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Subject:	Rampion 2- PI: 20045251
Date:	01 January 2025 15:08:56
Attachments:	Flood risk at Oakendene.docx

Dear Sirs or Madam

I am writing to express deep concern about the proposed construction of a substation at Oakendene in Cowfold. This site, located on a floodplain with significant ecological and biodiversity value, presents numerous challenges and risks that could lead to severe and lasting environmental and economic harm.

Building on a floodplain is fraught with complications. It not only exacerbates the risk of flooding and pollution to the nearby River Adur and villages downstream, but also increases the long-term maintenance costs and jeopardises the reliability of power supply, especially during critical times when reliability is most needed. These issues raise serious questions about the sustainability of the site and the adequacy of due diligence undertaken by Rampion.

Enclosed is my detailed submission outlining these concerns and urging a more thorough evaluation of the alternative site on Wineham Lane.

Thank you for taking the time to consider these important points.

Regards

Sue Davies

Surface Water Flood Risk at Oakendene*

Oakendene

In July 2021 when Rampion announced their proposal to build a substation at Oakendene, they had failed to carry out satisfactory due diligence on the site. Their desk top studies overlooked key concerns including:

1 The site is located on a flood plain, that is prone to regular flooding, which has got worse over the past few years.
2 A major high- voltage electricity cable, powering Horsham is buried beneath the land buried under the land,.
3 The area serves as a natural haven for a number of protected and vulnerable species, a fact that superficial studies failed to uncover.

An Alternative Site was Dismissed

Initially, the most favourable location for the substation was Wineham Lane, near the existing substation. However, following objections from Wineham Lane residents' Rampion pivoted to Oakenden in Cowfold without properly evaluating the consequences or consulting with local residents.

Lack of Consultation and Oversight with Cowfold

Comparing the information shared with residents of Bolney to that given to Cowfold residents reveals a stark disparity. **Cowfold residents were not adequately consulted**. Carter Jonas, the land agents for Rampion, were unhelpful throughout the process and were recently dismissed. Local residents learned of the proposal informally – some through a notice attached to a lamp post on a quiet lane- highlighting Rampion's lack of transparency.

A concerned resident even provided Rampion with evidence of the unique habitat at Oakendene, yet this information was ignored. Months later, at a public meeting at Cowfold village hall, organised by another concerned resident, Rampion's representatives appeared unaware of critical local issues including:

1 **Floodplain Vulnerability**: Oakendene Manor grounds are on a flood plain that floods regularly, threating the substation's long- term resilience.
2 **Surface Water Flooding**. Several nearby properties experience severe surface water flooding. One household was unable to return to their home for over a year due to flood damage.
3 **Existing High-Voltage Cable**: A vital underground high voltage power cable runs through the site, which they were unaware of, presenting logistical and safety concerns.
4 **Environmental Impact**: Oakendene has remained undisturbed for over four decades, fostering a rich habitat for protected species and numerous veteran trees and unique hedges. When Rampion completed their desk top studies, there was no public record of ecological surveys demonstrating the rich biodiversity. However, a concerned neighbour employed an independent Arboriculturists to assess the neighbourhood and he concluded that it was valuable and irreplaceable habitat demonstrating the true ecological value of this unique site, which Rampion failed to recognise.

5 **Ancient Oak Trees**: Hundreds of ancient oaks on the site and along Kent Street are at risk of destruction. Their removal will make the flooding even worse.

6 **Traffic Congestion**: The already congested Cowfold area faces severe traffic issues during rush hours, with backups reaching Kent Street. Increased construction traffic and traffic control measures will further extend the delays along the A272, the major east-west route through Sussex.

7 **Accident Hotspot**: The A272 near Oakendene is a known accident hotspot, with heavy daily traffic exacerbating safety concerns and making this ACQMA area even worse.

8 **Disruption to Local Businesses**: Over 100 artisan businesses operate on the Oakendene industrial estate, alongside 30 additional businesses nearby. Prolonged traffic disruption caused by years of construction could lead to business closures or relocations. This compares with six for the alternative site, along Wineham Lane.

