MOMENTUM
structural engineers

File note

Project	Date	By	Reference
Meadows Hall	28 Mar 2023	RH	4821_FNT

Title

planning application 22/3112/FUL - Meadows Hall, Church Road, Richmond TW10 6LN - Surface Water

Introduction

This file note has been prepared to respond to comments raised by Metis via the planning case officer for proposed residential redevelopment at Meadows Hall in Richmond.

Comments received

"The applicant proposes to manage surface water run-off from roofs and impermeable surfaces through an attenuation tank. This is proposed to then discharge at a rate of 2.0 l/s (controlled using a pump/brake system) to the existing public surface water sewer. No blue roof systems or green infrastructure have been proposed.

Recommendations:
The assessment results are as follows:

Drainage hierarchy:
MORE INFORMATION REQUIRED - consent for the proposed discharge point connection has not been provided and this is required. Additionally, the applicant has provided justification for not using above SuDs features as Pond, Wetlands and Basin due to a lack of open space on the site. However, smaller scale SuDS features such as water butts, rain gardens, tree pits and raised planters have not been proposed. These options should be considered and included where possible or provide justification for not doing so.

Runoff rate:
MORE INFORMATION REQUIRED - the existing (brownfield) runoff rate needs to be calculated and supplied using the full site area (1000m2). Additionally, the applicant has not achieved greenfield runoff but has proposed a runoff rate of 2.0l/s. However, we require the applicant as requested under the Drainage Hierarchy and the London plan SI 5.13 to demonstrate why other smaller scale SuDS haven't been considered and included within the design which may help reduce the runoff rate from the site further.

Attenuation Volume:
MORE INFORMATION REQUIRED - calculations which support the values given for the volume of attenuation required to achieve the proposed runoff rate need to be provided using the whole site area as the modelled area rather than the 430m2 that has been used.

Maintenance:
MORE INFORMATION REQUIRED - the drainage strategy includes the maintenance tasks and frequencies for each drainage component proposed. Information on who will own the maintenance tasks is required"

Responses

Drainage hierarchy:

Thames Water have been consulted on the foul and surface water discharges as part of a pre-planning enquiry and have confirmed that there is sufficient capacity in the receiving sewers. A formal section 106 connection consent will be required for the means of connection before construction and this will be part of the detailed design post planning. A copy of the Thames Water response is appended to this report.

Large surface SUDs measures (ponds/basins/ wetland) are not considered feasible on the site due to space constrains as noted. Water butts are to be included to each of the rear gardens of the Mews Houses fed from the roof water downpipes via a diverter device on the downpipe.

The majority of the hard landscaping is proposed as permeable paving discharging by shallow infiltration. Large scale deep soakaways to take the roof areas are not considered appropriate as the drainage for the roofs due to the proximity of existing and proposed foundations. Sufficient clearance cannot be maintained to foundations and boundaries.

There are areas of raised beds and tree planting proposed within the development along with green roofs to the refuse and cycle stores. The garden areas to the Mew Houses are proposed as ground level soft landscaping. The green roofs do not include storage but will make a contribution to reduction in volume of runoff and improved water

quality. The soft landscaping, raised beds and tree pits will reduce runoff volumes by retention of some of the water for use by the planting with the remainder informally infiltrating.

Runoff rate:

The existing site runoff has been calculated based on the existing hard paved area taken as 750m^2 of the 1000m^2 site area as noted in the report. The existing site is part hard surfaced with a combination of asphalt and concrete slabs and with a smaller part being unsurfaced. For the purposes of calculation of the brownfield existing runoff, the unpaved areas have been assumed not to contribute runoff, hence the use of 750m^2 in the existing runoff calculations.

The calculated brownfield discharge peak rates from the 750m^2 of paving are 11.48l/s for a 1:1 year 5 minute storm duration, 27.3l/s for the 1:30 year and 34.5l/s for the 1:100 year present day event of 5 minute duration. These present day discharges do not include any climate change allowances. The calculations are included within the drainage strategy (ref 4821-MOM-XX-XX-CA-C- 6004, 6005 and 6006)

Achieving greenfield rates for this small brownfield site is not practical. The Qbar greenfield rate is calculated as only 0.15 l/s. The greenfield rate calculation is included within the drainage strategy (ref 4821-MOM-XX-XX-CA-C- 6000)

The proposed discharge rate of 2l/s for all storms up to the 1;100 year return period plus 40% climate change allowance plus 10% urban creep allowance offers a reduction of 9.48l/s (83% reduction) in the 1:1 year event rising to a reduction of 32.5l/s in the 1:100 year event (94% reduction).

