Winchester Local Plan

Land at Wickham Park – Regulation 19 Representations

On behalf of **Wickham Park Property Ltd**

Project Ref: 333101342 | Date: October 2024

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For and on behalf of Stantec UK Limited				

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Appendices

1 Introduction

1.1 These representations are submitted on behalf of Wickham Park Property Ltd, who control the golf complex known as Wickham Park, located to the south-west of Wickham, a village in the civil parish of Wickham and Knowle in Winchester District. Wickham Park is accessed from Titchfield Lane and comprises one 18-hole golf course, a clubhouse and a driving range.

1.2 Wickham Park Property Ltd has reviewed options for the future of the Wickham Park Golf Club. Given its relationship to Wickham and proximity to the village centre, the northern part of the course of 19.27ha (hereafter referred as 'the Site') is ideally placed to provide a sustainable residential extension to Wickham along with high-quality, publicly accessible open space and biodiversity resource.

1.3 Through reconfiguration, the proposals will retain an 18-hole golf course and associated facilities whilst releasing 19.27ha for redevelopment, 10.91ha of which will be new publicly accessible open space (approximately 57%).

1.4 The Winchester City Council (WCC) Strategic Housing and Employment Availability Assessment (July 2023: 'the SHELAA') was updated following the Regulation 18 consultation between November and December 2022. This assesses the northeastern part of the site (Site ref. WI09, page 16) as developable and deliverable in the short-term (i.e. years 0 to 5 of the draft Local Plan). However, the Regulation 19 Submission Version Local Plan (2024) does not include land at Wickham Park as a draft allocation for new homes.

1.5 The development strategy of the adopted Local Plan (2013; see Policy DS1) is to direct development to Winchester and South Hampshire Urban Areas (SHUA) where approximately 10,000 of the District's 12,500 new dwellings are to be delivered (80% of all homes). The draft Local Plan continues to prioritise Winchester and the SHUA as the focus for growth. The number of homes to be delivered in these areas is 11,290 of the overall housing provision of 15,465 (approximately 73% of all homes). In short, the development strategy remains similar.

1.6 Despite settlements such as Wickham being identified as higher order settlements in the Settlement Hierarchy (August 2024) with a good range of services and facilities, very few homes have historically been built/ allocated here. WCC's latest Monitoring Report (2022/23, published December 2023: 'the AMR') advises that there were only 79 net housing completions in Wickham between April 2011 and April 2023, against a requirement of 250, with just three houses completed in 2022 – 2023. This is despite the Strategic Housing Market Assessment (July 2024: 'the SHMA') advising that the 'Southern Sub-Area' of the District, which includes Wickham, has the highest rate of households with dependent children (see 4.6) and the strongest overall population growth (in percentage terms, see 4.46). The Southern area saw strong population increases across all age bands (see 4.47) and the smallest average household size of additional households (see 4.50).

1.7 This indicates higher levels of housing delivery and a broader range of types/ sizes of homes is required to meet the needs of the community and maintain the vitality of settlements such as Wickham. Continuing with a strategy that allocates very few homes to Wickham limits opportunities to address the evidenced issues, preventing the community from adapting/ evolving and threatening its future sustainability.

1.8 The concerns with the strategy of the draft Local Plan can be addressed through the allocation of additional sustainable residential sites at Wickham. Whilst the draft Local Plan allocates two small sites at Wickham to provide approximately 100 homes over the Plan period to 2040, this will make only a limited contribution to addressing the issues of very low housing delivery and high levels of households with dependent children. It is clear that additional residential allocations are required to meet identified needs and provide for the longer-term sustainability of the settlement. Land at Wickham Park is ideally placed to provide a sustainable residential extension to Wickham that retains a compact settlement and delivers additional benefits in terms of publicly accessible open space, improved walking routes/ connectivity and potential on-site flood and nutrient mitigation measures.

1.9 These representations, along with the Turley Vision Document (**Appendix 1**), Transport Planning Representations (**Appendix 2**), Flood Risk Scoping Report (**Appendix 3**), and Initial Nutrient Budget Calculation and Mitigation Optioneering (**Appendix 4**), demonstrate that the Site is available, suitable and achievable for residential development of approximately 300 homes and ought to be considered for allocation to assist the delivery of much-needed market and affordable homes (including a range of dwelling sizes) in the southern part of the District. The southern part of the Site would remain as an 18-hole golf course to maintain separation between the areas of Wickham and Knowle and the greenspaces would be significantly enhanced and provided as high-quality public open space providing notable recreational benefits to the community in addition to enhancements in biodiversity.

2 Development Strategy

Settlement Hierarchy

2.1 WCC has undertaken a Settlement Hierarchy review. The purpose of this is to identify the hierarchy of settlements in the District based on access to a range of services and facilities without the need to travel by private car, and inform the development strategy in the draft Local Plan.

2.2 This establishes Winchester as the principal settlement with Bishop's Waltham and New Alresford as Market Towns followed by Larger Rural Settlements, which are defined as those areas which scored 22-26 in the Settlement Hierarchy review. This includes Wickham, which is the fifth most sustainable settlement within the Plan area and the Settlement Hierarchy scored Wickham the highest of all the 'Larger Rural Settlements'. Bishop's Waltham and New Alresford are defined as 'Market Towns', the next settlement tier up from 'Larger Rural Settlements'. However, draft Strategic Policy E3 defines Wickham town centre as a 'District Centre', the same tier as Bishop's Waltham and New Alresford. This indicates the range of uses and activities present in Wickham, and thus the sustainability of the settlement.

2.3 This makes Wickham ideally placed as a location for new homes to support the services and facilities and maintain a self-sufficient settlement for the long-term. Based on the sustainability of the settlement and range of services available, Wickham should be higher in the Settlement Hierarchy and only 100 new dwellings being proposed in Wickham is inconsistent with the approach set out for the Larger Rural Settlements.

Spatial Distribution

2.4 The strategy of the adopted Local Plan Part 1 (joint WCC and South Downs National Park Authority 2013: see Policy DS1) is to first direct growth and development to Winchester and the SHUA, then The Market Towns and Rural Area. The adopted Local Plan provides for about 4,000 new homes in Winchester, about 6,000 new homes in the SHUA, and approximately 2,500 homes in Market Towns and Rural Areas.

2.5 However, housing delivery on some of the strategic sites, such as Barton Farm, North Winchester (adopted Policy WT2) and Newlands, West of Waterlooville (adopted Policy SH2) has been slower than anticipated with only 79 and 93 net dwelling completions, respectively, in 2022/23 (see AMR sections 5.6 and 5.7). This is despite Policy WT2 (paragraph 4.31) of Local Plan Part 1 stating that Barton Farm will deliver 250 dwellings per year (of an allocation for 2,000 dwellings) at the peak of development, and Policy SH2 (paragraph 5.14) stating that West of Waterlooville will deliver 300 dwellings per year (of an allocation for 3,000 dwellings) at the peak of development.

2.6 The draft Local Plan proposes following a similar development strategy to the adopted Local Plan, with about 5,640 dwellings proposed to be provided in Winchester, 5,650 in the SHUA, and 3,825 in the Market Towns and Rural Areas.

2.7 Whilst we acknowledge that Winchester is the highest tier in the settlement hierarchy, with the large strategic sites at Barton Farm (Policy W1), and Newlands (West of Waterlooville, Policy SH1) and North Whiteley (Policy SH2) in the SHUA continuing to provide growth (they have a combined capacity to deliver over 5,000 homes), there needs to be a balance between these areas and elsewhere in the District to avoid reliance on large sites focussed in the north of the District. Large schemes take a significant amount of time to mobilise and build out, so Winchester should allocate a range of sites with a mix of housing types and sizes to maintain consistent levels of housing delivery and speed up completion rates. A mixed approach to site allocations is consistent with NPPF paragraphs 69 and 70 (December 2023), which identifies the need to increase the number of medium sized sites that can deliver in the short-term, such as Wickham Park.

2.8 As well as there being a need for a range of site allocation sizes, a greater apportionment of housing to The Market Towns and Rural Area is justified. Small/ medium sized allocations such as Land at Wickham Park offer suitable opportunities for additional growth in sustainable settlements such as Wickham.

2.9 Wickham is a self-sustaining settlement and is not within close proximity to Winchester or the Market Towns of Bishop's Waltham and New Alresford. As such, additional housing allocations in this area are justified to ensure there is a balanced spatial distribution of new housing and infrastructure upgrades, as well as to increase footfall to the village centre and maintain the vitality of the rural settlement. Moreover, as Wickham is adjacent to the boundary of the South Downs National Park, where there are likely to be substantial unmet needs, Wickham should make an additional contribution over and above the current draft allocations. This should include reassessing options which abut the settlement boundary and are relatively enclosed by development, such as Wickham Park.

2.10 The Spatial Housing Distribution (Strategic Policy H3) generally allocates 90-100 dwellings to each of the 'Larger Rural Settlements'. Whilst 300 new dwellings are allocated in Wickham, the proposed 'new' site allocation of 200 homes at Ravenswood, Knowle, (Policy KN1) has a resolution to grant (planning application ref. 18/01612/OUT), subject to the signing of a Section 106 agreement. This is a speculative application which was a departure from the adopted Local Plan so whilst considered acceptable, it is not a product of a plan-led approach.

2.11 The Development Strategy and Site Selection (November 2022) notes that the Ravenswood site '*is the best way to meet the identified level of development for Wickham in the emerging development strategy'*. However, Knowle and Wickham are different settlements separated from each other by a settlement gap. Knowle should be designated as a 'Smaller Rural Settlement' as it only scored 17 in the Settlement Hierarchy, and is a less sustainable location for development than Wickham. Wickham and Knowle should not be grouped together for the purposes of site allocations and the strategy of a site in Knowle addressing Wickham's housing growth is unsound due to not being justified, as required by the NPPF Local Plan tests (paragraph 35). Moreover, the Integrated Impact Assessment (July 2024: 'the IIA') concluded that the Ravenswood site would not have a positive impact on any of the IIA objectives (Site reference WI18).

2.12 Due to being a lower order settlement with less uses within the village centre, new residents in Knowle will rely on Wickham to access the daily services and facilities they require, and with a lack of walking/ cycling and public transport routes between the settlements, people will have to drive to Wickham. It would therefore be more sustainable for new housing allocations to be located in Wickham rather than Knowle, and for more than 100 new dwellings to be allocated in Wickham.

Integrated Impact Assessment

2.13 The IIA sets out (see paragraphs 1.12-1.13 of Non-Technical Summary) that 'committed' development (homes built, permitted or allocated since 2018) amount to around 11,300 dwellings and make up a substantial part of the new Local Plan's housing growth of 15,465 (Standard Method need for Plan period 2020-2040 of 13,565 in addition to an unmet needs allowance for neighbouring authorities of 1,900). In addition to the three strategic allocations, there are various smaller allocations that were made in Local Plan Part 2 (Development Management and Allocations, April 2017) that need to come forward for development and have been carried forward to the Regulation 19 Local Plan.

2.14 The IIA assesses four growth scenarios, which includes continuing the approach in the existing Local Plan of distributing development to the established hierarchy of settlements, varied to account for delivery commitments and uncertainties (Option 1A), as well as dispersing development around the District largely in proportion to the size of the existing settlements (Option 4). These two scenarios perform strongly in terms of supporting rural service provision and the role of local centres, providing housing of a decent standard to meet needs in the District (see paragraphs 4.48, 4.125, 4.128).

2.15 Wickham Park Golf Club (Site reference WI09) is assessed as scoring positively in IIA Objectives 1 (minimise the District's contribution to climate change), 2 (reduce the need to travel by private vehicle), 4 (improve public health and wellbeing), and 7 (ensure services and facilities are accessible) (see page 277).

2.16 WCC's preferred scenario of continuing the approach of distributing development to the hierarchy of settlements without varying to account for delivery commitments and uncertainties (Option 1), in addition to elements of Options 2 (focussing on Winchester city) and 4 (dispersing development in proportion to settlement size) focusses too heavily on Winchester city and windfall sites and does not acknowledge that the delivery of certain strategic sites is uncertain. This strategy will not support rural service provision and the role of local centres, or provide enough housing to meet needs in the District.

Summary

- WCC should allocate more sites in The Market Towns and Rural Areas to reduce reliance on strategic sites, increase the mix of types and sizes of developments, ensure there is a balanced spatial distribution of new housing and infrastructure upgrades, and maintain the vitality of rural settlements and village centres.
- WCC's approach of not varying the development strategy from the existing Local Plan fails to take account of uncertainties in delivery on large sites, and focusses too heavily on Winchester city and windfall sites.
- Wickham should be higher in the Settlement Hierarchy and only 100 new dwellings being proposed here is inconsistent with the approach set out for the Larger Rural Settlements as Wickham is the fifth most sustainable settlement in the District due to the range of services and facilities available for residents.
- Allocating a site in Knowle to meet the identified level of development for Wickham is unjustified and unsustainable. Knowle and Wickham are different settlements and Knowle is a less sustainable location for development due to the lack of services and facilities. The two villages should not be grouped together for the purposes of site allocations and new housing growth should be located in Wickham rather than Knowle.

3 Housing Need

Housing Need

3.1 The Regulation 19 Local Plan sets a housing target for Winchester of 15,465 homes over the Plan period (2020-2040). This is based on the Standard Method need for the Plan period 2020-2040 of 13,565, including an estimated 350 dwellings within the South Downs National Park part of the District, in addition to an unmet needs allowance of 1,900 dwellings as a contribution towards the unmet needs of neighbouring authorities in South Hampshire.

3.2 However, the Partnership for South Hampshire (PfSH) Statement of Common Ground (SoCG) (September 2023) indicates that there is a shortfall in housing supply of 14,531 against the identified need 2022-2036. Of the Local Authorities included in the PfSH, Winchester shares a boundary with Test Valley, Eastleigh, Fareham, Portsmouth, Havant, and East Hampshire, who together have a shortfall of 4,847. This provides further justification for a change in the spatial strategy for the draft Local Plan that currently focusses too heavily on Winchester city and the north of the District away from where the housing need is in the south. Moreover, the District is split into three housing market areas: Winchester Town, Northern and Southern. This provides additional rationale for an increase in the level of unmet need WCC provides for, particularly in the southern market area, as housing provision in the north of the District will not address issues in neighbouring authorities in South Hampshire.

3.3 Therefore, to be positively prepared and justified, WCC should increase the unmet needs allowance and overall housing requirement, particularly in the south of the District, in order to contribute to the unmet needs of neighbouring authorities who are more constrained than WCC in terms of available land.

3.4 In addition, the number of dwellings required to be delivered in the South Downs National Park has been reduced from 500 in the Regulation 18 Local Plan, to 350, whilst the overall housing requirement has also decreased from 15,628 to 15,465. This means that there is likely to be unmet housing need from the South Downs National Park which has not been accounted for elsewhere in the District. To satisfy the Duty to Cooperate, WCC should allocate further housing sites in those areas of the District close to the South Downs National Park in order to address unmet housing needs.

3.5 In light of the Government's proposed changes to the NPPF (July 2024), WCC's approach to cooperation and unmet needs will be especially important to ensure the new Local Plan is consistent and positively prepared. Draft Paragraph 24 makes clear that local planning authorities "*continue to be under a duty to cooperate with each other",* and draft paragraph 27 sets out that plans should ensure that unmet development needs from neighbouring areas are accommodated in accordance with paragraph 11b (provide for objectively assess needs for housing, as well as any needs that cannot be met within neighbouring areas).

3.6 In addition to addressing the unmet needs of neighbouring authorities, consideration should be given to the increase in the number of homes in Winchester District deriving from the revised Standard Method that the Government consulted upon from July to September 2024 alongside the draft NPPF updates. This would see WCC's housing need increase from 676 dpa to 1,099 dpa, so the draft housing target would be providing for more than 200 homes less than the revised Standard Method. As such, if the Local Plan proceeds to adoption, in line with the transition arrangements (draft NPPF paragraph 227), WCC would need to start preparing a new Local Plan immediately to address the shortfall in housing need.

3.7 In order for the Plan to be positively prepared and avoid adopting an immediately out-of-date Plan that does not meet housing need, WCC should be proactive in seeking to meet the needs of its community and allocate the land necessary to meet the increase in the Standard Method figure from 676 to 1,099 dpa now to deliver sufficient homes, assist in addressing the unmet needs of neighbouring authorities, and support economic growth.

Affordable Housing

3.8 Policy H6 seeks that all development which increases the supply of housing by 10 dwellings or more (or is on sites of over 0.5 hectares) will be expected to provide at least '*40% of the gross number of dwellings as affordable housing'*.

3.9 WCC's SHMA advises that there is a need for 368 rented affordable homes per year in the Plan area (411 across the District per year) from 2023 to 2040 (see 7.2). This is a significant proportion (approximately 55%) of the proposed annual housing requirement. As such, whilst WCC's AMR advises that across 2021/22 and 2022/23, 37.2% of homes were provided as affordable against a target of 40% (see page 20 of the AMR), the proposed housing requirement, as well as the proposed development strategy of reliance on Winchester city and the three strategic sites, will not deliver the required quantum of affordable housing.

3.10 Not delivering enough affordable housing is a major issue, especially with Winchester District already being significantly less affordable when compared to Hampshire County and the South East region (see SHMA paragraph 2.9 and Figure 2.3), with a 2023 affordability ratio of 13.19, compared to 10.14 for Hampshire and 10.39 for the South East. This demonstrates the particularly high need for affordable homes in the District.

3.11 At paragraph 2.12, the SHMA notes that despite affordable housing delivery being at 37.2% as a proportion of total delivery, *"this does not appear to have had immediate significant impacts on improving affordability in Winchester District".* Therefore, additional housing allocations, especially those outside of urban areas where lower costs make higher levels of affordable housing provision more viable, are required to ease affordability pressures in Winchester.

Family Housing

3.12 Policy H5 requires at least 40% of affordable dwellings for rent to be three bedrooms or more, at least 65% of affordable home ownership dwellings to be two or three bedroom houses, and at least 30% of market housing to be one or two bedrooms.

3.13 The SHMA identifies a need for 70% of market homes, 45% of affordable home ownership, and 40% of affordable rented homes to have three or more bedrooms (see table 7.1). Also, it states that it is more difficult to meet the need for larger affordable properties (particularly 4+ bed units).

3.14 The SHMA highlights that the proportion of married couple households with dependent children is higher than the average for Hampshire, the South East and England (Table 4.1). Winchester's acute affordability pressures mean that children cannot afford to move out of their parents' house and rent/ buy a house of their own. This indicates that the current housing target (that Winchester is proposing to continue) is not delivering the number of homes required to improve affordability.

3.15 The SHMA also states that there are higher levels of overcrowding for all households with dependent children (paragraph 4.3), so the delivery of a mix of homes, especially those of a suitable size for families, should be a priority for WCC. This means allocating more sites such as Wickham Park, that are capable of delivering family-sized housing as well as a mix of one-, two and three-bedroom plus flats and houses to meet local needs, improve the variety of homes available to the community, and offer housing options for people in all stages of life.

Summary

- The housing target for Winchester fails to fully account for the unmet needs of neighbouring authorities; the need for new homes in the District over the Plan period is likely significantly higher than being planned for.
- Whilst affordable housing completions have been close to the target of a minimum of 40%, the levels of delivery have still not been enough to address the particularly high need for affordable homes and improve affordability in Winchester.
- Delivery of a range of housing tenures and sizes, especially those of a suitable size for families, are necessary to improve housing outcomes such as high levels of overcrowding and married couples living with dependent children.
- No fundamental changes are proposed to the policies to address these shortcomings; a change to the housing requirement is required.

4 The Opportunity at Wickham Park

4.1 Land at Wickham Park is ideally placed to provide a sustainable extension to the village of Wickham to provide a diverse range of homes of different sizes and tenures alongside additional facilities for the community and a high-quality, publicly accessible open space. A Vision Document prepared by Turley is enclosed at **Appendix 1**.

4.2 The northern part of the Site, contiguous with the boundary of Wickham, comprises some 19.27ha and at an average density of 35 dwellings per hectare, could accommodate around 300 new homes. The intention would be for 40% of these homes to be provided as affordable in line with strategic policy aspirations and a mix of one-, two- and three-bedroom plus flats and houses to meet local needs and improve the variety of homes available to the community. The density of the homes would reduce with distance from Wickham village centre towards the new reconfigured golf course and open countryside to the south and west, and building heights and locations would be carefully considered in the context of the nearby South Downs National Park.

4.3 Additional homes here would not only benefit the local community and address specific needs, but it would also increase footfall to the high street and improve its vitality. There is also the opportunity for wider pedestrian connections to Wickham village centre and nearby bus stops.

4.4 Of the Site area of 19.27ha, 10.91ha would be new public open space (approximately 57%). The creation of an improved greenspace on the Site with enhanced biodiversity, would create connected habitat and reinforce the District's green infrastructure in line with draft Policy NE4 (Green and Blue Infrastructure). It would also provide new publicly accessible amenity including children's play and allotments for the local community on land currently privately managed, opening this up to wider use.

4.5 The Transport Planning representations (**Appendix 2**) demonstrate that the site cannot be discounted on transport/ access grounds. The area's transport infrastructure can accommodate the development, and the Site is within close proximity of a range of services and sustainable transport options. The current Wickham Park golf club access from Titchfield Lane would be amended as part of the development and a pedestrian/ cycle access point between the Site and Tanfield Park is to be created to provide a short, direct walking route to Wickham village centre via Tanfield Lane, which could be improved as part of the development. This connection would also act as an emergency access. Options for additional east-west connections to the village centre will be explored as the proposals progress to further improve the permeability of the Site and active travel routes to key locations.

4.6 As confirmed in the Flood Risk Scoping Report (**Appendix 3**), the majority of the Site and all of the proposed development areas are located within Flood Zone 1. The majority of the Site is at 'very low' risk of surface water flooding, with isolated areas of the Site at 'low to high' risk which only need crossing for access.

4.7 Given the limited flood risk, strong case for additional site allocations in the south of the District, particularly at Wickham, and a sequential approach to the Site layout being taken to locate vulnerable elements of the development in areas with the lowest risk of flooding, the actual risk from flooding will be very low. Whilst consideration will need to be given to the Sequential Test, flood risk ought not be a reason for non-allocation.

4.8 Furthermore, the Flood Risk Sequential and Exception Test Statement (July 2024) states at paragraph 3.18 that draft allocation sites at Wickham (WK1: Winchester Road, and WK5: Land at Southwick Road) may not be able to achieve safe access due to potential for groundwater flooding. Also, the access route for draft allocation WK6 (Land at junction of Mill Lane) is at risk of flooding from surface water. As such, the Statement confirms that the draft allocation Sites at Wickham will need to consider surface water flood risk further as part of a site-specific Flood Risk Assessment and consult early with Hampshire County Council (HCC) Lead Local Flood Authority (LLFA) and emergency planners. This would be the same as for Wickham Park, albeit only the access road would pass through an area at risk from surface water flooding and could be easily raised outside of the flood risk areas so that safe access is provided.

4.9 The Site is located within the Solent Marine Impact Catchment and – as the proposal is for new residential dwellings – demonstration of nutrient neutrality (nitrogen) will be required in order to meet local planning requirements. Details of the nutrient budget calculations and mitigation measures proposed to achieve nutrient neutrality, including SuDS, are provided in the report at **Appendix 4**. Given the size of the Site and large area proposed to remain as greenspace, there are significant opportunities to manage/ mitigate nutrients within the Site to reduce reliance upon off-site credits which is not feasible for other emerging allocations.

4.10 In identifying land for residential development, the NPPF (paragraph 69) requires land to be available, suitable and achievable. The Planning Practice Guidance further expands upon these requirements[1]. In this regard, Wickham Park Property Ltd confirms the following:

[1] https://www.gov.uk/guidance/housing-and-economic-land-availability-assessment~identification-of-sites-and-broad-locations [accessed 31/07/2024]

- Availability – Wickham Park Property Ltd controls the Site and confirms that there are no impediments to residential development as proposed.

- Suitability – the case for the allocation of the northern part of the Site for residential development is set out above. In short, the Site is in a sustainable location for development with opportunities for walking to local services and facilities, including public transport connections. The Site is at very low risk from river/ sea flooding and the areas at increased risk of surface water flooding are limited and can be appropriately mitigated. A combination of measures can be used to ensure the development remains nutrient neutral. Existing, good quality trees and hedgerows would be accommodated within the development, where possible, and enhanced through new landscaping. These representations demonstrate the high need for new homes, particularly for affordable and family-sized homes that the Site could accommodate sustainably.

- Achievability – the Site is greenfield and deliverable with no known viability issues. It is envisaged that development of the Site would be completed within the first five years of the Plan period. The SHELAA assesses the northeastern part of the site as developable and deliverable in the short-term (i.e. years 0 to 5 of the draft Local Plan).

5 Summary

5.1 Land at Wickham Park is controlled by Wickham Park Property Ltd and is confirmed as available for development.

5.2 These representations demonstrate that Land at Wickham Park is a suitable and sustainable location for housing development and can provide much-needed diversity in the size and tenure of homes in the District and specifically for Wickham. The Site is in a sustainable location and allocation will help to deliver homes of a range of sizes and tenures, including a proportion of affordable homes. In addition, the development would provide play space, allotments, improved public access to greenspace, potential on-site flood mitigation measures to achieve nutrient neutrality, enhanced biodiversity, and increased patronage to Wickham village centre, supporting the vitality of the high street.

5.3 Wickham Park Property Ltd's comments, that are expressed as a technical objection to the Local Plan Review, are set out in full in these representations and are summarised as follows:

i. **Development Strategy** – the strategy of relying heavily on strategic sites and Winchester city to deliver housing growth is a fundamental flaw of the new Local Plan.

ii. **Settlement Hierarchy** – as the fifth most sustainable settlement in the District, with a range of services and facilities available for residents Wickham should be higher in the Settlement Hierarchy and allocating a site in Knowle to meet the identified level of development for Wickham is unjustified and unsustainable. The two villages should not be grouped together for the purposes of site allocations and new housing growth should be located in Wickham rather than Knowle to take advantage of the high level of services/ facilities and sustainable travel connections thereto.

iii. **Integrated Impact Assessment** – WCC's preferred scenario focusses too heavily on Winchester city and windfall sites and does not acknowledge that the delivery of certain strategic sites is uncertain. WCC should allocate more sites in The Market Towns and Rural Areas to reduce reliance on strategic sites, increase the mix of types and sizes of developments, ensure there is a balanced spatial distribution of new housing and infrastructure upgrades, and maintain the vitality of rural settlements and village centres.

iv. **Housing Need** – The housing target for Winchester fails to fully account for the unmet needs of neighbouring authorities; the need for new homes in the District over the Plan period is likely significantly higher than being planned for.

v. **Affordable Housing** – Whilst affordable housing completions have been close to the target of a minimum of 40%, the quantum of delivery has failed to adequately address the particularly high need for affordable homes across tenures and improve affordability in Winchester. No fundamental changes are proposed to the policies to address these shortcomings; a change to the housing requirement is required.

vi. **Housing Mix** – Delivery of a mix of homes, especially those of a suitable size for families, are necessary to improve housing outcomes such as the high proportion of overcrowding and married couples living with dependent children. A revised housing requirement that facilitates delivery of a much-needed range of housing sizes and tenures is necessary.

vii. **Site Allocation** – the Site is available, suitable and achievable for the residential development of around 300 homes alongside publicly accessible open space, play space and allotments, in the early part of the Plan period, and would make a valuable contribution to Wickham Park and the local community.

5.4 As a general point, the NPPF is clear that local plans should be positively prepared and aspirational (paragraph 16(b)) and informed by up-to-date evidence (paragraph 31). Aside from the failings arising from the development strategy, there is further risk that the new Local Plan is deemed unsound, being neither positively prepared nor justified (pursuant to NPPF paragraph 35).

5.5 Wickham Park Property Ltd welcomes the opportunity to continue to engage in the Local Plan Review. Should WCC wish to discuss the potential of Land at Wickham Park for development, or any other issues raised in these representations, we would be pleased to advance this.

Appendix 1 Turley Vision Document (October 2024)

WICKHAM PARK

A vision for high-quality, new homes in a sustainable landscape setting

October 2024

Turley

Foreword

This Vision Document has been produced by Turley Design, on behalf of Wickham Park Property Limited. It refers to the future vision of the existing Wickham Park Golf Club and sets out an indicative masterplan for the landscape led, residential development of the north-eastern part of the site.

The initial technical and design work that has been undertaken to inform the Vision Document has demonstrated that the Crown Golf land at Wickham Park is available, suitable and achievable for the scale of development proposed.

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The Vision

Development at Wickham Park Golf Course creates an opportunity for up to 300 high-quality, new homes to be delivered. Maximising the existing landscape setting to create a sensitive and site specific response which provides benefits to both future new residents and the existing residents of Wickham, such as community facilities, allotments, children's play spaces and parkland.

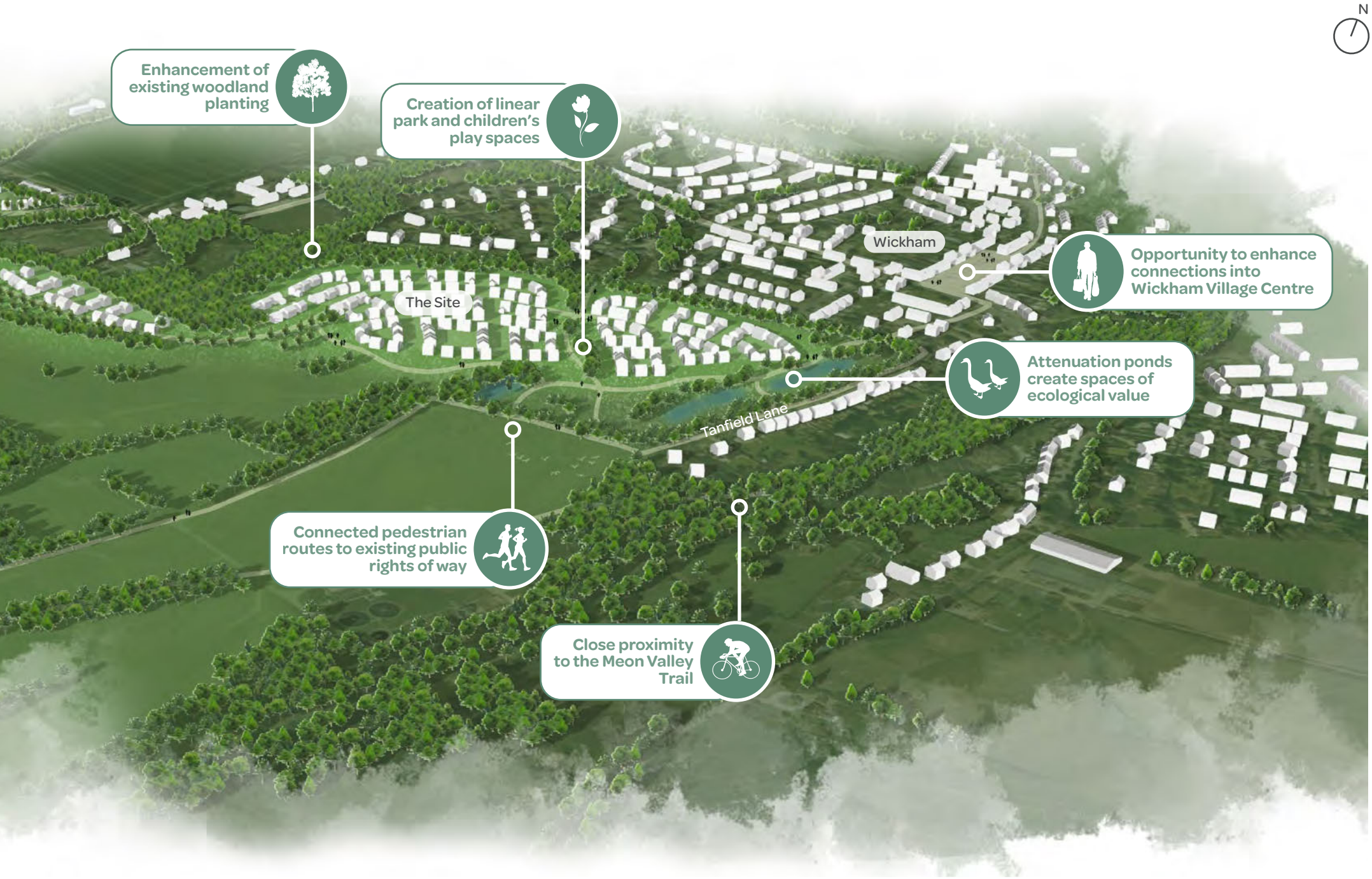


Figure 1: Site Overview - Illustrative Visual

A Sustainable Location

Site Location & Description

The site is located on the south-western edge of Wickham, a village in the civil parish of Wickham and Knowle, Winchester.

The site can be accessed from the north-west at Titchfield Lane, a main thoroughfare into Wickham.

The majority of the site comprises of golf course with semi-natural and amenity grassland and associated buildings. The northern boundary of the site is formed by a variety of housing and a garden centre along Titchfield Lane. Immediately east of the entrance is the existing clubhouse and associated driving range and car park.

The post war private housing estate of Tanfield Park borders the site to the north, and to the south, Tanfield Lane provides a mix of housing including Victorian and more recent housing. These properties all face west towards the existing golf course.

The wider landscape to the south and west comprises agricultural land.

Public Transport

Bus connections are available from Wickham Square, a short walk from the site. These services provide wider connections to Winchester, Fareham and other local villages.

Pedestrian & Cycle Connections

The site is well connected with a number of Public Rights of Way running through and adjacent to the site and into Wickham. The Meon Valley Trail runs along the south of the site providing connection to the South Downs National Park, in addition to the National Cycle Network Route 224 connecting Medstead to Gosport.

Facilities & Services

The historic Hampshire settlement of Wickham has an extensive range of facilities, including a mix of retail, pubs and restaurants, community facilities and a Church of England Primary School. This plethora of existing services will ensure a sustainable and connected community between both Wickham and the proposed site.

- Site Boundary
- Wider Area within Landowner Control
- Houghton Way Surgery
- Wickham Community Centre
- Wickham C of E Primary School
- Nursery / Pre-School
- Petrol Station
- Allotments
- Park Place Farm Nursery & Tea Room
- Wickham Water Meadows
- Meon Valley Trail
- Wickham Park Golf Club
- The Cir Playground
- Wickham Skatepark
- Wickham Recreation Ground
- Wickham Square, including:
- Post Office
- Warwick Lane Shopping Centre
- Cafes
- Restaurant / Pub / Takeaways
- Supermarkets - The Co-op & One Stop

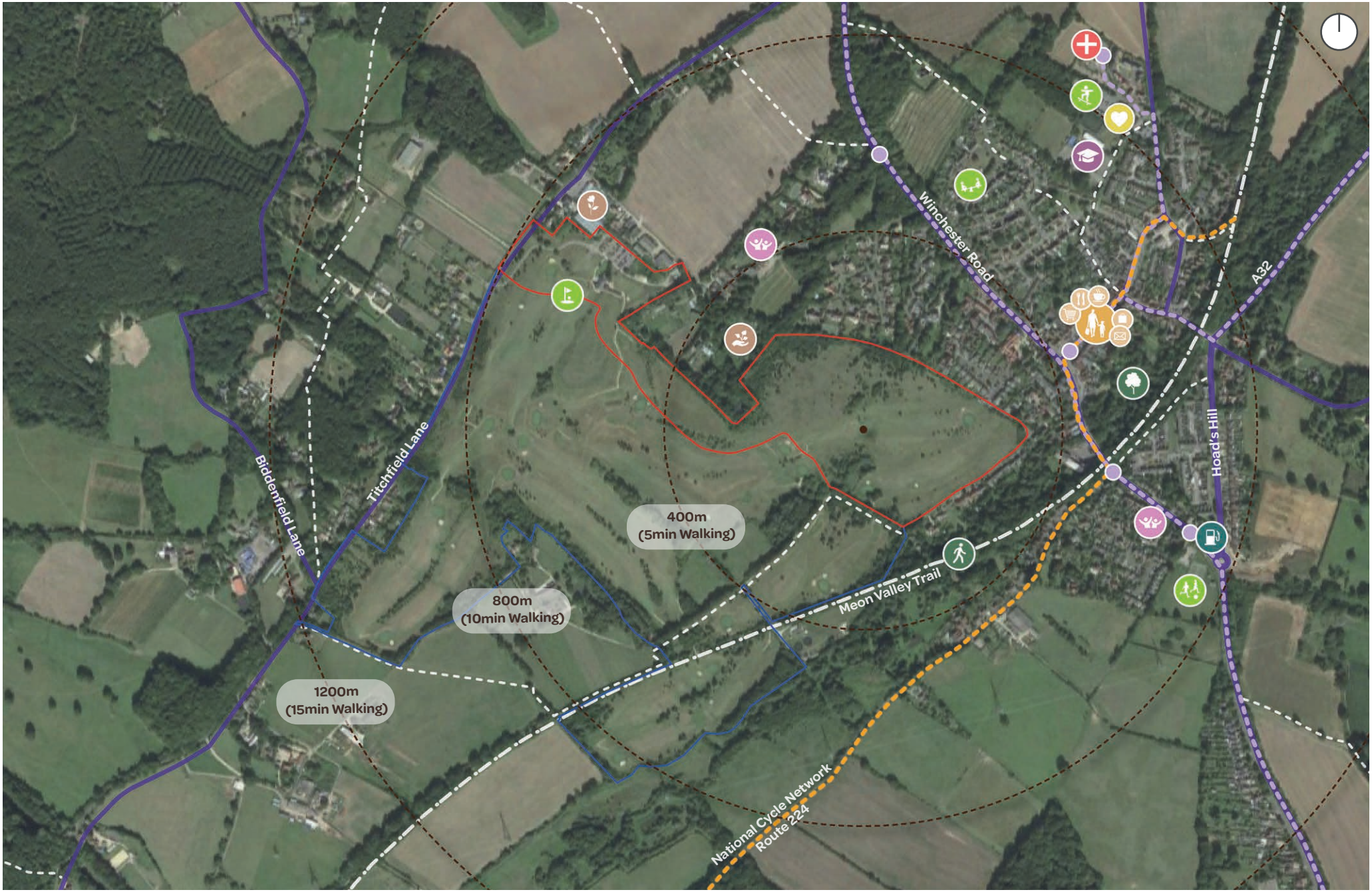


Figure 2: Local Context Plan

Illustrative Proposals

Development at Wickham Park Golf Club provides a key opportunity to deliver much needed market and affordable family homes, set within a high-quality, sensitive natural landscape.

Key Features Include:

- A natural extension to Wickham and a responsive design which works with the site's existing topography to settle into the landscape context.
- The site provides the opportunity to deliver up to 300 homes in a sustainable location, including a mix of house types and tenures in line with local needs, of which 40% will be affordable homes.
- A sensitive design which considers the urban and built character of Wickham to create a development with a sense of identity, with placemaking principles embedded from early design stages.
- Celebrate and enhances the site's existing features such as woodland planting, wildlife ponds and walking and cycling routes.
- Provide direct, safe and accessible connections into Wickham village centre, with opportunity for wider highways improvements.
- The site will retain its Golf Club, incorporating the club house building, continuing to provide this community provision. The masterplan will also incorporate wider community benefits such as allotments and children's play spaces.
- A robust drainage strategy will utilise sustainable urban drainage systems such as permeable paving, rain gardens and attenuation basins, to mitigate against flood risk from the development and accounts for an allowance of 40% for climate change.

Site Boundary

Wider Area within Landowner Control

Primary Vehicular Access to be taken from Titchfield Lane (1)

Emergency Vehicular Access from Tanfield Park (2)

Existing Bus Stops

Public Rights of Way

National Cycle Network - Route 224

Existing Golf Club House

Proposed Residential Development

Indicative Primary Access Route

Proposed Pedestrian routes

Opportunity for wider pedestrian connections

Proposed Children's Play

Proposed Allotments

Existing Pond

Proposed Sustainable Urban Drainage

Figure 3: Illustrative Masterplan

Key Considerations

Inclusive Development

Inclusive design aims to create places without barriers that involve people in undue effort, separation or special treatment and enable everyone to go about their daily routines and take part in day-to-day activities independently. The proposed development will be designed to provide barrier-free access for all, with particular regard to the needs of the disabled. Particular consideration has been given to the requirements of the Equality Act 2010.

Safe access to buildings will be achieved through the treatment of the site as a pedestrian-friendly environment, where vehicle speeds are limited through traffic calming and the careful design of vehicular routes.

The development will be designed and built in full accordance with the Building Regulations which set out technical standards for the quality / performance of buildings. Part M of the Building Regulations concerns 'Access' and ensures that the design of buildings does not preclude access for the disabled. Where necessary, compliant ramps will be provided externally in addition to steps where changes in levels demand.

The public realm and surrounding landscape should be designed in a way to provide flexible spaces and play opportunities that can be used by all.

