Submission ID: 37169

The attached document is a copy of a letter from GWP Consultants to Cassington Parish Council in response to PVDP's (RPS's) responses to the Examiners Questions and Written Representations from IPs regarding flood risk posed by the Botley West Solar Power Station submitted at D2 (mainly regarding Cassington Village) This response was slightly delayed because of difficulties in contact between the two parties during the holiday period. We now submit this document in time for D3.

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GWP Report No: 250711

Our ref: ar220525
Your ref:

22 July 2025

Dear [redacted]

GWP Responses to RPS Comments on Botley West Flood Risk

The flood risk assessment has to demonstrate flood risk will not increase for up to and including 1 in 100 Year Storm Events plus an allowance for climate change. A 1 in 100 Year storm event is an extremely severe and powerful event, with extreme rainfall intensities.

There is a fundamental inescapable fact that ~ 850 hectares of the 1,400-hectare site (~60%) will be covered in impermeable glass. The glass will generate 100 % run-off and concentrate this into driplines. These are conditions which increase run-off and concentrate rainfall onto smaller areas of land, which will result in more run-off. This is a simple water balance.

RPS are being too literal about the research percentages referred to in the publications. The broader and most relevant point is that over a wide range of climatic and ground conditions and solar panel designs, the research shows that rainfall run-off is always shown to increase. This is all that needs to be demonstrated, along with the obvious statement that vegetating a site does not guarantee it reduces rainfall run-off back to the baseline scenario for any rainfall events, let alone the most extreme 1 in 100 Year events. Flood risk reduction measures that are required under flood risk reduction regulations require the development to not increase flood run-off above the baseline pre-development condition.

Gullota et al (2023)

RPS push back on this work based upon the proposed development having 'gaps' between the solar cells within each solar panel. Our review of the documentation, and specifically the flood risk reports, do not identify any information on the width of these 'inter-cell gaps'. If such gaps have not been specifically designed and assessed against receiving run-off rates associated with extreme 1 in a 100 Year plus Climate Change Allowance storm events, it is impossible for the developer (and RPS) to conclude that they are sufficient to prevent driplines at the edge of the solar panel. The conditions generating flood risk are not those of normal rainfall events.

RPS states the design ensures run-off is distributed as close to the existing baseline conditions as possible, relying as they do on these 'inter-cell gaps' to disperse the rainfall run-off more widely than from the solar panels themselves. This is a self-admission by the developer that the baseline conditions are exceeded i.e. rainfall run-off must be greater. RPS have not identified the areas of solar cells draining to these inter-cell gaps, and as such they have not estimated the increase in effective rainfall intensity at these driplines and what this means in terms of the amount of increased run-off.

The fact remains that irrespective of these 'inter-cell gaps' the same area of solar panel still concentrates the rainfall into driplines which are zones of increased rainfall intensity and therefore run-off.

The shallower the slope angle of the solar panel the larger the area of field it covers and the more rainfall it intercepts and concentrates at the drip line. The suggestion by RPS that shallower slopes reduce rainfall interception is therefore illogical.

Whilst the use of vegetation to reduce run-off might work (compared to no vegetation being used) in non-storm rainfall conditions, there is no evidence provided by the developer (or RPS) that the vegetation can reduce rainfall run-off to pre-development levels. The use of vegetation practices to reduce flood risk, does not use ANY design process to mitigate flood risk for the specific regulated design flood events that are required to be mitigated. There is no demonstration whatsoever that vegetation practices reduce the run-off to the pre-development rate for the 1 in 100 Year + CC allowance.

Galzki et al (2024)

RPS attempt to diminish the impact of the solar panels by referring to other factors controlling rainfall run-off. In most instances these other factors will either remain the same for the development site pre and post development, or they will get worse because of the development e.g. soil compaction along the access routes between the panel rows. But the parameter which does change between current situation and the proposed development, is the introduction of 850 hectares of impermeable panels, with their width and panel spacing and slope, all increasing rainfall run-off.

This is not an issue of simplification – it is undisputable that the solar panels create drip lines. It is undisputable that the panels create shading which stunts vegetation growth beneath them. It is undisputable that the developer has no idea what the reduction in the increased run-off will be due to their proposed vegetation practices. It is undisputable that the developer has no idea whether the vegetation will fully mitigate the 1 in 100 Year + CCA storm event increase in run-off from the solar panels.

Lieu et al (2023)

RPS again fail to recognise that the primary conclusion of the work is that the solar panels increase run-off. RPS repeat the vegetation point made multiple times before. The fact is however that the use of vegetation as a mitigation measure, as they will be well aware, cannot be demonstrated to provide flood risk reduction of sufficient extent to ensure the baseline run-off condition is not exceeded. Indeed, it is highly likely that the effectiveness of vegetation to slow rainfall run-off will become increasing ineffective as the storm event becomes larger.

Outline Infrastructure Drainage Strategy

RPS refer to a Conceptual Drainage Strategy being provided. It is therefore implicit they agree that the Outline Infrastructure Drainage Strategy is not available for review and assessment. The conceptual strategy is just that, a series of concepts, articulating which approaches will be used at each infrastructure type, e.g. an attenuation basin will be used. The document states the solar panel land will not require run-off management.

Outline Code of Construction Practice (CoCP)

RPS states an Outline CoCP has been provided as part of the submission. What RPS fail to mention is that the Outline CoCP does not mention surface water management.

I trust the above is helpful in responding to the RPS comments made on the matters contained within our GWP report.

Yours sincerely

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