

Submission by Ian Cooper, Principal and Trustee of Greensforge Sailing Club. Ref: 20015546

With reference to the RWDI wind survey and Wolfson report (ref: REP4-012 and REP4-013)

The Examiner has requested, in his third set of written questions (ExQ3) the sailing club's response to the Applicant's rebuttal of our submission of July 2019. Below is my personal opinion and comments regarding the whole investigation to date. I have sailed at Calf Heath Reservoir for an average 5 or 6 hours per week for over 25 years. I am an RYA Dinghy Instructor and hold the post of Principal and Trustee of Greensforge S.C.

Statement of Common Ground

The Applicant has been continually seeking a Statement of Common Ground. There is no common ground to agree, save that we disagree about almost every aspect of their proposal and refute the findings of their computer modeling of the wind flow over the reservoir. That said, the only thing that we do not dispute is that the prevailing wind comes from the South-West.

Statistical Summary Error and Late Submission

On 4th July I received an email from Mark Royall of Ramboll that declared his intention of submitting to PINS a very brief summary of the conclusions of the Wolfson Report regarding the computer modeling of the wind flow over the reservoir. To be submitted at the very last moment, it claims that the effect of the warehousing will reduce the quality of the sailing at the reservoir by just 2%. This is a gross misrepresentation of their own figures which interpreted statistically show a decrease of 26.5%

In fact the RWDI and Wolfson report were only submitted by the Applicant at the eleventh hour. This reduces the potential time for public scrutiny to a minimum. Just one of the dubious actions that have been evident in the Applicant's proposal (more later)

Computer Modeling of Wind Flow

We contend that the computer model, designed and authored by a panel of experts looking at the effect of wind on pedestrians in the vicinity of large buildings does not accurately reflect the existing conditions at the reservoir. Their methodology is flawed. Ramboll dismiss the experience of sailors many of whom have sailed at Greensforge for over 20 years, a few indeed for 45 years, as 'anecdotal evidence'. They have made a pretty determined effort to baffle everyone with references to transient computational fluid dynamic modeling but let's keep this simple...

The wind curves down the pool

We have always contended – see minutes of meeting at GSC on 20th May - that when the wind is from the South-West and Westerly directions (the most prevalent direction) that the wind curves around the reservoir and far better sailing conditions are evident in the Southern and Eastern areas of the pool adjacent to the clubhouse than the RWDI computer model implies.

This is simple enough to measure, it is empirical data which can swiftly prove us correct and their model flawed. So, on the afternoon of Wednesday 31st July I printed out the weather forecast for that evening from metcheck.com (one of the leading meteorological forecasters). It showed a breeze of 13mph with gusts of 17mph from just North of West. Later in the evening the wind would swing around to due West. That evening, with a burgee as a wind indicator, and a compass, I spent an hour on the water in a Safety Boat taking readings of the wind direction at different parts of the pool. The results showed exactly what we state. The wind was Westerly, it was steady from that direction at the top and central areas of the reservoir and changed to a more

Northerly direction the further we came south towards the clubhouse. The readings are not precise because of gusts (another phenomenon the Applicant denies the existence of) but the average swing in the wind direction amounted to more than 45 degrees difference between the main upper part of the pool and the clubhouse / race start-line area where the wind came from a more Northerly direction. 45 degrees is the difference between a West wind and a North-West wind. . No doubt this data will be dismissed by the Applicant but the evidence is available and can be checked by independent bodies at any time there is a SW or Westerly wind. It's been like that for 45 years and won't change any time soon – unless warehouses are erected in the meantime. Use of our safety boat can be arranged if required.

Their computer model is unique and correct, others are irrelevant.

Ramboll dismiss out-of-hand, peer-reviewed academic data from the US Energy Dept regarding wind shadows in the lee of obstructions. They say it is irrelevant because it involves wind turbines. That does not prove the fundamental physics is inaccurate. They also dismiss data produced by the Danish Wind Industry Association stating:

'The example provided doesn't take account of existing constraints. The reservoir is not an area of open water with no existing obstacles. In particular, it is significantly screened by trees, which have a profound effect on the sailing quality on the reservoir'

But then when we ask that their model is re-run with a varied number of wind speeds, eg 5, 10, 15, 20 mph, they refuse to do this and declare:

'As noted in the RWDI report (REP4-013), the steady-state nature of the CFD assessment means that the flow patterns will generally be consistent regardless of the wind speed applied at the boundary of the study area. Though the magnitude of the resulting flow would change.'

I don't pretend to understand much of that statement but the interesting part is that the Applicant says their RWDI study is 'steady-state' just like the Danish data – but of course the Danish study doesn't apply in this case. Presumably because it contradicts the Applicant's results – which it does.