Inclusive play spaces may incorporate the following principles:

- Circular paths around play spaces
- Lighting
- A variety of equipment
- Smaller zoned areas
- Flexible seating areas
- Wide entrances with open spaces

Net Zero Homes

1. Good Fabric

Designed in accordance with future home standards for low energy demand

2. Efficient

Low energy fixtures and fittings, where provided, alongside water efficiency measures

3. Smart Controls

Advanced controls for managing energy smartly

4. Daylight / Overheating

Glazing optimised for good daylight but minimising risk of overheating

5. All Electric Energy

No gas on-site with zero air pollution, in accordance with future home standards

6. Air Source Heat Pump

Very low carbon heating

7. Solar Power

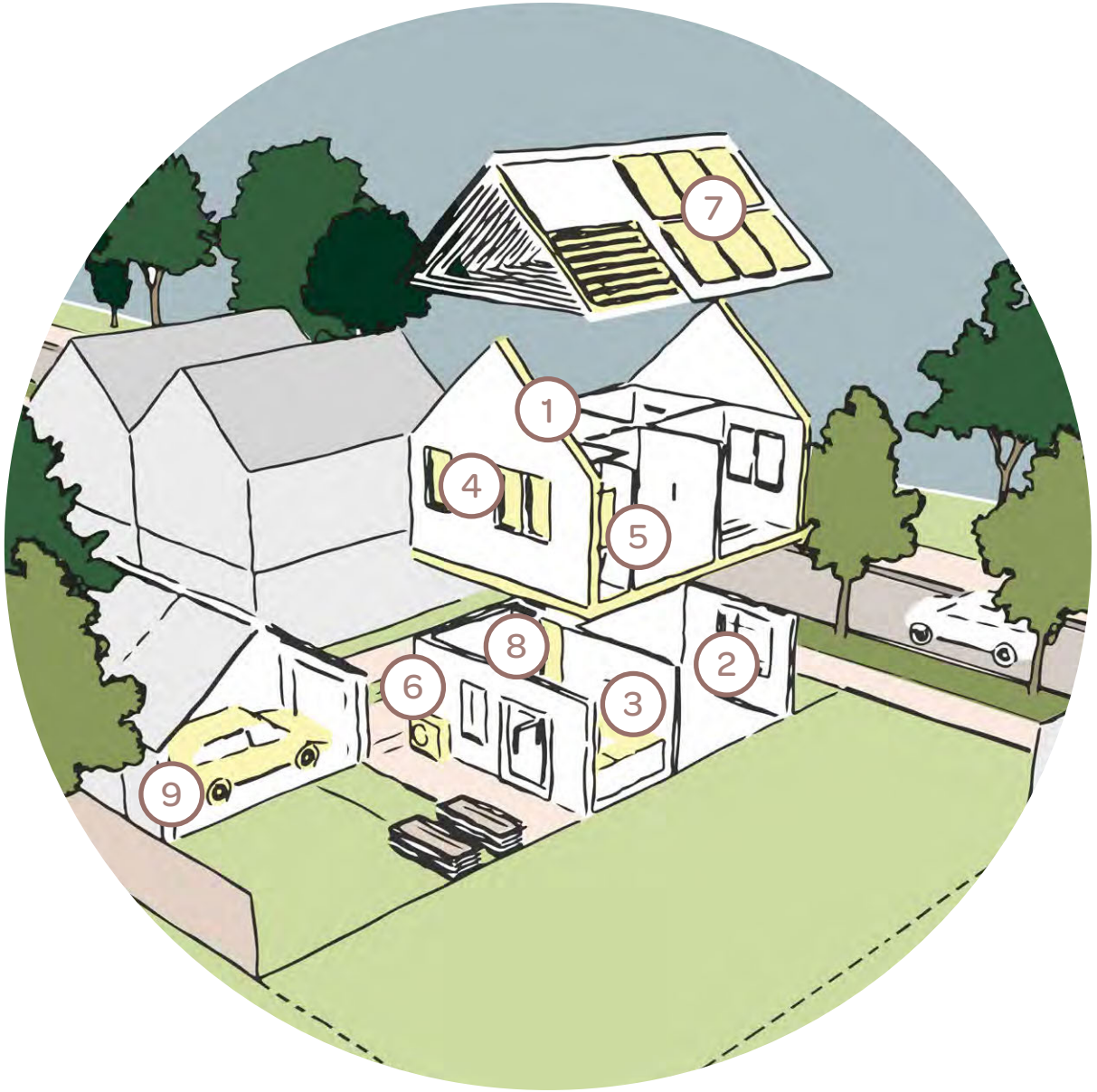
Provision of photovoltaic panels to generate energy

8. Energy Storage

Energy storage in hot water tanks, EVs and possibly batteries to reduce bills and CO2 emissions

9. EV Charging

Electric charging points alongside cycle storage provided



Summary of Benefits

This Vision Document sets out the emerging proposals for development at Wickham Park Golf Club. A comprehensive analysis of the baseline conditions have been undertaken, this has informed the identified opportunities set out within the concept masterplan. In doing so, demonstrating how this site provides a genuine opportunity to deliver a sustainable pattern of development set within a high-quality proposal which responds sensitively to its physical context and surrounding area.

Land at Wickham Park Golf Club supports wider objectives for housing delivery within the Winchester District, in a manner which responds positively to the local context and sensitivities of the site.

As a logical extension to the existing community of Wickham, the site is well located to access existing services and facilities in the immediate locality and beyond via public transport connections at Wickham Square.

Detailed development proposals, further work and consultation will be undertaken to develop the proposals for the site and meet the identified needs of the existing and future residents of Wickham.

Social Benefits

Meeting housing need

- Providing circa 300 new homes which offer a broad range of housing types and tenures in line with local market need.
- Providing 40% affordable homes responding to local policy requirements.
- Providing accommodation for households with different needs and at different life stages including family homes, creating a diverse and cohesive community.

Enhancing the local neighbourhood

- Provide a variety of leisure and recreation opportunities for all, including children's play, allotments and accessible footpaths and cycle routes.
- Avoiding pressure on the existing infrastructure, reducing car dependency and minimising the need to travel long distances by enhancing existing connections into facilities and services available in Wickham.

Promoting healthy lifestyles

- Increasing opportunities for connections to the existing network of public rights of way and national cycle routes, alongside the proximity to the Meon Valley trail.
- Providing significant publicly accessible green infrastructure with a focus on enhanced ecology and biodiversity across the site.
- Creating a development which is responsive to the settlement edge of Wickham and offers opportunity to connect to the wider countryside in a sensitive manner.

Environmental Benefits

Sustainable homes & workplaces

- Create high-quality places and spaces with the needs of people in mind, which are attractive, have their own distinctive identity and respect and enhance local character.
- Buildings designed to meet Future Homes Standard (FHS) and Future Building Standard (FBS).
- Target for homes to be reduced carbon from regulated energy sources and commitment to no gas use.

Sustainable environments

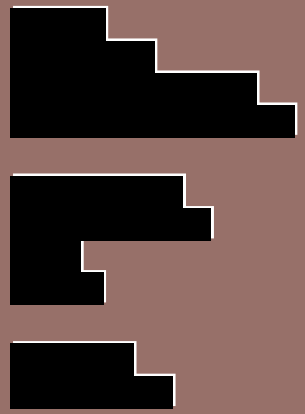
- Measures to ensure the development is resilient to the future effects of climate change through targeted green infrastructure and a network of connected sustainable drainage systems.
- Achieving a net gain in biodiversity by retaining and enhancing existing valuable green infrastructure and providing a greater diversity of habitats across the site area.
- Protection and enhancement of the natural environment including trees, hedgerows and key landscape features.

Sustainable transport choices

- Convenient walkable connections to local bus stops.
- Opportunity to enhance existing connections between the site and Wickham square to ensure safe and accessible sustainable travel opportunities.
- Provision of car-free segregated pedestrian and cycle routes throughout the site.

Appendix 1 :
Turley Vision Document

Date
09/10/2024



Turley

Appendix 2 Transport Planning Representations (September 2024)

Land at Wickham Park golf club

Transport Planning representations

On behalf of **Wickham Park Property Ltd**

Project Ref: 333101342 | Rev: 01 | Date: October 2024

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
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Document Control Sheet

Project Name: **Land at Wickham Park golf club**

Project Ref: **333101342**

Report Title: **Transport Planning representations**

Date: **7th October 2024**

	Name	Position	Signature	Date
Prepared by:	[redacted]	Transport Planner Director		07-10-2024
Reviewed by:	[redacted]	Director		07-10-2024
Approved by:	[redacted]	Director		07-10-2024
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
01	07-10-2024	First Issue	[redacted]	[redacted]	[redacted]

Contents

1 Introduction

1.1.1 Stantec UK Ltd (Stantec) are working alongside Wickham Park Property Ltd to support emerging proposals for a residential site located at the existing Wickham Park Golf Club to the south west of Wickham in Hampshire. The proposals would reconfigure the existing golf course such that it retains 18 holes, whilst releasing a parcel of land for up to 300 homes.

1.1.2 This technical report is intended as Transport Planning representations to the Regulation 19 Local Plan consultation and considers a range of transport matters that are material for the Local Planning Authority to consider in allocating the site as part of its emerging Local Plan. In particular, the report explores how a focused transport vision and strategy could unlock development at this location through the following:

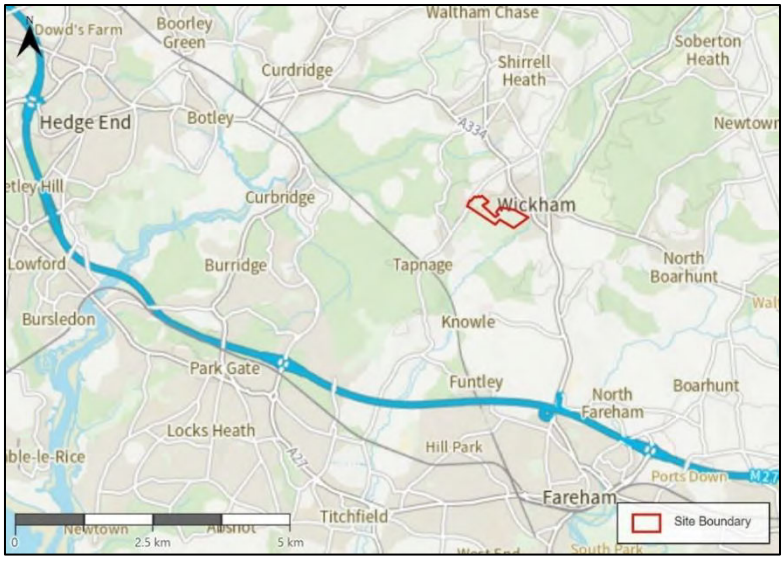
- An assessment of how, with the right interventions, people could access the proposed development in the future;
- What interventions, by mode, could be considered to achieve the travel patterns that are desired for the proposed development;
- How the possible interventions and the development opportunity could create benefits to both existing and new residents.

1.1.3 Through these points, this report demonstrates how the transport infrastructure can accommodate the development, contributing towards making it a sustainable and attractive place to live. This is supported by national planning policy through the National Planning Policy Framework (NPPF) which promotes sustainable development and states that transport policies have an important role to play in delivering a sustainable development and in contributing to wider sustainability and health objectives.

1.1.4 This report demonstrates that Winchester City Council can allocate this land with confidence for residential development in its emerging local plan, knowing that Transport Planning is not a reason for its non-allocation.

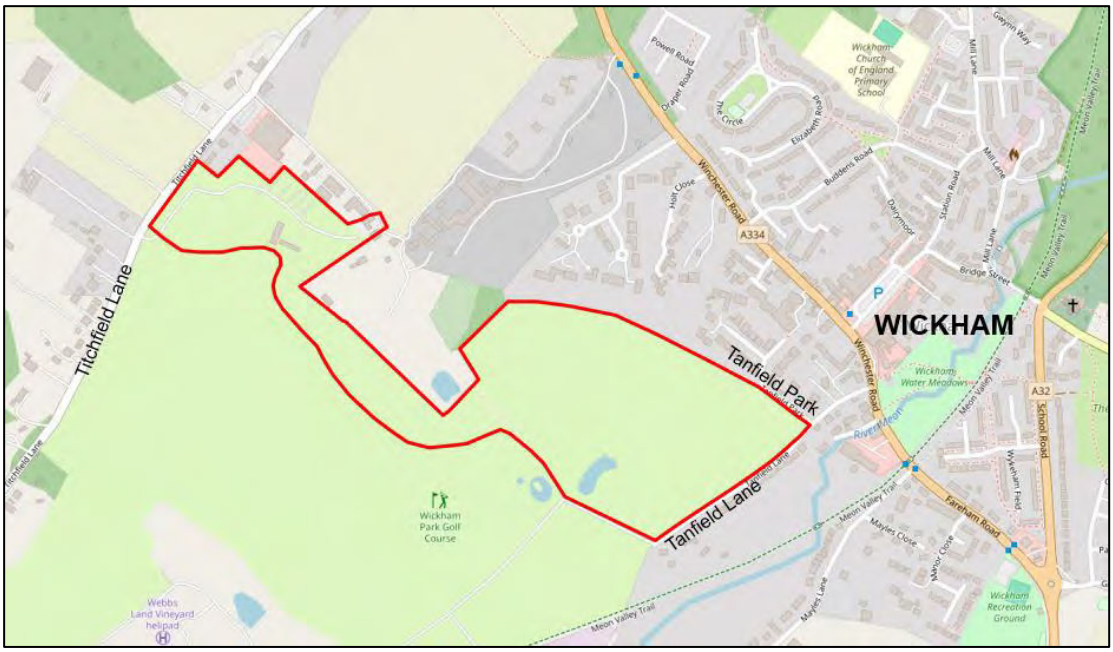
1.2 Site description

The site covers an area of approximately 8.5Ha and is located on land at the existing Wickham Park golf club.



1.2.1 The figure to the right illustrates the site location in a wide context and shows that the site is located north of the M27 and on the south west side of Wickham.

1.2.2 The site is bounded by Titchfield Lane to the west, existing residential properties in Wickham to the north, Tanfield Lane to the east and the remainder of the golf course land to the south. This is illustrated on the local context site location plan below.



1.3 Transport vision and aspirations

1.3.1 The ambition for the site is to bring forward a new neighbourhood, one that is integrated with, and complementary to, the existing settlement of Wickham. It will incorporate best practice within its design and deliver a sustainable form of development. Sustainable mobility will be a key consideration in delivery of the proposed development, following key principles, including:

- Reducing the need to travel through the introduction of a Travel Plan and measures to encourage use of sustainable travel modes.
- Design for people first, rather than the private car.
- Walking, cycling and public transport support as appropriate.
- Integrate the site with existing amenities and existing transport networks.
- Provide a benefit to the wider community and add social value through support to existing amenities and facilities.

1.3.2 An advantage of the site is that it is next to the existing built up area of Wickham and also within close proximity of a range of existing sustainable transport opportunities. A focussed transport vision and strategy will encourage sustainable travel behaviour and the way sustainable travel is viewed by new residents.

1.3.3 This report will demonstrate to Winchester City Council that the site can introduce a sustainable transport strategy that would meet the needs of the site and improve and enhance sustainable transport connections to the surrounding area, also benefiting existing communities. On this basis this technical report concludes that there is not a technical case for rejecting the allocation of the site on transport grounds.

1.4 This document

1.4.1 This document is structured in the following way:

- Section 2 considers the policy context of the site, including nationals and local planning and transport policy

- Section 3 describes the transport strategy for the site, summarising the existing transport network and the manner in which the site will integrate with this and improve it as appropriate.
- Section 4 considers the potential off site effects of the development and how this would be mitigated if needed.
- Section 5 summarises the report.

2 Policy context

2.1.1 Consideration has been given to policy and guidance at the national, regional, and local level as set out under the headings below.

2.2 National Planning Policy Framework (December 2023)

2.2.1 The National Planning Policy Framework (NPPF) was published in March 2012 and most recently updated in December 2023 and is the current over-arching planning framework for Local Planning Authorities.

2.2.2 The NPPF highlights that sustainable development is made up of three elements that are mutually dependent on each other – economic, social and environmental. It further states that:

"Planning policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area."

2.2.3 Paragraph 69 states :

"Strategic policy-making authorities should have a clear understanding of the land available in their area through the preparation of a strategic housing land availability assessment. From this, planning policies should identify a sufficient supply and mix of sites, taking into account their availability, suitability and likely economic viability. Planning policies should identify a supply of:

a) specific, deliverable sites for five years following the intended date of adoption; and

b) specific, developable sites or broad locations for growth, for the subsequent years 6-10 and, where possible, for years 11-15 of the remaining plan period."

2.2.4 This document is intended to support the case that proposed development at Wickham Park is suitable and likely to be economically viable. It will do this by demonstrating that the site can be served by the existing transport network with cost effective interventions.

2.2.5 In terms of transport, the key theme of the NPPF is to promote sustainable modes of transport, with development sustainably located and notes that smarter use of technologies can reduce the need to travel. Paragraph 108 states :

108. Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

a) the potential impacts of development on transport networks can be addressed;

b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places."

2.2.6 This document demonstrates early consideration of transport planning matters in supporting the promotion of the site for allocation. Opportunities for accessing the development by means other than the private car are described, along with the potential off site effects and mitigation.

2.2.7 Paragraph 109 of the NPPF recognises that different policies should be applied in different communities in order to achieve a balance and that opportunities to maximise sustainable modes of transport will vary between urban and rural areas. It states:

"109. The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions, and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

2.2.8 Hence, there is a recognition that the extent of being able to promote and improve sustainable travel will depend on site locality and must be considered in that context. Paragraph 114 is important in this context as it lists a number of considerations for planning authorities to apply in their decision making when reviewing Transport reports. These include the need to consider that opportunities for sustainable transport have been taken up, if the access arrangements are safe and suitable and if there are cost effective improvements to the transport network that could be made.

2.2.9 Paragraph 115 of the NPPF states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

2.2.10 Importantly, NPPF advises that development should only be refused on transport grounds if the residual cumulative impacts are likely to be "severe". The definition of "severe" in this context is unique to the individual site under consideration. However, it may be helpful to consider that within the context of the Environmental Impact Assessment "severe" impacts are often described as those that would have a national or regional significance. In this respect it is clear that NPPF is seeking to strike a positive balance between potential local traffic impacts and local economic or social benefits.

2.3 Draft National Planning Policy Framework (July 2024)

2.3.1 In July 2024 a new government administration was appointed to office and an updated draft NPPF was published.

2.3.2 Paragraph 69 described above is retained, albeit re-numbered to paragraph 70. With respect to section 9 (promoting sustainable transport) the changes proposed to the document relate to the need to consider a "vision led" approach to promoting sustainable travel modes and mitigation.

2.3.3 It is anticipated that this NPPF update will be adopted and become policy before the end of 2024.

2.4 DfT circular 01 / 2022

2.4.1 The DfT circular 01/2022 replaced the 02/2013 circular and provided important updates for Transport and the Strategic Road Network in relation to sustainable transport. Paragraph 12 of the document outlines that

"New developments should be facilitating a reduction in the need to travel by private car and focused on locations that are or can be made sustainable."

2.4.2 Paragraph 15 outlines that transport planning should move away from the "predict and provide" method of predicting future demand and should move towards "vision-led approaches" including "vision and validate", "decide and provide" or "monitor and manage".

2.4.3 The proposed development, when coming forward for planning, will outline a vision for how it will seek to promote sustainable travel and facilitate a reduction in the need to travel by private car. A Travel Plan will accompany any future planning application and set out the measures that will be put in place to realise this vision.

2.5 Local Plan Part 1 – Joint Core Strategy (March 2013)

2.5.1 The Winchester District Local Plan Part 1 - Joint Core Strategy is the key document in the Winchester District Development Framework (LDF) and was adopted in March 2013. It is a compilation of documents that set out the Council's strategy for development in the District.

2.5.2 Section 8 of the document includes a section that relates to Transport. In summary, it sets out that Transport provision varies considerably across the District and that the main transport issues relate to road safety, accessibility, congestion and pollution. It further states that the biggest challenges in accommodating development will be to ensure that development generates as little new traffic movement as possible and providing the necessary infrastructure to accommodate traffic and ensure access to services.

2.5.3 Policy CP10 – Transport states :

"The Local Planning Authority will seek to reduce demands on the transport network, manage existing capacity efficiently and secure investment to make necessary improvements. Development should be located and designed to reduce the need to travel. The use of non-car modes particularly walking and cycling should be encouraged through travel plans, management and improvements to the existing network, and improvements to accommodate additional traffic should be undertaken (or funded) where necessary."

2.5.4 The development proposed at Wickham Park would provide encouragement to sustainable travel through Travel Plan measures and its proximity to the amenities and services in Wickham. Links to Wickham by active travel would be emphasised and improved as appropriate.

2.6 Local Plan Part 2 – Development Management and Site Allocations (April 2017)

2.6.1 Section 4 of The Winchester District Local Plan Part 2 considers the needs for the Market Towns and Rural Area, including Wickham. It supports the evolution of the more sustainable settlements, including Wickham, to *"maintain and improve their role and function in meeting a range of local development needs*".

2.6.2 The proposed development will be located such that a proportion of resident's daily needs could be met through walking, cycling or public transport. This will help support local business and public transport services.

2.7 New Local Plan - SHELAA

2.7.1 The Winchester Strategic Housing and Employment Land Availability Assessment (July 2023), known as the SHELAA, included consideration of site WI09 Land at Wickham Park Golf Club. It suggests an indicative dwelling capacity of 183 and is deemed “Deliverable / Developable”.

2.7.2 Despite the favourable assessment of the site’s developability and deliverability, it has not been taken forward for Local Plan allocation by the Local Planning Authority.

2.8 Regulation 19 Local Plan

2.8.1 Land at Wickham Park has not been allocated as part of the Regulation 19 Winchester Local Plan document published in August 2024. Nevertheless, the Regulation 19 document has been reviewed in the context of considering how the proposed site would accord with the emerging Local Plan in terms of Transport Planning matters.

2.8.2 Policies relating to sustainable transport and active travel are set out in Chapter 6 of the Regulation 19 document. This states that mitigating and adapting to climate change is an important part of the Local Plan, meaning there needs to be a step change away from continued reliance on private cars and an increased use of sustainable and active means of travel must be prioritised and made more attractive.

2.8.3 Policy T1 “Sustainable and Active Transport and Travel States” states that planning applications for new developments should prioritise the following:

a) *Offering a genuine choice of sustainable and active transport modes*

b) *Designing development so to minimise the need to travel by private car*

c) *The concept of 15 minute neighbourhoods*

d) *Incorporating sustainable and active travel routes into the layout with connections to the wider network, which must be made available and usable at all stages of development*

e) *The continued safe and efficient operation of the strategic and local road networks;*

f) *Any proposed new accesses and intensified use of existing accesses onto the road network can demonstrate that they will not result in reduced highways safety or a significant traffic congestion / delays.*

2.8.4 Land at Wickham Park is located in the settlement of Wickham which is identified as a large rural settlement in the Winchester district. Wickham has a range of local amenities within a 10 minute walking distance of the proposed site. it also has hourly bus services to Winchester and half hourly bus services to Fareham, meaning future residents would be able to travel sustainably to and from the site in accordance with this policy.

2.8.5 Policy T2 “Parking for New Developments” states that new development will only be permitted where:

a) *The applicant can demonstrate in the Design and Access Statement and the Travel Plan, how the needs of sustainable transport modes of transport have been prioritised in the design process and provide justification for the level of car parking provided on the site;*

b) *The parking provision on residential development including for visitors shall take account of local circumstances including the layout of the development, the mix of dwellings, the character of the local area and the proximity of public transport;*

c) *Residential development proposed with no parking provision will be supported where it is located in easy walking distance of a range of services and facilities, or there is suitable access to non-car based modes of transport, and it is demonstrated that the lack of*

provision will not be to the detriment of the surrounding area or the need of those with limited mobility;

d) Secure parking for cycles, e-mobility, mobility scooters or any other form of non-car transport must be provided in a safe and convenient location and should be undercover, with charging points and provided according to the relevant standard or locally specific demand; and

e) *Parking for commercial uses will be considered on a case by case basis*.

2.8.6 Land at Wickham Park would be designed to accord with local parking guidance and prioritise sustainable travel modes. This would be set out within any future Design and Access Statement, Transport Assessment and Travel Plan. The opportunities to encourage sustainable travel are also set out within this document in demonstrating the suitability of the site to be delivered.

2.8.7 Policy T3 "Enabling Sustainable Travel Modes of Transport and the Design and Layout of Parking for New Developments" states that new development will only be permitted where it:

a) Provides priority parking for active and e-mobility travel and car clubs;

b) Has facilities for charging EVs;

c) Incorporates parking provision, including drop of spaces and vehicle access. Consideration should be given to opportunities for shared spaces where appropriate

d) The character of the surrounding area has been taken into consideration;

e) Provides attractive, landscaped and safe parking areas which are overlooked by dwellings or other areas of active public use providing surveillance and accompanied with associated long term maintenance plans;

f) Signage and lighting where it is necessary must be of a high quality design appropriate to the location;

g) Includes permeable parking surfaces unless there are overriding evidenced reasons that prevents their use; and

h) *Any surfaces used should be appropriate to the site context and expected level of use.*

2.8.8 Land at Wickham Park would be designed to accord with local parking and design guidance. During the design process, options would be explored where parking can be accommodated on site in ways that enhances place making in accordance with this policy.

2.8.9 Policy T4 "Access for New Developments" states that new development will be permitted where it accords with the development plan and where it;

a) Prioritises the needs of pedestrians, cyclists, people with reduced mobility, including safe and attractive routes to, from and within the site which connect to existing Public Rights of Way network outside the site boundary and the nearest public transport stop, minimising the scope for conflicts between all users;

b) Addresses the needs of people with disabilities and reduced mobility in relation to all modes of transport;

c) Allows for access to, and movement within, the site in a safe and effective manner, having regard to the amenities of occupiers of the site and adjacent land and to the requirements

of the emergency services and service providers, including turning facilities as appropriate; and

d) *Makes provision for access to the site in accordance with any highway requirements on the grounds of safety, including the provision of gateways, visibility splays, access to adopted highways and accompanying signage that may be required*.

2.8.10 In accordance with this policy, Land at Wickham Park would demonstrate walking routes from the site to amenities in Wickham, improving these where possible and appropriate. It would also provide vehicular access on Titchfield Road, designed in accordance with the relevant design standards and safety audit process. Integration with, and connections to, the active travel network are considered within this document at section 3.

2.9 Strategic Transport Assessment

2.9.1 The Strategic Transport Assessment document (July 2024) has been written by Hampshire County Council and forms part of the evidence base for the emerging Winchester District Local Plan (2020-2040). The Strategic Transport Assessment provides an assessment of the potential implications of the proposed site allocations on transport networks.

2.9.2 The vision within the Strategic Transport Assessment is stated as:

"To address the challenge of climate change and reduce carbon emissions by providing a safe, sustainable, efficient, and inclusive transport network that enhances Winchester district for residents, businesses and visitors and helps to deliver national, regional, and local policy goals."

2.9.3 The objectives of the STA are to:

1. *Encourage local living;*
2. *Create healthy places and streets; and*
3. *Develop strategic connectivity.*

2.9.4 Strategic modelling has been completed using the Sub Regional Transport Model (SRTM), which was developed by Solent Transport. The modelling results focus mostly on the area within the immediate vicinity of Winchester, with less information provided for the rural settlements.

2.9.5 The flow difference plots provided in the SRTM Strategic Modelling Report which can be found in Appendix B of the Strategic Transport Assessment show minimal flow differences on the network near the Wickham Park site between the baseline and do minimum in the AM peak hour. In the PM peak hour an increase of 40 to 50 vehicles is shown for example. This is less than 1 additional vehicle per minute and would not be perceptible in practise.

2.9.6 The SRTM Strategic Modelling Report does show that some junctions in Wickham may operate with a volume to capacity ratio (V/C) above 85% in 2041. However, no junctions are identified as being significantly or severely impacted by the Local Plan.

2.9.7 This suggests there is residual highway capacity in the local area and that the effect of the Local Plan as proposed does not constitute a significant or severe impact.

2.10 Development Strategy and Site Selection Proposed Submission Plan Topic Paper

2.10.1 The topic paper provides details on the process which was followed in arriving at the proposed allocations in the Regulation 19 Local Plan, including any additional information on new sites which were included.

2.10.2 Wickham is rated as a larger settlement in the 2024 Settlement Hierarchy, with a reasonable level of services and facilities.

2.10.3 The 2023 SHELAA identified six sites in the settlement with a total estimated capacity of 957 dwellings. Each site was assessed against the sustainability criteria set out in the Integrated Impact Assessment (IIA). Land at Wickham Park (WI09) was one of these six sites.

2.10.4 There are currently a number of sites allocated in the adopted local plan being developed in Wickham and these are taken forward into the emerging local plan.

2.10.5 The Regulation 18 draft Local Plan did not include a proposed allocation at Wickham Park due to the availability of a site at the nearby settlement of Knowle (Ravenswood), which was brought forward as an exception site and has since reached the point where permission can be issued once appropriate s106 agreement(s) are signed.

2.10.6 Following consideration of the responses to the Regulation 18 consultation, the Council has reconsidered its position on site allocations in Wickham, and the Regulation 19 Local Plan contains sites adjacent to the settlement of Wickham which will deliver about 100 dwellings. The Settlement Hierarchy Background Paper notes that the number of dwellings aligns with the settlement's categorisation as a Larger Rural Settlement. However, as set out in the planning representations submitted on behalf of Wickham Park, it is clear that Wickham, as one of the higher order Larger Rural Settlements, could support significantly more homes.

2.10.7 The sites put forward for allocation in Wickham are as follows:

- Mill Lane (WI02)
- Land at Southwick Road / School Road (WI03)

2.10.8 The document states that the other sites adjacent to the settlement of Wickham put forward for allocation, including Wickham Park, are considered further away from the main services and facilities, or are poorly related to the built form of the settlement, or are likely to have unsatisfactory vehicular access arrangements.

2.10.9 Land at Wickham Park would be directly adjacent to the built-up area of Wickham on the southern side with the eastern end of the site being less than 500m from Wickham Square, where a range of local amenities are available. Furthermore, this document has demonstrated that an appropriate vehicle access arrangement can be achieved along with a suitable emergency access.

2.11 Integrated Impact Assessment

2.11.1 The purpose of the Integrated Impact Assessment (IIA) appraisal is to promote sustainable development through the better integration of sustainability considerations into the preparation and adoption of plans.

2.11.2 As part of the IIA appraisal, land at Wickham Park was assessed against the set criteria and scored well against the objectives relating to climate change mitigation, travel and air quality, health and wellbeing and services and facilities. This strongly suggests that Wickham Park has many qualities that would make it suitable for development and hence Local Plan allocation.

2.12 Welborne Garden Village

2.12.1 Welborne Garden Village is a consented development located to the south of the village of Wickham. It is allocated in the Fareham Local Plan and was granted planning permission in 2021. It could deliver up to 6,000 new homes alongside other village centre uses.

2.12.2 The Regulation 18 Local Plan includes the allocation of an area of open space to maintain the settlement gap and avoid coalescence of Knowle / Wickham and the new neighbourhood (draft Policy WK3 Welbourne Open Space).

2.12.3 The planning application material for Welbourne Garden Village has been reviewed at a high-level and the following key points are noted:

- Significant junction improvements are proposed at M27 Junction 10.
- Significant improvements to walking and cycling infrastructure are proposed, including a cycle link between Welborne and Wickham on the A32 Hoads Hill and A334 Winchester Road and a cycle links between Welborne and Fareham railway station and town centre.
- Junction improvements at key junctions in proximity of Wickham including, A32 Hoad's Hill / A334 Fareham Road roundabout, A32 Wickham Road / Furze Court / North Hill, North Hill / Old Turnpike / Park Lane / Kiln Road signal.
- Link improvements to A32 Wickham Road between North Hill and Wallington Way and link improvements to Funtley Hill.
- Welborne Garden Village will be providing demand responsive transport (DRT) as part of their development.

2.12.4 Wellborne Garden Village is not expected to prejudice the allocation of development sites in Wickham from a transport perspective as Wellborne Garden Village is an approved site that has had its transport impact and subsequent mitigation deemed acceptable by the Local Planning Authority. Any development in Wickham, including Wickham Park, would have to go through the same process. At the planning application stage for Wickham Park, proposals will be discussed with highway officers and mitigation will be considered for any transport impacts as appropriate.

2.13 Winchester Local Cycling and Walking Infrastructure Plan (May 2024)

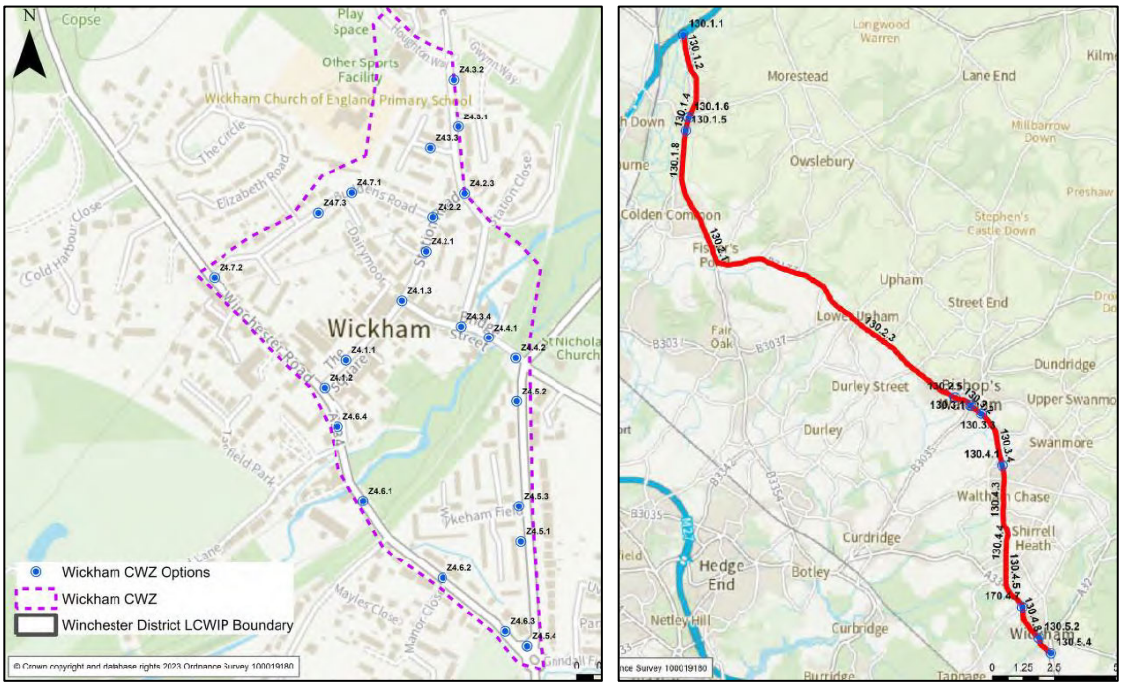
2.13.1 Hampshire County Council and Winchester City Council have published a consultation draft Local Cycling and Walking Infrastructure Plan (the Winchester LCWIP). This document sets out a strategic approach to identifying cycling and walking improvements required at the local level.

2.13.2 The key outputs of the Winchester LCWIPs is a network plan for walking and cycling which identifies preferred routes and core zones for further development, along with a prioritised programme of infrastructure improvements.

2.13.3 With respect to Wickham it sets out a core walking zone (CWZ) as illustrated below left. The CWZ for Wickham includes the built-up core of the village centre. It is bounded by Buddens Road to the north, School Road to the south, the A334 to the west, and Mill Lane and Bridge Street to the east. It functions as a service centre for a wider rural population providing a number of key facilities including medical provision and shops.

2.13.4 With respect to proposed cycle routes, one is identified between Hockley, Bishops Waltham and Wickham, as illustrated below right. This includes a section along the A334 Winchester Road.

2.13.5 The proposed site at Wickham Park would have regard to this document and would seek to facilitate initiatives within it as appropriate as part of its delivery.

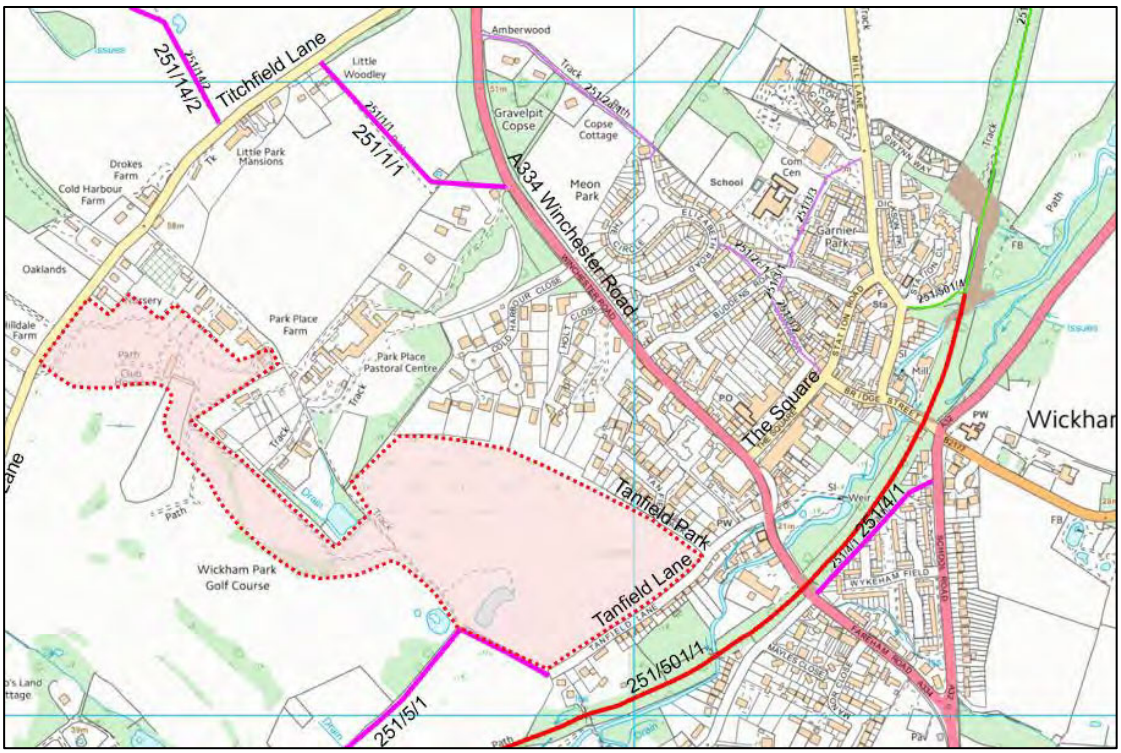


3 Access strategy

3.1.1 This section will provide a review the existing transport network in the vicinity of Wickham Park golf course and describe the access strategy that would be promoted for the site. The purpose of this section is to demonstrate that the site will integrate with the existing transport network, enhance this as appropriate and be able to encourage the use of sustainable travel modes.

3.2 Walking and cycling

3.2.1 The plan below illustrates the site boundary (dashed red) existing public rights of way (purple) and street network surrounding the site. The north east boundary of the siteis only around 500m (around a 6 to 7 minute walk) from Wickham Square, which is the centre of the settlement where a number of amenities are located.



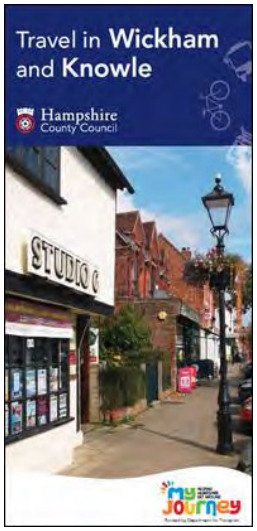
3.2.2 Tanfield Lane between the golf course boundary and the A334 Winchester Road is a narrow residential lane. It is effectively a cul-de-sac serving a small number of homes and does not have a footway. Therefore, existing residents will share the carriageway with vehicles, albeit it will be a low traffic speed environment. Tanfield Lane is lit at its junction with Tanfield Park and its junction with A334 Winchester Road.

3.2.3 A334 Winchester Road is the main road through the village of Wickham. It has footways on both sides of the carriageway with the southern footway having a wide verge between the footway and the carriageway. A signal controlled pedestrian crossing is available on A334 Winchester Road adjacent to Wickham Square.

3.2.4 There are two Public Rights of Way (PRoW) which run either within the site or along its boundary. These are PRoWs 251/5/1 and 251/501/1 as illustrated above. These will provide access to Tanfield Lane and the east side of Wickham respectively.

3.2.5 A desktop research exercise has found a leaflet (see below right) produced by Hampshire County Council. This leaflet promotes a walking route (which is referred to as Meadow Meanders) using Tanfield Lane as per the map extract below left. This route is also marked as PRoW 251/501/1 on the Hampshire PRoW map as illustrated on the plan above.

3.2.6 On this basis it is clear that the Tanfield Lane route is promoted as a route suitable for walking as part of a wider network of footpaths. It is further noted that PRoW 251/501/1 heads north towards the east side of Wickham and the leaflet text suggests that this route provides access to The Square within Wickham. Access to PRoW 251/501/1 can be achieved from the site via land in the ownership of the golf club.



3.2.7 The site is approximately 500m from Wickham Square using the existing walking route of Tanfield Lane route. This means that walking and cycling would be a realistic and attractive means of transport for a number of local journeys. Wickham Square has amenities such as convenience stores, hairdressers, cafes, pubs and a range of other small local businesses.

3.2.8 A walk / cycle access point between the site and Tanfield Park would be created. This would also act as an emergency access if the main access on Titchfield Lane was unavailable. Tanfield Park is a residential road which already has footways on both sides of the carriageway.

