

# **Environmental Appraisal Report**

## **London Road Industrial Estate**

November 2021

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**For and on behalf of Avison Young (UK) Limited**

# 1. Introduction

- 1.1. In November 2020 Avison Young with WSP and Aecom produced a Development Brief for the London Road Industrial Estate (LRIE) on behalf of West Berkshire District Council (WBDC) (as landowner). The purpose of the development brief was to outline the planning potential and inform bids from potential development partners to bring forward the redevelopment of the LRIE (henceforth referred to as 'the Site'). The Site Location Plan for the Site is provided at **Appendix I**.
- 1.2. The Site has an area of 11.13 hectares (27.5 acres) and is located on the edge of Newbury Town Centre and is currently occupied by a mixture of light industrial, retail and office buildings, and a former football ground with associated structures. The Site is under freehold ownership of West Berkshire District Council (WBDC). The regeneration of the Site is a key objective for WBDC.
- 1.3. This purpose of the development brief was to understand the redevelopment options and the ability to maximize possible development receipts in the form of improved long-term revenues and/or capital receipts. The Development Brief includes two development scenarios for consideration: a 'Site-Wide Comprehensive' long-term masterplan for the entire Site assuming no leaseholder constraints and an 'Initial Phased' masterplan option taking existing leaseholds into account with a more strategic phased delivery for the masterplan. Both options were prepared by WSP, informed by transportation advice from Aecom, environmental considerations and market/delivery advice from Avison Young's Planning, Development and Regeneration Team.
- 1.4. The aim of this report is to move the development brief forward so that the environmental issues pertaining to the Site that were identified in the development brief are further examined before detailed development proposals are progressed, and to inform soft-market testing with potential development partners. This further consideration of the environmental issues has been undertaken through liaison with statutory consultees and further technical input by WSP and Aecom and this report is drawn from their technical notes.
- 1.5. The structure of the report is as follows:
  - Section 2 – Provides an overview of the site and its surroundings to describe the setting as well as provide further baseline data about the site.
  - Section 3 – Sets out the scope of the further work undertaken to further characterise the environmental issues at the site.
  - Section 4 – Air Quality

- Section 5 – Heritage
- Section 6 – Ecology
- Section 7 – Flood Risk and Drainage
- Section 8 – Ground Conditions
- Section 9 – Noise
- Section 10 – Transport
- Summary

## 2. Overview of the Site and its Surrounds

### The Site

- 2.1. The Site is approximately 11.13ha in area and is shown outlined in red below in **Appendix I**. The Site comprises a mix of single and two storey light industrial, retail and office buildings, associated yard spaces the majority of which are used by motor businesses including vehicle hire, sales, maintenance and storage, a former football ground with associated structures, which has recently been the subject of an arson attack resulting in the need for structures to be demolished for health and safety reasons. The Site also contains several adopted highways including Fleming Road, Faraday Road, Ampere Road, Kelvin Road and Marconi Road.
- 2.2. These site uses have resulted in the Site being predominantly covered by hardstanding and public highways. Small strips of grass and groups of trees are located across the estate with a larger area of soft landscaping situated in the south east corner of the Site.
- 2.3. A topographical survey undertaken on a large proportion of the Site was supplemented by Light Detection and Ranging (LiDAR) data which provides side wide accurate data regarding ground levels that will be required for detailed assessment purposes in the future. Site levels were confirmed to range between 74.8m AOD in the football pitch to 73.4m AOD at the south eastern corner of the Site.
- 2.4. Plots within the Initial Phased Masterplan area are Plots 1 to 4. The topographical survey proved ground levels on Plot 4 (which includes the football ground and areas to its north, south of Faraday Road and to its west adjacent to Newspaper House) to be highest on the football pitch with levels generally between 74.5m AOD to 74.4m AOD in the northern portion and around 74.6m AOD in its western portion. Plot 2 (adjacent to the A339) levels vary generally between 74.0m AOD at its southern boundary to 73.7m AOD at its northern boundary adjacent to Fleming Road. Plot 3 (south of Ampere Road and north of the Allotments) levels are more variable across the Plot varying from around 42.2m AOD to 73.6m AOD at its northern boundary adjacent to the road. Plot 1 (North of Ampere Road and east of Faraday Road) is also variable ranging between 73.6m AOD and 74.0 m AOD across the Plot.
- 2.5. The remainder of the Plots make up the Site Wide Masterplan area and of these Plots 7 and 9 are of note as these abut Plots 2, 3 and 4. Plot 9 to the east of Plot 4 also benefits from similar levels to the football pitch varying between 74.8m AOD and 74.2m AOD with a high spot of 75.2m AOD. Plot 7 to the east of Plot 2 and north of Plot 4 has levels of between 74.3m AOD and 74.1m AOD.

- 2.6. Therefore, the more elevated portions of the Site are located in the south of the Site adjacent to Fleming Road and Faraday Road.

## **The Surroundings**

- 2.7. The Site surroundings comprise the following:
- North – the Site is bounded by several large retail units that front onto the A4 (London Road) dual-carriage. To the north side of the A4 are predominantly residential areas.
  - South – the Site is bounded by open amenity space on the north side of the River Kennet and the Kennet & Avon Canal, and to the south east by the Dairy Farm allotments. On the south side of the River Kennet is a predominantly residential area and several light industrial buildings located further south east of the Site.
  - West – the Site is bounded by the A339 dual-carriage, beyond which is located Victoria Park with Victoria Park Boating Pond situated 60m west of the Site with small areas of residential uses north of the park and Newbury Town Centre located further to the west.
  - East – the Site is bounded by several light industrial sheds that are accessed from within the Site via Ampere Road. Directly south of these industrial units is the Greenham Lock Marina located along the bank of the River Kennet.

### 3. Scope of the Work Undertaken

- 3.1. From the initial environmental constraints analysis undertaken in relation to the preparation of the masterplan and the Development Brief it was possible to discern those environmental matters that would affect the redevelopment of the Site either in principle and/or in terms of its components and layout.
- 3.2. Through this a fundamental issue is the risk of flooding to the Site and so this report examines the latest site wade data from the Environment Agency relating to fluvial and surface water flooding. It also considers the implications and effect of making allowance for the effects of climate change. It also identifies measures that would need to be considered at the next stage of masterplan evolution.
- 3.3. Also, of fundamental concern would be the effect on transportation and in particular vehicular traffic on the neighbouring highway network. To address this the trip generation of the Initial Phase and Site Wide Masterplans was calculated using the quantum of development proposed and trip generation from the TRICS database. Census data was used to assign these trips to travel modes and to the highway network to allow peak hour trip generation to be calculated and thus allow the percentage change in follows to be identified. This allows an initial review of the implications of the masterplan for the local highway network.
- 3.4. Other initial environmental concerns included ecology, ground conditions, noise, air quality and heritage. These matters are not anticipated to be fundamental to whether the masterplan can be delivered but are relevant to the further consideration of masterplan components, layout and design as well as providing the opportunity to consider the incorporation of biodiversity enhancements into the masterplan as a fundamental component of the overall development.
- 3.5. Each of these environmental considerations are addressed in this report through the establishment of the existing conditions and implications of these conditions for the redevelopment of the Site. This allows next steps to be identified that include further work and investigations to be undertaken to further inform masterplan development and provides additional information that will be of interest to a development partner for the Council in due course.

## 4. Air Quality

### Introduction

- 4.1. Poor air quality is a significant issue in the local environment and can have an impact on public health and ecosystems. Several gases have been identified as having potential health impacts, these include nitrogen dioxide (NO<sub>2</sub>), particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>), sulphur dioxide (SO<sub>2</sub>) and ground-level ozone (O<sub>3</sub>), ammonia and non-methane volatile organic compounds. The vast majority of WBC administrative area is open countryside and air quality is generally very good, there are urban areas where air quality is less good.
- 4.2. WBDC has declared an Air Quality Management Area (AQMA) within the Newbury area due to exceedances of the annual and hourly mean Air Quality Strategy (AQS) objectives for nitrogen dioxide (NO<sub>2</sub>). Elevated concentrations of NO<sub>2</sub> are primarily associated with emissions from road vehicles. The AQMA is located approximately 500m to the south of the site and encompasses the roundabout junction where the A339, A343 and Greenham Road meet.
- 4.3. An AQMA has also been declared in Thatcham approximately 3.8 km to the east of the Site due to exceedances of the annual mean AQS objective for NO<sub>2</sub>.
- 4.4. WBDC undertakes air quality monitoring at locations close to the site which show that the NO<sub>2</sub> AQS objectives were achieved at roadside/kerbside locations adjacent to the site on the A339/London Road. However, the redevelopment of the Site has the potential to change traffic composition on the local road network including the A339 and London Road and may impact on both the Newbury and Thatcham AQMAs.

### Existing Conditions

- 4.5. The WBDC Annual Status Reports set out the data for monitoring stations across the district. This data demonstrates that air quality on the A339 to the west of the Site has not breached the NO<sub>2</sub> annual mean AQS since 2013 and emission levels and fallen since then to well below this AQS. Monitoring data for 132 London Road and Southview Gardens to the north of the Site do not indicate any breaches of the annual AQS since 2016 and 2012 respectively, again with levels falling well below the AQS since then.
- 4.6. Within the Newbury AQMA the NO<sub>2</sub> annual mean AQS has not been exceeded since 2017 at monitoring locations at the roundabout junction, elsewhere in the AQMA at 63 St John's Road, 64 Greenham Road and 3 Howard Road AQS have not been breached.



- 4.7. Within the Thatcham AQMA the NO<sub>2</sub> annual mean AQS has not been exceeded since 2017 at monitoring locations at 17 and 31 Chapel Street, with monitoring locations within the AQMA at 40 and 82 Chapel Street not indicating any breaches over the same period.
- 4.8. The latest WBDC Annual Status Report dated June 2021 summarises the air quality within the administrative area. It states that *'over the past 5 years there has been a general decrease of NO<sub>2</sub>, at a number of sites both within, close too and away from the existing AQMA's'* and that *'levels of NO<sub>2</sub> in West Berkshire have been reducing over the 5 years up to 2020'*.

## Implications for Redevelopment

- 4.9. While the levels of NO<sub>2</sub> emissions within Newbury and the wider WBDC area are improving the redevelopment of the Site to the proposed use can be expected to give rise to an increase in traffic on the adjacent highway network as well as potential point source emissions from heating and other plant on site with a concomitant effect on emissions levels in the local area.
- 4.10. The traffic flows provided in Section 10 of this report indicate that the likely increases in traffic as a result of the development are unlikely to be significant on the wider network though further assessment work will be required to assess air quality effects at the Site junctions.
- 4.11. Emissions will also be influenced in the longer term by the Government's announcements that new cars and vans powered wholly by petrol and diesel will not be sold in the UK from 2030. This will provide impetus for a shift from these petrol and diesel vehicles to hybrid and electric cars which can be expected to have the effect of reducing local emission levels.

