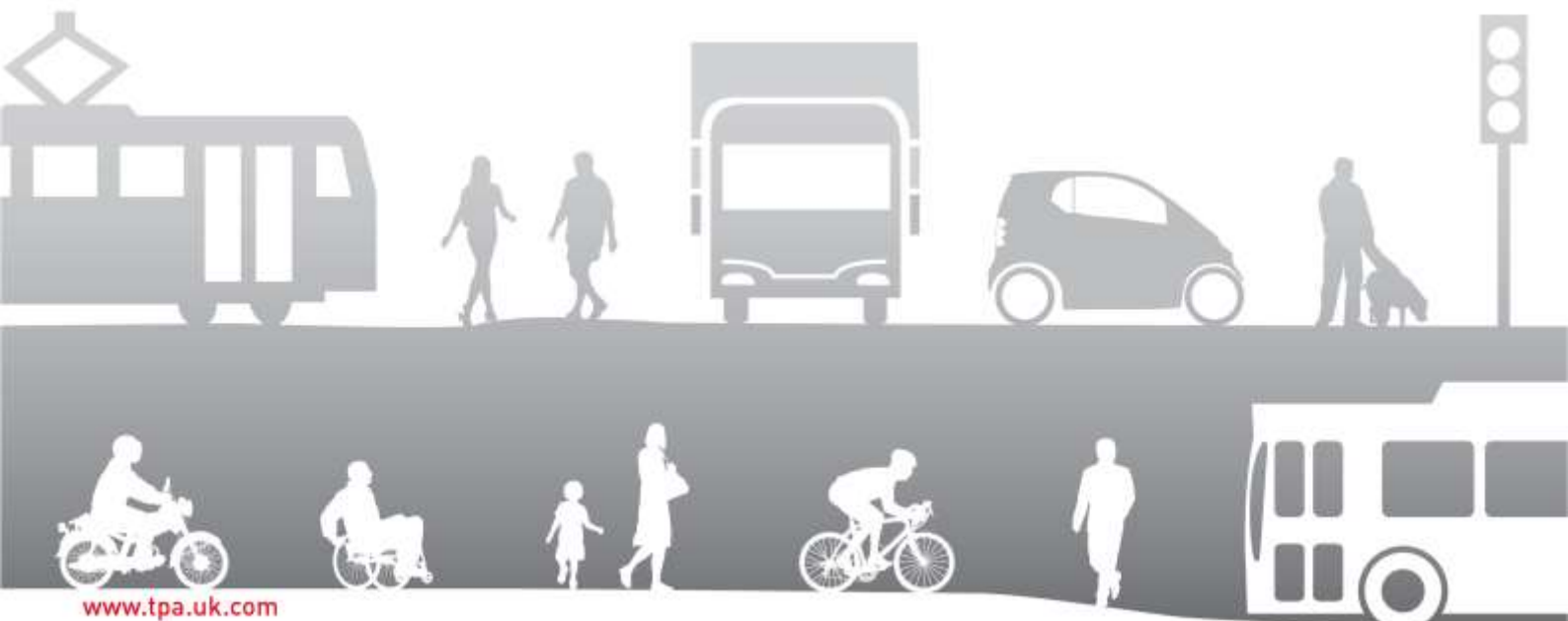


A Planning Application by
KING & CO

In respect of
**Wells Farm, Northaw Road East,
CUFFLEY**

**Transport Statement
(Including Road Traffic Noise and Air Quality Related Matters)**

December 2020



Document Management

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1 Introduction

- 1.1 Transport Planning Associates (“TPA”) has been commissioned by King & Co to provide transport planning consultancy services in respect of a residential development proposal for land at Wells Farm, Northaw Road East, Cuffley (“the Site”).
- 1.2 The Site is located to the southwest of Cuffley, on the northern side of Northaw Road East. The Site is considered to be Brownfield given it is occupied by several buildings that have an established use for a range of commercial purposes. The Site is bounded to the north by open fields, to the east by open fields that are proposed for residential development, to the south by Northaw Road East and to the west by an agricultural access that runs adjacent to Hempshill Brook.
- 1.3 The development proposal (“the Scheme”) seeks the demolition of a number of existing buildings to facilitate the construction of 14 residential dwellings along with associated infrastructure, landscaping, access and other associated works. Access for the Scheme is proposed to utilise the existing site access from Northaw Road East.
- 1.4 TPA previously provided King & Co with a high-level transport appraisal to support site representations at the recent Examination in Public for the Welwyn and Hatfield Local Plan review. The findings of which were that the Site could accommodate residential development of a scale greater than currently proposed without detriment to the safety and efficiency of the local road network.
- 1.5 The Transport Statement provides an overview of the transport planning policies that are considered relevant to the Site and proposed development before examining existing levels of accessibility of the Site by all modes of transport. The statement then provides a review of the development proposal and the associated means of access before outlining a forecast of vehicular trips that may be generated by the Scheme, which is then used to assess the impact of the Scheme on the local highway network as well as potential impacts in terms of road traffic noise and air quality.

Report Structure

- 1.6 The remainder of the report is structured as follows:
- Chapter 2: *Planning policy*;
 - Chapter 3: *Existing situation*;
 - Chapter 4: *Development proposal*;
 - Chapter 5: *Trip generation and distribution*;
 - Chapter 6: *Environmental impacts*; and
 - Chapter 7: *Summary and conclusions*.

2 Planning Policy

2.1 This chapter of the Transport Statement sets out the national and local planning policies that are relevant to the proposed development insofar that they consider transport matters.

National Planning Policy Framework (2019)

2.2 The Government's Revised National Planning Policy Framework (NPPF) was updated in June 2019 and sets out the Government's policy to help inform local authorities and developers regarding future developments.

2.3 The basis of transport policy within the NPPF is stated as:

"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."
(Paragraph 103)

2.4 In supporting sustainable developments and with respect to planning decisions, planning decision makers are advised to consider opportunities for travel by sustainable modes are taken up, safe and suitable access to the Site can be achieved and that residual impacts are minimal in order to limit the significant impacts of development.

2.5 At paragraph 109, the NPPF states in the context of decision making 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."

2.6 In continuation of previous government NPPF policy, the Government seeks the minimisation of the need to travel and a maximisation of the use of sustainable transport modes to and from the development, with opportunities to promote walking, cycling and public transport identified and pursued. Therefore, developments should where feasible provide:

- *"appropriate opportunities to promote sustainable transport modes can be or have been – taken up, given the type of development and its location"* (Paragraph 108); and

- *“give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use” (Paragraph 110)*

2.7 In order to assist in achieving sustainable developments, designs should seek to give priority to non-car modes of transport, create layouts which minimise conflict between vehicles and cyclists or pedestrians, incorporate facilities for ultra-low emission vehicles and consider the needs of disabled people.

2.8 Therefore, development applications should ensure:

- *“safe and suitable access to the site can be achieved for all users” (Paragraph 108);*
- *“allow for the efficient delivery of goods, and access by service and emergency vehicles” (Paragraph 110); and*
- *“create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards” (Paragraph 110).*

2.9 With regard to parking standards, the NPPF outlines how local authorities should when setting car parking standards, take account of the accessibility, type mix and use of development, local car ownership and the need to reduce the use of high emission vehicles.

Planning Practice Guidance (PPG) 2014

2.10 The Planning Practice Guidance, includes advice on when Transport Assessments are required, and what they should contain.

2.11 The Guidance states that Transport Statements or Transport Assessments should principally focus on evaluating the potential transport impacts resultant from a development, and in turn ensure “severe” impacts are mitigated. Therefore, this can positively contribute to encouraging sustainable travel and lessening traffic generation.

2.12 Additionally, the Guidance further outlines an approximate framework for what information Transport Assessments should contain, although site specific characteristics should also be considered. This information is suggested to include:

- The site layout and access;
- Existing local public transport provision and frequency;
- Relevant committed developments;
- Analysis of local accident data;
- Data about current traffic flows on links and at junctions;

- Measures to mitigate the residual impacts of development and promote sustainable travel modes; and
- A forecast of travel characteristics to be generated from the Site.

Hertfordshire Local Transport Plan (2018)

2.13 The Hertfordshire Local Transport Plan (HLTP4) sets out how transport can help deliver a positive future vision for Hertfordshire as well as providing safe and efficient travel. The plan covers the period up to 2031 and looks to provide a transition from a car based transport strategy to a higher focus on sustainable modes of transport.

2.14 The plan contains a number of policies which reflect the aim of the plan to increase rates of travel by more sustainable modes. Policy 1 states:

To support the creation of built environments that encourage greater and safer use of sustainable transport modes, the county council will in the design of any scheme and development of any transport strategy consider:

- a) Opportunities to reduce travel demand and the need to travel;*
- b) Vulnerable road user needs (such as pedestrians and cyclists);*

2.15 In relation to development management Policy 5 states:

The county council will work with development promoters and the district and borough councils to:

- a) Ensure the location and design of proposals reflect the LTP Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand.*
- b) Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council's Highway Design Standards.*
- d) Secure developer mitigation measures to limit the impacts of development on the transport network, and resist development where the residual cumulative impact of development is considered to be severe.*

Welwyn Hatfield Local Plan

- 2.16 Examination hearing sessions for the Welwyn Hatfield Local Plan have now concluded and it is understood that the Council has received the Inspector's interim report on the submitted plan. Meetings are being scheduled to consider next steps to move the new plan forward for adoption.
- 2.17 The Local Plan is intended to *"shape the future of development in our towns and villages between now and 2032 - new homes, new jobs and business premises, open spaces and community facilities for people to use and infrastructure such as roads, schools and healthcare. It is about supporting the growth of Welwyn Hatfield and a vibrant local economy"*.
- 2.18 The Wells Farm site forms part of a parcel (HS30) which is being promoted through the Local Plan as a residential development site and has the benefit of a draft allocation, which the Council has supported through the relevant Examination sessions as being suitable and acceptable in regards to accessibility and other highways considerations.