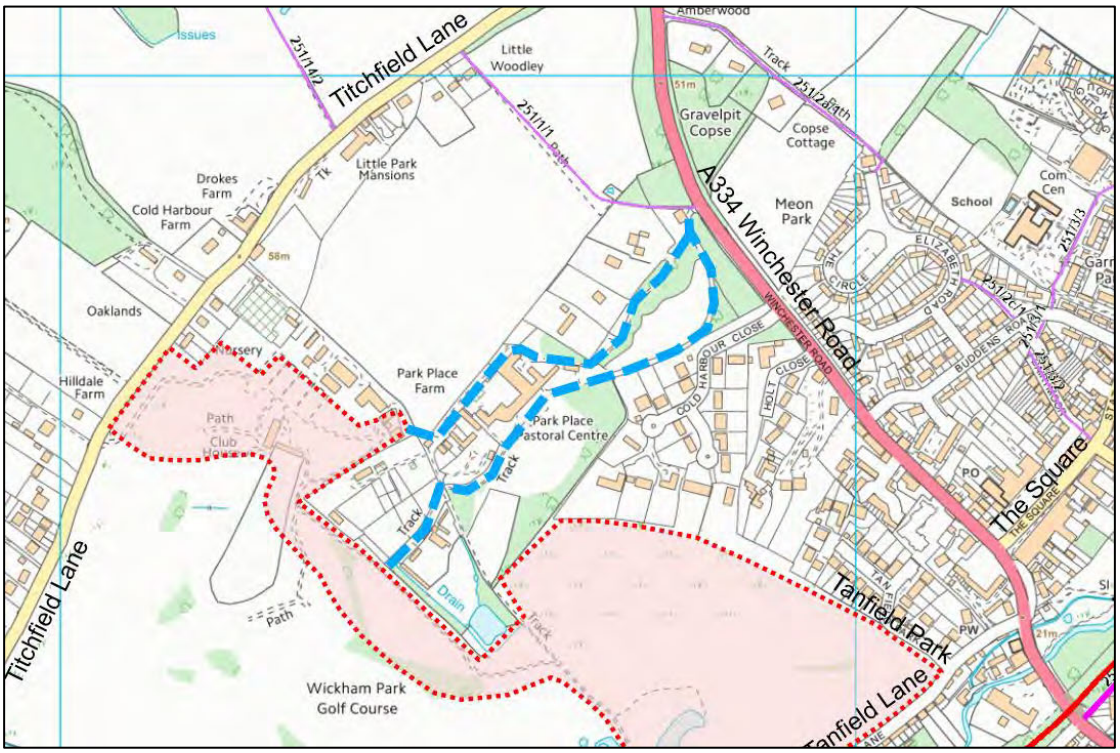
3.2.9 Tanfield Park connects to Tanfield Lane which is a residential lane that connects to the A334 Winchester Road. Tanfield Lane does not currently have a footway provision but would offer a convenient walking route to Wickham Square.

3.2.10 Pedestrians would need to share the carriageway with vehicles on Tanfield Lane. However, it is noted that Tanfield Lane is a cul-de-sac serving a small number of residential dwellings, a wastewater treatment centre and vineyard. It is expected that vehicle volumes and speeds are low and this would be demonstrated during a planning application stage. This route is already used by residents for walking and is a route promoted for walking by Hampshire County Council as described above.

3.2.11 There would be an opportunity to review the Tanfield Lane route when promoting a planning application to determine whether this could be improved for new and existing residents. Hence, the highway boundary data would be reviewed to confirm the extent of highway boundary land available for provision of a footway along Tanfield Lane or part of Tanfield Lane.

3.2.12 The potential to use surfacing and signing on Tanfield Lane to make it clear that it is a shared surface for walking and vehicular access would also be investigated and discussed with highway officers.

3.2.13 To the west end of the site there are a number of tracks that suggest they connect the site with the A334 Winchester Road to the north. These are illustrated below in dashed blue line.



3.2.14 On promoting the site through planning it is proposed that these routes would be explored to determine whether a right of way / access exists along them for users of the site. Hence, discussions would be held with the neighbouring land owners at the appropriate time.

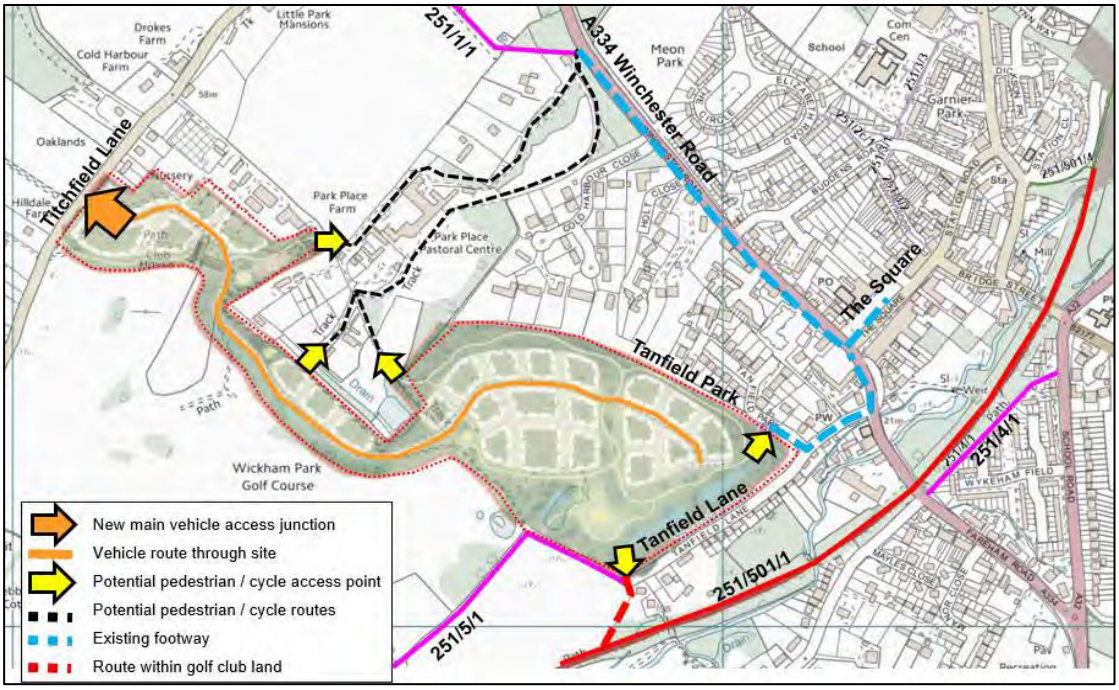
3.2.15 Whilst access to the site by walking and cycling wouldn't be reliant upon achieving these routes, they would offer further permeability to / from the site. This would be beneficial to new and existing walking journeys.

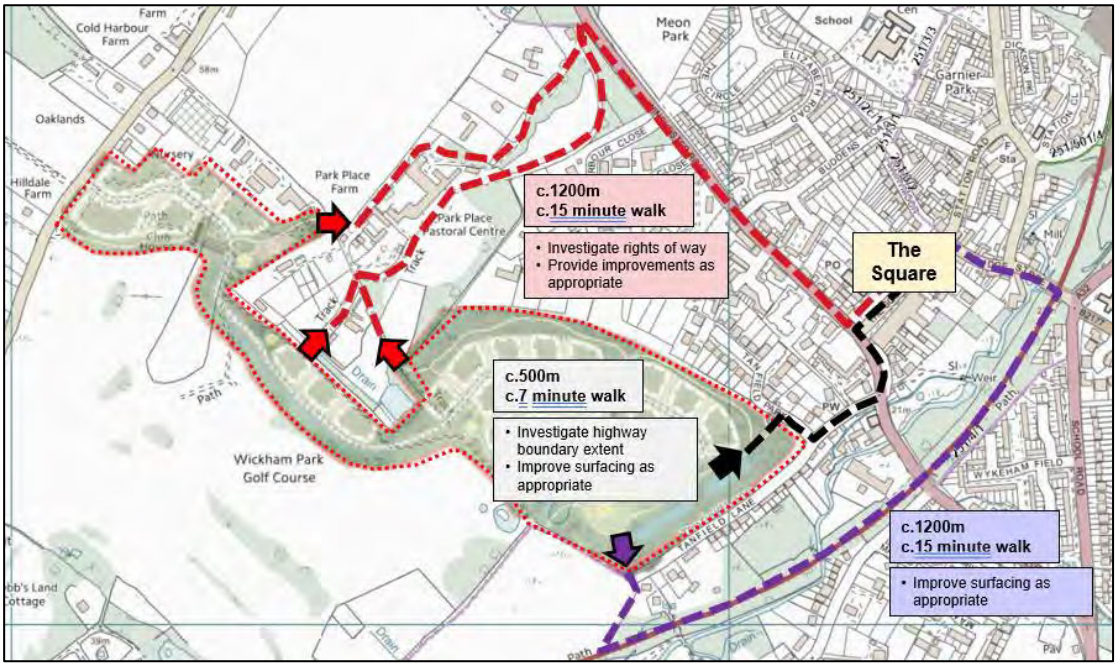
3.2.16 The site is in close proximity to the cycling network. A local cycle route is available to the east (see extract from the OpenCycleMap Street website opposite). This route could be reached from the site through creating a short link using golf club land. The National Cycle Route is also available to the east and this uses part of the A334 Winchester Road and The Square as illustrated opposite.

3.2.17 The design of a new community on site will embed all of the qualities of a compact and walkable neighbourhood. The site would be designed in a way which creates an environment where walking and cycling are the preferred options for travel on-site by:

- Creating a convenient, safe and attractive network of walking and cycle routes
- Creating a pedestrian priority environment at the heart of the new neighbourhood, limiting the access of cars; and
- Creating a connection through the site and with Wickham Square.

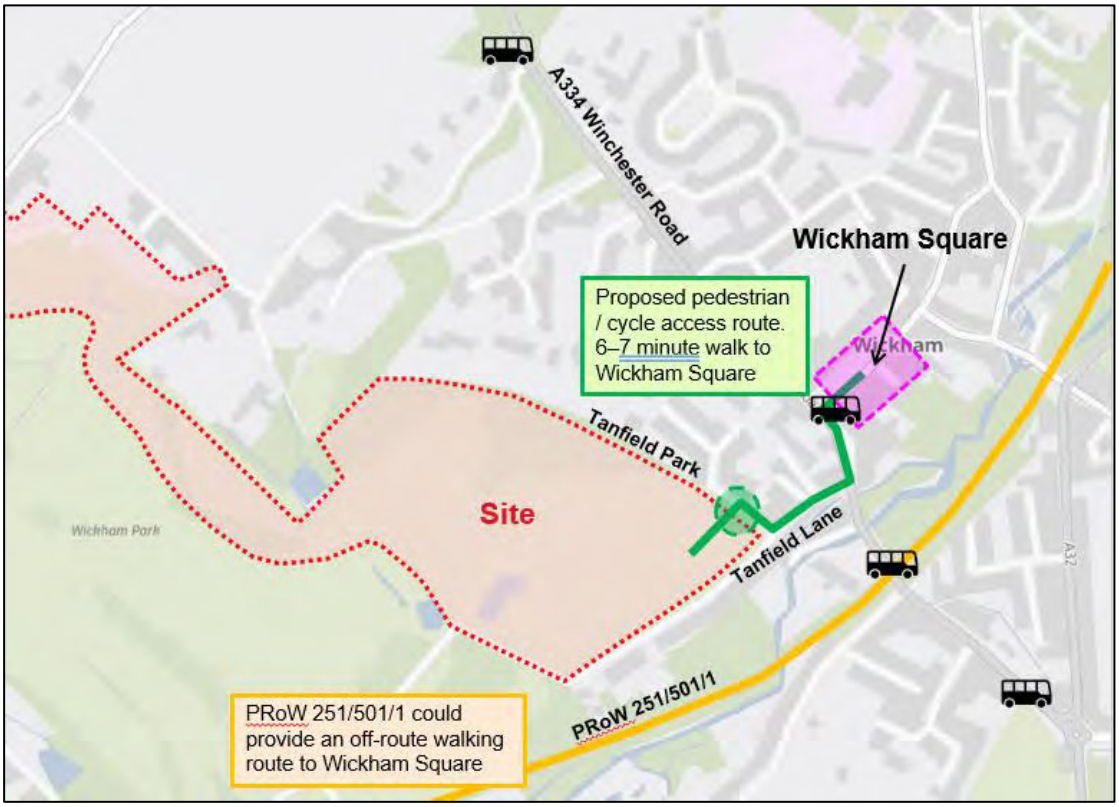
3.2.18 On the basis of the paragraphs above, the walking and cycling access strategy for the site is summarised in the figures below. The top figure illustrates the potential walking and / or cycle access points and the bottom figure illustrates the distances. These would be considered further during a planning application process and through discussions with highway officers and reference to Hampshire County Council Technical Guidance Note TG10 (Pedestrian and Cycle Facilities).





3.3 Public transport - bus

3.3.1 The nearest bus stop to the site is 'The Square' which is located on the junction between the A334 Winchester Road and The Square. Locally, this area is known as Wickham Square and is the centre of the village. The stop serves both eastbound and westbound buses and is comprised of a bus stop shelter and bus stop flag. The bus stop locations relative to the site are shown in figure below.



3.3.2 "The Square" bus stop is served by several bus services. The service details are provided in the table below.

Service No.	Route	Frequency		
		Weekday	Saturday	Sunday
69	Fareham – Wickham – Waltham Chase – Bishops Waltham – Winchester	1 per hour per direction	1 per hour per direction	6 services per direction
20	Fareham - Wickham	1 per hour per direction	No service	No service
38	Wickham – Hundred Acres – Southwick – Cosham	2 per day per direction	No service	No service
96	Swanmore – Shedfield – Wickham – Fareham (library)	1 per day per direction	No service	No service

3.3.3 The 69 is the most regular bus service, operating an hourly service that starts early in the morning and finishes late in the evening. It is also the only service which operates at the weekend. It should also be noted that the 69 stops outside Fareham railway station, which is the closest railway station to the site, meaning it is possible to access the railway station by means other than the private car.

3.3.4 Public transport will be a key consideration for the longer distance trips to and from the site that can't be as easily accommodated by walking and cycling and also for linkages to key destinations such as Winchester and Fareham. Future residents of Wickham Park golf course would be encouraged to walk to Wickham Square where there are hourly services to Winchester and half hourly services to Fareham. This may include Travel Plan measures to provide a period of free bus travel to new residents for example.

3.3.5 It is noted that the Welborne Garden Community, which is located to the south of Wickham inside the administrative boundary of Fareham, will be providing demand responsive transport (DRT) as part of their development. This type of public transport arrangement could be explored for Wickham Park at the planning application stage as it could be suitable for a site of this scale and nature.

3.4 Public Transport – rail

3.4.1 The closest railway station to the site is Fareham Railway Station which is located approximately 8km to the south of the site (equivalent to a 12-minute drive or 18-minute bus journey).

3.4.2 Fareham Railway Station is located on the West Coastway Line and provides train services to stations such as Southampton Central, Portsmouth Harbour, Brighton and London Waterloo.

3.4.3 A summary of the key destinations that can be reached from Fareham Railway Station and the frequency of these services is provided in the table below.

Key Destination	Frequency			
	Weekday		Saturday	Sunday
	Peak	Off-Peak		
Southampton Central	AM: 5 services PM: 4 services	4 services per hour	4 services per hour	4 services per hour
Portsmouth & Southsea	AM: 5 services PM: 3 services	3 services per hour	3 services per hour	2 services per hour
Portsmouth Harbour	AM: 3 services PM: 2 services	2 services per hour	2 services per hour	2 services per hour
Brighton	AM: 1 service PM: 2 services	2 services per hour	2 services per hour	1 service per hour
London Waterloo	AM: 2 services PM: 1 service	1 service per hour	1 service per hour	1 service per hour
Winchester	AM: 2 services	1 service per hour	1 service per hour	1 service per hour

	PM: 1 service			
Salisbury	AM: 1 service PM: 1 service	1 service per hour	1 service per hour	1 service per hour

3.4.4 The number 69 bus provides a link to Fareham Railway Station. Residents would be encouraged to use this service to reach the station rather than using a private car.

3.5 Highway network

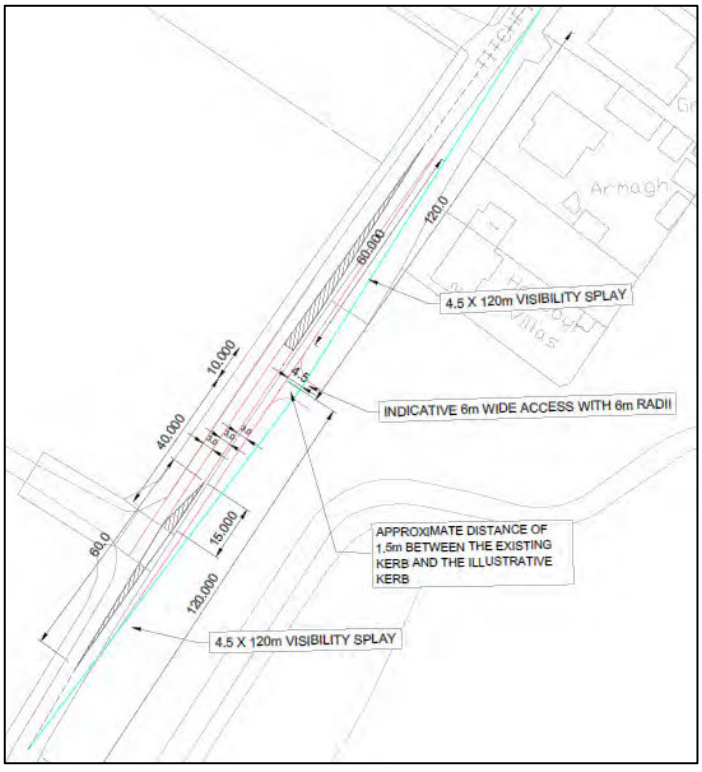
3.5.1 Although the location of the site has the potential to offer walking, cycling and public transport links, it is acknowledged that vehicle trips will still play an important role for residents of the site for certain journeys. Wickham Park golf club is currently accessed from Titchfield Lane via a priority T-junction. This access will be amended as a result of the masterplanning of the site and this is described below.

3.5.2 Titchfield Lane is a single carriageway road with one lane in each direction and it is subject to a 40mph speed limit.

3.5.3 Titchfield Lane routes towards Fareham to the south and the village of Wickham to the north. From Titchfield Lane, Wickham can be reached via the A334 Winchester Road which is the main road through the village. This is a single carriageway with one lane in each direction. It is subject to a 30mph speed limit through the village and is fronted by properties on both sides of the road.

3.5.4 The nearest road which is part of the Strategic Road Network (SRN) is the M27. The nearest junction is M27 Junction 10 which can be accessed via the A32 Wickham Road. However, M27 Junction 10 currently only has east facing slip roads, meaning traffic can only route to and from the Portsmouth direction.

3.5.5 Significant improvements, including all movement slip roads, are proposed at this junction as part of the Welborne Garden Community (P/17/0266/OA). Currently, traffic heading westbound via the M27 would route towards M27 Junction 7 via the A334.



3.5.6 The proposed vehicle access to the site will be from Titchfield Lane, as shown opposite in the drawing extract. This is included as Appendix A.

The vehicle access proposals have been derived with reference to the Design Manual for Roads and Bridges documents and Hampshire County Council guidance documents.

3.5.7 The visibility from the proposed access has been assessed in

accordance with “Technical Guidance Note TG3 – Stopping Sight Distances and Visibility Splays” which is a guidance document produced by Hampshire County Council. Document TG3 states that visibility should be assessed 2.4m back from the stop line for roads less than 40mph and 4.5m back from the stop line for roads greater than 40mph. The site access on Titchfield Lane would sit within the existing 40mph speed limit zone and a set back of 4.5m has been assumed.

3.5.8 Design Manual for Roads and Bridges (DMRB) CD109 states that for a 40mph road 120m is the desirable length of visibility splay. The figure above demonstrates that visibility splays of 4.5m x 120m can be achieved from the proposed access.

3.5.9 An emergency access to the site is proposed on Tanfield Park. This will be at the location of the proposed pedestrian / cycle access, designed to accommodate emergency vehicles in the event that the main vehicle access is unavailable.

3.5.10 On the basis of the above, and Appendix A, it is demonstrated that a suitable vehicular access could be provided. This would be the subject of the usual road safety and technical audit process during a planning application stage.

3.6 Access to amenities

3.6.1 The document “Guidelines for providing for journeys on foot” published by the Institution of Highways and Transportation in 2000 contains a table (3.2) that summarises suggested acceptable walking distances, for pedestrians without a mobility impairment for some common facilities.

Amenity	Town centres	Commuting / School / Sight seeing	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1000m	800m
Preferred Maximum	800m	2000m	1200m

3.6.2 The Chartered Institution of Highways and Transportation (CIHT) guidance document 'Planning for Walking' (2015) states that "walking neighbourhoods are typically characterised as having a range of facilities within 10 minutes' walking distance (around 800m)." The guidance also notes that people will walk further for more powerful services; 400m for bus stops in residential areas and up to 800m for railway stations.

3.6.3 The Guidance suggests approximately 80% of journeys shorter than 1 mile (1.6 km) are made wholly on foot, with traditional compact town layouts characterised as having a range of facilities within 10 minutes' walking distance (around 800 metres).

3.6.4 The WYG document titled “How far do people walk?” presented at the PTRC Transport Practitioners’ Meeting in 2015 provides a review of available documentation and National Travel Survey data. The document provides the table below which summarises recorded walking distances by journey purpose.

Purpose	Weighted Sample Size	Proportion	Mean (m)	85th %ile (m)
Commuting	2166	7.1%	1250	2100
Business	290	1.0%		
Education/ Escort	5609	18.5%	1,000	1600
Shopping	5958	19.6%	1,000	1600
Other Escort	1392	4.6%	1100	1600
Personal Business	2730	9.0%	1,000	1600
Leisure	5539	18.2%	1150	1950
Other (including just walk)	6698	22.0%	1450	2400
All	30382	100%	1150	1950

3.6.5 The document also states that “Policy making and decision taking should be based on the best evidence available and the following distances are recommended for planning purposes”.

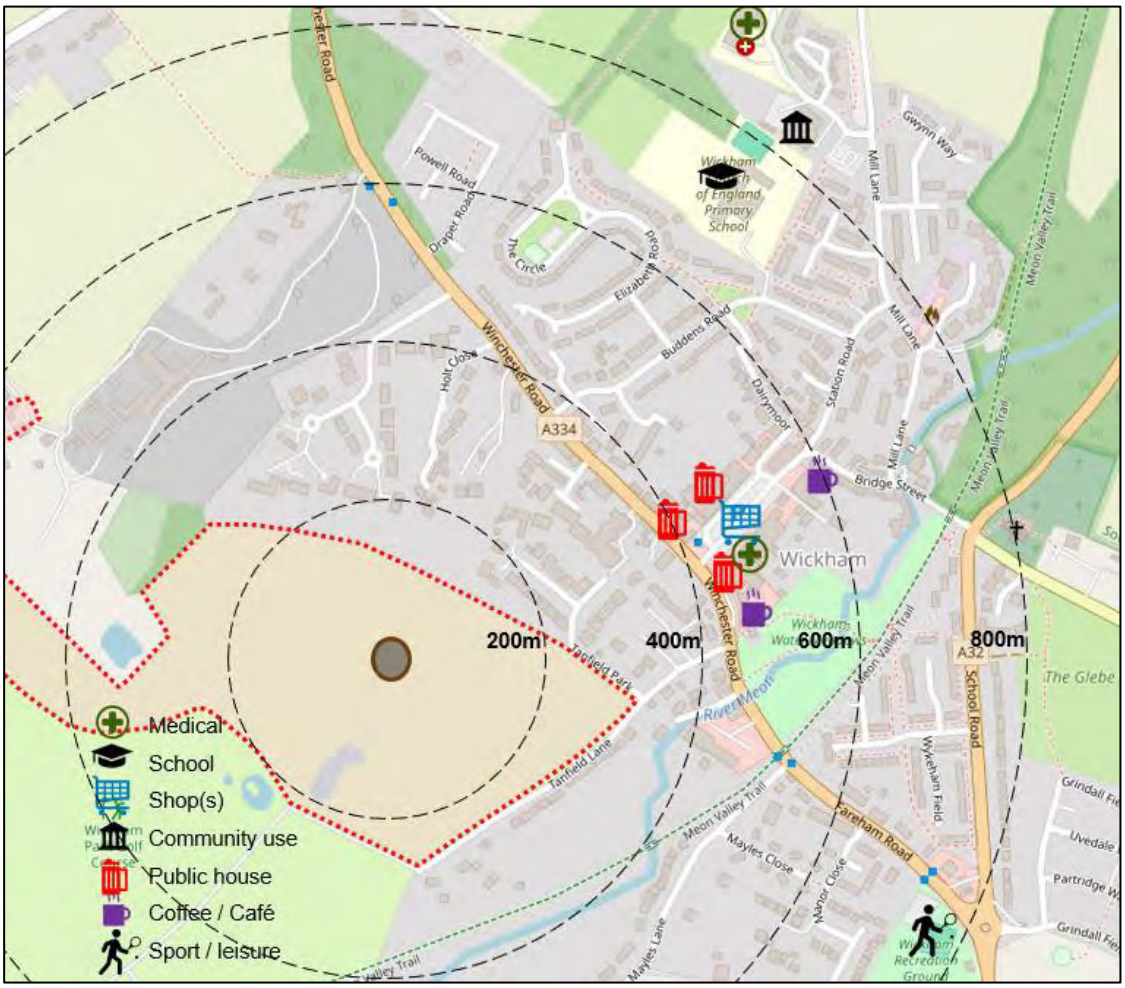
Walk – As main mode of travel	Mean	85th percentile
UK (Excluding London)	1,150 m	1,950 m
London	1,000 m	1,600 m
Walk to a bus stop		
UK (Excluding London)	580 m	800 m
London	490 m	800 m
Walk to a rail station		
UK (Excluding London)	1,010 m	1,610 m
London	740 m	1,290 m

3.6.6 Manual for Streets (section 4.4) considers the walkable neighbourhood which it states are typically characterised by having a range of facilities within 10 minutes’ (up to about 800 m) walking distance of residential areas. However, Manual for Streets recognises that this is not an upper limit and states that walking offers the greatest potential to replace short car trips, particularly those under 2 km.

3.6.7 It is noted that many of the amenities available from the site fall within the preferred maximum distances summarised above as demonstrated by the amenities plan below.

3.6.8 Wickham Square is the centre of the village, has a large number of local amenities including convenience stores, hairdressers, cafes, pubs and a range of small local businesses. This is only approximately 500m from the approximate centroid of the site.

3.6.9 The are other amenities outside Wickham Square, including a primary school, GP surgery, village hall, recreation ground and petrol station.



4 Potential transport effects and mitigation

4.1.1 The Vision for the site will focus on an accessible and sustainable development. The access and movement infrastructure will be balanced to encourage walking, cycling and public transport prior to any car mode infrastructure being brought forward.

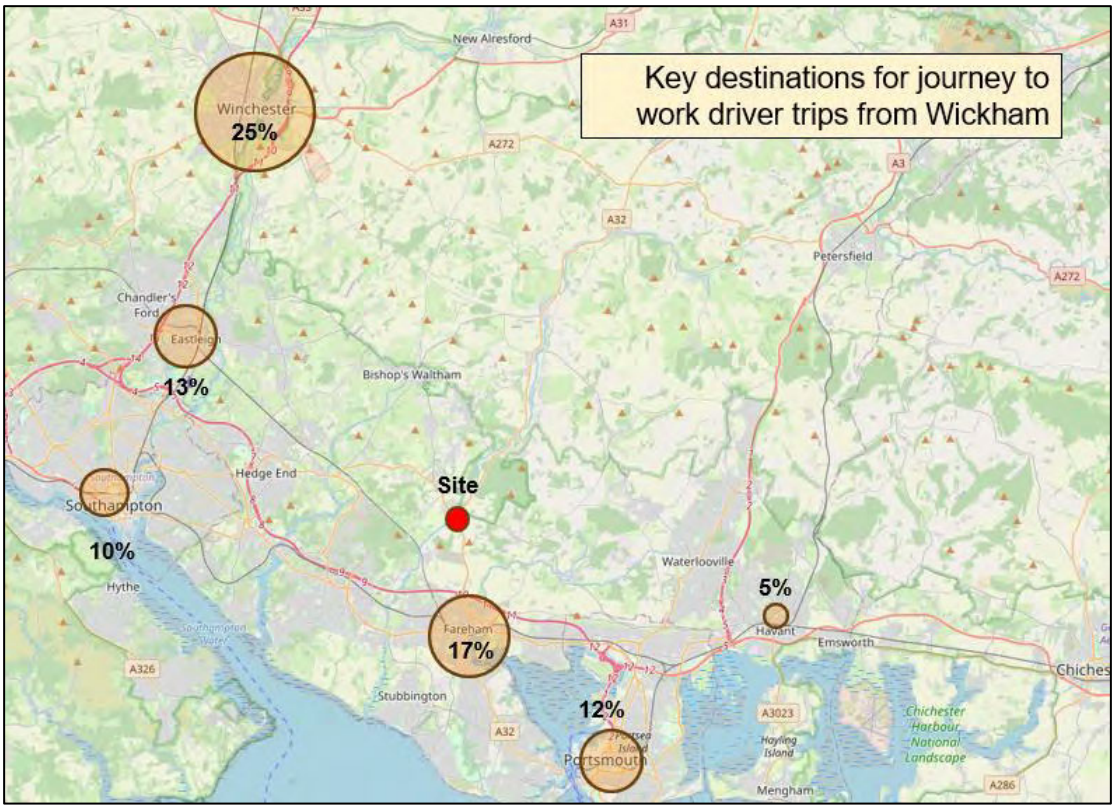
4.1.2 Historically, car access has been prioritised and more often than not, this has led to poor travel habits from first occupation, with sustainable modes being progressively less well used. It is well known that the best opportunity to capture sustainable habits is as soon as occupants take up residency, with messaging prior to moving in also being important at the sales stage.

4.1.3 At the time of preparing a planning application it will be a requirement to undertake a detailed Transport Assessment and consult with highway officers to agree the scope and methodology of this. This will include developing a “vision” and Travel Plan for the development to encourage sustainable travel and implement measures against mode share targets.

4.2 Travel behaviour

4.2.1 The current travel to work patterns of existing residents in and around Wickham has been reviewed from census data, and this shows that travel to work in the surrounding area is to a range of destinations as summarised in the table and figure below.

Destination	Number of car / van drivers	Percentage of total number of car / van drivers
Winchester	929	24.9%
Fareham	615	16.5%
Eastleigh	466	12.5%
Portsmouth	436	11.7%
Southampton	382	10.2%
Havant	169	4.5%
Gosport	109	2.9%
Test Valley	84	2.3%
East Hampshire	72	1.9%
Basingstoke and Deane	61	1.6%
New Forest	60	1.6%
Chichester	52	1.4%
Other	297	8.0%
Total	**3732**	**100%**



4.2.2 The mode share of journey to work trips has also been extracted from the census data for the Wickham area and this is summarised in the table below. It is evident that the existing mode share is around 80%, a high proportion.

Method of travel to work	Number of people	Percentage mode share
Work mainly at or from home	0	0.0%
Underground, metro, light rail, tram	5	0.1%
Train	157	3.4%
Bus, minibus or coach	35	0.8%
Taxi	6	0.1%
Motorcycle, scooter or moped	47	1.0%
Driving a car or van	3,732	81.8%
Passenger in a car or van	195	4.3%
Bicycle	87	1.9%
On foot	287	6.3%
Other method of travel to work	12	0.3%

4.2.3 The existing high car mode share provides a strong backdrop from which to promote a step change in travel mode and achieve more sustainable travel patterns as new developments come forward.

4.2.4 How and where people will travel in the future from the site will depend on the master planning of the area, how it integrates with existing communities and the transport infrastructure and the strategies that are implemented.

4.3 Traffic generation

4.3.1 The potential traffic generation from the proposed development has been calculated using the TRICS database. The following parameters have been assumed when extracting data from TRICS for residential land use.

- Use class 03 – Residential, A – Houses privately owned
- Suburban and edge of town locations
- Sites in England, excluding London
- Range: 100 – 500 units

4.3.2 The vehicle trip generation rates proposed to be adopted for the residential dwellings are summarised below and appended at Appendix B. The table below also indicates the potential traffic generation of 300 homes based upon these trip generation rates.

300 homes	AM Peak Hour (0800-0900)			PM Peak Hour (1700-1800)		
	In	Out	2-way	In	Out	2-way
Trip rate (per unit)	0.127	0.356	0.483	0.330	0.151	0.481
Trip generation	**38**	**107**	**145**	**99**	**45**	**144**

4.3.3 It is noted that the proposed residential use would be expected to generate 145 two-way vehicle movements and 144 two-way vehicle movements during the morning and evening peak hours respectively. This is little more than 2 additional vehicles per minute during the peak hours.

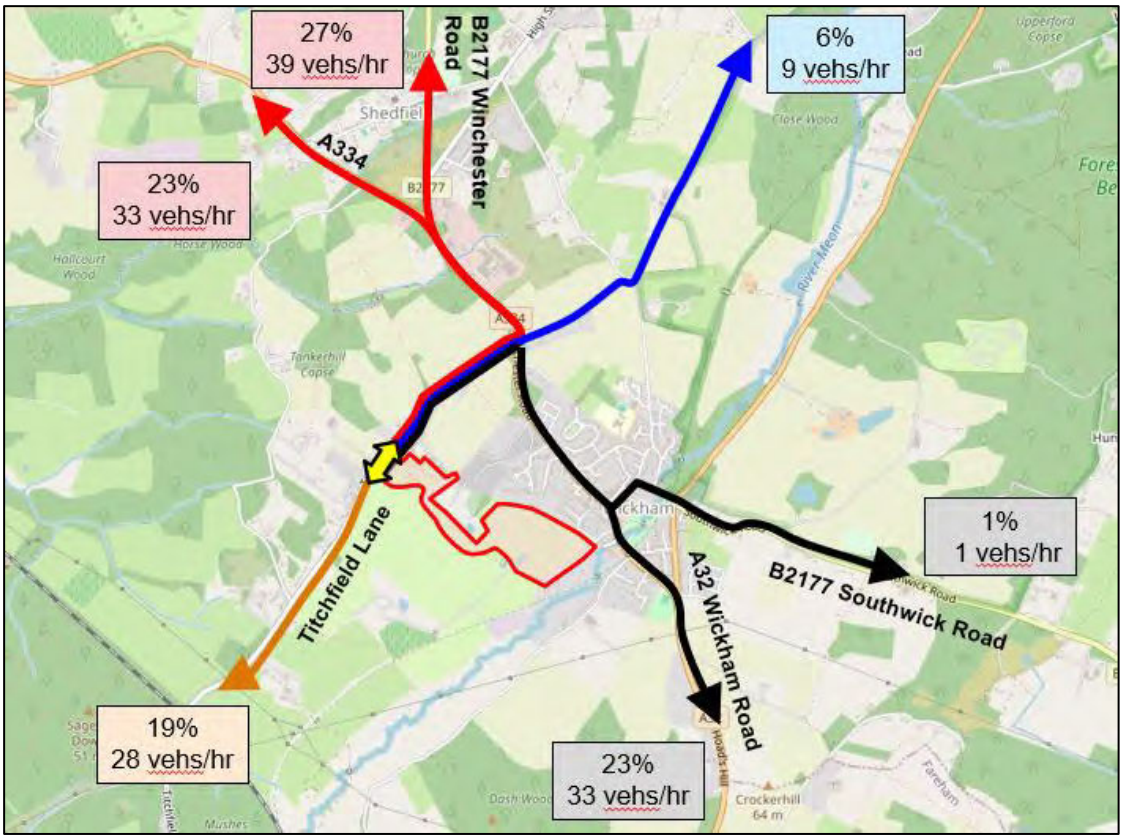
4.4 Development trip distribution

4.4.1 The distribution of residential trips on the network has been considered using the census data as described above with respect to ‘Location of usual residence and place of work’. The routeing of the trips has been considered in the figure below.

4.4.2 At the planning application stage, a more detailed trip generation, distribution and assignment exercise would be undertaken. This would help establish a more comprehensive and detailed understanding of the predicted highway impact of the site and would allow appropriate mitigation measures to be considered and agreed with highway authority officers.

4.4.3 Hence, the figure below would be refined during the development of a detailed Transport Assessment to support a planning application for the site, but nevertheless provides an indication of the dilution of traffic on the surrounding highway network.

4.4.4 On this basis it is expected that no one route would experience more than around 40 additional vehicles during a peak hour. This is less than one additional vehicle per minute and would not be expected to be discernible on the highway network in practise. Hence, it is not expected to result in significant or severe effects on the existing highway network.



4.5 Mitigation through travel planning

4.5.1 The Transport Assessment for the site would assess the need for physical improvements to the surrounding highway network as is usual through detailed modelling. However, this would not necessarily be completed as a first priority. Instead, the needs of active travel and public transport users would be considered first as is the direction of travel of transport policy both at a national and local level.

4.5.2 In recent years local authorities and National Highways in particular have encouraged use of 'Monitor and Manage' as a method of introducing infrastructure in a phased manner at the right time to support a given objective. Monitor and manage should be dynamic as time goes by in terms of bringing initiatives and infrastructure forward to support a development, rather than sticking rigidly to a set of trigger points defined by a forecast model many years before.

4.5.3 Monitoring can effectively be implemented through a pre-determined scheme of surveys, both on the site and at remote locations such as links, junctions, interchanges and public transport stops, where the movement of site traffic can be traced on the network (using ANPR for instance). This has the benefits of creating an understanding of whether development traffic is acting as predicted and if it is causing a problem.

4.5.4 Managing is about setting clear rules at the outset that all parties are signed up to and can work to. This is the role of the Transport Assessment and the predictions therein which would highlight locations where mitigation interventions would be triggered. From these predictions it is possible to set the 'rules' by which an 'effect' would trigger a necessary set of 'works'.

4.5.5 Monitor and manage approaches have been written into S106 agreements elsewhere, signed up to by the highway authority and National Highways. Hence, the principle, structure and function of the mechanism is established.

4.5.6 Monitor and manage could be applied to this development proposal if it is considered an appropriate tool for addressing any effects that may result from the development. A Residential Travel Plan would be an intrinsic part of the monitor and manage approach. It is the role of the Travel Plan to be the front end of the move to shift travel focus away from the car and feed important information into the monitor and manage process.

4.5.7 A Travel Plan is a management tool that sets out a range of initiatives which aim to encourage a modal shift away from the private car by raising awareness of, and promoting the use of, a range of transport modes. Implemented correctly, a Travel Plan can produce significant benefits such as financial benefits, better access to local facilities and the opportunity for a healthier lifestyle, not only to the target audience, but also to the wider community by reducing the number of trips carried out by less sustainable modes on the local highway network. Travel plans are living documents which need to be subject to regular monitoring and review.

4.5.8 The objectives of a Travel Plan should be consistent with the objectives encapsulated within the NPPF to encourage sustainable travel and reduce the number of car trips to, from and within the site by promoting use of the range of sustainable alternatives available

4.5.9 In order for a Travel Plan to be effective it must have measurable outcomes which can be monitored and reviewed on a regular basis. Targets should be set that are challenging, yet realistic in seeking to reduce the number of vehicular trips and promote the more sustainable modes of travel. A Travel Plan also requires the appointment of a Travel Plan Coordinator with the necessary expertise to develop, implement and monitor the Framework Travel Plan.

4.5.10 A selection of measures should be included within a Travel Plan and implemented by the site occupiers or developer to influence the travel behaviour. These may include the following :

- Travel awareness campaigns to ensure that relevant travel information is available to enable residents and visitors to make an informed decision as to their mode of transport.

- The best time to influence travel behaviour is from the outset, before unsustainable travel patterns have had a chance to develop. Therefore, it is important that new residents on site are well informed of the travel choices available to them through issuing a Travel Information Pack (TIP).

- Walking and cycling are the most sustainable and beneficial modes of transport in terms of health and cost, yet the benefits of these modes can often be overlooked when faced with the time benefits of the private car. Ensuring that the walking and cycling routes on site are convenient and direct will be important, as well as the connections to the external network and improvements off site as appropriate and feasible.

- The TPCs should be familiar with the existing bus and rail services to assist residents in their use. The TPCs should regularly check public transport services and inform residents if any changes have been made.

- Car clubs are becoming increasingly popular around the UK. They provide the benefit and convenience that a private car can provide but without the hassle of having to pay the associated costs or of finding a parking space. Car club schemes allow for cars to be booked for as little as 30 minutes at a time. The TPC should investigate the costs and practicalities of implementing a car club at the development.

4.5.11 There is a continuing emergence of electric car technology and an increasing momentum with respect to electric car sales. This should be responded to by the development with the provision of electric car charging points.

4.5.12 Travel Plans should be monitored in order to assess the effectiveness of the measures in achieving the identified outcome targets. The results of the monitoring can be analysed and

used to create a Travel Plan Monitoring Report, which will help to establish whether the targets are being met and, if not, what additional / alternative measures will be implemented to achieve them.

4.5.13 Implementing a Travel Plan and monitoring regime as described above will provide mitigation to the effect of development traffic. It will allow targets to be monitored and the avoidance of physical capacity upgrades for private car use unless absolutely necessary.

