# Court Park Pavilion, Parkway, Uxbridge, UB10 9JX, London Borough of Hillingdon

## SuDS and Drainage Assessment

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# Control Sheet

Vazquez Besada Consulting accepts responsibility for this document only to the commissioning party and not to any other.

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# 1.0 Introduction

## 1.1 Project Background

1.1.1 Vazquez Besada Consulting has been appointed by Maximum Construction via CR Design Services to prepare this SuDS and Drainage Assessment for a site at Court Park, Parkway, Uxbridge, London Borough of Hillingdon, UB10 9JX (Nearest). The report provides information on drainage constraints at the site and follows government guidance with regards to development and surface water management.

1.1.2 The report is based on currently available information and preliminary discussions.

1.1.3 Proposals contained or forming part of this report represent the design intent and maybe subject to alteration or adjustment in completing the detailed design for this project. Where such adjustments are undertaken as part of the detailed design and are deemed a material deviation from the intent contained in this document, prior approval shall be obtained from the relevant authority in advance of commencing such works.

1.1.4 Where the proposed works to which this report refers are undertaken more than twelve months following the issue of this report, Vazquez Besada Consulting shall reserve the right to re-validate the findings and conclusions by undertaking appropriate further investigations at no cost to Vazquez Besada Consulting.

## 1.2 Scope of Assessment

1.2.1 This SuDS and Drainage Assessment is to be undertaken in accordance with the standing advice and requirements of the Environment Agency (EA), National Planning Policy Framework, Hillingdon Council's planning guidance and Thames Water guidance.

1.2.2 The report will:

- Prepare design proposals for foul and surface water drainage of the site;
- Present the requirements of the drainage design, including relevant legislation and feedback from Thames Water and Hillingdon Council;
- Identify constraints and opportunities for the drainage design and how it may impact the overall site plan;
- Present a SuDS and Drainage Assessment report to discharge the planning condition No 13 (72929/APP/2019/3703) for the proposed development.

1.2.3 The report reviews the following information:

- The London Plan 2021;
- London Borough of Hillingdon local development plan and drainage guidance: *"Sustainable Drainage Design & Evaluation"*
- London Borough of Hillingdon: *"The London Sustainable Drainage Proforma"*

- Thames Water Public Sewer Records;
- Design and Construction Guide published by Water UK (25th May 2021);
- National Planning Policy Framework (December 2024);

## 1.3 Proposed Development

1.3.1 Proposed demolition of the existing pavilion and erection of a detached house and all associated external works.

1.3.2 Proposed site plans drawings are included in Appendix A.

# 2.0 Existing site Details

## 2.1 History and Current Use

2.1.1 The development site is an existing brownfield site at Court Park, Parkway, Uxbridge, London Borough of Hillingdon, UB10 9JX (Nearest) and covers a total area of approximately 0.09 ha. The approximate OS coordinates are 507435, 184046. The site location is shown in Figure 2-1.

2.1.2 The site is bounded by an existing private shared access road and a Park Lodge at the north, by the Hillingdon Court Park at the west, by a public car park at the south and by Parkway Street at the eastern site boundary.