## Next Steps

- 4.12. Further analysis of air quality effects at the site junctions on to the A4 London Road and the A339 will be required to understand the air quality implications at the locations.
- 4.13. The masterplan will also need to further consider the measures that are available to increase a modal shift from private motor cars to walking, cycling and the use of public transport.

## 5. Heritage

### Introduction

- 5.1. It is known that there are a number of above ground heritage assets near the Site and previous investigations have indicated the potential for archaeological interest at the Site. This analysis aims to highlight the key heritage assets for further investigation to inform the work towards a planning application for the masterplan area in accordance with the Development Brief.
- 5.2. The information reviewed as part of this appraisal includes publicly available data including and information from Heritage England and the Multi Agency Geographic information for the Countryside (MAGIC) website along with details from previous application on and around the Site.

### Existing Conditions

#### Above Ground Heritage Features

- 5.3. There are no statutory designated heritage features on the Site. There are however a number of statutorily listed buildings in the vicinity of the Site. These include those listed in Table 5.1 below located within 250m of the Site.

**Table 5.1 listed Structures within 250m of the Site**

Listed Structure	Grade	Distance from the Site
The Stone Building	II	180m west
107 London Road	II	85m north west
St Joseph's Presbtery	II	110m north west
1 – 4 Lime View	II	140m west
Corn Stores	II*	225m south west
6 St Mary's Place	II	210m west
1A and 2-5, St Mary's Place	II	210m west
Robin Hood Public House	II	140m north
11-73, Shaw Road	II	220m North
75 and 77 London Road	II	215m west
69 and 71 London Road	II	245m west

- 5.4. There are a large number of other listed structures within Newbury at a greater distance from the Site located mainly towards the town centre along Northbrook Street/ Bridge Street, London Road and Oxford Street, to the south along Wharf Street and Markey Place, with a small number further north along Shaw Road.
- 5.5. A very small section of the southern part of the site lies within Newbury Conservation Area. The Conservation Area lies adjacent to the western and part of the eastern site boundaries. Other non-statutory designations include Shaw House Registered Park and Garden located 350m to the north of the Site.
- 5.6. While not designated there is an existing Thames Water pumping station towards the centre of the Site which is understood to date from the Victorian period which may be of some limited heritage interest.

#### Archaeology

- 5.7. While the area is understood to have considerable Mesolithic archaeology and evidence of medieval and post medieval activity, investigations of sites adjacent to the Site have demonstrated a lot of relatively modern made ground and concluded that there would be significant effect on archaeology. However, given the large-scale redevelopment of the Site the need for further archaeological investigations should be considered likely.

### **Implications for Redevelopment**

- 5.8. The absence of above ground heritage assets on the Site means there is no possibility of a direct effect on any statutory heritage features. However, depending on the scale and location of built form on the Site there may be the potential for indirect effects on the setting of those heritage structures in the vicinity of the Site. There are clearly a number of above ground heritage features that will need to be better understood and taken into account in the layout and massing of the redevelopment of the Site to seek to avoid a significant effect on their setting.
- 5.9. A very small section of the southern part of the site lies within Newbury Conservation Area. The Conservation Area lies adjacent to the western and part of the eastern site boundaries. There is the potential for harm, although given the mature trees along eastern boundary of Victoria Park and the intervening A339, the impact is likely to be minimal.
- 5.10. A desk-based assessment will be required to better understand archaeological potential and survival. Fieldwork techniques to better understand the Mesolithic potential on the Site may be

necessary also given the wholesale redevelopment of the Site that would occur through the implementation of the Site Wide masterplan.

### **Next Steps**

- 5.11. It is suggested a detailed review of the heritage assets in the vicinity of the Site is undertaken to understand the features for which these assets are listed and to determine if sight lines exist between the assets and the Site such that the setting of these assets would be materially affected. This can then inform the location and massing of built form on the Site to minimise the potential for effects on Heritage assets.
- 5.12. While there is potential for archaeology on the site, the extent and nature of development that has occurred on the Site indicates that the potential for significant archaeology to remain on the Site is likely to be low. While there is archaeological information already gathered in relation to previous planning applications on and around the Site, a site wide archaeological desk-based assessment has been undertaken for this report to provide a comprehensive review of the entire Site and determine the potential need for archaeological evaluation on areas of the Site.

## 6. Ecology

### Introduction

- 6.1. The potential for the Site to support legally protected and notable species was assessed using the desk study results through aerial imagery. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including birds, and invertebrates.
- 6.2. While dependent on the nature of the ecological features encountered ecological survey data is typically valid for 18 months due to the dynamic nature of ecology. Therefore, further ecological survey can be expected to be required to support a planning application in due course so that a robust baseline is identified at the time of the submission and to ensure the survey data remains robust at the time of determination of the application to ensure the decision is made in complete appreciation of the ecological status of the Site at that time.

### Existing Conditions

- 6.3. There are four designated nature conservation sites within proximity of the Site. These are the River Lambourn Special Area of Conservation (SAC) and Special Scientific Interest (SSSI), the Kennet and Lambourn Floodplain SAC, the Kennet Valley Alderwoods SAC and the River Kennet SSSI. The nearest of these being the River Kennet SSSI to the south of the Site and the River Lambourn SAC and SSSI 400m to the north. The other SACs are over 2km (1.25 miles) away from the Site to the east and west.
- 6.4. Water quality in the River Kennet is adversely affected by sewage discharge and agriculture and rural land management, while water quality in the River Lambourn is affected by highway and land drainage and also supports a population of the invasive signal crayfish. As a result, both rivers have a current overall classification of 'moderate'.
- 6.5. In 2017 the River Lambourn was found to support a large variety of species present with the community being classed as 'high' under Water Framework Directive (WFD) classification with most diversity being at the confluence of the Lambourn and Kennet, east to the Site though it is noted that this survey data is now four years old.

- 6.6. On site there is little of ecological value. No Ancient Woodland Inventory (AWI) woodland or Habitats of Principal Importance (HPI) were found within the Site or within 1km of the Site. In addition, there is no standing water present on the Site.
- 6.7. The Site has limited habitat for a range of faunal species due to its intensely developed nature with few areas of open space or scrub and no standing water (and none within 250m of the Site).
- 6.8. However, the Site provides some potential suitable habitat for badger, reptiles, water vole and Dormice in the southern wooded area to the east of the football ground though the potential for Dormice is likely to be limited due to the lack of connectivity of this wooded area to other woodlands in the area.
- 6.9. There may be potential for otter on the River Kennet which may be affected by the redevelopment of the Site. However, the River Kennett provides limited potential for a water vole as the banks are built up with a footpath and so little emergent vegetation or grasses for foraging exists. The river is unlikely to provide suitable habitat for great crested newts which cannot breed in running water.
- 6.10. The Site as a whole provides a greater potential for the presence of bats. There is potential for roosts with the multiple buildings and trees where lighting is limited and there is good connections to foraging habitat. Also, the tree areas to the southern part of the Site and individual trees around the edge of the Site which connect to the wooded area at the south provide foraging and commuting routes for bats. These treed areas are likely to be used for foraging and nesting habitat for common bird species. Foraging opportunities would also be available along the River Kennet outside the Site boundary.
- 6.11. The Site is mainly heavily managed and consists of artificial habitats which are unlikely to be of value for terrestrial invertebrates. The areas of grassland and woodland on the Site provides some potential for invertebrates on the Site. The river to the south of the site is likely is notable for invertebrate potential.

## Implications for Redevelopment

- 6.12. It is anticipated that the Site itself is of minimal ecological value over much of its area. The wooded area to the south east of the Site adjacent to the football ground contains the greatest potential for ecological value with a number of protected species potentially present. Surveys will be required as noted above to fully define the ecological value of the Site, but it is currently anticipated that ecological considerations will not be a material constraint on the redevelopment of the Site. Indeed, the redevelopment of the Site would provide the opportunity to materially increase the biodiversity of the Site and tie into the existing neighbouring habitats.

- 6.13. Offsite areas to the south are also likely to be of ecological value and sensitive to indirect effects from the redevelopment of the Site. The River Kennet SSSI would be a key receptor due to its proximity to the Site and mitigation measures can be expected to be required. The other designated sites are at some distance from the Site. Nonetheless there is the potential that they could also be indirectly affected by the redevelopment of the Site during construction.

### **Next Steps**

- 6.14. A full suite of ecological surveys will be required to inform the layout and components of proposals for the redevelopment of the Site so that ecological value can be retained where it exists and a comprehensive strategy for biodiversity enhancements can be incorporated.

## 7. Flood Risk and Drainage

### Introduction

- 7.1. A fundamental consideration for the redevelopment of the Site in accordance with the masterplan included in the Development brief is the risk of flooding to the Site and the risk the redevelopment of the Site may pose to flood levels elsewhere. Within the Development Brief reference is made to the Environment Agency flood mapping and other information along with reference to flood risk and drainage considerations in relation to permitted schemes on and around the masterplan site.
- 7.2. Therefore, a high-level flood risk and drainage appraisal has been undertaken which addresses the whole of the masterplan site in a comprehensive manner to provide an overview of the opportunities and constraints presented by the proposed redevelopment of the Site with respect to flood risk and surface water drainage.
- 7.3. This report has been produced with reference to the requirements of the National Planning Policy Framework (NPPF) and the Flood Risk and Coastal Change Planning Practice Guidance (PPG) along with relevant local development and flood risk policy documents as appropriate.
- 7.4. As the Site is shown by the Environment Agency's Flood Map for Planning 1 to lie within Flood Zones 1, 2 and 3 a detailed site-specific Flood Risk Assessment (FRA), including an outline surface water drainage strategy, will be required to be undertaken in support of any future planning applications for development at the Site. To inform this report LiDAR data has been obtained from the Environment Agency and this shows that the Site lies flat at a height of approximately 74 m AOD.

### Existing Flood Risk at the Site

- 7.5. The River Kennet is an Environment Agency defined Main River. This river and the Kennet and Avon Canal flow in an eastward direction immediately to the south of the Site. The River Lambourn, a tributary of the River Kennet and also an Environment Agency defined Main River, is situated approximately 400 m to the north of the Site and flows in a south-eastward direction, before reaching a cluster of Springs at Hambridge Farm.

#### Risk of Fluvial Flooding

- 7.6. The Environment Agency's Historic Flood Map indicates that the Site has been subject to a number of fluvial flood events. The events are identified as having occurred in June 1971 and March 1979 and are attributed to the exceedance of the capacity of the River Kennet.



