP 2002765

I would like to expand on the topic of the Applicant's failure to undertake sufficient research and undertake surveying and feasibility studies, in particular with regard to the Suffolk Chalk Aquifer.

As was heard with general surprise during the course of the hearings, the Applicant's negligence in having conducted no prior surveys or examination of the landfall site and proposed cable corridor route is exacerbated by future plans, in the context previously touched upon, to the near disbelief of all attending not of the Applicant's party, that surveying work will not be completed until approximately 6 months after the closure of the hearings, putting the Inspectorate in the position of having to deliberate on these issues without even the benefit of the relevant information.

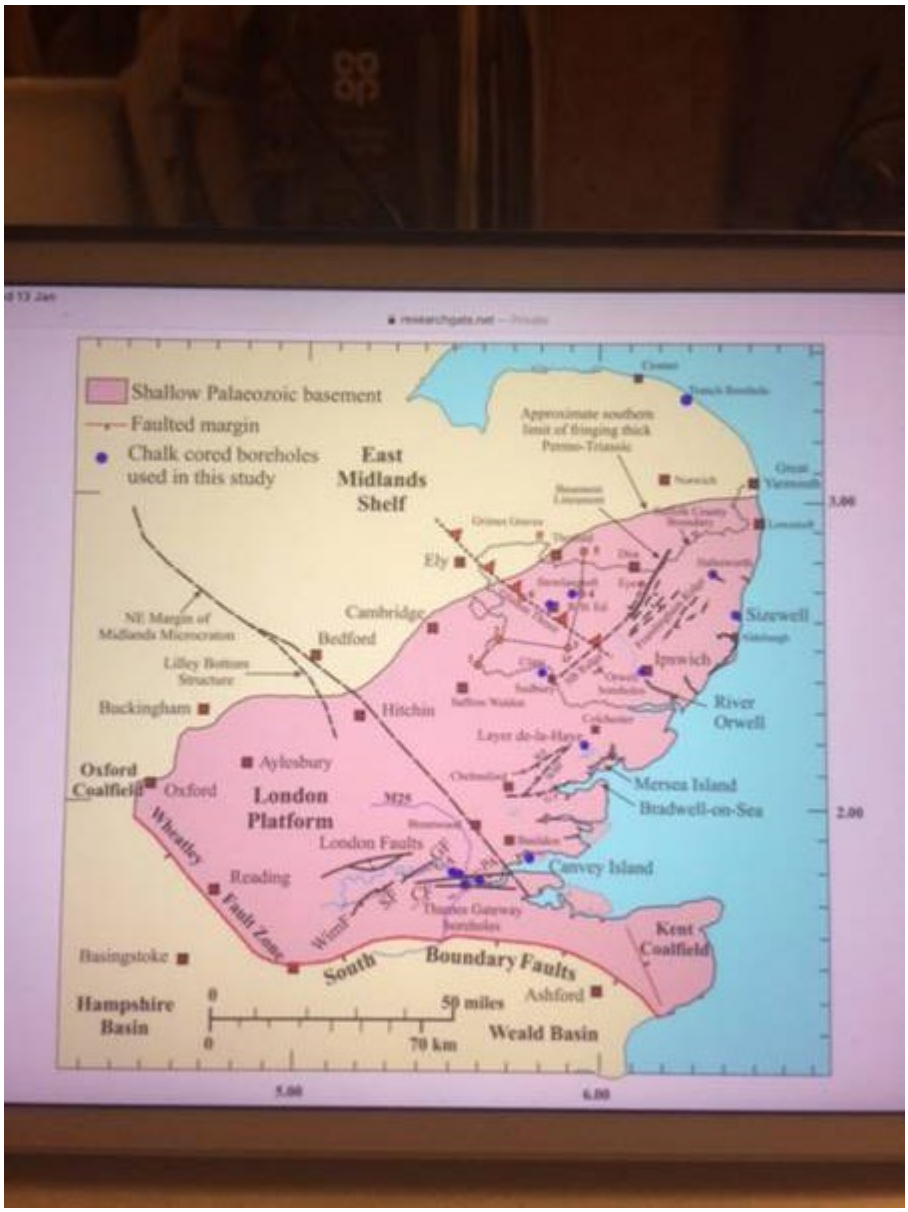
Either though lack of knowledge, or disingenuously, the Applicant has sought to present an impression of the region-wide feature, the Suffolk Chalk Aquifer, as a series of unconnected wells or boreholes, used by a very small percentage of the population of East Anglia to access underground water supply. In an act of either ignorance or wilful disinformation, the Applicant has suggested in written submissions that by maintaining a distance from private water supply points of 250m any damage or piercing of the aquifer by drilling, trenching, and associated highly pollutant processes would be avoided.