Local Parking Standards

- 2.19 A supplementary planning document *Welwyn Hatfield District Supplementary Planning Guidance Parking Standards (Adopted January 2004)* set out the parking standards for all developments across the district.

Table 2.1 Parking Standards

Land use		Car parking standards	Minimum cycle parking standards
Residential dwellings	1 bedroom / studios	1.25 spaces per dwelling	1 long term space per unit if no garage or shed is provided
	2 bedrooms	1.5 spaces per dwelling	
	3 bedrooms	2.25 spaces per dwelling	
	4 or more bedrooms	3.0 spaces per dwelling	

- 2.20 Interim policy guidance for 'Car Parking Standards and Garage Sizes, dated August 2014, still references the supplementary planning guidance with a note to say the standards are guidelines rather than maximums.

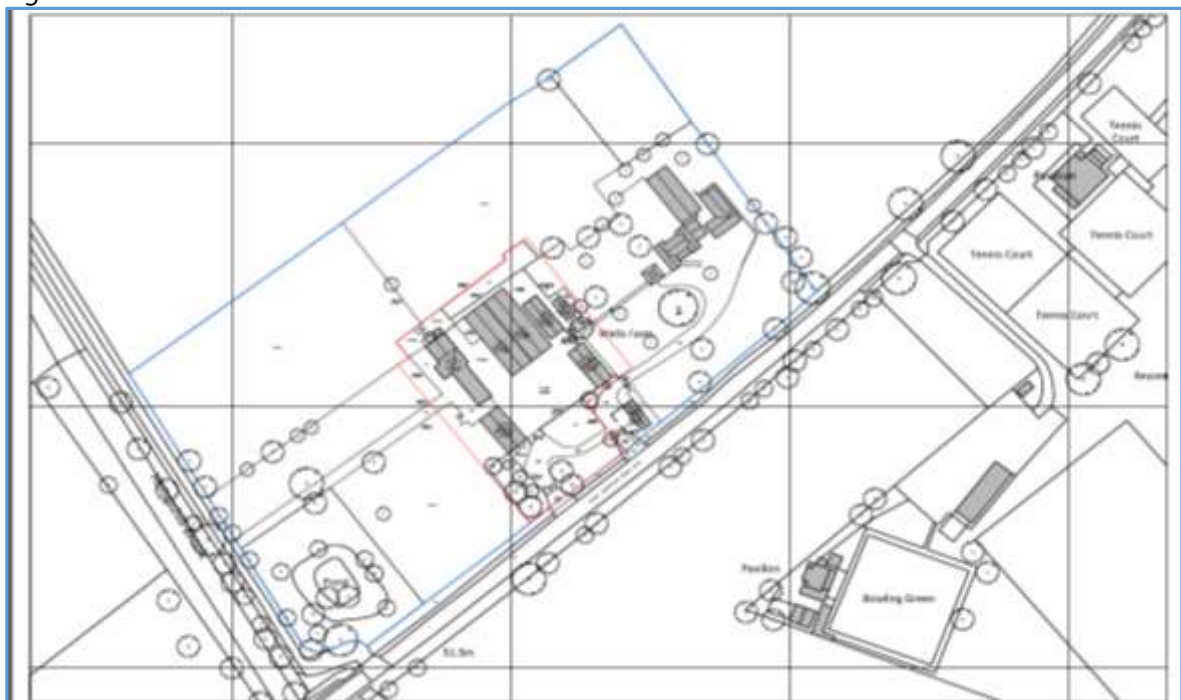
3 Existing Situation

- 3.1 This chapter of the Transport Statement identifies the Site in the context of its location, current use(s), the local highway network and outlines the existing travel opportunities for pedestrians, cyclists and public transport users.

Site Location and Existing Use

- 3.2 The Site is located to the southwest of Cuffley, on the northern side of Northaw Road East. The Site is bounded to the north by open fields, to the east by open fields that are proposed for residential development, to the south by Northaw Road East and to the west by an agricultural access that runs adjacent to Hempshill Brook.
- 3.3 To the east of the Site there are two existing dwellings with their own separate means of access, these being Wells Farm Cottage and Wells Farm House. Both dwellings are occupied and benefit from their own separate point of access.
- 3.4 The location of the Site is presented in **Figure 3.1**.

Figure 3.1 Site Location Plan



- 3.5 The Site is intensively developed and occupied by multiple buildings and hardstanding. These buildings are used for a range of commercial purposes, such that the site can be classified as brownfield with a number of extant uses. The total GFA of the useable buildings is 1,050m² and the uses are a combination of B2/B8, commercial storage and commercial stables, most of which are still in active use or have been used relatively recently such that they can be put back into that use without recourse to planning.

Pedestrian Accessibility

- 3.6 Within the vicinity of the Site, there is a pedestrian footway to the northern side of Northaw Road East, which provides a pedestrian link between Cuffley and Northaw. To the east of the Site the pedestrian facilities are further enhanced with a footway to both sides of Northaw Road East.
- 3.7 The footway provision along Northaw Road East links to a wider network of footways and other pedestrian facilities within Cuffley, providing routes to key services and local facilities.
- 3.8 It is noted that sections of the Northaw Road East footway are suffering as a result of a lack of routine maintenance with verge creep and areas of broken surfacing.

Cycle Accessibility

- 3.9 Although there are no dedicated cycle facilities within the immediate vicinity of the proposed development site, the topography of local roads means that cycling trips to local services and facilities are viable

Public Transport

Bus

- 3.10 The closest bus stops to the Site are on Northaw Road East, approximately 130m and 180m from the proposed entrance to the Site. The bus stops for travel in both directions comprise of a stop flag and timetable board.
- 3.11 These bus stops provide a facility for bus services 242, which provides a route from Potters Bar Railway Station to Waltham Cross Bus Station via Northaw, Cuffley, Goff's Oak and Cheshunt. The Potters Bar to Cuffley railway station section of the route, which passes the proposed development site, is limited to three early morning and three later afternoon services for school and work based trips with more frequent services during the day terminating at Cuffley railway station.

- 3.12 In addition to the Service 242 buses that can commence and terminate at Cuffley railway station bus services 308 and 330 also stop at the this point. Service 308 operates twice daily between the station and Hertford to provide a routes to a wider range of services and facilities for local residents, whilst Service 330 is a school bus service linking Cuffley to the Nicholas Breakspear School

Rail

- 3.13 Cuffley railway station is approximately a 1.2km walk distance to the southeast of the proposed development site and, as such, is considered accessible by walking or cycle. The station is managed by Great Northern with direct trains to stations at Finsbury Park, Moorgate, Hertford and Stevenage, where connections to the wider railway network can be made to access London, Cambridge, Peterborough and beyond.
- 3.14 There is limited free secure cycle parking at the station and car parking for up to 276 vehicles, which is controlled by ANPR with a maximum daily parking rate of £5.70.
- 3.15 Alternative rail travel routes are available from Potters Bar railway station, which is 7.5km from Cuffley railway station, and Cheshunt railway and overground station, which is 6.7km from Cuffley railway station.
- 3.16 The proximity of the Site to a number of railway stations means that the Site is well connected for the train to for the major part of journeys for work and other modes.

Local Highway Network

- 3.17 Northaw Road East forms part of the Hertfordshire Adopted Highway Network and is 'B' Classified Road with the designated number of '156', meaning that it of some significance in terms of providing a connecting route between settlements and other higher classified roads.
- 3.18 In the vicinity of the Site, Northaw Road East has a carriageway width of 6.5m, is subject to the National Speed Limit (60mph) is not illuminated and is supported by the previously identified footways. To the northwest of the Site, upon entering the main built form of Cuffley, the speed limit of the road changes from derestricted to a 30mph restricted speed limit.
- 3.19 To the northeast of the Site Northaw Road East connects with Station Road, which also forms part of the B156, and Plough Hill via a simple priority controlled junction with Station Road forming the minor arm. The B156 forms the central shopping area of Cuffley before exiting the village and providing a route for onward travel to Goff's Oak, Cheshunt, the A10 and beyond; whilst Plough Hill forms a route to Newgate Street and Brookmans Park.

- 3.20 To the southwest of the Site Northaw Road East connects with Northaw Road West, which also forms part of the B156, and Cattlegate Road via a simple priority junction with Cattlegate Road forming the minor arm.

Existing Traffic Flow Information

- 3.21 To understand existing traffic movements along Northaw Road East traffic survey data, in the form of Automatic Traffic Count (ATC) data, has been obtained from Hertfordshire County Council. Northaw Road East is one of the council's long term traffic monitoring sites, with the count position to the front of Wells Farm, and survey data was obtained for a two week period between 30 September 2019 and 13 October 2019. The ATC survey results are contained in **Appendix A**.
- 3.22 Table 3.1 presents the average weekday vehicle movements during the two morning and evening peak hour periods and across the 12 hour and 24 hour daily periods for each of the two weeks.

Table 3.1 ATC Survey Results – Vehicle Movements

	w/c 30 September 2019		w/c 7 October 2019	
	Eastbound	Westbound	Eastbound	Westbound
07:00 to 08:00	204	993	199	991
08:00 to 09:00	368	909	349	888
16:00 to 17:00	691	370	684	389
17:00 to 18:00	695	410	690	384
12 hour	5,122	5,971	5,086	5,871
Daily	6,275	7,284	6,183	7,109

- 3.23 The results presented in Table 3.1 indicate that there is a significant variation in directional flows along Northaw Road East during peak traffic flow times and across the whole of the day, albeit the difference is less so across the day.
- 3.24 The variation in directional flows indicates that Northaw Road East is a commuter route with the dominant direction of travel being eastbound to destinations such as Potters Bar, south Hertfordshire and north London during in the morning and the reverse in the evening. Furthermore, the imbalance between the 12 hour and daily flows would suggest an element of alternate route choices between the peaks.