9 **Inadequate Road Access**: Rampion's own consultants identified Kent Street, the narrow rural road adjacent to the site, as unsuitable for heavy construction vehicles.

10 **Pollution Risks**: Herbicides required for substation maintenance will inevitably enter the local water course, via the Cowfold Stream, which is a tributary of the River Adur, thereby polluting downstream communities.

11 **Lack of Flood Impact Assessment**: Rampion has failed to complete a hydrological flood impact assessment, either for current conditions or for scenarios incorporating resilience measures.

A Flawed Proposal Based on Inadequate and flawed Research

Rampion's decision to propose Oakendene stems from a series of oversights and a failure to engage meaningfully with the community. Given the flood risks, environmental damage and traffic impacts, Oakendene is clearly unsuitable for the substation.

The proposal for Oakendene is fundamentally flawed, both environmentally and ecologically. A far more suitable, less damaging alternative exists at Wineham Lane, which is close to the existing substation and avoids many of the issues identified at Oakendene. Choosing the Oakendene site, despite these well documented concerns, would be a significant and avoidable catastrophic error.

Rampion's assessment **of Cratemans meadowlands as "poor" and "not worthy of interest"** stands in stark contrast **to Natural England's conclusion that the area qualifies as "Priority Habitat".** This discrepancy raises significant questions about the reliability of Rampion's evaluations. Combined with other questionable assessments, such as their conclusions about the flood risk at Oakendene and the adequacy of their proposed mitigations, this casts serious doubt on the credibility of Rampion's overall findings.

Flood Risk at Oakendene

Several properties in the vicinity of Oakendene are already prone to surface water flooding. Building the substation on a flood plain that floods regularly and severely is an unwise decision with far reaching consequences, including higher ongoing maintenance costs for

drainage systems and replacement components and the significant increased risk of power outages during critical times.

Outdated Flood Risk Assessments
Rampion's reliance on outdated Environmental Agency (EA) flood risk maps for Oakendene is a major oversight. These maps fail to account for decades of private ownership, during which time no surveys were conducted. Local residents report annual flooding in this area, with torrential water streaming across meadows and leaving pathways impassable for weeks at a time. Photos and videos are available to corroborate these observations, which were submitted to the Examination.

In contrast, the Wineham Lane site remains unaffected by such flooding. At Oakendene, floodwaters flow into nearby Cowfold Stream, a tributary of the River Adur, increasing the risk of downstream pollution and disruption.

Increasing Flood Risk and Climate Change
The Environmental Agency's most recent assessment (17.12.2024) reports 6.3m homes are now at risk of flooding, up from 5.5m in 2018, an increase of 15% in just six years. In the past, the EA has been criticised for failing to take account of surface water flooding, which is caused by heaving rainfall overwhelming the drainage systems and causing run-off or flash floods. This rise reflects more advanced data modelling, which incorporates the impact of worsening climate change, including heavier rainfall events and flash floods, as projected by the Met Office.

The **flood risk at Oakendene will be exacerbated** by the construction of a substation, requiring tonnes of concrete and steel for its base and the loss of hundreds of mature trees and 647m of hedgerow. Floods can be catastrophic to power systems, as damage to infrastructure and subsequent power outages can persist for days.
The International Journal of Electrical Power and Energy Systems (Volume 1335, Feb 2022) highlights that:

1. Electrical equipment submerged in water can short-circuit, corrode and fail entirely.
2. Persistent moisture reduces insulation effectiveness and degrades equipment reducing its expected lifespan.
3. Flooded areas are harder to access, delaying repairs and compromising worker safety.

Long-Term Implications for Power Supply and Costs

Floodwaters submerging substations can cause:

1. **Outages and catastrophic failures** – affecting thousands of homes and businesses
2. **Corrosion of equipment**, increasing repair and replacement needs
3. **Pollution Risks** – oil or hazardous materials from transformers can leak into the watercourse, contaminating downstream communities.