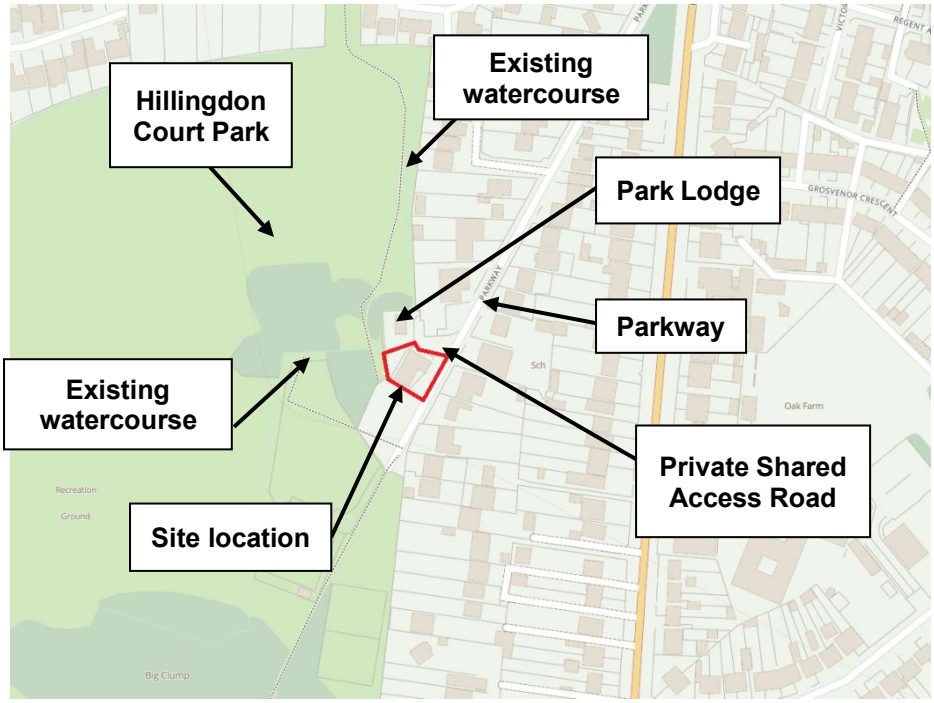


**Figure 2-1. Site location (source: OS Open Data).**

## 2.2 Existing Watercourses

2.2.1 A review of the FEH Webservice, the available OS mapping and the existing Thames Water Assets maps appear to show an existing unnamed watercourse running from west to east to then flow underground along the west of the site, to run again open to the north of the site. Please refer to Appendix B for the Thames Water Assets plan.

## 2.3 Existing Drainage

2.3.1 The existing asset plans have been obtained from Thames Water. They show an existing public 225mm foul water sewer running along Parkway following a north-easterly direction and an

existing 450mm surface water sewer flowing in a north-westerly direction to the west of the site. Approximately, at the Park Lodge south-west corner, the surface water sewer appears to receive flows from the unnamed watercourse reflected in point 2.2 above to the then run north and north-east up to a discharge into an open channel that runs from south to north along the east side of the Hillingdon Court Park.

2.3.2 The existing surface water and foul sewer plans are inserted as Appendix B.

## 2.4 Topography

2.4.1 No Topographical Survey has been made available at the time of writing. However, a review to the OS Mapping appears to indicate that the site sits slightly below contour 40.0mAOD.

## 2.5 Ground Conditions

2.5.1 No SI information has been made available to us at the time of writing, however, the closest borehole present in the BGS website, located approximately along Sweetcroft La shows Made Ground, CLAY layers up 6.5m depths and SAND underneath.

2.5.2 Soakaway testing to BRE365 was undertaken at three locations within the site area, however, not enough infiltration rate was achieved in any of the three tests.

# 3.0 Drainage Strategy

## 3.1 National Planning Policy Framework (December 2024)

3.1.1 The National Planning Policy Framework (NPPF) was published in March 2012 and last updated in December 2024 with the aim of protecting the environment and to promote sustainable growth. There is an overarching presumption in favour of sustainable development that should be the basis of every plan and every decision.

3.1.2 The following paragraphs/policies within the NPPF are considered relevant to this assessment:

3.1.3 Paragraph 170: Requires that *"Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.";*

3.1.4 Paragraph 181: Explains that *"When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

b) *the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*

c) *it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*

d) *any residual risk can be safely managed; and*

e) *safe access and escape routes are included where appropriate, as part of an agreed emergency plan."*

3.1.5 Paragraph 182: States that "*Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should:*

*a) take account of advice from the Lead Local Flood Authority;*

*b) have appropriate proposed minimum operational standards; and*

*c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.2*

## 3.2 EA Guidance

3.2.1 In their Peak Rainfall Allowances Map for Flood Risk Assessment, EA recommends a 40% upper end allowance for peak rainfall intensity for the London Management Catchment.