5 Summary

5.1.1 This technical report has been written to provide Transport Planning representations to the Regulation 19 Local Plan consultation and considers a range of transport matters that are material for the Local Planning Authority to consider in allocating the site as part of its emerging Local Plan.

5.1.2 This report demonstrates how the transport infrastructure can accommodate the development and contribute towards making it a sustainable and attractive place to live. This report further demonstrates that Winchester City Council can allocate this land with confidence for residential development in its emerging local plan, knowing that Transport Planning is not a reason for its non allocation.

5.1.3 The site is next to the existing built up area of Wickham and also within close proximity of a range of existing sustainable transport opportunities. A focussed transport vision and strategy will encourage sustainable travel behaviour and the way sustainable travel is viewed by new residents.

5.1.4 Consideration has been given to policy and guidance at the national, regional, and local level. The proposed development, when coming forward for planning, will outline a vision for how it will seek to promote sustainable travel and facilitate a reduction in the need to travel by private car in line with current policy. A Travel Plan will accompany any future planning application and set out the measures that will be put in place to realise this vision.

5.1.5 There are two PRoWs which run either within the site or along its boundary which provide access to Tanfield Lane and the east side of Wickham. The site is approximately 500m from Wickham Square using the existing walking route of Tanfield Lane route. This means that walking and cycling would be a realistic and attractive means of transport for a number of local journeys. There would be an opportunity to review the Tanfield Lane route when promoting a planning application to determine whether this could be improved for new and existing residents.

5.1.6 The site is in close proximity to the cycling network. A local cycle route is available to the east that could be reached from the site through creating a short link using golf club land. The National Cycle Route is also available to the east and this uses part of the A334 Winchester Road and The Square.

5.1.7 The nearest bus stop to the site is ‘The Square’, locally known as Wickham Square at the centre of the village. This would be accessible to residents and provide a means of accessing the local surrounding settlements and further afield. It is noted that the Welborne Garden Community, located to the south, will be providing demand responsive transport as part of their development. This type of public transport arrangement could be explored for Wickham Park at the planning application stage as it could be suitable for a site of this scale and nature.

5.1.8 Wickham Park golf club is currently accessed by vehicles from Titchfield Lane via a priority T-junction. This access will be amended as a result of the masterplanning of the site and will be provided as a ghost island priority junction. An emergency access to the site is proposed on Tanfield Park.

5.1.9 It is noted that many amenities are available from the site within the preferred maximum distances summarised in this report. Wickham Square is the centre of the village, and has a large number of local amenities including convenience stores, hairdressers, cafes, pubs and a range of small local businesses. There are other amenities outside Wickham Square, including a primary school, GP surgery, village hall, recreation ground and petrol station.

5.1.10 At the time of preparing a planning application it will be a requirement to undertake a detailed Transport Assessment and consult with highway officers to agree the scope and methodology of this. This will include developing a “vision” and Travel Plan for the development to encourage sustainable travel and implement measures against mode share targets. The Vision for the site will focus on an accessible and sustainable development.

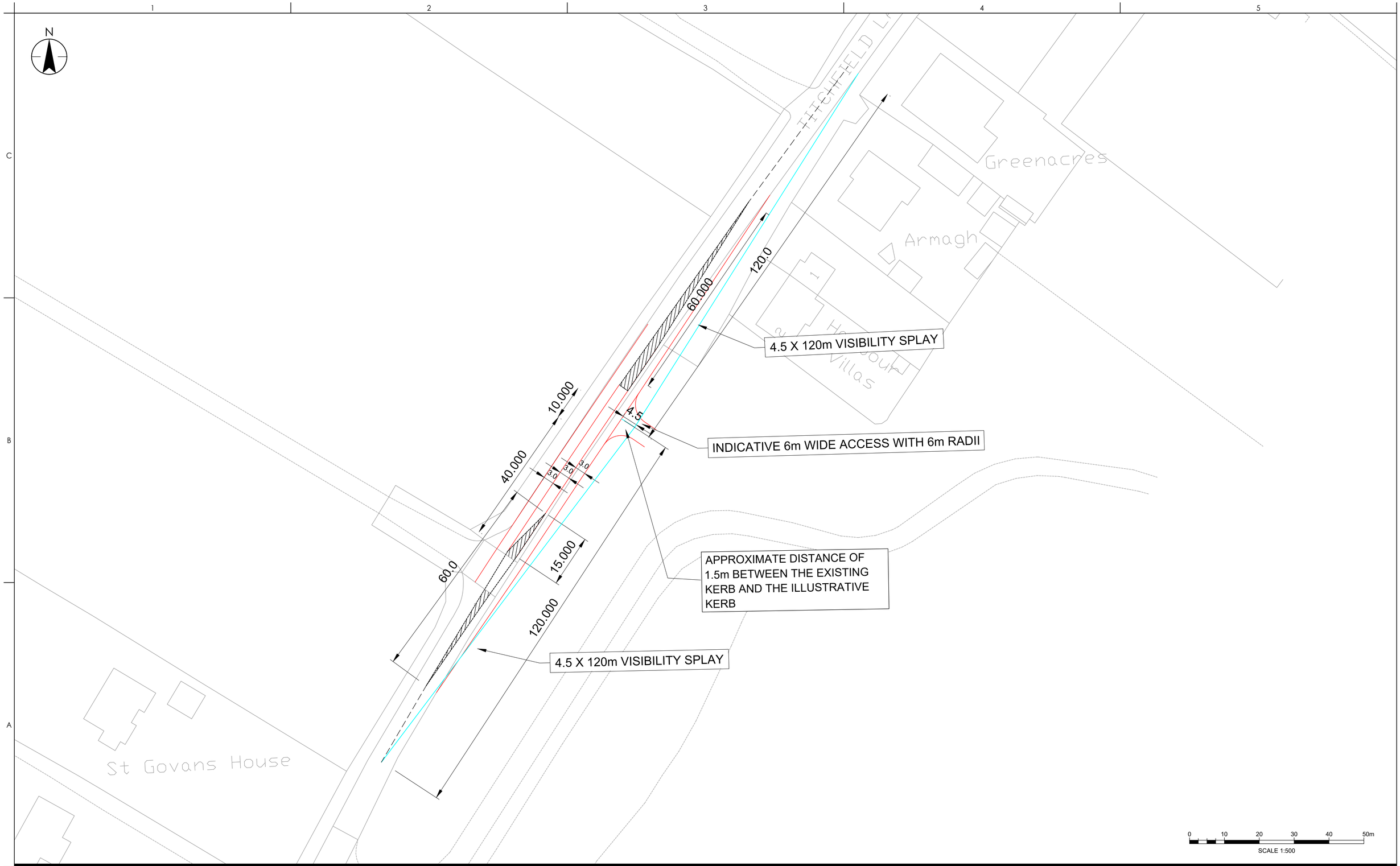
5.1.11 The existing high car mode share provides a strong backdrop from which to promote a step change in travel mode and achieve more sustainable travel patterns as new developments come forward.

5.1.12 The distribution of residential trips on the network has been considered using the census data. It is expected that no one route would experience more than around 40 additional vehicles during a peak hour. This is less than one additional vehicle per minute and would not be expected to be discernible on the highway network in practise. Hence, it is not expected to result in significant or severe effects on the existing highway network.

5.1.13 Whilst the Transport Assessment for the site would assess the need for physical improvements to the surrounding highway network through detailed modelling, this would not necessarily be completed as a first priority. Instead, the needs of active travel and public transport users would be considered first as is the direction of travel of transport policy both at a national and local level.

5.1.14 Monitor and manage could be applied to this development proposal if it is considered an appropriate tool for addressing any effects that may result from the development. A Residential Travel Plan would be an intrinsic part of the monitor and manage approach. Implementing a Travel Plan and monitoring regime will provide mitigation to the effect of development traffic. It will allow targets to be monitored and the avoidance of physical capacity upgrades for private car use unless absolutely necessary.

Appendix A



Notes:

UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.

Issued/Revision	By	Appd	YYYY.MM.DD
P01 FIRST ISSUE	PD	GH	2024.09.03

Issue Status

S0 WORK IN PROGRESS

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.

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Client/Project:

BANGARRA FAMILY OFFICE

WICKHAM PARK
CROWN GOLF

	Dwn	Dsgn.	Chkd.	YYYY.MM.DD
	PD	GH	GH	2024.09.23

Title

INDICATIVE GHOST ISLAND ACCESS JUNCTION WITH VISIBILITY SPLAY

Project No.	A1 Scale
333101342	1:500
Revision	**Drawing No.**
P01	**006**

Plotted: 25.09.2024 20:40:25 | By: Dhanraj, Preeti
ORIGINAL SHEET - ISO A1 | \\333101342 - dj - crown golf sites\3-autocad\drawings\333101342_006 - visibility splay for priority junction

Appendix B

Filtering Summary

Land Use	03/A	RESIDENTIAL/HOUSES PRIVATELY OWNED
Selected Trip Rate Calculation Parameter Range	100-500 DWELLS	
Actual Trip Rate Calculation Parameter Range	106-456 DWELLS	
Date Range	Minimum: 01/01/16	Maximum: 14/05/24
Parking Spaces Range	All Surveys Included	
Parking Spaces Per Dwelling Range:	All Surveys Included	
Bedrooms Per Dwelling Range:	All Surveys Included	
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Monday	6
	Tuesday	16
	Wednesday	11
	Thursday	6
	Friday	2
	Sunday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	3
	Edge of Town	39
Inclusion of Servicing Vehicles Counts	Servicing vehicles Included	10 - Selected
	Servicing vehicles Excluded	63 - Selected
Population within 500m	All Surveys Included	
Population <1 Mile ranges selected	1,001 to 5,000	3
	5,001 to 10,000	10
	10,001 to 15,000	13
	15,001 to 20,000	7
	20,001 to 25,000	7
	25,001 to 50,000	2
Population <5 Mile ranges selected	5,001 to 25,000	6
	25,001 to 50,000	5
	50,001 to 75,000	5
	75,001 to 100,000	4
	100,001 to 125,000	2
	125,001 to 250,000	16
	250,001 to 500,000	4
Car Ownership <5 Mile ranges selected	0.6 to 1.0	8
	1.1 to 1.5	30
	1.6 to 2.0	4
PTAL Rating	No PTAL Present	42

Calculation Reference: AUDIT-706709-240927-0955

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	4 days
	EX	ESSEX	1 days
	HC	HAMPSHIRE	6 days
	HF	HERTFORDSHIRE	2 days
	KC	KENT	6 days
	SC	SURREY	1 days
	SP	SOUTHAMPTON	1 days
	WB	WEST BERKSHIRE	1 days
	WS	WEST SUSSEX	6 days
03	SOUTH WEST		
	DC	DORSET	1 days
04	EAST ANGLIA		
	NF	NORFOLK	9 days
	SF	SUFFOLK	2 days
05	EAST MIDLANDS		
	DY	DERBY	1 days
06	WEST MIDLANDS		
	ST	STAFFORDSHIRE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	No of Dwellings
Actual Range:	106 to 456 (units:)
Range Selected by User:	100 to 500 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 14/05/24

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	6 days
Tuesday	16 days
Wednesday	11 days
Thursday	6 days
Friday	2 days
Sunday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	37 days
Directional ATC Count	5 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge of Town	39

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	36
Village	1
Out of Town	3
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	10 days - Selected
Servicing vehicles Excluded	63 days - Selected

Secondary Filtering selection:

Use Class:

C3	42 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	3 days
5,001 to 10,000	10 days
10,001 to 15,000	13 days
15,001 to 20,000	7 days
20,001 to 25,000	7 days
25,001 to 50,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	6 days
25,001 to 50,000	5 days
50,001 to 75,000	5 days
75,001 to 100,000	4 days
100,001 to 125,000	2 days
125,001 to 250,000	16 days
250,001 to 500,000	4 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	30 days
1.6 to 2.0	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	33 days
No	9 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	42 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1 DC-03-A-11 MIXED HOUSES DORSET
A350
SHAFTESBURY

Edge of Town
No Sub Category
Total No of Dwellings: 141
Survey date: TUESDAY *31/10/23* *Survey Type: MANUAL*

2 DY-03-A-01 MIXED HOUSES DERBY
RADBOURNE LANE
DERBY

Edge of Town
Residential Zone
Total No of Dwellings: 371
Survey date: TUESDAY *10/07/18* *Survey Type: MANUAL*

3 ES-03-A-03 MIXED HOUSES & FLATS EAST SUSSEX
SHEPHAM LANE
POLEGATE

Edge of Town
Residential Zone
Total No of Dwellings: 212
Survey date: MONDAY *11/07/16* *Survey Type: MANUAL*

4 ES-03-A-08 MIXED HOUSES & FLATS EAST SUSSEX
WRESTWOOD ROAD
BEXHILL

Edge of Town
Residential Zone
Total No of Dwellings: 110
Survey date: WEDNESDAY *12/10/22* *Survey Type: MANUAL*

5 ES-03-A-10 MIXED HOUSES & FLATS EAST SUSSEX
WATERGATE
BEXHILL-ON-SEA

Edge of Town
Residential Zone
Total No of Dwellings: 139
Survey date: THURSDAY *28/09/23* *Survey Type: MANUAL*

6 ES-03-A-14 MIXED HOUSES & FLATS EAST SUSSEX
RATTLE ROAD
NEAR EASTBOURNE
STONE CROSS
Edge of Town
Residential Zone
Total No of Dwellings: 120
Survey date: TUESDAY *30/04/24* *Survey Type: MANUAL*

7 EX-03-A-03 MIXED HOUSES ESSEX
KESTREL GROVE
RAYLEIGH

Edge of Town
Residential Zone
Total No of Dwellings: 123
Survey date: MONDAY *27/09/21* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 HC-03-A-26 MIXED HOUSES & FLATS HAMPSHIRE
BOTLEY ROAD
WHITELEY

Edge of Town
Out of Town
Total No of Dwellings: 270
Survey date: THURSDAY *24/06/21* *Survey Type: MANUAL*

9 HC-03-A-28 MIXED HOUSES & FLATS HAMPSHIRE
EAGLE AVENUE
WATERLOOVILLE
LOVEDEAN
Edge of Town
Residential Zone
Total No of Dwellings: 125
Survey date: MONDAY *08/11/21* *Survey Type: MANUAL*

10 HC-03-A-33 MIXED HOUSES & FLATS HAMPSHIRE
CROW LANE
RINGWOOD
CROW
Edge of Town
Residential Zone
Total No of Dwellings: 195
Survey date: TUESDAY *04/07/23* *Survey Type: MANUAL*

11 HC-03-A-34 MIXED HOUSES & FLATS HAMPSHIRE
STONEHAM LANE
EASTLEIGH

Edge of Town
Residential Zone
Total No of Dwellings: 243
Survey date: TUESDAY *14/11/23* *Survey Type: MANUAL*

12 HC-03-A-35 MIXED HOUSES & FLATS HAMPSHIRE
EAGLE AVENUE
WATERLOOVILLE
LOVEDEAN
Edge of Town
Residential Zone
Total No of Dwellings: 289
Survey date: TUESDAY *31/10/23* *Survey Type: MANUAL*

13 HC-03-A-36 MIXED HOUSES & FLATS HAMPSHIRE
HAVANT ROAD
EMSWORTH

Edge of Town
Residential Zone
Total No of Dwellings: 145
Survey date: TUESDAY *12/09/23* *Survey Type: MANUAL*

14 HF-03-A-03 MIXED HOUSES HERTFORDSHIRE
HARE STREET ROAD
BUNTINGFORD

Edge of Town
Residential Zone
Total No of Dwellings: 160
Survey date: MONDAY *08/07/19* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

15 HF-03-A-06 MIXED HOUSES & FLATS HERTFORDSHIRE
A505
ROYSTON

Edge of Town
Residential Zone
Total No of Dwellings: 180
Survey date: TUESDAY *28/11/23* *Survey Type: MANUAL*

16 KC-03-A-04 SEMI-DETACHED & TERRACED KENT
KILN BARN ROAD
AYLESFORD
DITTON
Edge of Town
Residential Zone
Total No of Dwellings: 110
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

17 KC-03-A-06 MIXED HOUSES & FLATS KENT
MARGATE ROAD
HERNE BAY

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 363
Survey date: WEDNESDAY *27/09/17* *Survey Type: MANUAL*

18 KC-03-A-07 MIXED HOUSES KENT
RECULVER ROAD
HERNE BAY

Edge of Town
Residential Zone
Total No of Dwellings: 288
Survey date: WEDNESDAY *27/09/17* *Survey Type: MANUAL*

19 KC-03-A-10 MIXED HOUSES KENT
HEADCORN ROAD
STAPLEHURST

Edge of Town
Residential Zone
Total No of Dwellings: 106
Survey date: TUESDAY *09/05/23* *Survey Type: MANUAL*

20 KC-03-A-11 MIXED HOUSES & FLATS KENT
COLDHARBOUR ROAD
GRAVESEND

Edge of Town
No Sub Category
Total No of Dwellings: 375
Survey date: MONDAY *20/03/23* *Survey Type: MANUAL*

21 KC-03-A-12 MIXED HOUSES & FLATS KENT
WESTERN LINK
FAVERSHAM
DAVINGTON
Edge of Town
Residential Zone
Total No of Dwellings: 186
Survey date: TUESDAY *19/09/23* *Survey Type: MANUAL*

22 NF-03-A-07 MIXED HOUSES & FLATS NORFOLK
SILFIELD ROAD
WYMONDHAM

Edge of Town
Out of Town
Total No of Dwellings: 297
Survey date: SUNDAY *22/09/19* *Survey Type: DIRECTIONAL ATC COUNT*

23 NF-03-A-29 MIXED HOUSES NORFOLK
BEAUFORT WAY
GREAT YARMOUTH
BRADWELL
Edge of Town
Residential Zone
Total No of Dwellings: 456
Survey date: WEDNESDAY *22/09/21* *Survey Type: DIRECTIONAL ATC COUNT*

LIST OF SITES relevant to selection parameters (Cont.)

24 NF-03-A-31 MIXED HOUSES NORFOLK
BRANDON ROAD
SWAFFHAM

Edge of Town
Residential Zone
Total No of Dwellings: 321
Survey date: THURSDAY *22/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

25 NF-03-A-32 MIXED HOUSES & FLATS NORFOLK
HUNSTANTON ROAD
HUNSTANTON

Edge of Town
Residential Zone
Total No of Dwellings: 164
Survey date: WEDNESDAY *21/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

26 NF-03-A-33 MIXED HOUSES NORFOLK
LONDON ROAD
ATTLEBOROUGH

Edge of Town
Residential Zone
Total No of Dwellings: 143
Survey date: THURSDAY *29/09/22* *Survey Type: MANUAL*

27 NF-03-A-35 MIXED HOUSES & FLATS NORFOLK
REPTON AVENUE
NORWICH

Edge of Town
Residential Zone
Total No of Dwellings: 116
Survey date: WEDNESDAY *28/09/22* *Survey Type: MANUAL*

28 NF-03-A-39 MIXED HOUSES NORFOLK
HEATH DRIVE
HOLT

Edge of Town
Residential Zone
Total No of Dwellings: 212
Survey date: TUESDAY *27/09/22* *Survey Type: MANUAL*

29 NF-03-A-47 MIXED HOUSES & FLATS NORFOLK
BURGH ROAD
AYLSHAM

Edge of Town
Residential Zone
Total No of Dwellings: 300
Survey date: WEDNESDAY *21/09/22* *Survey Type: DIRECTIONAL ATC COUNT*

30 NF-03-A-52 MIXED HOUSES NORFOLK
LYNNSPORT WAY
KING'S LYNN

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 130
Survey date: TUESDAY *07/11/23* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

31 SC-03-A-05 MIXED HOUSES SURREY
REIGATE ROAD
HORLEY

Edge of Town
Residential Zone
Total No of Dwellings: 207
Survey date: MONDAY *01/04/19* *Survey Type: MANUAL*

32 SF-03-A-09 MIXED HOUSES & FLATS SUFFOLK
FOXHALL ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total No of Dwellings: 179
Survey date: THURSDAY *24/06/21* *Survey Type: MANUAL*

33 SF-03-A-10 TERRACED & SEMI-DETACHED SUFFOLK
LOVETOFTS DRIVE
IPSWICH
WHITEHOUSE
Edge of Town
Residential Zone
Total No of Dwellings: 149
Survey date: TUESDAY *22/06/21* *Survey Type: MANUAL*

34 SP-03-A-02 MIXED HOUSES & FLATS SOUTHAMPTON
BARNFIELD WAY
NEAR SOUTHAMPTON
HEDGE END
Edge of Town
Out of Town
Total No of Dwellings: 250
Survey date: TUESDAY *12/10/21* *Survey Type: MANUAL*

35 ST-03-A-07 DETACHED & SEMI-DETACHED STAFFORDSHIRE
BEACONSIDE
STAFFORD
MARSTON GATE
Edge of Town
Residential Zone
Total No of Dwellings: 248
Survey date: WEDNESDAY *22/11/17* *Survey Type: MANUAL*

36 WB-03-A-03 MIXED HOUSES WEST BERKSHIRE
DORKING WAY
READING
CALCOT
Edge of Town
Residential Zone
Total No of Dwellings: 108
Survey date: FRIDAY *09/09/22* *Survey Type: MANUAL*

37 WS-03-A-08 MIXED HOUSES WEST SUSSEX
ROUNDSTONE LANE
ANGMERING

Edge of Town
Residential Zone
Total No of Dwellings: 180
Survey date: THURSDAY *19/04/18* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

38 WS-03-A-12 MIXED HOUSES WEST SUSSEX
MADGWICK LANE
CHICHESTER
WESTHAMPNETT
Edge of Town
Village
Total No of Dwellings: 152
Survey date: WEDNESDAY 16/06/21 Survey Type: MANUAL

39 WS-03-A-13 MIXED HOUSES & FLATS WEST SUSSEX
LITTLEHAMPTON ROAD
WORTHING
WEST DURRINGTON
Edge of Town
Residential Zone
Total No of Dwellings: 197
Survey date: WEDNESDAY 23/06/21 Survey Type: MANUAL

40 WS-03-A-14 MIXED HOUSES WEST SUSSEX
TODDINGTON LANE
LITTLEHAMPTON
WICK
Edge of Town
Residential Zone
Total No of Dwellings: 117
Survey date: WEDNESDAY 20/10/21 Survey Type: MANUAL

41 WS-03-A-22 MIXED HOUSES & FLATS WEST SUSSEX
SHOPWHYKE ROAD
CHICHESTER

Edge of Town
Residential Zone
Total No of Dwellings: 129
Survey date: TUESDAY 19/03/24 Survey Type: MANUAL

42 WS-03-A-23 MIXED HOUSES & FLATS WEST SUSSEX
TURNERS HILL ROAD
EAST GRINSTEAD

Edge of Town
Residential Zone
Total No of Dwellings: 197
Survey date: TUESDAY 14/05/24 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	42	202	0.067	42	202	0.280	42	202	0.347
08:00 - 09:00	42	202	0.127	42	202	0.356	42	202	0.483
09:00 - 10:00	42	202	0.119	42	202	0.159	42	202	0.278
10:00 - 11:00	42	202	0.115	42	202	0.139	42	202	0.254
11:00 - 12:00	42	202	0.126	42	202	0.134	42	202	0.260
12:00 - 13:00	42	202	0.141	42	202	0.141	42	202	0.282
13:00 - 14:00	42	202	0.148	42	202	0.141	42	202	0.289
14:00 - 15:00	42	202	0.160	42	202	0.177	42	202	0.337
15:00 - 16:00	42	202	0.253	42	202	0.160	42	202	0.413
16:00 - 17:00	42	202	0.261	42	202	0.150	42	202	0.411
17:00 - 18:00	42	202	0.330	42	202	0.151	42	202	0.481
18:00 - 19:00	42	202	0.259	42	202	0.137	42	202	0.396
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.106			2.125			4.231

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	106 - 456 (units:)
Survey date date range:	01/01/16 - 14/05/24
Number of weekdays (Monday-Friday):	46
Number of Saturdays:	1
Number of Sundays:	1
Surveys automatically removed from selection:	25
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix 3 Flood Risk Scoping Report (September 2024)

Wickham Park

Flood Risk Scoping Report

On behalf of **Wickham Park Property Limited**

Project Ref: 333101342/001 | Rev: - | Date: September 2024

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
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Document Control Sheet

Project Name: **Wickham Park**

Project Ref: **333101342**

Report Title: **Flood Risk Scoping Report**

Doc Ref:

Date: **September 2024**

	Name	Position	Signature	Date
Prepared by:	[redacted]	Assistant Engineer	[redacted]	27/09/24
Reviewed by:	[redacted]	Senior Associate	[redacted]	27/09/24
Approved by:	[redacted]	Senior Associate	[redacted]	27/09/24
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
1.0	09/10/2024	Client Issue	[redacted]	[redacted]	[redacted]

Contents

Figures

Appendices

1 Introduction

1.1 Scope of Report

1.1.1 This Flood Risk Scoping Report has been prepared by Stantec UK Ltd (Stantec), on behalf of our Client, Wickham Park Property Limited, to consider the flood risk implications for a potential urban extension on land at Wickham Park, Wickham, Fareham (nearest postcode: PO17 5PJ, OS grid ref: 456,440m E, 111, 280m N).

1.1.2 The requirements for new development in relation to flood risk are contained within the National Planning Policy Framework (NPPF) and associated Planning Practice Guidance (PPG).

1.1.3 The Environment Agency (EA) Flood Zone map shows that the site is located within Flood Zone 1 'Low Probability' (less than a 1 in 1000 (0.1%) annual probability of river or sea flooding).

1.1.4 This report focuses on:

- The identification of sources of flooding to the site and the assessment of the flood risk, both current and including the future potential impact of climate change;
- National, regional and local planning policy in relation to flood risk;
- Consideration of the flood risk implications of development, taking into account the potential allowance for climate change over the lifetime of the development; and
- The identification of flood risk constraints and the available measures to provide mitigation.

1.1.5 This report considers the 'technical' flood risk issues at the site. Whilst outside of the scope of this report, policy and planning issues have also been identified in outline terms and should be considered further by the client's planning consultants.

1.1.6 Stantec has many years of experience in, amongst other areas, the assessment of flood risk, hydrology, flood defence and river engineering. The authors and reviewers of the document are all experienced engineers and members of chartered institutions such as the Chartered Institution of Water and Environmental Management (CIWEM) or the Institution of Civil Engineers (ICE).

1.2 Data Sources

1.2.1 This report has been prepared based on the following sources of information:

- EA published 'Open Data' datasets available online, reproduced with OS mapping under licence to Stantec (contains Ordnance Survey data © Crown copyright and database right [2024], contains EA information © Environment Agency and database right) (see **Appendix A**);
- Winchester City Council (WCC) Level 1 Strategic Flood Risk Assessment (SFRA), June 2023;
- WCC Level 2 SFRA, July 2024;
- Partnership for South Hampshire (PfSH) Level 1 SFRA, Part 3 – Winchester City Council, June 2024;
- The Partnership for Urban South Hampshire SFRA Online Maps (Portsmouth City Council, June 2016)[1] (PUSH WebMaps);

[1] Strategic flood risk assessment - Portsmouth City Council

- Hampshire County Council Local Flood Risk Management Strategy, October 2020.

1.3 Relevant Planning Policy

1.3.1 This report has been prepared in accordance with the relevant national, regional and local planning policy and statutory authority guidance as follows:

- National policy contained within the **National Planning Policy Framework (NPPF)** updated December 2023, issued by Communities and Local Government, with reference to Section 14 'Meeting the challenge of climate change, flooding and coastal change';
- The **Planning Practice Guidance (PPG)** most recently updated August 2022 ('Flood Risk and Coastal Change' section) and incorporates the EA '**Flood Risk Assessments: Climate Change Allowances'** guidance (May 2022);
- The '**Sustainable Drainage Systems – Non-statutory technical standards for sustainable drainage systems**' (DEFRA, March 2015) sets out the technical standards for the design of sustainable drainage systems for new development;
- Local planning policy contained within the **Winchester District Local Plan Part 1 - Core Strategy** (adopted March 2013), **Policy CP17** – 'Flooding, Flood Risk and the Water Environment';
- Local planning policy contained within the Winchester City Council '**Position Statement on Nitrate Neutral Development'** (February 2020).

1.4 Caveats and Exclusions

1.4.1 This study is an initial investigation into flood risk and associated constraints at Wickham Park, Wickham. It does not constitute a Flood Risk Assessment (FRA) or Drainage Strategy, either of which would potentially be a requirement to support any future planning applications at the site.

1.4.2 The findings of this report are based on data available at the time of the study, outlined in Section 1.2. As such, the report is accurate at time of issue, but we would recommend the end user reviews the validity of the flood data on an annual basis with the EA.

1.4.3 It should be noted that the insurance market applies its own tests to properties in terms of determining premiums and the insurability of properties for flood risk. Those undertaking development in areas which may be at risk of flooding are advised to contact their insurers or the Association of British Insurers (ABI) to seek further guidance prior to commencing development. Stantec do not warrant that the advice in this report will guarantee the availability of flood insurance either now or in the future.

2 Site Setting

2.1 Site Location

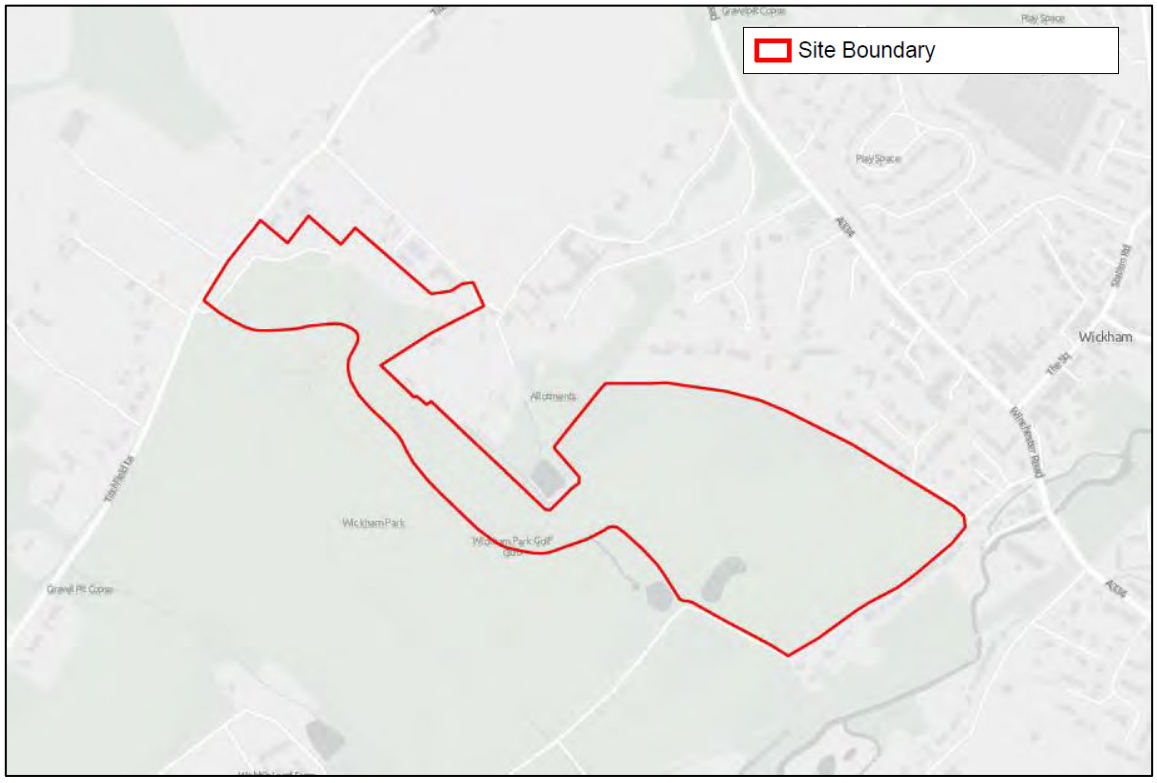
2.1.1 The site is located on land at Wickham Park, Wickham, Fareham (nearest postcode: PO17 5PJ, approximate site OS grid ref: 456,440m E, 111, 280m N) – see appended location plans and **Figure 2-1**.

2.1.2 The existing site consists of a golf course made up of open fields and a golf driving range. There is an existing clubhouse building with associated facilities and a large car park located in the north-western corner of the site. To the north-east of the site is the village of Wickham, to the west is Titchfield Lane and residential/agricultural buildings, to the east is Tanfield Lane and the River Meon, to the south is the remainder of the Wickham Park Golf Course.

2.1.3 The site lies within the administrative area of Winchester City Council, which is part of the authorities within the Partnership for South Hampshire.

2.1.4 The proposals would reconfigure the existing golf course such that it retains 18 holes, whilst releasing a parcel of land for residential development of up to 300 market and affordable homes, along with public open space, play space, and allotments – see development plans in **Appendix B** .

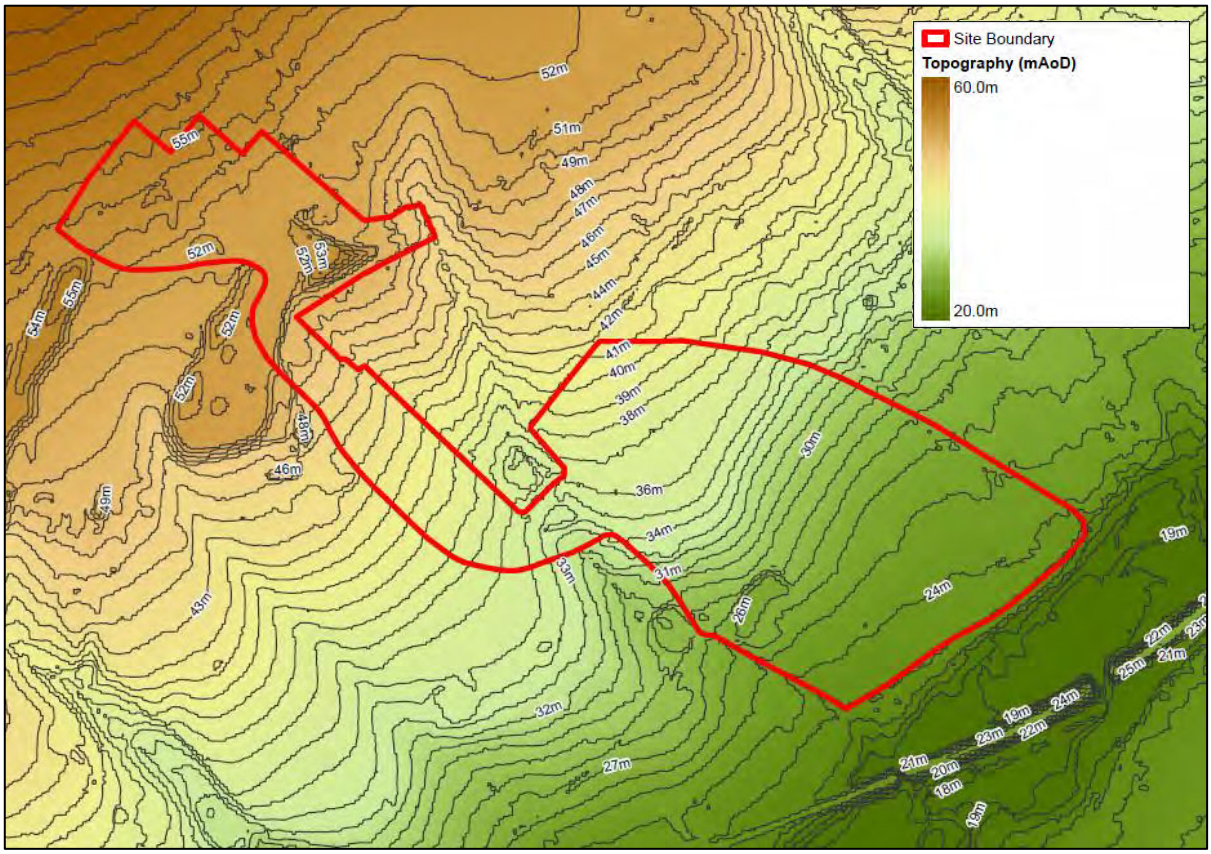
Figure 2-1: Site Location



2.2 Topography

2.2.1 The EA LiDAR data (see **Figure 2-2**) shows a steep fall in levels across the site area, from west to east. Ground levels in the western area of the site are up to approximately 55mAOD and fall to 23mAOD in the eastern area of the site. There is a notable valley that passes through the centre of the site, falling south-east towards the River Meon.

Figure 2-2: Site Topography



2.3 Hydrological Setting

2.3.1 **The River Meon**, an EA-classified 'Main River', is the dominant watercourse in the area which flows north to south, adjacent to the village of Wickham and approximately 180m east of the site.

2.3.2 The EA 'Flood Defence, Assets Management' data shows there to be structures in the form of 'Flood Walls' and 'Natural High Ground', along the banks of the River Meon located near to the site's eastern boundary.

2.3.3 There are a number of small ditches and ponds located within, and in the vicinity of, the site.

2.4 Geology and Hydrogeology

2.4.1 The British Geological Survey (BGS) maps indicate that the bedrock geology at the site is a mixture of '*Wittering and Earnley Sand Formation – sand, silt and clay'*. The BGS maps also indicate that the eastern and western areas of the site is underlain by superficial deposits of *'River Terrace/ Head Deposits - Gravel, sand and silt'.*

2.4.2 There are no BGS borehole records located within the site or within close proximately to the site.

2.4.3 The DEFRA Magic Map viewer indicates that the site is not located within a groundwater Source Protection Zone (SPZ). The Magic Map viewer indicates that the bedrock beneath the site is classified as a 'Secondary A' aquifer, and the superficial deposits are a 'Secondary A' aquifer. The 'Aquifer Designation Map' shows superficial deposits located near the eastern boundary of the site are shown to be 'unproductive' ground.

2.4.4 The Magic Map viewers 'Groundwater Vulnerability map' also indicates that the majority of the site is located on bedrock identified as having 'Medium' groundwater vulnerability, the eastern boundary is shown to have 'Low' groundwater vulnerability. The site is not shown to have a 'Soluble Rock risk.'

2.5 Existing Drainage Arrangements

2.5.1 The existing site is currently a golf course consisting of open semi-natural landscape. Located in the north-western corner of the site is an existing clubhouse building and car park. The existing drainage arrangements associated with these features is unknown.

2.5.2 There are no other buildings or formalised impermeable surfacing within the site area. Surface water would either drain via natural infiltration into the ground or would flow overland into nearby land drainage channels or ponds.

2.5.3 At this stage, this assessment has not identified any records of public sewer connections within the vicinity of the site. In the next stages of work, Southern Water utilities sewer mapping will be obtained for the site and surrounding residential areas to confirm the location of existing surface water sewer runs and connections for future use.

3 Overview of Flood Risk

3.1 Introduction

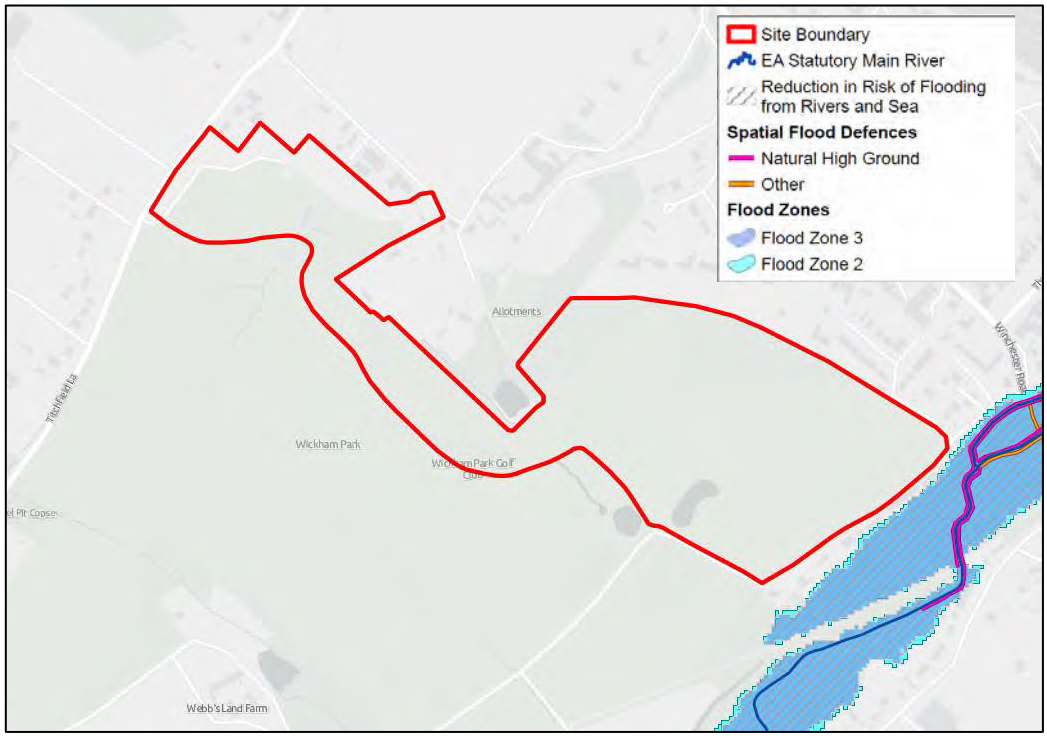
3.1.1 The following maps have been taken from the Stantec GIS flood maps report in **Appendix A** based on the EA Opendata datasets available online and reproduced with OS mapping under licence to Stantec.