According to **Power Continuity,** "The importance of preventing substation flooding cannot be overstated. Flooding not only increases the risk of power loss but also causes expensive repairs, water infiltration in critical components like transformers and widespread disruption."

Environmental Considerations: "As climate change leads to increased frequency and intensity of flooding events, there is growing recognition of the importance of environmental considerations in infrastructure planning. Building substations on higher ground aligns with sustainability principles by minimising the negative environmental impact of flood-related electrical disruptions. Avoiding extended power outages, emergency response activities, and subsequent repair work reduces energy wastage and associated harmful emissions." Power Continuity.

Additional **flood mitigation measures** such as elevated equipment, waterproof enclosures, and levees – would significantly increase both the initial construction and ongoing maintenance costs. Proper site grading will also be required, which will further exacerbate runoff into the Cowfold Stream and consequently the River Adur, negatively impacting downstream ecosystems.

Economic Consequences of Floodplain Sites

Flood related damage to substations impose long term economic costs including:

1. Higher maintenance and insurance premiums, which are passed onto the consumers as higher prices
2. Disruption to businesses and compensation payments during outages
3. Delays in repairs due to prolonged water receding times and equipment shortages, including transformers.

The trend of increasing severe storms further amplifies these risks. Swiss Re, a global reinsurance company reports that:
In 2000's, there were 3 thunderstorms causing more than $1billion in damage.
Between 2010 and 2019, this number increased to 10 storms.
Since 2020, there have already been 6 storms, exceeding £1billion in damage. The Met Office expects that this situation will get worse.

The Role of Companies Like Rampion

Companies such as RWE which own Rampion, appear to prioritise short term financial gains by purchasing cheap floodplain land. These proposals are often driven by discounted cash flows and net present value models, with little regard for ongoing maintenance costs, which will not be their responsibility. These costs including higher insurance, repair and resilience investments, will fall on taxpayers and consumers through increased electricity prices, undermining publics support for green energy.

"Flooding poses a significant threat to substations for several reasons. Firstly, water is a conductor of electricity, and when a substation is submerged, it creates an elevated

risk of electrical short circuits or equipment damage due to live electrical components coming into contact with the water. Such incidents not only cause power outages but can also result in costly repairs and the need to replace essential equipment. Additionally, flooding can lead to the infiltration of water into critical components, including transformers and switchgear. These components are vital for the operation of substations, enabling the regulation and distribution of electricity. Water intrusion compromises their functionality and can render the entire substation inoperable. Consequently, efforts to prevent substation flooding are essential to safeguarding the reliable supply of electricity. **The primary strategy for preventing substation flooding is to locate them away from water sources prone to overflowing. By carefully selecting the site for the substation, the risk of flooding can be minimised or eliminated**. Substation planners and engineers consider various factors such as historical flood patterns, drainage systems, and topography to identify suitable locations." Power Continuity.

National Planning Policy Statements

EN1, Section 5.8 on Flooding:

5.8.6. "The aims of planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and **to steer new development to areas with the lowest risk of flooding."**

This policy underscores the critical importance of proactive planning to mitigate flood risks by prioritising development in areas with minimal flood risk to protect downstream communities.

5.8.7 "Where new energy infrastructure is, exceptionally, necessary in flood risk areas **(for example where there are no reasonably available sites in areas at lower risk),** policy aims to make it safe for its lifetime **without increasing flood risk elsewhere** and, where possible, by reducing flood risk overall. It should also be designed and constructed to remain operational in times of flood."

The EA floor risk maps for Oakendene are based on out- of- date historical information, which Rampion used in their desk top studies. However, these do not reflect the true nature of the floods occurring now. Neither do they take account of the future risk of flooding which will be made even worse through the proposed installation of the substation concrete base and removal of hundreds of metres of thick hedgerows and trees which act as a natural barrier. There is therefore significant increased risk of making the flooding worse at Oakendene, which will dramatically worsen the already critical flooding downstream at Mock Bridge and other villages downstream.

