Elmbridge Local Plan Examination

Stage 1 Matters Statement

Legal Compliance & the Duty to Cooperate

Andrew Black Consulting on behalf of Esher Rugby Club

February 2024

Project	Esher Rugby Club
ABC Reference	ABC/0087/08.07.01
Local Authority	Elmbridge Borough Council
Client	Esher Rugby Club
Issue	Final
Author	Andrew Black
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Contents

1. Introduction

1.1 This Matters Statement has been prepared by Andrew Black Consulting on behalf of Esher Rugby Club for Stage 1 of the Local Plan Examination which will deal with Legal Compliance and the Duty to Cooperate.

1.2 Esher Rugby Club is a central feature of the local community within Elmbridge and has long term aspirations to grow as a community-based club as it reaches its centenary year in 2023.

1.3 The club has been in discussions with the council for over 15 years on its aspirations for the existing site. The club has engaged with the council and community, at considerable expense, over a number of years to illustrate how the club could grow and evolve sustainably in order to meet the long term needs of the club, its players, its supporters and the wider community in addition to unlocking a highly appropriate area of land for housing growth in order to fund the plans for the club.

1.4 It is with considerable disappointment that the submitted local plan does nothing whatsoever to recognise or support the aspirations of Esher Rugby Club, and indeed other sports clubs within the borough.

1.5 Each of the Matters raised by the Inspector in document ID-003 (Schedule of Matters, Issues and Questions for Stage 1 of the Examination) are set out within this statement.

1.6 Regard has been had to document ID-002 (Guidance Note for People Participating in the Stage 1 Examination). Any reference to the National Planning Policy Framework is in accordance with the previous version. Annex 1 of latest version released in December 2023 sets out the implementation of the new framework for the purposes of plan making and states that previous version of the framework will apply to plans already at examination.

2. Issue 1: Have the relevant legal requirement been met in the preparation of the Plan and is the Plan legally compliant?

1.1 Has the Plan been prepared in accordance with the Duty to Cooperate (DtC) imposed by S33A of the Planning and Compulsory Purchase Act 2004 (as amended)? This applies to the preparation of Local Plans so far as relating to a strategic matter. It is necessary for Local Planning Authorities to demonstrate how they have complied with the DtC at the Examination stage of their Local Plan.

2.1 No representations were made on the Duty to Cooperate (DtC) at regulation 18 or regulation 19 stage and no further submissions are made in this regard.

1.2 Has the Council maximised the effectiveness of the Plan by engaging constructively, actively and through an on going basis with the prescribed bodies on the relevant strategic matters identified and how has this been undertaken?

2.2 No representations were made on the Duty to Cooperate (DtC) at regulation 18 or regulation 19 stage and no further submissions are made in this regard.

1.3 Has the DtC under sections 22(5)(c) and 33A of the Planning and Compulsory Purchase Act 2004 (2004 Act) and Regulation 4 of the Town and Country Planning (Local Planning) (England) Regulations (2012) (2012 Regulations) been complied with, having regard to advice contained in the National Planning Policy Framework (NPPF) and the PPG?

2.3 No representations were made on the Duty to Cooperate (DtC) at regulation 18 or regulation 19 stage and no further submissions are made in this regard.

1.4 Elmbridge Borough Council has set out within its Statement of Compliance and associated update (CD014 and CD015) and associated appendices (CD016) how it considers it has complied with the DtC. The Council have also submitted a number of Statements of Common Ground (SoCG) in support of this position. What has been the nature of the cooperation undertaken and on what issues has it focused?

2.4 No representations were made on the Duty to Cooperate (DtC) at regulation 18 or regulation 19 stage and no further submissions are made in this regard.

1.5 In relation to the Strategic Flood Risk Assessment (SFRA):

Does the work provided to date accord with the advice contained within paragraphs 159-160 of the Framework?

According to the letter of 10 November 2023 from the Council (COUDO002) the Council have been asked to update the SFRA Level 1 Assessment. What is the reason for this?

Does the modelling work undertaken appropriately address all of the possible sites within the relevant flood zones? If not why not?

Is there a SoCG with the Environment Agency? If not, this should be submitted with the hearing statement.

2.5 With specific reference to the land at Esher Rugby Club, figure 4 of the SRFA shows potential flood risk on the land. However, further detailed analysis was commissioned by the land owners in the form of the Flood Risk Assessment (appendix 1) which undertaken by Ridge in March 2021. The FRA was submitted to the council as part of the pre-application process and includes an outline strategy plan for development on the site. This demonstrates how the housing element of the site can be raised up to 300mm above the 1 in 200-year flood level. Further improvements can be made in respect of surface water flooding and the site can be delivered in a safe and sustainable measure with no flooding risk.

2.6 The request for further information in respect of the SFRA is noted and it is assumed that the updated information for the Esher Rugby Club site will be included within this.

2.7 Further representations will be made at the hearings once this further information is provided by the council and there has been the opportunity for a more thorough review of its conclusions.

1.5 In what way has the Council complied with the requirements of section 19(3) of the 2004 Act and Regulations 18 and 19 of the Town and Country Planning (Local Planning (England) Regulations 2012 with regard to conducting consultation in accordance with their statement of community involvement (SCI)?

2.8 No representations were made on community involvement matters at regulation 18 or regulation 19 stage and no further submissions are made in this regard.

3. Issue 2: Are the likely environmental, social and economic effects of the Plan adequately and appropriately assessed by the Habitats Regulations Assessment (HRA) and the Sustainability Appraisal (SA)?

2.1 Is the Sustainability Appraisal (SA) adequate in terms of:

- **its assessment of the likely effects of the Plan's policies and allocations,**
- **the consideration of reasonable alternatives, and**
- **Giving clear reasons for the preferred approach, explaining why the preferred strategy and policies were selected? (This issue relates to the legal compliance of the SA and HRA only and questions concerning the detail of the SA, outcomes and how it has informed the selection of the spatial strategy will be considered under matter 2).**

3.1 Paragraph 35 of the National Planning Policy Framework outlines the tests of soundness which the plan will be assessed against. In order to be considered 'Justified' plans must represent *an appropriate strategy, taking into account the reasonable alternatives, and based on proportionate evidence.*

3.2 The Regulation 18 (Options Consultation 2019) document took place in light of the increase in the housing requirement to 623dpa under the Government's standard methodology. A total of five options were presented as part of this document.

3.3 **Option 1 – intensify urban area.** This would deliver the number of homes required but would involve significantly increase densities in urban areas and would involve developing on open spaces such as allotments and playing fields.

3.4 **Option 2 – optimise urban area and three areas of Green Belt release**. This option would not meet the housing need but would optimise densities and remove some areas of land from the Green Belt.

3.5 **Option 3 – optimise urban area and large Green Belt release**. This would deliver the number of homes required and would be able to help other LPAs within the HMA meet their housing targets.

3.6 **Option 4 – optimise urban area.** This would not need the housing need, unlike Option 1.

3.7 **Option 5 – optimise urban area and small areas of Green Belt release**. This option would deliver the number of homes required whilst only resulting in a 6% loss of land from the Green Belt. The areas of land identified for release from the Green Belt included areas which either performed weakly against the purposes or were not essential for the Green Belt to work properly or were not (or only partially) affected by absolute constraints which would prevent development from coming forward.

3.8 The southern part of the Esher Rugby Club site was included within option 5 for release from the Green Belt and allocation for development.

3.9 Table 8 of the Sustainability Appraisal (SA) (June 2022) for regulation 19 sets out the decision-making criteria for the assessment 2019 options (as set out above):

Criterion (most significant criteria in bold)	Option 1	Option 2	Option 3	Option 4	Option 5
Meets housing need (623 per year, total 9345)	**Yes**	**No**	**Yes**	**No**	**Yes**
Meets housing need (641 per year, total 9615)	**No**	**No**	**Yes**	**No**	**No**
Number of new homes	**9,345**	**6,800**	**16,300**	**5,300**	**9,400**
Can help neighbouring authorities to meet their housing needs	No	No	Yes	No	No
Does not need neighbouring authorities to help meet Elmbridge's housing need	**Yes**	**No**	**Yes**	**No**	**Yes**
Does not require Green Belt release	**Yes**	**No**	**No**	**Yes**	**No**
Amount of Green Belt release – ha (%)	0 (0%)	188 (3%)	2,920 (53%)	0 (0%)	366 (7%)

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Green Belt boundaries remain fit for purpose	Yes	Yes	No	Yes	Yes
Overall sustainable (from Table 7)	No	Yes	No	Yes	Yes
Suitable accessible natural greenspace (SANG) requirement – ha from 2019 Habitats Regulation Assessment	14.7ha	30.7ha	118.3ha	14.9ha	37.1ha
Provides a site large enough for suitable accessible natural greenspace (SANG)	**No**	**No**	**Yes**	**No**	**Yes**
Does not require high densities, i.e. doubling current density rates	No	Yes	Yes	Yes	Yes
Optimises development sites	No	Yes	Yes	Yes	Yes
Does not require relocating open space into Green Belt	No	Yes	Yes	Yes	Yes
Includes larger sites	No	Yes	Yes	No	Yes
Community support from 2019 options consultation	**No- 2%**	**No- 2%**	**No- 1%**	**Yes- 85%**	**No- 5%**

3.10 It is clear from this that reasonable alternatives were indeed considered within the SA. However, it is the way in which these were assessed within the SA that is of significant concern. The level of community support for any of the alternatives is not considered to be a suitable

or justified objective against which to evaluate the suitability of spatial options for the Local Plan and any alternatives. Nevertheless, it is clear from table 8 that this was pivotal in the decision-making process for the council on which of the options should be explore in more detail.

3.11 The SA sets out that further work was undertaken on the land availability assessment (LAA) but is unclear on exactly what work was undertaken and no detail has been provided on the process or its conclusions other than the selection of shortlisted sites highlighted in option 5a . Table 9 of the SA then sets out the performance of all sites included in option 5 against the SA objectives:

Table 9: SA of Green Belt sites in Option 5 (sites considered to be most sustainable, and so included in Option 5A, are shown in blue)

Sites	1.Homes	3.Heritage	4. Accessibility	5.Previously Developed Land	6. Economic Growth	7. Employment	11. Flooding	12.Water	13. Land	14.Pollution	15.Landscape	16.Biodiversity
GB1- Land NE of Waterside Drive, Walton	++	0	0	--	0	0	0	+	0	+	0	-
GB2- Land S of Ruxley Crescent, Claygate	+	0	-	--	+	0	0	+	-	0	-	--
GB3- Pains Hill Farm, Cobham	+	0	-	0	+	+	0	+	++	0	--	-
GB4- Land S of Randolph Close, Stoke D'Abernon	+	0	-	--	+	0	--	+	-	+	--	--
GB5- Esher Rugby Club, Walton	++	0	+	0	+	0	-	+	++	+	-	-
GB7- Land S of Arbrook House, Esher	++	-	0	0	+	0	0	-	++	+	--	-
GB17- Land NE of Horrington Farm, Claygate	+	0	0	0	+	0	0	+	-	-	--	-
GB18- Land N of Island Barn Reservoir	++	0	0	--	0	0	-	0	++	0	0	-
GB19- Land E of Danes Way, Oxshott	++	0	-	--	+	0	0	+	++	+	--	--
GB20- Hillview Nursery, Seven Hills Road, Walton	0	0	-	++	+	+	0	+	++	+	--	+
GB21- Land at Imber Court	++	0	0	0	+	0	0	+	++	+	0	-
GB23 – Land S of Waterside Drive, Walton	++	0	+	0	+	0	0	+	0	+	0	-
GB24- Land S of Esher Sewage Works, Esher	++	0	0	0	0	0	-	0	++	+	0	-
GB25- Land N of A309, Woodstock Lane N, Long Ditton	++	0	--	0	-	?	0	0	+	-	-	-
GB26- Land south of Holroyd Road, Claygate	+	0	-	--	+	0	0	+	-	0	--	--
GB27- Land E of Telegraph Ln, Claygate	+	0	0	--	+	0	-	+	+	+	-	--
GB29- Land W of Slough Farm	++	0	0	--	+	0	-	0	++	+	-	--
GB31- Land N of Woodlark Farm, Hersham	+	0	+	--	++	0	0	+	++	+	0	--
GB33- Land S of Hillcrest Gardens, Esher	+	0	0	--	+	0	0	+	++	+	--	--
GB35- Land E of Claygate House	+	0	+	0	+	0	-	+	++	+	0	-
GB41- Land NW of	++	0	0	--	0	0	0	+	++	0	-	-

Sites	1.Homes	3.Heritage	4. Accessibility	5.Previously Developed Land	6. Economic Growth	7. Employment	11. Flooding	12.Water	13. Land	14.Pollution	15.Landscape	16.Biodiversity
Queen Eliz. II reservoir, Walton												
GB42- Land NW of Anvil Lane, Cobham	+	-	0	--	+	0	--	+	++	+	-	--
GB46- Land E of Blundel Lane & S of Waverley Rd	++	0	-	--	0	0	0	+	-	+	-	--
GB48- Land W of Stoke D'Abernon train station	0	-	-	0	0	0	--	+	-	+	-	-
GB49- Land S of Lammas Lane	++	0	0	0	++	0	0	0	++	+	0	-
GB50- Land at Arran Way, Esher	++	?	+	--	+	-	-	0	++	+	0	--
GB51- Land at Hersham Golf Course	++	0	+	0	+	?	-	+	--	+	--	-
GB58- Horrington Farm, Claygate	++	-	-	0	+	0	0	+	++	+	--	-
GB62- Land at and S of Burhill School, Hersham	+	0	++	0	++	0	0	+	++	+	0	-
GB63- Loseberry Farm, Claygate	++	0	+	0	+	0	0	+	+	+	--	-
GB64- Land at Moore Place Golf Course, Esher	++	-	0	0	+	0	0	+	++	+	0	-
GB65- Land at Chippings Farm & Fairmile, Cobham	++	-	0	--	0	?	0	+	--	0	-	-
GB67- Land W of Blundel Lane, Cobham	++	0	-	--	0	0	0	+	-	+	--	-

3.12 Two additional sites were introduced after further information became available about their availability during the 2019 consultation.

