From: Simon Gough <simon.gough@ironsidefarrar.com>
Sent: 03 August 2020 13:37
To: Tim Rackham <tim.rackham@createdevelopments.co.uk>
Subject: RE: 3/2020/0309 - Spout Farm, Preston Road, Longridge, PR3 3B(30429)

Tim, I refer to the comments below and now enclosed revised information to address the points raised by the LLFA regards the surface water drainage system for the site.

Taking the points in order:

Lack of information regarding the 225mm diameter culvert referred to in section 6 of the applicant's FRA

The recollection is correct. Attached is a sketch plan from the site owner. He has previously confirmed the stone culverts have been located within the main site and drain dye added. The dye was noted in the pond that is still within the Spout Farm site but outwith the development area; from the pond the culvert continues to the road crossing where there is now a manhole just to the north of the new bus stop.
The dye was then noted to be within the open section of watercourse to the south of Charnley Fold; the exact route of the culvert, through or to the rear of Charnley Fold is not known but the watercourse definitely links to the open section that is now within the Kier development.
I have added the route provided on the sketch to the topo survey and the OS base plan of the area – drawing no. 30429/101.

The outline drainage strategy shows surface water being discharged at a tiered discharge rate, rather than at Qbar which would be our preferred approach to compensate against any increased runoff volumes following redevelopment. If a tiered discharge rate has to be used, then further provide evidence of the existing and proposed runoff volumes for the 100 year 6 hour storm duration will need to be provided. This is to demonstrate compliance with standards S4 and S6 of the non-statutory technical standards for sustainable drainage systems.

The rate of discharge has been amended to 12.9l/s. This very slightly exceeds the Qbar rate of 12.4l/s but does restrict the 30 and 100 year events to well below the existing 30 and 100 year return period events.
The existing volume discharge from the site in the 360min. 100year event is 605cu.m as detailed on the attached calculation, the proposed volume in the 360min. 100year event plus 40%CC allowance is 487cu.m and we therefore believe the proposed system complies with the requirements.

The existing and proposed surface water runoff rates been calculated using a gross site area of 1.757ha, however only 0.864ha of that is shown to be positively drained. Assuming the remaining areas are to stay non-drained, then it is not clear how the applicant will avoid the cumulative discharge, i.e. pipe flow plus overland runoff or limited infiltration, exceeding the pre-development surface water runoff rates and volumes. Please can you raise this with the applicant and ask for further clarification in that regard. This is to demonstrate compliance with standard S2 of the non-statutory technical standards for sustainable drainage systems.

The Impermeable area for the site is 0.878ha, leaving 0.879ha as garden areas etc. The transfer of flows between impermeable and permeable is difficult to predict as garden areas can run onto drives and similarly drives can run onto gardens. The maximum flow from the positively drained area is 12.9l/s and the flow from the proportion of the site that is not drained is 12.8l/s; together these two flows add up to 25.7l/s which is the existing 100 year greenfield flow from the site.

The outline drainage strategy doesn't appear to include any additional allowance for future urban creep; i.e. the future conversion of permeable surfaces to impermeable surfaces over time, e.g. surfacing of front gardens to provide additional parking spaces, extensions to existing buildings and creation of large patio areas etc. If urban creep isn't allowed for within the network design, then it is not clear how will the impacts of urban creep will be otherwise mitigated over the lifetime of the development? Please can you raise this with the applicant and ask for further clarification in that regard?

An allowance for 10% urban creep has been applied to the impermeable areas due to the house and drives only as the roads will not be amended/extended in future – this is shown in the table on drawing no. 30429/102 Impermeable Area Plan. This results in a total impermeable area of 0.934ha compared to the original impermeable area of 0.878ha.

It's not clear whether the surface water outfall has been modelled as a surcharged outfall or as a free flowing outfall? If it is the latter, then further evidence will be needed of the downstream culvert to demonstrate that a free flowing outfall can be achieved without compromising the efficiency of the drainage network. Please can you raise this with the applicant and ask for further clarification in that regard

A surcharged outfall, equivalent to the cover level of the manhole on the culvert intended as the connection point, this level is 82.49m and the attached calculations demonstrate there is no flooding from the system in these circumstances

Section 5.3 of the FRA recommends for an interception drain to be installed along the northern boundary of the site to intercept overland flows from higher land. This drain doesn't appear to have been included on the drainage layout provided in appendix H of the report. Please can you raise this with the applicant so that it can be looked at again. We will need to see the full route, capacity and discharge point for the proposed interception drain.

The proposed land drain along the northern section of the site has been indicated on the Preliminary Drainage Layout – Drawing no. 30429/100 revA.
It must be stressed, the land drain has only been recommended as a measure to prevent a possible long term issue with wet back gardens to the properties on the northern boundary. The reservoir embankment is well maintained by United Utilities and probably has toe drainage built in but we have not been able to access the site to verify any drainage measures, we have therefore suggested the 150mm dia. Land Drain now shown on drawing no. 30429/100 rev A as a precautionary measure. The land drain will connect back to the existing culvert close to the southern boundary of the development.

In addition to the above:

- A Maintenance Plan is attached for the site – the majority of the surface water drainage will be adopted by United Utilities under a S104 Agreement.
- Emergency Overland Flow routes are indicated on drawing no. 30429/102 – it should be stressed there is no flooding from the system in all events up to the 100 year event plus 40%CC allowance when a surcharged outfall is assumed.
- Drawing no. 30429/102 indicates the Impermeable Area Plan
- All highway drainage will be provided with trapped gulleys to prevent pollution of surrounding watercourses.

I trust this provides all of the information the LLFA require to consider the surface water drainage system for the site.

Regards

Simon Gough | **Director** | **Ironside Farrar** | 3 Worsley Court | Worsley | **Manchester** |M28 3NJ |
Tel: 0161 703 8801 | **Fax: 0161 703 8279** | **Mobile: 07717 023091** |
Web:ironsidefarrar.com

In response to COVID-19, Ironside Farrar have implemented our business continuity plan and are providing uninterrupted service for our clients. Our staff are now home-working with internet based access to business systems, project management and professional practice. The company has full server access including a dedicated OP-Centre internet data sharing platform and operates all standard video conference networks (Powwownow / MS Teams / Zoom / etc). Please continue to contact all staff by email and mobile telephone as noted in the above details and we will continue to provide services and professional support albeit under changed circumstances. Thank you for your continued support.