The smaller scale SUDS and soft landscaped areas noted earlier will have an impact on the volumes of water discharged in a storm event and annually. The peak discharge rate has been set as a practical minimum for the positive discharge whilst still giving very significant betterment compared to the existing situation.

Attenuation volume:

The attenuation calculations have been carried out using the roof areas totalling 430m^2. The remainder of the site will be a combination of permeable paving, soft landscaping, gardens tree pits and beds draining by shallow infiltration. These areas do not contribute to the attenuation tank catchment, and are not therefore included within the attenuation calculations.

Maintenance:

The site developer is RHP Group and they will be responsible for all drainage maintenance on the site. RHP are responsible for the maintenance of circa 10,000 homes and grounds across the borough from their nearby office.

RHP will manage the inspections and maintenance tasks and either use their directly employed caretaking team or landscape contractor for the routine maintenance and inspections. They would bring in specialist contractors as necessary for other operations depending on the complexity of the maintenance/inspection tasks required.

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Wastewater pre-planning
Our ref DS6097459

03 August 2022

Pre-planning enquiry: Confirmation of sufficient capacity

Site: Meadows Hall, Land adjacent to 40 Church Road, Richmond TW10 6LN

Dear David,

Thank you for providing information on your development.

Existing site: A demolished day care centre – gross internal area unconfirmed.
Existing foul water discharge is unknown.
Existing surface water discharges out to Church Road, assumed to surface water sewer.

Proposed site: 5 residential houses & 8 residential flats.
Proposed foul water discharge part by pump (max. 2l/s) & part by new 150mm gravity connection to 300mm foul water sewer in Church Road.
Proposed surface water (430m^2) attenuated on site and discharging at 2 l/s by gravity to 225mm surface water sewer in Church Road via new 150mm connection.

We have completed the assessment of the foul water flows and surface water run-off based on the information submitted in your application with the purpose of assessing sewerage capacity within the existing Thames Water sewer network.

Foul Water

If your proposals progress in line with the details you've provided, we're pleased to confirm that there will be sufficient sewerage capacity in the adjacent foul water sewer network to serve your development.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

Surface Water

In accordance with the Building Act 2000 Clause H3.3, positive connection of surface water to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal

methods have been examined and proven to be impracticable. Before we can consider your surface water needs, you'll need written approval from the lead local flood authority that you have followed the sequential approach to the disposal of surface water and considered all practical means.

When developing a site, policy SI 13 of the London Plan states "Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:".

The disposal hierarchy being:

1. rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
2. rainwater infiltration to ground at or close to source
3. rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
4. rainwater discharge direct to a watercourse (unless not appropriate)
5. controlled rainwater discharge to a surface water sewer or drain
6. controlled rainwater discharge to a combined sewer

Where connection to the public sewerage network is still required to manage surface water flows, we will accept these flows at a discharge rate in line with CIRIA's best practice guide on SuDS or that stated within the sites planning approval.

If the above surface water hierarchy has been followed and if the flows are restricted to a total of 2.0 l/s then Thames Water would not have any objections to the proposal.

Please see the attached 'Planning your wastewater' leaflet for additional information.

Trade Effluent

Please be advised a Trade Effluent consent will be required to discharge trade effluent into the public sewer. Trade effluent can be best described as anything other than domestic sewage (toilet, bath or sink waste and groundwater) or uncontaminated surface water and roof drainage (rainwater). Applications should be made at https://www.thameswater.co.uk/wholesale/trade-effluent and for enquiries, please contact our trade effluent team by phone on 0203 577 9200 or via email at trade.effluent@thameswater.co.uk .

Additional information

Thames Water would recommend CCTV survey of all existing drainage before the commencement of any works to prove connectivity to the correct public sewers and reduce the risk of any illegal misconnections.

Thames Water would prefer a fully gravity-based solution to foul water drainage; however, we can confirm capacity for the proposed 2l/s pumped solution.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days' notice of the date you wish to make your new connection/s.

If you have any further questions, please contact me on 0800 009 3921.

Kind Regards,

Leigh Khan
Developer Services – Adoptions Engineer
Tel: 0800 009 3921
developer.services@thameswater.co.uk
Get advice on making your sewer connection correctly at connectright.org.uk
Clearwater Court, Vastern Road, Reading, RG1 8DB
Find us online at developers.thameswater.co.uk