- 7.7. The Environment Agency Flood Map for Planning indicates that the majority of the Site is located within Flood Zone 2 and Flood Zone 3 and so is subject to a medium to high probability of fluvial flooding. However, a large area in the southern part of the Site including the football ground and some surrounding areas along with the junction between London Road and Faraday Road in the northern part of the Site, are shown to be situated in Flood Zone 1.
- 7.8. The Level 2 Strategic Flood Risk Assessment (SFRA) states that peak flood depths at the Site could be expected to range from between 0.02 m and 0.57 m during the 1% annual probability present day flood event (a flood event with a return period of 1 in 100 years). Peak flood depths during a 0.1% annual probability present day flood event (i.e. an event with a return period of 1 in 1,000 years) could be expected to range from 0.04 m to 1.36 m.
- 7.9. However, The Environment Agency's Flood Map for Planning shows the Site to benefit from the presence of a number of formal flood defences along the River Kennet and its associated floodplain. The West Berkshire Level SFRA confirms that the Site benefits from the Newbury Flood Alleviation Scheme (FAS) completed in 2013. The FAS consisted of the construction of flood defences at five locations throughout Newbury Town Centre and provides the Site with a standard of protection of up to the 1% annual probability fluvial flood event.
- 7.10. The Environment Agency provided details on local flood defences stating that *"[t]he completed Newbury Flood Alleviation Scheme now improves protection to 381 properties and 69 commercial properties in Newbury, Berkshire with a 1% chance of flooding occurring in any given year. The scheme comprises of flood defences works (walls, embankments and ground-raising) at five locations throughout Newbury town centre. It has been funded through FCRM Grant in Aid and third party contributions from West Berkshire Council, Newbury Town Council and the Canal & Rivers Trust, local businesses and residents. There are no other planned defences in this area."*
- 7.11. This is reflected by the Flood Map for Planning which shows that much of the area within the Site that is shown within Flood Zone 3 benefits from the protection provided by these defences. However, some areas of Flood Zone 3 in the south and south-eastern parts of the Site are not protected by the Newbury FAS and are therefore subject to a high probability of fluvial flooding. The peak fluvial flood depths with a 1% annual probability of occurring, taking into account the flood defences, is shown in Appendix 2 and this indicates that most of the Site is defended with only small areas in the south east and the east of the Site continuing to be at risk.
- 7.12. The risk of flooding is expected to increase as a result of the anticipated impacts of climate change. The Site is covered by the Environment Agency's 2016 River Kennet and Lambourn (Newbury) 1D-2D hydraulic model which shows that even with the protection provided by the Newbury FAS taken into

account the Site could be expected to flood during a 1% annual probability event during the lifetime of the masterplan Development (for modelling purposes considered to be 100 years) once climate change is taken into account. The extent of the flooding is shown in Appendix 3 which demonstrates that when climate change is taken into account the football pitch and associated areas in the southern portion of the Site remain outside the area at flood risk though areas of the remainder of the Site are at flood risk. Consequently, a detailed modelling exercise will be required to be undertaken in support of the proposed redevelopment of the Site to assess the risk of fluvial flooding posed to the Site using the latest climate change allowances.

#### Risk of Flooding from Surface Water Drainage

- 7.13. Given the comprehensively developed nature of the Site it is expected to be served by a drainage network, or series of networks, discharging to ground via infiltration, to the adjacent River Kennet, to the local public sewer network or combination of these. However, surface water flooding can occur during extreme storm events, when the ground can become saturated, and drains may not be able to accommodate the flows. This is evidenced in the Level 2 SFRA notes that the Thames Water records identify 16 incidents of recorded sewer flooding within the postcode area RG14 2, of which seven reported internal flooding.
- 7.14. The Environment Agency's Surface Water Flood map indicates that most of the Site to be subject to a very low risk of surface water flooding though some areas of the Site are at a risk of surface water flooding ranging from low to high. These areas are associated with roads and car parks, including Faraday Road, Fleming Road, Ampere Road, and the area of ground surrounding the industrial buildings in the north-eastern part of the Site. Isolated smaller areas of low risk are shown towards the southeast and south-west of the Site.

#### Groundwater Flood Risk

- 7.15. Groundwater flooding is commonly associated with porous underlying geology, such as chalk, sands and gravels. The Site is underlain by the Seaford Chalk Formation and is therefore potentially susceptible to groundwater flooding. The River Kennet and Lambourn are groundwater-fed chalk streams, which are known to respond to a rise in groundwater levels. Therefore, given the proximity of these watercourses to the Site, local groundwater levels are considered likely to be consistent with water levels within these watercourses.
- 7.16. While the LLFA has no records of historic groundwater flooding at the Site, the Level 2 SFRA identifies that the Site is at a high risk of groundwater flooding with groundwater levels expected to be within 250 mm of the surface during a 1% annual probability event. In response to this

expectation the Level 2 SFRA requires suitable mitigation measures (such as raised finished floor levels) must also be considered as part of any site-specific FRA to provide appropriate protection from seasonally high groundwater levels. The Level 2 SFRA also states that basements would not be permitted at the Site due to the high groundwater flood risk.

#### Other Flood Risk

- 7.17. The Environment Agency's Reservoir Flooding map indicates that the Site is outside the extent of any predicted reservoir flooding. As a result, the proposed Site is considered not to be at risk of flooding from this source.
- 7.18. The Kennet and Avon canal is located adjacent to the Site's southern boundary. During high river flow this enables water to be transferred from the river into the canal, thus raising the canal water levels. As a result, canal flooding in the Kennet catchment can occur. A risk of flooding may exist, though this is considered to be very low.
- 7.19. The Site is not within the vicinity of the coast, nor situated within the vicinity of an estuary. Therefore, the risk of coastal and tidal flooding to the Site is considered to be negligible.

### **Implications for the Site at the Site**

#### Fluvial Flood Risk

- 7.20. The NPPF Flood Risk and Coastal Change PPG indicates that the most vulnerable proposed land-use (residential) would be classified as being 'More Vulnerable' with respect to flood risk. Commercial or industrial land-uses would be likely to be classified as being 'Less Vulnerable' provided that they do not include installations requiring hazardous substance consent. Concomitantly, this NPPF PPG applies a Sequential Test which aims to steer development towards areas at the lowest risk of flooding. The Level 2 SFRA confirms that the redevelopment of the Site would be subject to the Sequential Test as some parts of the Site lie within flood zones 2 and 3. A Sequential Test is not usually required for development proposals in flood zone 1. However, while a large proportion of the Site is in flood zone 1 other areas of the Site are in flood zones 2 and 3 and therefore a Sequential Test will be undertaken. The NPPF PPG identifies different land use vulnerabilities that are appropriate within each of the flood zones and these are shown in Table 8.1 below.

**Table 7.1 Flood risk vulnerability and flood zone compatibility (PPG Table 3)**

Flood Risk Vulnerability Classification	Flood Zone 1	Flood Zone 2	Flood Zone 3A	Flood Zone 3B
More Vulnerable	Development is appropriate	Development is appropriate	Exception Test Required	Development should not be permitted
Less Vulnerable	Development is appropriate	Development is appropriate	Development is appropriate	Development should not be permitted

- 7.21. Where departure from the above is required the 'Exception Test' is to be used. It is not proposed to provide residential development across the whole of the Site which is in response to the SFRA statement that *"[a] large proportion of the site is at high fluvial flood risk (>50% in Flood Zone 3) .... therefore the site is unlikely to pass the Exception Test" and concludes that "the site is currently considered unviable for large scale residential development."*
- 7.22. Therefore, notwithstanding that a large area of the site is not at flood risk even when climate change is taken into account due to the existing flood defences there are large areas that would be at risk. Consequently, a detailed modelling exercise will be required to be undertaken of the proposed redevelopment of the Site to assess the risk of fluvial flooding posed to the Site over the lifetime of the development using the latest climate change allowances. This will consider any improvements to the existing defences which may be planned and be informed by the detailed site-specific topographical survey information that has been gathered.

#### Drainage

- 7.23. As part of any proposed redevelopment of the Site, it will be necessary to manage peak runoff rate and total runoff volume from the Site as a result of increased impermeable surfaces and the anticipated impacts of climate change. WBDC have confirmed that peak discharge rates should be limited to *"as close as possible to the greenfield rate"* and that that a surface water drainage strategy for the Site should be designed to accommodate the 1% annual probability storm event plus a 40% allowance for climate change. DEFRA's 2015 Non-Statutory Standards for Sustainable Drainage Systems states peak runoff rates *"[w]here reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event"*.
- 7.24. Pre-application consultation undertaken with WBDC as part of this study confirms that a surface water drainage strategy for the Site should be designed to accommodate the 1% annual probability storm event plus a 40% allowance for climate change. WBDC has also commented that *"infiltration*

*Sustainable Drainage Systems and below ground attenuation storage will not be acceptable" and that "significant space will be needed for at-ground level Sustainable Drainage Systems".*

7.25. Therefore, it is clear that a surface water drainage strategy for the Site would be required to limit peak discharge rates and total discharge volumes as close as possible to the greenfield runoff rate for the 1% annual probability storm event plus a 40% allowance for climate change. The attenuation volumes to achieve this should use above-ground Sustainable Drainage Systems (SuDS) features in areas of open space.

7.26. In this regard the NPPF, the Building Regulations Approved Document H: Drainage and Waste Disposal and The SuDS Manual set out a hierarchy for surface water disposal. This stipulates that surface water runoff that is not collected for reuse must be discharged to one or more of the following in order of priority:

- Discharge into ground (infiltration); (of limited potential at this site),
- Discharge to a surface water body; or, where not reasonably practicable,
- Discharge to a surface water sewer, highway drain, or another drainage system; or, where not reasonably practicable,
- Discharge to a combined sewer

7.27. In accordance with this hierarchy surface water should be discharged to the River Kennet at a rate consistent with that set out above. As the river is a SSSI there will be a need to treat any discharges to it to ensure that there is no adverse effect on the water quality of the river and a Water Framework Directive assessment may be required to accompany a planning application is due course.

If discharge of surface water to the River is not feasible, the Site would be required to discharge to the local public surface water sewer network. The location and capacity of the public sewer network would be assessed through pre-application consultation with Thames Water. However, discharge to the river would better accord with the policy and practice guidance hierarchy.

7.28. To better understand the implications for the masterplan of this SUDS approach a range of percentages of impermeability have been used (60%, 80% and 100%) to assess different potential scenarios. These values are associated with open commercial to a dense commercial land uses as outlined in Urban Drainage<sup>1</sup> and can be refined as the detail of the masterplan emerges. Indicative estimates of the total attenuation volumes likely to be required have been calculated using

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<sup>1</sup> David Butler (2010) Urban Drainage, Third Edition

MicroDrainage<sup>2</sup>. For the purposes of this assessment it has been assumed that maximum allowable discharge rates will be limited to the greenfield runoff rate for the 50% annual probability event to ensure that both the peak runoff rate and total runoff volume requirements are met for the 1% annual probability event plus a 40% allowance for climate change event.