3.2 Fluvial and Tidal Flood Risk

3.2.1 The first phase in identifying whether a site is potentially at risk of flooding is to consult the EA's Flood Zone map. This provides an initial indication of the extent of the Flood Zones, which is refined with more detailed site-specific level survey and modelled flood levels. The Flood Zones are defined in Table 1 of the NPPF Planning Practice Guidance (PPG) ('Flood Risk and Coastal Change' section) as follows:

- **Flood Zone 1 'Low Probability'** – Land at less than 1 in 1000 (0.1%) annual probability of river or sea flooding;
- **Flood Zone 2 'Medium Probability'** – Land between 1 in 100 (1.0%) and 1 in 1000 (0.1%) annual probability of river flooding, or between 1 in 200 (0.5%) and 1 in 1000 (0.1%) annual probability of sea flooding;
- **Flood Zone 3 'High Probability'** – Land at 1 in 100 (1.0%) or greater annual probability of river flooding, or 1 in 200 (0.5%) or greater annual probability of sea flooding.

Figure 3-1: EA Flood Zone Map



3.2.2 A review of the EA online 'Flood Map for Planning' shows the entirety of land within the site to be in Flood Zone 1 'Low Probability' (Land at less than 1 in 1000 (0.1%) annual probability of river or sea flooding) – see **Figure 3-1**.

3.2.3 Land to the south-east of the site is shown to be in Flood Zone 3 'High Probability' – Land at 1 in 100 (1.0%) or greater annual probability of river flooding from the River Meon. The mapping shows this area has a reduced risk of flooding due to the presence of flood defences (refer to **Section 2.3.2**).

3.3 Surface Water Flood Risk

3.3.1 The EA 'Risk of Flooding from Surface Water' (RoFSW) shows where areas could be potentially susceptible to surface water flooding in an extreme rainfall event. The latest mapping assesses flooding resulting from severe rainfall events based on the following three scenarios:

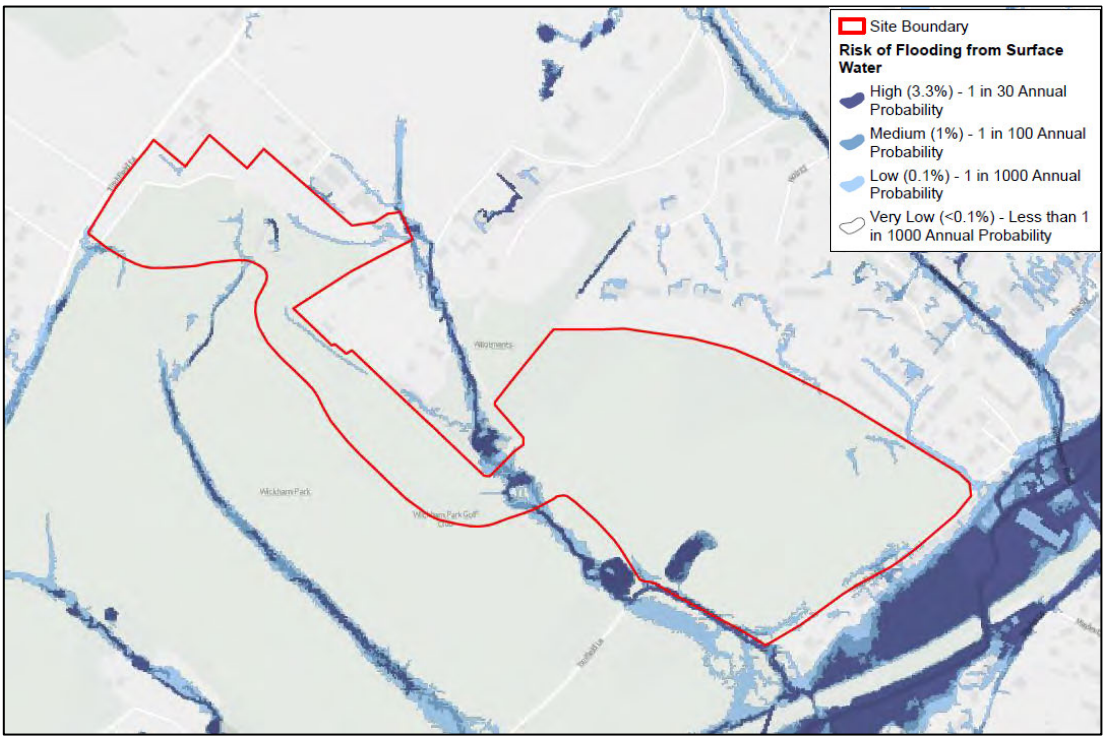
- 1 in 30 (3.3%) annual probability rainfall event ('High' risk);
- 1 in 100 (1%) annual probability rainfall event ('Medium' risk);
- 1 in 1000 (0.1%) annual probability rainfall event ('Low' risk).

3.3.2 Land at lower than 1 in 1000 (0.1%) annual probability of flooding is considered to be 'Very Low' risk of flooding.

3.3.3 The map shows the majority of the site is at 'Very Low' risk of surface water flooding.

3.3.4 There is a notable flow route running south-east through the area that cuts across the centre of the site, resulting in 'Medium' and 'High' risk areas localised along the route. Flood depths along this flow route are on average between 150mm and 300mm (see **Figure 3-2**). The mapping indicates that this risk surface water flow route originates beyond the north boundary of the site, passing along a small lane and through garden allotments. The flow path continues along a narrow valley through the narrow section of the site and continuing south-east to eventually discharge into the River Meon.

Figure 3-2: EA Risk of Flooding from Surface Water Map



3.3.5 Other areas of the site show to be at greater than 'Very Low' risk of surface water flooding appears to be limited to land drainage, occurring at localised depressions. These areas are generally isolated or connect to other flow routes that pass outside of the site.

3.4 Groundwater Flood Risk

3.4.1 The PUSH WebMaps show the majority of the site is located in an area of land identified as having 'Low Bedrock Permeability'. The mapping does show there to be a small corridor of land with a 'High Bedrock Permeability' along the eastern boundary of the site.

3.4.2 The PUSH WebMaps shows there to have been no incidents of groundwater flooding recorded at the site. The PfSH SFRA does not include the village of Wickham as an area highlighted within the 'Hampshire Groundwater Management Plans' that is most at risk from groundwater flooding.

3.4.3 There is a potential risk of groundwater flooding occurring at the eastern boundary of site where ground levels are shown to be lowest (24m AOD). The SFRA states that previous groundwater flooding has occurred across the Winchester administrative area due to fluvial flooding events caused by heavy rainfall overwhelming the banks of the River Meon, resulting in high groundwater levels and the emergence of springs across nearby susceptible land.

3.4.4 The risk of groundwater flooding is therefore considered to be low.

3.5 Flood Risk from Artificial Sources

Reservoirs

3.5.1 The EA provides maps showing the risk of flooding in the event of a reservoir failure and show two flooding scenarios, a 'dry-day' and a 'wet-day.' The 'dry-day' scenario predicts the flooding that would occur if the dam or reservoir failed when rivers are at normal levels. The 'wet day' scenario predicts how much worse the flooding might be if a river is already experiencing an extreme natural flood – see **Appendix A** .

3.5.2 The mapping confirms the site is not at risk of reservoir breach during either scenario.

Sewer Flood Risk

3.5.3 The existing site is currently a golf course consisting of open fields. There is unlikely to be any existing drainage or sewer infrastructure at present within the site area. Therefore, the risk of sewer flooding is considered to be **low** at the site.

3.5.4 The updated PFSH L1 SFRA (June 2024) references the Southern Water historic flood records provided within the Winchester City Council Strategic Flood Risk Assessment (WCC SFRA, September 2007). The WCC SFRA Appendix mapping (Tile-E) shows there to have been four historic sewer flooding incident to have occurred within Wickham, with one sewer flooding incident to have occurred in Tanfield Lane, adjacent to the site's eastern boundary. The WCC SFRA Table 2: 'Historical Flooding – Southern Water' records shows that these sewer flooding incidents were the result of foul water/combined sewer flooding.

Other

3.5.5 There are no other identified artificial sources of flooding that present any risk to the site.

3.6 Historic Flood Risk

3.6.1 The EA 'Recorded Historic Flood Extents' mapping shows a flood outline outside of the site boundary associated with a past incident of flooding of the River Meon. There are small areas

on site included with the historic flood extent, however these are isolated and disconnected from the River Meon.

4 Proposals and the NPPF Sequential Test

4.1.1 The proposals would reconfigure the existing golf course such that it retains 18 holes, whilst releasing a parcel of land for residential development of up to 300 market and affordable homes, along with public open space, play space, and allotments

4.1.2 NPPF PPG 'Flood Risk and Coastal Change' Annex 3 confirms the *'Flood risk vulnerability classification'* of a site, depending upon the proposed usage. This classification is subsequently applied to PPG Table 3 to determine whether:

- The proposed development is suitable for the flood zone in which it is located, and;
- Whether an Exception Test is required for the proposed development.

4.1.3 The NPPF encourages the application of the 'sequential approach' in the master-planning process for new development, i.e. locating the more sensitive/vulnerable elements of new development in the areas which lie at the lowest probability of flooding and, conversely, reserve the areas of the site at greatest risk of flooding for the least vulnerable elements of the development (or, preferably, leave such areas undeveloped or as soft landscaping).

4.1.4 The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Government guidance[2] to local planning authorities states the following (emphasis added):

> *"A sequential test is required for major and non-major development (check the development class section above)* ***if any proposed building, access and escape route, land-raising or other vulnerable element*** *will be:*
>
> - *in flood zone 2 or 3*
> - *in flood zone 1 and your SFRA shows it will be at increased risk of flooding during its lifetime*
> - *subject to sources of flooding other than rivers or sea*
>
> *A development is not exempt from the sequential test just because a flood risk assessment shows the development can be made safe throughout its lifetime without increasing risk elsewhere."*

4.1.5 The analysis undertaken in **Section 3** confirms that the majority of the site and all of the proposed development areas are located within Flood Zone 1 'Low Probability'. All forms of development are acceptable within this zone.

4.1.6 The analysis has identified that although the majority of the site is at 'very low' risk of surface water flooding the centre of the site is shown to be at 'Low to High' risk. Based on the Government guidance above, a Sequential Test (and subsequent Exception Test) will be required. It is advised the applicant liaise with the Local Planning Authority to determine any requirements.

[2] https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities#the-sequential-and-exception-tests

5 Flood Mitigation Strategy

The following section provides an overview of the implications and potential opportunities/constraints for future development over the site, to inform the evolving masterplan.

5.1 Ground Floor Levels

5.1.1 Standard requirements for ground floor levels of new development are set out in BS8533:2017 'Assessing and Managing Flood Risk in New Development – Code of Practice'. This recommends floor levels are set a minimum of 300mm above the modelled 1 in 100 (1.0%) annual probability plus allowance for climate change flood level.

5.1.2 All proposed development parcels will be located a significant distance outside the fluvial floodplain and on land above the reference modelled levels. As such, the floor levels of future development will significantly exceed the reference requirements. The emphasis is therefore on ensuring a suitable freeboard above surrounding ground (minimum 150mm) to mitigate the residual flood risk associated with excess surface water runoff in an extreme rainfall event. Similarly, exterior ground levels across the site should also be appropriately contoured to direct surface water away from the building in such a scenario.

5.2 Conservation of Flood Storage

5.2.1 Any new development located within the vicinity of a watercourse should be constructed such that it does not detrimentally impact on flow routes or reduce the available floodplain storage over a site; either of which could potentially cause an increase in flood levels on-site or elsewhere. This is considered up to the benchmark of the 1 in 100 (1.0%) annual probability plus suitable allowance for climate change fluvial floodplain.

5.2.2 All built development is to be located outside of the modelled fluvial floodplain and therefore development will not have an impact on floodplain storage or flood flow routes.

5.3 Surface Water Flood Flow Routes

5.3.1 The main access route for the proposed development is shown to be intersected by a surface water flow route in extreme rainfall (see **Figure 3-2**). The baseline design requirement of the access route will be to allow it to pass unimpeded through the site, to prevent causing an increase in flood levels on-site or elsewhere.

5.3.2 An alternative option under consideration is to design the access route to provide flood risk benefit to areas downstream by restricting the downstream flood flow and providing adjacent storage as part of the landscape strategy over the site. This landscaped feature would be designed to provide multi-environmental benefits, through the creation of new habitat to provide biodiversity and amenity value. The scope for such a feature would be subject to discussion with Hampshire County Council (HCC) as Lead Local Flood Authority (LLFA), and subject to a feasibility assessment.

5.4 Safe Access

5.4.1 The proposed sites for residential development lie fully within Flood Zone 1 'Low Probability' i.e. outside of the 1 in 1000 (0.1%) annual probability fluvial/tidal floodplain. The proposed main access road from the development onto Tichfield Lane, and the pedestrian route onto Tanfield Park, are also located wholly within Flood Zone 1 hence continuous safe access will be available during fluvial events.

5.4.2 The design levels of the main access road will be elevated above the surface water flow route running through the site, to ensure continuous dry access onto Titchfield Lane during a surface water event.

5.5 Water Supply and Foul Sewerage

5.5.1 The engineering solution to water supply and sewerage services is likely to be to extend the existing networks in the adjacent areas, with any necessary reinforcement to increase the capacity of the system.

5.5.2 The most appropriate solution for the proposed development and the associated extent of work will be determined by confirming local points of connection and completing network capacity assessments in conjunction with Southern Water at the appropriate time in the future.

5.5.3 It is advised that foul sewerage assessments are advanced at an early stage to allow sufficient time to engage with Southern Water and identify requirement for local improvements, subject to the onward planning and development strategy for the site.

6 Surface Water and SuDS

6.1 Overview

6.1.1 As the site is over 1 hectare in area, any future planning application will need to be accompanied by a FRA addressing flood risk from surface water (and any other sources). As such, the FRA is required to include a strategy outlining the proposed arrangements for management of surface water over the new development, and evidence of existing and proposed runoff rates to demonstrate that the proposed development does not increase flood risk elsewhere.

6.1.2 As of April 2015, the LLFA has become a statutory consultee on planning applications for surface water management. As the LLFA, HCC are therefore responsible for the approval of surface water drainage systems within new major development.

6.1.3 If the proposals cause an increase in impermeable surface, without mitigation the new development will give rise to an increase in the impermeable area of the site and a corresponding increase in the rate and volume of surface water runoff. Given the scale of the proposed development, HCC will require outline details at the planning stage of any surface water management proposals to demonstrate that surface water runoff can be managed sustainably within the site.

6.1.4 HCC recommends that priority is given to the use of Sustainable Drainage Systems (SuDS) in new development, this being complementary to the control of development within the floodplain, and the typical policy requirement is for surface water runoff to be limited to the existing 'greenfield' rate, with associated on-site attenuation required to temporarily retain the water in a rainfall event.

6.1.5 There are many forms for this on-site attenuation, and any strategy is likely to incorporate a range of measures that are integrated into a water network across the site, but we would recommend that emphasis is placed on the incorporation of surface features as these provide an amenity benefit, have less long-term maintenance concerns, and could further promote the ecological enhancement credentials of the development through incorporation into any wider ecological enhancement strategy.

- Given the scale of the site, the holistic strategy is anticipated to utilise one – or a number of - large scale attenuation features in the form of **ponds or basins**. To be fully utilised, such measures should be located at the 'downstream' end of the on-site drainage system prior to the controlled discharge into the adjacent watercourses, but there could be a number of such features on the basis that the site is sub-divided into discrete catchments.

- **Swales** in particular are a very useful drainage feature which can provide (i) significant biodiversity enhancements to a site, (ii) a significant route of conveyance – replacing the need for extensive below-ground pipework – as well as attenuation, and (iii) they can be designed in a variety of forms to suit the site constraints and aspirations. For example, 'dry swales' can be provided to utilise additional capacity within a filter medium along the base of the channel, otherwise 'wet swales' can be designed with check dams to retain a shallow depth of water at the base to encourage wetland planting and associated biodiversity (see **Figure 6-1** for examples).

- **Permeable pavements** also provide a level of surface water quality treatment as sediments are filtered out on the pavement surface and other pollutants are filtered out and degraded in the underlying sub-base.

Figure 6-1: Examples of swales for drainage and biodiversity enhancements)

6.1.6 The development of the surface water drainage strategy is an iterative process alongside the evolving masterplan. In general, a minimum allowance of approximately 15% of the proposed development parcel area is recommended to allow for a strategic attenuation measures. The site provides additional opportunities to supplement this with local measures to increase the storage provision and provide a conveyance function.

6.2 Consideration of SuDS Hierarchy and Drainage Destination

6.2.1 The intention of SuDS is to mimic the natural drainage regime of the undeveloped site. Paragraph 56 of the NPPF PPG states the following (consistent with the Building Regulations H3 hierarchy):

> *Where possible, preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the following hierarchy of drainage options:*
>
> 1. *into the ground (infiltration);*
> 2. *to a surface water body;*
> 3. *to a surface water sewer, highway drain, or another drainage system;*
> 4. *to a combined sewer.*

Consideration of Infiltration Drainage

6.2.2 The geological information of 'Gravel, sand, silt and clay' soils suggests that infiltration drainage may be a feasible option over the site. The next stage will be to undertake site-specific infiltration testing / ground investigations to better understand the infiltration suitability, soil conditions and depth to groundwater.

6.2.3 The feasibility of infiltration drainage has therefore not been assessed as part of this scoping report.

Consideration of Discharge to Watercourse (River Meon)

6.2.4 Following the above hierarchy, the next preference is a controlled discharge to watercourse; the nearest to the site being the River Meon approximately 180m east from the site's eastern boundary.

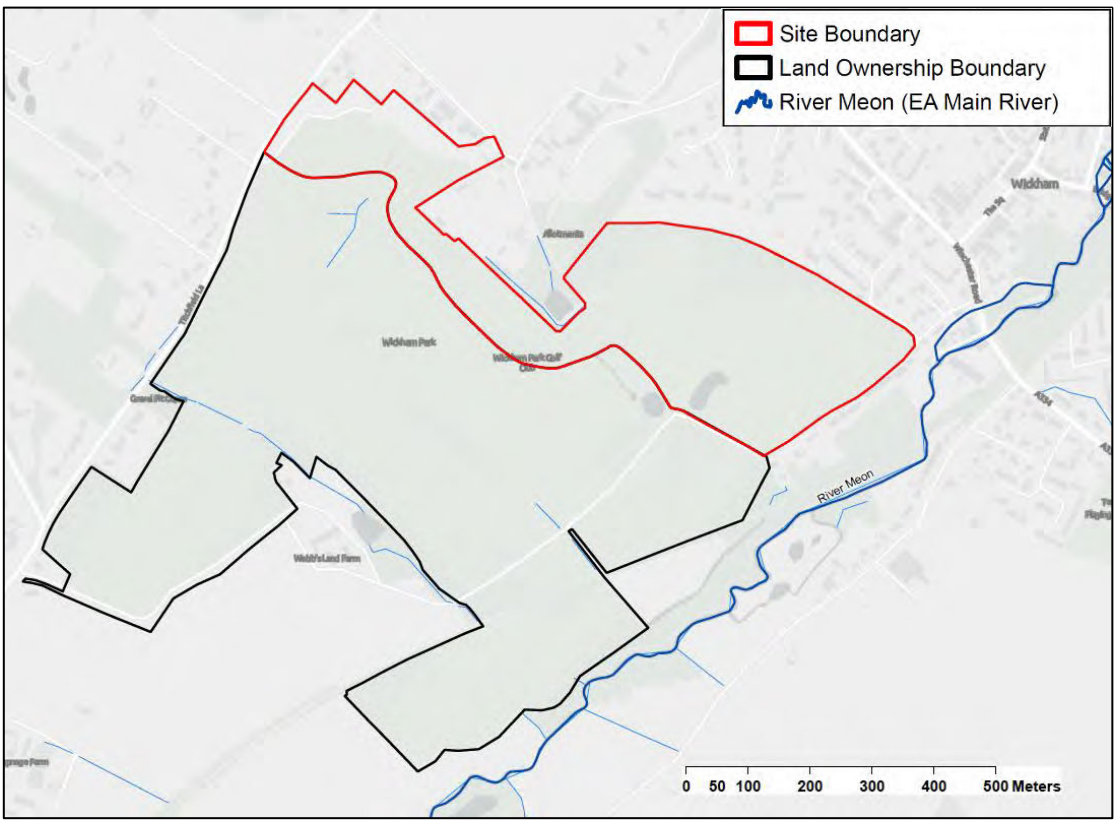
6.2.5 Controlled discharge to the River Meon watercourse is likely to be feasible via the existing land drainage channels that flow through the site and outfall into the watercourse, subject to a detailed drainage survey in due course.

6.2.6 If there are no existing drainage connections, a new outfall pipe from the eastern boundary of the site into the River Meon may be required. The site red line boundary and the land ownership boundary is shown to be located away from the river which is approximately 200m away – see **Figure 6-2**. There is a corridor of land consisting of residential homes / vegetated land between the red line and ownership boundaries and the watercourse. The feasibility and potential limitations of discharge to the River Meon will be explored further as necessary.

6.2.7 Discharge to the River Meon would be required to be limited to the existing 'greenfield' rate, with associated on-site attenuation necessary to temporarily retain the surface water on site behind the controlled outfall. Existing greenfield (QBAR) runoff rates at the site for the total proposed development area have been calculated to be a minimum of **35.40l/s**. Detailed calculations are provided in **Appendix C** .

6.2.8 The attenuation requirements associated with this controlled peak discharge is discussed in the next section of this report.

Figure 6-2: Site Redline and Ownership Boundary (River Meon)



Discharge to Existing Southern Water Sewer Connections

6.2.9 If infiltration and discharge to watercourse are discounted, the remaining option is discharge into Southern Water surface water sewer. This assessment has not been informed by records of public sewer connections in the vicinity of the site, but as there are existing residential properties located directly adjacent to the site's eastern boundary along Tanfield Lane, it is possible that existing surface water sewer connections are accessible from the site's eastern boundary. This will be confirmed by obtaining details of the Southern Water utilities sewer mapping in the vicinity of the site.

6.2.10 Discharge to the existing sewer network would be required to be limited to the existing 'greenfield' rate as described in **Paragraph 6.2.7** and as per LLFA guidance. The final rate would be subject to agreement with Southern Water via a developer enquiry.

6.3 SuDS Attenuation Requirements

6.3.1 A high-level assessment of the site impermeable surfacing and discharge requirements using MicroDrainage software has calculated that the maximum volume of runoff that is required to be stored at the site, up to the 1 in 100 annual probability plus 40% climate change critical storm event, is approximately **3,600m³**.

6.3.2 These calculations have been based on a development density of 35dph/300homes, with a baseline figure of 55% total impermeable area and a 6% allowance for urban creep to assess surface water attenuation requirements at the site. The maximum volume of runoff that is required to be stored at the site has therefore been calculated based on a total impermeable area of **5.13ha**.

6.3.3 Runoff from the total proposed site impermeable area would be directed towards two open surface storage ponds located in the far eastern corner of the site where site topography is lowest (approximately 24m AOD).

6.3.4 A high-level assessment of initial attenuation sizing requirements of the proposed ponds has been undertaken using MicroDrainage software. The proposed ponds, as digitised within the masterplan, are shown to be suitably sized (combined top of bank area 3,806m²) to attenuate the approximate maximum volume of runoff required at the site (3,600m³). An initial design pond depth of **1.5m** can provide up to **3,780m³** of storage with a maximum flood depth of approximately 1.3m in the critical 1 in 100 annual probability +40% allowance for climate change event. In the next stages of work, a detailed surface water drainage model of the site will be undertaken to refine these dimension.

6.3.5 Surface water runoff would discharge at greenfield runoff rates from the ponds, either into the River Meon watercourse (via the land drainage channel) or to a suitably located Southern Water sewer connection and discharge away from the site.

6.3.6 The storage capacity of the existing pond located near to the centre of the site has not been taken into account as it is shown to be impacted by surface water flooding and may be associated with the surface water flow route. Further investigations could be undertaken to determine if the pond is suitable for SuDS or other amenity or biodiversity enhancements.

6.3.7 The site is located within the Solent Marine Impact Catchment and – as the proposal is for new residential dwellings – demonstration of nutrient neutrality (nitrogen) will be required in order to meet local planning requirements. Attenuation ponds alone do not provide nitrogen removal, therefore incorporation of a treatment train which provides nitrogen capture and removal is required. At this stage it is understood that lined permeable surfaces will be most suited to the existing masterplan. Full details of the mitigation measures proposed to achieve nutrient neutrality are provided in the report 'Initial Nutrient Budget Calculation & Mitigation Optioneering' September 2024.

7 Summary and Recommendations

7.1.1 This Flood Risk Scoping Report has been prepared to provide an overview of baseline flood risk, confirm the design requirements for new development, and identify opportunities for reductions in flood risk for the development of land located within the Wickham Park Golf Course.

7.1.2 The Environment Agency (EA) Flood Zone map indicates the site lies entirely within Flood Zone 1 'Low Probability' – Land at less than 1 in 1000 (0.1%) annual probability of river or sea flooding.

7.1.3 The EA 'Flood Map for Surface Water' (RoFSW) shows the majority of the site is at 'Very Low' risk of surface water flooding, although there is a 'High' risk surface water flood flow route bisecting the site, with other localised areas of 'Low' to 'High' risk of surface water flooding corresponding with localised depressions or pond features.

7.1.4 The design of the main access route will allow for this surface water flow route to pass unimpeded through the site, to prevent an increase in flood levels on-site or elsewhere. However, there is an opportunity to reduce surface water flood risk to areas downstream by controlling flows and incorporating landscaped temporary storage within the site. Such opportunities would be discussed with Hampshire County Council (HCC) as Lead Local Flood Authority.

7.1.5 All proposed development parcels will be located a significant distance outside the fluvial floodplain and therefore on land significantly above the reference modelled levels. A suitable freeboard above surrounding ground (minimum 150mm) is proposed to mitigate the residual flood risk associated with excess surface water runoff in an extreme rainfall event.

7.1.6 The risk of flooding from other sources is considered to be low.

7.1.7 The requirement for the Sequential Test (and the Exception Test) will be verified with the Local Planning Authority.

7.1.8 This assessment has considered the options for the discharge of surface water according to the Building Regulations hierarchy:

- High level datasets suggest infiltration drainage may be feasible subject to site specific infiltration testing/ground investigations.
- Controlled discharge to the River Meon watercourse is likely to be feasible via the existing land drainage channels that flow through the site and outfall into the watercourse, subject to a detailed drainage survey in due course. In lieu of existing connections, the feasibility and potential limitations of discharge to the River Meon will be explored further as necessary.
- Utility mapping of the public sewer connections will need to be obtained to determine the feasibility of discharge into the existing Southern Water sewer network. Given the site borders Tanfield Lane, it is possible that existing surface water sewer connections are accessible from the site's eastern boundary, if infiltration and discharge to watercourse are discounted.

7.1.9 A high-level assessment of attenuation requirements at the site concludes that the maximum volume of runoff that is required to be stored at the site, up to the 1 in 100 annual probability + 40% climate change critical storm event, is approximately 3,600m³.

7.1.10 A potential option for attenuating site surface water would be to direct runoff from the proposed site impermeable area, towards two storage ponds located in the eastern corner of the site. Such measures provide significant opportunities to provide wider integrated ecological and

amenity benefits for the development. The proposed ponds are suitably sized to attenuate the maximum volume of attenuation volume required at the site.

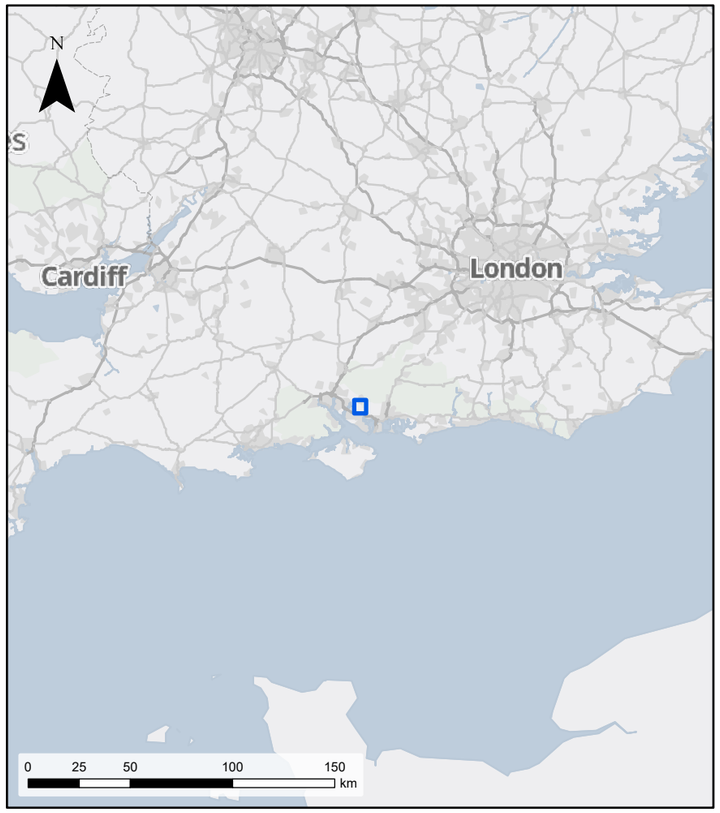
7.1.11 If infiltration is not feasible, surface water runoff would discharge at greenfield runoff rates from the ponds to the River Meon (via land drainage channel) or to a nearby Southern Water sewer connection.

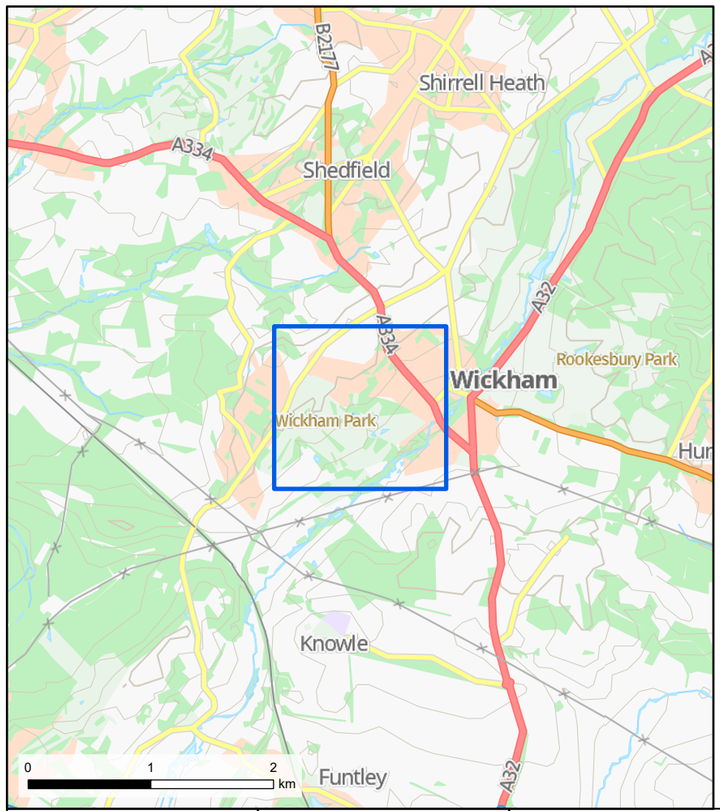
7.1.12 In conclusion, available information indicates the majority of the site is in an area with low probability of flooding and development is not significantly constrained by flood risk. Appropriate mitigation will need to be incorporated into any future development to sustainably manage surface water runoff to ensure the development is safe and there is no detrimental impact on third parties, but this should not significantly constrain future development.

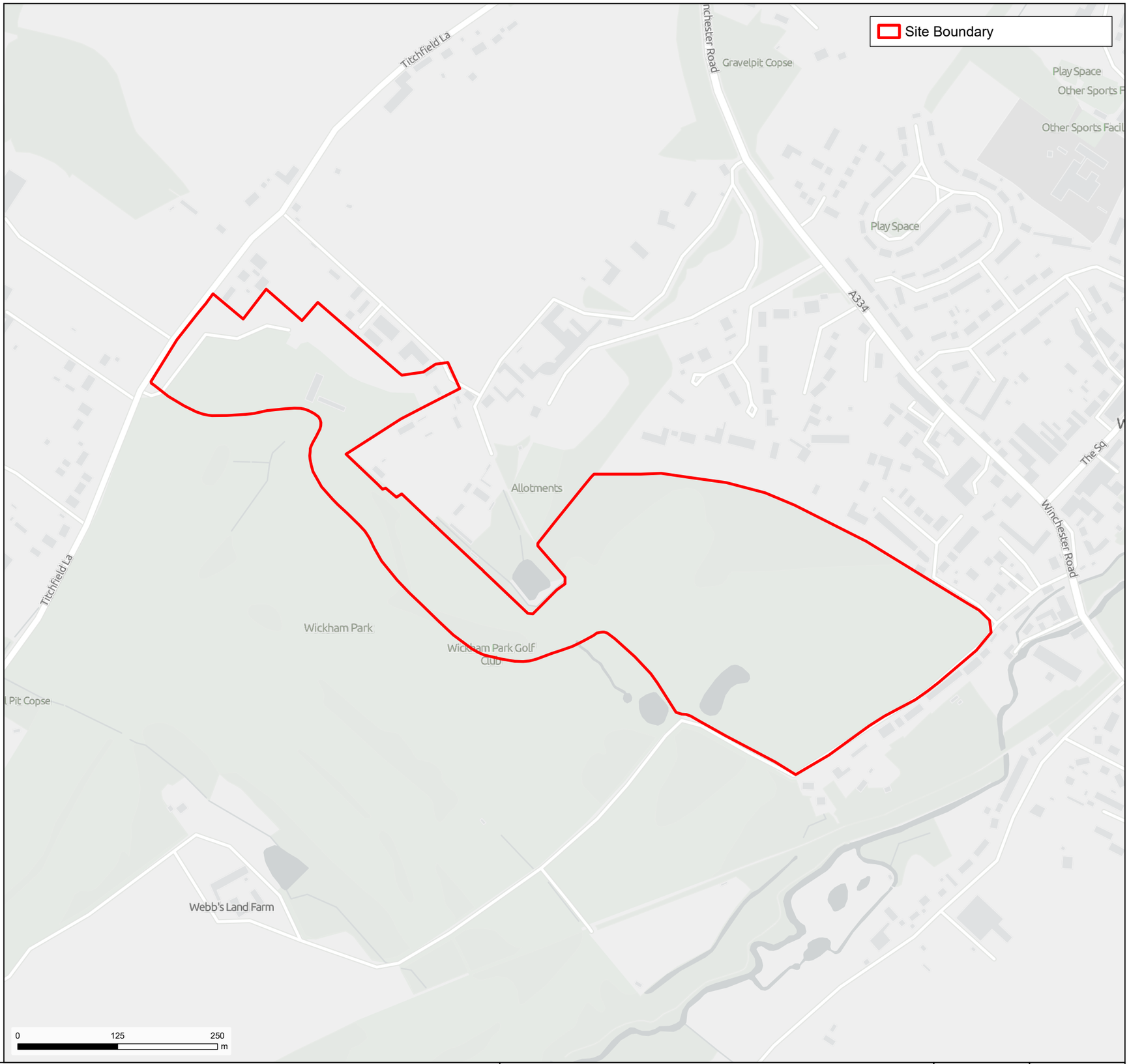
7.1.13 A detailed FRA will be required to accompany any future planning application for the site. This will utilise the base information provided within this Scoping Report and will require further refinement in order to (i) fully consider the impact of the development proposals, (ii) set out the proposed mitigation measures, and (iii) provide a greater level of detail in terms of the proposed surface water drainage strategy.