## 3.3 The London Plan and the London Borough of Hillingdon Local Plan Part 2 and drainage guidance.

3.3.1 Policy DME 10 Water Management, Efficiency and Quality of the London Borough of Hillingdon Local Plan Part 2 states the following:

*"A) Applications for all new build developments (not conversions, change of use, or refurbishment) are required to include a drainage assessment demonstrating that appropriate sustainable drainage systems (SuDS) have been incorporated in accordance with the London Plan Hierarchy (Policy 5.13: Sustainable drainage).*

*B) All major new build developments, as well as minor developments in Critical Drainage Areas or an area identified at risk from surface water flooding must be designed to reduce surface water run-off rates to no higher than the pre-development greenfield run-off rate in a 1:100 year storm scenario, plus an appropriate allowance for climate change for the worst storm duration. The assessment is required regardless of the changes in impermeable areas and the fact that a site has an existing high run-off rate will not constitute justification.*

*C) Rain Gardens and non householder development should be designed to reduce surface water run-off rates to Greenfield run-off rates.*

*D) Schemes for the use of SuDS must be accompanied by adequate arrangements for the management and maintenance of the measures used, with appropriate contributions made to the Council where necessary.*

*E) Proposals that would fail to make adequate provision for the control and reduction of surface water run-off rates will be refused.*

*F) Developments should be drained by a SuDs system and must include appropriate methods to avoid pollution of the water environment. Preference should be given to utilising the drainage options in the SuDS hierarchy which remove the key pollutants that hinder improving water quality in Hillingdon. Major development should adopt a 'treatment train' approach where water flows through different SuDS to ensure resilience in the system.*

*Water Efficiency*

*G) All new development proposals (including refurbishments and conversions) will be required to include water efficiency measures, including the collection and reuse of rain water and grey water.*

*H) All new residential development should demonstrate water usage rates of no more than 105 litres/person/day.*

*I) It is expected that major development8 proposals will provide an integrated approach to surface water run-off attenuation, water collection, recycling and reuse.*

*Water and Wastewater Infrastructure*

*J) All new development proposals will be required to demonstrate that there is sufficient capacity in the water and wastewater infrastructure network to support the proposed development. Where there is a capacity constraint the local planning authority will require the developer to provide a detailed water and/or drainage strategy to inform what infrastructure is required, where, when and how it will be delivered.*

3.3.2 In accordance with the London Plan Hierarchy (Policy 5.13), *"surface water run-off should be managed as close its source as possible in line with the following hierarchy:*

*1 store rainwater for later use*

*2 use infiltration techniques, such as porous surfaces in non-clay areas*

*3 attenuate rainwater in ponds or open water features for gradual release*

*4 attenuate rainwater by storing in tanks or sealed water features for gradual release*

*5 discharge rainwater direct to a watercourse*

*6 discharge rainwater to a surface water sewer/drain*

*7 discharge rainwater to the combined sewer."*

## 3.4 Allowable Discharge Rate

3.4.1 The greenfield runoff rate, or QBAR rural, is the mean annual surface water flood flow from a rural (i.e. undeveloped) catchment. It is roughly equivalent to a 1 in 2.3 year return period and represents the surface water discharge from the site in an undeveloped state. This greenfield runoff rate is typically used as a basis for determining the allowable surface water discharge rates from new developments, as it encourages a shift towards sustainable development and helping to mitigate the risk of surface water floods.

3.4.2 The existing QBAR rural discharge was calculated, based on a total impermeable area of 0.1 ha, in accordance with the ICP IH124 Method as:

QBAR rural = 0.43 l/s

3.4.3 In accordance with the London Plan Hierarchy (Policy 5.13) reflected above, considerations have been given first to store the rainwater on site for later use. A rainwater underground tank has been sized and specified for the roof rainfall collection and to re-use the grey water on site. Please refer to Appendix D for the rainwater underground tank calculation, installation and maintenance details.

3.4.4 In accordance with the second preferred discharge method, in line with the London Plan Hierarchy (Policy 5.13). Use of infiltration techniques have been explored. Three soakaway testing were undertaken within the site area, however, not enough infiltration rate was achieved in any of the three testing areas.

3.4.5 No existing watercourse are present within the site.

3.4.6 Therefore, the proposal is to gradually discharge attenuated and treated rainwater to existing public surface water sewers present within, or nearby the site. Final point of connection to be investigated.

