Report Addendum

GeoSmart were commissioned by J K Rudkin Builders Ltd. (herein known as the Client) to undertake a surface water drainage strategy (ref: 76027.01R1) in February 2022 for the Site of Bricket Lodge Sport and Country Club, Lye Lane, Bricket Wood, St Albans, Hertfordshire, AL2 3TF in order to support a planning application for approximately 113 dwellings.

It is understood that the application has been refused and the Client has appealed. Comments were provided by the LLFA on the 9th March 2023. This addendum sets out our response to those comments in order to support the appeal.

1. The LLFA requires the submission of the site-specific topographical information is required at the Outline stage of planning to confirm the existing site levels and surface water features.

A site-specific topographic survey has been undertaken by the Tower Surveys in March 2023.

2. The provision of a comprehensive drainage strategy that demonstrates the application of the drainage hierarchy and the suitable selection of SuDS for the site and.

While the above LLFA comment is incomplete it is assumed that this is a generic request for a comprehensive drainage strategy. GeoSmart's SuDSmart Plus report (ref: 76027.01R1) provides a comprehensive drainage strategy with both a Primary and Secondary drainage strategy and a schematic showing the potential locations of SuDS features. Background information on the Site's flood risk and underlying geology are provided. The drainage hierarchy and local policy have been followed and is evidenced within the report. Supporting calculations and information about the proposed SuDS features are also provided along with an assessment of water quality.

3. The proposed SuDS Layout plan was provided within the Sustainable Drainage Assessment. The surface water drainage scheme layout is proposing to use attenuation basin within the public area in the south-east of the site. It is understood the flows are proposed to be pumped to the watercourse located to the west of the development. The pumped systems for the surface water drainage should be minimised and used only where no other options are available. Robust technical justification is required. The LLFA would require both a backup pump and additional attenuation capacity (equivalent to 24 hours) for the pumped catchment to mitigate for the risk of pump failure. Further assessment of the residual flood risk to the downstream of the pumped catchment, to consider risks posed and where there is an increase in flood risk due to the proposed development. It has been indicated the western part of the development drains directly to the proposed surface water rising main. A future detailed design should ensure there is no surcharging in the upstream system from the rising main. All flows from the western part of development should be attenuated. The applicant also indicates that further investigation of the ground levels and connectivity of the nearby watercourses is required along with landowner

agreement to access the watercourses. This information and the supporting third party agreements are essential in demonstrating the viability of the proposals. The LLFA requires evidence of the third-party agreements in principle, the evidence of watercourse connectivity and the demonstration of ground and bed levels that would enable connectivity to the watercourse to be provided. These details are important to confirm the feasibility of the proposed drainage strategy. Furthermore, the initial assessment of the permeability potential based on BGS impermeability mapping only, which indicates low potential requiring further investigation as referenced in the drainage report. The LLFA requests further onsite infiltration testing to BRE 365 to be undertaken to identify the actual permeability potential and to obtain the permeability rate to inform future design. Discharge into watercourse has been considered which is located at a topographically higher level than the site. The SuDS assessment is only a desk-based study, and no consideration has been made to the flow direction of the existing catchment. Existing flow characteristics should be explored to establish where the site is currently being drained to and assess feasibility of utilising existing topography and natural flow paths for the future development. The Environment Agency's surface water mapping indicates a surface water flow path in the south-east corner of the site towards main river located to the east of the site (Hanstead Brook). Further investigation and information is required.

The planning application is for Outline Planning permission and so an indicative layout plan of the proposed SuDS features has been submitted as per Hertfordshire's requirements for Outline Planning as detailed in their LLFA Summary Guidance for Developers Appendix 1 document (August. 2021).

As the proposed outfall is located at a higher elevation than the Site a pump is likely to be required as mentioned by our report. Details about the proposed pump will be provided at detailed design stage as the exact specifications will be dependent on the final discharge rate, design head and levels. A backup pump and attenuation storage can be provided in case of pump failure as per the LLFA's request at detailed design stage.

Infiltration testing to BRE365 standards has been undertaken at the Site by Structural Soils LTD in April 2023 which confirmed that infiltration to ground was not feasible at the Site.

Third party access for the connection to watercourse can be conditioned and discharge to alternative watercourses will be explored and access to and permission to connect gained at a later stage.

4. It is unclear whether the FEH rainfall data have been used to calculate the pre- and post-development flows off site. The LLFA requires that written commentary with supporting calculations is provided to clarify there is no increase in the surface water runoff due to the proposed development. The LLFA expects the most recent FEH rainfall method to be used.

FEH 2013 data has been used which at the time was the most up to date rainfall data available. FEH 2022 data has subsequently been released and any detailed design would use this or any future updated data. Supporting calculations are provided within Appendix B which the proposed

SuDS features providing sufficient attenuation to prevent flooding onsite. Detailed design work can be undertaken at a later stage to confirm this once the final proposals have been determined.

5. It is unclear whether urban creep has been included in SuDS storage calculations. A 10% addition to impermeable area of residential areas should be provided. The LLFA requires evidence such as the adjusted calculations to be submitted to demonstrate its inclusion.

Urban creep was not included within the SuDS report as the designs were not finalised however an allowance for urban creep can easily be included within an updated report or as part of the detailed design. The addition of urban creep will mean an increased amount of storage is required which can be achieved by extended the proposed attenuation basin.

6. The applicant has not provided a water quality assessment for the proposed SuDS scheme in accordance with SuDS Manual Section 26. The LLFA requires this assessment to be submitted for each of the surface water drainage systems on the proposed development.

A water quality assessment has been provided within the SuDS report under Section 8 titled "Water Quality". The proposed development is residential and is therefore of Low hazard. The proposed permeable paving, swales and attenuation basin would therefore provide sufficient treatment.

7. The provision of a SuDS Maintenance and Management Plan that defines the responsibility and maintenance schedule for the long-term management for each of the elements of the surface water drainage system in accordance with NPPF. This should identify who will be adopting these features for the lifetime of the development.

Management and maintenance details have been provided within the SuDS report under Section 10 titled "SuDS maintenance". Management schedules have been provided in accordance with the Ciria SuDS Manual. The exact undertaker of the maintenance will be determined at a later stage.

In conclusion, the Flood Risk Assessment and Sustainable Drainage report provided are considered sufficient for Outline Planning and it is considered reasonable to conclude that flood risk would not be increased elsewhere as a result of the development, provided suitable conditions, including 3rd party permissions if required, are applied."

David South - Senior Flood Risk and Drainage Consultant (10/05/2024)