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Date 21 March 2023

Dear Mr Fraser-Lim

RE: 3/22/2406/FUL at Land North and East of Ware (WARE2) Ware Hertfordshire

Thank you for your consultation on the above site received 3 January 2023.

Hybrid planning application, comprising: a) Outline approval for a residential-led mixed-use development for up to 1,800 new market and affordable homes, including self-build and custom build homes and around 3 hectares of new employment provision, mixed-use local neighbourhood centres, new retail, business, commercial and community uses, new and expanded primary schools, with early years facilities and new secondary school provision, new public open space and outdoor sports facilities, including all an weather 3G sports pitch, the provision of plots for Travelling showpeople, new ecological areas, allotments, woodlands and other public areas, new pedestrian, cycle and vehicular accesses and movement networks within the site, associated drainage and SuD's infrastructure, utilities, energy and waste facilities and enabling infrastructure works to the existing highway, other supporting works, facilities and infrastructure, together with associated temporary enabling works and structures. With all matters reserved for later approval, apart from works in connection with the associated primary and secondary access junctions at the A10/A117/Moles Farm interchange and the access junction at the B1004 at Widbury Hill and at Fanhams Hall Road.

b) Full planning approval for internal highways works relating to the construction of Stages 1a and 1b of the Sustainable Transport Corridor, linking the A10/A1170 to the B1004, via the new access junctions, as defined on the Movement and Access Parameter Plan and the Detailed Access Plans at Land North and East of Ware (WARE2), Ware, Hertfordshire.

We have reviewed the application as submitted and wish to make the following comments.

The level of detail provided in the submitted information is of master planning stage only and is deficient in sufficient detail to support the outline and full application. We **object** to both the outline and full elements of this hybrid planning application in the absence of an acceptable Flood Risk Assessment (FRA), Drainage Strategy and supporting information relating to:

- Local flood risk impacts to the development from ordinary watercourses or overarching surface water drainage strategies.
- Impacts from the development adversely effects flood risk elsewhere.
- The development not complying with NPPF, PPG or local policies
 - a. Policy WAT 1, Flood Risk Management, East Herts District Plan
 - b. Policy WAT 2, Source Protection Zones (SPZs), East Herts District Plan
 - c. Policy WAT 3, Water Quality and Water Environment, East Herts District Plan
 - d. Policy WAT 4, Efficient Use of Water Resources, East Herts District Plan
 - e. Policy WAT 5, Sustainable Drainage, East Herts District Plan

Reason

To prevent flooding in accordance with National Planning Policy Framework paragraphs 167, 169 and 174 by ensuring the satisfactory management of local flood risk, surface water flow paths, storage and disposal of surface water from the site in a range of rainfall events and ensuring the SuDS proposed operates as designed for the lifetime of the development.

Overcoming our objection

Outline Application

We acknowledge the current planning application for the majority of the proposed development is for outline permission. However, it is important that certain details are confirmed to ensure there is space for a viable SuDS scheme to be fully implemented that ensures there will be no flood risk to the site and the surrounding area in accordance with paragraph 167 and 169 of NPPF, the PPG, the local plan policy WAT 1, WAT 2, WAT 3, WAT 4 and WAT 5 and the LLFA's advice.

We will consider reviewing this objection if the following issues are adequately addressed.

1. We have reviewed the list of supporting documents and note the Flood Risk Assessment (FRA) and Surface Water Drainage Strategy is dated July 2022 and as a result may not be in line with new changes in planning policy such as updated National Planning Policy Framework (NPPF), NPPF Planning Policy Guidance (PPG) and climate change allowances. The development proposals should be in line with the current planning policy and climate change requirements. Therefore, we await the submission of an updated FRA and overarching Drainage Strategy for the development that reflects the latest planning policy and guidance.
2. We acknowledge that a Strategic Design Guide has been created, however, a SuDS Design Code document should be prepared as a catalogue / design code of acceptable methods of sustainable drainage features, from which options can be

chosen for use on each phase before discharging into the watercourses. This would also ensure how many of these features are required to give an appropriate level of surface water treatment prior to discharge (either to ground or to a watercourse). This code will also provide a strategy of how amenity and biodiversity can be included in every phase of SuDS linking this to landscape masterplans.