- 3.25 Overall, two-way peak hour vehicle numbers of circa 1,000 to 1,200 vehicles, whilst not insignificant, is considered to be within the capacity for the road.

Existing Highway Safety

- 3.26 As a starting point in determining whether there is a material local road safety issue that warrants further investigation the crashmap.co.uk website has been reviewed to understand the extent of Personal Injury Accidents (PIAs) within the vicinity of the Site and along Northaw Road East during the most recently available five year period.
- 3.27 This information indicates that there have been no accidents along the immediate site frontage and a limited number (14) of PIAs along Northaw Road East between Station Road and Cattlegate Road over the most recently available five year period. Of the 14 accidents, three are classified as serious and none are classified as fatal.
- 3.28 Three serious accident over a five year period and less than three slight accidents per year over the wide area of consideration suggests that there is not an existing serious road safety problem that would be materially impacted by the proposed development.

Existing Travel Patterns

- 3.29 To understand travel patterns of local residents, travel to work data has been extracted from the 2011 Census. Mid-layer super output area (MSOA) data for 'Welwyn Hatfield 016', which is the Cuffley area that includes the Site, has been reviewed and a summary of journey to work information by mode of travel for all work destinations is presented in Table 3.1

Table 3.2 – Journey to Work by Mode

Mode	Welwyn Hatfield 015
Rail*	23.43%
Bus, minibus or coach	1.33%
Driving a car or van	67.53%
Passenger in a car or van	3.49%
Cycle	0.66%
On foot	2.88%
Other	0.67%

* including underground services

3.30 The information presented in Table 3.2 indicates that whilst the largest proportion of journeys to work are made by private vehicle a significant proportion of journeys, which is defined as the major part of the journey, are made by other modes of travel specifically bus and coach.

3.31 To further understand travel patterns of local residents, travel to work data has been extracted from the 2011 Census for main destinations and mode of travel, which is presented in Table 3.3.

Table 3.3 – Journey to Work by Mode by Destination

Place of Work	Car	Train	Bus	Cycle	Walk	Other
London	56.6%	41.0%	0.8%	0.5%	0.3%	0.8%
East	94.0%	2.6%	2.2%	0.6%	0.4%	0.2%
Welwyn Hatfield	84.4%	3.6%	2.1%	2.1%	6.8%	1.0%
Broxbourne	97.4%	0.0%	0.7%	1.3%	0.7%	0.0%
Site Area	62.7%	7.6%	0.8%	0.0%	28.0%	0.9%
Hertsmere	93.7%	1.8%	3.6%	0.0%	0.0%	0.9%
East Hertfordshire	95.3%	4.7%	0.0%	0.0%	0.0%	0.0%
St Albans	82.4%	7.8%	5.9%	2.0%	2.0%	0.0%
Epping Forest	96.9%	0.0%	3.1%	0.0%	0.0%	0.0%
South East	83.9%	12.9%	0.0%	0.0%	0.0%	3.2%
Harlow	93.3%	6.7%	0.0%	0.0%	0.0%	0.0%
Stevenage	92.3%	0.0%	7.7%	0.0%	0.0%	0.0%

3.32 From the information presented above it is clear that local residents from the area around the proposed site currently use a range of modes to travel to work including a high reliance (28%) on walking to work and nearly 8% travelling by rail, with longer routes with more limited alternatives attracting a much large proportion of car based trips.

Local Services

3.33 There are a number of local services and facilities located within South Mimms which are accessible via the existing pedestrian infrastructure, with details of these local services and facilities provided in Table 3.4.

Table 3.4 – Summary of Local Services and Facilities

Destination	Distance (m)	Walk time Seconds (Minutes)	Cycle time Seconds (Minutes)
Northaw Road East Bus Stops	130	93 (1.5)	24 (0.4)
King George V Playing Field and Clubhouse	150	107 (1.8)	28 (0.5)
Cuffley School	700	500 (8.3)	131 (2.2)
Local Shop & Food Outlets	950	679 (11.3)	178 (3.0)
Tesco Express	1,000	714 (11.9)	188 (3.1)
Cuffley Railway Station	1,300	929 (15.5)	244 (4.1)
Cuffley Employment Area	1,400	1,000 (16.7)	263 (4.4)

Based on an average walk speed of 1.4 m/s 5.04kph (3.15mph) and cycle speed of 19.2kph (12mph).

3.34 With reference to the information presented in Table 3.4 it is evident that a range of key local services are relatively local with related opportunities for travel to these services by foot and cycle.

3.35 Acceptable walking distances and an associated journey time is something that is often debated as part of any transport study with differing views and no universally agreed metric to establish what constitutes an acceptable walking distance or the associated journey time to complete that trip.

3.36 The likelihood of people making a walking based journey, as opposed to travelling by car, to local services is also greatly influenced by a number of factors, including:

- Infrastructure provision and local topography;
- The level of any network congestion issues;
- The availability and cost of parking; and
- Multi-purpose journeys.

3.37 The Institute of Highways and Transportation (IHT) document Guidance for Journeys on Foot (2000) provides one approach to the consideration of acceptable walking distances from a development to local services and has historically been generally considered as the most appropriate guidance on such matters. Details of the key information are presented in Table 3.5.

Table 3.5 - IHT Guidance for Acceptable Journeys on Foot

	Town centres (m)	Commuting/School / Sight-seeing (m)	Elsewhere(m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred maximum	800	2,000	1,200

Taken from IHT Guidelines for Providing Journeys on Foot

- 3.38 An alternative approach to assessing such matters, which is based on substantive empirical data, in research produced by WYG in 2015. The study, entitled 'How Far Do People Walk', set out to review existing walking guidance for development planning with the aim of providing a framework underpinned by a robust and comprehensive evidence base to support suggested distances, with reference to National Travel Survey (NTS) data.
- 3.39 The conclusion of the WYG study was an alternative set of evidence based data to be considered as part of the transport planning process for new developments. A summary of these results for UK sites excluding London are provided in Table 3.6.

Table 3.6 - WYG Proposed Walk Distances

	Mean (m)	85th Percentile (m)
Walk as main mode of travel	1,150	1,950
Walk to a bus stop	580	800
Walk to a railway station	1,010	1,610

How far do people walk was prepared by WYG and presented at the PTRC Transport Practitioners' Meeting London, July 2015.

- 3.40 Whilst we accept that the IHT guidance is commonly used by practitioners we do feel that the approach adopted by WYG is compelling and should be afforded considerable weight. Comparing the location of local services and associated walk distances presented in Table 2.1 against guidance and evidence presented in Table 2.3 and Table 2.4 it can be concluded that:
- A number of services are situated within an acceptable walking distance that is less than the mean average walking distance as the main mode of travel;
 - The opportunity to access bus services falls within acceptable walking distance that are less than the mean average walking distance;
 - The main shops within potters bar fall within the preferred maximum walking distance guidance; and
 - The railway station is just outside the mean walking distance to railway stations and well within the preferred maximum walking distance.

4 The Scheme

- 4.1 This chapter of the Transport Statement outlines the Scheme and proposed means of access for all users.

Proposed development

- 4.2 The Scheme would see the demolition of the existing buildings across the Site to facilitate the construction of 14 residential dwellings together with associated infrastructure, landscaping, access and other associated works.
- 4.3 The proposed site layout drawing is contained in **Appendix B**, with full details of the proposal provided in the supporting Design and Access Statement.

Access

- 4.4 Vehicle access to the Site is proposed to be retained via the existing priority junctions to Northaw Road East.
- 4.5 The proposed access arrangement is detailed in drawing 1911-066 PL01(B), a copy of which is contained in **Appendix C**. Visibility splays associated with the access proposal and based on the derestricted speed limit are detailed in drawing 1911-066 PL02(B), a copy of which is contained in **Appendix D**.

Wider Improvements

- 4.6 Noting the proposed extension of the village built form, both as part of the Scheme and an adjacent development proposal, there would be material benefit in extending the existing the limit of the existing village speed limit restriction to a point beyond the Site.
- 4.7 A plan showing a potential location for such an extension of the speed limit restriction and associated village gateway feature is detailed in drawing 1911-066 PL04(B), a copy of which is contained in **Appendix E**.
- 4.8 The introduction of a reduced speed limit beyond the proposed site access would also facilitate a reduction in visibility splay requirements. A plan showing these alternative visibility splays is detailed in drawing 1911-066 PL03(B), a copy of which is contained in **Appendix F**.

- 4.9 The condition of the existing footway that connects the Site with the edge of the village has been identified as being in need of maintenance to remove current areas of verge creep and to 'make good' areas of poor surface finish. Such works would assist pedestrian connectivity of the Site and therefore King & Co are prepared to support these works by way of an appropriate level of financial contribution as part of any subsequent planning consent.

Parking

- 4.10 The Scheme has a proposed overall parking provision of 32 car parking spaces for the 14 proposed dwellings, with the overall provision being developed with reference to the local parking standard guidance.
- 4.11 The parking provision is proposed to consist of a blend of off road garage and driveway parking as well as a number of dedicated on street parking spaces. The proposed development layout and associated parking proposal seeks to ensure that a minimum of one parking space per dwelling is suitable for EV charging and an appropriate number of dwellings can be considered to be 'fully adaptable'.
- 4.12 Each dwelling will also benefit from the appropriate level of space to accommodate cycle parking and storage.