3.4.7 The overflows from the proposed rainwater underground tank and the runoff from the proposed driveway will be discharge into the proposed site permeable paving structure located at the site entrance, to then, be attenuated on site before discharging into the existing Thames Water surface water sewers at the north-west of the site, via the existing site surface water drainage infrastructure.

## 3.5 Surface Water Treatment Levels

3.5.1 In accordance with the Hillingdon SuDS Design & Evaluation Guide the treatment to mitigate pollution depends upon the level of pollution hazard. An adequate number (and type) of SuDS components is required in order to intercept or break down pollutants.

3.5.2 According to the Guide, residential roofs have a pollution hazard level of ‘very low’ and it will be mitigated discharging to any SuDS component. The proposal allows for surface water roofing treatment via the permeable paving.

3.5.3 Driveways have a pollution hazard level of ‘Low’ and it will be mitigated discharging to permeable pavement or one SuDS component. The proposed scheme shows a proposed surface water treatment for the driveway area via permeable paving.

## 3.6 Proposed Surface Water Drainage

3.6.1 Any new development site drainage has been designed to provide enough capacity, with no flooding, up to and including the 1 in 100 year event plus 40% allowance for climate change (latest EA climate change allowances for the London Management Catchment. Please refer to Appendix C for calculations.

3.6.2 A Control Manhole is provided within the proposed drainage system to limit the flow discharge up to 2.0 l/s, via a 50mm DIA discharging pipe, up to the 1 in 100 pus 40%.

3.6.3 To restrict the surface water discharge, sufficient storage volume will be required in the drainage system to attenuate the flow without surcharging the system and causing flooding. The total attenuation volume provided for the new impermeable areas, calculated to be 0.03 ha, is to be achieved via a SuDS permeable paving (14.6m$^3$). This provides enough capacity to store with no flooding the 1 in 100 year event + 40% climate change (CC).

## 3.7 Proposed Foul Water Drainage

3.7.1 The new proposed foul drainage from the development is expected to discharge into the existing Thames Water foul water sewers present along Parkway via the existing connection. It has been assumed that the existing Pavilion building has a connection into this sewer. A CCTV survey has been undertaken by Happy Drains, included in Appendix G, and it has been confirmed the existing site foul discharge into the existing public foul water sewers running along Parkway.

3.7.2 A Pre-Planning Enquiry has been submitted to Thames Water to confirm acceptance of flows and the response provided via email indicates that *they have no concerns regarding foul water capacity however, the developer should rectify the drainage on site in line with the Happy Drains CCTV recommendations.*

## 3.8 Conflict with Existing Sewers

3.8.1 The Thames Water Asset Location Search appear to show an existing public sewer running to the north-west of the site (it is indicated as *"undefined end*"), this existing asset is recommended to be investigated further to confirm size, location, depth and condition of this sewer.

3.8.2 Additionally, an existing 225mm DIA public foul water pipe is also shown to be running from west to east along Parkway road. An existing foul water connection from the existing site has been confirmed to exist into this public foul sewer along Parkway in the Happy Drains CCTV survey.

3.8.3 Following the investigation, Water Thames should be contacted via a Building Over Sewer application before starting any construction work.

## 3.9 Maintenance Requirements

3.9.1 The proposed drainage systems including the SuDS elements will be private and maintained by the developer.

3.9.2 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.

3.9.3 A maintenance schedule as per the CIRIA SUDS Manual 2015 is included in Appendix F and the maintenance requirements for the GRAF Platin Underground Tank are also included in Appendix D.

# 4.0 Conclusions and Recommendations

## 4.1 Conclusions

4.1.1 Vazquez Besada Consulting has been appointed by Maximum Construction via CR Design Services to prepare this SuDS and Drainage Assessment for a site at Court Park, Parkway, Uxbridge, London Borough of Hillingdon, UB10 9JX (Nearest). The report provides information on drainage constraints at the site and follows government guidance with regards to development and surface water management.

4.1.2 Proposed demolition of the existing pavilion and erection of a detached house and all associated external works.

4.1.3 Soakaway testing to BRE365 was undertaken at three locations within the site area, however, not enough infiltration rate was achieved in any of the three tests.

