10737/APP/2020/3359

Officer Query	Applicant Response
Drainage outfalls are not clearly identified within the submitted report, nor are the actual areas that drain to these points made clear.	Information received regarding discharges from Thames Water sewer system for the eastern and northern urban areas are shown in Drainage Report Figure 3. All run-off from catchments which discharge into the existing and proposed ditches and swales have already been considered in the hydraulic calculations. These catchment areas were already considered as part of sub-catchments SC2 and SC1 respectively (areas shown in Drainage Report Figure 3). Information provided by Thames Water includes hydrographs for different return periods and rainfall durations and the specific location of the discharge point. The images below illustrate the sub-catchments defined by Thames Water for the analyzed urban areas: Northern: Eastern:  It is proposed this additional information will be provided by way of an appropriately worded planning condition.
The catchment to the south of the Chiltern Mainline is acknowledged but not included in calculations. No assessment in reality has been made of the Thames Water Network in this area which it is stated has been used to inform this catchment area. It is not therefor clear that the appropriate catchment areas have been used to estimate run off though the golf course.	As is described in the Drainage Report Section 3.2.3, Sub-catchment SC4 comprises the areas located to the south of the Chiltern Mainline and to the north of Greenway Road (which partially drains to the north of the application site). However, due to the proposed HS2 works at this area, runoff from SC4 will be drained to the Ickenham Stream stretch located at the South of the HS2 line. Available information of existing Thames Water Sewer system shows that run off in this area is conveyed by the sewer system and connected with the Greenway Sewer Pipe that drains to the South from the Chiltern line. A more detailed description of this drainage system will be provided in a Drainage Design Report proposed to be secured via a pre-commencement condition.
It is not clear why conveyance of only 1 in 5 and 30 year events have been used. No evidence has been provided to justify this, or demonstrate that this is adequate to receive all flows from Thames Water sewers and above ground flows across the site.	The drainage networks of the playable areas of the golf course have been designed for 1 in 5 years according to good practice design for golf courses. The main drainage network which receives water form external catchments has been designed for 1 in 30 years in line with the urban sewerage network. In order to assess the flooding in a higher events (1 in 100 + CC), a detailed 2D hydraulic model of the area is being developed as part of ongoing detailed design. The final drainage network will be designed in accordance with these flood analysis results. It is proposed this information will be provided by way of planning condition.
A large area drains to the River Pinn via this site so it thusly provides significant opportunity to slow the flow to the River Pinn. Accordingly, it is an area in which the Environment Agency are actively leading a Flood Alleviation scheme - rather than just maintaining the status quo.	Providing additional attenuation measures beyond what currently exists is not considered a main objective of the design. Notwithstanding, whilst discharges into the river Pinn will not be increased due to the RGC design, feasibility of providing further attenuation in the RGC will be considered during the detailed design - with information proposed to be submitted as part of a future planning condition.
It is not clear which areas within the reports are to be raised affecting drainage, and this should be included in the flood and drainage reports or clearly cross referenced for review.	Drawing Ref: 1MC04-SCJ-EV-DPL-SS05_SL07-241100 (Ruislip Golf Course Isophachyte Plan) submitted with the Full Application illustrates the areas of the RGC proposed for cutting and filling to create the new golf course contours - as defined by the the Golf Course Architect. Drainage design and the FRA were compiled on the basis of these modifications. Such modifications that affect the final drainage proposal will be taken into account in the final hydraulic analysis of the RGC area which, in turn, is proposed to be provided by way of planning condition as part of the detailed process.
As the site is designed only to a 1 in 30-year event it is not clear where exceedance flows would occur across the wider area and site and these flow paths need to be assessed.	A 2D hydraulic model (surface flood risk analysis) will be developed during the Detailed Design Stage to assess potential impacts of rainfall events over the 1 in 30 years return period (1 in 100 + CC years). This additional information is proposed to be secured by way of a planning condition.
The proposals to drain the car park involve formal gullies and pipework. However, it is not clear why the least sustainable solution has been provided or how other more sustainable alternatives have been considered i.e. rain gardens and open swales as, unlike gullies and pipe, these would not require additional cost to the Council to inspect and maintain.	The drainage system described for the car park is the existing system rather than any new intervention. As the car park extents and materiality are to be retained in their current configuration, reviewing the potential for a new drainage system here is not within the scope of the RGC works
3 ponds for water reuse are proposed along with the provision of pumping. The outlets proposed are large and no detail of these or their safety features has been provided.	Details of the proposed outlets are being considered as part of ongoing design process. It is proposed this additional information will be provided by way of a planning condition.
Section 5.3.11 Table 22 details the proposed ditches which appears to suggest a 0.5 % side slope. The preference however is for 1 in 3 side for a ditch where possible. A cross section of existing and proposed should be provided indicating how this impacts on the landscaping alongside existing features.	The slope of 0.50% shown in table 22 of the submitted Drainage Report is the proposed longitudinal slope. Table 22 shows proposed side slopes of 1V:2H. Proposed side slopes of 1V:3V will be implemented where possible with these details proposed to be secured by way of a planning condition.