3. The applicant has not provided a complete and comprehensive assessment supported by appropriate calculations and hydraulic modelling of the existing and future flood risk from all sources including the appropriate application of climate change. Therefore, until this assessment and supporting evidence is provided, we are not able to determine if the proposed development would increase flood risk or not. Further information about the hydraulic modelling is discussed in Point 7 below.
4. Section 4.7 of the FRA does not state how all sources of flooding will be mitigated therefore, we cannot justify if the development is viable. The updated PPG requires all sources of flooding to be assessed and mitigated.
5. The FRA is missing anecdotal information on existing flood risk with reference to the most up to date data. The southeast of the development site lies within a HCC LLFA non-modelled surface water hotspot, with various flood incidents located within the same catchment downstream. Additionally, one incident was recorded in February 2021 in the vicinity of Mole Farm, within the site boundary as a result of heavy rainfall. Further incidents have been reported in September 2021 along Beacon Road directly to the west of the site boundary as a result of rainfall overwhelming the sewer network. Please see, "[Webmaps - Flood Risk Management Viewer \(hertfordshire.gov.uk\)](https://www.hertfordshire.gov.uk/webmaps-flood-risk-management-viewer)"
6. We would expect the applicant to provide a drawing which identifies all watercourses (both main river and ordinary watercourses) with their full catchments and an assessment of how these are to be incorporated into the proposed development without adversely affecting flood risk. A walkover survey with photo evidence may be required to ensure that the most appropriate information is included in any assessment, including identification of structures that would remain, be replaced or moved. The applicant should seek approval for a Land Drainage Consent from the LLFA in order to conduct works to ordinary watercourse. If you are unsure as to whether a particular watercourse is considered an ordinary watercourse or for any other information, please visit our Ordinary Watercourse Webpage on the following link: <https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/water/ordinary-watercourses/ordinary-watercourses.aspx#>.
7. The applicant shall identify any areas of groundwater issues or groundwater springs and how exceedance from these will not affect the drainage strategy and how flow any groundwater flooding flow routes will be managed through the development. No

vulnerable development will be permitted within these areas. The applicant should consider and assess whether there is a need in areas to undertake at least 12 months of groundwater monitoring in areas where high or variable groundwater levels could affect or influence the surface water design.

8. We note that local watercourse networks are present on the site. At present, it appears the ordinary watercourses have not been surveyed, modelled and accounted for as part of the flood risk assessment and strategic SuDS design. We require modelling and supporting calculations in relation to fluvial flood risk (from all watercourses within and impacted by the proposed development) to be carried out and submitted for all flood events up to and including the 1% Annual Exceedance Probability (AEP) event plus climate change. We acknowledge that as part of the 2016 Level 2 SFRA a strategic hydraulic model was developed using JFLOW to determine flood extents from the ordinary watercourses. However, this is not suitable for use for supporting planning applications as it is not site specific. In addition, there have been recent changes, in August 2022 edition of the PPG, which have resulted in an increase of the functional floodplain to the 3.33% AEP flood event. This generally has resulted in larger areas being considered as functional floodplains which further limits development activities in these areas. The functional floodplain should take account of local circumstances and includes all watercourses (ordinary and main river) in accordance with PPG paragraph 078.
9. Detailed modelling outputs are also required for surface water flow paths and integrated to fluvial modelling where appropriate. There are several surface water flow paths crossing the site. The applicant has not undertaken pre and post development modelling regarding these flow paths. No evidence is provided as to how these flow paths will be accommodated or mitigated within the site development. These flow paths shall be managed to help mitigate flooding downstream in accordance with SuDS Non-Statutory Technical Standards S3, S5 and S6. No development shall be in surface water flow paths and these need to be maintained and flood risk within the site appropriately managed.
10. We are pleased infiltration testing has been conducted, but note BRE 365 Digest 2015 soakaway testing results were variable for the 12 trial pit locations. Of the trial pit locations investigated only trial pits SA02, SA10 and SA11 were identified as having a viable infiltration opportunity. Based on the initial infiltration testing results infiltration into the ground may be feasible within the northwest and southeast corner of the site. However, the majority of site based on the very limited infiltration testing is considered unsuitable for the disposal of surface water runoff through infiltration. It is noted that further consideration of infiltration is proposed to be undertaken at detailed design stage then the requirement for attenuation would reduce. No groundwater was encountered during the excavation of trial pits during infiltration testing undertaken 19-24 June 2019. As initially indicated in point 6, no physical assessment of ground