Appendix A OpenData Flood Maps

- Site Location Plan
- Site Location (Aerial Photography)
- Area and Site Topography (LiDAR)
- EA Flood Zone Map
- Watercourse Location
- EA Surface Water Flood Risk
- EA Risk of Flooding from Reservoirs
- EA Groundwater Source Protection Zones
- EA Historic Flood Map







Stantec

Client: Wickham Park Property Limited

WICKHAM PARK

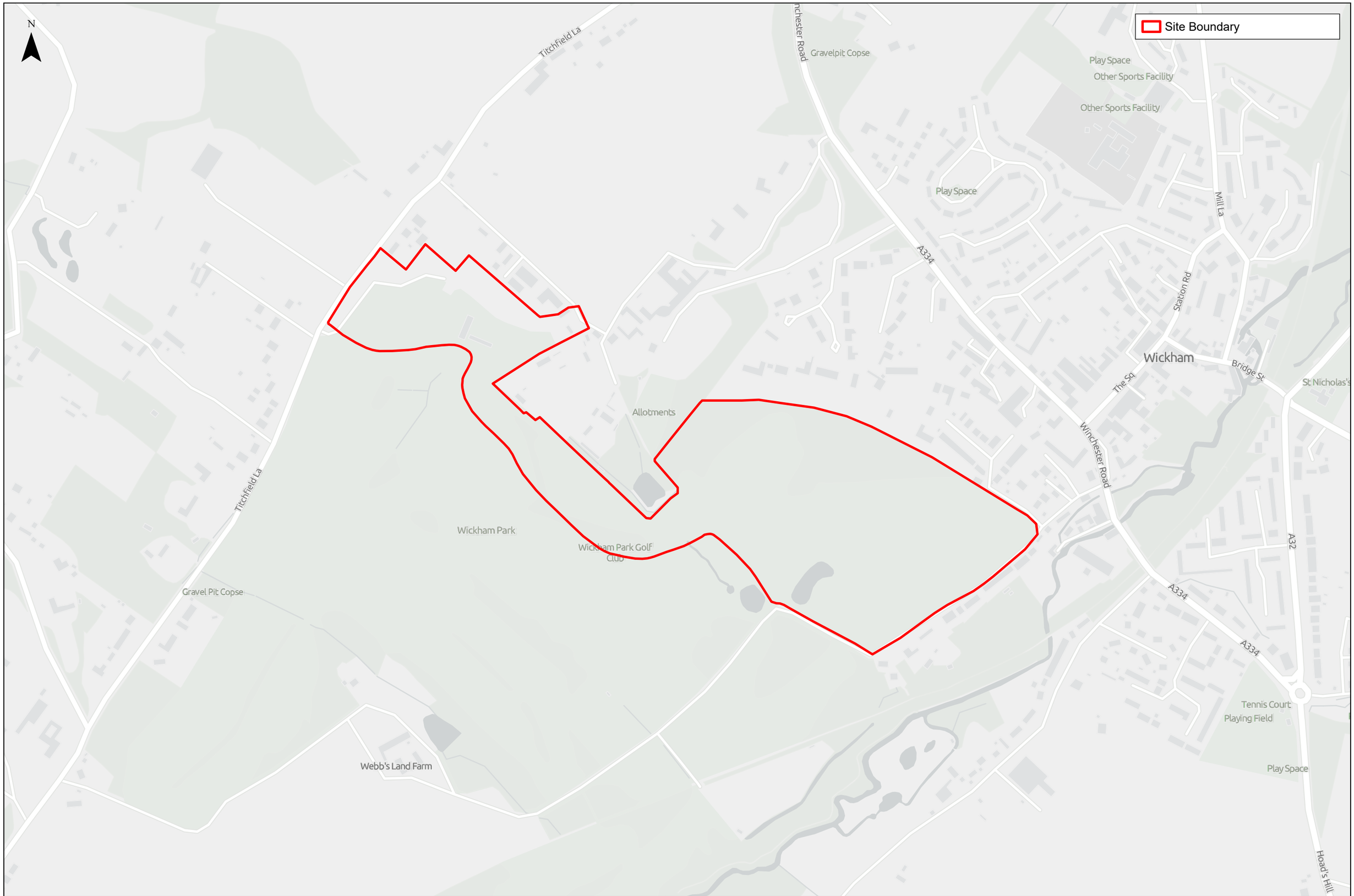
Site Location

Date: 09/10/2024

Drawn: HL | Checked: SD

Figure: 01 | Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec

Client: Wickham Park Property Limited

WICKHAM PARK

Site Location (Detailed)

0 250 500 m

1:5,000 @ A3	Date: 09/10/2024
Drawn: HL	Checked: SD
Figure: 01.1	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx

Stantec	Client Wickham Park Property Limited	**WICKHAM PARK** Site Location - Aerial	0 250 500 m Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS, Maxar, Microsoft	1:5,000 @ A3 Drawn: HL Figure: 02	Date: 09/10/2024 Checked: SD Rev: A

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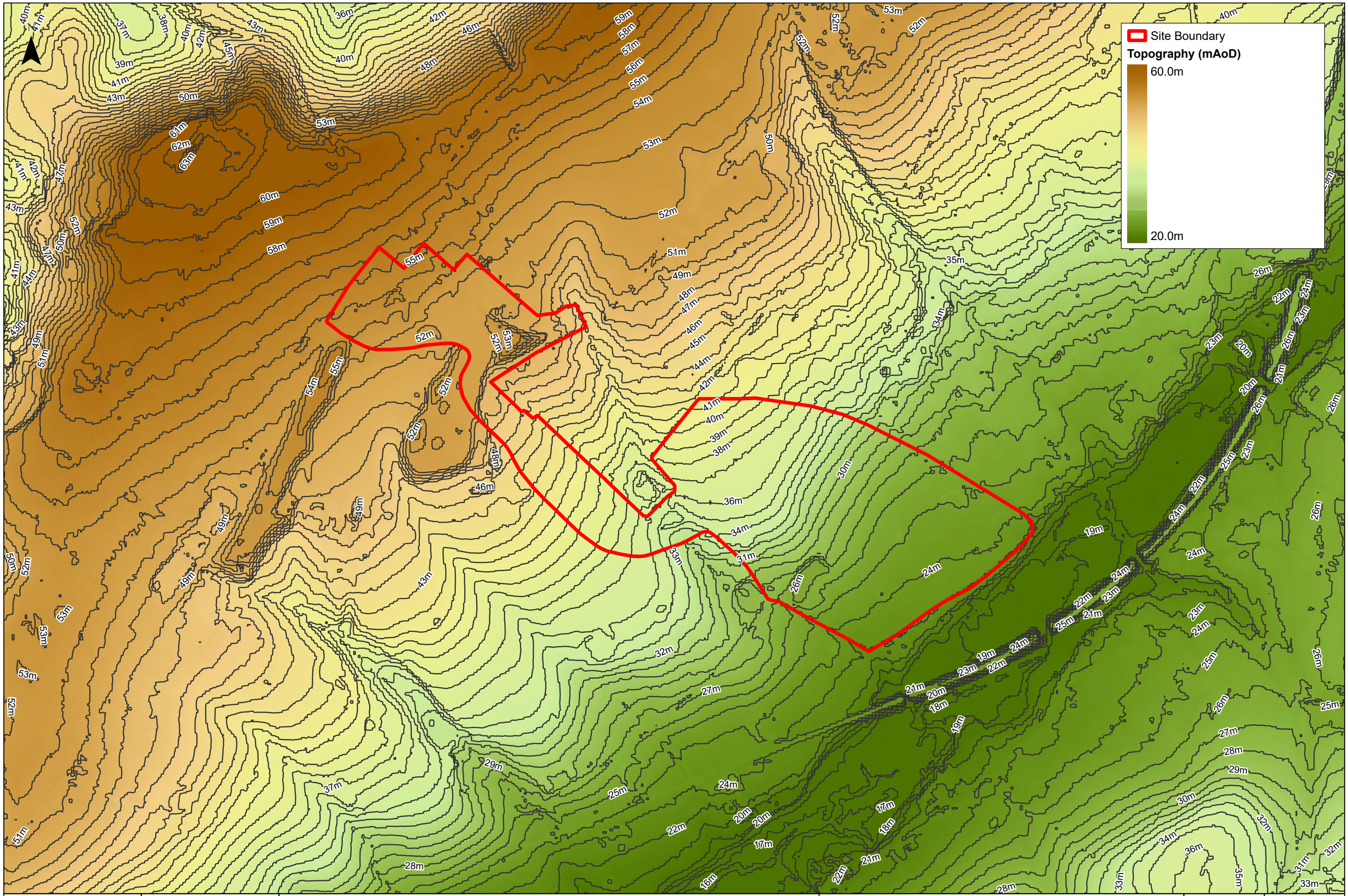


Stantec

Client

Wickham Park Property Limited

WICKHAM PARK

Topography

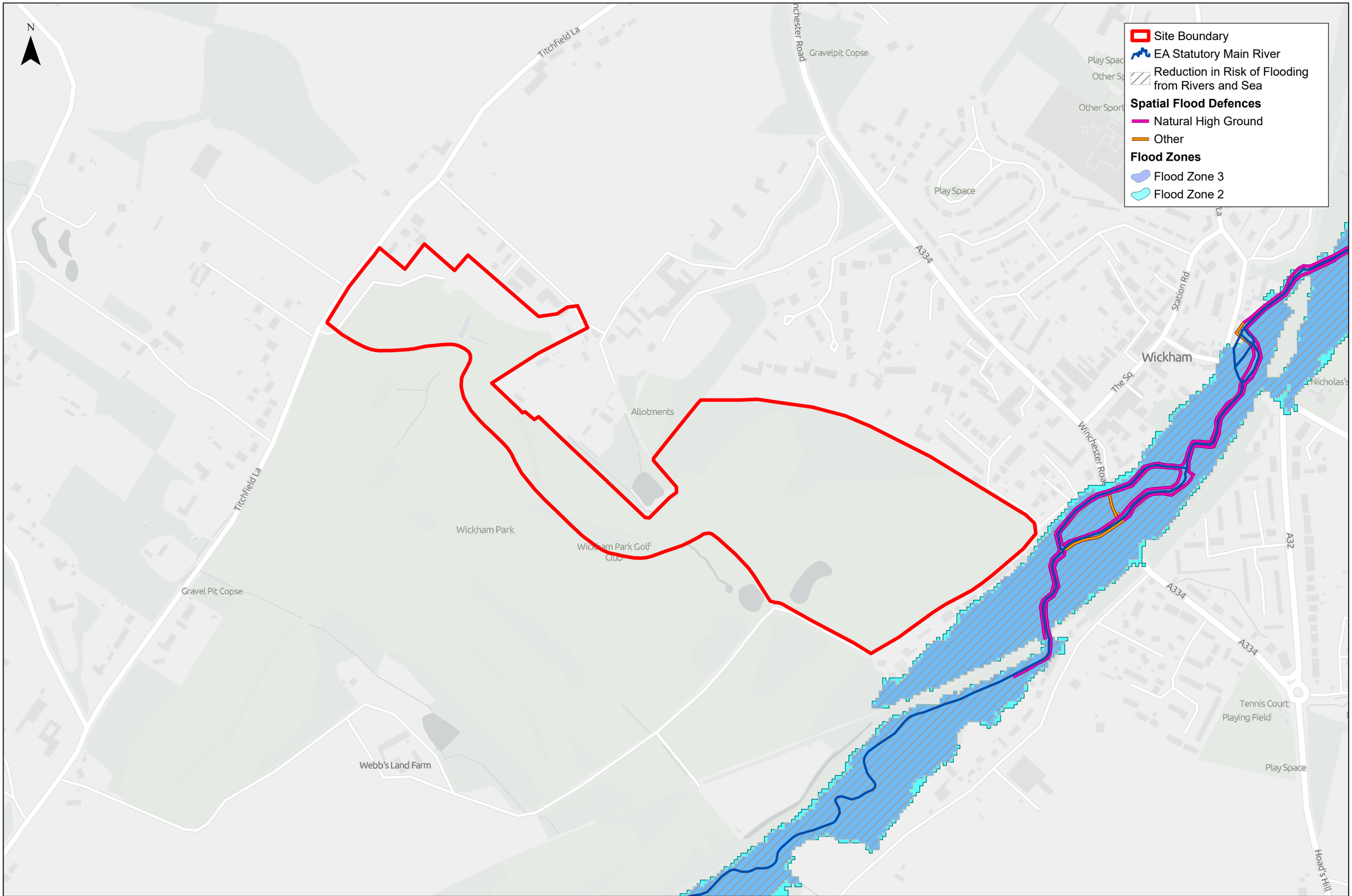
0 250 500 m

1:5,000 @ A3 | Date: 09/10/2024

Drawn: HL | Checked: SD

Figure: 03 | Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec

Client: Wickham Park Property Limited

WICKHAM PARK

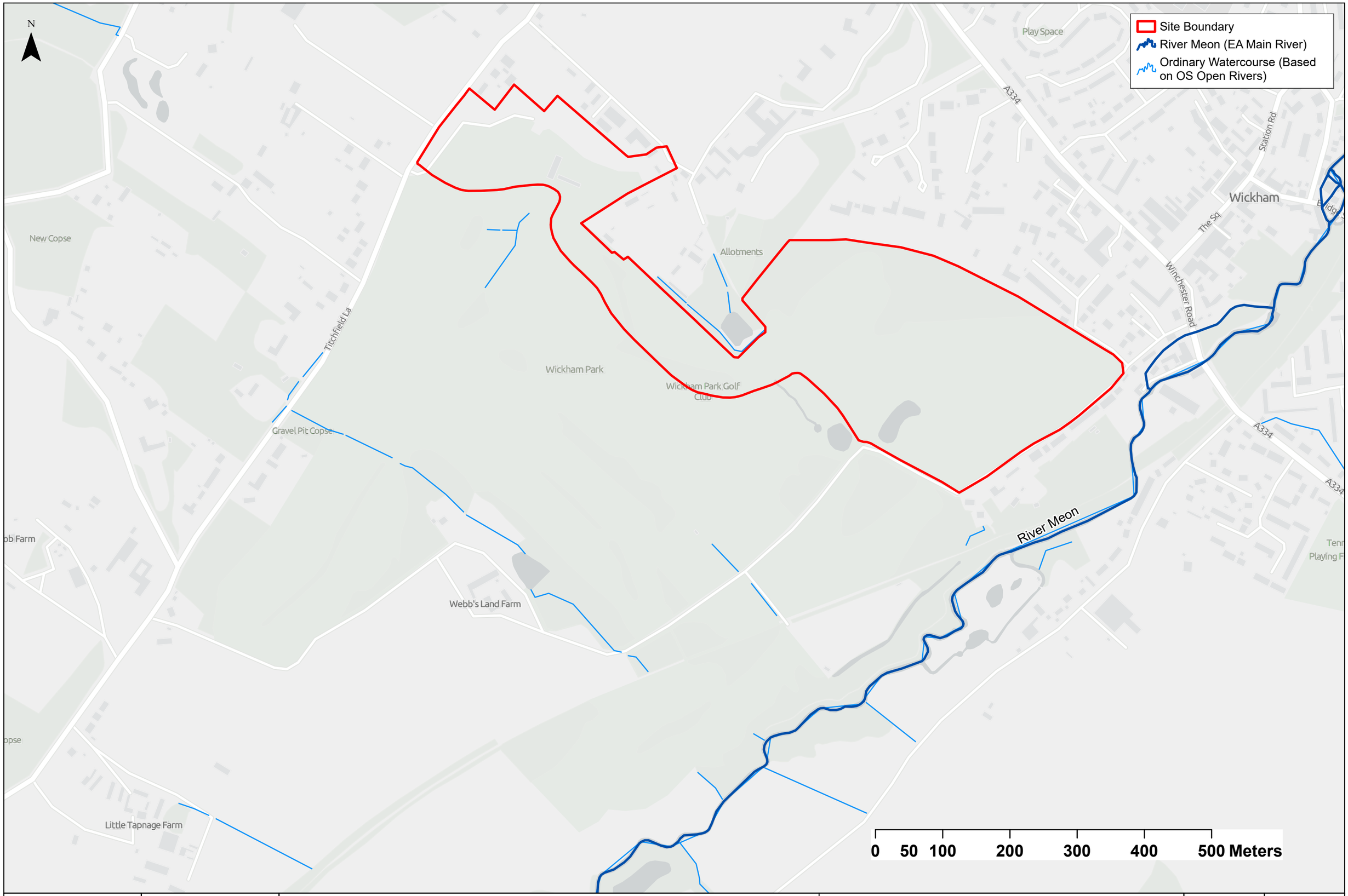
Environment Agency Flood Map for Planning

0 250 500 m

Flood Zones refer to the probability of river and/or sea flooding, ignoring the presence of defences.

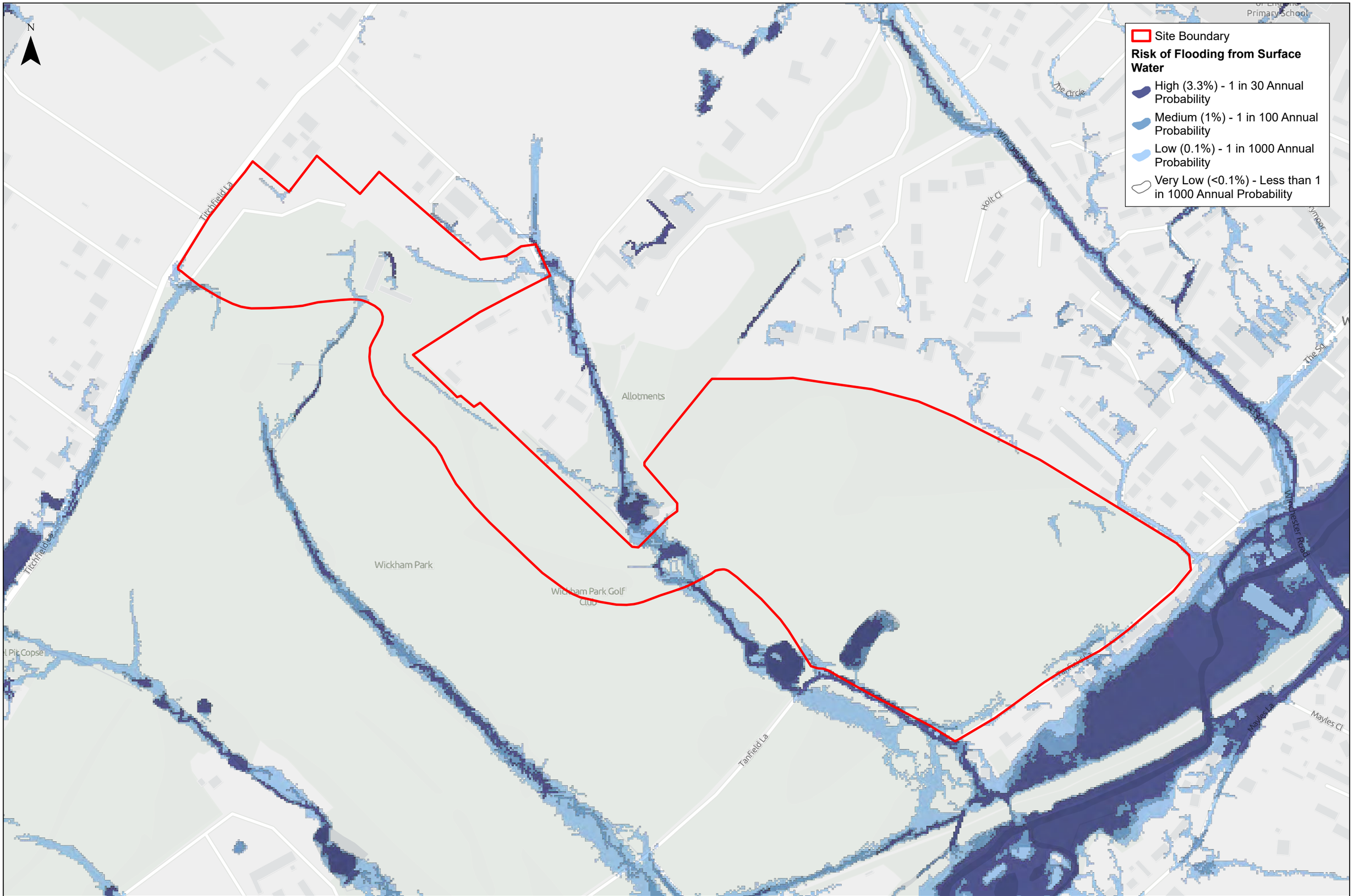
1:5,000 @ A3	Date: 09/10/2024
Drawn: HL	Checked: SD
Figure: 04	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec	Client: Wickham Park Property Limited	**WICKHAM PARK** Watercourse Location	0 250 500 m	1:5,000 @ A3	Date: 09/10/2024
				Drawn: HL	Checked: SD
				Figure: 04.1	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec

Client: Wickham Park Property Limited

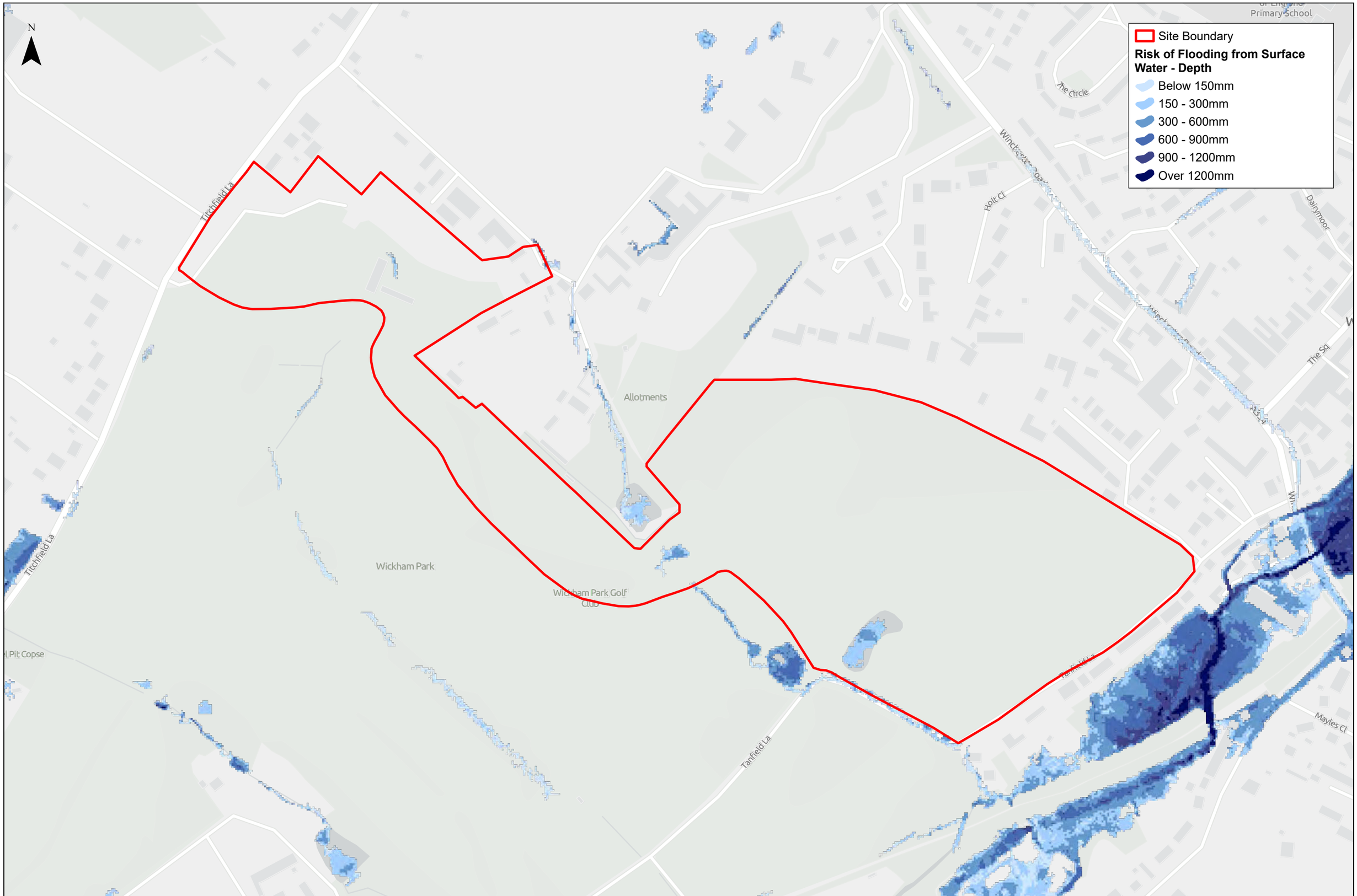
WICKHAM PARK

EA Surface Water Flood Risk

0 175 350 m

1:3,500 @ A3	Date: 09/10/2024
Drawn: HL	Checked: SD
Figure: 05	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec	Client: Wickham Park Property Limited	**WICKHAM PARK** EA Surface Water Flood Risk - Depth 3.3 Percent Chance	0 175 350 m Contains OS data © Crown Copyright and database right 2023 Contains data from OS Zoomstack Contains Environment Agency information © Environment Agency and database right. Maps based on EA updated 'Flood Map for Surface Water' ('uFMfSW') released in 2013 as the latest iteration of a national scale surface water modelling exercise.	1:3,500 @ A3 Drawn: HL Figure: 05.1	Date: 09/10/2024 Checked: SD Rev: A

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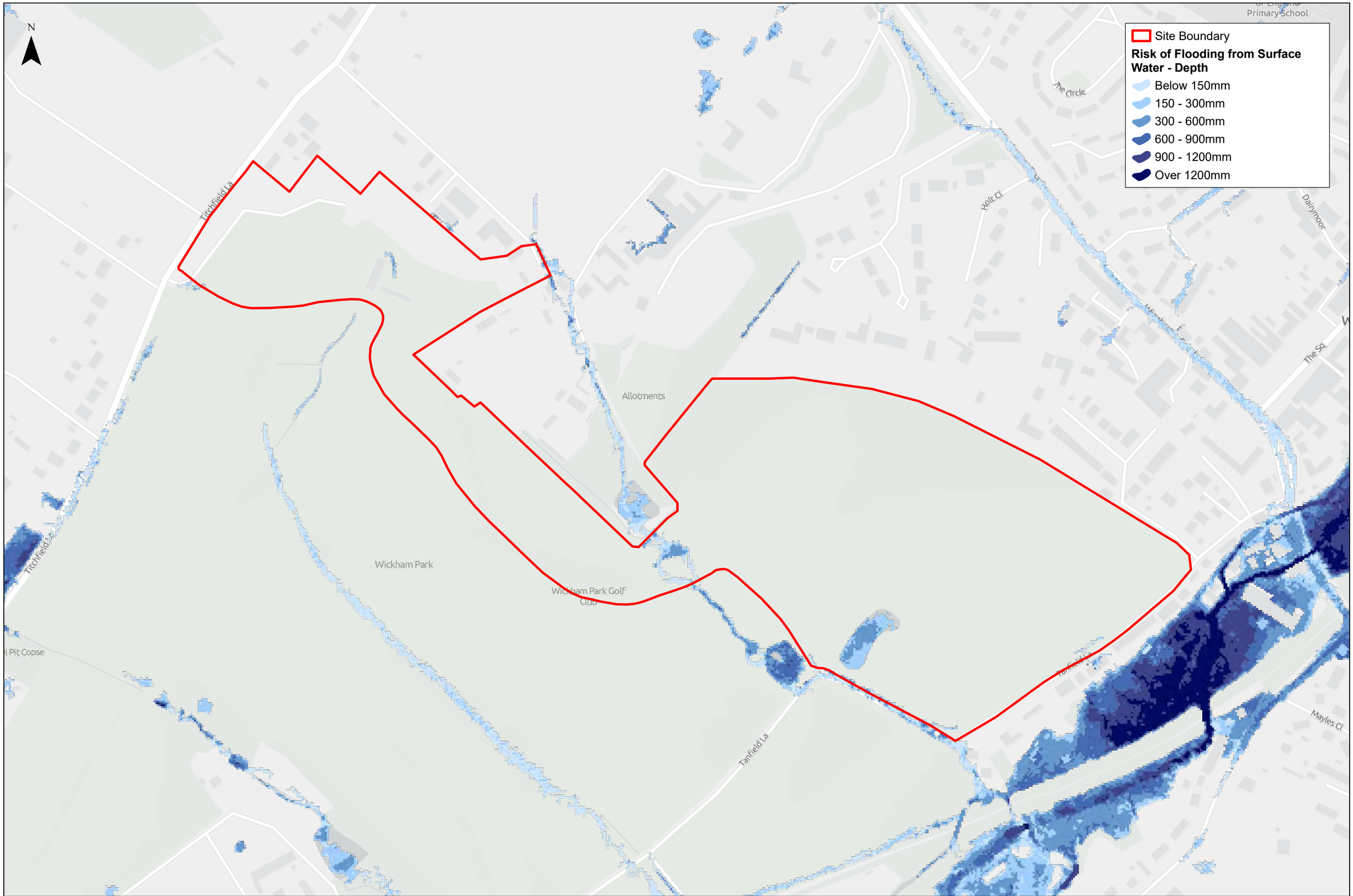


Stantec

Client: Wickham Park Property Limited

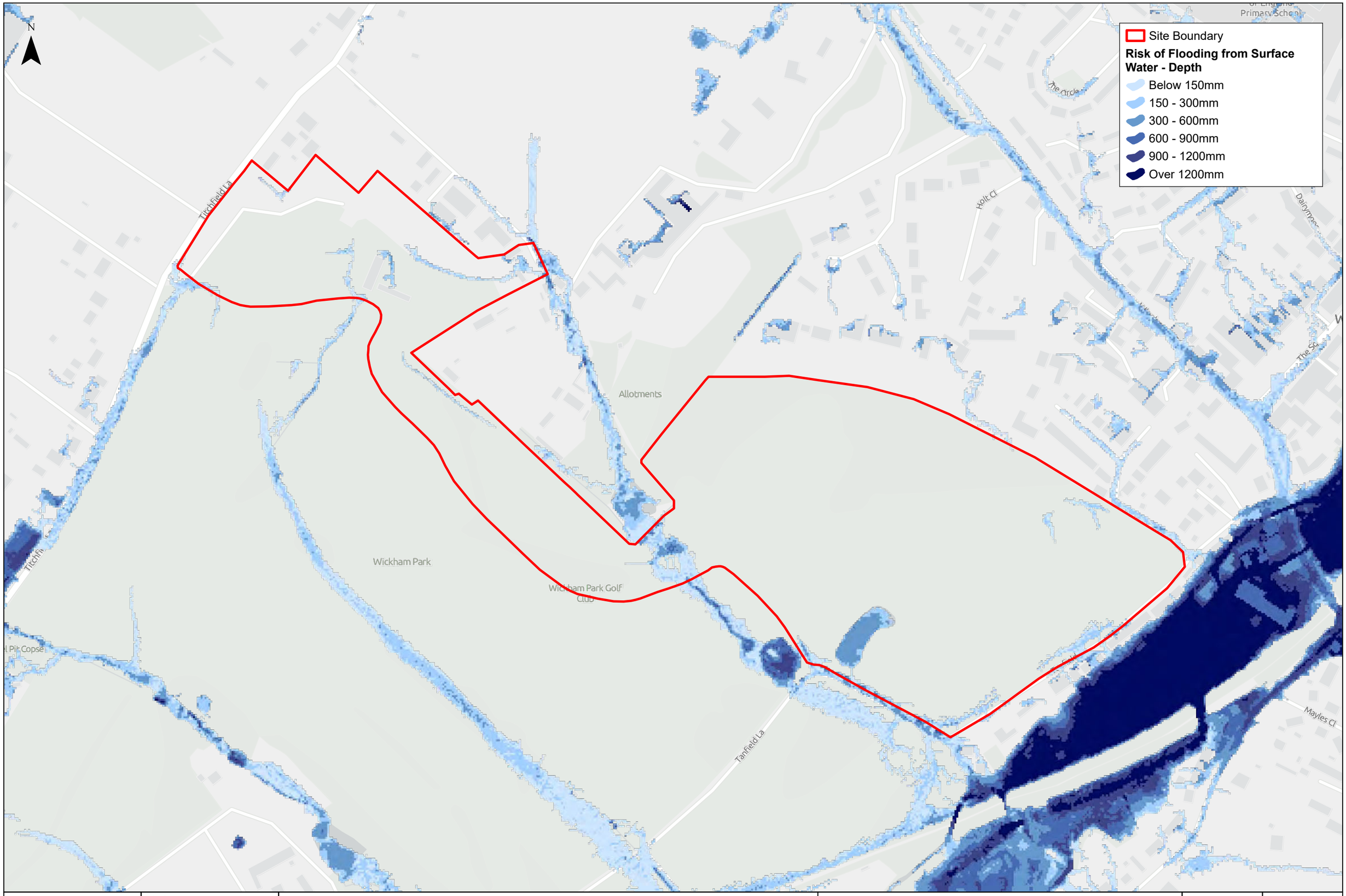
WICKHAM PARK

EA Surface Water Flood Risk - Depth
1.0 Percent Chance

0 175 350 m

1:3,500 @ A3	Date: 09/10/2024
Drawn: HL	Checked: SD
Figure: 05.2	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



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				Drawn: HL	Checked: SD
				Figure: 05.3	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx

Stantec

Client: Wickham Park Property Limited

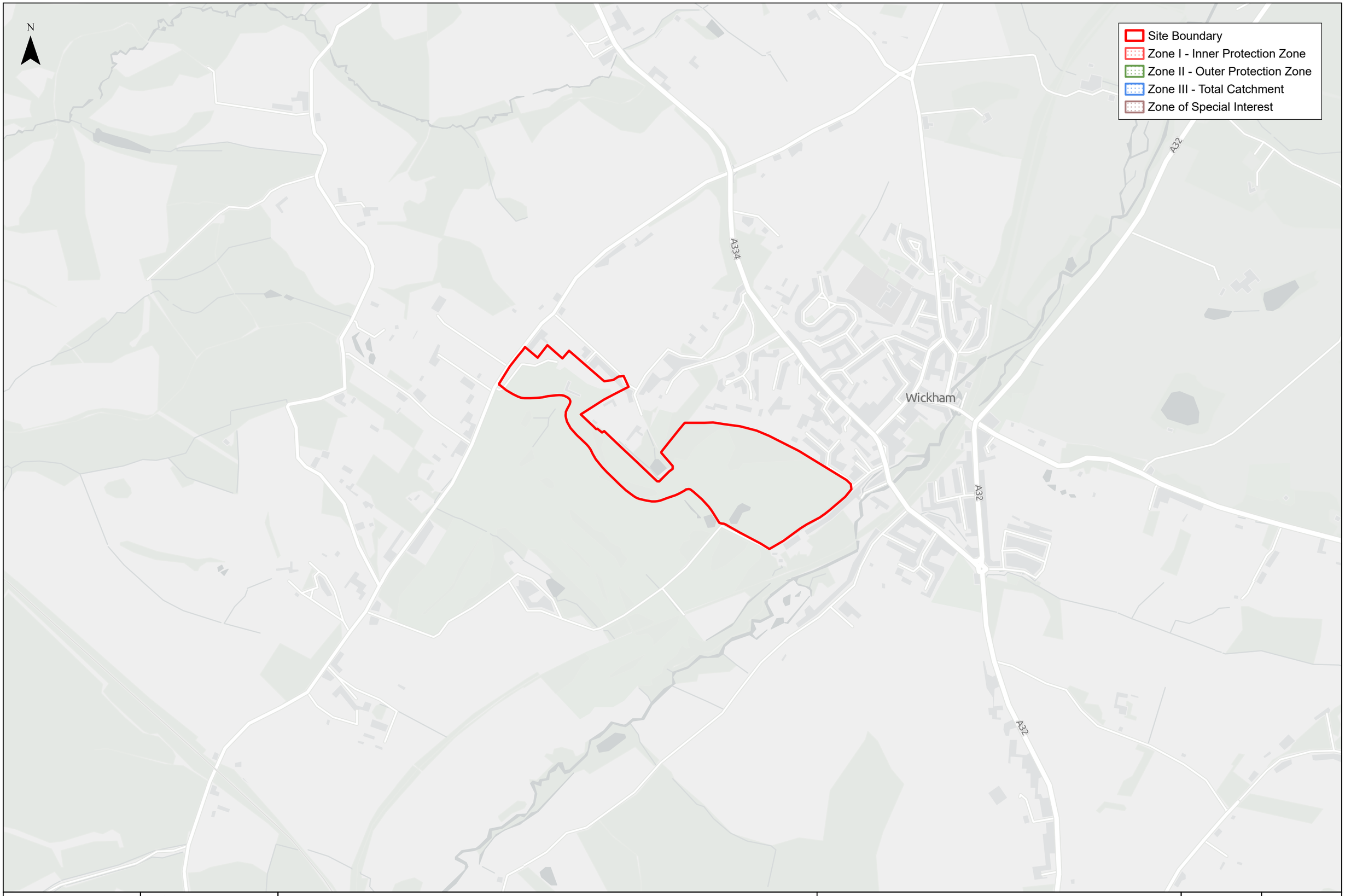
WICKHAM PARK

Risk of Flooding from Reservoirs - Maximum Flood Extent

0 250 500 m

1:5,000 @ A3	Date: 09/10/2024
Drawn: HL	Checked: SD
Figure: 06	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec

Client

Wickham Park Property Limited

WICKHAM PARK

EA Ground Water Source Protection Zones

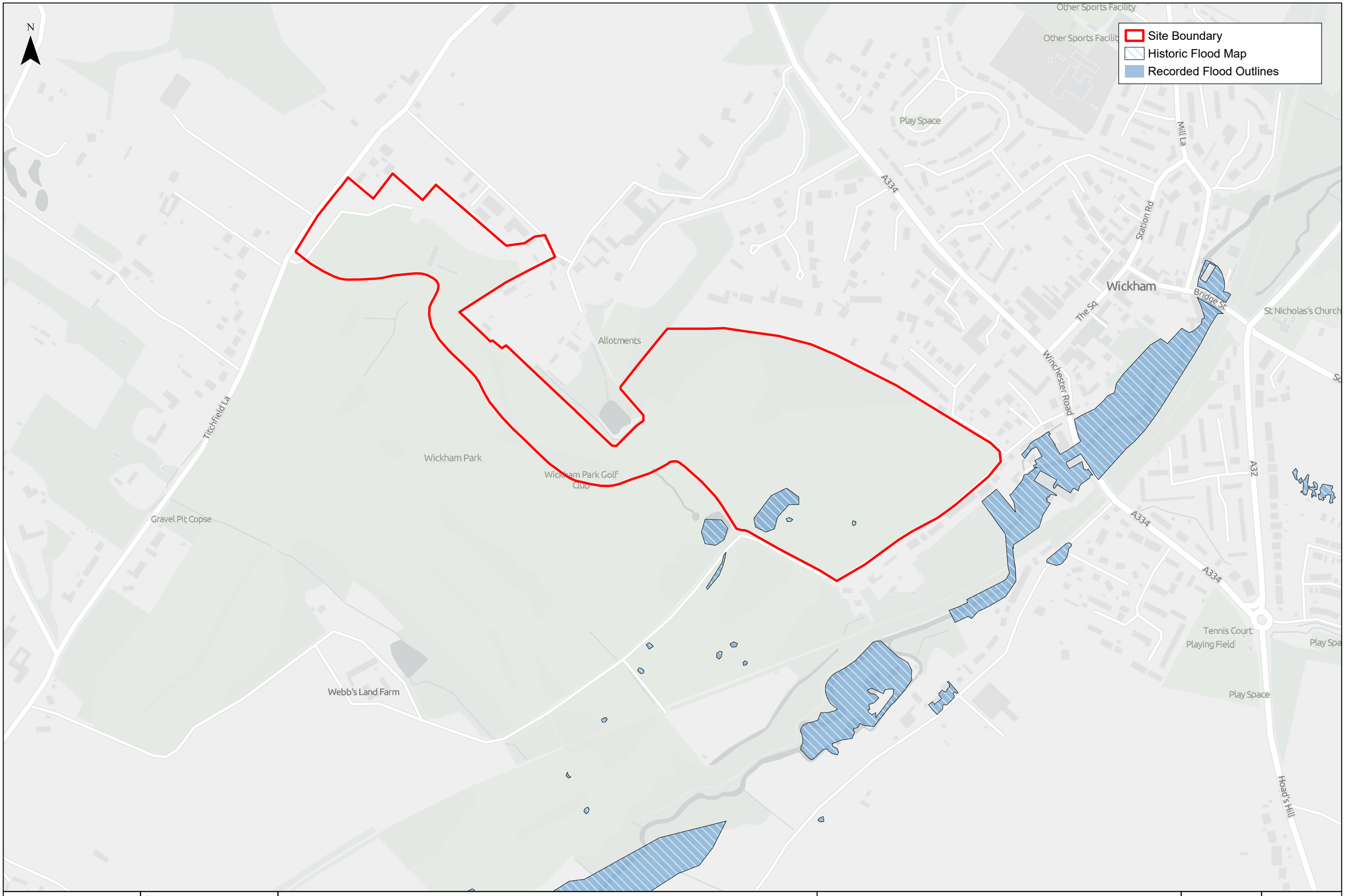
0 500 1,000 m

1:10,000 @ A3 | Date: 09/10/2024

Drawn: HL | Checked: SD

Figure: 07 | Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx



Stantec	Client: Wickham Park Property Limited	**WICKHAM PARK** EA Recorded Historic Flood Extents	0 250 500 m Contains OS data © Crown Copyright and database right 2023 Contains data from OS Zoomstack Contains Environment Agency information © Environment Agency and database right. Historic Flood Map shows the maximum extent of all individual Recorded Flood Outlines from river, the sea and groundwater springs and shows areas of land that have previously been subject to flooding in England. Recorded Flood Outlines shows all EA records of historic flooding from rivers, the sea, groundwater and surface water	1:5,000 @ A3	Date: 09/10/2024
				Drawn: HL	Checked: SD
				Figure: 08	Rev: A

Document Path: C:\Users\hleekam\Documents\ArcGIS\Projects\Wickham Park\Wickham Park.aprx

Appendix B Development Masterplan

- CROS3014_Framework Masterplan by Turley (September 2024)

- Site Boundary
- Wider Area within Landowner Control
- 1 Primary Vehicular Access to be taken from Titchfield Lane
- 2 Emergency Vehicular Access from Tanfield Park
- Existing Bus Stops
- Public Rights of Way
- National Cycle Network - Route 224
- Existing Golf Club House
- Proposed Residential Development
- Indicative Primary Access Route
- Proposed Pedestrian routes
- Opportunity for wider pedestrian connections
- Proposed Children's Play
- Proposed Allotments
- Sustainable Urban Drainage

CLIENT:
Crown Golf Property Limited

PROJECT:
Wickham Park Golf Club

DRAWING:
Framework Masterplan

PROJECT NUMBER:
CROS3014

DRAWING NUMBER:	CHECKED BY:
4000	**AW**
REVISION:	STATUS:
-	**DRAFT**
DATE:	SCALE:
September 2024	**1:5000 @ A3**

Turley

Appendix C Drainage Calculations

- Wickham Park 'FEH Greenfield Runoff Rate (GRR)' Equation Sheet (25.09.2024)
- Wickham Park – MicroDrainage Quick-Storage Estimate Calculations Sheet (25.09.2024)
- Wickham Park – Pond Design & MicroDrainage Quick-Storage Estimate Requirements (25.09.2024)
- Wickham Park – MicroDrainage Initial Attenuation Pond Design (25.09.2024)

FEH Greenfield Runoff

Using the 2008 Statistical Method QMED Equation

Project Title	Wickham Park Surface Water Drainage Strategy
Project No	332611501

Methodology as set out in SuDS Manual 24.3.2 — SUDS Manual Chapter 24

1 Retrieve FEH Catchment Information

Define BFIHOST definition source		FEH		*see note 1*
Catchment Descriptors	**BFIHOST**	0.317		
	SAAR	797.0		*see note 1*
	FARL	1.0		*see note 2*

2 Derive QBAR (mean annual flood)

Define area	**Site Area**	4.840	ha	
	Applied Area	50.0	ha	*see note 3*
FEH Index Flood (SuDS Manual Equation 24.2)	**QMED (Q_2)**	31.2	l/s	*see note 4*
Calculate QBAR by dividing QMED by 2yr growth factor	**QBAR**	35.4	l/s	*see note 5*

3 Select appropriate growth factors

FSR Hydrological Region		7	*(refer to FSR Hydrological Region tab)*
100yr Growth Curve Factor	**GQ_{100}**	3.19	
30yr Growth Curve Factor	**GQ_{30}**	2.40	
10yr Growth Curve Factor	**GQ_{10}**	1.62	
2yr Growth Curve Factor	**GQ_2**	0.88	
1yr Growth Curve Factor	**GQ_1**	0.85	

4 Derive Flood Frequency

Greenfield Runoff per 1ha

100yr Peak Runoff Rate	**Q_{100}**	113.03	l/s	**Q_{100}**	23.4	l/s/ha
30yr Peak Runoff Rate	**Q_{30}**	85.04	l/s	**Q_{30}**	17.6	l/s/ha
10yr Growth Curve Rate	**Q_{10}**	57.40	l/s	**Q_{10}**	11.9	l/s/ha
QBAR Peak Runoff Rate	**QBAR**	35.43	l/s	**Q_{BAR}**	7.3	l/s/ha
2yr Peak Runoff Rate	**Q_2**	31.18	l/s	**Q_2**	6.4	l/s/ha
1yr Peak Runoff Rate	**Q_1**	30.12	l/s	**Q_1**	6.2	l/s/ha

DOCUMENT ISSUE RECORD

Rev	Comments	Prepared	Date	Checked	Date
-	Original calculation	HL	25/09/2024	EE	25/09/2024

Notes This spreadsheet has been created to allow derivation of greenfield runoff rates using the FEH statistical method applied in a manner consistent with the recommendations of the SuDS Manual. If you have recommendations to improve this spreadsheet please contact Alex Bearne.