Sites	1.Homes	3.Heritage	4. Accessibility	5.PDL	6.Economic Growth	7.Employment	11. Flooding	12.Water	13. Land	14. Pollution	15. Landscape	16.Biodiversity
Café Rouge and land to north, Esher	+	-	+	--	+	0	0	+	++	+	--	--
Weylands Old Treatment Works[12]	0	0	0	0	++	+	0	0	++	+	0	-

3.13 The sites highlighted in blue were incorporated into an option 5a which removed the 33 least sustainable sites. However, it is clear that many of the selected sites actually perform worse against the sustainability objectives than those which were removed. In the instance of the land at Esher Rugby Club this only had negative SA scores against flooding, landscape and biodiversity but scored positive or neutral against all others.

3.14 It is the position of the club that the development of the southern portion of the site would not be affected by flood risk (further information is contained in the appendix of these representations). Furthermore, any potential impacts of landscape and biodiversity can be mitigated adequately to a position of neutral impact, and even a minor positive, as part of the future development of the site.

3.15 The SA then goes on to set out the further alternatives of option of 4a (Urban Area Only), option 5a (Urban area and 12 small parcels of green belt) or option 6 (Urban area and intensify development around town and village centres and train stations). None of these options included the land at Esher Rugby Club. These options are summarised in table 11 of the SA:

SA Objective	Option 4a: Urban area only Using sites from LAA 2021 with non-implementation discount applied **6988 homes**	Option 5a: Urban area and 12 small parcels of G/B Using sites from LAA 2021 with non-implementation discount applied and 12 sites from the Green Belt. **9328 homes**	Option 6: Urban area and intensify development around town and village centres and train stations. **9689 homes**
1. Homes	--	+	-
2. Health	+	+	+
3. Heritage	?	?	?
4. Accessibility	+	+	++
5. Previously developed land	+	+	++
6. Economic growth	?	?	?
7. Employment	-	-	-
8. Energy Use	-	-	-
9. Natural Resources	-	-	-
10. Climate Change	-	+	-
11. Flooding	-	-	-
12. Water	-	-	-
13. Land	+	-	+
14. Pollution	-	-	-
15. Landscape	++	-	++
16. Biodiversity	+	-	+

3.16 The Council selected option 4a as the preferred spatial strategy at a council meeting on 13 June and the plan proceeded to examination on this basis.

3.17 It is noted that no conclusion was reached in respect of Economic Growth with the reason set out in paragraph 3.71 of the SA as follows:

Unknown scores are also given to SA objective 6: Economic growth as all three-options support economic growth but do not allocate land due to the uncertainty in the market for premises.

3.18 That may be the case for employment land allocations but it is clear that the impact on economic growth of not meeting housing need in full has not been properly assessed nor did it have any influence on why option 4a was selected. It is clear that members of the council did not have this information provided at the time they made their decision to proceed with option 4a in June 2022.

3.19 The SA also lacks conclusions in respect of heritage. The Heritage Impact Assessment Selection Methodology (ENV006) was released in August 2023 after the submission of the local plan and shows significant heritage constraints around the remaining allocated sites. This shows that a significant impact of the spatial options has not been assessed at the correct time and information in this regard not properly assessed through the SA process. Furthermore, information in respect of heritage impact was not available to members at the point that the preferred spatial strategy was selected.

3.20 It is therefore clear that the council made a decision on which spatial approach to adopt within the final local plan without a full and considered assessment of the impacts of that approach upon the key criteria of the sustainability appraisal.

3.21 The planning practice guidance sets out detailed consideration as to how any sustainability appraisal should assess alternatives and identify likely significant effects:

The sustainability appraisal needs to consider and compare all reasonable alternatives as the plan evolves, including the preferred approach, and assess these against the baseline environmental, economic and social characteristics of the area and the likely situation if the plan were not to be adopted. In doing so it is important to:

- *outline the reasons the alternatives were selected, and identify, describe and evaluate their likely significant effects on environmental, economic and social factors using the evidence base (employing the same level of detail for each alternative option). Criteria for determining the likely significance of effects on the environment are set out in schedule 1 to the Environmental Assessment of Plans and Programmes Regulations 2004;*

- *as part of this, identify any likely significant adverse effects and measures envisaged to prevent, reduce and, as fully as possible, offset them;*

- *provide conclusions on the reasons the rejected options are not being taken forward and the reasons for selecting the preferred approach in light of the alternatives. Any assumptions used in assessing the significance of the effects of the plan will need to be documented. Reasonable alternatives are the different realistic options considered by the plan- maker in developing the policies in the plan. They need to be sufficiently distinct to highlight the different sustainability implications of each so that meaningful comparisons can be made. The development and appraisal of proposals in plans needs to be an iterative process, with the proposals being revised to take account of the appraisal findings.*

Paragraph: 018 Reference ID: 11-018-20140306
Revision date: 06 03 2014

3.22 For the reasons set out, it is clear that reasonable alternatives were identified as part of the local plan process, however, it is equally clear that the decisions on pursuing spatial strategy options were not fully considered as part of the SA process and this led to an erroneous and misguided site selection process as a result.

2.2 Has the SA been undertaken as an iterative process to inform the Local Plan preparation, with reference to the flowchart contained within the Planning Practice Guidance?

3.23 The SA flowchart within the Planning Practice Guidance shows the stages of the SA process and includes developing and evaluating reasonable alternatives. It is recognised that reasonable alternatives were identified but for the reasons set out they were not properly assessed.

3.24 It was clear as part of the process in the selection of a preferred spatial strategy option that this would not meet the identified housing requirement.

3.25 The PPG sets out the process that the Council should have gone through in this scenario.

What happens if the assessment indicates that there are insufficient sites / broad locations to meet needs?

When preparing strategic policies, it may be concluded that insufficient sites / broad locations have been identified to meet objectively assessed needs, including the identified local housing need.

In the first instance, strategic policy-making authorities will need to revisit their assessment, for example to carry out a further call for sites, or changing assumptions about the development potential of particular sites to ensure these *make the most efficient use of land****.*** *This may include applying a range of densities that reflect the accessibility and potential of different areas, especially for sites in town and city centres, and other locations that are well served by public transport.*

If insufficient land remains, then it will be necessary to investigate how this shortfall can best be planned for*. If there is clear evidence that strategic policies cannot meet the needs of the area, factoring in the constraints, it will be important to establish how needs might be met in adjoining areas through the process of preparing statements of common ground, and in accordance with the duty to cooperate.* ***If following this, needs cannot be met then the plan-making authority will have to demonstrate the reasons why as part of the plan examination.***

Paragraph: 025 Reference ID: 3-025-20190722

Revision date: 22 07 2019

3.26 There is no evidence that the council went back through the assessment process to revisit assumptions made as part of the LAA process to explore whether sites could deliver housing. In fact, it is apparent that the council has produced further work in attempt to justify its position on not taking sites forward, but this was produced after the plan was submitted for examination. Document OTH039 (GB Site Assessment Proformas – Sites not Suitable for Release – 2021) was published by the council on 10 November 2023 but is dated 2021.

3.27 Esher Rugby Club is referenced within this document as SA-73 and SA-77. The conclusion sets out that there is uncertainty around the ability for existing sports facilities on the site to be re-provided and also on the risk of flooding. The council has brought in this ambiguity itself as the site was never promoted in separate parcels. Several pre-application discussions have been held with the council in recent years with the most recent in June 2021. Further information was submitted as part of this pre-application process in regard to reuse and significant improvement of the sports facilities and also further information on flood risk.

3.28 Further ambiguity is introduced in the comments regarding previous landfill activity on the site. There is no evidence of this within the southern element where the housing is to be located and it is unclear where this concern has arisen.

3.29 The LAA analysis also lacks any reference to the significant support for the proposed redevelopment of the site and reprovision of significantly approved facilities at the site. The club has held significant dialogue with Sport England and the national governing bodies on this matter. Further information will be provided on this during the hearings.

3.30 Overall, it is not considered that the council has undertaken an iterative process in relation to the SA and specifically the site selection process. Further representations will be made to the inspector in later hearing sessions but it is clear that the plan is not justified or effective in this regard and is unsound on this basis alone.

2.3 The HRA and Suitable Alternative Natural Greenspace (SANG) Options Assessment (ENV010) advises that there is enough SANG capacity for the first 10 years of the Plan however an additional 7.5ha of land provision will be required for years 11-15. Reference is made to the possibility of two feasibility options – the extension of Esher Common SANG and the Effingham Common SANG (within Guildford Borough Council).

- **What is the status of both of these options? Are these conclusions now superseded by the SANG Options Assessment, September 2023 (ENV011) which refers to the identification of Land at Field Common, Hersham?**
- **How does the Council intend to address this shortfall ?**
- **Overall, does the Plan provide for an acceptable approach to the provision of SANG for the Plan Period?**

3.31 No comments.

2.4 The HRA concludes that the Plan will not result in adverse effects on the Thames Basin Heaths SPA regarding atmospheric pollutants. With regards to the air quality modelling work which has been undertaking, ENV003 Air Quality Assessment refers to the assessment of 3 different growth scenarios – 2037 Baseline, 2037 Urban Growth Strategy (Elmbridge Local Plan) and 2037 Urban Growth Strategy with mitigation (Elmbridge Local Plan with a range of transport measures incorporated). Where in the evidence does it set out what is included for the urban growth scenarios and what are the transport measures referred to in the last scenario?

3.32 No comments.

4. Issue 3: Whether the Council has complied with the other relevant procedural and legal requirements.

3.1 Chapter 4 of the Plan sets out a number of policies which have been identified to address climate change (CC1, CC2, CC3,CC4 and CC5). In what way will these policies ensure that the development and use of land in the Borough contributes to the mitigation of, and adaptation to, climate change?

4.1 No representations were made in response to this matter as part of the regulation 18 or regulation 19 consultation and no further submissions are made in this regard.

3.2 In what ways does the Plan seek to ensure that due regard is had to the aims expressed in s149 of the Equality Act 2010 in relation to those who share a 'protected characteristic'?

4.2 No representations were made in response to this matter as part of the regulation 18 or regulation 19 consultation and no further submissions are made in this regard.

3.3 Is the Plan clear in identify strategic and non-strategic policies? Does the Plan need to be more explicit in this regard? (Noting COUDOO2 sets out the Council's initial views in relation to this matter).

4.3 No representations were made in response to this matter as part of the regulation 18 or regulation 19 consultation and no further submissions are made in this regard.

3.4 The key diagram at page 26 of the Plan identifies 3 broad locations for development – Whiteley Village, Brooklands College and Lower Green as set out at policy SS3.

- **Are these the broad locations for development as envisaged by paragraph 23 of the Framework?**
- **Does the key diagram sufficiently illustrate the broad distribution of development across the Plan area?**
- **There does not appear to be any corresponding allocations in relation to these 3 broad locations for development. Is this correct? Does this present a justified and effective approach?**

4.4 No representations were made in response to this matter as part of the regulation 18 or regulation 19 consultation and no further submissions are made in this regard.

3.5 Do the proposed changes to the policies map correctly illustrate geographically the application of the policies within the Plan?

4.5 No representations are made on this matter.

3.6 Paragraph 1.2 of the Plan advises that once adopted, the Local Plan will replace the 2011 Core Strategy and 2015 Development Management Plan and a cross reference is made to appendix A1. However, appendix A1 of the submitted Plan only refers to the Core Strategy policies and makes no reference to the Development Management Plan. The Council have provided an update to this in the form of appendix 4 attached to COUD002 and are requested to confirm this will be addressed as a modification to the Plan.

4.6 No representations are made on this matter.

3.7 Is the Plan compliant with the Council's Local Development Scheme in relation to its form, scope and timing? What is the role of purpose of the SPD on the TBHSPA referred to within the LDS?

4.7 No representations are made on this matter.

5. Conclusion

5.1 These representations set out the failings in the Sustainability Appraisal process for the local plan. It is submitted that, whilst reasonable alternatives were identified, the council failed to properly assess these through the SA process and as a result the selection of the most appropriate spatial strategy, and individual sites, is fundamentally flawed.

5.2 This leads to issues of soundness through the lack of an effective or justified spatial strategy.

5.3 The land owners of Esher Rugby Club have consistently made their intentions for redevelopment of the site clear and have entered into pre-application discussions with the council in this regard. There is no risk that the existing sports facilities would not be replaced and significantly improved as part of any future application, particularly given that the site is being promoted by the rugby club themselves.

5.4 The club will be making representations throughout the local plan process, including demonstrating the support of Sport England and National Governing Sports Bodies for the redevelopment of the site to take place.

2,956 words (excluding headings and question titles).

Elmbridge Local Plan Examination

Appendix 1 – Flood Risk Assessment

RIDGE

ESHER RUGBY CLUB OUTLINE FLOOD RISK ASSESSMENT & DRAINAGE STRATEGY

March 2021

ESCHER RUGBY CLUB

March 2021

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APPENDICES

1. INTRODUCTION

1.1. Appointment and Brief

1.1.1. This Flood Risk Assessment (FRA) and Drainage Strategy (DS) has been prepared on behalf of Esher Rugby Club for the proposed development at Escher Rugby Club is situated in Hersham, and is accessed via Molesey Road. The proposal includes to re-provide 2No. full site rugby pitches and associated supporting facilities (changing rooms, bar, etc) along the north of the site to the Boundary with Rydens Road to facilitate the land containing the current main rugby pitch for a housing development.

1.1.2. The purpose of this document is to outline the development of the proposed Outline FRA and DS.

1.1.3. It aims to review the flood risk at the Site and provide an initial drainage strategy, as follows:
Provide an analysis of the proposed development in terms of the risks of flooding from:

Surface Water;
Rivers;
Sea;
Reservoirs; and
Other sources

Provide a review of the existing drainage situation and propose suitable methods of disposal for the proposed development foul and surface water flows.

1.1.4. The FRA herein is subject to further detailed analysis undertaken as for a level 2 Flood Risk Analysis.

1.1.5. The DS is subject to detailed design at a later stage.

1.2. Aims and Objectives

1.2.1. The FRA and DS has been prepared with reference to the following requirements:

1.2.2. The FRA and DS must:

- Review and conform with the most up-to-date local flood risk information, including the Preliminary Flood Risk Assessment (PFRA), Strategic Flood Risk Assessment (SFRA) and Catchment Management Plan for the area of interest.
- Review the Environment Agency's online flood risk mapping.
- Review Planning Policy applicable to the application site.
- Adopt current design standards; and
- Consider long term maintenance with respect to practicality, ownership and funding.

The FRA and DS should:

- Review the Planning History of the site;
- Adhere to current best practice guidance;
- Liaison with the Local Sewerage Undertaker;
- Mimic the existing drainage characteristics of the application site as far as is practical;
- Adhere to current best practice guidance; and
- Contribute to the enhanced amenity and aesthetic value of the application site.