water levels has been undertaken or provided for the site. Whilst we appreciate that this is an outline application, baseline data which influences the strategic SuDS design and ongoing applications should be established at the outset, as this forms the foundation of identifying any potential constraints within the site. It is standard practice to establish the baseline hydraulic characteristics of the site prior to designing a drainage strategy. Since 2013, there has been significant flooding events particularly in the south of England with consecutive wet summers and winters. Groundwater levels are typically high in March and low in September. We would expect an outline on how and when groundwater monitoring will be undertaken to inform the Parameter Plans. This is because the current drainage strategy may not be deliverable once detailed ground investigations have been undertaken. Further to this, there is insufficient detail provided in relation to correctly applying and adhering to the discharge hierarchy with insufficient evidence provided to justify progressing through the discharge hierarchy. Shallow infiltration (up to 2m below ground level) should be used as much as possible and supported by location and depth specific BRE365 infiltration testing. The LLFA notes that as yet there is no provision of the sub-catchments or discreet surface water drainage areas. Therefore, due to the scale and variable nature of the development and its site conditions, it is appropriate for the applicant to review the drainage hierarchy and the SuDS suitability for each of the discreet drainage areas within their updated flood risk assessment and surface water drainage strategy.

To be clear, the LLFA requires the applicant to provide indication to include specific required investigations and assessments regarding the future provision of SuDS including how investigations will be undertaken to evidence that the SuDS disposal location hierarchy has been proven such as:

- a. Infiltration has been shown to be favourable or unfavourable (testing using BRE365 or equivalent testing) and where they are located so the masterplan can identify required space for infiltration features. Infiltration should be utilised fully where infiltration rates are favourable.
- b. Identification of surface water sub catchments and how these cross the masterplan areas so that there is no water transferred across catchments in the drainage design for any areas where infiltration is not favourable.
- c. Identification that pre-development greenfield runoff rates and volumes will be calculated, and post-development scenarios will attenuate to these pre-development values. Plus, any sub catchments be identified with appropriate sub catchment discharge rates, volumes and locations using gravity conveyance (no pumping stations should be necessary).

- d. Areas that are deemed sensitive and require additional water quality treatment, such as groundwater source protection zones or surface drinking water safeguarding zones.
11. The proposed drainage strategy is based on a greenfield runoff rate that has been determined for the whole development. It is not acceptable to have one discharge rate for the whole of the development site. Due to the scale and variable ground and hydraulic conditions, the greenfield runoff rate must be determined specific to each development zone / phased area using the latest FEH rainfall parameters and shall list the discharge rate for the 100% AEP, 3.3% AEP, 3.3% AEP plus climate change, 1% AEP and 1% AEP plus climate change for each sub-area.
12. A strategic drainage strategy should be provided that includes details of the proposed road network, not just the spine road (which may be separated out into a specific drainage strategy), and master plan development zone or phased area. The drainage infrastructure provision, including conveyance provision, should be included within the details provided. Each sub catchment should prioritise rainwater reuse, interception and local source control features prior to implementing more region elements.
13. Surface water runoff from the development is proposed to be attenuated to achieve greenfield runoff rates for a 1% AEP event plus 40% climate change allowance. The attenuation volume that would be required has been calculated in section 5.2 and 5.3 of the FRA. The FRA proposes to restrict surface water runoff generated in each development zone to 4.62l/s/ha during all events up to and including 1% AEP event plus 40% CC. An overall attenuation volume of 28,643m³ will be required to restrict surface water runoff to 4.62l/s/ha based on an assumed hardstanding area of 39.43ha, which equates to an overall combined discharge rate of 182.17l/s. The discharge rate should be determined on the discreet drainage areas on a development zone and drainage sub catchment. It is not acceptable to have one discharge rate for the whole of the development site. Furthermore, any permeable area that drains towards the drainage infrastructure should be included in the high-level drainage calculations.
14. Section 5.5.12 of the FRA details that underground attenuation tanks or oversized pipes may be incorporated. However, we would expect that full above ground green SuDS be used as much as a priority such as water reuse, green roofs, bio-retention areas, permeable paving, attenuation basins or ponds etc. Paragraph 169 of NPPF confirms that major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The LLFA advises that a sustainable surface water drainage system should fully address the four pillars of SuDS (water quantity, water quality, amenity and biodiversity) and follow the surface water discharge hierarchy in accordance with paragraph 169 of the NPPF, S12 of SuDS Non-Statutory Standards (SNSTS) and evidence has to be provided if features cannot be multifunctional.