Note 1 FEH Web version 3 allows extraction of BFIHOST and SAAR values for each square kilometre grid Export point data from FEH Webs Service as .XML file and save in project folder and import in the FEH Point Data Import tab. If you do not think the BFIHOST value is representative of your site then it is possible to derive it manually. This should not normally be necessary. BFI can be derived manually using the methodology set out in the Flood Estimation Handbook (see Manual Derivation *of BFIHOST tab)* or can be defined from ground investigation information.
As default the sheet references the imported FEH data

Note 2 FARL value is a measure of attenuation from reservoirs and lakes for the majority of studies this should be set to 1 (representing no attenuation). If your site includes a large water body with an attenuating affect on runoff please consult a hydrologist.
FARL is a measurement of studies water bodies in the catchment so that their attenuation effects so this term becomes 1.0 and therefore drops out. (see page 23 of the Preliminary rainfall runoff management for developments EA/Defra 2013)
Rainfall runoff management for developments.pdf

Note 3 If the site area is less than 50 hectare the spreadsheet will calculate QMED for 50ha and scale the results automatically to the defined Site Area

Note 4 QMED is calculated using the statistical equation as revised by Kjeldsen in 2008

$$Q_{MED} = 8.3062AREA^{0.8510} .0.1536^{(1000/SAAR)} .FARL^{3.4451} .0.0460^{BFIHOST\wedge 2}$$

Rainfall runoff management for developments.pdf
It is reproduced as Equation 24.2 in the SUDS Manual (pg 512)

Note 5 QBAR is calculated by dividing QMED by the growth factor for the 2 year event, as per the methodology set out in paragraph 6.2.2 of 'Rainfall runoff management for developments' .
QBAR is then used as the index flood for the basis of applying the growth factors.

Wickham Park Drainage Requirements – Surface Water MicroDrainage Quick-Storage Estimate

Comments:

- The proposed development/impermeable areas (including main site road) have been split into 4 separate drainage sections: **A** / **B** / **C** / **D**. This is due to the size of the development area and fall in topography from West to East across the site. See Drawing: '***Stantec Drainage Section_ Wickham Park Plan***.

- **MicroDrainage Quick Storage Estimates** have been used to calculate the water attenuation requirements for each drainage section.

- It is assumed that the total area within each identified drainage sections is not 100% impermeable land. To account for residential gardens & green amenity spaces within each of the drainage areas, a baseline total impermeable area of **55%** has been used within these quick storage estimates.

- A 6% Allowance for Urban Creep as also been Calculated (35dph/6%)

- A maximum allowable Discharge Rate has been based on the QBAR rate of the total 55% Impermeable Area, which has been used within the attenuation calculator (to Mimic Greenfield runoff rates)

- A 100 year return period has been used within the attenuation calculation.

- A 40% allowance for Climate Change as been used within the attenuation calculation.

- FEH Rainfall data and local site ground conditions have been inputted into the attenuation calculation.

- The Quick-storage estimate calculation provides a Low – High attenuation storage estimate – the mean range value has been used to provide a conservative high-level overview of storage requirements.

Drainage Calculations

Drainage Area - Section A

Total Area = **18180m²** (1.82 ha)

55% Impermeable Area (Total) = **10000m²** (1.0 ha)

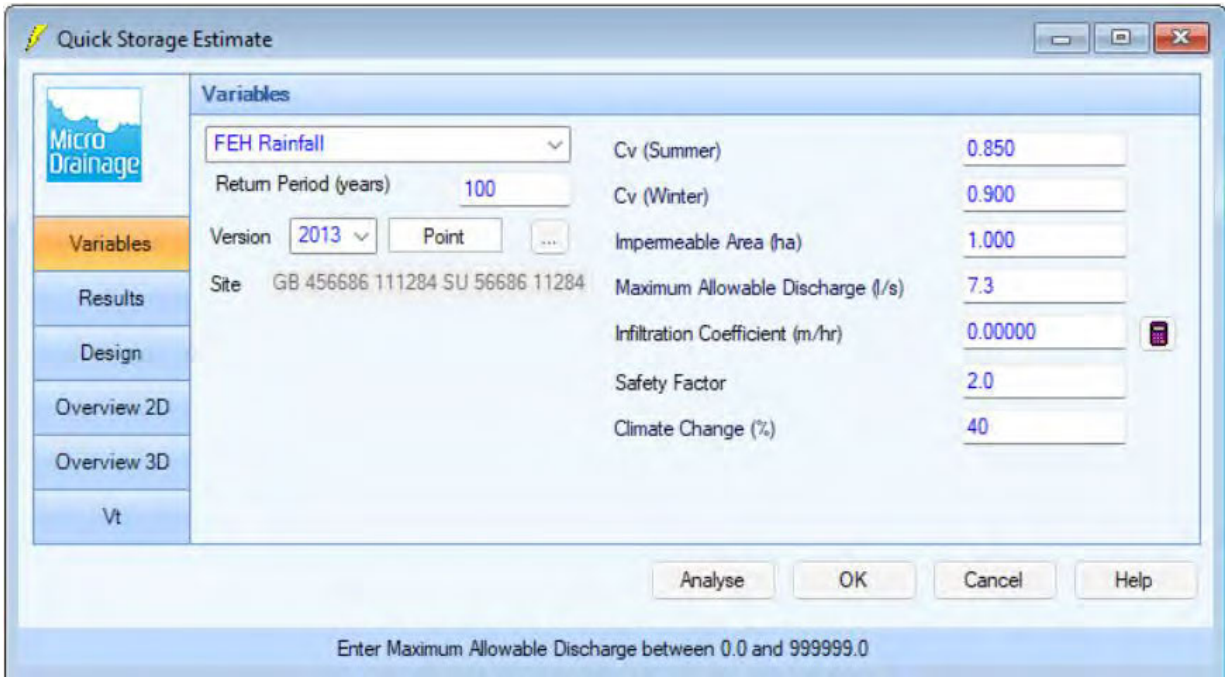
6% Urban Creep Area (Total) = **600m2** (0.06ha)

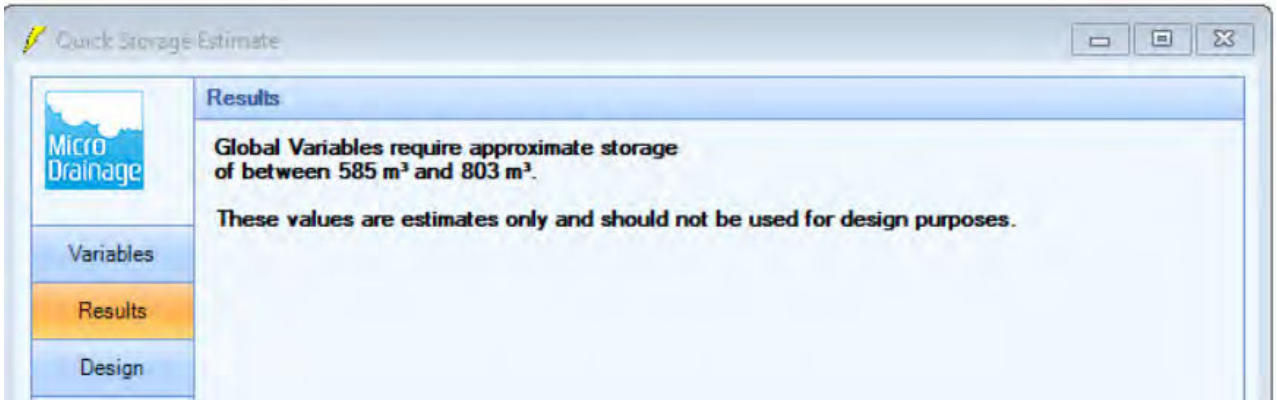
Combined 55% Imper & 6% Urban Creep = **10600m2** (1.06ha)

QBAR Discharge Rate (For 55% Impermeable Area) = **7.32 l/s**

Surface Water Attenuation Requirements

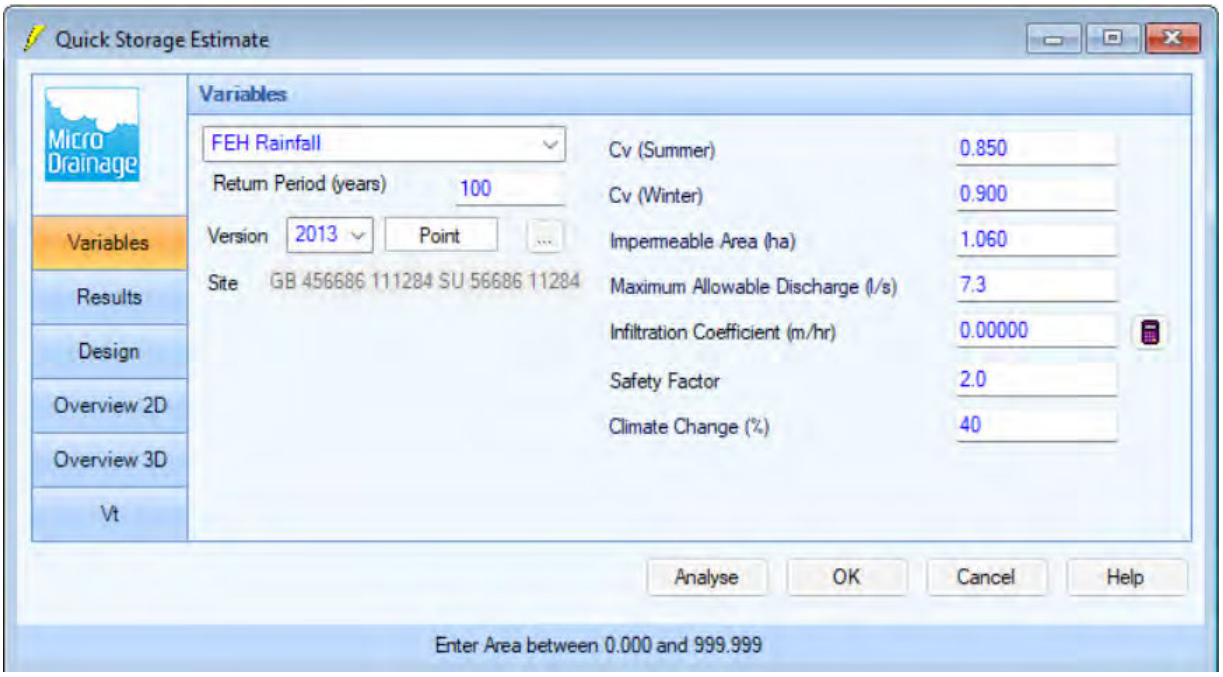
SW Attenuation for 55% Impermeable Area

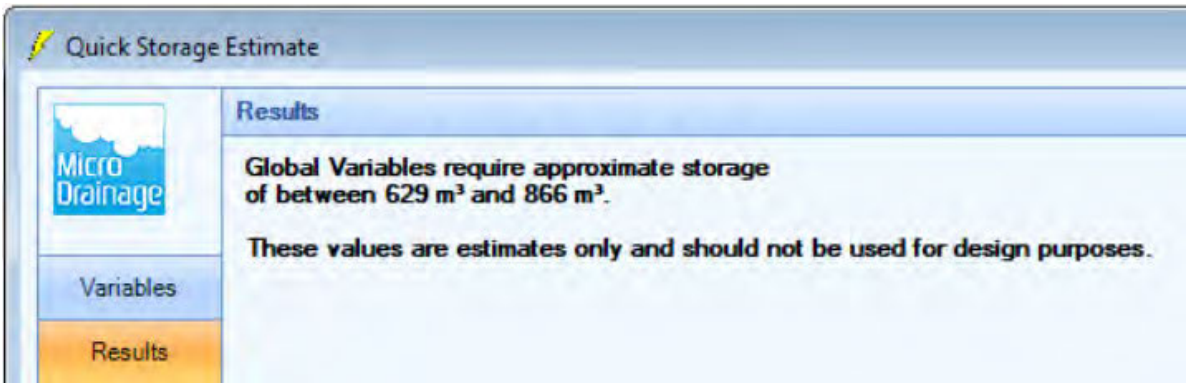




- The Quick Storage calculator provides a range of required approximate water storage between 585m³ - 803m³, with an average requirement of = **694m³**.

SW Attenuation for 55% Impermeable & 6% Urban Creep Area





- The Quick Storage calculator provides a range of required approximate water storage between 629m³ - 866m³, with an average requirement of = **748m³**.

Drainage Area - Section B

Total Area = **36681m²** (3.66ha)

55% Impermeable Area (Total) = 20175m² (2.018ha)

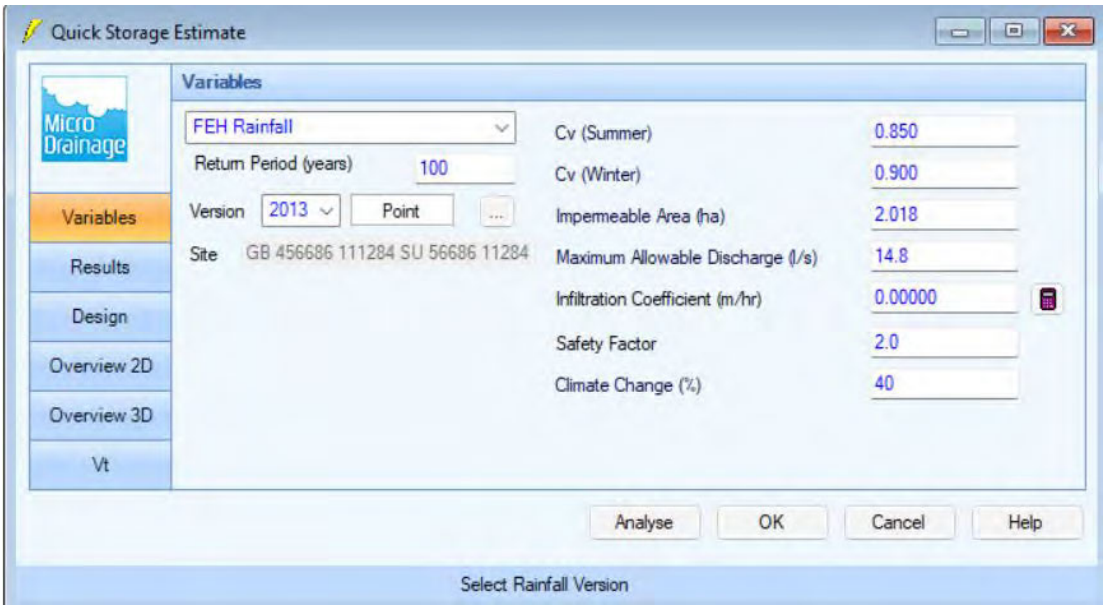
6% Urban Creep Area (Total) = 1211m² (0.1211 ha)

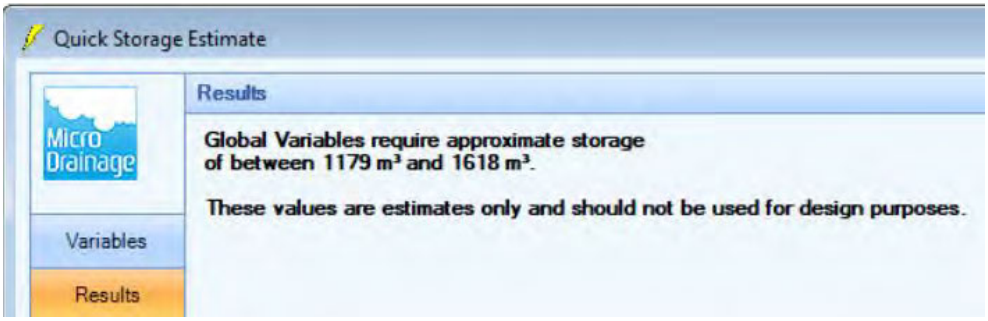
Combined 55% Imper & 6% Urban Creep = 21386m² (2.14ha)

QBAR Discharge Rate (For 55% Impermeable Area) = 14.8 l/s

Surface Water Attenuation Requirements

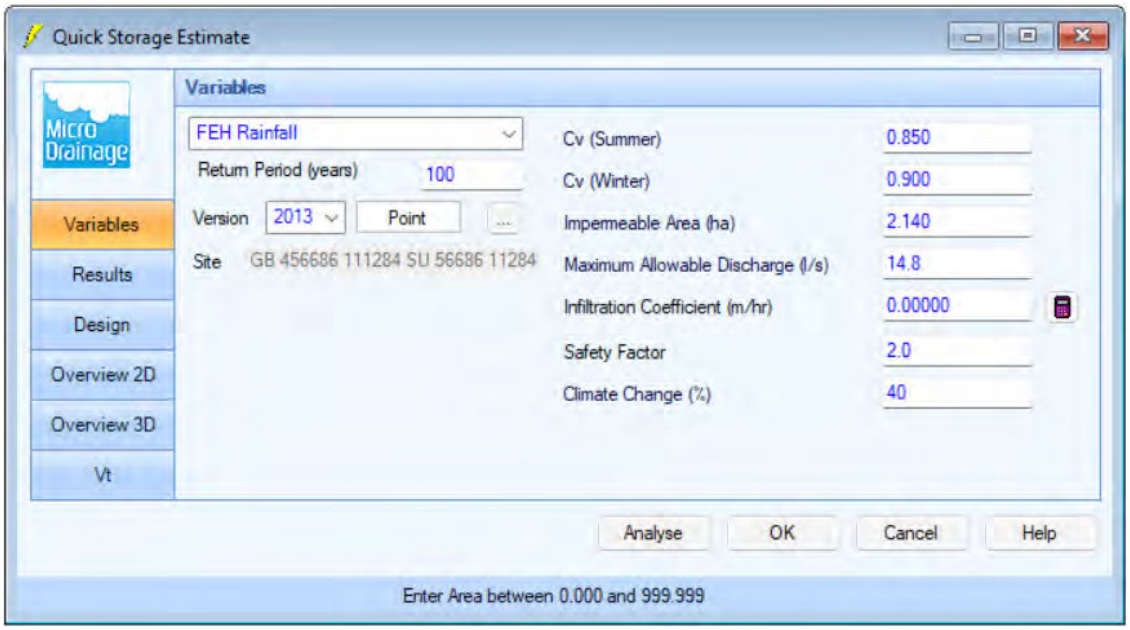
SW Attenuation for 55% Impermeable Area

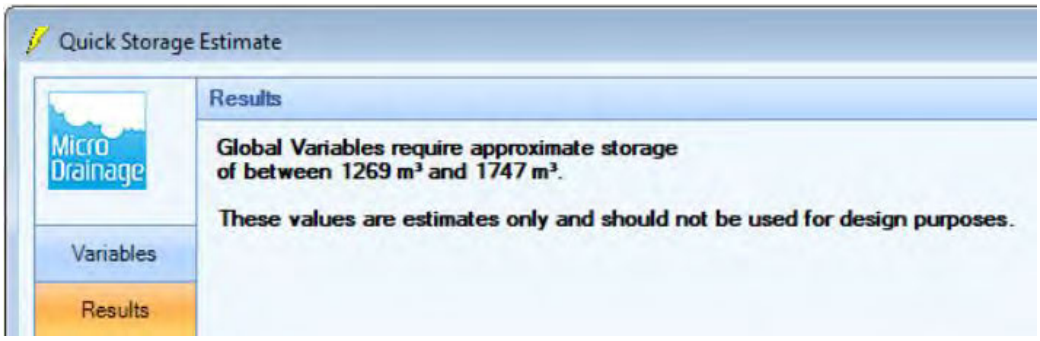




- The Quick Storage calculator provides a range of required approximate water storage between 1179m³ - 1618m³, with an average requirement of = **1400m³**.

SW Attenuation for 55% Impermeable & 6% Urban Creep Area





- The Quick Storage calculator provides a range of required approximate water storage between 1269m³ - 1747m³, with an average requirement of = **1508m³.**

Drainage Area - Section C

Total Area = **10552m²** (1.05ha)

55% Impermeable Area (Total) = 5804m² (0.58ha)

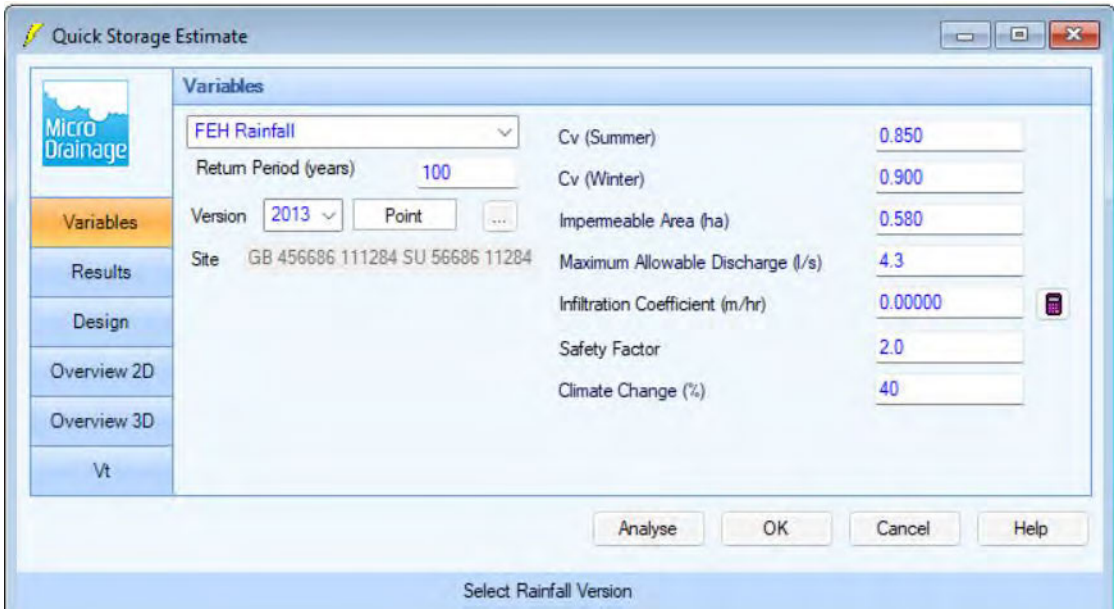
6% Urban Creep Area (Total) = 350m² (0.035ha)

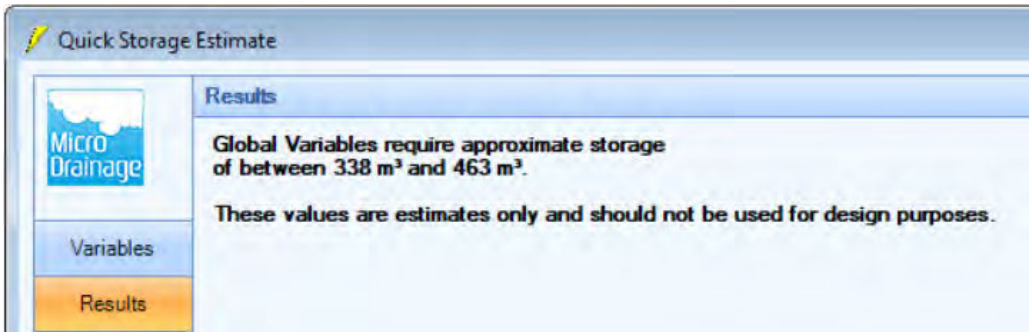
Combined 55% Imper & 6% Urban Creep = 6154m² (0.615ha)

QBAR Discharge Rate (For 55% Impermeable Area) = 4.3 l/s

Surface Water Attenuation Requirements

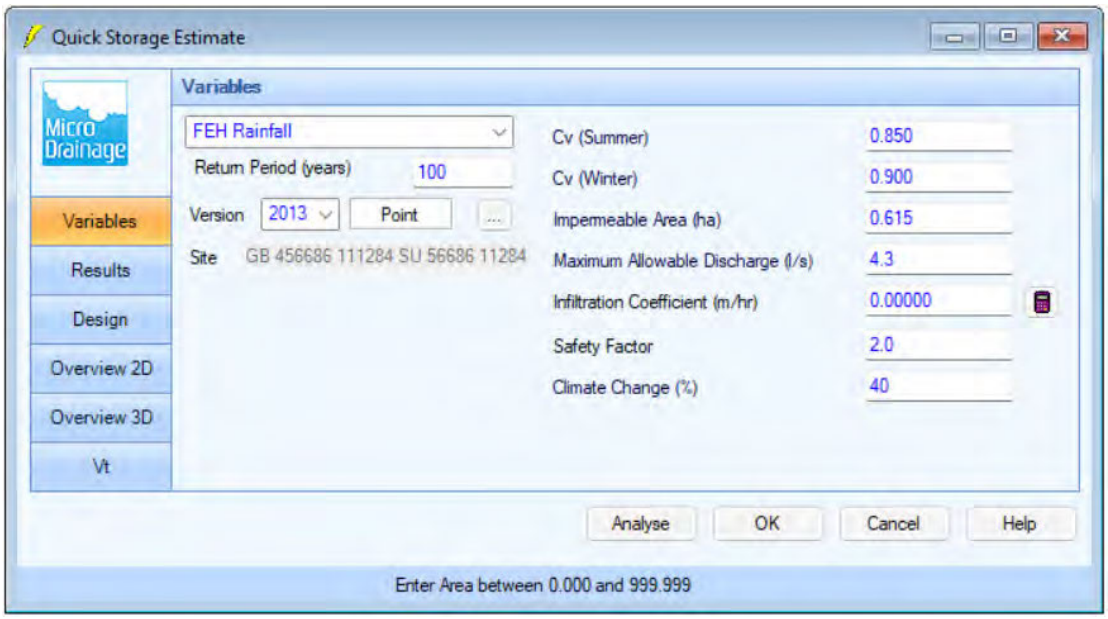
SW Attenuation for 55% Impermeable Area

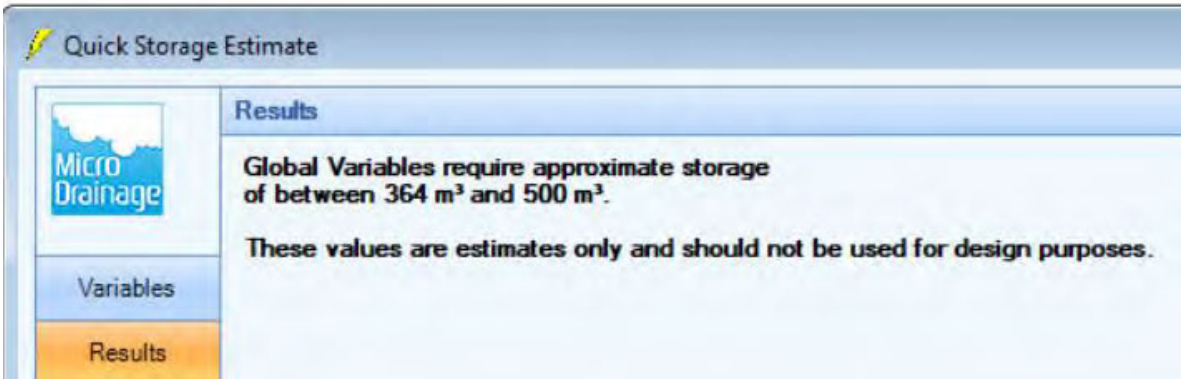




- The Quick Storage calculator provides a range of required approximate water storage between 338m³ - 463m³, with an average requirement of = **401m³**.

SW Attenuation for 55% Impermeable & 6% Urban Creep Area





- The Quick Storage calculator provides a range of required approximate water storage between 364m³ - 500m³, with an average requirement of = **432m³**.

Drainage Area - Section D

Total Area = **22552m²** (2.25ha)

55% Impermeable Area (Total) = 12404m² (1.24ha)

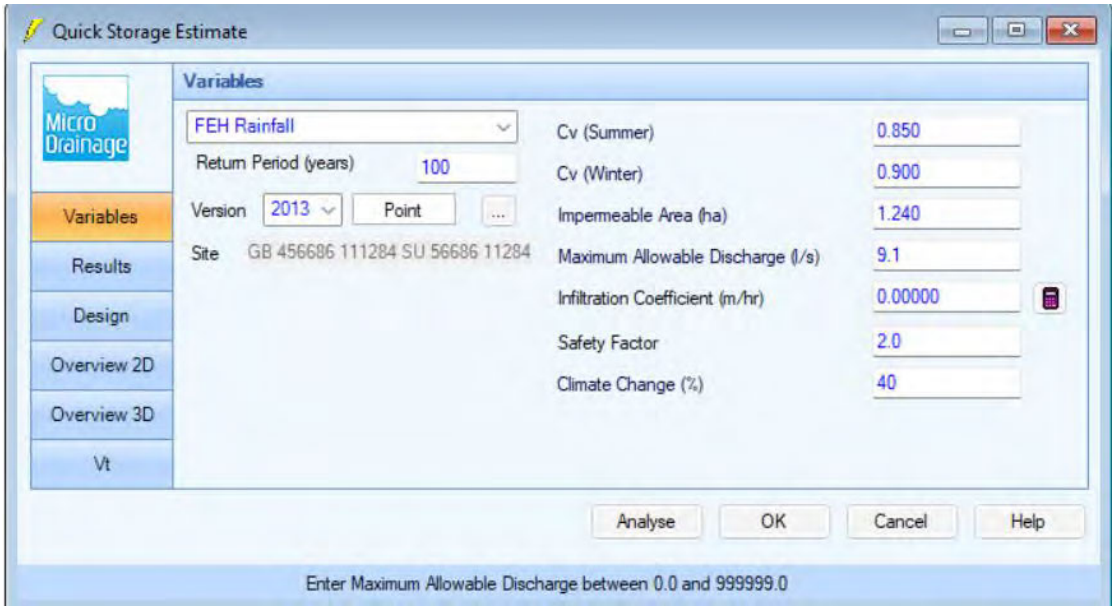
6% Urban Creep Area (Total) = 745m² (0.075ha)

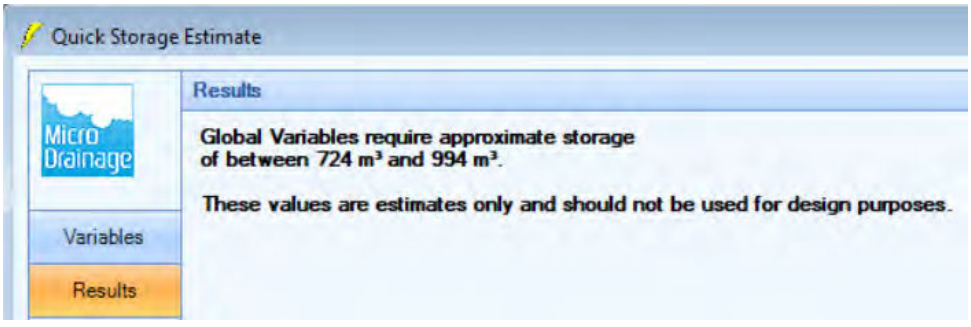
Combined 55% Imper & 6% Urban Creep = 13149m² (1.32ha)

QBAR Discharge Rate (For 55% Impermeable Area) = 9.1 l/s

Surface Water Attenuation Requirements

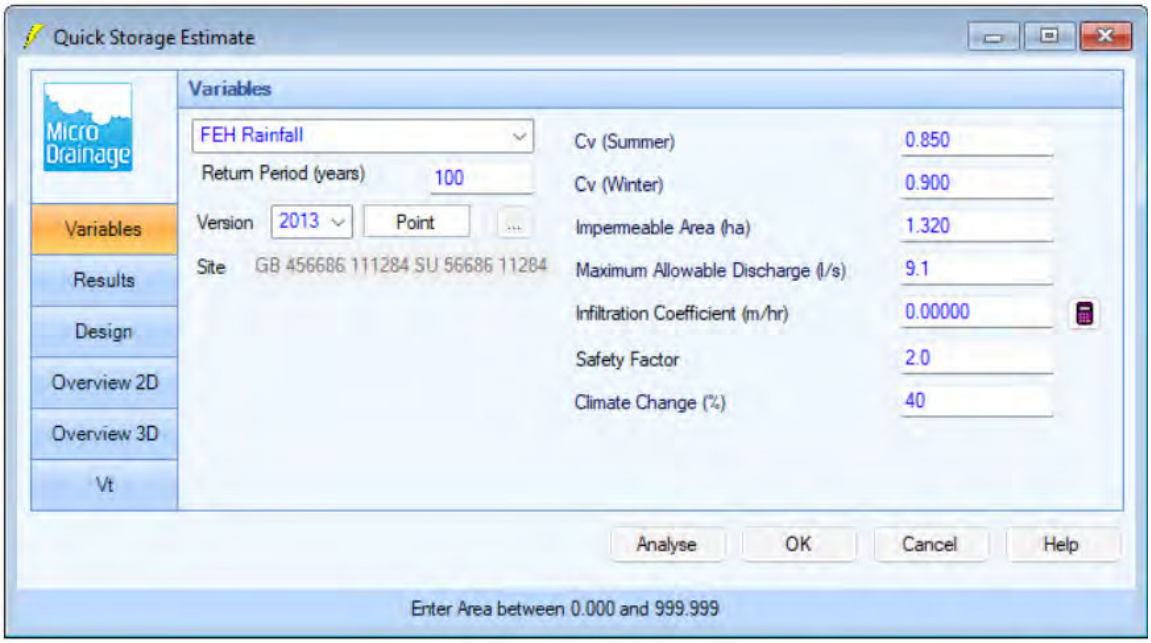
SW Attenuation for 55% Impermeable Area

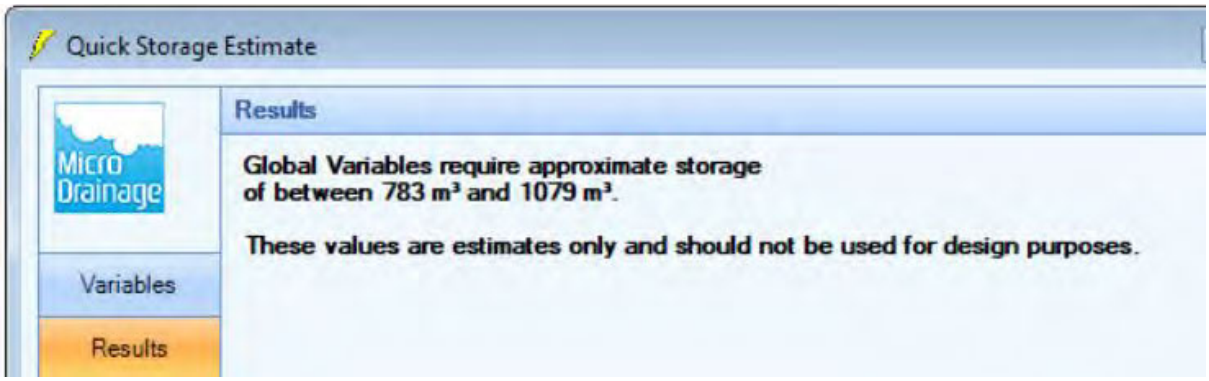




- The Quick Storage calculator provides a range of required approximate water storage between 724m³ - 994m³, with an average requirement of = **860m³**.

SW Attenuation for 55% Impermeable & 6% Urban Creep Area





- The Quick Storage calculator provides a range of required approximate water storage between 783m³ - 1079m³, with an average requirement of = **931m³.**

Drainage Calculation Sheet

Drainage Catchment	Drainage Catchment Total Area (m²/ha)	55% Impermeable Area (m²/ha)	QBAR Peak Runoff Rate (l/s) (Based on 55% Impermeable Area ha)	6% Urban Creep (Area m²/ha) (Based of Impermeable Area)	Combined 55% Impermeable Area & 6% Urban Creep Total Area (m²/ha)	Surface Water Attenuation Requirements (m³) (Mean Range) (Combined 55% Impermeable + 6% Urban Creep)
A	18180m² (1.82ha)	10000m² (1.0ha)	7.32 l/s	600m² (0.06 ha)	10600m² (1.06ha)	**748m³**
B	36681m² (3.66ha)	20175m² (2.018ha)	14.8 l/s	1211m² (0.121ha)	21386m² (2.14ha)	**1508m³**
C	10552m² (1.05ha)	5804m² (0.58ha)	4.3 l/s	350m² (0.035ha)	6154m² (0.615ha)	**432m³**
D	22552m² (2.25ha)	12404m² (1.24ha)	9.1 l/s	745m² (0.075ha)	13149m² (1.32ha)	**931m³**

Wickham Park Pond Design & Attenuation Requirements

Total Proposed Development Area (m²/ha)	55% Impermeable Area (m²/ha)	QBAR Peak Runoff Rate (l/s) (Based on 55% Impermeable Area ha)	6% Urban Creep (Area m²/ha) (Based of Impermeable Area)	Combined 55% Impermeable Area & 6% Urban Creep Total Area (m²/ha)	Surface Water Attenuation Requirements (m³) (Mean Range) (Combined 55% Impermeable + 6% Urban Creep)
87965m² (8.80ha)	48381m² (4.84ha)	35.40 l/s	2903m²	51284m² (5.13ha)	**3617m³**

SW Attenuation based on 1 in 100yr + 40%CC Rainfall Event.

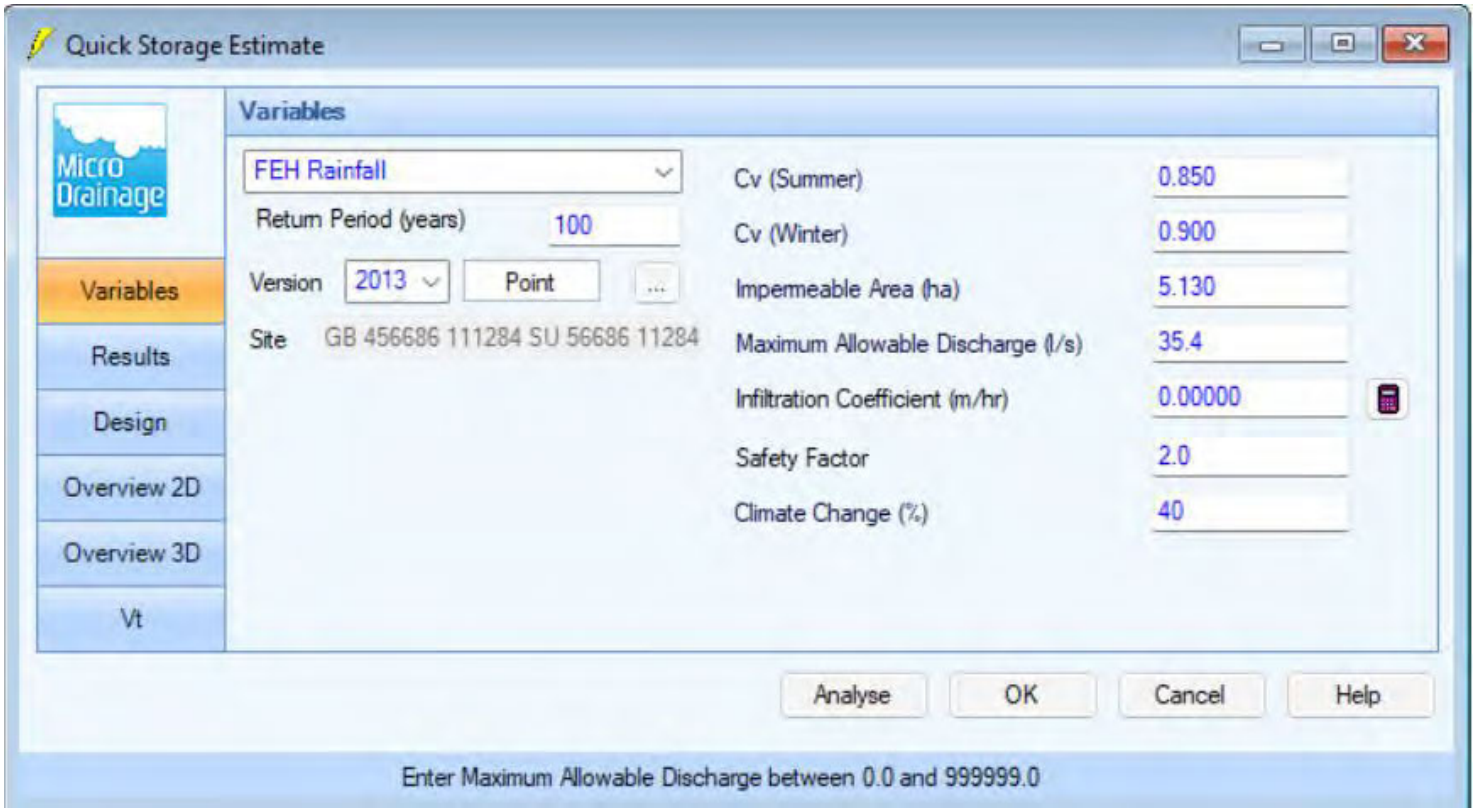
The Quick Storage calculator provides a range of required approximate water storage between 3043m³ - 4191m³, with an average requirement of = **3617m³**.