Clearly there is an alternative more suitable site available at Wineham Lane.

5.8.10 "The Exception Test 215 is only appropriate for use **where the Sequential Test alone cannot deliver an acceptable site.** It would only be appropriate to move onto the Exception Test when the Sequential Test has identified reasonably available, lower risk sites appropriate for the proposed development where, accounting for wider sustainable

development objectives, application of relevant policies would provide a clear reason for refusing development in any alternative locations identified."

5.8.12 "**Development should be designed to ensure there is no increase in flood risk elsewhere, *accounting for the predicted impacts of climate change throughout the lifetime of the development."***

According to the latest Environment Agency reports, flood risks have been understated and the situation is getting progressively worse, resulting in more flood risks downstream.

5.8.18-*Rampion's flood risk assessment (FRA) is critically flawed. It relied on outdated EA maps, fails to address future flood scenarios and grossly underestimates the ecological value of the site – a concern corroborated by Natural England.*

5.8.21 "The Sequential Test225 ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites with medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas."

In this instance, Wineham Lane's lower flood risk and better drainage make it a suitable alternative. Oakendene's susceptibility to severe and worsening surface water flooding renders it unsuitable.

5.8.23 "Consideration of alternative sites should take account of the policy on alternatives set out in Section 4.3 above. All projects should apply the Sequential Test to locating development within the site."

Expert Recommendations

Leading experts highlight the importance of avoiding flood-prone areas for critical infrastructure. The UK Energy Network Association (ENA) warns that substation flooding results in costly repairs, extensive supply disruptions and heightened vulnerability to cascading climate impacts. Research from Bartos and Chester (2015) and van Vliet et al (2012) further emphasises the amplified risks due to interconnected energy systems.

Key recommendations include:

1 **Substations should be located away from flood-prone areas**, especially avoiding streams or rivers.
2 Flooding exacerbates repair delays and transformer shortages, creating widespread disruption and power outages.

These aligns with findings from the Journal of Ocean & Coastal Economics and the Government Accountability Office, which emphasise the necessity of integrating environmental and economic resilience into infrastructure planning.

Relevant Legislation on Flood Risk Areas.

The Sequential Test (Paragraph 175) states: "A sequence test is required… if any proposed building, access and escape route, land raising, or other vulnerable element be in areas of flood risk"

The Sequence Test mandates that applicants demonstrate that no alternative, lower risk site exists for the proposed development. Wineham Lane's superior drainage, flood free status, and distance from waterways makes it a far more suitable alternative.

Conclusion: Oakendene is the Wrong Site

National Policy Planning Statements, reinforce the imperative of robust flood risk management as a cornerstone of climate adaptation:

Section 5.8 on Flooding, 5.8.5 "a robust approach to flood risk management is a vital element of climate change adaptation".

5.8.6 "the aims of the planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account at all stages of the planning process **to avoid inappropriate development in areas at risk of flooding and to steer new development to areas with the lowest risk of flooding".**

5.8.12 "**Development should be designed to ensure there is no increase in flood risk elsewhere,** ***accounting for the predicted impacts of climate change throughout the lifetime of the development".***

Rampion's assessment **of Cratemans meadowlands as "poor" and "not worthy of interest"** stands in stark contrast **to Natural England's conclusion that the area qualifies as "Priority Habitat".** This discrepancy along with others, raises significant questions about the reliability of Rampion's evaluations and casts serious doubt on the credibility of Rampion's overall findings

Building a substation **at Oakendene**, a floodplain site with unique ecological and biodiversity value, will incur **higher maintenance costs, intensify flood risks, and cause long term environmental and economic harm.** Extensive on-going flood mitigation measures would be required- measures that are unnecessary at the alternative site on **Wineham Lane**, which is naturally well-drained, flood free, and poses fewer economic and environmental challenges.

Rejecting the Oakendene proposal aligns with National Planning Policy, avoids unnecessary increased maintenance costs, protects downstream communities from avoidable **flooding and pollution** and ensures the resilience and reliability of our energy supply.

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