Refuse

- 4.13 Swept path analysis has been undertaken to demonstrate refuse vehicles can enter the Site, turn around and exit the Site in a forward gear. The swept path analysis for the refuse vehicle is presented in drawing 1911-066 SP101(B) contained in **Appendix G**.
- 4.14 Swept path analysis of the internal site layout and associated collection points and bin 'drag distances' has also been undertaken. The swept path analysis is detailed in drawing 1911-066 SP102(B) and the refuse collection point drawing is detailed in drawing 1911-066 PL05(A), both of which are contained in **Appendix H**.

5 Trip Generation and Distribution

5.1 This chapter of the Transport Statement outlines the quantum of vehicle trips that may be generated by and attracted to the existing land uses and proposed development.

Existing Operation

5.2 The existing buildings within the Site are currently occupied for a combination of agricultural and B2 / B8 land uses. However, for the purposes of this assessment the buildings that are not in active commercial use have not been considered as peak hour traffic attractors.

5.3 The existing operation of the units on the Site are used for storage or small workshops and therefore a TRICS calculation for industrial units is considered appropriate.

5.4 The TRICS database has been interrogated under land use code 02 - *Employment*, sub-category C – *Industrial unit*, to derive trip rates for a sample of sites considered to reflect the proposed operation of the proposed commercial units.

5.5 The following selection criteria was applied:

- Vehicle surveys;
- Weekday surveys;
- Sites in Greater London and Ireland omitted; and
- Sites with a GFA ranging between 300m² and 2,500m².

5.6 The TRICS output report is contained in **Appendix I**.

5.7 Table 5.1 summarises the TRICS vehicle trip rates during the traditional morning and evening peak hour periods and a forecast trip attraction to the existing actively used commercial units, with a total GFA of 537m².

Table 5.1 Existing Site Buildings TRICS Trip Rates and Forecast Trip Attraction

	Morning peak (0800-0900)		Evening peak (1700-1800)	
	Arrive	Depart	Arrive	Depart
TRICS vehicle trip rate per 100m ² GFA	0.738	0.138	0.202	0.730
Total number of commercial vehicle trips	4	1	1	4

5.8 Given that the other buildings have lawful and established commercial use there is real potential for a further minor increase in trips under the permitted land uses and site operation.

Proposed Development

5.9 The TRICS database has been interrogated under land use code 03 – *Residential*, sub-category A – *Houses privately owned*, to derive vehicle trip rates for a sample of sites considered to reflect the proposed development.

5.10 The following selection criteria was applied:

- Vehicle surveys;
- Weekday surveys;
- Sites in Greater London and Ireland omitted;
- Sites located within Villages; and
- Sites with dwelling numbers between 5 and 100.

5.11 The TRICS output report is contained in **Appendix J**.

5.12 Table 5.2 summarises the TRICS vehicle trip rates during the traditional morning and evening peak hour periods of 0800-0900 and 1700-1800 respectively. To provide a forecast of the likely trip residential generation TRICS vehicle trips rates have been multiplied by the proposed development of 14 dwellings.

Table 5.2 Proposed Residential TRICS Trip Rates and Forecast Traffic Generation

	Morning peak (0800-0900)		Evening peak (1700-1800)	
	Arrive	Depart	Arrive	Depart
TRICS vehicle trip rate per dwelling	0.159	0.352	0.317	0.149
Total number of residential vehicle trips	2	5	4	2

- 5.13 The results presented within Table 5.2 indicate that the proposed residential dwellings are likely to generate 19 two-way vehicle trips during the morning peak and 18 two-way vehicle trips are anticipated during the evening peak.

Comparison of Traffic Attraction / Generation

- 5.14 Table 5.3 presents a forecast comparison of trips attracted to the Site following the proposed change in land use against those forecast to be attracted to the Site under existing and consented land uses.

Table 5.3 Comparison of Existing and Proposed Vehicle Movements

	Morning peak (0800-0900)		Evening peak (1700-1800)	
	Arrive	Depart	Arrive	Depart
Existing	4	1	1	4
Proposed	2	5	4	2
Net impact	-2	+4	+3	-2

- 5.15 The information presented in Table 5.3 indicate that the Scheme could reasonably be expected to result in a negligible change in the number of vehicle trips during both morning and evening peak periods, with an increase of two two-way trips and one two-way trip in the morning and evening peak hours respectively.

6 Environmental Impact

- 6.1 During the course of pre-application discussions with the local planning authority matters relating to potential air quality and noise impacts associated with traffic impacts were mentioned as worthy of consideration, in part due to this being raised as a matter of concern by local residents during the recent Local Plan examination.
- 6.2 Guidelines for the Environmental Assessment of Road Traffic recommend, as a starting point, a 30% change in traffic flow as a reasonable threshold for including a highway link within any assessment. The guidelines also set out that people cannot perceive a change in noise level of less than 3dB(A) and such a change requires a doubling of traffic levels.
- 6.3 With reference to information presented in Table 3.1 and Table 5.3 of this Transport Statement it can be determined that the predicted peak hour increase in traffic levels, when traffic levels are greatest and any environmental impacts will be at their worst, are between 0.1% and 0.2%.
- 6.4 The Local Plan advises that development proposals located within 50m of an identified "heavily trafficked route" should include consideration of air quality impacts. In the context of the subject site, this falls within the relevant corridor of the B156 which has been cited as a "heavily trafficked route".
- 6.5 We note in the first instance that the Council's own air quality monitoring evidence clarifies that there are no exceedances against relevant air quality standards (based on particulate generation) in this area. This matter has been discussed through the Local Plan Examination and was agreed.
- 6.6 Given the very limited increase in traffic levels (up to 0.2%) by consequence of the development over and above the "no development" scenario then it is clear that this falls well below a threshold (minimum 30%) where it would warrant a formal air quality assessment. Given that it falls so significantly below a threshold where an assessment would be recommended, it is considered appropriate to say that there is no credible basis to argue that the proposed development scheme would result in any material adverse effect on air quality.
- 6.7 In the context of noise, it is self-evident from the analysis above that the very limited increase in traffic will result in no perceptible change to the existing level of road noise. If there is no perceptible change in noise level then it must be concluded that the proposed development scheme would have no material adverse effect on the noise climate.
- 6.8 As such it can be concluded that there will be no detrimental impact in terms of environmental impact associated with the Scheme.

7 Summary and Conclusion

- 7.1 Transport Planning Associates has been commissioned by King & Co to provide transport planning consultancy services in respect of a development proposal at Wells Farm, Northaw Road East, Cuffley.
- 7.2 The Scheme seeks the demolition of a number of existing buildings to facilitate the construction of 14 residential dwellings along with associated infrastructure, landscaping, access and other associated works.
- 7.3 Access for the Scheme is proposed to utilise the existing site access from Northaw Road East and associated with this scheme are proposed measures to improve pedestrian connectivity and extend the current village speed limit to a point beyond the Site.
- 7.4 In transport planning terms the Site and Scheme are considered to be compliant with national and local planning policies and guidance.
- 7.5 The Site is considered to be accessible by a range of transport modes and well connected to local services to ensure access by car is not the only viable option.
- 7.6 The quantum of traffic that is predicted to be generated by and attracted to the proposed development will not result in any noticeable or material impact in local traffic levels, movements, road safety or associated environmental impacts.
- 7.7 It is concluded that there are no material transport and highway reasons why the proposed development should not be granted planning permission.

APPENDIX A

Site No: 00000300

Site Reference: 00801310

Site 300 B156 Northaw Road, Cuffley

Filtered by No Filter

Vehicle Count Report

Week Begin: 30 September 2019

Channel: Westbound

Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	5-Day	7-Day
Begin	30/09/2019	01/10/2019	02/10/2019	03/10/2019	04/10/2019	05/10/2019	06/10/2019	Ave.	Ave.
00:00	12	31	21	20	22	65	53	21	32
01:00	8	12	8	12	9	51	34	10	19
02:00	2	9	4	5	6	19	38	5	12
03:00	8	18	10	16	11	25	20	13	15
04:00	28	37	32	40	31	37	22	34	32
05:00	109	111	105	112	98	35	30	107	86
06:00	436	466	492	455	406	106	48	451	344
07:00	1013	1001	1020	988	941	190	87	993	749
08:00	948	933	901	904	858	379	140	909	723
09:00	690	604	719	608	572	396	270	639	551
10:00	411	387	429	379	360	462	356	393	398
11:00	335	376	576	352	385	460	434	405	417
12:00	328	397	579	347	394	480	496	409	432
13:00	327	311	463	361	335	467	440	359	386
14:00	314	323	401	343	335	403	348	343	352
15:00	362	431	401	360	408	324	301	392	370
16:00	360	356	382	367	386	307	274	370	347
17:00	412	392	399	445	400	325	236	410	373
18:00	300	365	368	387	324	296	219	349	323
19:00	281	328	256	261	299	207	179	285	259
20:00	164	168	123	146	140	136	111	148	141
21:00	119	101	104	93	103	96	79	104	99
22:00	101	89	67	67	88	78	58	82	78
23:00	53	57	41	48	70	64	28	54	52
Total									
12H(7-19)	5800	5876	6638	5841	5698	4489	3601	5971	5420
16H(6-22)	6800	6939	7613	6796	6646	5034	4018	6959	6264
18H(6-24)	6954	7085	7721	6911	6804	5176	4104	7095	6394
24H(0-24)	7121	7303	7901	7116	6981	5408	4301	7284	6590
AM	07:00	07:00	07:00	07:00	07:00	10:00	11:00	07:00	07:00
Peak	1013	1001	1020	988	941	462	434	993	749
PM	17:00	15:00	12:00	17:00	15:00	12:00	12:00	17:00	12:00
Peak	412	431	579	445	408	480	496	410	432