**Table 7.2 Indicative Attenuation Volume Requirements (1% annual probability plus 40% climate change event)**

Total Site Area (ha)	Percentage Impermeability (%)	Contributing Impermeable Area (ha)	Maximum Allowable Discharge Rate* (l/s)	Required Attenuation Volume (m <sup>3</sup> ) [1% Annual Probability Event + 40% climate change]
11.1	60	6.7	8.0	9,000
	80	8.9	10.7	12,000
	100	11.1	13.3	15,000

7.29. This capacity can be achieved through the implementation of a range of SUDS techniques, which techniques are used and to what extent will be derived through further analysis of the masterplan, but all the following are capable of being employed.

**Table 7.3 Summary of SuDS features contribution to design criteria (adapted from Table 7.1 of the SuDS Manual C753)**

Component Type	Design Description	Design Criteria			
		Water Quantity	Water Quality	Amenity	Biodiversity
Rainwater harvesting Systems	Systems that collect runoff from the roof of a building or other paved surfaces for use.	✓		✓	
Green Roofs	Planted soil layers on the roof of buildings that slow and store runoff	✓	✓	✓	✓
Proprietary treatment systems	Subsurface structures designed to provide treatment of runoff		✓		
Filter Strips	Grass strips that promote sedimentation and filtration as runoff is conveyed over the surface	✓	✓	✓*	✓*
Filter Drains	Shallow stone-filled trenches that provides attenuation and conveyance before discharge into perforated pipe and / or surrounding soil	✓	✓	✓*	✓*

<sup>2</sup> Innovyze (2021) MicroDrainage v2019.1

Bioretention Systems	Shallow landscaped depressions with filter medium beneath to allow runoff to be attenuated and treated before discharge to ground and / or perforated pipe	✓	✓	✓	✓
Swales	Vegetated channels use to convey and treat runoff	✓	✓	✓	✓
Pervious pavements (with granular subbase)	Structural paving through which runoff can infiltrate to the subbase beneath where it is stored and treated	✓	✓	✓*	✓*
Pervious pavements (with geocellular storage)	Structural paving through which runoff can infiltrate to geocellular crates beneath and is stored	✓			
Detention basins, ponds and wetlands	Vegetated depressions and /or permanent pools of water that store and treat run off	✓	✓	✓	✓

✓ Valuable contribution to design criterion. ✓\* Potential contribution to design criterion

- 7.30. Incorporating a variety of SuDS features will minimise the land-take required for these features by spreading the required attenuation volumes across the Site where it may serve an open space and/or biodiversity function also.

## Next Steps

- 7.31. A detailed modelling exercise will be required to be undertaken in support of the proposed redevelopment of the Site to assess the risk of fluvial flooding posed to the Site over the lifetime of the development using the latest climate change allowances. The study would be undertaken in consultation with the Environment Agency the LLFA and other key flood risk stakeholders. It should consider any improvements to the existing defences which may be planned and be informed by detailed site-specific topographical survey information.
- 7.32. The Site is considered to be subject to a high risk of groundwater flooding. In order to assess the risk of groundwater flooding posed to the Site in sufficient detail to inform a site-specific FRA, long-term groundwater monitoring data, extending over a minimum six-month winter period, is likely to be required. Specialist groundwater advice, including a detailed groundwater modelling study, may also be required.
- 7.33. To assess the risk of sewer flooding posed to the Site in sufficient detail to inform a site-specific FRA pre-application consultation should be undertaken with Thames Water to obtain asset location plans and records of any historic flood events attributed to its network at, or in the vicinity of, the Site.
- 7.34. The Level 2 SFRA identifies that the residual risk of a breach or overtopping of the canal would be required to be assessed as part of a site-specific FRA which would be required to accompany any subsequent planning applications associated with the proposed redevelopment of the Site.

- 7.35. Detailed survey of the existing drainage network(s) serving the Site will be required to inform the development of the surface water drainage strategy for the Proposed Development for inclusion within an FRA.



## 8. Ground Conditions

### Introduction

- 8.1. Previous uses of the site indicate that there is a risk of contamination being present on the site. Information available from existing applications is incomplete therefore a comprehensive review of the geology, previous uses and known ground conditions across the whole Site has been undertaken. This analysis aims to highlight the key contamination and geotechnical constraints / ground risks associated re-development of the Site.
- 8.2. The information reviewed as part of this appraisal includes publicly available aerial and satellite imagery; publicly available historical mapping and site plans; a report obtained from Groundsure; and information from British Geological Survey (BGS), Environment Agency, MAGIC Maps and DEFRA maps and websites.

### Existing

#### Geology and Hydrogeology

- 8.3. The site is underlain by Seaford Chalk Formation which is a Principal Aquifer. This is overlain by a small area of Lower Beenham Grange Gravel which is a Secondary A Aquifer. The gravel and the remainder of the Site itself are overlain by superficial Peat deposits which are an unproductive stratum. Made Ground is also present across the majority of the Site.
- 8.4. Based on onsite historical BGS borehole logs, groundwater can be expected below the peat where the Lower Beenham Grange Gravel is present. Groundwater was encountered between depths of 1.50 to 3.30 m bgl. Historical borehole records indicate the chalk groundwater body if present, is likely to be at significant depth >50 m bgl.
- 8.5. The Site could be within an area where solution features that enable rapid movement of a pollutant may be present. Significant soluble rocks associated with the underlying Chalk could be present. Low possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally but may be possible in adverse conditions such as high surface or subsurface water flow.
- 8.6. The Site is located within a Source Protection Zone 3 (the total catchment area) and an active groundwater borehole abstraction is listed at the Site identified as 'Faraday Road Borehole'. The borehole is authorised to abstract a total annual volume of 26,000 m<sup>3</sup> for laundry use. No other active licensed groundwater abstraction is listed within 600 m of the Site.

8.7. The nearest major surface water body is the River Kennet and canal located adjacent to the southern boundary of the Site. The stretch of river next to the Site was given an overall Water Framework Directive (WFD) surface water body rating of Moderate in 2016 while the Site itself is within the Berkshire Downs Chalk WFD groundwater body, which was given an overall rating of Poor in 2015.

#### Historic and Current uses on and around the Site

8.8. A review of available historical mapping from 1877 to 2021 included in the Groundsure report has been undertaken to identify potentially contaminative historical land uses on and around the Site

8.9. In 1898 the Site contained several fields associated with Cooke's Farm. A Sewage Pumping Station is located centrally, and a pavilion is located to the south-west on the Site.

8.10. By 1956/66 the fields had been segregated into allotment gardens and the pavilion moved north-west becoming part of a sports grounds. Buildings (engineering works) are shown in the north-west corner of the Site. Cooke's Farm has become Greenham Dairy Farm.

8.11. The Groundsure report lists one historical landfill licence relevant to the Site which operated between January 1950 and December 1960 for the deposit of inert, industrial, commercial, household wastes and liquid sludge waste. A map included within the Groundsure report shows that the landfill occupied central and south eastern portions of the Site (immediately south-east of Faraday Road and north and east of the football ground).

8.12. A football ground had been built over the sports grounds by 1974 along with some small surrounding buildings. An abattoir is identified to the south of the sewage pumping station. The works continue to be shown in the north-west corner which are later identified as a tyre depot. Greenham Dairy Farm had been redeveloped as allotment gardens and all previous farm buildings demolished. An electrical substation had been built adjacent to the sewage pumping station and drains have been constructed across the Site.

8.13. A large amount of redevelopment is shown to have taken place between 1970 and 1980 some areas of the Site being similar to the estate's current layout. Faraday Road, Fleming Road and Ampere Road had been constructed through the Site. Another electrical substation had been built adjacent to the north-west corner of the football grounds. Several tanks had appeared around depot in the eastern part of the Site.

8.14. By 2001 the Site was identified as an industrial estate with minor changes to buildings occurring until the general arrangement matched the current layout. The former abattoir land is now occupied

by a car dealership / parking. A waste exemption is in operation at the Site, which authorises the occupants of Unit B7 Faraday Road to crush waste fluorescent tubes as part of their onsite processes.

- 8.15. The railway to the south (was shown on the earliest available records (1877). Tanks were present by the tracks until modern day and a goods shed had appeared by 1932.
- 8.16. From 1932 to 1974 residential development at Speenhamland to the west of the Site began to extend eastward from the main Speenhamland area, with a gravel pit present 100 m north of the Site. By 1974 the surrounding land had become extensively developed, with the gravel pit to the north having been infilled and industrial development commencing on Site.
- 8.17. Features of interest during this time that could give rise to ground contamination included a large works with tanks and an electricity substation 250 m north-east of the Site; bus depots, timber yards, electricity works, gas works, railway land and other industrial works that occupied the land to the south-eastern of the site south of the river.
- 8.18. Between 1980 and 1991 industrial development that occurred around the Site included a works 100 m north-east, a depot 400 m east (that later became a business park), works and depots within Ham Marsh (that later became an industrial estate) and warehouses 100 m south-east. Changes to present day include a Lidl supermarket and car park built adjacent to the Site's north. The football ground and allotments are still in use adjacent to the south of the Site.

#### Current potentially contaminative industrial activities on Site

- 8.19. The following current potentially contaminative industrial sites are listed in the Groundsure report as follows:
- Motoring (New Vehicles) – Eden Vauxhall, Mercedes Benz of Newbury, Marshall Skoda, Motorlux and Newbury Audi;
  - Repair and servicing (Vehicle repair, testing and servicing) – Greenmeadow, Subaru4you, One Stop Service Centre, Sterling garage, Newbury Motors Ltd and Automerc;
  - Infrastructure and facilities (electrical, waste storage, processing and disposal) – Five Electrical Sub-Stations and a Sewage Pumping Station;
  - Industrial Features (Business parks and industrial estates, unspecified works or factories) – Two industrial estates, a tank and a works;

- Industrial Produce (published goods, electrical components) – Newbury News Ltd, Newbury Electronics and Acedes;
- Household, office, leisure, garden and construction services (construction completion services) – Newbury Fitting Centre Ltd and Calor Gas Ltd;
- Repair and servicing (industrial repairs and servicing) – Washcore; and,
- Hire services (vehicle hire and rental) – Enterprise Rent-A-Car.

8.20. The Calor Gas Limited stores liquefied petroleum gas on-site and as such poses a hazard to existing and future development in its vicinity.