15. We require surface conveyance SuDS, such as swales, filter strips or filter drains, to be used throughout the site, which would deliver improved treatment for any road runoff and contribute toward biodiversity enhancements. The LLFA would not consider underground oversized pipes or tank storage to be an accepted solution on a greenfield site. We understand there may be presence of contamination. If this is the case, a lined system would be acceptable. A lack of space will not be accepted as a technical justification for underground storage on a greenfield site. Should this be presented as justification. We suggest early engagement with any adopting authority such as a water company regarding any conveyance swales adjacent the highway to ensure that appropriate design constraints can be considered.
16. There shall be no infilling of ordinary watercourses and the applicant shall avoid build over of watercourses unless it is considered essential such as for access (CIRIA Culvert Manual C786).
17. It is proposed to use an existing ordinary watercourse as a discharge point, we require further details to confirm its condition, its capacity and connectivity to ensure there is no increase in flood risk from the proposed development. Therefore, as previously stated, we require modelling of the ordinary watercourses. The hydraulic modelling will also need to include impact assessments for both condition and blockage to ensure that the proposed development can cater for the future development. Modelling may result in the site being classified as partially within Flood Zones 2 and 3. This will need to be supported by the Sequential Test, Exception Test and Sequential approach being followed and applied within the updated proposed site master plan and outline layout arrangements.
18. An illustrative layout drawing has been provided which indicates the four developable areas named Moles Farm Neighbourhood, Lower Fanhams Neighbourhood, Priors Wood Neighbourhood and Widbury Neighbourhood and indicative locations of SuDS features. We note that the sites are proposing to discharge to nearby watercourses. However, the location of each watercourse has not been clearly identified on the presented layout drawings. Therefore, the applicant has provided an incomplete evidence base for an assessment of where the proposed development drainage discharge points are into any given watercourse. Additionally, the LLFA requires further information from the applicant to demonstrate how the proposed access roads are to drain.
19. We require 10% urban creep within the impermeable area calculations however, at this stage this does not appear to have been included. Any proposed impermeable areas should be included within the drainage strategy with the relevant assessment. Mitigation for the runoff from the footpaths is required and to be formally managed preferable through the use of SuDS. To the north of the site there are several sports

pitches proposed (Green Infrastructure Parameter Plan drawing. No. 00849_PP 05, P4). The drainage strategy shall highlight these areas as impermeable areas and include them in the drainage strategy, as the ground compaction reduces the permeability.

20. We have reviewed the MicroDrainage surface water drainage calculations and have the following comments.

- The applicant shall provide separate MicroDrainage calculations for each phase / development zone and drainage sub-catchment including separate outfalls and discharge rates. It is not applicable to provide MicroDrainage calculations covering all development zones with only one discharge location and one discharge rate / volume. In reality, there are several outfall locations for each site. In addition, the one set of calculations provided is in source control which is used for estimating initial volume storage. The applicant has not submitted any network or conveyance design calculations to support either the full or outline design. This is not an acceptable level of information and therefore the LLFA considers the application is incomplete due to lack of design information. We expect a high-level assessment of how a strategic drainage network would be implemented at an outline stage.
- Results for the 100% AEP, 50% AEP, 3.3% AEP, 3.3% AEP plus climate change and 1% AEP and 1% AEP plus climate change should be provided for all elements of the drainage infrastructure. A manhole schedule has also not been supplied and we are missing half drain down times. We need to ensure freeboard is allowed in the storage volume hence half drain down times shall be within 24 hours or the 1% AEP event plus climate change followed by the 10% AEP event.
- We understand the MicroDrainage modelling has been undertaken using FEH2013. However, FEH2022 has now been released and we require modelling to be based on this. In addition, all surface water drainage calculations and modelling information (MicroDrainage or similar) shall be shown on a drawing, including all numbered nodes and drainage network model, details including pipe numbers and cover levels where appropriate.
- Continuing on from our previous discussion in Point 20, we note that 1 hectare of impermeable area is included in the calculations as a standard unit. We note the total impermeable area has been calculated at 39.43ha. The LLFA requires the applicant to confirm if this is correct and if it includes the 10% allowance for urban creep necessary for residential developments to strategically ensure enough storage. For the avoidance of doubt, urban creep is a future allowance and should not be used for the calculation of greenfield runoff rates and volumes. In addition, the applicant is requested to submit a drawing identifying all the

impermeable surface areas associated with each drainage sub catchment to demonstrate the appropriate areas have been calculated and urban creep has been applied to post development storage volumes.