4.1.4 The existing QBAR rural discharge was calculated, based on a total impermeable area of 0.1 ha, in accordance with the ICP IH124 Method as:

QBAR rural = 0.43 l/s

4.1.5 Surface water treatment will be SuDS porous paving.

4.1.6 The overflows from the proposed rainwater underground tank and the runoff from the proposed driveway will be discharge into the proposed site permeable paving structure located at the site entrance, to then, be attenuated on site before discharging into the existing Thames Water surface water sewers at the north-west of the site, via the existing site surface water drainage infrastructure.

4.1.7 Any new development site drainage has been designed to provide enough capacity, with no flooding, up to and including the 1 in 100 year event plus 40% allowance for climate change (latest EA climate change allowances for the London Management Catchment. Please refer to Appendix C for calculations.

4.1.8 A Control Manhole is provided within the proposed drainage system to limit the flow discharge up to 2.0 l/s, via a 50mm DIA discharging pipe, up to the 1 in 100 pus 40%.

4.1.9 To restrict the surface water discharge, sufficient storage volume will be required in the drainage system to attenuate the flow without surcharging the system and causing flooding. The total attenuation volume provided for the new impermeable areas, calculated to be 0.035 ha, is to be achieved via a SuDS permeable paving (14.6m$^3$). This provides enough capacity to store with no flooding the 1 in 100 year event + 40% climate change (CC).

4.1.10 The new proposed foul drainage from the development is expected to discharge into the existing Thames Water foul water sewers present along Parkway via the existing connection.

It has been assumed that the existing Pavilion building has a connection into this sewer. A CCTV survey has been undertaken by Happy Drains, included in Appendix G, and it has been confirmed the existing site foul discharge into the existing public foul water sewers running along Parkway.

4.1.11 A Pre-Planning Enquiry has been submitted to Thames Water to confirm acceptance of flows and the response is still awaited at the time of writing.

4.1.12 The Water Thames Asset Location Search appear to show an existing public sewer running to the north-west of the site (it is indicated as *"undefined end*"), this existing asset is recommended to be investigated further to confirm size, location, depth and condition of this sewer.

4.1.13 Additionally, an existing 225mm DIA public foul water pipe is also shown to be running from west to east along Parkway road. An existing foul water connection from the existing site has been confirmed.

4.1.14 to exist into this public foul sewer along Parkway in the Happy Drains CCTV survey.

4.1.15 Following the investigation, Water Thames should be contacted via a Building Over Sewer application before starting any construction work.

## 4.2 Recommendations

4.2.1 It is recommended that the existing site drainage outfalls are cleaned and investigated further to confirm condition and discharge point for the surface water in line with the Happy Drains CCTV survey recommendations. Following the cleaning and investigation works, Thames Water should be contacted again (Case Ref. number: DS6105463) to obtain a formal Pre-Planning Enquiry response.

4.2.2 Similarly, the Water Thames Asset Location Search appear to show an existing public sewer running to the north-west of the site (indicated as "undefined end"), this existing asset is recommended to be investigated further to confirm size, location, depth and condition of this sewer. Following the investigation, Water Thames should be contacted via a Building Over Sewer application before starting any construction work.

4.2.3 A site topographical survey is recommended to be undertaken. Any future site detailed drainage design shall be carried out including the future site topographical survey, the findings of the sewer investigation recommended in points 4.2.1 and 4.2.2 above and also RWP's and Foul Pop-Ups information from the Architects.

4.2.4 Further Site Investigation including further infiltration testing and/or groundwater investigations are recommended, with any conclusion to be incorporated into the future detailed drainage design.

4.2.5 The proposed drainage system shall be maintained in line with the drainage maintenance schedule provided in Appendix D and F.

# Appendix A – Proposed Development

# Appendix B – Public Sewer Plans. Thames Water

# Appendix C – Drainage Calculations

# Appendix D – GRAF UK Ltd Rainwater Harvesting sizing, spec and maintenance requirements.

# Appendix E – Proposed SuDS Scheme

# Appendix F – Drainage Maintenance Schedule

# Appendix G – Happy Drains CCTV

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