Warehouse Height

The height of the warehousing presented to the computer model in scenario B was 34m. Ramboll's reason for this excessive height was because it showed a 'conservative bias', whatever that means. We requested lower, more realistic heights to be entered in the model and the results collated. This was refused. Maybe 34m returned the most favourable results in respect of the Applicant's agenda, we do not know. There is no valid reason why different heights could have been input to the model; their software has been refined over many years and it must be a pretty straightforward process to key in some numbers or alter a design and collate the result.

Expert Witness

Ramboll's 'expert witness' who authored the Wolfson Report, has a PhD in naval architecture, a string of other largely irrelevant qualifications and experience, but tagged on to the end of his extensive CV it does at least state he is a dinghy sailor. His extensive list of clients include America's Cup team competitors. He may be an expert in yacht design and architecture when it applies to ten million pound ocean-going racing yachts sailing in open water but this has little relevance to wind flow over an 18 acre reservoir in the land-locked Midlands. His qualities and experience are no doubt laudable – and his full CV is reproduced once again by Applicant in the submission, just to emphasize that point - but little of this is relevant to determining the flow of wind over our pool.

General: No 'Significant Difference'

Many of our queries regarding, for example; curved roofs of warehouses up to 34m in height; the backdrafting of wind against these buildings when the breeze comes over the motorway from the north; the fact that the trees are deciduous so have no leaves to impede flow during late Autumn and Winter; refusing to present to their computer model any wind speeds higher than a maximum of 10mph (in fact it was a lower speed than this); these and other observations and challenges to the data and conditions, Ramboll either disregard completely or they state would likely make 'no significant difference' to the quality of sailing, a conclusion drawn with no supporting evidence. Even without these factors their own figures show a reduction in sailing quality of over 25%, that they then massage, interpret and publish as a headline figure showing a detriment of just 2% overall, a plainly absurd conclusion.

The scale of the development is huge. In their computer model one of the scenarios shows a warehouse 110 feet in height that has a floor area that greatly exceeds the area of the reservoir. These are colossal structures. They could erect that warehouse OVER the whole 18 acre pool, it would easily fit inside, and no doubt they'd still say the quality of the sailing would not be greatly impacted.

Curved Roof

I referred above to the roofs of warehouses being curved, this is because Matt Royall said this could be a feature because a single warehouse could span the areas on the ground in which 20, 24 or 30m high warehouses were permitted. The applicant dismisses that notion that a curved roof would alter the flow of wind across the building (and the reservoir). We dispute this. Of course flow is altered over a large curved area, that's why 340 tonnes of Boeing 747 stays in the air – it is dependent on air flow and pressure difference. Denied by the Applicant all the same, and not investigated in their CFD model.

Backdrafting and turbulence.

The prevailing wind is from the South West – about the only thing we agree on. At the meeting in May I asked whether there had been any investigation into winds coming from the North and East that come over the motorway embankment, over the trees and the clubhouse, and then flow over the reservoir. Would the erection of 34m high warehouses interfere with the exit flow of air to the south side of the pool? We contend that there would be an effect – the air has to escape somewhere and a vertical wall will surely impede that flow? Dismissed as 'not significant'. We disagree. Let me give an analogy.

We drive a small estate car. It achieves 55mpg overall. Consider the car to be the motorway embankment and the reservoir to be the area behind the car. The car disturbs the air which settles and smooths out again behind the car – over the reservoir, the position we have at the moment. We tow a caravan with this car. Consider the car to be the motorway embankment and the caravan behind to be the warehousing, the gap between being the reservoir, the position we'd be at in the future. The car now achieves 33mpg – a huge impact - due in some measure to the extra weight but much of it because the shape of the caravan disrupts the air flow behind the car – it's hitting a six foot high vertical face of GRP and glass after flowing smoothly over the back of the towing vehicle. As proof that some of the poor fuel consumption is due to turbulence, when we put a long, high roofbox on the car the mpg improves to 38mpg. The roofbox alters the airflow. This is because the car and van, in its passage through the air, now performs as a single large vehicle. There is now reduced turbulence over the 'reservoir' between the car and van. The weight of the vehicle is the same, in fact increased due to the roofrack and roofbox. The overall principle is the same with the warehousing, simple logic implies that an obstruction 100 feet or more in height on the immediate downwind side of the reservoir will impede air flow, causing back-drafting and turbulence. I am not a computational fluid dynamicist but can prove, if called upon, that I can save 5mpg by altering the air flow over an obstacle. Dismissed, all the same, by the Applicant, as 'not significant'.