Created at 12:24:53 on 12 November 2020

Site No: 00000300

Site Reference: 00801310

Site 300 B156 Northaw Road, Cuffley Filtered by No Filter

Vehicle Count Report

Week Begin: 30 September 2019

Channel: Eastbound

Time Begin	Mon 30/09/2019	Tue 01/10/2019	Wed 02/10/2019	Thu 03/10/2019	Fri 04/10/2019	Sat 05/10/2019	Sun 06/10/2019	5-Day Ave.	7-Day Ave.
00:00	29	24	38	32	32	73	95	31	46
01:00	12	17	17	17	21	40	50	17	25
02:00	7	11	8	10	14	22	29	10	14
03:00	8	8	8	12	7	16	10	9	10
04:00	12	5	11	13	8	12	7	10	10
05:00	27	26	22	25	22	18	14	24	22
06:00	70	86	81	74	62	30	27	75	61
07:00	204	203	220	197	196	75	43	204	163
08:00	379	370	390	348	351	181	85	368	301
09:00	280	252	273	287	260	274	203	270	261
10:00	243	271	257	272	244	284	233	257	258
11:00	314	314	296	315	318	350	328	311	319
12:00	354	369	431	375	358	392	368	377	378
13:00	386	352	423	372	386	490	349	384	394
14:00	416	444	457	449	459	457	329	445	430
15:00	486	525	528	497	547	404	381	517	481
16:00	637	733	678	664	742	434	390	691	611
17:00	640	695	693	706	742	400	358	695	605
18:00	507	721	608	627	551	351	266	603	519
19:00	309	385	424	456	395	263	196	394	347
20:00	216	199	237	230	196	151	174	216	200
21:00	114	139	170	177	156	132	126	151	145
22:00	105	156	123	133	165	138	77	136	128
23:00	55	100	54	91	104	120	42	81	81
Total									
12H(7-19)	4846	5249	5254	5109	5154	4092	3333	5122	4720
16H(6-22)	5555	6058	6166	6046	5963	4668	3856	5958	5473
18H(6-24)	5715	6314	6343	6270	6232	4926	3975	6175	5682
24H(0-24)	5810	6405	6447	6379	6336	5107	4180	6275	5809
AM	08:00	08:00	08:00	08:00	08:00	11:00	11:00	08:00	11:00
Peak	379	370	390	348	351	350	328	368	319
PM	17:00	16:00	17:00	17:00	17:00	13:00	16:00	17:00	16:00
Peak	640	733	693	706	742	490	390	695	611

Created at 12:24:54 on 12 November 2020

Site No: 00000300

Site Reference: 00801310

Site 300 B156 Northaw Road, Cuffley Filtered by No Filter

Vehicle Count Report

Week Begin: 30 September 2019

Channel: Total Flow

Time Begin	Mon 30/09/2019	Tue 01/10/2019	Wed 02/10/2019	Thu 03/10/2019	Fri 04/10/2019	Sat 05/10/2019	Sun 06/10/2019	5-Day Ave.	7-Day Ave.
00:00	41	55	59	52	54	138	148	52	78
01:00	20	29	25	29	30	91	84	27	44
02:00	9	20	12	15	20	41	67	15	26
03:00	16	26	18	28	18	41	30	21	25
04:00	40	42	43	53	39	49	29	43	42
05:00	136	137	127	137	120	53	44	131	108
06:00	506	552	573	529	468	136	75	526	406
07:00	1217	1204	1240	1185	1137	265	130	1197	911
08:00	1327	1303	1291	1252	1209	560	225	1276	1024
09:00	970	856	992	895	832	670	473	909	813
10:00	654	658	686	651	604	746	589	651	655
11:00	649	690	872	667	703	810	762	716	736
12:00	682	766	1010	722	752	872	864	786	810
13:00	713	663	886	733	721	957	789	743	780
14:00	730	767	858	792	794	860	677	788	783
15:00	848	956	929	857	955	728	682	909	851
16:00	997	1089	1060	1031	1128	741	664	1061	959
17:00	1052	1087	1092	1151	1142	725	594	1105	978
18:00	807	1086	976	1014	875	647	485	952	841
19:00	590	713	680	717	694	470	375	679	606
20:00	380	367	360	376	336	287	285	364	342
21:00	233	240	274	270	259	228	205	255	244
22:00	206	245	190	200	253	216	135	219	206
23:00	108	157	95	139	174	184	70	135	132
Total									
12H(7-19)	10646	11125	11892	10950	10852	8581	6934	11093	10140
16H(6-22)	12355	12997	13779	12842	12609	9702	7874	12916	11737
18H(6-24)	12669	13399	14064	13181	13036	10102	8079	13270	12076
24H(0-24)	12931	13708	14348	13495	13317	10515	8481	13560	12399
AM	08:00	08:00	08:00	08:00	08:00	11:00	11:00	08:00	08:00
Peak	1327	1303	1291	1252	1209	810	762	1276	1024
PM	17:00	16:00	17:00	17:00	17:00	13:00	12:00	17:00	17:00
Peak	1052	1089	1092	1151	1142	957	864	1105	978

Created at 12:24:54 on 12 November 2020

Site No: 00000300

Site Reference: 00801310

Site 300 B156 Northaw Road, Cuffley Filtered by No Filter

Vehicle Count Report

Week Begin: 07 October 2019

Channel: Westbound

Time Begin	Mon 07/10/2019	Tue 08/10/2019	Wed 09/10/2019	Thu 10/10/2019	Fri 11/10/2019	Sat 12/10/2019	Sun 13/10/2019	5-Day Ave.	7-Day Ave.
00:00	14	16	13	10	26	39	72	16	27
01:00	10	10	8	10	5	24	46	9	16
02:00	3	8	5	7	7	12	17	6	8
03:00	6	10	7	14	8	15	17	9	11
04:00	29	33	41	32	33	18	15	34	29
05:00	122	113	117	130	101	48	24	117	94
06:00	434	494	489	464	432	103	52	463	353
07:00	1012	1016	988	1027	914	197	93	991	750
08:00	887	932	936	892	794	343	173	888	708
09:00	547	695	610	689	632	411	289	635	553
10:00	387	447	426	407	432	444	350	420	413
11:00	319	431	369	390	445	548	447	391	421
12:00	357	393	370	368	472	487	435	392	412
13:00	295	346	370	350	359	451	407	344	368
14:00	289	320	320	360	366	426	351	331	347
15:00	348	387	360	386	418	349	311	380	366
16:00	339	391	379	435	401	350	252	389	364
17:00	401	375	379	412	353	341	249	384	359
18:00	281	330	347	339	336	276	237	327	307
19:00	212	274	230	242	288	243	172	249	237
20:00	100	134	153	116	144	133	120	129	129
21:00	111	115	100	110	103	110	92	108	106
22:00	50	49	58	55	89	102	49	60	65
23:00	22	27	42	48	56	88	22	39	44
Total									
12H(7-19)	5462	6063	5854	6055	5922	4623	3594	5871	5368
16H(6-22)	6319	7080	6826	6987	6889	5212	4030	6820	6192
18H(6-24)	6391	7156	6926	7090	7034	5402	4101	6919	6300
24H(0-24)	6575	7346	7117	7293	7214	5558	4292	7109	6485
AM	07:00	07:00	07:00	07:00	07:00	11:00	11:00	07:00	07:00
Peak	1012	1016	988	1027	914	548	447	991	750
PM	17:00	12:00	17:00	16:00	12:00	12:00	12:00	12:00	12:00
Peak	401	393	379	435	472	487	435	392	412

Created at 12:24:54 on 12 November 2020

Site No: 00000300

Site Reference: 00801310

Site 300 B156 Northaw Road, Cuffley Filtered by No Filter

Vehicle Count Report

Week Begin: 07 October 2019

Channel: Eastbound

Time Begin	Mon 07/10/2019	Tue 08/10/2019	Wed 09/10/2019	Thu 10/10/2019	Fri 11/10/2019	Sat 12/10/2019	Sun 13/10/2019	5-Day Ave.	7-Day Ave.
00:00	27	29	31	35	38	58	96	32	45
01:00	10	20	17	20	24	34	54	18	26
02:00	6	2	8	10	14	18	30	8	13
03:00	4	6	9	7	8	20	17	7	10
04:00	10	9	13	10	10	12	6	10	10
05:00	19	29	32	27	25	23	11	26	24
06:00	73	77	78	79	70	29	22	75	61
07:00	210	217	192	189	186	62	46	199	157
08:00	333	367	372	354	318	167	79	349	284
09:00	252	267	265	247	293	256	174	265	251
10:00	255	259	244	293	269	337	226	264	269
11:00	302	305	310	328	358	399	319	321	332
12:00	327	370	365	372	395	424	357	366	373
13:00	366	411	400	404	414	406	387	399	398
14:00	441	502	477	525	520	512	418	493	485
15:00	438	509	517	561	529	407	357	511	474
16:00	712	693	682	702	630	399	339	684	594
17:00	623	707	707	725	689	398	294	690	592
18:00	548	567	545	572	499	318	276	546	475
19:00	304	340	344	391	344	250	217	345	313
20:00	214	196	247	240	245	195	165	228	215
21:00	138	158	155	169	137	149	123	151	147
22:00	101	129	131	131	140	153	75	126	123
23:00	51	52	75	80	89	117	45	69	73
Total									
12H(7-19)	4807	5174	5076	5272	5100	4085	3272	5086	4684
16H(6-22)	5536	5945	5900	6151	5896	4708	3799	5886	5419
18H(6-24)	5688	6126	6106	6362	6125	4978	3919	6081	5615
24H(0-24)	5764	6221	6216	6471	6244	5143	4133	6183	5742
AM	08:00	08:00	08:00	08:00	11:00	11:00	11:00	08:00	11:00
Peak	333	367	372	354	358	399	319	349	332
PM	16:00	17:00	17:00	17:00	17:00	14:00	14:00	17:00	16:00
Peak	712	707	707	725	689	512	418	690	594