1.3. Limitations

1.3.1. The purpose of this report as outlined in Section 1.2, together with those related matters specifically referred to therein and it is not intended to be used for any other purposes. The report is for the sole benefit and may only be relied upon by the addressee, to whom we will owe a duty of care. The report and any part of it is confidential to the addressee and should not be disclosed to any third

party for any purpose, without the prior written consent of Ridge and Partners LLP as to the form and context of such disclosure. The granting of such consent shall not entitle the third party to place reliance on the report, nor shall it confer any third-party rights pursuant to the Contracts (Rights of Third Parties) Act. The report may not be assigned to any third party.

2. BASELINES

2.1. Location & Site details

2.1.1. The application site is located at Nation Grid Reference 512209E and 166085N with the neatest postcode as KT12 3AW.

2.1.2. The overall site covers an area of approximate 11.93 hectares (ha).

2.1.3. The proposal includes to re-provide 2No. full site rugby pitches and associated supporting facilities (changing rooms, bar, etc) along the north of the site to the Boundary with Rydens Road to facilitate the land containing the current main rugby pitch for a housing development.

Figure 1 - Proposed Masterplan and Site location

Table 1 - Site Boundary Levels

LOCATION	GROUND LEVEL (mAOD)
North-west corner	11
North-east corner	12
South-east corner	12.73
South-west corner	12.25

2.1.4. The information available indicates that the site is relatively flat.

2.1.5. British Geological Survey (BGS) online mapping shows that the site is underlain by a bedrock of London Clay with superficial deposits of Sand and gravel (Kempton Park gravel member). On site trial pits have confirmed this.

2.1.6. Soakage tests have been carried out in October 2017, which gave an indicative result of 6.597 x 10^{-06} m/s.

2.1.7. The EA has developed Groundwater Source Protection Zones (SPZs) to assist in the assessment of risk to groundwater supplies taken from an abstraction point. Based on the indicative mapping[1] the site does not lie within a groundwater SPZ.

2.2. Existing Drainage Regime

2.2.1. Although, the development site is brownfield there is no formal surface water drainage present on the site. Surface Water falls on existing buildings and parking surface and makes its way to the soft. This should be confirmed at a later stage via a full topographic and CCTV survey.

2.2.2. It is understood that existing site does not include any source control or other SUDS features, , therefore the runoff generated is discharged directly to the soakaways without any form of source control.

2.2.3. Greenfield runoff rates for the total site have been calculated attached as Appendix E.

Table 2 Greenfield Rate Calculations

RETURN PERIOD	QBAR	1 IN 1	1 IN 30	1 IN 100
Greenfield Runoff Rate (l/s)	18.6	15.8	42.2	59.4
Greenfield Volume (m^3)		555.0	1335.9	1882.5

2.2.4. Asset records and the topographical survey that is available at this time along with a review of the previous proposed drainage drawings confirm the following significant sewers in and around the site:

Table 3 Existing significant sewer Locations

LOCATION	SEWER TYPE	DIAMETER	DIRECTION OF FLOW	DISCHARGE LOCATION
Across Central field of site	Foul Water	Twin 400mm diameter Rising Main	West to East	Unknown
Molesey Road	Foul Water Surface Water	225mm 525mm	North to South South to North	N/A

2.2.5. Of significance is also the Oil Pipeline which is known to cross the site from North West to South East and is shown on the topographic survey attached to this report.

3. LOCAL POLICY AND GUIDANCE

3.1. Strategic Flood Risk Assessment

3.1.1. A Strategic Flood Risk Assessment (SRFA) is required to be undertaken to support the development of Local Plans. A level 1 SRFA is required where flooding is not a major issue in relation to potential development sites and where development pressures are low.

3.1.2. A level 2 SRFA is required when there is insufficient land outside Flood Zone 2 & 3 to accommodate all the necessary development. The level 2 SRFA needs to undertake a detailed assessment of the flooding characteristics within a Flood Zone and other sources of flooding.

3.1.3. Elmbridge Borough Council commissioned a Level 1 Strategic Flood Risk Assessment in 2019.

3.1.4. It confirms that the PFRA undertaken by SCC updated in 2017, that the are significant surface water flood risk areas in the County area.

3.1.5. The study identifies a number of Surrey Wet spots along Rydens RD and Molesy Road and Highways Enquiries but no recorded incidents of internal or external property flooding.

3.1.6. It goes on to state that all major developments and other development should not result in an increase in surface water runoff, and where possible, should demonstrate betterment in terms of rate and volumes of surface water runoff.

3.1.7. The report that states that there are Very significant constraints to the use of SuDS features for the site.

3.2. Local Plan Policies

3.2.1. The existing local plan for Elmbridge Borough Council is currently split in to a Core strategy, Development Management policies and Supplementry planning documents.

3.2.2. The Core Strategy includes one policy which affect ts the proposed development in terms of Flood Risk

3.2.3. Policy CS 26 Flooding states the following criteria: -

In the event that development takes place in flood zones 2 or 3, the Council will require flood resistance and resilience measures in line with current Environment Agency advice(70) , and advice included within the Elmbridge SFRA.

3.2.4. The development must therefore comply with the above requirements of the above policy.

3.3. Flood Risk SPD

3.3.1. Elmbridge has produced and adopted a Supplementary planning document dated May 2016. This identifies that the site would require an FRA to be produced and offers guidance to its context and confirms that its context is a material consideration in the planning process.

3.3.2. The SPD confirms the correct sources of information for the following FRA which have been utilised.

3.3.3. As the proposed site has a greater than 10 dwellings proposed it is considered major development.

3.4. Flood Risk Assessment Proforma

3.4.1. Elmbridge Borough Council has provided a checklist for developers on the information they require to review an Outline or Full planning Application. The information requested and checklist must be submitted with any major application. This is appended to the FRA for completion prior to a planning application.

4. QUANTIFYING FLOOD RISK

4.1. Fluvial Flooding

4.1.1. Fluvial flooding occurs when excessive rainfall over an extended period causes a river to exceed its capacity. It can also be caused by heavy snow melt and ice.

4.1.2. In accordance with Table 1 of the Technical Guidance to National Planning Policy Framework (NPPF) (2019), flood risk can be divided in zones, as described below: -

Zone 1	**Low probability, less than 1 in 1,000 annual probability of flooding from Rivers or Sea. (<0.1%)**
Zone 2	Medium probability, between 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%).
Zone 3a	High probability, between 1 in 20 and 1 in 100 annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%).
Zone 3b	Functional Floodplain, greater than 1 in 20 annual probability of flooding (>5%) or is designed to flood in an extreme (0.1%) flood.

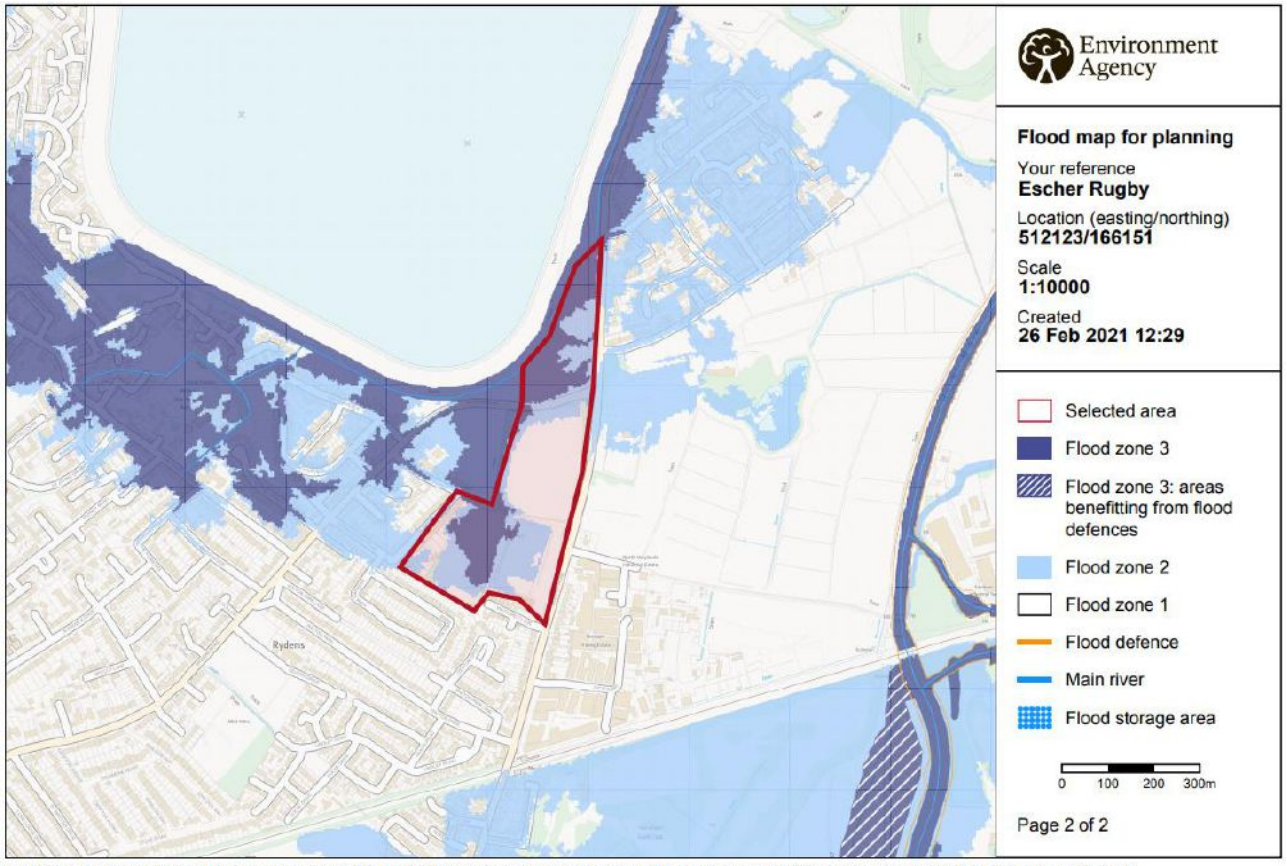


Figure 2 - Flood Zone Plan - https://flood-map-for-planning.service.gov.uk/

4.1.3. The nearest main river to the site is the River Mole located approximately 750m to the east of the site.

4.1.4. The EA have been contacted to provide detailed information on their available fluvial models and historic information. At this time, the response has not yet been received. The report will need to be updated to take this additional information in to account.

4.1.5. As shown in Figure 3, it can be seen that the site is situated within **Flood Zone 3** an area where there is between 1 in 20 and 1 in 100 chance of flooding from rivers or the sea in any one year. According to the NPPF all uses of the site will be restricted in line with the following table:

Table 4 - Flood Vulnerability Table

FLOOD ZONE	ESSENTIAL INFRASTRUCTURE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE	WATER COMPATIBLE
Zone1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a†	Exception Test required†	×	Exception Test required	✓	✓
Zone 3b*	Exception Test required	×	×	×	✓
Key	✓ Development Appropriate	× Development should not be permitted	† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.	* In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to: • remain operational and safe for users in times of flood; • result in no net loss of floodplain storage; • not impede water flows and not increase flood risk elsewhere	

4.1.6. The Flood zones are confirmed further by the EA mapping of the extent of flooding from rivers or the sea shown in the below figure:

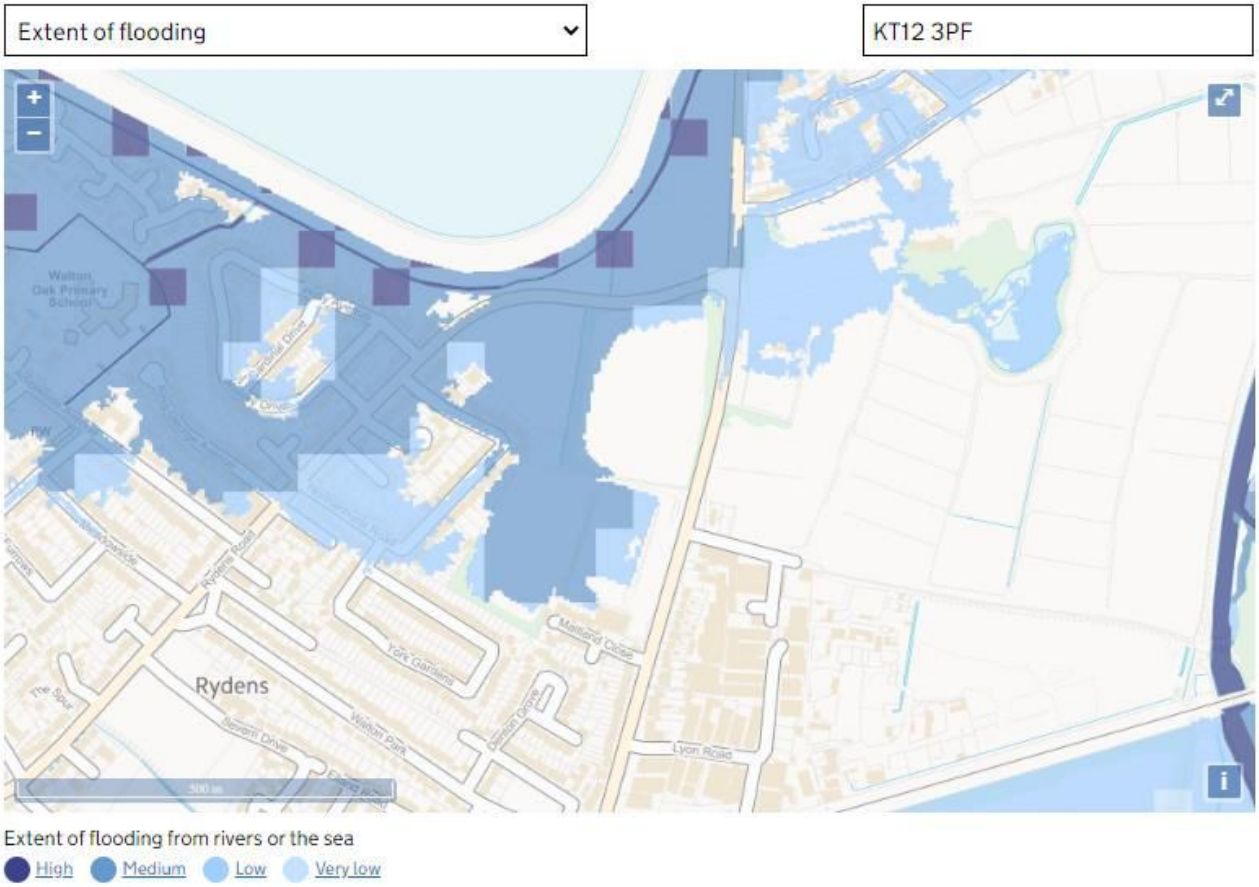


Figure 3 Extent of Flooding from the rivers or the sea - https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

4.1.7. The overall flood risk from rivers to the proposed development is considered to be **medium**.

4.1.8. It is therefore clear that measures will be required to mitigate development proposed within Flood Zone 2 and 3.

4.2. Pluvial Flooding

4.2.1. Based on EA indicative mapping, there is evidence of ponding of surface water on the south western areas and along the western boundary of the site. This aligns with the mapping available from Elmbridge Borough Council as part of their 2019 Strategic Flood Risk Assessment.