Trees to the South of the Pool

The Applicant stated that the trees surrounding the pool to the South and East would, in time, grow more dense and taller, hence further affect the quality of wind flow. We sought advice over this assumption. Our tree surgeon considered that the majority of the woodland comprises silver birch and that they are mature trees so their density and height in the foreseeable future would not alter. The woodland was for the most part deciduous so during Autumn and Winter the reduced foliage increased their porosity – i.e. more wind flowed through the trees during these seasons, the sailing quality would be better at that time of year. The Applicant is mistaken in their assumption about the future density and height of the trees.

The Need for an Earth Bund

At the meeting at the club in May I raised a question about the validity of having an earth bund, which is designed to be 7-8m high and have foliage, shrubbery and trees on top. The reason for a bund around most sites is to protect against, say, fuel spills, but that is not the case in this scenario. The bund, Mr. Royall tells us, is there not only to reduce visual impact but its prime function is to facilitate noise abatement. I pointed out that we have a motorway on one side of us, the main M6, we have the A5 trunk road going down the other side of the pool and that there are probably just two houses that might be affected by noise, so what is the point of going to the trouble and expense of protecting a motorway from the noise of what is going on in and around a warehouse? It seems totally pointless. A cynic might say that the bund is there to facilitate the developer to get rid of many thousands of tons of spoil and not have to go to the expense of removing it off site. The height of this bund with trees atop it would further interrupt the smoothness of the air flow across the reservoir.

Wind Speed

The Applicant refused to run their computer model with higher wind speeds. They chose the 80th percentile of average wind speeds, limited to a maximum of between 3 and 9 knots. Perfect conditions for novices but hardly exciting for the more experienced sailor. I wonder whether Martyn Prince's clients – he's the Applicant's wind expert and author of the Wolfson Report – I wonder whether they'd be satisfied and willing to pay his consultancy fees to design their yachts but only test them in very light wind conditions, not the 10, 20 or 30 knots that they regularly sail in. I think not, but given the opportunity I will ask him. It is absurd to state that higher wind speeds are irrelevant when it comes to turbulence and air flow.

The Applicant says: 'A wider range of wind speeds wouldn't make significant differences to the outcome of the existing assessment. For example, if the sailing quality approach were to be extended to a greater range of speeds, i.e. 3 knots – 16 knots for instance then the relative differences between existing and development scenario conclusions are likely to be similar.'

Easy to prove. Just input the higher speeds into the model. I suspect that this has been done and the results were unfavourable (to the Applicant). The Applicant would no doubt deny this but if they were to, we might suggest that we, and the Examiner, be shown the proof. Interestingly in Table 2.9 the Applicant has finally given us the wind speeds input to their model for each of the six wind directions calculated (we have asked repeatedly for these figures) The maximum speed input is shown as 7.6 metres per second. This equates to 17 mph or 14.8 knots. But the Wolfson report states that the maximum wind speeds are between 3 and 9 knots. Something must be wrong; there is a mistake somewhere. Why should we trust any of the results when the parameters of their own definition are inaccurate.

Mitigation of effects

The Applicant says that we have not suggested to them any ways to mitigate the effects of the warehousing on the quality of sailing. Err, yes we have. Erect the larger warehouses in the centre of the complex away from the pool. Put the lowest warehouses adjacent to the pool. Run this through their model. All refused and

disregarded. The Applicant regards their wind assessment report to show limited effect on sailing quality so they have no requirement to alter their existing plans. They say there's a 2% reduction in sailing quality because they misrepresent their own data. It's over 25% and we maintain their model is flawed so could be a lot worse than that.

Why we sail at Greensforge

The Applicant states: 'There is another, larger sailing club available immediately across the motorway with more open water – but members choose to use Greenforge Sailing Club notwithstanding its significant limitations.'

Yes, we know the existing sailing conditions at Calf Heath are far from ideal. The Applicant totally misses the point as to why a diverse variety of folk, young and old, experienced and novice, decide to sail at Greensforge, and have chosen to do so over the last 45 years. The Applicant's comment is condescending. It is similar to 'let them eat cake'. I shall explain since the Applicant has done no research and is once again so dismissive.

South Staffs sailing club just across the A5 is one the country's leading sailing clubs. It was the RYA's 'Club of the Year' in 2011 and is nominated for that title again this year in 2019. They a very limited range of dinghies; the GP14 and Lark two-man boats and the Solo and OK singlehanders. Other dinghies are NOT PERMITTED. Their club's main focus is on competitive racing which newcomers, and experienced sailors alike, can find intimidating.