Created at 12:24:54 on 12 November 2020

Site No: 00000300

Site Reference: 00801310

Site 300 B156 Northaw Road, Cuffley Filtered by No Filter

Vehicle Count Report

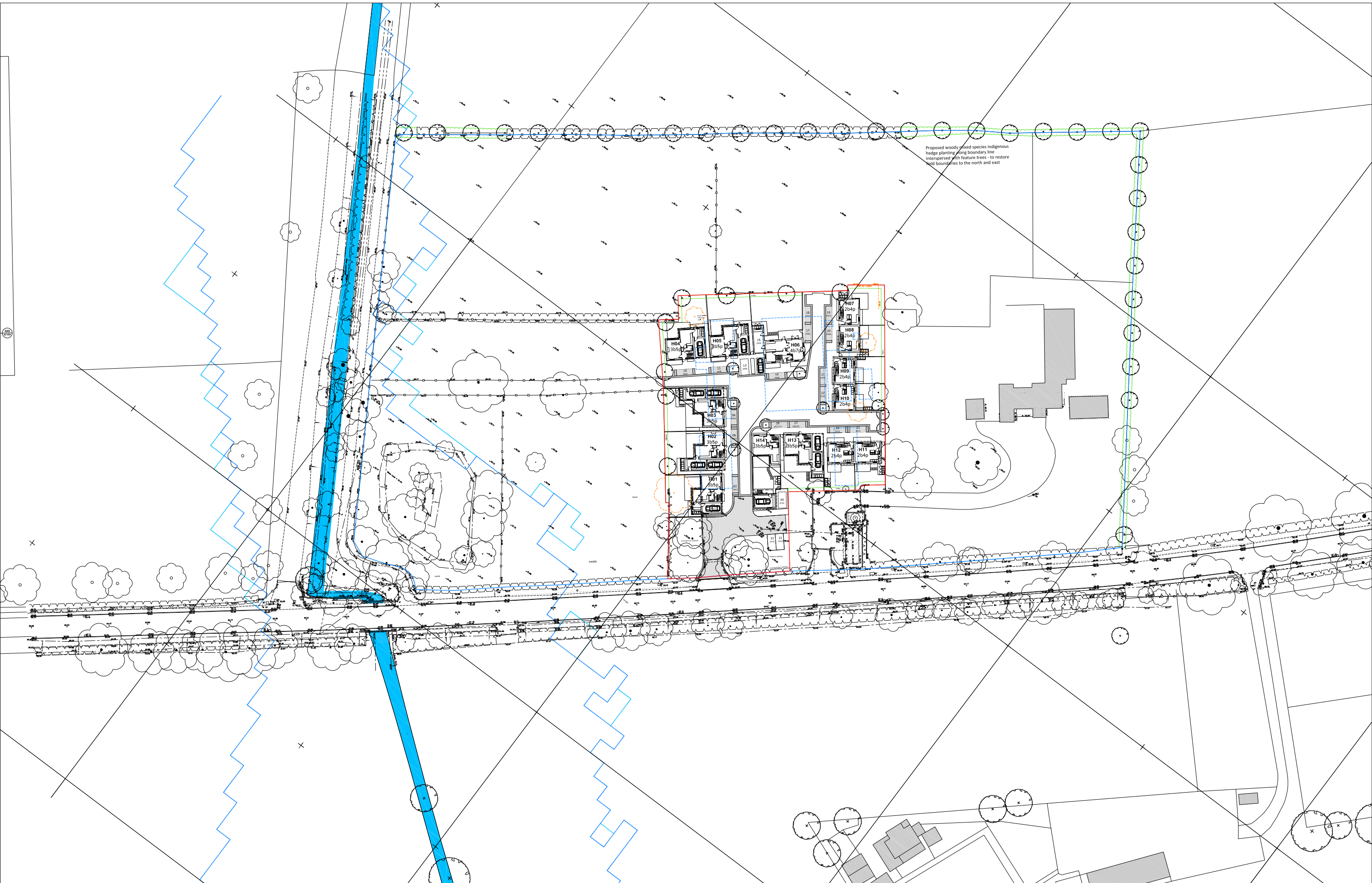
Week Begin: 07 October 2019

Channel: Total Flow

Time Begin	Mon 07/10/2019	Tue 08/10/2019	Wed 09/10/2019	Thu 10/10/2019	Fri 11/10/2019	Sat 12/10/2019	Sun 13/10/2019	5-Day Ave.	7-Day Ave.
00:00	41	45	44	45	64	97	168	48	72
01:00	20	30	25	30	29	58	100	27	42
02:00	9	10	13	17	21	30	47	14	21
03:00	10	16	16	21	16	35	34	16	21
04:00	39	42	54	42	43	30	21	44	39
05:00	141	142	149	157	126	71	35	143	117
06:00	507	571	567	543	502	132	74	538	414
07:00	1222	1233	1180	1216	1100	259	139	1190	907
08:00	1220	1299	1308	1246	1112	510	252	1237	992
09:00	799	962	875	936	925	667	463	899	804
10:00	642	706	670	700	701	781	576	684	682
11:00	621	736	679	718	803	947	766	711	753
12:00	684	763	735	740	867	911	792	758	785
13:00	661	757	770	754	773	857	794	743	767
14:00	730	822	797	885	886	938	769	824	832
15:00	786	896	877	947	947	756	668	891	840
16:00	1051	1084	1061	1137	1031	749	591	1073	958
17:00	1024	1082	1086	1137	1042	739	543	1074	950
18:00	829	897	892	911	835	594	513	873	782
19:00	516	614	574	633	632	493	389	594	550
20:00	314	330	400	356	389	328	285	358	343
21:00	249	273	255	279	240	259	215	259	253
22:00	151	178	189	186	229	255	124	187	187
23:00	73	79	117	128	145	205	67	108	116
Total									
12H(7-19)	10269	11237	10930	11327	11022	8708	6866	10957	10051
16H(6-22)	11855	13025	12726	13138	12785	9920	7829	12706	11611
18H(6-24)	12079	13282	13032	13452	13159	10380	8020	13001	11915
24H(0-24)	12339	13567	13333	13764	13458	10701	8425	13292	12227
AM	07:00	08:00	08:00	08:00	08:00	11:00	11:00	08:00	08:00
Peak	1222	1299	1308	1246	1112	947	766	1237	992
PM	16:00	16:00	17:00	17:00	17:00	14:00	13:00	17:00	16:00
Peak	1051	1084	1086	1137	1042	938	794	1074	958

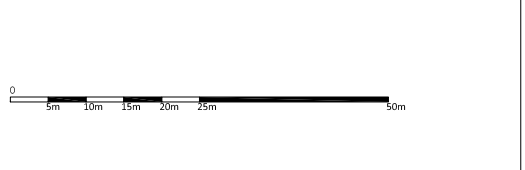
Created at 12:24:54 on 12 November 2020

APPENDIX B



NOTES
 CONSULTANTS
 - Refer to highways consultant's drawings for details
 - Refer to landscape consultant's drawings for details
 - Landscaping layout is indicative only
 AREAS
 - Refer to area schedule

Rev	Notes	dd mm yy	By	Auth



KING & CO
 PROPERTY DEVELOPMENT & INVESTMENT
 EST. 1918
 Marquis House, 68 Great North Road, Hatfield, AL9 5ER
 www.kingandcompany.co.uk

Date: Nov 2020
 Drawn by:
 Checked by:
 Scale @A1: 1:500
 Scale @A3: 1:1000
 CAD File No:

WELLS FARM
 Northaw Road East
 Cuffley
 PROPOSED SITE PLAN

1718 PO-006

APPENDIX C

A3

ORIGINAL PLOT SIZE

Maintenance of existing footway – damage repair and clearance of verge creep

Existing walls retained

NOTES:

- 1. Based on Terrain Surveys Topographical Drawing No.s TS20-444-1 to TS20-444-4.
- 2. Subject to confirmation of Highway Boundary.

Rev	Date	Details	Drawn by	Checked by	Approved by
B	03.12.20	Updated site plan	JA	JH	JH
A	25.11.20	Updated site plan	JA	JH	JH

Bristol
 Cambridge
 London
 Manchester
 Oxford
 Welwyn Garden City



The Stables
 7 Chesterton Mill
 French's Road
 Cambridge
 CB4 3NP
 01223 455385
www.tpa.uk.com