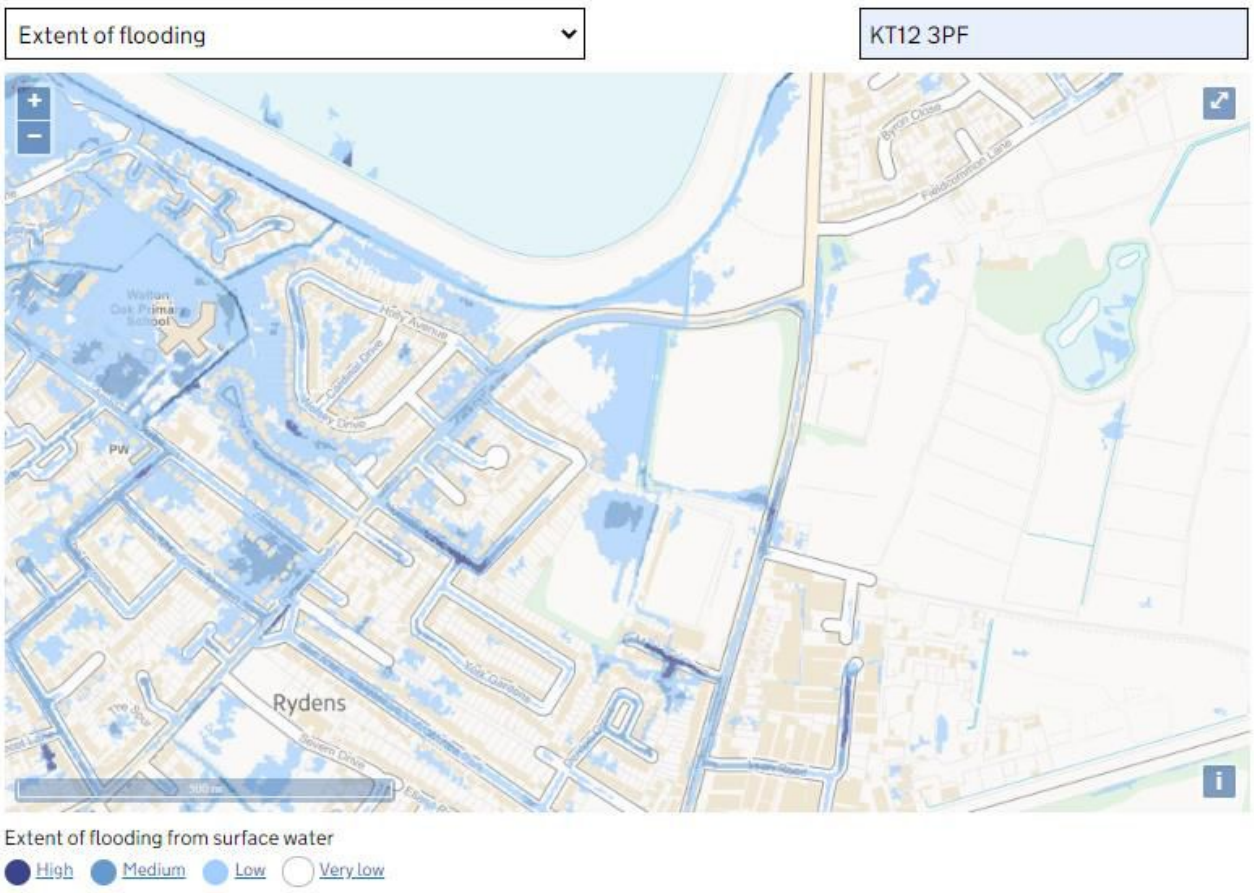


Figure 4 Extent of Flooding from Surface water - https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

Figure 5 - Extent of flooding from Surface water - http://emaps.elmbridge.gov.uk/myElmbridge.aspx

4.2.2. It can be seen that there is a low risk of flooding to a depth between 300mm and 900mm in the areas of ponding.

4.2.3. The overall surface water flood risk to the proposed development is considered to be **medium to low**.

4.2.4. The proposed site layout and landscaping should take into account these areas of ponding.

4.3. Tidal Flooding

4.3.1. The site is not at risk from tidal flooding.

4.3.2. The overall tidal flood risk is considered to be **very low**.

4.4. Groundwater Flooding

4.4.1. Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata. A groundwater flood event results from a rise in groundwater level sufficient for the water table to intersect the ground surface and inundate low lying land. Such events tend to be long in duration developing over weeks or months and prevailing for days or weeks.

4.4.2. Groundwater was encountered during the trial pits undertaken at between 2.0m bgl and 1.7 mbgl. However, this should be confirmed at additional locations across the site and over a winter monitoring period of at least 3 months.

4.4.3. Elmbridge SFRA identifies that between 50% and >=75% of the site is susceptible to groundwater flooding.

4.4.4. The overall groundwater flood risk is considered to be **medium** to **low**.

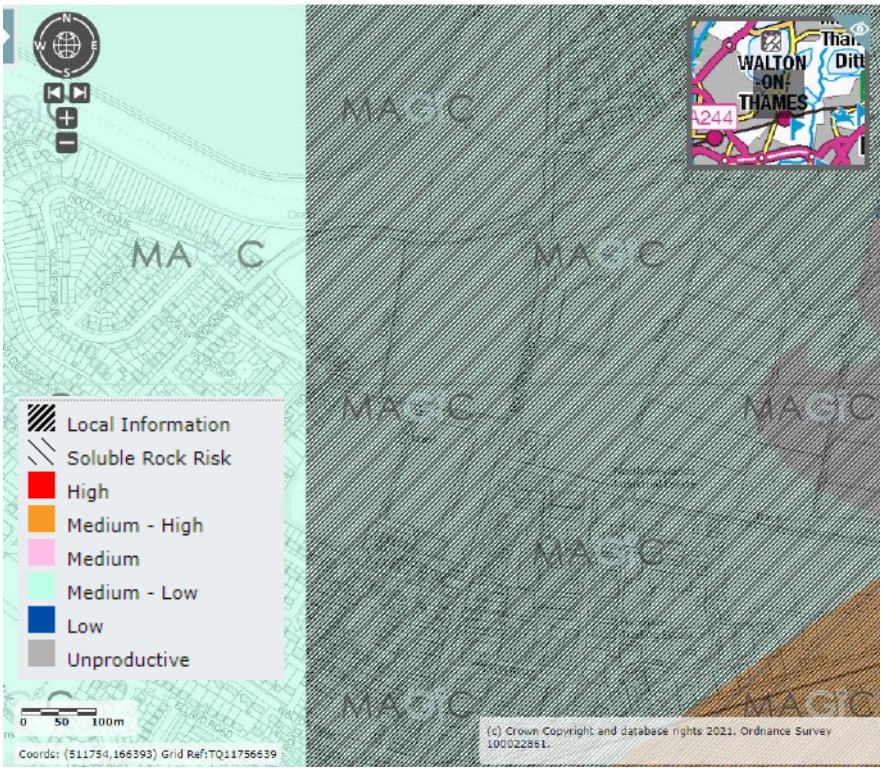


Figure 6 Defra Ground Water vulnerability map

4.5. Flooding from Other Artificial Sources

4.5.1. According to the EA mapping as shown in the Figure 8 below, the site is at risk of flooding from artificial sources.

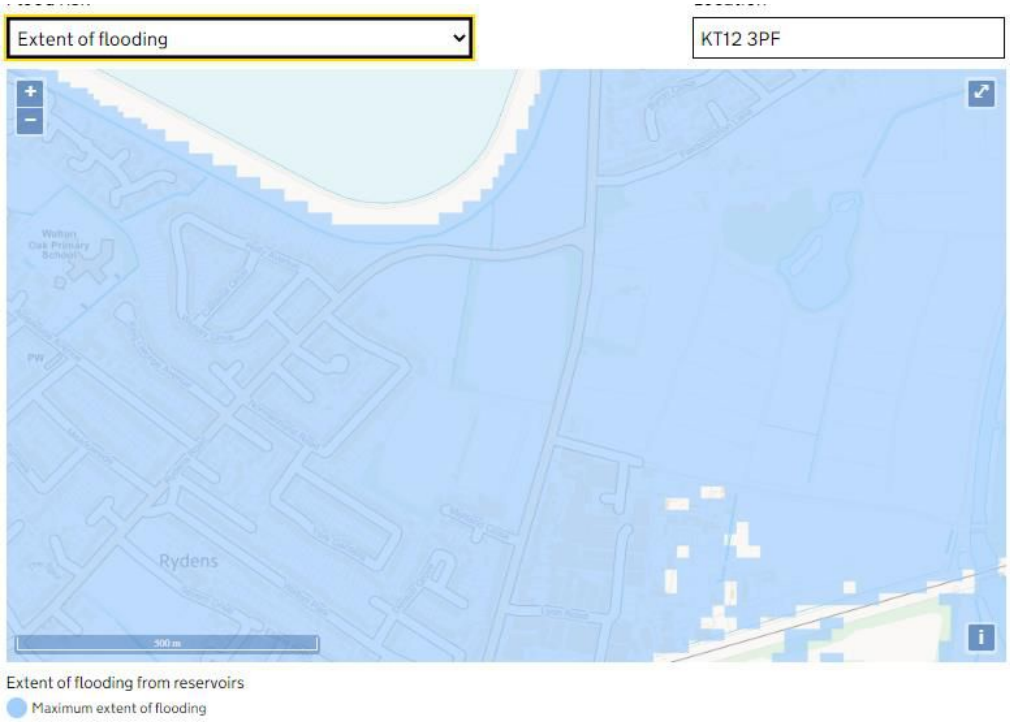


Figure 7 - Extent of flooding from reservoirs - https://flood-warning-information.service.gov.uk/long-term-flood-risk/map

4.5.2. Elmbridge SFRA confirms that there has only been 1 recorded case of internal sewer flooding within the postcode area and 3 recorded cases of external sewer flooding within the postcode area.

4.5.3. The SFRA also states that emergency plans are being prepared for the event of a reservoir flooding.

4.5.4. The overall flood risk from Artificial flooding sources is considered to be **High**.

4.6. Flooding summary

FLOOD	RISK
Fluvial Flooding	Medium
Pluvial Flooding	Medium to Low
Tidal Flooding	Very Low
Groundwater Flooding	Medium to Low
Flooding from Artificial Sources	High

4.6.1. The overall risk of flooding to the site is considered to be Medium.

4.6.2. The proposed redevelopment scheme will take mitigating actions to ensure that the proposals represent a no worsening condition, therefore mitigating the risk of flooding at the site and for the

surrounding areas. As an additional mitigation measure it is recommended that the proposed levels are designed to promote flood conveyance on the road within the kerb lines to prevent flood water ingress into the buildings.

4.7. Sequential /Exception Test

4.7.1. The Sequential Test as outlined within the NPPF gives preference to locating new development in areas at lowest risk of flooding (i.e. Flood Zone 1) and requires developers to

4.7.2. "… demonstrate that there are no reasonably available sites in areas with a lower probability of flooding that would be appropriate to the type of development or land use proposed"

4.7.3. It is ultimately the responsibility of the Local Planning Authority to undertake this test.

4.7.4. Housing is classed as More Vulnerable development and Playing Fields are Classed as Water Compatible development.

4.7.5. Flood Risk Vulnerability and Flood Zone Compatibility Table (summarised below), confirms that the site is appropriate for 'More Vulnerable' uses in Flood Zone 1 but would require an Exception test where sited in Flood Zone 3. AS the proposed playing fields are classed as water compatible they would be appropriate to be located within all Flood Zones.

Table 5 - Flood Risk Vulnerability and Flood Zone Compatibility

FLOOD RISK VULNERABILITY CLASSIFICATION		ESSENTIAL INFRASTRUCTURE	WATER COMPATIBLE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE
FLOOD ZONE	ZONE 1	Permitted	Permitted	Permitted	**Permitted**	Permitted
	ZONE 2	Permitted	Permitted	Exception Test Required	Permitted	Permitted
	ZONE 3A	Exception Test Required	Permitted	Not Permitted	Exception Test Required	Permitted
	ZONE 3B	Exception Test Required	Permitted	Not Permitted	Not Permitted	Not Permitted

5. FLOOD MITIGATION

5.1. Mitigation against Fluvial Flooding

5.1.1. With reference to the NPPF, the presence of Flood Zone 2 and 3 within the red line boundary of the site would trigger a requirement for any housing development proposals to undergo both the sequential and exception tests.

5.1.2. Further additional measures should be considered for the development of the masterplan, as follows:

Development Zoning

5.1.3. During the development of the masterplan, consideration could be given to the development of layouts which allow flood risk to be managed, without the need to construct physical mitigation measures.

5.1.4. This is achieved simply by ensuring that the vulnerability class of any proposed built development is commensurate with the level of flood risk in that particular zone.

5.1.5. In the case of the study site, the masterplan should steer 'Less Vulnerable' or 'Water Compatible' development to the area of the site identified as being at risk of flooding within the 1 in 100-year flood event. Inclusive of an allowance for climate change (Flood Zone 3).

5.1.6. Compatible development within this area would likely take the form of green / amenity spaces, car parking, access roads, industrial or commercial premises.

Raising Floor Levels

5.1.7. In all instances ground floor levels for 'More Vulnerable' development classes would need to be raised above the critical flood level, including an allowance for climate change.

5.1.8. In this instance it would also be required to establish a minimum 'freeboard' of 300 mm above this level to give added protection, either via raising the floor level by a further 300 mm, or provision of a deployable defence measure across thresholds and the like.

