



19 October 2023

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Dear Sirs

Further to your email of 19th October 2023 relating the ecologist's response to the LPA:

We do not purport to have expertise in either utility supplies including water supply or ecology and both of these issues are dealt with by other experts in those fields. Our reply below therefore concerns only the flood risk/drainage aspect. In a similar fashion we would not expect the Council's ecologist to be in a expert in our field of drainage and flood risk and it is not therefore surprising to us that the Council ecologist's response has been miscategorised into the drainage section of their response rather than placing this in a section on water supply.

Greywater has already been used in the house and is non potable effluent. It's domestic uses are usually limited laundry and toilet flushing as neither of these uses has much risk of the grey effluent being ingested deliberately or by accident. The daily average demand quantity for these limited uses is small and the principal reason for considering greywater recycling is saving on volume of potable water supply volume to the site.

Greywater or overflow from a greywater system cannot be discharged into a surface water system. The surface water system deals only with rainfall related runoff.

Harvested rainwater is not of potable quality so is limited to the same domestic uses which are small. Rainwater is not harvested from pavement surfaces due to the potential presence of hydrocarbon residue, pet fouling etc etc. The principal reason for rainwater harvesting is the same ie saving on volume of potable water supply volume to the site.

In some limited circumstances rainwater harvesting might have an incidental benefit to flood risk. This however would be reliant on statistical certainty that rainfall entering storage would be certain to be consumed on an accrual basis faster than the tank is replenished by rainfall. Only in this limited scenario would that tank have an unoccupied volume available at the start of the rainfall event which would then retain a limited amount of that rainfall event until the tank is then full and bypasses the remainder of the rainfall to the surface water drainage system. In general low rise housing has too few occupants per square metre of roof and the tank is almost always full due to the low usage demand relative to the roof area. RWH is more viable in high rise accommodation or scenarios where there is much higher occupancy per square metre of roof. There is no benefit of rainwater harvesting with respect to flood risk.

Water butts could be installed to intercept some roof water run-off. These will reduce the annual volume of surface water discharge but will not make a material contribution to regulation of critical run-off as these tend to be full during Winter months as there is minimal demand for irrigation in these months.

As set out greywater is not drainage it is non-potable water supply. The low rise nature of the proposed development inherently means rainwater harvesting will not yield any flood risk benefit for regulation of critical run-off. The surface water drainage system therefore has to be designed on the basis that any rainwater harvesting is full at the time the critical rainfall event occurs. Greywater and rainwater harvesting at this site are not an alternative to surface water drainage, surface water drainage has to be provided anyway. The surface water drainage system proposed meets the necessary requirements to avoid creation of flood risk from the development and to provide an adequate reliable drainage system.

We are unable to comment on policy matters regarding water supply as this is not part of our remit or within our expertise. We would however note both greywater resupply back into the house or rainwater supply into the house would both be reliant on the same very limited source of acceptable end use for non potable water so usually only one or the other would be considered if seeking to reduce potable water consumption.

Yours Sincerely,

Aqua Callidus Consulting Ltd

Andy Traves