- No allowance for base flow has been made in the calculations which indicates that streams and watercourse discharge have not been accounted for. This is in part due to the lack of conveyance network design. Therefore, surface water in the proposed drainage network may not be able to discharge leading to surcharging and potentially flooding within the network.
- No drawing that relates the proposed drainage network to the modelling calculations has been supplied in accordance with SuDS Non-Statutory Technical Standard (SNSTS) S7 and S8. This is needed in order to confirm correlation between the modelling calculations and discharge rates/ storage volumes etc are stated on a plan in order to check flood levels are not too close to the surface.

21. We have reviewed phasing plan (dwg no. 00849_S_10, P4) detailing phases 1A to 4B and we require written commentary explaining the phasing with a supporting drawing that clearly shows the conveyance routes, estimated potential storage volumes and outfall rates required for each development zone, drainage sub catchment and development phase. We require a stand-alone drainage drawing for each phase which includes temporary drainage measures with the discharge rate clearly annotated for each site / development area. A timeline of how they connect or can be delivered as standalone drainage networks should be included.

22. A construction management plan for surface water runoff is required for all developments. This shall be detailed on a plan including descriptive methodology as to how surface water will be managed during construction, the mobilisation of sediments and any contaminants. Temporary measures shall be stated for each separate stages to prevent increase of flooding during long build out times plus specific drainage phasing plan and details are required such as, temporary flow control devices which may be needed to upgrade outfall rates periodically based on the rate of the development build out plan. As developing in multiple phases, we require information on what are the temporary measures required to prevent increase of flooding during long build out times plus specific drainage phasing plan and details in accordance with SuDS Non-Statutory Technical Standards (SNSTS) S13 and S14.

23. Whilst we acknowledge layout is reserved, the current planning application seeks approval of parameter plans which includes the location of built development, associated key open spaces and more. The LLFA remind the applicant the submission needs to include supporting information for all source of flooding, a viable sustainable drainage design that can fit within the development space and is able to positively discharge from the site. However, the parameter plans do not show or

quantify the areas at risk of flooding or any strategic SuDS features. Additionally, temporary access for watercourse maintenance and management should be accounted for in the maintenance scheme for all the build out phases of the development to ensure riparian owners can continue to maintain watercourses throughout the lifetime of the development including construction. The LLFA expects the applicant to provide further information.

24. Each phase needs to ensure its surface water drainage is capable of draining on its own in case future phases are not delivered. In addition, any SuDS features incorporated shall not be in a flood risk area and shall be modelled to show the impact of surcharging at the surface water drainage outfall. This is necessary as it will affect the volume of storage required. For example, the watercourses the development is discharging to are likely to have high flows in during a 1% AEP event plus climate change event, which will affect the discharge of the proposed system. The LLFA expects the applicant to provide further information.
25. We are aware the applicant is proposing an eight-metre buffer zone either side of the River Bourne. The applicant shall provide evidence to ensure there is no development in these areas and appropriate buffers are extended to the ordinary watercourses to ensure maintenance access and floodplain protection while preventing an increased flood risk. In addition, the proposed surface water SuDS attenuation features and all surface level SuDS must have an appropriate maintenance access area to and alongside the features to ensure maintenance can be undertaken for the lifetime of the proposed development.
26. The prior consent of the Environment Agency must be obtained for regulated works within eight metres of top of bank for Main Rivers (sections of Farnham Tributaries) and from Hertfordshire LLFA for any works associated with ordinary watercourses. The LLFA also requires further clarification on how maintenance access to Farnham Tributaries will be maintained. We would expect to see an agreement in principle from the Environment Agency that any proposed works affecting the main rivers are acceptable to them and agreement in principle to the proposed discharge locations.
27. An emergency flood evacuation plan may be required depending on the location of the developable area and access routes in relation to watercourses. The River Bourne is classed as a main river and is to the south however contributing ordinary watercourse are within site boundary. We strongly recommend that the Local Planning Authority ensure they have consulted any relevant emergency planning team to ensure that there are no additional requirements for the safety of the development for its lifetime in accordance with paragraph 167 of NPPF and S10 of SuDS Non-Statutory Technical Standards. Should an emergency flood plan be required, the LLFA will need to see written agreement from emergency planning confirming that the applicant and the emergency planners agree on the proposed