5.1.9. It is also commonly accepted to raise areas of 'More Vulnerable' development above the critical flood level, by constructing these areas 'on stilts' or over 'Water Compatible' land uses, such as over an open car park.

5.1.10. Similarly, it is often permissible to introduce 'hybrid' buildings where the ground floor level is allowed to flood, allowing the use of a 'More Vulnerable' classification over, such as residential over commercial units.

5.1.11. In each of these instances, the 'More Vulnerable' upper floors must be demonstrated to give safe refuge to occupants and also the provision of a safe means of evacuation in the event of a flood as well as ground floors being designed as 'flood resilient' to mitigate the remedial costs to the occupant following a flood event.

5.1.12. Examples of 'flood resilient' construction would be:

a. Raising of electrical sockets above the flood level.
b. Provision of 'robust' or easily changeable finishes / linings.
c. Mitigation of water ingress points, such as raising air bricks above flood level.
d. Use of suitable construction which would be minimally impacted by water (i.e. avoiding timber frame, utilising foundations which cannot be eroded or undermined, etc).
e. Raising or locating other services (such as boilers and the like) above flood level.

5.1.13. Further guidance can be found in Communities and Local Government / Environment Agency. (2007). Improving the Flood Performance of New Buildings.

5.1.14. The use of a more vulnerable classification over enclosed garage spaces however should be avoided as this will introduce a risk of vehicular damage, in addition to encouraging the storage of potential pollutants within the area susceptible to flooding.

5.1.15. Additionally, the construction of subterranean development (i.e. basements) and single storey dwellings (bungalows) would not be permitted in such areas.

Land Raising

5.1.16. Perhaps the most common means of mitigating flood risk would be to re-profile the topography of the site such as to ensure the proposed ground levels are set above the critical flood level, including an allowance for climate change.

5.1.17. In such instances, in the event of the flood event the re-profiled topography should:

a. Ensure a safe means of access and emergency egress can always be provided.
b. Avoid the creation of inaccessible 'islands'.
c. Utilise suitable fill materials and structures which will not be compromised or eroded.
d. Create compensatory flood storage on the site on a volume-for-volume basis, to avoid an increase in flood risk elsewhere or off-site.

5.1.18. The SFRA for Elmbridge confirms that "All new development within Flood Zone 3 must not result in a net loss of flood storage capacity. Where possible, opportunities should be sought to achieve an increase in the provision of floodplain storage".

5.1.19. The detailed design of such measures often requires the developer to undertake detailed hydraulic and hydrological simulations to demonstrate the above, requiring specialist input.

5.1.20. The detailed analysis requirements, infrastructure, material costs and labour often make this method of flood mitigation reasonably costly, however it remains the most commonly adopted method.

5.1.21. A base model will need to be created, agreed with the EA and LLFA for this. The base model will then need to be utilised to run the hydraulic modelling for calculating the volumes of flood storage.

Flood Warning

5.1.22. Establishment of a flood warning system may be considered; however, this would likely be required in conjunction with another mitigation measure. Current warning mechanisms would be registering the scheme as part of the Environment Agency's early warning system (a free service) in conjunction with the provision of a formal Evacuation Plan to be made available to all residents.

5.1.23. This evacuation plan would identify which areas of the site will be likely to flood and the designated safe evacuation routes to be used in the event of a flood, which should in turn be clearly signposted or demarked.

5.1.24. Flood modelling will need to be undertaken to understand the levels required for the evacuation routes.

Flood Defences

5.1.25. Flood defences are discouraged as a mitigation method for new development. Due to site constraints, it is unlikely that there would be suitable space to provide flood defences without increasing flood risk downstream.

Safe access and Egress

5.1.26. As part of the development a safe access/egress route should allow occupants to safely exit and enter the buildings via a 'dry' route above 1 in 100 year flood level to reach land outside the flooded area (e.g.Flood Zone 1) using public rights of way without the intervention of the emergency services or others. Where this is not possible, a route through limited depths of flooding may be acceptable taking account of flow depth and velocity (flood hazard). This is a particularly important consideration for sites located on a 'dry island' or where a change of use is proposed. Safe means of escape should also be provided for sites affected by surface water flooding taking account of predicted flood depths.

5.1.27. Flood levels will need to be determined to facilitate the correct routes throughout the site.

5.2. Mitigation against Pluvial Flooding

5.2.1. In the case of the subject site, it is considered that similar mitigation measures as identified for the fluvial flooding cases would provide satisfactory mitigation in the pluvial case.

5.3. Mitigation against Groundwater Flooding

5.3.1. As has been identified, the risk of groundwater flooding is considered moderate and in particular isolated to subterranean development (i.e. basements).

5.3.2. With this in consideration it is recommended that basement development is discouraged for the scheme, which would provide adequate mitigation.

5.4. Mitigation against Artificial Source Flooding

5.4.1. It is proposed that the Flood Warning Measures and other measures detailed above for Fluvial flooding should be combined with working with the Local Resilience Forum to draw up emergency plans for reservoir flooding. This would suitably mitigate the risks associated with reservoir flooding.

6. SURFACE WATER STRATEGY

6.1. Drainage hierarchy

6.1.1. Current guidance states that a hierarchy of potential methods for discharging of surface water from development must be followed:

i. A soakaway or another adequate infiltration system; or where this is not practical
ii. A watercourse; or where this is not practicable
iii. A sewer.

6.1.2. The Environment Agency and relevant Government Legislation requires that surface water strategies for new development are in line with sustainable development through the use of Sustainable Drainage Systems (SuDS).

6.1.3. Without mitigation and consideration, the proposed redevelopment of the site could lead to an unacceptable increase in the rate and volume of surface water generated from the site.

6.1.4. To comply with current guidance and best practice, sustainable drainage systems (SuDS) will be required to be implemented in order to manage the volume, rate and quality of surface water discharged off-site and to mitigate the existing flooding issues across the site.

6.2. SuDS Management Train

6.2.1. In accordance with the discharge hierarchy, surface water generated by the Proposed Development should be discharged to ground via infiltration, where practicable to do so.

6.2.2. The underlying superficial deposits present at the Application Site exhibit infiltration rates in the order of 6.6×10^{-06} m/s which is considered suitable for accepting surface water via infiltration-based SuDS features.

6.2.3. However, as the site is situated above a principle aquifer and the proximity to a historic landfill site and oil pipeline crossing the site it is not deemed appropriate to infiltrate to ground. Subsequently it is proposed that the Application Site will dispose of the majority of surface water via attenuation with an outfall to the public surface water sewer. Where it is deemed safe to do so following further onsite testing very shallow infiltration techniques could be utilised for some areas.

6.3. Contributing Areas

6.3.1. The proposed site area can be split in to 3 areas:

a. Playing Fields North of Rydens Road (3.15ha)
b. Playing fields and Clubhouse/Gym (4.39ha)
c. Housing (Southern Area) (4.39ha)

6.3.2. These will all be proposed with associated roads, paths and parking. There are significant green areas across the site which are assumed to discharge to the ground.

6.3.3. The Proposed Development proposes a number of new trees and landscaped areas.

6.3.4. As the plans are currently at outline stage only it is assumed that the housing area will have an impermeable area of approximately 45%.

6.4. Allowance for Climate Change

6.4.1. Table 2 (Peak Rainfall Intensity Allowance in Small and Urban Catchments) of Environment Agency (2019) Flood Risk Assessments: Climate Change Allowances confirms the climate change allowance of 40% should be adopted for the Application Site, assuming a lifespan of 100 years.

6.5. Allowance for Creep

6.5.1. The proposed houses will need to have an creep allowance included. This is to be estimated within the calculations as an additional 10% roof area.

6.6. Proposed Drainage

6.6.1. The proposed drainage strategy will be split in to the following areas.

a. Playing Fields North of Rydens Road
b. Playing fields and Stand/Gym
c. Housing (Southern Area)

6.6.2. The proposed surface water strategy is to utilise source control and attenuation via lined swales, attenuation basins and where required below ground storage throughout the site. The new attenuation will be designed for the 1 in 100 year event + 40 % allowance for climate change.

6.6.3. It is assumed that all footpaths will either be permeable and drain to ground or where required drain to the adjacent soft.

6.6.4. The proposed playing fields will be provided with an outfall if required following design by a specialist.

6.7. Water Quality

6.7.1. It is proposed that the site could utilise flow paths through rills and a short network of piped network with tree pits designed to act as filters and catchpits prior to discharge to any larger attenuation facility.

6.7.2. Private parking areas will utilise a flow path through lined permeable paving prior to discharge via the proposed piped network.

6.7.3. The introduction of SuDS features via the lined permeable paving, lined attenuation basin and the use of conventional piped networks suggest that the vulnerability of water quality within the aquifer is considered to be low.

6.8. Existing networks

6.8.1. Where existing private surface water networks exists, these will be CCTV surveyed and removed if there are no proposed live connections.

6.8.2. Where there are live connections that need to be maintained the connections will be diverted.

6.9. Adoptable Roads Runoff Management

6.9.1. Surface water drainage required to serve areas of new public highway will need to meet the standards of the highway authority, therefore a traditional system of trapped road gullies is proposed that will drain into the onsite surface water network.

6.10. Required Maintenance Schedule

6.10.1. To ensure the long term performance of the proposed DS, the onsite drainage system will be owned and maintained by the site operator or a maintenance company (MC) in accordance with the indicative schedule below. The proposed public highway infrastructure will be owned and maintained by the Highway Authority. However, at the detailed drainage design stage a full management and maintenance plan detailing best practice system maintenance regimes and proprietary manufacturer requirements and lifecycle management, in accordance with the CIRIA SuDS Manual will need to be produced. Maintenance of the overall drainage network will be the responsibility of an appointed management company.

ELEMENT / DRAINAGE COMPONENT	OWNERSHIP / ADOPTION	MAINTENANCE REQUIREMENTS
Permeable Paving	Site Operator / MC	Non-aggressive brushing of the whole surface (avoiding disruption of the jointing material, with suction rates adjusted, based on a trial), either manually or mechanically carried out annually. Top up of the gritstone may be required after cleaning. Weed control – excessive weed growth can be managed by localised spot-treatment with weed killers, in accordance with suppliers' recommendations. Where there are no physical barriers between the verge and permeable paving inspection and sweeping will be required quarterly. **Inspection annually.**
Catchpit Manholes	Site Operator / MC	To be monitored for silt build-up and cleaned as required using suction methods. **Inspection annually and before / after extreme storm events**.
Rain Water Pipes	Site Operator / MC	Clearance of leaves / debris from guttering and hopper inlets. Rodding points provided to clear blockages via conventional rodding methods. **Inspection annually and before / after extreme storm events.**
Soil Vent Piles / "Stub Stacks"	Site Operator / MC	Rodding points to be provided to clear blockages via conventional rodding methods. **Inspection annually**.
Gullies (Internal & External)	Site Operator / MC	To be monitored for silt build-up and cleaned as required. Where provided, ensure air traps are primed and sealed to prevent smells. **Inspection quarterly.**

7. PROPOSED FOUL WATER DRAINAGE STRATEGY

7.1.1. The surrounding area is well served by private and public foul sewers which fall under the control of Thames Water, the new development within the site will impact on the sewerage network and existing sewers will need protecting as part of the development.

7.1.2. Where appropriate it is proposed to connect on to existing sewers. Where necessary, new connection to the Public Foul Sewer network will be made or indirect connections via diverted private sewers.

7.1.3. The Private Foul sewers built as part of the development will be constructed in accordance with Building Regulations Part H.

7.1.4. There is a proposed increase in foul flow is part of the overall outline development which will require confirming once the proposed number of dwellings is known.

7.1.5. An application to confirm the capacity within Thames Water's public sewer network should be submitted to confirm if there are any issues with regards to timing of the proposed development. It should be noted that following the introduction of "New Connection Charging" in April 2018, it is the responsibility of Thames Water to provide capacity for new developments.

8. CONCLUSIONS

8.1.1. It has been identified that the proposed development falls within Flood Zones 1,2 and 3 and therefore will require mitigations to be implemented to satisfy the requirements of the NPPF.

8.1.2. The EA have been contacted to provide detailed information on their available fluvial models and historic information. At this time, the response has not yet been received. The report will need to be updated to take this additional information in to account.

8.1.3. The EA information will confirm the current depth of flooding modelled from rivers across the site.

8.1.4. It has been identified that the site may experience localised pluvial flooding above a depth of approximately 900mm under current conditions during a 1:1000 year rainfall event.

FLOOD	RISK
Fluvial Flooding	Medium
Pluvial Flooding	Medium to Low
Tidal Flooding	Very Low
Groundwater Flooding	Medium to Low
Flooding from Artificial Sources	High

8.1.5. The report has looked at the options for mitigating the highlighted flood risks. To detail these further flood level information will need to be obtained and verified.

8.1.6. Initial areas for flood mitigation options have been identified on the Outline strategy plan.

8.1.7. Housing will need to be raised up to 300mm above the 1 in 200 flood level to be modelled and agreed with the EA.

8.1.8. Once the mitigation methods have been agreed and implemented it can be determined that the site would be suitable for development as shown within the masterplan.

8.1.9. Although, the development site is brownfield there is no formal surface water drainage that has been identified on the site. Surface Water falls on existing buildings and parking surface and makes its way to the soft which is to be confirmed via a full topographic and CCTV survey.