8.21. A review of publicly available Zetica bomb risk mapping indicates that the Site is at a low risk of Unexploded Ordnance.

### Implications for Redevelopment

8.22. Based on the above a low to moderate risk to users of the Site is posed by near surface hydrocarbons associated with engine oil leaks, oil interceptors and drainage and transfer of fuel from tanks (if present), hydraulic fluids, solvents, paints used onsite associated with the car dealerships, car parking and workshops on the Site. Petroleum hydrocarbons, Polycyclic Aromatic Hydrocarbons (PAHs), Polycyclic Biphenyls (PCBs), Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), heavy metals, inorganics and asbestos associated with the industrial and waste storage uses on the Site. Asbestos cement in the fabric of some buildings on the Site. There is also a low to moderate risk to users of the Site from the potential migration of contaminants onto Site from surrounding sources including hazardous gases, hydrocarbons and other mobile contaminants from surrounding industrial uses.

8.23. Based on the above a moderate risk to users of the Site is posed by potential contaminants of concern include petroleum hydrocarbons, Polycyclic Aromatic Hydrocarbons (PAHs), heavy metals, inorganics and asbestos that are anticipated to be within the made ground across the site associated with former industrial uses and hazardous gases from the underlying superficial peat deposits.

8.24. Based on the above a moderate to high risk to users of the Site is posed by ground gases and leachate from the historic landfill located on the Site and if present in the older buildings on the Site a high risk from fibrous asbestos that may have been used in their construction.

- 8.25. Geotechnical constraints identified include a high potential for compressible strata in areas underlain by the Peat, the likelihood of encountering below ground obstructions and Made Ground across the Site associated with historical development.

### **Next Steps**

- 8.26. It is evident that there is potential for a range of contaminants to exist on the Site as a result of historic and current industrial activities.
- 8.27. Groundwater is likely to be encountered within the gravels underlying the Peat (as indicated by historical borehole logs) and perched layers of water may be present in Made Ground. The top of the groundwater table within the natural drift geology is expected to be between 1.50 to 3.30m bgl.
- 8.28. WSP would also recommend that a mining report and natural cavities and solutions features assessment is undertaken for the Site and surrounding area as part of further site assessment.
- 8.29. In view of the above, hot spots of contamination are likely to be present beneath the Site. However, such issues are common to almost all urban redevelopment projects. Legislation dictates that all redevelopment must not give rise to the contamination of humans or the wider environment. As such, all contamination and associated effects can be successfully managed and mitigated via various standard means.
- 8.30. It is recommended that a targeted geo-environmental ground investigation is undertaken at the Site. The results of the ground investigation would identify any contaminant of concern based on the proposed end land use, allow further assessment of the potential ground risks and inform future design constraints.
- 8.31. Based on the ground investigation findings, the preparation of an appropriate remediation strategy to be agreed in conjunction with WBDC and the Environment Agency to ensure the Site is entirely appropriate for its end-use and causes no contaminative risks (and therefore effects) to human health and the environment. This can be secured by standard planning conditions. As such it is not anticipated that the Development will give rise to significant contamination risk or effects.

## 9. Noise

### Introduction

- 9.1. The location of the Site within the urban area of Newbury and with the A339 to the west and A4 London Road to the north along with the nature of some of the uses on the Site it is anticipated that noise levels on the Site will be elevated compared with other areas of the town. To understand the current noise environment and that which would exist with the redevelopment of the Site is important in informing the masterplan layout of buildings, orientation of buildings, the juxtaposition of uses and in due course the detailed design of buildings on the Site use these considerations to minimise noise effects to future users of the Site as well as surrounding existing users. The noise report prepared by Aecom addresses the monitored noise levels to the masterplan as described in the Development Brief.
- 9.2. Therefore, noise monitoring to establish existing ambient sound levels in the locality has been undertaken. This has involved the preparation of a noise model for the Site and assessment of the Site suitability for residential amenity. Based on this, recommendations for operational noise limits for future uses of the site can be made along with outline design advice and recommendations for mitigation measures on a plot-by-plot basis as well as site wide solutions. It is understood that the Site is within an area subject to a Noise Action Plan in accordance with Directive 2002/49/EC which is taken into account in this appraisal. An outline construction noise and vibration risk assessment is undertaken to identify issues that can be considered in defining a construction programme in due course; and the preparation of noise assessment report to inform the masterplan design

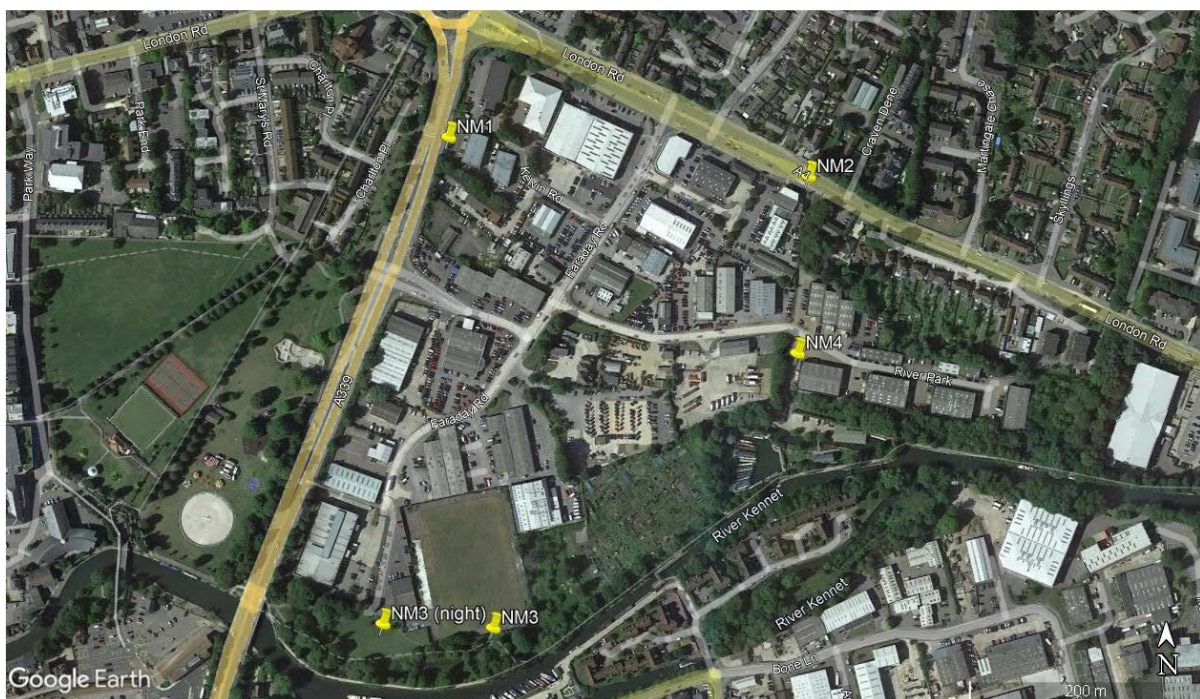
### Existing

- 9.3. The Site is within an area subject to several Noise Action Plan Important Areas (NIA) in accordance with the Environmental Noise Directive (END) 2002/49/EC. NIAs, with respect to noise from roads, are those location where the population are affected by the highest road traffic noise levels, according to the results of strategic noise mapping across England. The nearest NIAs in the vicinity of the Site are NIA 5421 located along the west boundary of the Site on the A339 highway; NIA 13222 located along the north boundary of the Site on the A4 London Road; and NIA 6146 located approximately 140m to the east of the Site boundary along the A4 London Road.
- 9.4. Noise measurements were taken at locations representative of the existing ambient sound level in the locality of the Site, consisting of short-term attended monitoring during daytime, evening and

night-time periods in August and September 2021. Measurements were taken at the following locations, as illustrated in Figure 10.1. The locations are:

- NM1 – Along A339, west of Site boundary.
- NM2 – Along A4 London Road, north of Site boundary.
- NM3 – Small pathway just north of river Kennet, behind Newbury FC grounds.
- NM3 (Night) – West side of Newbury FC grounds. Location changed due to security of the location at night. Approximately 50m west of day and evening location.
- NM4 – Ampere Road, south east of Site boundary.

**Figure 9.1 Noise Monitoring Locations**



9.5. Measurements were carried out following guidance from British Standards BS 7445-1 and BS 4142. All noise measurements included LAeq, LA90, LA10 and LAFmax sound level indicators over the measurement periods. The surveys were carried out during periods of low wind (<5m/s) and no rainfall. The noise monitoring results recorded by Aecom are set out in Tables 10.1 to 10.3 below.

9.6. The results of the noise survey are set out in Aecom's technical report. In summary during the daytime the dominant noise source as three of the four monitoring locations was noise from the A339 and London Road. At location NM3 (on Ampere Road near its junction with River Park) the dominant noise source was from adjacent construction activity and infrequent activity from the industrial estate. Noise at NM4 was also influenced by pedestrian and recreational activity along the river.

- 9.7. As would be expected the highest noise levels in terms of the maximum, average and the noise level exceeded for 10% and 90% of the time were recorded at locations NM1 and NM2 adjacent to the A339 and London Road respectively. Noise levels at locations NM3 and NM4 at the southern end of the football ground, adjacent to the river and on Ampere Road near its junction with River Park respectively were recorded to be substantially lower despite the construction activity near NM3. This is likely to be due to the distance from the main noise sources from NM3 and the shielding effect of existing buildings between the main noise sources and NM4.
- 9.8. During the evening the main noise sources at three of the four monitoring locations remained the A339 and London Road. At location NM3 to the south of the football ground the main noise source was pedestrian and recreational activity along the river although road noise was still audible.
- 9.9. As during the daytime, the highest noise levels in terms of the maximum, average and the noise level exceeded for 10% and 90% of the time were recorded at locations NM1 and NM2 adjacent to the A339 and London Road respectively. Noise levels at locations NM3 and NM4 again were recorded to be substantially lower. Again, this is likely to be due to the distance from the main noise sources from NM3 and the shielding effect of existing buildings between the main noise sources and NM4.
- 9.10. During the night-time the main noise sources at all four monitoring locations was the A339 and London Road. Noise levels at NM1 and NM2 remained substantially higher than at NM3 and NM4.
- 9.11. It is evident therefore and as was anticipated that it is the northern and western boundaries of the Site that are the most exposed to high noise levels due to their proximity to road traffic on the A339 and A4 London Road at all times of the day and night. At monitoring locations NM1 and NM2, daytime noise levels were 71 to 73 dB LAeq,30minutes, evening noise levels were 70 to 71 dB LAeq,30minutes, and night-time noise levels were 66 to 67 dB LAeq,30minutes. Maximum night-time LAmax noise levels at NM1 and NM2 due to traffic pass-bys ranged from 85-92dB.
- 9.12. External noise levels within the Site and/or facing away from the main road traffic noise sources, are notably lower. At monitoring locations NM3 and NM4, daytime noise levels were 48 to 52 dB LAeq,30minutes, evening noise levels were 42 to 46 dB LAeq,30minutes, and night-time noise levels were 37 to 46 dB LAeq,30minutes. Maximum night-time LAmax noise levels at NM3 and NM4 due to traffic pass-bys ranged from 63-66dB.



