Hillingdon Flood Risk Assessment Addendum

Response to Consultee Comments

Subject	Client	Prepared by	Checked by	Issued
Hillingdon FRA Addendum	The Hillingdon Hospitals NHS Foundation Trust	Heather Wells	Matt Tandy	17th November 2022

Introduction

AECOM undertook a Level 2 Flood Risk Assessment (FRA) in May 2022 to support the hybrid planning application (4058/APP/2022/1788) for the redevelopment of Hillingdon Hospital. The FRA was supported by hydraulic modelling given an unnamed Ordinary Watercourse bounds the southern perimeter of the Site. Since the submission of the FRA, consultee comments have been received from the Greater London Authority (GLA) and Metis Consultants (sub-contracted by the Lead Local Flood Authority). The purpose of this FRA addendum is to close out any outstanding comments. This addendum should be read in conjunction with the FRA.

Metis Comments

Metis Consultants have been sub-contracted to review the planning documents on behalf of Hillingdon Borough Council as LLFA. Comments were received on the 30th September 2022. The relevant flood risk comments are as follows:

1. **Flood Risk Comment** – 'The applicant is required to conduct further ground investigations to ensure suitable measures are in place to mitigate the elevated groundwater table. This investigation should ensure all below-ground elements (including attenuation tanks and pumping stations which may be vulnerable to groundwater ingress) are designed to prevent water ingress and withstand hydrostatic groundwater pressure and should be reviewed by a qualified geo-technical engineer.'

    - **Response** – AECOM have liaised with the Geotechnical Ground Investigation (GI) Team and understand limited GI has been undertaken to avoid disruption to the operation of Hillingdon Hospital. As per the Stage 1 Tier 1 Ground Investigation Assessment, ref: THHR_01_ACM_WS_XX_RP_Y_9000, groundwater was struck during drilling between 0.79 m below ground level and 2.28 m below ground level based on historic BGS borehole logs. A further assessment through intrusive ground investigation works will be required during the next design stage to secure sufficient mitigation of any elevated groundwater risk. Mitigation measures outlined in the Basement Impact Assessment, ref: THHR_01_ACM_ZZ_RP_Y_9002 should also be implemented. Further ground investigation works and detailed design of subsequent mitigation measures could be secured by a planning condition. No further action required from the Flood Risk Team.

2. **Flood Risk Comment** – 'There is a lack of commentary in the flood risk assessment in relation to feasibility of SuDS that reflect the top of the drainage hierarchy i.e., natural attenuation, permeability of the ground and above ground storage areas'.

    - **Response** – Sustainable Drainage Systems (SuDS) are typically softer engineering solutions inspired by natural drainage processes such as ponds and swales which manage water as close to its source as possible. Whilst SuDS are used to reduce surface water flood risk, there are numerous benefits that can be delivered through effective surface water management. Often a successful SuDS solution will utilise a combination of techniques, providing flood risk, pollution and landscape / wildlife benefits. The discharge of surface water must be followed using the SuDS hierarchy. This is outlined below alongside a justification as to how the proposed surface water drainage strategy aligns with the hierarchy.

        a) Discharge into the ground;

        Due to the presence of London Clay beneath the site and it's impermeable characteristics, infiltration to the ground has been considered unsuitable. Soakaway tests have also been undertaken, however inconclusive results at this stage demonstrated further testing will need to be caried out during the next stage of design. At such, infiltration has been ruled out within this design stage. The Drainage Strategy has incorporated permeable paving and greenroofs within the design.

        b) Discharge to a surface water body;

        An unnamed Ordinary Watercourse bounds the southern perimeter of the site. A series of permeable paving is proposed along the southern access road (referred to as Catchment C in the Drainage Strategy). Surface water runoff along the access road will discharge to the Ordinary Watercourse through proposed headwalls at a restricted greenfield runoff rate. Other catchments within the site are understood to currently discharge to the Thames Water sewer system therefore redirecting these catchments would increase the discharge to the Ordinary Watercourse. Given there is a known flood risk associated with this Ordinary Watercourse, the proposed drainage strategy includes the reduction of the discharge rate to provide a net reduction in flood risk for the wider community.

c) Discharge to a surface water sewer; and

The western catchment of the site which includes the proposed hospital ward will discharge to an existing Thames Water (TW) Sewer Water pipe along Royal Lane. As such, this approach is understood to retain the existing connections to the TW sewer and minimises the discharge of surface water to the Ordinary Watercourse given the watercourse is sensitive to flooding.

d) Discharge to a combined sewer.