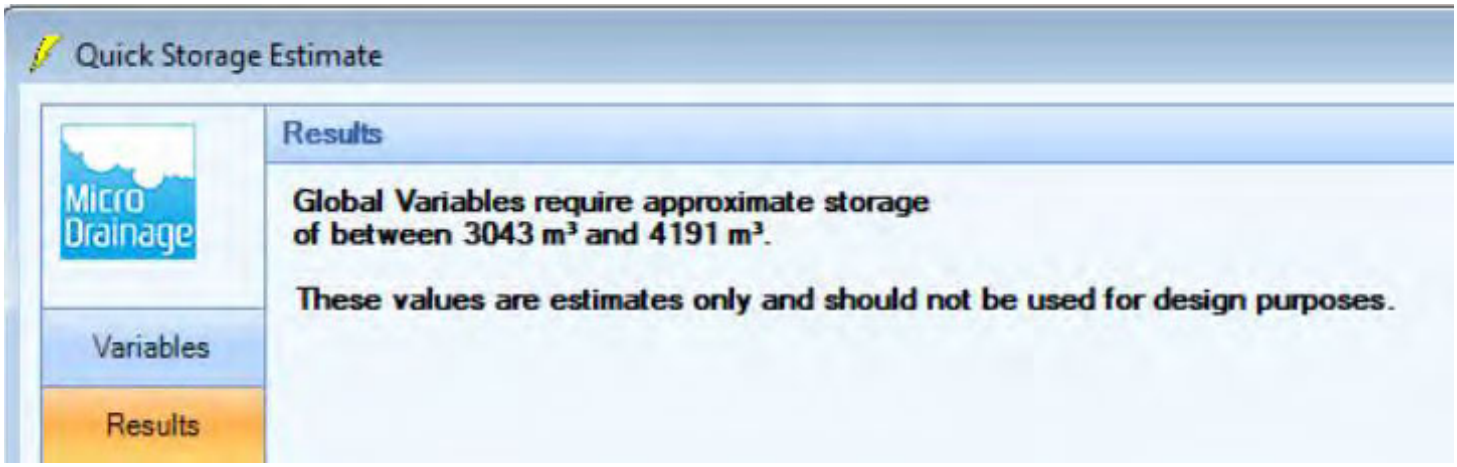
Pond Areas

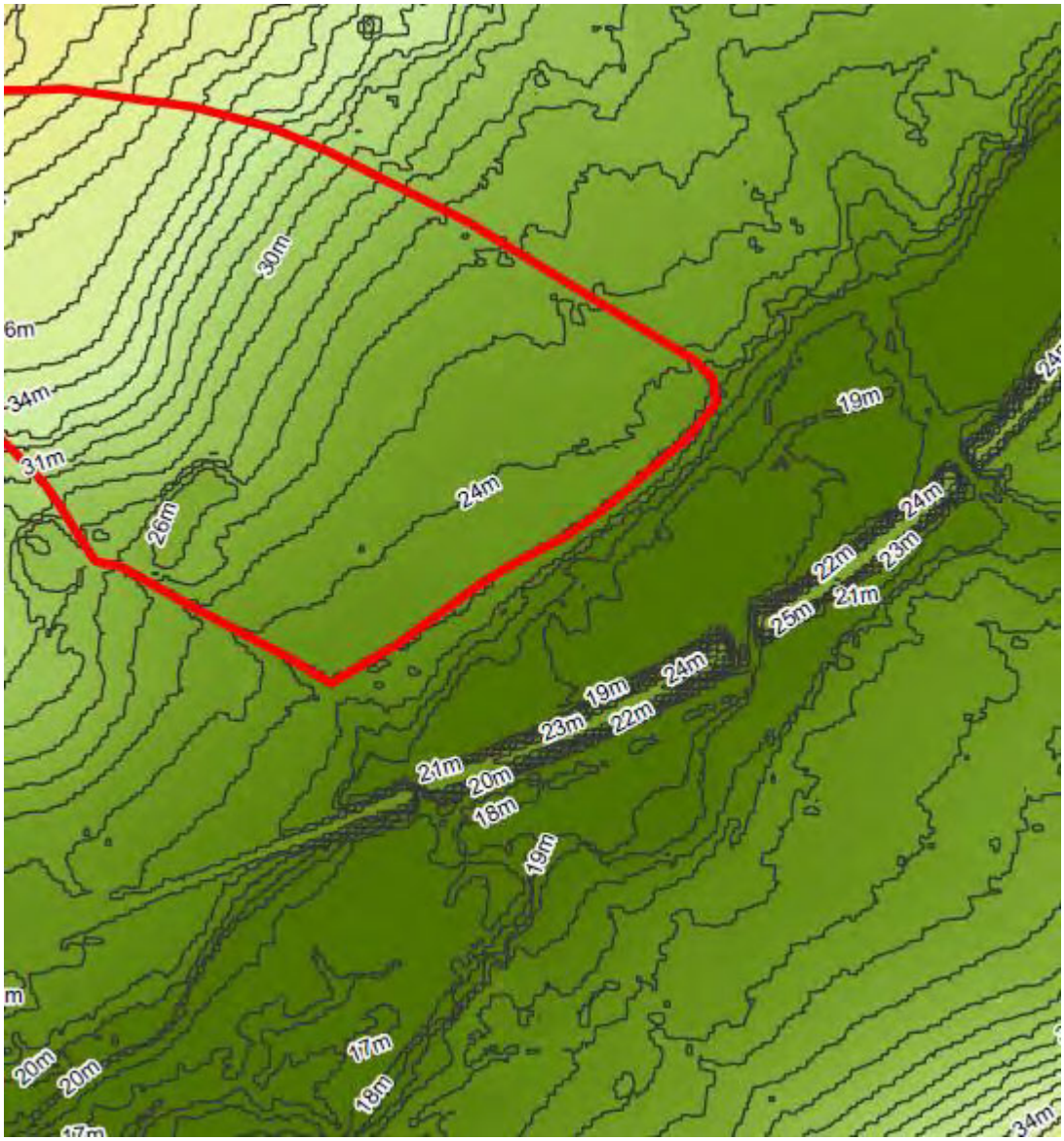
Pond A = 1884m²

Pond B = 1922m²

Combined Pond Areas = **3806m²**


Quick Storage Estimate
Micro Drainage
Variables
Results
Design
Overview 2D
Overview 3D
Vt
Variables
FEH Rainfall
Return Period (years) 100
Version 2013
Point
Site GB 456686 111284 SU 56686 11284
Cv (Summer) 0.850
Cv (Winter) 0.900
Impermeable Area (ha) 5.130
Maximum Allowable Discharge (l/s) 35.4
Infiltration Coefficient (m/hr) 0.00000
Safety Factor 2.0
Climate Change (%) 40
Analyse
OK
Cancel
Help
Enter Maximum Allowable Discharge between 0.0 and 999999.0


Quick Storage Estimate
Micro Drainage
Variables
Results
Results
Global Variables require approximate storage
of between 3043 m³ and 4191 m³.
These values are estimates only and should not be used for design purposes.


30m
6m
34m
31m
26m
24m
19m
24m
22m
23m
25m
21m
24m
19m
23m
22m
21m
20m
18m
19m
17m
20m
20m
18m
34m

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	23.168	0.668	35.4	1739.3	O K
30 min Summer	23.363	0.863	35.4	2329.6	O K
60 min Summer	23.559	1.059	35.4	2961.0	O K
120 min Summer	23.657	1.157	35.4	3293.2	O K
180 min Summer	23.708	1.208	35.4	3470.1	O K
240 min Summer	23.740	1.240	35.4	3580.7	O K
360 min Summer	23.774	1.274	35.4	3702.1	O K
480 min Summer	23.789	1.289	35.4	3752.7	O K
600 min Summer	23.792	1.292	35.4	3763.6	O K
720 min Summer	23.788	1.288	35.4	3749.4	O K
960 min Summer	23.769	1.269	35.4	3682.8	O K
1440 min Summer	23.736	1.236	35.4	3567.5	O K
2160 min Summer	23.688	1.188	35.4	3398.7	O K
2880 min Summer	23.640	1.140	35.4	3235.8	O K
4320 min Summer	23.547	1.047	35.4	2920.6	O K
5760 min Summer	23.449	0.949	35.4	2601.3	O K
7200 min Summer	23.368	0.868	35.4	2346.7	O K
8640 min Summer	23.298	0.798	35.4	2130.5	O K
10080 min Summer	23.238	0.738	35.4	1948.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.439	0.0	1667.2	26
30 min Summer	93.020	0.0	2227.6	41
60 min Summer	59.615	0.0	2999.5	70
120 min Summer	33.894	0.0	3408.9	130
180 min Summer	24.338	0.0	3668.9	188
240 min Summer	19.243	0.0	3864.4	248
360 min Summer	13.832	0.0	4158.1	366
480 min Summer	10.956	0.0	4380.5	484
600 min Summer	9.153	0.0	4560.6	602
720 min Summer	7.908	0.0	4710.6	722
960 min Summer	6.289	0.0	4940.0	880
1440 min Summer	4.584	0.0	5069.5	1118
2160 min Summer	3.362	0.0	6167.9	1520
2880 min Summer	2.711	0.0	6627.0	1936
4320 min Summer	2.022	0.0	7386.0	2772
5760 min Summer	1.659	0.0	8153.2	3568
7200 min Summer	1.436	0.0	8819.1	4328
8640 min Summer	1.284	0.0	9459.1	5096
10080 min Summer	1.175	0.0	10074.8	5848

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Winter	23.168	0.668	35.4	1739.7	O K
30 min Winter	23.363	0.863	35.4	2329.7	O K
60 min Winter	23.559	1.059	35.4	2961.2	O K
120 min Winter	23.657	1.157	35.4	3293.6	O K
180 min Winter	23.709	1.209	35.4	3471.8	O K
240 min Winter	23.741	1.241	35.4	3583.4	O K
360 min Winter	23.776	1.276	35.4	3707.7	O K
480 min Winter	23.791	1.291	35.4	3761.3	O K
600 min Winter	23.795	1.295	35.4	3775.9	O K
720 min Winter	23.792	1.292	35.4	3766.1	O K
960 min Winter	23.774	1.274	35.4	3702.5	O K
1440 min Winter	23.727	1.227	35.4	3535.7	O K
2160 min Winter	23.657	1.157	35.4	3291.7	O K
2880 min Winter	23.577	1.077	35.4	3022.8	O K
4320 min Winter	23.395	0.895	35.4	2428.8	O K
5760 min Winter	23.235	0.735	35.4	1939.9	O K
7200 min Winter	23.103	0.603	35.4	1552.2	O K
8640 min Winter	22.995	0.495	35.4	1249.5	O K
10080 min Winter	22.912	0.412	35.3	1023.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Winter	138.439	0.0	1667.2	26
30 min Winter	93.020	0.0	2227.7	41
60 min Winter	59.615	0.0	2999.5	70
120 min Winter	33.894	0.0	3409.0	128
180 min Winter	24.338	0.0	3669.1	186
240 min Winter	19.243	0.0	3864.6	244
360 min Winter	13.832	0.0	4158.4	358
480 min Winter	10.956	0.0	4381.0	474
600 min Winter	9.153	0.0	4561.3	586
720 min Winter	7.908	0.0	4711.8	698
960 min Winter	6.289	0.0	4943.2	912
1440 min Winter	4.584	0.0	5097.9	1148
2160 min Winter	3.362	0.0	6168.5	1612
2880 min Winter	2.711	0.0	6628.7	2080
4320 min Winter	2.022	0.0	7397.4	2904
5760 min Winter	1.659	0.0	8153.5	3688
7200 min Winter	1.436	0.0	8819.6	4400
8640 min Winter	1.284	0.0	9460.3	5104
10080 min Winter	1.175	0.0	10078.9	5752

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
FEH Rainfall Version	2013
Site Location	GB 456686 111284 SU 56686 11284
Data Type	Point
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	1.000
Cv (Winter)	1.000
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+40

Time Area Diagram

Total Area (ha) 5.130

Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)	Time (mins) From:	To:	Area (ha)
0	4	1.630	4	8	1.750	8	12	1.750

Model Details

Storage is Online Cover Level (m) 24.000

Tank or Pond Structure

Invert Level (m) 22.500

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	2300.0	1.500	3806.0

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0248-3540-1500-3540
Design Head (m)	1.500
Design Flow (l/s)	35.4
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	248
Invert Level (m)	22.500
Minimum Outlet Pipe Diameter (mm)	300
Suggested Manhole Diameter (mm)	1800

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	35.4	Kick-Flo®	1.038	29.7
Flush-Flo™	0.477	35.4	Mean Flow over Head Range	-	30.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.1	1.200	31.8	3.000	49.4	7.000	74.5
0.200	25.3	1.400	34.2	3.500	53.2	7.500	77.0
0.300	34.1	1.600	36.5	4.000	56.8	8.000	79.5
0.400	35.2	1.800	38.6	4.500	60.1	8.500	81.9
0.500	35.4	2.000	40.6	5.000	63.2	9.000	84.2
0.600	35.1	2.200	42.5	5.500	66.2	9.500	86.4
0.800	34.0	2.400	44.3	6.000	69.1		
1.000	30.9	2.600	46.1	6.500	71.8		

Appendix 4 Initial Nutrient Budget Calculation and Mitigation Optioneering (October 2024)

CALCULATION RECORD

Job Name:	Wickham Park
Job No:	33101342
Note No:	TN001
Date:	October 2024
Prepared By:	Juliette Pout
Subject:	**Initial Nutrient Budget Calculation & Mitigation Optioneering – NOT FOR PLANNING**

1 Overview

1.1 Introduction

1.1.1 This Calculation Record has been prepared by Stantec, on behalf of Crown Golf Ltd, to provide initial guidance in support of development proposals at Wickham Park Golf Club, Wickham, Hampshire.

1.1.2 All work has been undertaken following the advice provided by Natural England (NE) in August 2020, that all development should not increase the loadings of nitrogen entering the hydrological catchment of the East Hampshire Rivers. The calculations make use of the methodology provided by the Local Planning Authority (LPA) at the time of writing.

1.1.3 These initial calculation is based upon the masterplan available at the time of preparing this Calculation Record; final nutrient budgets would need to be prepared to support a planning application when the fixed masterplan is available. This calculation record is not prepared for planning, and a full Nutrient Neutrality Assessment and Mitigation Strategy (NNAMS) for planning should be prepared following the final nutrient budgets being calculated.

1.1.4 The information given within this calculation record is based on publicly available data at the time of writing, and no discussions with consultees have been undertaken.

1.2 Context

1.2.1 NE guidance outlines that there is evidence showing high levels of nutrient input to the environment causing eutrophication at specific sites with environmental designations. These nutrient inputs are often currently caused by wastewater from existing housing and agricultural sources, and there is uncertainty as to whether new growth will further deteriorate designated sites.

1.2.2 The interest features are considered unfavourable, or at risk, from the effects of eutrophication caused by excessive nutrients. As such, any increase in nutrient supply caused by development within the catchment of the designation must be offset. One way to address this uncertainty if for new developments to achieve nutrient neutrality. Nutrient neutrality is a means of ensuring that development does not add to existing nutrient burdens and aims to provide certainty that the whole scheme is deliverable in line with the requirements of the Conservation of Habitats and Species Regulation 2017 (as amended). Therefore, in line with national planning policy, the advice is that the competent authority should consider the implications of these matters on the Ramsar Site by undertaking a Habitats Regulation Assessment (HRA), proceeding to an appropriate assessment.

1.2.3 The appropriate assessment must rule out any reasonable doubt as to the likelihood of an adverse impact on the integrity of the site, having regard to its conservation objectives. In relation to mitigation, it should be in place so as to avoid either permanent, or temporary increases in nutrient loads to the designated site and must be effective for the duration of the effect. In the case of new housing the duration of the effect is typically taken as in perpetuity, with the costs of maintaining, monitoring and enforcing mitigation calculated for a minimum of 80 – 125 years.

1.3 Development Proposals

1.3.1 This Calculation Record will review the initial nutrient budget for Wickham Park Golf Club, Wickham, for up to 300 dwellings as shown in the masterplan and appended (**Figure 1.1**).

1.3.2 The site area is bounded by Tanfield Land to the west, and Titchfield Lane to the east. The site is centred around Ordnance Survey (OS) grid reference 4563474 E, 111141 N.

1.3.3 It is assumed the foul water strategy is to discharge to Wickham WwTW based on a review of local treatment works and proximity to the site, however this will be confirmed after engagement with Southern Water.

Figure 1.1: MASTERPLAN

2 Initial Nutrient Budget

2.1 Methodology

2.1.1 The budget calculation methodology consists of four stages to quantify the nutrient loading and demonstrate whether additional loading results from the development proposals. Where the proposed development does create additional loading into the system, mitigation to offset these excess nutrients would be required to achieve nutrient neutrality.

2.1.2 The four stages of the nutrient budget calculations are outlined below:

- Stage 1: Identifies the additional wastewater nutrient load as a result of the change in population.
- Stage 2: Calculates the nutrient load from current land use.
- Stage 3: Calculates the nutrient load from future land use.
- Stage 4: Calculates the total change in nutrient loading as a result of the proposed development.

2.1.3 Stage 1 of the nutrient budget considers the nutrient loading from wastewater following treatment at the wastewater treatment works based on the associated discharge permit. The assessment will consider the current permit, alongside the requirements set out in the Levelling-up and Regeneration Act (LURA). The permits considered in this assessment are outlined in **Section 2.2**.

2.2 Parameters

2.2.1 To calculate an initial nutrient budget a series of parameters have been defined, based on the hydrological setting of the site and development proposals. These are presented in **Table 2.1** with the pre development and post development land uses shown in **Figure 2.1** and **Figure 2.2** respectively.

Table 2.1: Initial Calculation Parameters

Parameter			Information Source
Dwellings		300	Masterplan
Occupancy Rate		2.40	Solent Maritime 03_01_03
Wastewater Treatment Works		Wickham	Aerial Imagery
River Catchment		East Hampshire Rivers	EA Catchment data explorer
Soil drainage type		Impeded – drained for arable and grazing	LandIS – Soilscape 18
Annual Average Rainfall (mm)		750-800	National River Flow Archive
Presence in Nitrate Vulnerable Zone		No	Magic Maps
Site Area (ha)		19.27	Masterplan
Pre-Development land use	Open Urban Land (ha)	19.27	Aerial imagery
Post-Development land use	Residential Urban (ha)	8.80	Masterplan
	Open Urban Land (ha)	0.89	Masterplan
	Greenspace (ha)	9.44	Masterplan
	Community Food Growing (ha)	0.14	Masterplan

Figure 2.1: PRE DEVELOPMENT LAND USE

Figure 2.2: POST DEVELOPMENT LAND USE

2.2.2 The Solent Calculator requires drainage characteristics to be defined in Stage 2. The standard approach is to use the LandIS Soilscapes tool to determine the soil type on site. Soilscapes indicates the site to be Soilscapes 18 – 'slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils' and is classified as 'Impeded – drained for arable and grazing' in the Solent Calculator.

2.2.3 The pre-development land use for the full site area has been determined to be 'Open Urban Land' and applied in the Solent Calculator for the full site area. Current land-use according to aerial imagery indicates that the land is used as a golf course in the present day and for the past 10 years.

2.3 Initial Nutrient Budget

2.3.1 The budget calculation methodology is formed of four stages to quantify the nutrient loading and demonstrate if there is additional loading resulting in the development proposals. Where the proposed development does create additional loading into the system, mitigation to offset these excess nutrients would be required to achieve nutrient neutrality.

2.3.2 The nutrient budget is calculated using the Solent Calculator, released in February 2024. The Solent calculator takes into account the Levelling Up and Regeneration Act (LURA), which places a legal obligation on water and sewerage providers to upgrade WwTW with a greater than 2,000 population equivalent (PE) to TAL by 2030. The calculator uses sewerage permit levels.

2.3.3 The output of the nutrient budget calculator is therefore presented as two budgets:

- Current nutrient budget using the permit level of 27mg/l
- Post-2030 nutrient budget, using the permit level of 10mg/l.

2.3.4 The nutrient budget calculation is based upon the masterplan available at the time of preparing this Calculation Record; final nutrient budgets would need to be prepared to support a planning application when the fixed masterplan is available.

2.3.5 Outcomes of the initial nutrient budget calculations are presented in **Table 2.2**, and a copy of the calculation is appended in **Appendix B**.

Table 2.2: Initial Nutrient Budget

Calculation Stage	Calculation Output	Current	Post-2030
Stage 1	Annual Wastewater load (kg/yr)	852.06	852.06
Stage 2	Pre-development Annual Nutrient Export (kg/yr)	164.09	164.09
Stage 3	Post-development Total Annual Nutrient Export (kg/yr)	165.70	165.70
Stage 4	Nutrient Budget (kg/yr)	853.67	285.63
Stage 4	Nutrient Budget including 20% buffer (kg/yr)	**1024.40**	**342.75**

2.3.6 A precautionary buffer of 20% is applied to the initial nutrient budget. This precautionary buffer is used to recognise the uncertainty with the data and ensures the approach is precautionary. Including the recommended 20% buffer.

2.3.7 Given the timescales associated with planning and commencing construction, it is assumed that the proposed development will commence before 2030, therefore the initial nutrient budget for the proposed development at **1024.40** kg/year in the current scenario.

2.3.8 Therefore, based on the calculations presented, the proposed development Wickham Park Golf Club, Wickham does require mitigation to demonstrate nutrient neutrality.

3 Initial Mitigation

3.1 Overview

3.1.1 Overall, there are many mitigation solutions which can be used by development to mitigate the nutrient load. These include taking land out of agricultural use; constructed wetland creation; SuDS; third party credit schemes, to provide a few examples. Mitigation measures will need to be secured for the duration over which the development is causing the effects, generally 80-125 years.

3.1.2 An initial desk-based mitigation optioneering exercise has been undertaken based on the development proposals and the initial nutrient budgets. The optioneering exercise will consider the following mitigation measures:

- **Onsite SuDS treatment train**: SuDS treatment trains designed with best practice have the potential to remove nutrients from the surface water runoff. This reduces the Stage 3 (post development) surface water nutrient budget. CIRIA C735 'Using SuDS to reduce nitrogen in surface water runoff' provides a methodology which can be used to assess the percentage of total nitrogen removal that could be achieved via SuDS removal.

- **Zero-point**: Reducing the quantum of development to the point at which the foul loading is balanced by the land use change. The zero point is the point where the masterplan begins to generate a nutrient surplus, thus triggering the requirement for nutrient mitigation. This is considered to be a short-term option and is often tied with phasing plans of residential dwelling development in order to bring forward a portion of the site while a wider mitigation strategy is developed.

- **Purchasing Credits:** The purchase of nutrient credits from a third-party vendor to provide nutrient offsetting.

3.2 Outcomes

3.2.1 This section presents a summary of the findings of the desk-based assessment at this high-level stage of assessment.

3.2.2 The mitigation optioneering has been based on an initial nutrient budget of **1024.40 kgTN/yr** resulting from the development proposals, given development will take place before 2030.

Onsite SUDS

3.2.3 A review of the nutrient removal from SuDS has been undertaken in line with CIRIA C735 based on the masterplan (CROS3014_Framework Masterplan). This masterplan includes attenuation ponds to manage the surface water on site. At this stage, it is understood that the drainage strategy will be developed utilising on-plot features such as permeable paving, rain gardens and swales. It is currently understood that lined permeable surfaces will be most suited to the existing masterplan.

3.2.4 Based on this and CIRIA C735, a treatment train of lined source control (permeable surface, bioretention, tree pits, bioswales) to pond/retention feature would provide 30% nitrogen removal.

3.2.5 The nutrient removal from SuDS is also dependent on impermeable area, at this stage 3 scenarios have been assessed:

- 25% impermeable area
- 50% impermeable area
- 75% impermeable area

3.2.6 A TN removal efficiency has been applied within Stage 3 of the Solent Calculator to determine post-SuDS nutrient budgets shown in **Table 3.2**. A summary of the SuDS calculations is appended in **Appendix C**.

Table 3.2 Nutrient Budget following SuDS

Nutrient Budget (kgTN/yr)		
% impermeable area	Current	Post - 2030
25%	1012.69	331.31
50%	1001.25	319.87
75%	990.08	308.43

3.2.7 As this drainage strategy is still to be finalised, the removal benefit hasn't been considered within the zero-point.

Zero Point

3.2.8 The zero-point for a site is calculated based on balancing the net change in land use with the foul loading resulting from the proposed development. The zero points accounting for the benefit provided by SuDS in line with the proposed permit upgrades are:

- Current: 33 dwellings
- Post 2030: 81 dwellings

3.2.9 The zero points assume the remaining site is fallowed to greenspace and all land uses are proportioned. One option to achieve neutrality is to limit the number of dwellings to the above zero points until a wider mitigation strategy can be developed.

3.2.10 A summary of the zero-point calculations is provided in **Appendix C**.

Nutrient Credits

3.3 There are a number of private credits sellers operating in the Solent catchment which could be purchased to offset the current nutrient budget, these include:

- Solent Catchment Market: allows developers to bid for credits and aims to speed delivery of nature-based projects which mitigate nutrients.
- Hampshire and Isle of Wight Wildlife Trust: sells nitrate credits on a first come first serve basis with cost per kilogram between £2,500 and £3,500.
- Partnership for South Hampshire: £3,250 per kilogram of total nitrogen

3.3.1 Assuming a benefit provided by SuDS takes place then **681.38** TNkg/yr temporary and between **308.43** and **331.31** TNkg/yr (dependent on SuDS) permanent credits will be required to achieve nutrient neutrality.

4 Summary

4.1.1 The outcomes of the mitigation optioneering exercise indicate that a combination of measures will be required in order to ensure the 300 dwelling site remains nutrient neutral.

4.1.2 Mitigation measures include: SUDS measures, and purchasing of credits which may also include the zero-point.

4.1.3 For planning, the nutrient budget will need to be calculated with the final masterplan. This will refine the initial budget presented in this calculation record and provide greater certainty on the mitigation options taken forward in this assessment.

4.1.4 Once the nutrient budget has been set and mitigation strategy devised, a Nutrient Neutrality Assessment and Mitigation Strategy (NNAMS) can be prepared for a planning application to demonstrate that the development will be nutrient neutral.

Appendix A – Masterplan

- Site Boundary
- Wider Area within Landowner Control
- 1 Primary Vehicular Access to be taken from Titchfield Lane
- 2 Emergency Vehicular Access from Tanfield Park
- Existing Bus Stops
- Public Rights of Way
- National Cycle Network - Route 224
- Existing Golf Club House
- Proposed Residential Development
- Indicative Primary Access Route
- Proposed Pedestrian routes
- Opportunity for wider pedestrian connections
- Proposed Children's Play
- Proposed Allotments
- Sustainable Urban Drainage

CLIENT:
Crown Golf Property Limited

PROJECT:
Wickham Park Golf Club

DRAWING:
Framework Masterplan

PROJECT NUMBER:
CROS3014

DRAWING NUMBER:
4000

CHECKED BY:
AW

REVISION:
-

STATUS:
DRAFT

DATE:
September 2024

SCALE:
1:5000 @ A3

Turley

CALCULATION RECORD

Appendix B – Nutrient Budget Calculations

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	300	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**720.00**
Wastewater by development (litres/day):	**86400.00**
Annual wastewater TN load (kg TN/yr):	**284.02**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**852.06**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	9.44	**28.32**
Residential urban land	8.80	**127.12**
Open urban land	0.89	**7.58**
Community food growing	0.14	**2.68**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**165.70**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**284.02**
Net land use TN change (kg TN/year):	**1.61**
TN budget:	**285.63**
TN budget + 20% buffer:	**342.75**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**342.75**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**1024.40**
Not applicable	
Not applicable	**Not applicable**

CALCULATION RECORD

Appendix C – Mitigation Calculations

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	33	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**79.20**
Wastewater by development (litres/day):	**9504.00**
Annual wastewater TN load (kg TN/yr):	**31.24**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**93.73**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	18.19	**54.57**
Residential urban land	0.97	**13.98**
Open urban land	0.10	**0.83**
Community food growing	0.02	**0.29**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**69.67**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**31.24**
Net land use TN change (kg TN/year):	**-94.42**
TN budget:	**-63.18**
TN budget + 20% buffer:	**-63.18**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**0.00**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**0.00**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	34	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**81.60**
Wastewater by development (litres/day):	**9792.00**
Annual wastewater TN load (kg TN/yr):	**32.19**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**96.57**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	18.16	**54.47**
Residential urban land	1.00	**14.40**
Open urban land	0.10	**0.86**
Community food growing	0.02	**0.31**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**70.04**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**32.19**
Net land use TN change (kg TN/year):	**-94.05**
TN budget:	**-61.86**
TN budget + 20% buffer:	**-61.86**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**0.00**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**3.02**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	40	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**96.00**
Wastewater by development (litres/day):	**11520.00**
Annual wastewater TN load (kg TN/yr):	**37.87**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**113.61**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	17.96	**53.88**
Residential urban land	1.17	**16.94**
Open urban land	0.12	**1.01**
Community food growing	0.02	**0.36**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**72.20**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**37.87**
Net land use TN change (kg TN/year):	**-91.89**
TN budget:	**-54.02**
TN budget + 20% buffer:	**-54.02**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**0.00**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**26.06**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	80	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**192.00**
Wastewater by development (litres/day):	**23040.00**
Annual wastewater TN load (kg TN/yr):	**75.74**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**227.21**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	16.65	**49.95**
Residential urban land	2.35	**33.90**
Open urban land	0.24	**2.02**
Community food growing	0.04	**0.71**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**86.58**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
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			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**75.74**
Net land use TN change (kg TN/year):	**-77.51**
TN budget:	**-1.77**
TN budget + 20% buffer:	**-1.77**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**0.00**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**179.63**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	81	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**194.40**
Wastewater by development (litres/day):	**23328.00**
Annual wastewater TN load (kg TN/yr):	**76.68**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**230.05**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	16.62	**49.85**
Residential urban land	2.38	**34.32**
Open urban land	0.24	**2.04**
Community food growing	0.04	**0.73**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**86.94**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**76.68**
Net land use TN change (kg TN/year):	**-77.15**
TN budget:	**-0.47**
TN budget + 20% buffer:	**-0.47**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**0.00**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**183.48**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	90	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**216.00**
Wastewater by development (litres/day):	**25920.00**
Annual wastewater TN load (kg TN/yr):	**85.21**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**255.62**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	16.32	**48.96**
Residential urban land	2.64	**38.14**
Open urban land	0.27	**2.27**
Community food growing	0.04	**0.80**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**90.18**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**85.21**
Net land use TN change (kg TN/year):	**-73.91**
TN budget:	**11.30**
TN budget + 20% buffer:	**13.55**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**13.55**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**218.05**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	150	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**360.00**
Wastewater by development (litres/day):	**43200.00**
Annual wastewater TN load (kg TN/yr):	**142.01**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**426.03**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	14.36	**43.07**
Residential urban land	4.40	**63.56**
Open urban land	0.45	**3.79**
Community food growing	0.07	**1.34**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**111.75**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**142.01**
Net land use TN change (kg TN/year):	**-52.34**
TN budget:	**89.67**
TN budget + 20% buffer:	**107.61**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**107.61**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**448.43**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	225	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**540.00**
Wastewater by development (litres/day):	**64800.00**
Annual wastewater TN load (kg TN/yr):	**213.01**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**639.04**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	11.90	**35.69**
Residential urban land	6.60	**95.34**
Open urban land	0.67	**5.69**
Community food growing	0.11	**2.01**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**138.73**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**213.01**
Net land use TN change (kg TN/year):	**-25.36**
TN budget:	**187.65**
TN budget + 20% buffer:	**225.18**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**225.18**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**736.42**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	300	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**720.00**
Wastewater by development (litres/day):	**86400.00**
Annual wastewater TN load (kg TN/yr):	**284.02**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**852.06**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	9.44	**28.32**
Residential urban land	8.80	**127.12**
Open urban land	0.89	**7.58**
Community food growing	0.14	**2.68**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**165.70**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states "Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
			0.00			0.00	Not applicable
Totals:	**0.00**		**0.00**			**0.00**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**284.02**
Net land use TN change (kg TN/year):	**1.61**
TN budget:	**285.63**
TN budget + 20% buffer:	**342.75**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**342.75**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**1024.40**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	300	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**720.00**
Wastewater by development (litres/day):	**86400.00**
Annual wastewater TN load (kg TN/yr):	**284.02**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**852.06**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	9.44	**28.32**
Residential urban land	8.80	**127.12**
Open urban land	0.89	**7.58**
Community food growing	0.14	**2.68**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**165.70**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states 'Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
Residential urban land	8.80	50.00	**127.12**	Option 2 (lined permeable surfaces)	30.00	**19.07**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
Totals:	**8.80**		**127.12**			**19.07**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**284.02**
Net land use TN change (kg TN/year):	**-17.46**
TN budget:	**266.56**
TN budget + 20% buffer:	**319.87**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**319.87**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**1001.52**
Not applicable	
Not applicable	**Not applicable**

Nutrients from wastewater

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B10 in the first table 'Water infrastructure information'. Cell B11 is automatically calculated and will state '0.00' unless the user inputs have been entered. Cells A12 to A13 and B12 to B13 are automatically generated and will state 'Not applicable' depending on the inputs to cells B5 and B10. You may need to fill in cell C11 depending on the information you entered in cell B10. Cells C5 to C10 and cells C12 to C13 are intentionally blank cells.
You do not need to fill in any cells in the second table 'Final calculation of nutrient load from wastewater'. Cells B17 to B19 are automatically calculated and will state '0.00' unless the user inputs have been entered to the first table 'Water infrastructure information'. Cells A20 to A23, cell B21 and cell B23 are automatically generated and will state 'Not applicable' depending on the user inputs to the first table 'Water infrastructure information'. Cell B16, cell B20 and cell B22 are intentionally blank cells.
How to fill in the table 'Water infrastructure information'
Cell B5: Enter the date of first occupancy.
Cell B6: Enter the average occupancy rate of the development. The default rate is 2.4, this should not be edited without sufficient evidence.
Cell B7: Enter the water usage. This value should be kept at 120 unless other efficiency measures are used.
Cell B8: Enter the total number of dwellings or units that will be within the development site as of the project completion date.
Cell B9: Choose whether the development can apply deductible acceptable loading from the dropdown list.
Cell B10: Choose the receiving wastewater treatment works (WwTW) from the dropdown list.
If you select 'Package Treatment Plant user defined' or 'Septic Tank user defined', you must enter their certified value of total nitrogen (TN) in cell C11. Otherwise the default values will be used in the calculation of the nutrient load associated with wastewater.
Nutrient permits may be changing for the WwTW you select, from 01/01/2025, or 01/04/2030. If the date of first occupancy is in-between changing permit dates, multiple permit limits may be automatically generated in cells B11 to B13. If applicable, up to 3 values for the nutrient loading associated with wastewater will be presented in cell B19, B21, and B23.

Water infrastructure information

Description of required information	Data entry column - user inputs required	Additional data entry column - user inputs may be required
Date of first occupancy (dd/mm/yyyy):		
Average occupancy rate (people/dwelling or people/unit):	2.40	
Water usage (litres/person/day):	120	
Development proposal (dwellings/units):	300	
Include deductible acceptable loading?	No	
Wastewater treatment works:	Wickham WwTW	
Current wastewater treatment works N permit (mg TN/litre):	**27.00**	
Not applicable	**Not applicable**	
Post 2030 WwTW N permit (mg TN/litre):	**10**	

Final calculation of nutrient load from wastewater

Description of values generated	Values generated
Post-2030 wastewater nutrient loading	
Additional population (people):	**720.00**
Wastewater by development (litres/day):	**86400.00**
Annual wastewater TN load (kg TN/yr):	**284.02**
Pre-2030 wastewater nutrient loading	
Annual wastewater TN load (kg TN/yr):	**852.06**
Not applicable	
Not applicable	**Not applicable**

Nutrients from current land use

This sheet contains 2 tables. The tables are separated by a heading, which describes the following table.
Note: You will need to fill in cells B5 to B8 in the first table 'Current land use information'. You will need to fill in cells A11 to A27, and B11 to B27 in the second table 'Current land uses'. Cells B28 and C11 to C28 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells D11 to D27 are automatically generated and will state 'Not applicable' depending on automatically generated data in cells C11 to C27. Row 28 is a Total Row. The Total Row states 'Totals:' in cell A28 and automatically calculates the total sum of cells B11 to B27 in cell B28 and C11 to C27 in cell C28. Cell D28 is intentionally blank.
How to fill in the table 'Current land use information'
Cell B5: Choose the operational catchment the site is located within from the dropdown list.
Cell B6: Choose the soil drainage type associated with the predominant soil type within the development site from the dropdown list.
Cell B7: Choose the annual average rainfall the development will receive from the dropdown list. If the rainfall volume is not on the list, select the nearest value.
Cell B8: Choose whether the development is in a nitrate vulnerable zone (NVZ) from the dropdown list.
How to fill in the table 'Current land uses'
Cell A11-A27: Choose the existing (pre-development) land use type(s) from the dropdown list.
Cells B11-B27: Enter the area in hectares of each land use type.
The nutrient load from current land uses is shown in cells C11-C27 for total nitrogen (TN).
The total nutrient load from current land uses is shown in cell C28 for TN.

Current land use information

Description of required information	Data entry column - user inputs required
Operational catchment:	East Hampshire Rivers
Soil drainage type:	Impeded drainage
Annual average rainfall (mm):	750.1 - 800
Within nitrate vulnerable zone (NVZ):	No

Current land uses

Existing land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)	Notes on data
Open urban land	19.27	**164.09**	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
		0.00	Not applicable
Totals:	**19.27**	**164.09**	

Nutrients from future land use

This sheet contains one table.
Note: You will need to fill in cells A5 to A21 and B5 to B21. Cells B22 and C5 to C22 are automatically generated calculations and will state '0.00' unless the user inputs have been entered. Row 22 is a Total Row. The Total Row states 'Totals:' in cell A22 and automatically calculates the total sum of cells B5 to B21 in cell B22 and C5 to C21 in cell C22.

How to fill in the table 'Future land uses'
Cells A5-A21: Choose the future (post-development) land use type(s) of landcover present on the new site from the dropdown list
Cells B5-B21: Enter the area in hectares of each land use type.
The nutrient load from future land uses is shown in cells C5 to C21 for total nitrogen (TN).
The total nutrient load from future land uses is shown in cell C22 for TN.

Future land uses

New land use type(s) - user inputs required	Area (ha) - user inputs required	Annual nitrogen nutrient export (kg TN/yr)
Greenspace	9.44	**28.32**
Residential urban land	8.80	**127.12**
Open urban land	0.89	**7.58**
Community food growing	0.14	**2.68**
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
		0.00
Totals:	**19.27**	**165.70**

Nutrients from future land use after sustainable urban drainage system (SuDS) treatment

This sheet contains one table.
Note: You will need to fill in cells A5 to A29, cells B5 to B29, cells C5 to C29, cells E5 to E29 and cells F5 to F29 if you are including SuDS to remove nutrients from the surface runoff. Cell B30, cells D5 to D30 and cells G5 to G30 are automatically calculated and will state '0.00' unless the user inputs have been entered. Cells H5 to H29 are automatically generated and will state 'Not applicable' unless the total area of the landcover entered is larger than the total area of the landcover entered into the worksheet 'Nutrients_from_future_land_use'. Row 30 is a Total Row. The Total Row states 'Totals:' in cell A30 and automatically calculates the total sum of cells B5 to B29 in cell B30, cells D5 to D29 in cell D30 and cells G5 to G29 in cell G30. Cell C30, cell E30, cell F30 and cell H30 are intentionally blank.
How to fill in the table 'Suds information'
Cells A5 to A29: Choose the future (post-development) land use type(s) of landcover present on the new site within the SuDS catchment area from the dropdown list. Only landcovers entered into the worksheet titled 'Nutrients_from_future_land_use' can be entered.
Cells B5 to B29: Enter the area in hectares of each new land use type within the SuDS catchment area.
Cells C5 to C29: Enter the percentage of the flow entering the SuDS feature. If all flow is being diverted to the SuDS feature then this value should be set to 100%.
The annual total nitrogen (TN) loads associated with the landcovers in the SuDS catchment area are automatically calculated in cells D5 to D29.
Cells E5 to E29: Enter the name of the SuDS features used to intercept surface flows can be entered in. Any text can be entered into these cells.
Cells F5 to F29: Enter the nutrient removal rates associated with the SuDS features for TN.
Values for columns F must be identified by the user and must be specific to the SuDS features being implemented.
The annual TN loads removed by the SuDS features are automatically calculated in cells G5 to G29 for TN. These values are subtracted from the nutrient budget.
You do not need to fill in column H 'Notes on data'. It will state 'Not applicable' unless the total area of each landcover within the SuDS catchment area exceeds the area of the landcovers entered into the worksheet titled 'Nutrients_from_future_land_use'.
The total nutrient load removed through the SuDS features is shown in cell G30 for TN.

SuDS information

New land use type(s) within SuDS catchment area - user inputs required	SuDS catchment area (ha) - user inputs required	Percentage of flow entering the SuDS (%) - user inputs required	Annual nitrogen inputs to SuDS feature(s) (kg TN/yr)	Name of SuDS feature(s) - user inputs required	TN removal rate for features - user specified (%) - user inputs required	Annual nitrogen load removed by SuDS (kg TN/yr)	Notes on data
Residential urban land	8.80	75.00	**127.12**	Option 2 (lined permeable surfaces)	30.00	**28.60**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
			0.00			**0.00**	Not applicable
Totals:	**8.80**		**127.12**			**28.60**	

Final nutrient budgets

This worksheet contains one table. This table is automatically populated using the outputs from the previous worksheets.

Note: You do not need to fill in any cells in the table. Cells B5 to B8 and cell B10 are automatically calculated and will state '0.00' unless the user inputs have been entered to all of the required worksheets. Cells A11 to A14, cell B12 and cell B14 are automatically generated and will state 'Not applicable' depending on the user inputs to the worksheet 'Nutrients_from_wastewater'. Cell B9, B11 and B13 are intentionally blank.

This table presents calculations that underpin the final annual nutrient budget for the development site. Up to 3 values for the nutrient budget may be presented in cells B10, B12 and B14 for total nitrogen (TN).

Total nutrient budget calculations

Description of values generated	Values generated
Wastewater TN load (kg TN/year):	**284.02**
Net land use TN change (kg TN/year):	**-27.00**
TN budget:	**257.02**
TN budget + 20% buffer:	**308.43**
Annual nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**308.43**
Pre-2030 nutrient budget	
The total annual nitrogen load to mitigate is (kg TN/yr):	**990.08**
Not applicable	
Not applicable	**Not applicable**