## Implications for Redevelopment

- 9.13. It is important to note that at this stage, road modelling traffic data for “with” and “without-development” scenarios were not available so digital noise modelling of the Site has not been undertaken, and consideration of changes to the future noise environment due to changes in traffic flows on the local road network has not been included in the assessment. These exercises will allow further detail on the extent of mitigation measures for the masterplan and to identify any future implications on nearby Noise Action Plan Important Areas for road traffic noise.
- 9.14. However, percentage increases in flow (See section 11) are at worst 37.5% with all but three percentage changes being below 25%. A change of 25% can be equated to a 1dBA change and so at most times the change in traffic flow would not give rise to a perceptible increase in noise level. The three increases in percentage above 25% are during peak periods at the A339/ Fleming Road junction only and are anticipated to give rise to an increase in noise level of between 1dBA and 2dBA. Noise increases of this magnitude are typically only just perceivable. On this basis the application of the monitored noise levels to the masterplan set out in the Development Brief is a valid exercise to test the robustness of the masterplan in acoustic terms.
- 9.15. BS 8233 gives recommendations for the control of noise in and around buildings and suggests appropriate criteria and limits for indoor ambient noise levels for different situations. Table 10.1 below sets these out.

**Table 9.1 Indoor Ambient Noise Levels for Dwellings when they are Unoccupied (BS 8233)**

Activity	Location	07:00-23:00 hours	23:00-07:00 hours
Resting	Living Room	35 dB LAeq,16hr	-
Dining	Dining Room/Area	40 dB LAeq, 16hr	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16hr	30 dB LAeq, 8hr

- 9.16. There is no national requirement for external noise levels to be achieved in garden spaces. However, BS 8233 advises that: *“For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments.”*
- 9.17. Based on the monitored noise levels noise levels design advise has been provided on a Plot by Ploy basis for the masterplan area. This is set out in Table 10.2 below.

Table 9.2 Outline Design Advice and Recommendations

Plot / Area	Use Type	Outline Design Advice and Recommendations for Mitigation Measures
Site wide	n/a	<ul style="list-style-type: none"> <li>• Use of open grass areas / vegetation to increase sound absorption in area as well as to improve quality of soundscape in area by introducing more 'natural' sound sources such as trees rustling, bird song, etc. which can help to mask road traffic noise. (Note that trees/shrubs themselves do not provide any notable physical screening of sound).</li> <li>• Use of buffer zones to increase distance between A339 and A4 London Road and noise-sensitive uses within the Site.</li> <li>• Use of building massing to physically screen noise ingress from A339 and A4 London Road into the Site, as to reduce amount of acoustic insulation for building facades and to reduce noise levels in external amenity areas.</li> <li>• Limit noise-sensitive development (e.g. residential use) on western and northern Site boundaries directly adjacent to A339 and A4 London Road.</li> <li>• Orientate commercial/industrial uses away from residential uses.</li> </ul>
Plot 1	B1c/B2/B8 Industrial	<ul style="list-style-type: none"> <li>• Limit operational noise emissions to nearby sensitive receptors.</li> <li>• Avoid noisy activities during evening/night-time/weekend periods.</li> <li>• Use building massing to screen noisy activities (e.g. service/delivery yards, open workshop doors, etc) away from nearby sensitive receptors.</li> </ul>
Plot 2	B1a/E Office C3 Residential	<ul style="list-style-type: none"> <li>• Consider development layout and place rooms with lower sensitivity to noise (e.g. kitchens, bathrooms, circulation spaces, offices) on façades fronting onto A339.</li> <li>• Suitable façade system acoustic design (glazing, ventilation) to achieve internal noise guidance levels for residential development (e.g. BS8233 / ProPG) and offices (e.g. British Council for Offices (BCO) Guide to Specification (2019) Ref 16).</li> <li>• May require use of uprated acoustic glazing and alternative ventilation (e.g. mechanical systems) to achieve internal noise guidance levels for residential use on façade directly fronting onto A339.</li> <li>• Consider design of balconies (e.g. balustrades, absorptive linings) to reduce noise ingress.</li> <li>• Avoid placing noise-sensitive uses directly facing from adjacent commercial/industrial uses (i.e. Newspaper House / Land at Faraday Road) and/or provide suitable façade system acoustic design to avoid potential disturbance to future residents.</li> </ul>
Plot 3	C3 Residential	<ul style="list-style-type: none"> <li>• Suitable façade system acoustic design (glazing, ventilation) to achieve internal noise guidance levels.</li> <li>• Avoid placing noise-sensitive uses directly facing from adjacent commercial/industrial uses (i.e. Plot 1 / Plot 6) and/or provide suitable façade system acoustic design to avoid potential disturbance to future residents.</li> </ul>
Plot 4	B1a/E Office C3 Residential	<ul style="list-style-type: none"> <li>• Suitable façade system acoustic design (glazing, ventilation) to achieve internal noise guidance levels for residential development (e.g. BS8233 / ProPG) and offices (e.g. BCO:2019).</li> </ul>

		<ul style="list-style-type: none"> <li>Avoid placing noise-sensitive uses directly facing from adjacent commercial/industrial uses (i.e. Newspaper House) and/or provide suitable façade system acoustic design to avoid potential disturbance to future residents.</li> </ul>
Plot 5	B1c/B2/B8 Industrial	<ul style="list-style-type: none"> <li>Limit operational noise emissions to nearby sensitive receptors.</li> <li>Avoid noisy activities during evening/night-time/weekend periods.</li> <li>Use building massing to screen noisy activities (e.g. service/delivery yards, open workshop doors, etc) away from nearby sensitive receptors.</li> </ul>
Plot 6	B1c/B2/B8 Industrial	<ul style="list-style-type: none"> <li>Limit operational noise emissions to nearby sensitive receptors.</li> <li>Avoid noisy activities during evening/night-time/weekend periods.</li> <li>Use building massing to screen noisy activities (e.g. service/delivery yards, open workshop doors, etc) away from nearby sensitive receptors.</li> </ul>
Plot 7	C3 Residential	<ul style="list-style-type: none"> <li>Suitable façade system acoustic design (glazing, ventilation) to achieve internal noise guidance levels.</li> <li>Avoid placing noise-sensitive uses directly facing from adjacent commercial/industrial uses (i.e. Land at Faraday House) and/or provide suitable façade system acoustic design to avoid potential disturbance to future residents.</li> </ul>
Plot 8	C3 Residential	<ul style="list-style-type: none"> <li>Suitable façade system acoustic design (glazing, ventilation) to achieve internal noise guidance levels.</li> <li>Avoid placing noise-sensitive uses directly facing from adjacent commercial/industrial uses (i.e. Plot 1) and/or provide suitable façade system acoustic design to avoid potential disturbance to future residents.</li> </ul>
Plot 9	B1a/E Office C3 Residential	<ul style="list-style-type: none"> <li>Suitable façade system acoustic design (glazing, ventilation) to achieve internal noise guidance levels for residential development (e.g. BS8233 / ProPG) and offices (e.g. BCO:2019).</li> </ul>
Plot 10	B1c/B2/B8 Industrial	<ul style="list-style-type: none"> <li>Limit operational noise emissions to nearby sensitive receptors.</li> <li>Avoid noisy activities during evening/night-time/weekend periods.</li> <li>Use building massing to screen noisy activities (e.g. service/delivery yards, open workshop doors, etc) away from nearby sensitive receptors.</li> </ul>

9.18. The above is based on the masterplan as set out in the Development Brief but provides design advice that is generally appropriate to the uses and plots identified. This will inform further work concerning the arrangement of uses on site and the layout of plots and by informing the internal arrangements will inform the design.

9.19. The Aecom report provides further detailed advice regarding Plots 2 as the masterplan proposes residential use on this Plot adjacent to the A339 for reasons articulated in the Development Brief. This advice includes the anticipated performance of the glazing and associated ventilation requirements which will be addressed at the next stage of masterplan refinement and application stage.

- 9.20. The majority of external amenity spaces within the masterplan are located within the Site where road traffic noise levels will be sufficiently attenuated over distance and by physical screening by buildings such that external noise guidance levels can be achieved without any specific noise mitigation measures. The noise monitoring does indicate that it is unlikely that outdoor amenity areas located directly along the northern and western boundaries of the Site will achieve the desirable external noise levels of 50 to 55 dB LAeq,T. Similarly, any balconies located on the facades of residential buildings within Plot 2 of the masterplan directly fronting onto the A339 will likely exceed the external noise guidance levels. The inclusion of external amenity areas and courtyards / gardens within the masterplan and the proximity to local civic parks and spaces means that quieter outdoor spaces will be made available to future occupants. This can be addressed further through detailed design in due course.
- 9.21. Importantly, it demonstrates that while noise levels around the western and northern perimeter of the Site are elevated throughout the day these levels are not so high as to prevent the redevelopment of the site to more noise sensitive uses and with further attention to layout and design the Site is appropriate for the range of uses anticipated on the Site in the Development Brief.
- 9.22. BS 4142 recommends that noise levels at a noise sensitive receptor due to any fixed plant and building services do not exceed the background levels for both daytime and night-time periods. The monitored noise levels allow the noise level for fixed plant to be derived at the four monitoring locations. At NM1 to NM4 the levels would be 41dB LA90,T, 38dB LA90,T, 43dB LA90,T and 34dB LA90,T respectively and 45dB LAeq,15min at residential facades and 50dB LAeq,15min at office facades. These levels are achievable and can be conditioned at the planning application stage.

### Next Steps

- 9.23. The road modelling traffic data for “with” and “without- development” scenarios will need to be completed to confirm the initial findings reported in this document. These exercises will allow further detail on the extent of mitigation measures for the masterplan and to identify any future implications on nearby Noise Action Plan Important Areas for road traffic noise.
- 9.24. On completion of this exercise the measures identified to address noise levels within the development and at existing receptors will inform further detailed development of the masterplan.