CLIENT: **King & Co**

PROJECT:
**Wells Farm,
 Northaw Road,
 Cuffley**

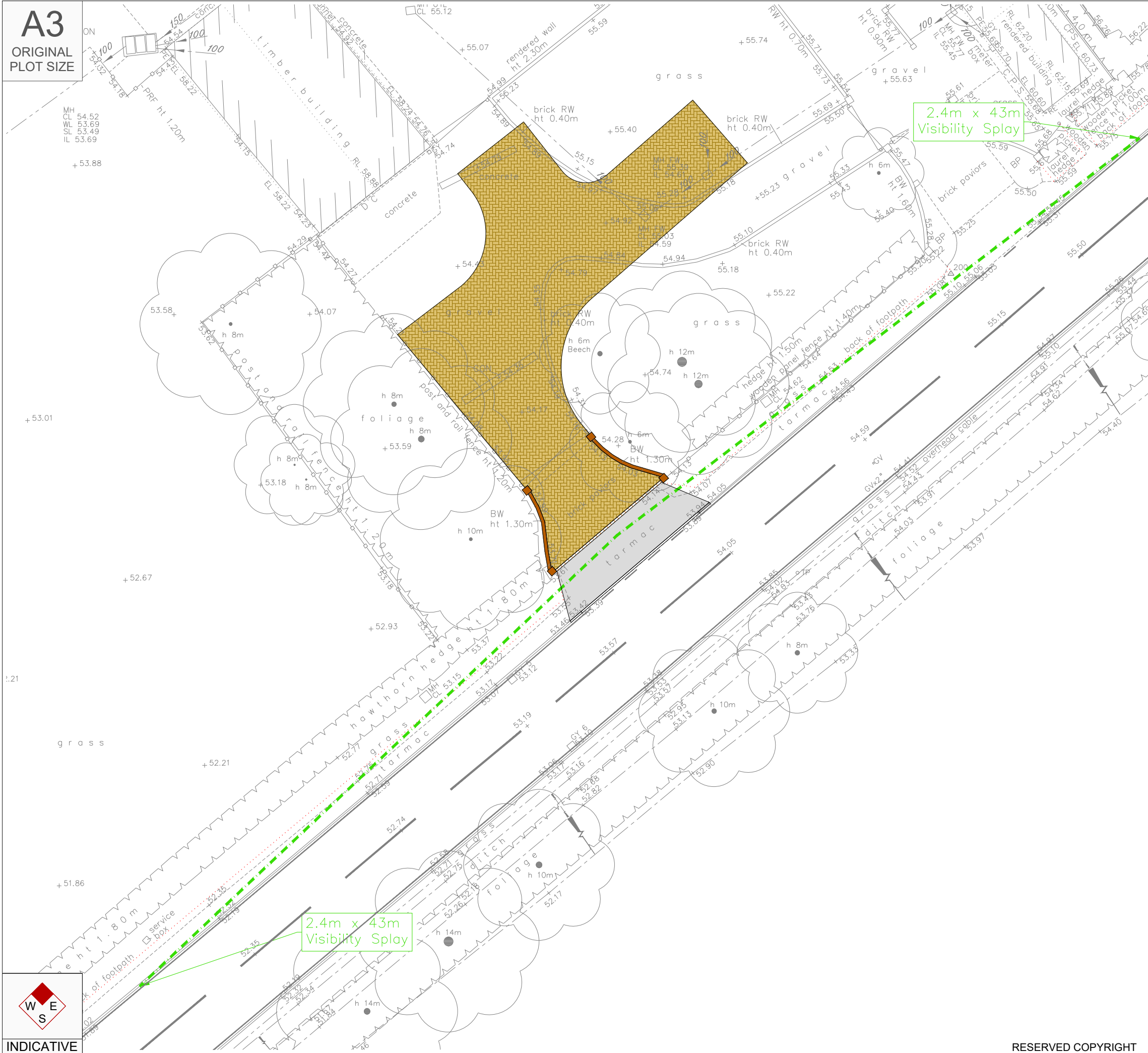
TITLE:
Proposed Site Access

STATUS:
PLANNING

SCALE: 1:200	DATE: 18.11.20	DRAWN: JA	CHECKED: JH	APPROVED: JH
JOB NO: 1911-066	DRAWING NO: PL01	REVISION: B		



APPENDIX D



A3
ORIGINAL
PLOT SIZE

NOTES:
1. Based on Terrain Surveys Topographical Drawing No.s TS20-444-1 to TS20-444-4.
2. Subject to confirmation of Highway Boundary.

2.4m x 43m
Visibility Splay

2.4m x 43m
Visibility Splay

Rev	Date	Details	Drawn by	Checked by	Approved by
B	03.12.20	Updated site plan	JA	JH	JH
A	25.11.20	Updated site plan	JA	JH	JH

Bristol
Cambridge
London
Manchester
Oxford
Welwyn Garden City

The Stables
7 Chesterton Mill
French's Road
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CLIENT: **King & Co**

PROJECT:
**Wells Farm,
Northaw Road,
Cuffley**

TITLE:
**Proposed Site Access
and Visibility Splays
(2.4m x 43m)**

STATUS:
PLANNING

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:200	18.11.20	JA	JH	JH
JOB NO:	DRAWING NO:	REVISION:		
1911-066	PL02	B		

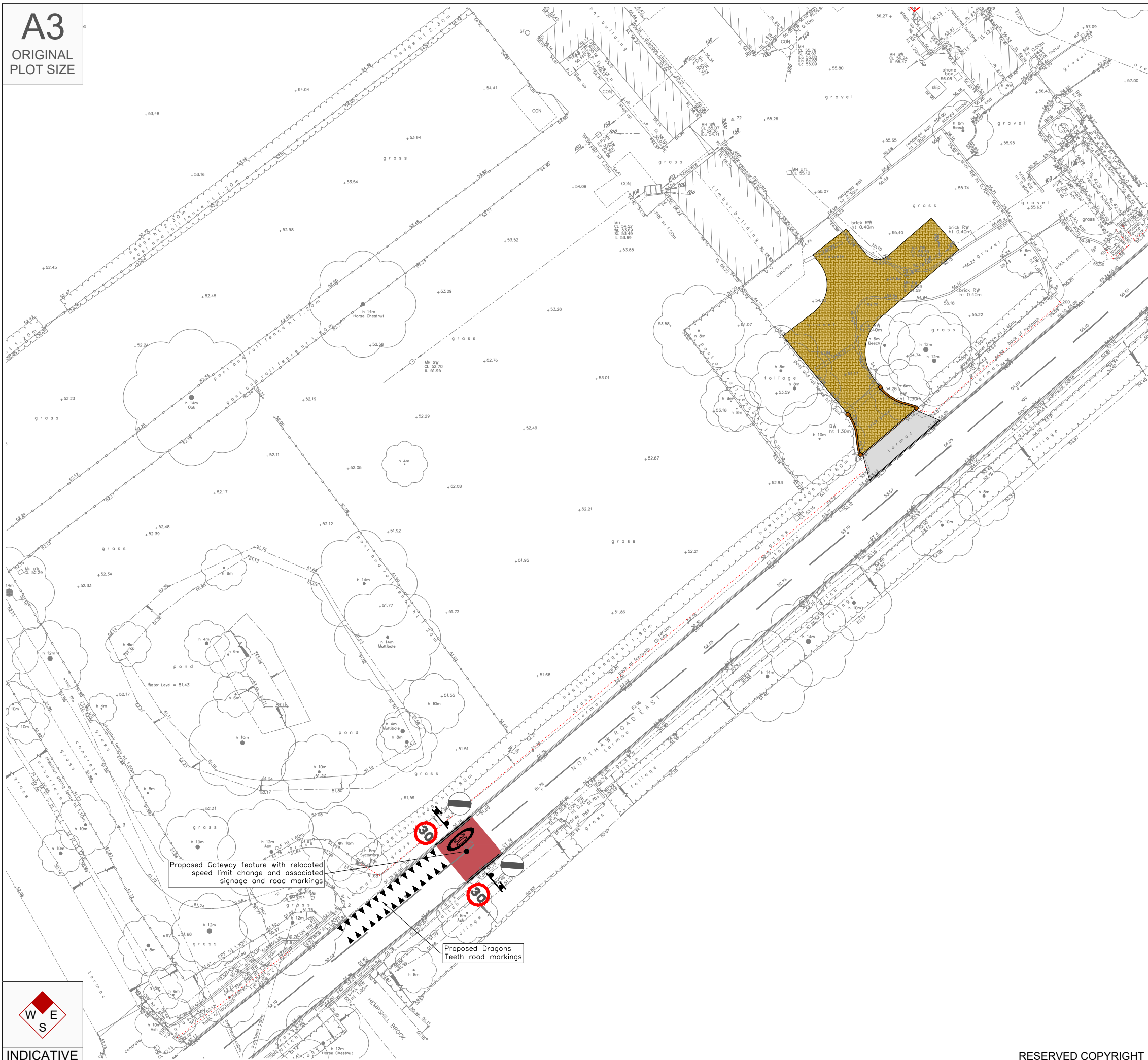


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APPENDIX E

A3

ORIGINAL PLOT SIZE



- NOTES:
- Based on Terrain Surveys Topographical Drawing No.s TS20-444-1 to TS20-444-4.
 - Subject to confirmation of Highway Boundary.

Rev	Date	Details	Drawn by	Checked by	Approved by
B	03.12.20	Updated site plan	JA	JH	JH
A	25.11.20	Updated site plan	JA	JH	JH

Bristol
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London
Manchester
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CLIENT: **King & Co**

PROJECT:
**Wells Farm,
Northaw Road,
Cuffley**

TITLE:
Proposed Gateway Feature

STATUS:
PLANNING

SCALE: 1:500	DATE: 18.11.20	DRAWN: JA	CHECKED: JH	APPROVED: JH
JOB NO: 1911-066	DRAWING NO: PL04	REVISION: B		



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APPENDIX F

A2
ORIGINAL
PLOT SIZE



NOTES:
1. Based on Terrain Surveys Topographical Drawing No.s TS20-444-1 to TS20-444-4.
2. Subject to confirmation of Highway Boundary.