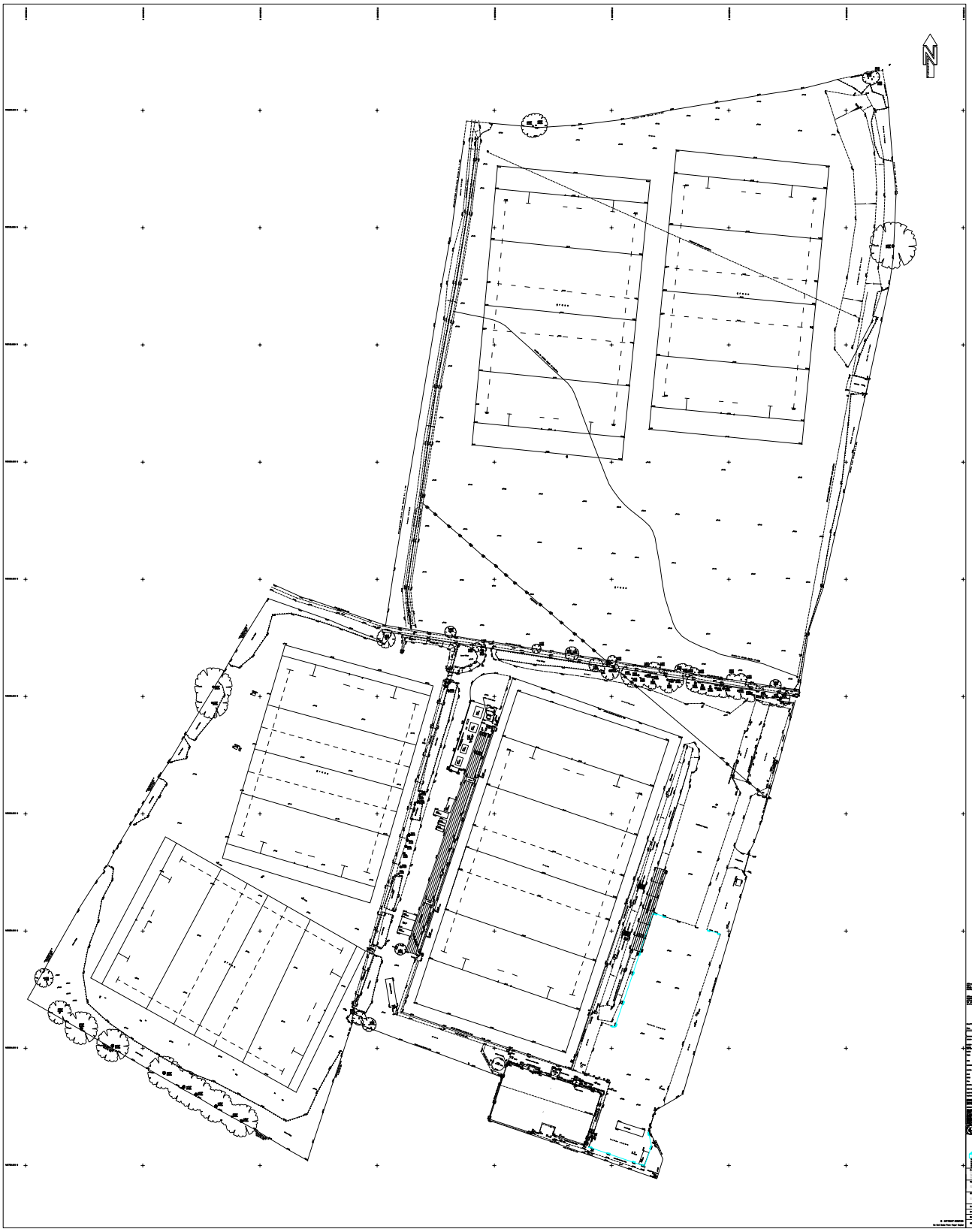
8.1.10. The proposed surface water strategy is to utilise source control and attenuation via lined swales, attenuation basins and where required below ground storage throughout the site. The new attenuation will be designed for the 1 in 100 year event + 40 % allowance for climate change.

8.1.11. It is assumed that all footpaths will either be permeable and drain to ground or where required drain to the adjacent soft.

8.1.12. The surrounding area is well served by private and public foul sewers which fall under the control of Thames Water. All the new dwellings and stadium/gym will be connected via gravity sewers to the existing Thames Water sewers.

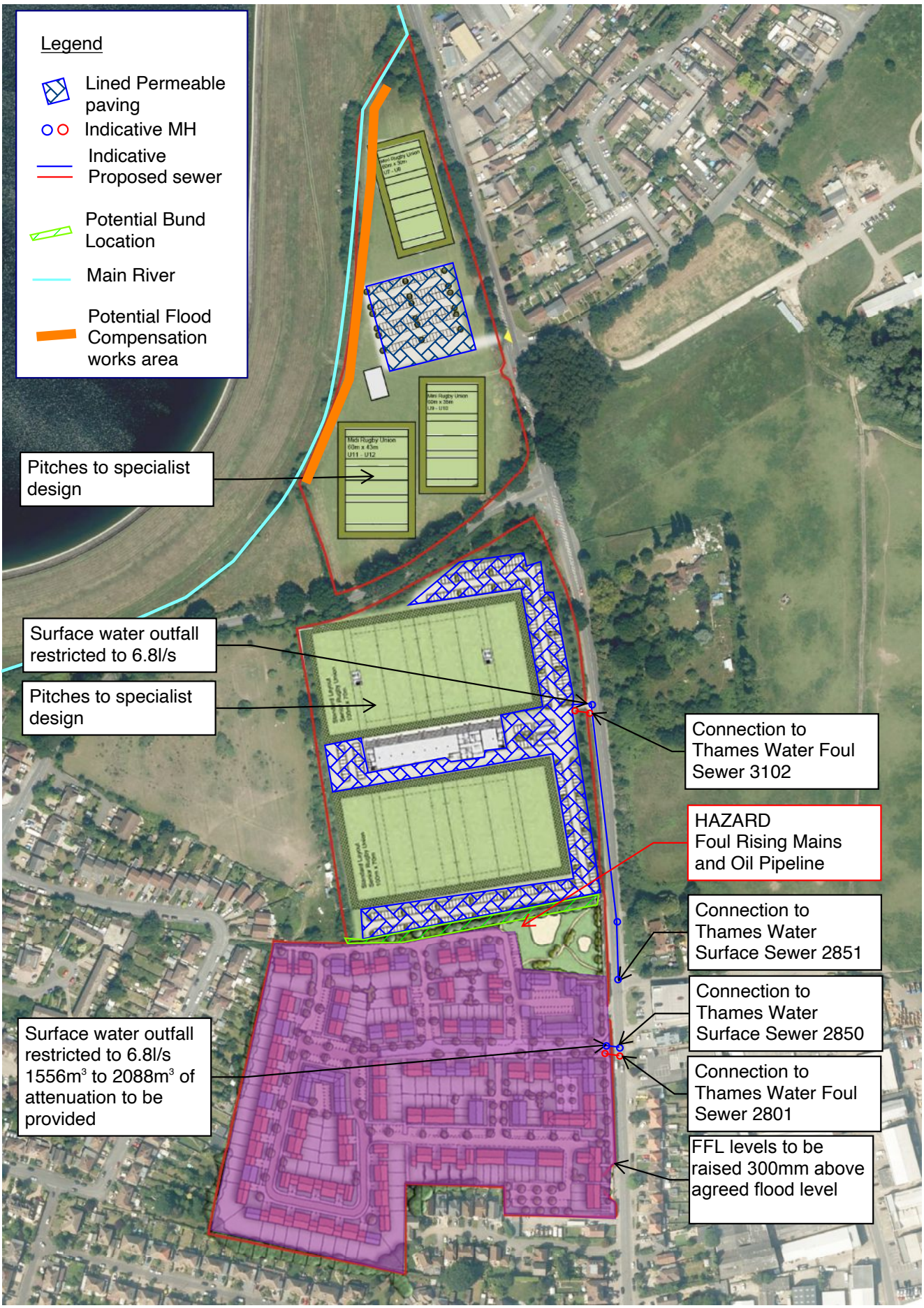
8.1.13. The Flood Risk Assessment has therefore demonstrated that the development of the site can be delivered in a safe and sustainable manner subject to the implementation of the discussed mitigation measure; the proposed surface water strategy would provide suitable surface water management in terms of runoff and quality and will result in a no change in flood risk downstream of the site.

APPENDIX A – TOPOGRAPHICAL SURVEY



APPENDIX B - PROPOSED MASTER PLAN

APPENDIX C – PROPOSED OUTLINE STRATEGY



APPENDIX D – THAMES WATER ASSET RECORDS

Asset location search

Property Searches

Ridge and Partners LLP
Partnership House
Moorside Road
WINCHESTER
SO23 7RX

Search address supplied KT12 3PF

Your reference 5004531

Our reference ALS/ALS Standard/2017_3681141

Search date 3 November 2017

Keeping you up-to-date

Knowledge of features below the surface is essential in every development. The benefits of this not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility for any commercial or residential project.

An asset location search provides information on the location of known Thames Water clean and/or wastewater assets, including details of pipe sizes, direction of flow and depth. Please note that information on cover and invert levels will only be provided where the data is available.

Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0845 070 9148

Asset location search

Property Searches

Search address supplied: KT12 3PF

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Asset location search

Thames Water Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an ‘as constructed’ record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ
Tel: 0845 7823333

Asset location search

Property Searches

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Asset location search

Property Searches

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

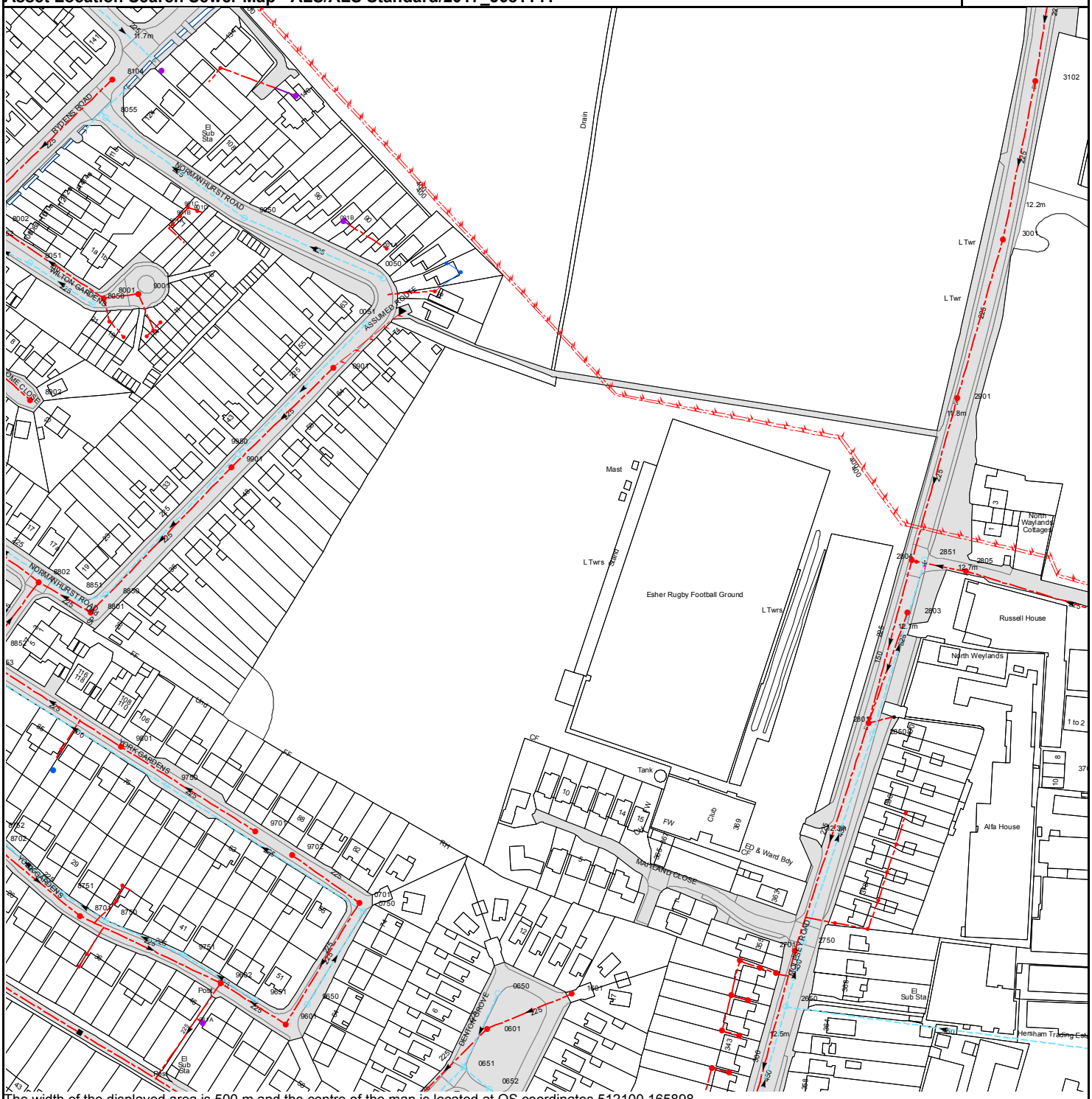
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Sewer Map - ALS/ALS Standard/2017_3681141



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 512100,165898

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
2650	12.54	11.11
2701	12.58	7.96
2750	12.53	11.09
271E	n/a	n/a
271F	n/a	n/a
271D	n/a	n/a
271C	n/a	n/a
271B	n/a	n/a
271A	n/a	n/a
2850	12.25	11.01
2801	12.22	8.32
2803	12.26	10.63
2805	12.57	9.99
2804	12.1	8.53
2851	12.04	10.77
2901	11.99	8.59
3001	12.19	8.88
3102	11.92	9
0652	12.55	11.57
16TR	n/a	n/a
16TQ	n/a	n/a
0651	12.56	11.62
16TW	n/a	n/a
16TV	n/a	n/a
0601	12.58	10.16
16TS	n/a	n/a
16TT	n/a	n/a
0650	12.58	11.75
1601	12.82	10.47
27TW	n/a	n/a
17ZV	n/a	n/a
17ZW	n/a	n/a
0750	12.67	11.9
9901	11.96	10.54
9950	11.96	11.17
0901	12.03	10.8
0051	12.08	11.22
001E	n/a	n/a
0050	12.04	11.29
001F	n/a	n/a
001C	n/a	n/a
001A	n/a	n/a
001B	n/a	n/a
9050	11.93	11.08
901D	n/a	n/a
911F	n/a	n/a
911G	n/a	n/a
9750	12.42	11.47
9751	12.55	11.8
961A	n/a	n/a
9602	12.54	10.26
9651	12.62	11.91
9701	12.42	10.87
9601	12.66	10.47
9702	12.43	10.9
9650	12.79	11.9
0701	12.53	10.75
991C	n/a	n/a
991B	n/a	n/a
991A	n/a	n/a
901E	n/a	n/a
801A	n/a	n/a
8001	11.95	10.81
9001	12.05	10.85
901A	n/a	n/a
901B	n/a	n/a
901C	n/a	n/a
8055	11.7	10.82
8104	n/a	n/a
911K	n/a	n/a
8802	11.77	10.09
871D	n/a	n/a
881A	n/a	n/a
8751	12.35	11.64
8851	11.71	11.03
8701	12.43	10.74
871C	n/a	n/a
8801	11.74	10.23
8750	12.42	11.71
8850	11.76	11.11
971B	n/a	n/a
9801	12.3	10.65
971A	n/a	n/a
8902	12.13	10.21
8051	11.94	10.86
8050	11.97	11.01
871B	n/a	n/a

ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Fitting

Meter

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gulley

Culverted Watercourse

Proposed

Abandoned Sewer

Notes:

1) All levels associated with the plans are to Ordnance Datum Newlyn.