## 10. Transportation

### Introduction

- 10.1. A fundamental consideration for the redevelopment of the Site in accordance with the masterplan included in the Development brief is the transportation effects of the masterplan on highway capacity and access to sustainable modes of transport. The road network surrounding the Site, including the Robin Hood roundabout and A339/Bear Lane, has historically been congested and consideration needs to be given to the masterplan to the potential impact at these two key junctions.
- 10.2. This section of the report begins the analysis of the implications of the masterplan options in the development brief document to determine the scale of the likely transportation effects and so inform the next stages of the refinement of the masterplan.[]

### Existing Conditions

- 10.3. There are two vehicular access points to the Site via 'all moves' signalised junctions located at the A339/Fleming Road on the west site of the Site and the A4 London Road/Faraday Road on the north side of the Site. Both the A4 London Road and A339 are subject to 40mph speed restrictions.
- 10.4. Faraday Road is the main (north/south) spine road through the Site from the A4 to a Pay and Display Car Park in the southern end. Fleming Road provides an east to west link between Faraday Road and the A339. These connections between the A4 London Road and the A339 may encourage 'rat-running' traffic movements through the Site. The internal roads can accommodate two-way vehicular traffic and adjacent side roads have bell-mouths wide enough to accommodate large vehicles turning, due to the traditional industrial land uses associated with the Site. There are also a number of on street parking bays that are currently intensively used.
- 10.5. There is an advanced stop line at the Fleming Road signalised junction providing for cyclists and this along with existing slow vehicle speeds within the Site is beneficial to cyclists. On the road network around the Site provision of facilities for cyclists are included through an on-carriageway cycle lane on the A4 to the east, which then transfers to a shared use foot/cycle way to the west of Faraday Road and continues south along the A339.
- 10.6. A Toucan crossing enables pedestrians and cyclists to cross the A4/Faraday Road junction providing a connection between the industrial estate and north of the A4. There is also a Toucan Crossing on

the A339 north of Fleming Road providing a connection to the residential area on the west side of the A339 and onwards towards the town centre.

- 10.7. In addition, the southern end of the industrial estate connects with the Canal Towpath and National Cycle Network Route 4 (NCN4), which provides direct pedestrian and cycle connections to Newbury town centre and its facilities along with the rail and bus stations.
- 10.8. Newbury bus station is less than 800 m from the centre of the Site, and it provides regular bus services to other Berkshire villages and Reading, as well as regional and national services.
- 10.9. There are both eastbound and westbound bus stops on the A4 located 100 m east of the Faraday Road junction with the A4 which provide an hourly circular route between Newbury and Thatcham between 09:00 and 19:00 Monday to Saturday.
- 10.10. The Site is also well located to railway stations with Newbury and Newbury Racecourse rail stations located 1.2km and 1.6km south of the Site respectively. Newbury rail station provides a half-hourly local service to and from Reading and an hourly service to and from London Paddington. Newbury Racecourse rail station is served by the half-hourly service between Reading and Newbury.
- 10.11. A taxi rank for Newbury is located less than 1km from the Site. There are also six taxi bays at the entrance to Newbury Station. Newbury also has five car club vehicles available across the town provided by Co-Wheels and located within 1.5km walking distance from the centre of the Site.
- 10.12. The Site is therefore well located with respect to public transport infrastructure and the existing highway network includes infrastructure to encourage walking and cycling to and from the Site. However, junction capacity at the two identified junctions is a primary consideration for the redevelopment of the Site.

### **Implications for Redevelopment**

- 10.13. As noted in Section 2 two conceptual masterplans were developed as set out in the Development Brief. These are an Initial Phased Masterplan and a Site-Wide Comprehensive Masterplan and were based on existing parcel plots and various leasehold interests across the Site and responds to identified constraints identified at that time and then assumed the constraints have been removed to allow a Site-Wide Comprehensive Masterplan. The Initial Phased Masterplan includes four plots which are considered potentially available to come forward in the next 0-5 years, while the Site-Wide Comprehensive Masterplan includes plots that could come forward in the longer term (5-10 years).

- 10.14. The analysis undertaken previously in relation to the Initial Phase and Site Wide masterplans revealed that the parking proposed in the Development Brief would be significantly less than the amount of parking provided through the application of the adopted WBDC parking standards when applied to the floorspaces and uses proposed in the masterplans. This was identified to align with the key sustainable transport themes set out in the Draft Environmental Strategy 2020-2030 which was prepared following West Berkshire declaration of a Climate Emergency in July 2019.
- 10.15. It was also noted that the two existing vehicular site accesses from A4 London Road and A339 were considered to be of adequate standard and will remain in situ. Internal Site road layouts should be designed so as to deter 'rat running' through the Site, to facilitate walking and cycling through the Site and in particular enhancing access to the Canal Towpath along the southern boundary of the Site. There is also potential to divert a bus route through the Site to further improve connectivity to the town centre and railway stations and to locate a car club on the Site.
- 10.16. Following this work further analysis of the proposed masterplans has been undertaken using the TRICS database to determine the likely impact of the change of use on the highway network. This analysis obtained trip rate data for a range of light industrial, office and residential development in similar locations on the edge of urban areas in the south of England excluding London.
- 10.17. Census data for the Middle Super Output Area (MSOA) E02003385: West Berkshire 019 was used to determine the modal split for trips from these various development types. The trip rates and modal split information has allowed the trip generation from the two masterplans to be calculated. Table 11.1 below provides the difference between the existing trip generation at the Site and the Initial Phase masterplan. Table 11.2 below provides the difference between the existing trip generation at the Site and the Site Wide masterplan. Both sets of data are derived from the application of the above trip generation methodology.

**Table 10.1 Comparison of Existing and Proposed (Initial Phased Masterplan) Trip Generation**

Mode	AM (08:00-09:00)			PM (17:00-18:00)			Daily (07:00-19:00)		
	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
Car	70	144	214	96	79	175	873	873	1,747
Car Passenger	6	14	20	9	7	16	82	82	164
Bus	5	14	19	9	6	15	73	73	147
Rail	4	14	18	9	5	14	71	71	141
Cycle	4	9	13	6	5	10	52	52	103

Walk	17	46	63	30	20	50	249	248	497
Other	2	4	5	3	2	4	22	22	44
<b>Total</b>	<b>108</b>	<b>244</b>	<b>352</b>	<b>161</b>	<b>124</b>	<b>286</b>	<b>1,422</b>	<b>1,421</b>	<b>2,843</b>

- 10.18. The Initial Phased Masterplan is likely to generate a greater volume of two-way vehicular trips compared to existing uses, with an increase of 214 in the AM peak hour and 175 in the PM peak hour. In addition, public transport, walking and cycling trips would also increase.

**Table 10.2 Comparison of Existing and Proposed (Site-Wide Masterplan) Trip Generation**

Mode	AM (08:00-09:00)			PM (17:00-18:00)			Daily (07:00-19:00)		
	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
Car	74	261	335	170	99	269	1,263	1,252	2,515
Car Passenger	7	25	32	16	9	26	121	120	242
Bus	7	26	33	17	9	26	126	126	252
Rail	7	26	32	17	9	26	124	123	247
Cycle	4	16	20	10	6	16	76	75	151
Walk	22	86	108	56	31	86	412	410	822
Other	2	7	9	5	3	7	35	34	69
<b>Total</b>	<b>123</b>	<b>447</b>	<b>570</b>	<b>291</b>	<b>166</b>	<b>457</b>	<b>2,158</b>	<b>2,141</b>	<b>4,298</b>

- 10.19. The Site Wide Masterplan is likely to generate a greater volume of two-way vehicular trips compared to existing uses, with an increase of 335 in the AM peak hour and 269 in the PM peak hour. In addition, public transport, walking and cycling trips would also increase.
- 10.20. Data from the Middle Super Output Area (MSOA) E02003385: West Berkshire 019 was used to determine trip distribution around the local highway network. This distribution is shown in Table 11.3 below.



**Table 10.3 Census Data Trip Distribution**

Origin/Destination	Residential	Employment
Swindon	2%	3%
Wiltshire	2%	4%
Basingstoke and Deane	11%	17%
Hart	1%	1%
Reading	5%	4%
South Oxfordshire	1%	1%
Test Valley	1%	2%
Vale of the White Horse	3%	2%
West Berkshire	72%	62%
Wokingham	2%	3%
<b>Total</b>	<b>100%</b>	<b>100%</b>

- 10.21. This data will allow the calculated trip generation from the two masterplan options to be applied to existing traffic flows on the highway network around the Site and across the WBDC area. Weekday peak hour traffic flows have been obtained from WBDC's Newbury Town Centre VISSIM model (which covers the majority of the major road network within Newbury and includes the immediate area around the Site) for the future years of 2026 Core Scenario and 2037 S1a Local Plan Scenario.
- 10.22. Vehicle trips rates have been applied to these base traffic flows based on the trip generation and distribution described above. With the Initial Phased Masterplan compared against the 2026 traffic flows and the Site-Wide Masterplan compared against the 2037 traffic flows. The net change and percentage impacts at each junction as a result of the Initial Phased Masterplan against a 2026 baseline is summarised in Table 11.4 and the Site-Wide Masterplan against a 2037 baseline in Table 11.5.

**Table 10.4 2026 Plus Initial Phased Masterplan**

Junction	2026 Plus Initial Phased Masterplan		Net Change		% Impact	
	AM	PM	AM	PM	AM	PM
A339 / Fleming Road	620	729	141	115	29.4%	18.7%
A4 / Faraday Road	568	431	73	60	14.8%	16.1%
Robin Hood roundabout	4,052	3,684	78	64	2.0%	1.8%
A4 / Fir Tree Lane / Hambridge Rd	1,918	1,688	34	28	1.8%	1.7%
A339 / Bear Lane	3,330	3,228	102	83	3.1%	2.6%
A339 / A343 / Greenham Road	3,004	3,128	84	66	2.9%	2.1%

**Table 10.5 2026 Plus Site Wide Masterplan**

Junction	2026 Plus Site Wide Masterplan		Net Change		% Impact	
	AM	PM	AM	PM	AM	PM
A339 / Fleming Road	798	866	218	175	37.5%	25.4%
A4 / Faraday Road	679	499	117	94	20.8%	23.1%
Robin Hood roundabout	4,102	3,489	124	100	3.1%	2.9%
A4 / Fir Tree Lane / Hambridge Rd	2,077	1,799	55	44	2.7%	2.5%
A339 / Bear Lane	3,402	3,240	156	125	4.8%	4.0%
A339 / A343 / Greenham Road	3,197	3,403	129	96	4.2%	2.9%

- 10.23. It is evident that there will be an increase in traffic at all junctions around the Site in masterplan scenarios. However, only the site accesses experience an impact greater than 5% when compared to the future baselines.
- 10.24. The A339 / Fleming Road site access junction is forecast to experience an impact of 29.4% and 18.7% change in the AM and PM peak hours respectively in the Initial Phase masterplan. The same junction is forecast to experience an increase of 37.5% and 25.4% change in the AM and PM peak hours respectively in the Site Wide masterplan scenarios.
- 10.25. The A4 / Faraday Road site access junction will have an increase of 14.8% and 16.1% change in the AM and PM peak hours in the Initial Phased Masterplan. The same junction is forecast to experience

an increase 20.8% and 23.1% in the AM and PM peak respectively in the Site Wide masterplan scenarios.