emergency flood plan. We advise the proposed access road to the residential area is at risk of flooding, if the new development fails to better manage this risk, emergency services would need to travel through flood water on the internal road with no alternative route that could prevent rescue efforts.

28. It is acknowledged that finished floor levels of proposed development will be raised a minimum of 150mm above surrounding ground levels. The LLFA require ground floor finished floor levels to be a minimum of 300mm above the 1% AEP plus climate change maximum water level and a minimum of 150mm above surrounding ground levels (whichever is the more precautionary). Where level access is required, external ground levels shall be graded to slope away from building entrances. This should be acknowledged within a strategic FRA / Drainage Strategy.
29. The LLFA requires confirmation that blue / green corridors will be retained in the vicinity of the existing watercourses onsite and that all built development has been sequentially located away from the watercourses in the lowest area of all sources flood risk.
30. We note the site is in Source Protection Zone I, II and III. Therefore, the proposed strategy must provide a robust level of water treatment and pollution removal prior to surface water discharge in accordance with the Environment Agency's guidance. Infiltration in Zone I is not considered acceptable. However, infiltration in Zone II and III with appropriate treatment is possible. Furthermore, the applicant must demonstrate they have complied with water quality treatment assessment and requirements in the CIRIA SuDS Manual and where appropriate provide additional mitigation should the discharge location be considered sensitive. As this is a greenfield site, any areas of development, in particular the access road, site entrance road and parking areas will require robust treatment. Paragraph 174 of the NPPF and PPG specifically states that SuDS can improve water quality.
31. A flow route exceedance plan would be sought by the LLFA to identify where surface water would flow during an event that exceeded the surface water design event plus climate change. The LLFA expects that future ground levels and typical finished floor levels or finished road levels are indicated where possible. This would be a high-level assessment at this outline stage.

Full Application

The full application is for the internal highway infrastructure linking the A10/A1170 to the B1004, via the new access junctions that specifically relates to the construction of Stages 1a and 1b of the Sustainable Transport Corridor. Stage 1a and 1b are defined on the Movement and Access Parameter Plan and the Detailed Access Plans at Land North And East Of Ware (WARE2), Ware, Hertfordshire. The LLFA has reviewed the information provided and notes the application is incomplete and that further information is required for the full application as follows:

1. The updated Flood Risk Assessment should show that the highways infrastructure and any proposed crossings of watercourses or surface water flow paths does not adversely affect flood risk. As this is a full application the road long section gradient and alignment will be set but this can influence any design of bridges or culverts. Fully hydraulic modelling or calculations should be supplied to support the design proposals. We would require any crossing to be single span bridges unless there is significant justification that a culvert is required (in line with CIRIA guidance C786:2019).
2. There is no detailed design provided in either the FRA and Drainage Strategy to demonstrate the proposed drainage design is viable and would not lead to an increase of flood risk. The design information must demonstrate the temporary and permanent sustainable surface water drainage system will operate throughout the lifetime of the proposed development which included both the construction and operation phases. We require further information on the detailed design of the internal highways linking the A10/A1170 and B1004 for the access drainage to ensure there is no adverse impact on flood risk on site and elsewhere. We would require SuDS features such as swales, filter strips, filter drains, attenuation basins and wetlands to be included in the design. As this is a full application all details of the proposed drainage system for the road improvement works and junction within the red line boundary that form part of the planning application should be provided and should be included within the FRA and Drainage Strategy. This includes the supporting engineering layouts, typical engineering design drawings that show cross section and drawings of all surface water drainage features and supporting calculations.
3. We would expect to see the consideration of the use of drop kerbs and kerb breaks along the highway for the surface water runoff to discharge in to ground level SuDS features such as bioretention areas, swales filter strips, filter drains without the need for gullies. This approach would reduce the need for regular maintenance and improve the water quality treatment and potential biodiversity.
4. The drainage from the road shall be managed using appropriate SuDS features such as a combination of bioretention areas, swales, filter strips and filter drains for

example. We will need an assessment of how the drainage will function for rainfall events for the 100% AEP, the 3.33% AEP, 3.33% AEP plus climate change, 1% AEP and the 1% AEP plus climate change events. The discharge from the development will be restricted to greenfield runoff rates and volumes.