The realigned Ickenham Stream will discharge into the River Pinn; and is also to be used as an attenuation basin and as an ecological corridor. It is not clear however how this will attenuate flows in higher events and no level details have been provided.	A more detailed hydraulic model and water levels of the Ickenham Stream Diversion will be developed and reviewed to assess the hydraulic performance of this element. This additional information is proposed to be submitted by way of a planning condition
The FRA refers to LB Hillingdon's sustainable drainage requirements as set out in the Sustainable Drainage Design and Evaluation Guide. Additionally, a summary of the drainage system notes that the irrigation needs of the site are to be met entirely by drained water. A water harvesting system is designed as part of the drainage network. Additionally, the designed drainage network will reduce the current runoff flow rates to the River Pinn. The 1 in 100 rainfall event plus 40% of climate change allowance is attenuated to the Greenfield rates. The attenuation is achieved providing additional volume in the water harvesting ponds and tanks. The Drainage Strategy presented however does not mention this or adhere to its requirements.	Submitted Drainage Report indicates that the drainage system consists on basins, ponds and swales and they are connected to the water harvesting system in order to collect as much water as possible. As a side effect, this system provides a higher runoff attenuation than the current situation. This description of the proposed Drainage Network was not updated in the FRA which still includes the proposal of reducing the current runoff flow rates to the River Pinn. There are two aspects to be updated in the FRA report regarding the description of the drainage network; additional attenuation is not considered as an objective of the design and therefore section 10.3.2 and third paragraph in section 11.1.9 of the FRA will be removed. It is proposed the FRA is updated to reflect these changes and an appropriately worded condition secured for detailed drainage design.
It is not clear which modelling report the flood risks have been based on. The Council are aware the HS2 has updated the Environment Agency mapping, but the extracts from the FRA shown are what is publicly available so it is not clear if the proposal has used the best available data. There are concerns that the original modelling does not represent accurately the most recent large event in 2016 or inflows from ordinary watercourses or Sewers, which is critical in this area.	The river Pinn baseline model was being undertaken at the time of the Planning Application by the EWCC. Modelling results submitted in the FRA were obtained from EA flood mapping available at that time. This information is considered adequate for the scheme design stage. A new detailed hydraulic model considering the river Pinn is currently being undertaken and will fit the hydraulic design of the Golf Course. It is proposed details of this will be provided by way of planning condition.
The watercourses within the Golf Course do not freely discharge to the River Pinn when it is high, backing up within the golf course and causing disruption to residents and the Celandine Walk. There are no proposals which appear to address this issue as promised.	Flooding risk conditions elsewhere will not be increased due to RGC works. Celandine Walk is already affected by river Pinn flood levels in some areas. Avoiding flooding in the footpath will not be possible without affecting the river Pinn flooding conditions and potentially the inclusion of additional mitigation measures. The hydraulic model to be undertaken will assess, where possible, the feasibility of improving discharge conditions. In this respect, alternative footpaths are being provided in the landscape design which will give access during flooding events.
The FRA does not acknowledge springs within the site and how this applicants and import of spoil will affect these.	An assessment of the impact to existing springs is proposed to be secured via an appropriately worded planning condition.
No information on the indicative cross section and design of the watercourses proposed though the site has been provided.	Basic geometry for proposed open channels are shown in table - 22 Design flow estimations of the Drainage Report. Additional drawings will be provided with these proposed typical cross sections by way of planning condition.
The Clacks lane watercourses, which are the main continually fed streams on the site, appear to be proposed to be captured by the basins - which will disrupt the continuity of ecological corridor and any migration. These streams must remain free from obstruction. This proposal is therefore not considered to meet Water Framework Directive objectives to provide a better water environment. A consideration of the existing and proposed watercourses gained and lost need to be provided.	A walkover survey of the Clacks Lane watercourses indicates that they are small artificial channels connected to the River Pinn via a pipe and outfall. This results in very limited potential for migration of fish and little ecological connectivity to the wider Pinn catchment. The proposals will connect the majority of the Clacks Lane catchment into the realigned Ickenham Stream, where alternative ecological areas will be created within the Golf Course Area to compensate for the reduction in flow to the 150m section of Clacks Lane watercourse downstream of the Ickenham stream crossing. The watercourse will flow through several basins, where suitable planting will result in ecological benefit, before discharging to the River Pinn approximately 200m downstream of its current outfall location. The 150m section of the Clacks Lane watercourses not intercepted by the Ickenham Stream diversion will be maintained. Overall, no adverse effects are anticipated as the impacted habitat area is of low value and disconnected from the wider Pinn catchment, and will be compensated by the ecological benefits proposed as part of the Ickenham Stream diversion. Flows to the River Pinn will be maintained, albeit discharging 200m downstream of the current position, which is not anticipated to result in any adverse effects to the wider Pinn catchment.
Section 6.1 3 of the Drainage Report notes the intention to redefine the Clacks Lane's channels downstream of the Ickenham Stream, crossing and replacing the existing culverts at Hill Lane and Celandine Route to improve channels capacity up to 1 in 30 years return period (420 l/s). These historic bridges provide historic value and it is not clear what these will be replaced with.	The design intent for the footbridge crossing between Clacks lane and the golf course (as highlighted in section 4 of the drainage report) is for these features to be retained where possible. The feasibility of these retentions is subject to drainage detailed design. Where these features need to be replaced it is intended to propose crossings which are in keeping with the existing crossing type and character along Clacks Lane.  It is proposed additional information will be provided by way of planning condition following completion of Detailed Design.
There is no acknowledgement of the wider changes being undertaken nearby which may affect the golf course, its access to and across, and wider public access along the Celandine Walk.	Drainage proposals have been coordinated with the Landscape design to avoid impacts to the Golf Course. Further assessment will be carried for the Detailed Design with the results submitted as part of a future planning condition. The design intent for crossings over the diverted Ickenham stream within the golf course and the Celandine route in particular is to provide timber crossings which are in keeping with the existing crossings within the golf course (as per image below). In some parts of the golf course where the depth of the diverted Ickenham stream cannot be shallow due to the existing terrain, culvert crossings will be proposed. Location and feasibility of timber crossings and culvert crossings will be evaluated as part of the detailed design process. It is proposed this additional information will be secured by way of an approparately worded planning condition.