As outlined in the Drainage Strategy, a combination of the above options have been proposed. As such, there are no proposals to discharge surface water into a combined sewer.

Greater London Authority Comments

Comments were received from the GLA on the 8th August 2022. The following comments relating to flood risk are as follows:

3. **Flood Risk Comment**– 'Further information / mitigation relating to the flow route into the undercroft car park should be provided'

- **Response** – A review of the hydraulic model outputs up to and including the 1 in 100 year plus 21% CC event has been undertaken to assess the fluvial flow route near the undercroft parking at Plot P03. At the time of writing the FRA, it was thought that the entrance was situated in the south-eastern corner of Plot P03, however the entrance is situated further north between two grass kerbs, as shown in **Figure 1**. The predicted fluvial flood extent in the 1 in 100 year plus 21% CC event is not shown to infringe upon the entrance of the car park. The closest flood depths at this location are predicted to remain shallow in the 1 in 100 year plus 21% CC event at approximately 0.08 m. Given the car park is proposed to be undercroft and at ground level, in the unlikely event fluvial flood extents marginally infringe upon the car park, these are unlikely to cause disruption nor damage. As the fluvial system recedes so will flood water within the undercroft carpark. Moreover, any flows will likely be captured by the proposed drainage network serving the car park. As such, it is considered that no further flood risk mitigation is required.

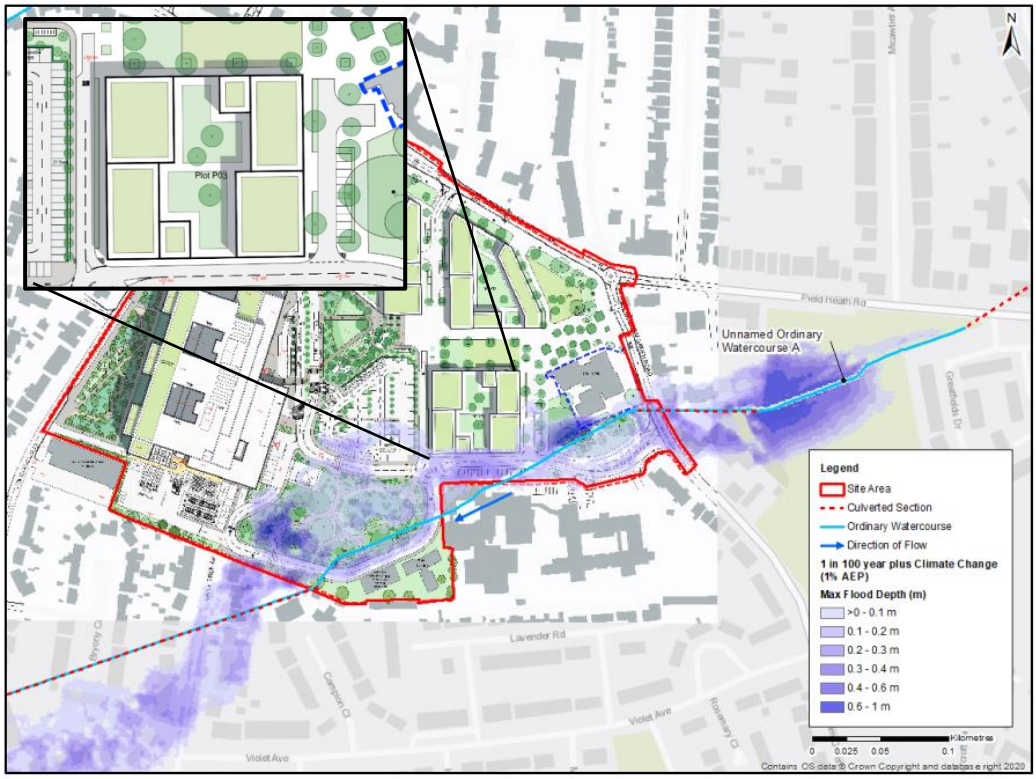

Figure 1 – 1 in 100 year plus 21% CC Flood Extents Option 2

4. **Flood Risk Comment** – 'Clarification regarding the phasing of the flood relief culvert is required'

- **Response** – The Flood Relief Culvert proposed as part of the Phase 1c works. This must follow works associated with earlier phases as this mitigation is reliant on the proposed onsite fluvial flood basin designed to have a minimum volume of 1,955m³. Part of the existing hospital is required to be demolished in Phase 1c to allow for the construction of the on-site fluvial mitigation.