5. The LLFA does not consider the application of the 'Simple Index' Approach for the highway as an unacceptable water quality treatment assessment approach for a main road (A10 is a dual carriageway). Therefore, the LLFA requires a detailed water treatment assessment to be provided which evaluates the sensitivity of the discharge locations in accordance with Highways England (CG 501 design of highway drainage systems guidance). The location will not just take road runoff therefore, the drainage should consider water intercepted from the wider catchment including ordinary watercourses.
6. The LLFA requires the submission of a maintenance and management plan for this full application along with an agreement in principle from any third party named as taking on the future maintenance and management of the surface water drainage infrastructure. The Maintenance and Management Plan will need to include a maintenance schedule for all surface water drainage elements, a plan identifying the ownership and maintenance responsibilities and the long-term maintenance and management arrangements.
7. The applicant is required to demonstrate that safe access and egress during flood events is possible. Further drawings and assessment are required to be provided by the applicant.
8. A flow route exceedance plan is required to identify where surface water would flow during an event that exceeded the surface water design event plus climate change. The LLFA expects that all future ground levels and finished road levels and where appropriate or at a potential risk from surface water flow routes, the proposed minimum finished floor levels of adjacent properties are provided on the drawing.

Informative to the LPA

In December 2022 it was announced FEH rainfall data has been updated to account for additional long term rainfall statistics and new data. As a consequence, the rainfall statistics used for surface water modelling and drainage design has changed. In some areas there is a reduction in comparison to FEH2013 and some places an increase (see [FEH22 - User Guide \(hydrosolutions.co.uk\)](https://www.hydrosolutions.co.uk/FEH22-User-Guide)). Any new planning applications that have not already commissioned an FRA or drainage strategy to be completed, should use the most up to date FEH22 data. Other planning applications using FEH2013 rainfall, will be accepted in the transition period up to the 1st April 2023. This includes those applications that are currently at an advanced stage or have already been submitted to the Local Planning Authority. For the avoidance of doubt the use of FSR and FEH1999 data has

been superseded by FEH 2013 and 2022 and therefore, use in rainfall simulations are not accepted.

For further advice on what we expect to be contained within the FRA to support a planning application, please refer to our Developers Guide and Checklist on our surface water drainage webpage <https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/water/surface-water-drainage/surface-water-drainage.aspx> this link also includes HCC's policies on SuDS in Hertfordshire.

Erection of flow control structures or any culverting of an ordinary watercourse requires consent from the appropriate authority, which in this instance is Hertfordshire Lead Local Flood Authority and the Local Council (if they have specific land drainage bylaws). It is advised to discuss proposals for any works at an early stage of proposals.

Please note if, you the Local Planning Authority review the application and decide to grant planning permission, you should notify the us, the Lead Local Flood Authority, by email at FRMConsultations@hertfordshire.gov.uk.

Yours sincerely

Katherine

Katherine Ashworth
SuDS and Watercourses Support Officer
Environment & Transport and Sustainable Growth

Annex

The following documents have been reviewed, which have been submitted to support the application;

- Environmental Statement: Volume 3 Appendix: Flood Risk, Drainage and Water Resources Part 1-4 prepared by Delta Simons, ref 20-2094.09, dated 1 July 2022.
- Parameter Plans prepared by JTP Studios, dwg no. 00849_PP 01 – 05, dated June 2022.
- Illustrative Layout prepared by JTP Studios, dwg no. 00849_S_02 P2, dated July 2022.
- Phasing Plan prepared by JTP Studios, dwg no. 00849_S_10 P4, dated June 2022.
- Site location Plan prepared by JTP Studios, dwg no. 00849_S_101 P3, dated June 2022.
- Location Plan prepared by Markides Associates, dwg no. 21349-MA-XX-XX-DR-C-0014 – P03 dated 12 December 2022.
- Strategic Design Guide Part 1-5, prepared by various teams, project code 00849