- 10.26. The 'Robin Hood' roundabout, A339/Bear Lane, A339/A343/Greenham Road and A4 / Fir Tree Lane / Hambridge Road junctions all have changes in flows during the peak periods of less than 5%. These changes are considered to be very small and demonstrate that the main effects of the redevelopment of the Site in line with the Development Brief are very local to the Site itself.

### **Next Steps**

- 10.27. The traffic flows anticipated at both site access junctions would increase by more than 5% and therefore these findings will be discussed with WBDC to determine if further investigation of the operation of these two junctions is required.
- 10.28. This trip generation exercise undertaken has been centred on a worst case with no traffic re-assignment, nor mode switch analysis yet. Therefore, the Site should be accurately represented in the strategic VISUM model to determine the impacts of the two masterplans on the Newbury highway network. This will include modelling traffic reassignment and congestion effects due to changes on the local highway network, as well as changes between different transport modes. The VISUM data can then be input to the Newbury Town Centre VISSIM model for more accurate traffic flow information and also to obtain traffic data for the noise and air quality assessment work.


## 11. Summary

- 11.1. The analysis undertaken and summarised in this report relies heavily on a series of technical notes prepared by WSP and Aecom. These reports have not identified any in principle issues that would prevent development of the Site. The fundamental issues of flood risk and drainage and highway capacity have been reviewed and the initial appraisal indicate how these can be addressed through the design and layout of the proposals. Indeed, it is evident that the Site includes areas that are not at flood risk although further work will be required to ensure access and egress to/from these areas can be achieved.
- 11.2. The assessment work undertaken will be used to refine the masterplan in particular to ensure appropriate areas are retained for drainage provision and that where possible these are used to enhance the biodiversity of the Site.
- 11.3. The other environmental matters considered in the report (ecology, ground conditions, noise, air quality and heritage) have identified the need for further work to be undertaken but do indicate that the issues raised can be addressed through masterplan responses in due course in terms of uses, layout and design to limit its effects on the environment.
- 11.4. This report provides analysis of the Site and environmental considerations in its redevelopment. It is the beginning of an iterative process of environmental impact assessment tests and informs the uses, layout and design of development proposals for the Site. From this on-going process an Environmental Statement (ES) would be prepared to accompany any planning application. This would set out the impacts of the proposed development, identifying how it has responded to the environmental considerations through the EIA process, and identifying any additional mitigation measures that would be required to be secured through the planning process.

# Appendix I

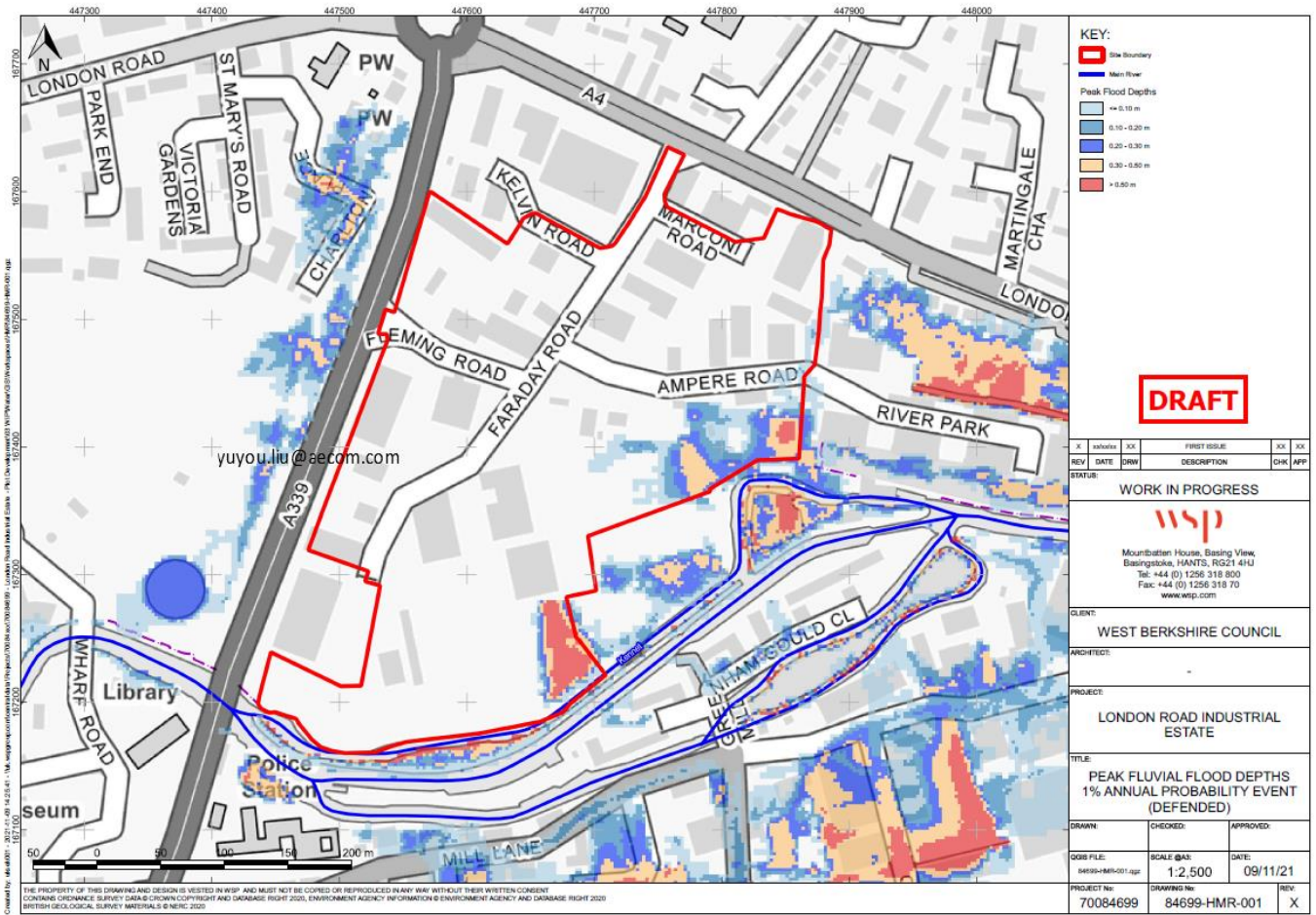
## Site Location Plan



 Red Line Site Boundary

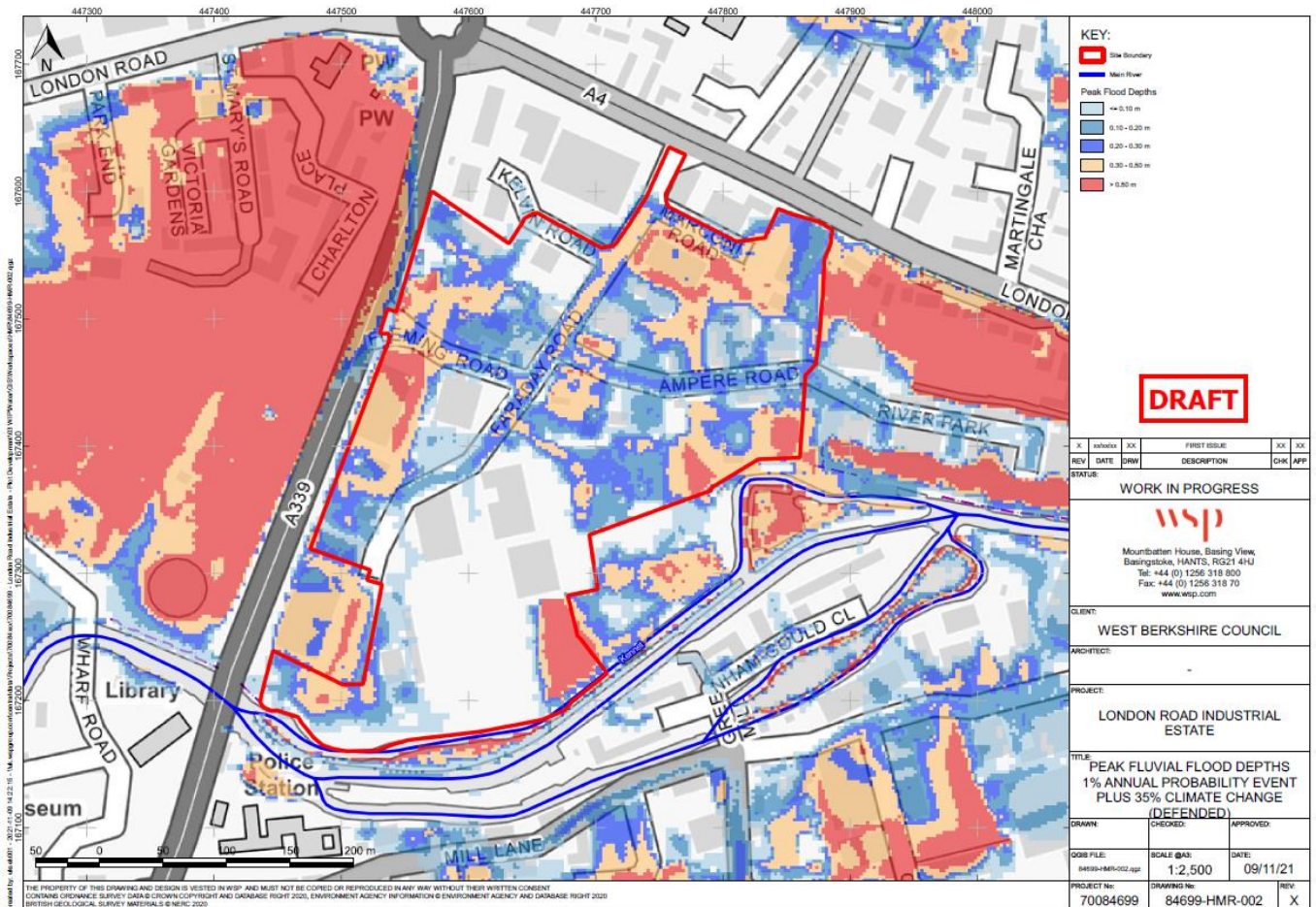
# Appendix II

## Peak Fluvial Flood Depths - 1% Annual Probability Event



# Appendix III

## Peak Fluvial Flood Depths - 1% Annual Probability Event Plus Climate Change



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