At Greensforge we sail a menagerie fleet, lots of different types of dinghy and on Sundays we have handicap racing. Each class of boat has a fixed 'performance rating'. This means that it is not necessarily the boat that crosses the line first that wins; a 'slow' boat sailed well could beat the fastest boat in the club once the handicap is applied to their finish times. There are a hundred different classes of boat that we could sail (I personally own four dinghies). We might have a race with a dozen starters but that could be spread across ten different classes of dinghy. Let me make a driving analogy once more. If we want to be a member at South Staffs one must either drive a BMW or a Mini as a smaller vehicle. Nothing else, that's it. I have chosen to own Saabs and over the last twenty years I have driven a quarter of a million miles in them. I have never owned nor indeed driven a BMW. If I wanted to I would have done and can do so any time, but it is unlikely. There are just four members of Greensforge who could move to South Staffs without having to purchase another boat. Two members have GP14s, two others have Solos. All other members would be excluded, including our most accomplished sailor, he sails small technical lightweight wooden dinghies, he is the 2018 UK National Champion for the International Moth class, he dislikes GP14s with a vengeance so chooses to sail more interesting boats. To my knowledge we have never had a member move to South Staffs, we have lost a few good sailors to Chasewater some years back, they wished to sail on more open water in more competitive fleets, but no one has moved 'across the road'. Another factor is that the annual family membership at South Staffs is about three times the cost of ours. So that is like saying, not only must you drive a BMW but it can't be more than 5 years old. Not everyone in our club can afford that. Costs may not be relevant to a dinghy sailor who designs super-yachts but we are a grass-roots sailing club with a varied and mostly unprivileged family membership. Oh, and we are a friendly bunch as well. South Staffs GP14 sailors are, in the main, well-suited to their BMWs!

Questionable Tactics

The Applicant has submitted reports, for example the RWDI and Wolfson reports at the latest possible moment, so reducing the time that they can be open to public scrutiny.

During a meeting with Stop The Hub Group I was told that Peter Frost, on the day of the Examiner's site visit to Calf Heath Reservoir, had been overheard to say he had a key to the premises. I do not know whether this was actually the case, or indeed whether he did say this, I was not there. He is not a member of our club. If he has a key we wish to know where he acquired it, and want it returned. If he has no key, then why say he did?

On the day of the site inspection, myself and a fellow sailor attended but were delayed and arrived late. We missed Peter Frost's safety briefing in front of the clubhouse and were told the Examiner and his entourage were doing a loop of the reservoir on foot. We caught up with Matt Royall and Peter Frost on the footpath some minutes later. They did a very good job of keeping us away from the Examiner. I wished to introduce myself but was most effectively prevented from doing so. I knew that the Examiner was not there to be harangued by objectors, but I just wished to state that 'I am the Principal of the club, I have sailed here 25 years, my colleague has sailed here 45 years, hopefully if Mr. Singleton has any direct questions we would be able to answer them'. Definitely dirty tricks, and I regret not being more assertive at the time.

Events

In addition to the normal four races we have each Sunday, June and July have been very busy at the club. Below are some details of recent events and numbers:

Wednesday evening Sea Scouts kayaking & sailing – seven weeks through June/July, 20+ kids each evening

Sea Cadet training regularly 5 boats+, twice per week.

9 people on RYA course, 16 hours across the weekend of 22/23 June.

29th June Midlands Sea Cadet Regatta – 13 boats involved. 40 people overall.

29th June afternoon taster session for the local Perton Beaver and Cub Scouts – 21 of them. plus parents / leaders, again an additional 40 overall.

20th July Next Step annual taster event (the fifth we've held for this group) for young adults with learning difficulties. A dozen of them plus helpers and carers, many of whom also go out on the water.

Future event: The second RYA course on weekend 31st Aug 1st Sept has 11 candidates booked already.

Conclusion

We have been very fortunate in the last few years to have had financial support from the Veolia Environmental Fund, based locally at Four Ashes. They have given us two grants amounting to £35,000 to rebuild the mooring frontages, terracing and walkways. The sailing club had to put up an additional 20% in cash, much depleting our sinking / development fund. The reason for the most generous grant was to make sure that the club members and two associated Sea Cadet and Sea Scout groups, who amount to 180 people in all, most of whom are youngsters, can utilize the pool and its facilities for the foreseeable future; the previous slabbed frontage lasted over 40 years, the renovations have been designed to last a similar period.

If the quality of our sailing conditions reduces by 25% - The Applicant's own figure - the long-term viability of the club will be called into question. In periods of higher winds sailing would become dangerous, especially for novice sailors. For more experienced sailors the additional wind turbulence would detract from their enjoyment of racing at Calf Heath, they would likely move elsewhere; newcomers might not take up the sport at all. Over the last five years our membership numbers have been steady, if we lose good sailors and don't gain new members and novices to replace them due to this development, the club will fold. Many members of the local community, a significant number of them young people, would no longer be able to enjoy and experience the sport of sailing at Calf Heath Reservoir.