As the map below, and associated cited articles of reasearch clearly illustrate, nothing could be further from the truth. The aquifer underlies not merely the county of Suffolk, but the East Anglian region as a whole. Furthemore, the region-wide aquifer, occupying the entire upper chalk stratum at a depth of approximately 10m below ground level at Wardens Centre / Ness House, where I have personal access to, and knowledge of, the private pumping station, extends, on its gentle south easterly subterranean slope, under the bed of the north sea itself, along the whole of the east Anglian coastline.

It is clear, from these facts, that any process of HDD, either onshore or offshore; trenching; onshore boreholes; associated waste, pollution, industrial contamination; erosion of onshore ground conditions or offshore sea-bed destruction, will severely, if not catastrophically, damage and compromise this unique and vital natural resource.

May I emphasize, once again, that direct domestic and agricultural use by means of wells, pumping stations and boreholes, while vital for individuals, businesses, and farms, does in fact represent the least utilisation of the aquifer. No less a body than Anglian Water itself, on its water management site, quote the fact that 50% of the region's water supply comes from an underground natural source, namely the Suffolk Chalk Aquifer.

It is a cause of continuing and increasing worry and disappointment that the Applicant, appearing to have done no acurate study or research into the effects of its proposed project on either geological or societal infrastructure, seeks constantly to deny and trivialise major concerns. I repectfully request the Inspectorate to intervene to prevent another in a growing series of serious threats to the welfare of both Suffolk residents and the wider population.



NB East Anglia chalk aquifer indicated in pink shading above

Source 1

East Anglia and adjoining areas - Suffolk and south Norfolk

www.gov.uk/natural-england

In Suffolk and south Norfolk the younger sedimentary bedrock consists mainly of a sequence of sedimentary layers including the Chalk, dipping gently to the south-east. These rest on the younger sedimentary bedrock layers that occur at the surface farther west in the Fenland, but those layers only extend eastwards beneath the Chalk for a short distance. The younger sedimentary bedrock in this area is up to about 400 m thick and ranges in age from about 150 to 50 million years old. The main elements of the sequence are sandstones and mudstones up to 30 m thick, overlain by the Chalk, which reaches 300 m in thickness, and capped near the coast by younger sands and clays up to 50 m thick; so the Chalk is the dominant sedimentary layer of this stack.

Chalk is a fine-grained white, or grey rock composed of fragments and microfossils of calcium carbonate; it is a special type of limestone. In its upper parts, black flint nodules (**Plate P210913**) are common. Flint is a very fine-grained form of silica and flint nodules were dug from the Chalk in prehistoric times, for example at Grimes Graves near Thetford, and used by early man to fashion stone implements.

The Chalk is a very important aquifer, not just in East Anglia but in adjacent parts of southern and eastern England. Unlike the other aquifers referred to in this account (the Crag and the Sherwood Sandstone) most of the water flow in the Chalk is not through the pore spaces between the grains of the rock but along the fractures within it. These fractures are both horizontal and vertical and connect together to make pathways for water to flow through. Because the Chalk is composed of calcium carbonate which can be slowly dissolved by groundwater, the fractures become wider over long periods of time leading to the quite rapid flow of water through some parts of the Chalk. The bottom of the Chalk is rich in clay and the thin layer immediately below is a clay layer, the Gault Clay. Water trickling through the Chalk cannot percolate downwards any further when it reaches these clay layers and so flows along the top of the clay until it emerges at the surface forming springs. The water from the Chalk is rich in dissolved calcium carbonate and is referred to as 'hard'. When this water boils, for example in a kettle, the calcium carbonate is precipitated as 'scale'.