2) All measurements on the plans are metric.

3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.

4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

5) 'na' or '0' on a manhole level indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0845 070 9148** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

APPENDIX E – SURFACE WATER CALCULATIONS

Greenfield Runoff Volume

FSR Data

Return Period (years)	1
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	20.000
Ratio R	0.400
Areal Reduction Factor	1.00
Area (ha)	11.930
SAAR (mm)	617
CWI	90.060
Urban	0.000
SPR	30.000

Results

Percentage Runoff (%)	21.27
Greenfield Runoff Volume (m^3)	554.987

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.300
Area (ha)	11.930	Urban	0.000
SAAR (mm)	613	Region Number	Region 7

Results l/s

QBAR Rural	18.6
QBAR Urban	18.6
Q100 years	59.4
Q1 year	15.8
Q30 years	42.2
Q100 years	59.4

Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	20.000
Ratio R	0.400
Areal Reduction Factor	1.00
Area (ha)	11.930
SAAR (mm)	617
CWI	90.060
Urban	0.000
SPR	30.000

Results

Percentage Runoff (%)	25.24
Greenfield Runoff Volume (m^3)	1882.497

Greenfield Runoff Volume

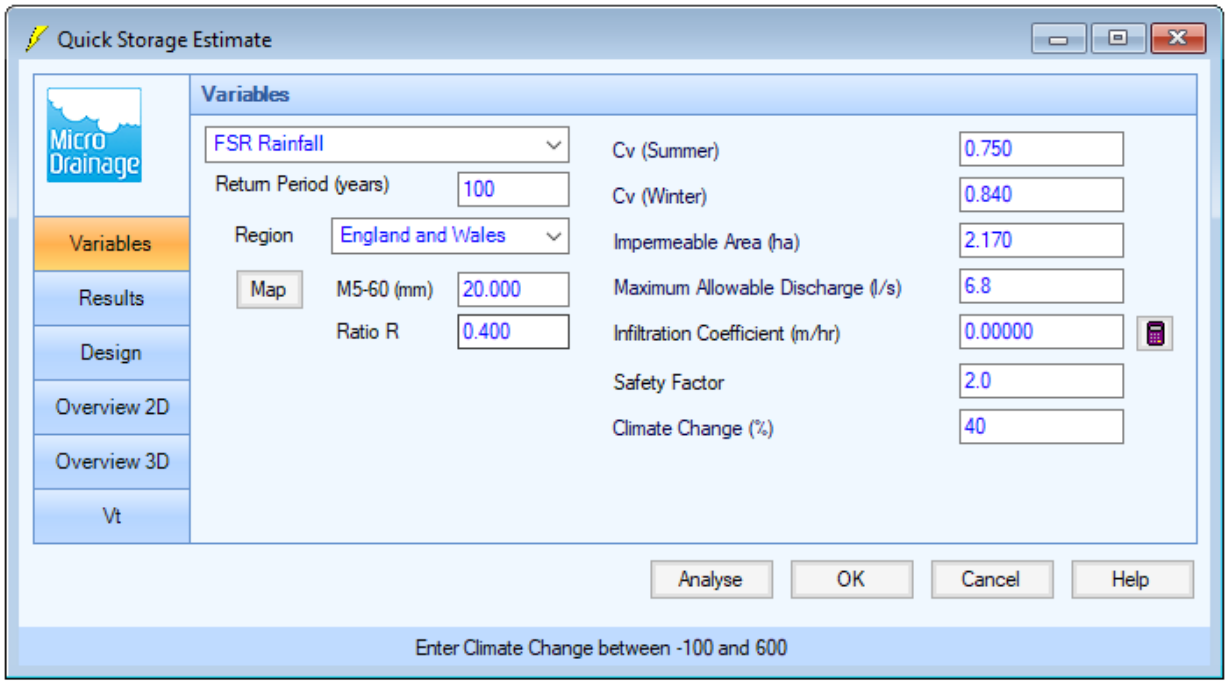
FSR Data

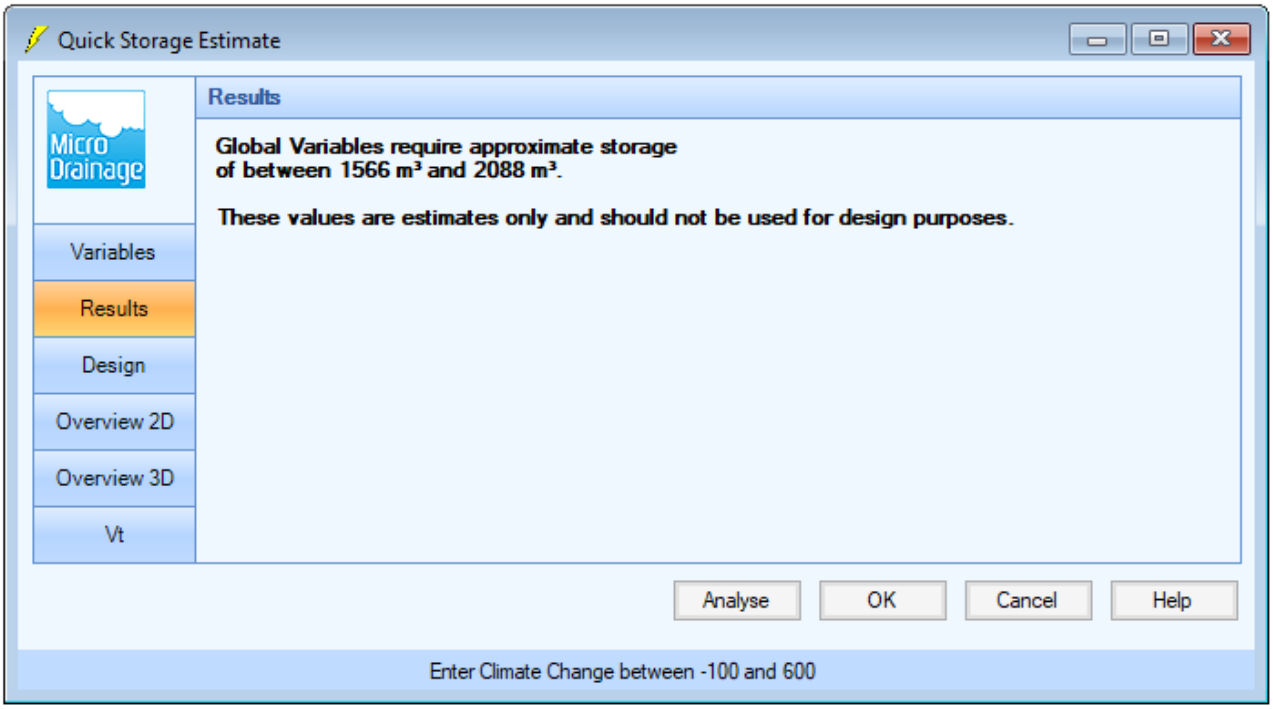
Return Period (years)	30
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	20.000
Ratio R	0.400
Areal Reduction Factor	1.00
Area (ha)	11.930
SAAR (mm)	617
CWI	90.060
Urban	0.000
SPR	30.000

Results

Percentage Runoff (%)	23.23
Greenfield Runoff Volume (m^3)	1335.889

Storage requirement for Housing area & Stdaium/Gym





APPENDIX F – ELMBRIDGE BOROUGH COUNCIL PROFORMA

Elmbridge Borough Council
... bridging the communities ...

Flood Risk Assessment Proforma

Please note: Not all elements of this Profroma will need to be completed for all developments. The level and scope of the FRA will depend on the degree and type of flood risk, scale and nature of the development, its vulnerability classification and whether or not the Sequential and Exceptions Tests are required. Applicants should use Flood Risk SPD to scope out the requirements and are strongly encouraged to use the pre-applications services available (Section 2.1). **The completion of an FRA will not automatically mean that the development is acceptable in flood risk terms.**

1. Site Description

What to Include in the FRA		Source(s) of information	Summary	Reference to Section of FRA
Site address	-	-		
Site description	-	-		
Location Plan	Including geographical features, street names, catchment areas, watercourses and other bodies of water	SFRA Appendix B		
Site plan	Plan of site showing development proposals and any structures which may influence local hydraulics e.g. bridges, pipes/ducts crossing watercourses, culverts, screens, embankments, walls, outfalls and condition of channel	OS Mapping		

2. Proposed Development

What to Include in the FRA		Source(s) of information	Summary	Reference to Section of FRA
Vulnerability Classification	Determine the vulnerability classification of the development. Is the vulnerability classification appropriate within the Flood Zone?	SPD Appendix 1		

3. Assessing Flood Risk

What to Include in the FRA		Source(s) of information	Summary	Reference to Section of FRA
The level of assessment will depend on the degree of flood risk and the scale, nature and location of the proposed development. Refer to Table 7-1 of the SFRA regarding the levels of assessment. Not all of the prompts listed below will be relevant for every application.				
Topography	Include general description of the topography local to the site. Where necessary, site survey may be required to confirm site levels (in relation to Ordnance datum).	Topography		
Landscape and Vegetation	Include a description of the landscape and existing vegetation on the site.	SPD Section 3.1		
Geology	General description of geology local to the site.	SPD Section 3.1		
Watercourses	Identify Main Rivers and Ordinary Watercourses local to the site.	SPD Section 3.2		
Flooding from Rivers	Provide a plan of the site and Flood Zones.	SPD Section 3.2 SFRA Appendix C		

	Identify any historic flooding that has affected the site, including dates and depths where possible. How is the site likely to be affected by climate change? Determine flood levels on the site for the 1% annual probability (1 in 100 chance each year) flood event including an allowance for climate change. Determine flood hazard on the site (in terms of flood depth and velocity). Undertake new hydraulic modelling to determine the flood level, depth, velocity, hazard, rate of onset of flooding on the site.	Environment Agency Products 1-7. New hydraulic model.		
Flooding from Land	Identify any historic flooding that has affected the site.	SPD Section 3.2 SFRA Appendix D. Topographic survey. Site walkover. New modelling study.		
Flooding from Groundwater	Desk based assessment based on high level BGS mapping in the SFRA.	SPD Section 3.2 SFRA Appendix B, Figure B2, B3, B5. Ground Investigation Report Hydrology Report		

Flooding from Sewers	Identify any historic flooding that has affected the site.	SPD Section 3.2 SFRA Appendix B Figures B7 and B8. Where appropriate an asset location survey can be provided by Thames Water Utilities Ltd www.thameswater-propertysearches.co.uk/		
Reservoirs, canals and other artificial sources	Identify any historic flooding that has affected the site.	SPD Section 3.2 Risk of Flooding from Reservoirs mapping (EA website).		

This form is completed using factual information and can be used as a summary of the Flood Risk Assessment on this site.

Form Completed By _____

Qualification of person responsible for signing off this template _____

Company _____

On behalf of (Client's details) _____

Date _____

Contact information

tplan@elmbridge.gov.uk
www.elmbridge.gov.uk/planning

View our privacy notice here

APPENDIX G – SITE INVESTIGATION REPORT

soils LIMITED

Newton House
Cross Road
Surrey KT20 5SR

01737 816 089
soilslimited.co.uk

Ridge & Partners LLP
Our Ref: 16565/FR
20th October 2017

Dear Adrian,

RE: Esher RFC, 369 Molesey Road, Walton-on-Thames KT12 3PF

Soils Limited were commissioned by Ridge & Partners LLP on behalf of the client (Esher RFC) to undertake infiltration testing, in accordance with BRE DG365, within machine excavated trial pits excavated by Soils Limited, at the site known as Esher Rugby Football Club. The original quote Q19200 stated 3No. Machine excavated trail pits to depths of 2.20m bgl. Further to the presence of numerous underground services including an oil pipeline the scope of the works was amended to a single test location.

1.1 Introduction

On the 16th October 2017 Soils Limited, attended site to undertaken infiltration testing within a single machine excavated trial pit. On arrival TP1 was excavated to a depth of 2.00m bgl when groundwater was stuck and observed to rise to a depth of 1.70m bgl after 40 mins. TP1 was then backfilled and a second pit, TP2, excavated approximately 2m to the north to a depth of 1.30m bgl. Infiltration testing was commenced in TP2 and was observed and recorded for 3hrs before refilling TP2 with clean water for a second test which was observed for 1 hour.

1.2 Anticipated Geology

The geology of the site was anticipated to be London Clay Formation overlain by Kempton Park Gravel Member.

1.3 Encountered Ground Conditions

Made Ground was encountered from ground level in each trial pit to a depth of 0.60m bgl and typically consisted of 3 units.

The first was 4-6cms of Tarmac. Underlain by:
Dark orange brown slightly clayey, slightly gravelly, silty coarse SAND. Gravel was comprised of fine to medium angular concrete and brick fragments. To depths between 0.25 and 0.30m bgl.

Further underlain by:
Dark grey slightly clayey, slightly gravelly silty fine to coarse SAND. Gravel comprised fine to medium angular to sub angular, rounded to sub rounded flints brick and concrete. To a depth of 0.60m bgl.

Below the Made Ground in TP1 and TP2 was the Kempton Park Gravel Member consisting of:
Light greenish grey slightly silty, slightly gravelly, clayey fine to coarse SAND. Gravel was comprised of fine to medium angular flint gravels. To a depth of 1.30m bgl.

In TP1, the deeper of the two trial pits, this was underlain by a different unit within the Kempton Park Gravel Member consisting of:
Dark greenish grey slightly silty, slightly sandy, slightly clayey, gravelly fine to coarse SAND. Gravel was comprised of sub angular to sub rounded fine to medium angular flint gravels to a depth of 2.00m bgl.

TP1 and TP2 were terminated respectively at 2.00m bgl and 1.30m bgl.

The trial pit locations are presented in Figure 1 and full engineering logs appended to the end of this report.

1.4 Infiltration Testing

Infiltration testing was undertaken in TP2 within the Kempton Park Gravel Member following the principles of BRE DG365 Soakaway design: 2016. BRE DG365 states that for an accurate infiltration rate to be obtained a soakage pit needs to be filled three times in quick succession. Each test can only be ended once 75% of the water present has drained away.

Two tests were carried out within TP2. Both tests were ended prior to 75% of the water draining. In house software was used to interpret the results and to calculate an indicative infiltration rate.