Physical and functional links to other National Character Areas

The East Anglian Chalk of Bedfordshire, Cambridgeshire, Hertfordshire, Suffolk and north-west Essex forms a narrow continuation of the chalk ridge that runs southwest–north-east across southern England, continuing in the Chilterns National Character Area (NCA) and along the eastern edge of The Wash. The northern boundary is clearly defined by the base of the north-west-facing chalk scarp slope, around the southern limit of Cambridge and along the fenland edge. From the higher ground to the south-east there are wide panoramas across the Bedfordshire Claylands NCA and the adjoining Fens NCA. To the north-east, sandy soil is blown over the Chalk, exerting a shared 'breck' character with the neighbouring Brecks NCA, visible in characteristic knarled Scots pine hedgerows. To the south and east it is bounded by the overlying chalky boulder clay of the South Suffolk and North Essex Clayland NCA, which includes Saffron Walden. The Wadlow Wind Farm, north of Balsham in Cambridgeshire, is a prominent feature along the boundary between the two NCAs.

The chalkland landscape is united with the rest of the East Anglian NCAs as a major food producer, with arable farming being the predominant land use. The smooth, rolling chalkland hills are dissected by the two gentle valleys of the rivers Granta and Rhee, which converge flowing westward into the River Cam just south of Cambridge. The Rhee begins at Ashwell Springs in Hertfordshire, running north then east 19 km through the farmland of southern Cambridgeshire. The longer tributary, the Granta, starts in Essex and flows north into the East Anglian Chalk NCA near Saffron Walden. **The underlying chalk aquifer provides functional links between these areas and the population of East Anglia, whose water the aquifer supplies.**

Source 2

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2University of Brighton and ChalkRock Limited, 32 Prince Edwards Road, Lewes, Sussex, BN7 1BE, UK
3Scops Geological Services Ltd, 31 Periton Lane, Minehead, Somerset, TA24 8AQ, UK

From its broad expanses of rolling downlands across southern England, the Late Cretaceous Chalk Group sweeps northwards across much of East Anglia, and on into Lincolnshire and Yorkshire. The Chalk is the major bedrock unit across Suffolk, and dips gently eastwards beneath much of the East Anglia region. The oldest strata are locally exposed along the western margin of the outcrop, for example near Mildenhall, and progressively younger horizons are introduced eastwards towards the coast. Consequently, the Chalk is thickest in the eastern part of the Suffolk region, reaching about 250 m in the Combs Borehole [TM 0427 5625] near Stowmarket; perhaps close to 300 m beneath Ipswich; and about 321 m in a borehole at Lowestoft [TM 5380 9260] (Moorlock et al., 2000). Northwards, boreholes in Norfolk have proved more than 400 m of Chalk at Trunch [TG 2933 3455] (468 m); Somerton [TG 4607 2120] (433 m); and West Somerton [TG 4736 1935] (423 m) (Arthurton et al., 1994), at least part of this increased thickness being attributable to the preservation of younger chalk in the upper parts of these successions. Just as in neighbouring Essex and Norfolk, much of the Suffolk Chalk is buried beneath a variable succession of post- Cretaceous, predominantly Quaternary deposits, but including Palaeogene and Neogene strata in the south-east of the county. For this reason, the region has not developed the typical downland landscape of southern England, and our geological understanding of the Chalk of Suffolk has to be assembled from rare natural exposures, chalk quarries and borehole data.

The general tectonic and basin setting of the Chalk of Suffolk, and the wider East Anglia region, is unusual in that Lower Palaeozoic and older Neoproterozoic rocks are at shallow depths. For much of the Late Palaeozoic and Mesozoic the area was occupied by the Anglo- Brabant Massif, which formed a persistent land area or region of shallow marine deposition, including the area referred to as the 'London Platform' (Fig. 1). It was not until the Albian, when the mudstones of the Gault were deposited, that this persistent palaeogeographical feature became completely submerged.

Today, the main areas in Suffolk where Chalk crops out are in the north-west of the county around Bury St Edmunds, Brandon, Icklingham and Barnham. Southwards and eastwards there are significant exposures of Chalk at Sudbury and in the Gipping Valley, for example at Needham Market and Great Blakenham; there are also minor, isolated occurrences in the vicinity of Haverhill, Nedging Mill and Monks Eleigh (Fig. 2). Information about the subsurface development of the Chalk in Suffolk is provided by cored stratigraphical boreholes, such as the Stowlangtoft Borehole [TL 9475 6882]; boreholes drilled in connection with the Ely-Ouse Transfer Scheme; site investigation boreholes near Mundford and in the Ipswich area, the former (CERN Project) for a large proton accelerator, and the latter (Project Orwell) as part of a flood relief scheme; **cored site investigation boreholes drilled at Sizewell;** and a cored borehole at Clare, near Sudbury (Fig. 1). There are also numerous borehole geophysical logs from uncored boreholes and water wells, particularly in the north of the county.

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