The calculated rates are outlined in Table 1.1. These results are indicative as the results have been extrapolated in both tests.

Table 1.1 Indicative Infiltration Rates

Trial Hole	Test No.	Indicative Infiltration Rate (m/s)
TP2	1	6.597×10^{-06}
TP2	2	5.564×10^{-06}

1.5 Reinstatement

The reinstatement of both TP1 and TP2 comprised backfilling and compacting of arisings in reverse order and in thin layers using the bucket of an excavator. The surface gravel, that was carefully scraped off the tarmac before excavation, was reinstated at the surface after the trial pits had been backfilled. Figure 2 shows the completed reinstatement of TP1 & TP2. It must be noted that some post backfilling settlement of the test pits may occur. This is unavoidable as it is not possible to backfill and compact a test pit to the same density as the original in-situ soil.

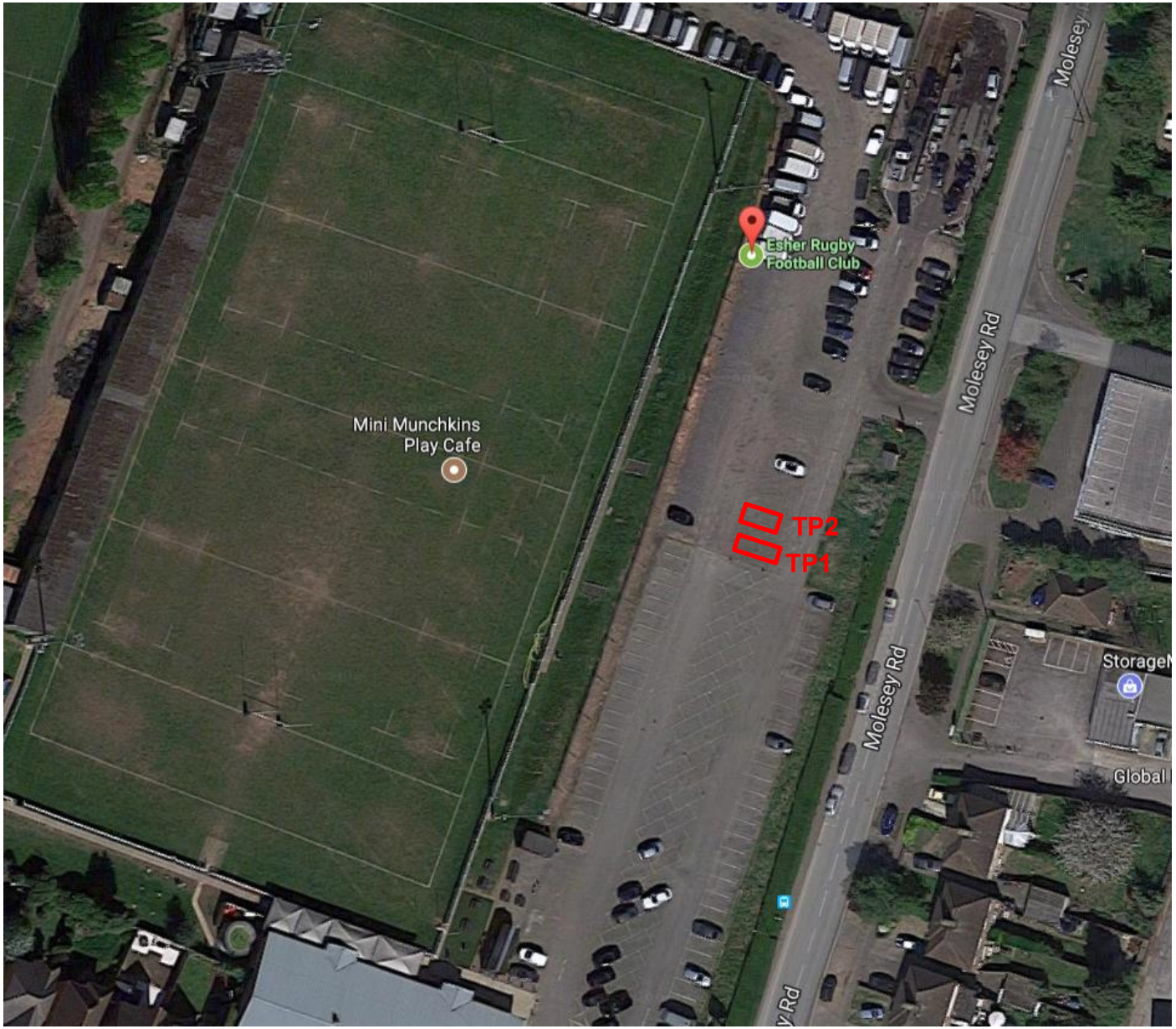
The following figures and data complete this report:

Should you have any further questions please do not hesitate to contact the undersigned.

Yours Sincerely,

T A Stempt BSc, MSc, FGS
Graduate Geo-Environmental Engineer
ts@soilslimited.co.uk

Figure 1 – Trial Hole Plan



Project
Esher RFC, 369 Molesey Road, Walton-on-Thames KT12 3PF

Client
Esher RFC

Date
October 2017

Job Number
16565

Figure 2 – Trial Pit Reinstatement

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Soakaway Calculations

Soakaway Test No.	TP2 Test 1
Contract:	Esher RFC, 369 Molesey Road
Contract No.	16565

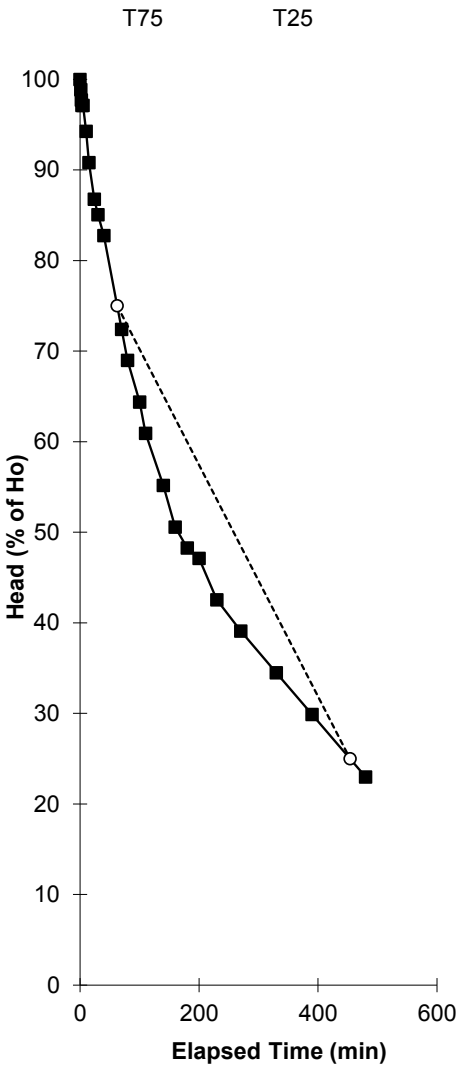
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	1.30	m
Width of Pit	0.65	m
Length of Pit	1.85	m
Depth of Pit Soaked	0.87	m
ap50	3.3775	m2
Vp75-25	0.5230875	m3
t75-25	391.3	min
water used	1.0462	m3
f	6.597E-06	m/sec.

Field Data

Depth to Water (m)	Elapsed Time (min)	Head of Water (% of Ho)	Head of Water (m)
0.43	0	100	0.87
0.44	1	99	0.86
0.45	2	98	0.85
0.46	3	97	0.85
0.46	5	97	0.85
0.48	10	94	0.82
0.51	15	91	0.79
0.55	24	87	0.76
0.56	30	85	0.74
0.58	40	83	0.72
0.67	70	72	0.63
0.70	80	69	0.60
0.74	100	64	0.56
0.77	110	61	0.53
0.82	140	55	0.48
0.86	160	51	0.44
0.88	180	48	0.42
0.89	200	47	0.41
0.93	230	43	0.37
0.96	270	39	0.34
1.00	330	34	0.30
1.04	390	30	0.26
1.10	480	23	0.20



T75	62.500	75
T25	453.750	25
T75-25	391.250	Derived from Best Fit

Comments

Extrapolated data used after 180mins in order to calculate indicative infiltration rate

SOILS LIMITED

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Soakaway Calculations

Soakaway Test No.	TP2 Test 2
Contract:	Esher RFC, 369 Molesey Road
Contract No.	16565

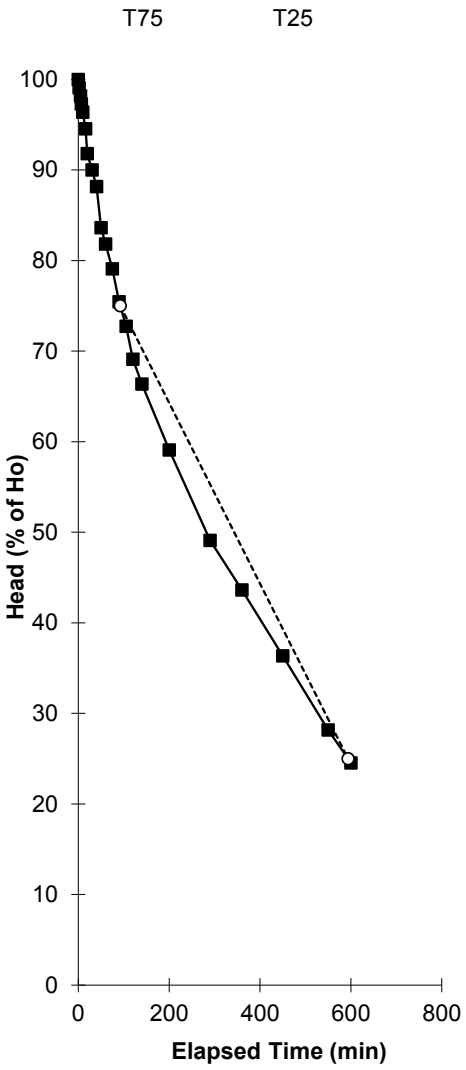
Field Test

Trial Pit Log (include details of groundwater):
See trial Pit record

Depth of Pit	1.30	m
Width of Pit	0.65	m
Length of Pit	1.85	m
Depth of Pit Soaked	1.10	m
ap50	3.9525	m2
Vp75-25	0.661375	m3
t75-25	501.3	min
water used	1.3228	m3
f	5.564E-06	m/sec.

Field Data

Depth to Water (m)	Elapsed Time (min)	Head of Water (% of Ho)	Head of Water (m)
0.2	0	100	1.10
0.21	2.0	99	1.09
0.22	5.0	98	1.08
0.23	7.0	97	1.07
0.24	10.0	96	1.06
0.26	16.0	95	1.04
0.29	20.0	92	1.01
0.31	30.0	90	0.99
0.33	40.0	88	0.97
0.38	50.0	84	0.92
0.4	60.0	82	0.90
0.43	75.0	79	0.87
0.47	90.0	75	0.83
0.50	105.0	73	0.80
0.54	120.0	69	0.76
0.57	140.0	66	0.73
0.65	200.0	59	0.65
0.76	290.0	49	0.54
0.82	360.0	44	0.48
0.9	450.00	36	0.40
0.99	550.00	28	0.31
1.03	600.00	25	0.27



T75	92.500	75
T25	593.750	25
T75-25	501.250	Derived from Best Fit

Comments

Extrapolated data used after 120mins in order to calculate indicative infiltration rate

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Trial Pit Log

Trial Pit No. **TP1** Sheet 1 of 1

Project Name: Esher RFC,	Project No.: 16565	Method:	Hole Type: TP
Location: 369 Molesey Road, Walton-on-Thames KT12 3PF		Plant:	Scale: 1:25
Client: Ridge and Partners LLP	Trial Pit Length: m	Trial Pit Width: m	Support:
Dates: 16-10-2017	Level:	Co-ords:	Logged By: GB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.06			TARMAC
	0.20	D					Dark orange brown, slightly clayey, slightly gravelly, silty, coarse SAND. Gravel is comprised of fine to medium angular concrete and brick fragments. MADE GROUND
				0.30			Dark grey, slightly clayey, slightly gravelly, silty, fine to coarse SAND. Gravel is comprised fine to medium angular to sub angular, rounded to sub rounded flints brick and concrete. MADE GROUND
	0.50	B		0.60			light greenish grey slightly silty, slightly gravelly, clayey fine to coarse SAND. Gravel is comprised of fine to medium angular flint gravels. KEMPTON PARK GRAVEL MEMBER
	1.00	D					
▼				1.30			Dark greenish grey slightly silty, slightly sandy, slightly clayey, gravelly fine to coarse SAND. Gravel is comprised of sub angular to sub rounded fine to medium angular flint gravels. KEMPTON PARK GRAVEL MEMBER
▽				2.00			End of Pit at 2.00m

General Remarks:

No roots observed. Groundwater encountered at 2.00m bgl, standing at 1.70m bgl after 40 minutes.

Groundwater Remarks:

Sample Type
D: Disturbed
B: Bulk
J: Jar
W: Water

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Trial Pit Log

Trial Pit No. **TP2** Sheet 1 of 1

Project Name: Esher RFC,	Project No.: 16565	Method:	Hole Type TP
Location: 369 Molesey Road, Walton-on-Thames KT12 3PF		Plant:	
		Support:	Scale 1:25
Client: Ridge and Partners LLP	Trial Pit Length: m	Trial Pit Width: m	
Dates: 16-10-2017	Level:	Co-ords:	Logged By GB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.04			TARMAC
				0.15			Dark brown/black, fine sandy, Gravel. Gravel is comprised of ash and clinker. (Tarmac fill)
	0.20	D		0.25			Light brown, soft to firm gravelly CLAY. Gravel is comprised of fine to medium brick and flint. Flints up to 10cm in diameter. MADE GROUND
	0.30	D					
	0.50	B		0.60			Dark grey brown, slightly clayey, slightly gravelly, silty, fine to coarse SAND. Gravel is comprised of fine to medium angular to sub angular, rounded to sub rounded flints, brick and ash fragments. MADE GROUND
	0.80	D					Light greenish grey slightly silty, slightly gravelly, clayey fine to coarse SAND. Gravel is comprised of fine to medium angular flint gravels. KEMPTON PARK GRAVEL MEMBER
	1.25	D		1.30			End of Pit at 1.30m

General Remarks:
No roots observed. No groundwater encountered.

Groundwater Remarks:

Sample Type
D: Disturbed
B: Bulk
J: Jar
W: Water

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