Rev	Date	Details	Drawn by	Checked by	Approved by
B	03.12.20	Updated site plan	JA	JH	JH
A	25.11.20	Updated site plan	JA	JH	JH

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Manchester
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Welwyn Garden City



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CLIENT: **King & Co**

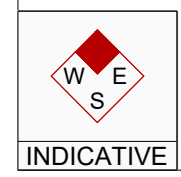
PROJECT:
**Wells Farm,
Northaw Road,
Cuffley**

TITLE:
**Proposed Site Access
and Visibility Splay
(2.4m x 160m)**

STATUS:
PLANNING

SCALE: 1:1,000	DATE: 18.11.20	DRAWN: JA	CHECKED: JH	APPROVED: JH
JOB NO: 1911-066	DRAWING NO: PL03	REVISION: B		

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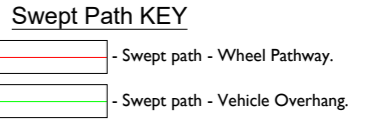
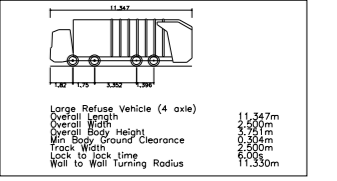


APPENDIX G

A2
ORIGINAL
PLOT SIZE



- NOTES:
1. Subject to confirmation of Highway Boundary.
2. Swept Path Analysis of a 4 Axle Refuse Vehicle (AutoTrack Vehicle Reference No. N/A).



Rev	Date	Details	Drawn by	Checked by	Approved by
B	03.12.20	Updated site plan	JA	JH	JH
A	25.11.20	Updated site plan	JA	JH	JH

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CLIENT: **King & Co**

PROJECT:
**Wells Farm,
Northaw Road,
Cuffley**

TITLE:
**Proposed Site
Refuse Tracking -
Site Access**

STATUS:
PLANNING

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:250	18.11.20	JA	JH	JH
JOB NO:	DRAWING NO:	REVISION:		
1911-066	SP101	B		

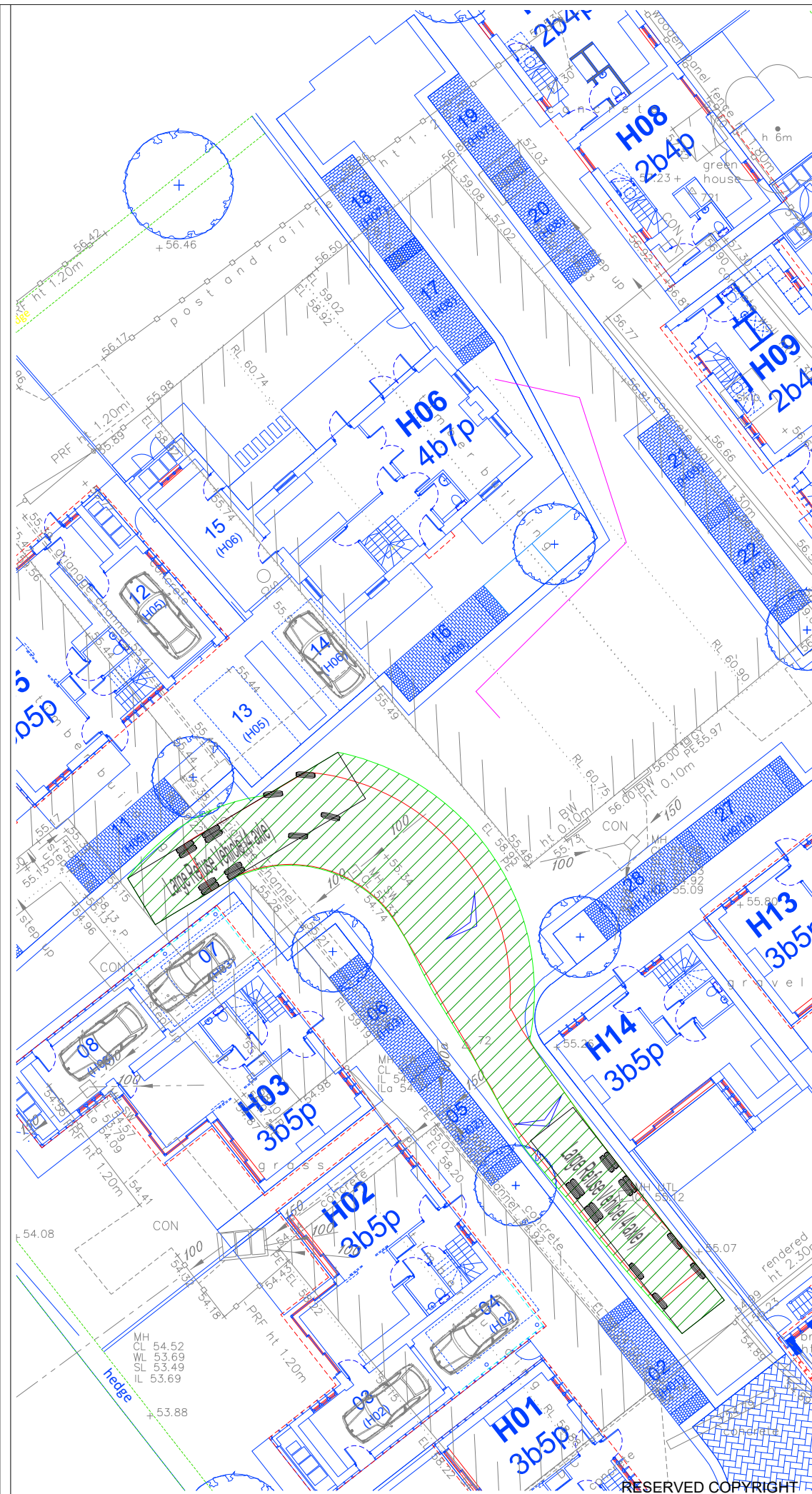
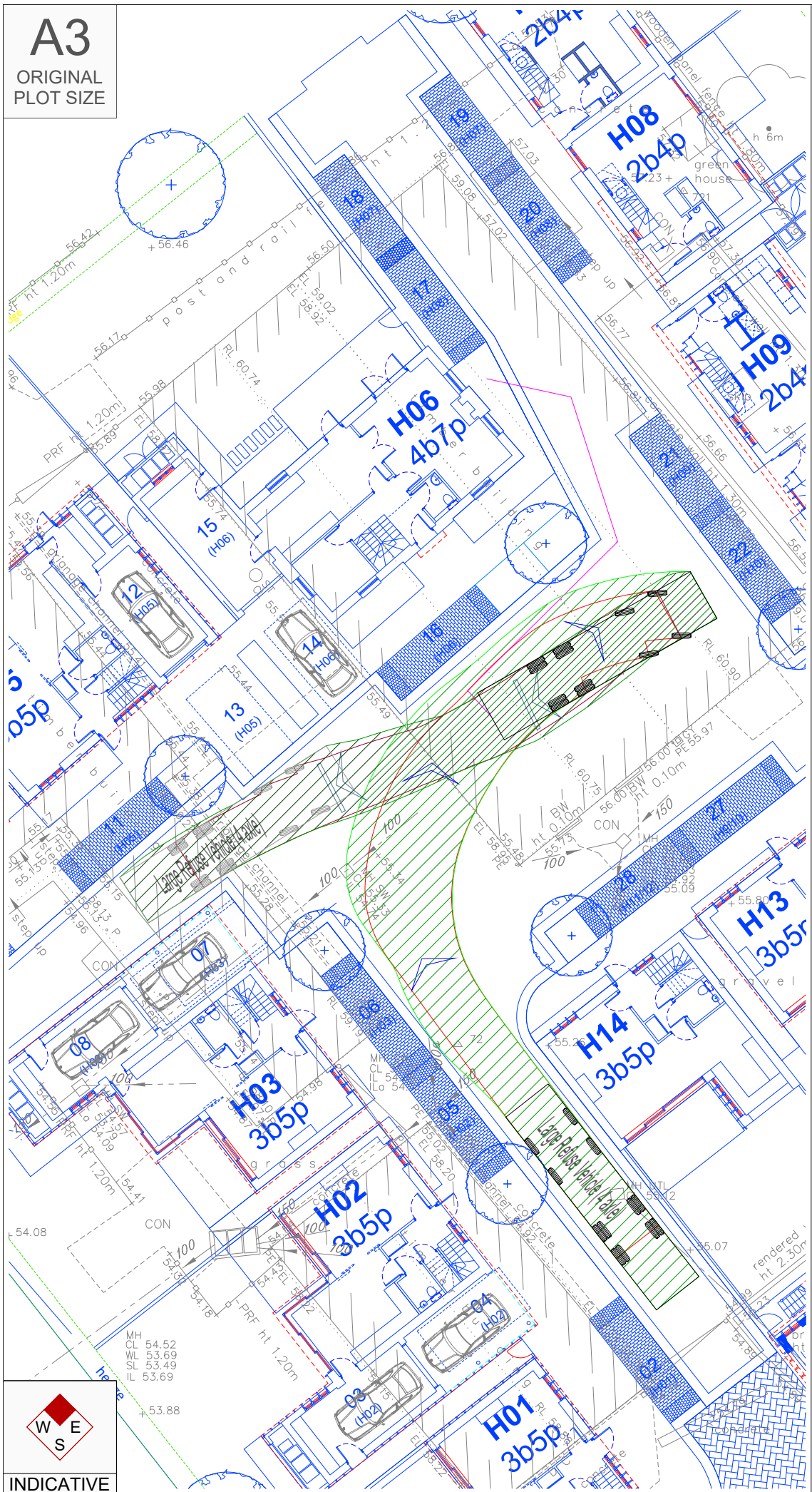


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APPENDIX H

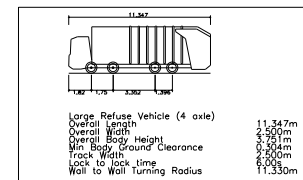
A3

ORIGINAL PLOT SIZE



NOTES:

1. Subject to confirmation of Highway Boundary.
2. Swept Path Analysis of a 4 Axle Refuse Vehicle (AutoTrack Vehicle Reference No. N/A).
3. Swept Path involves static turns.



Swept Path KEY

- Swept path - Wheel Pathway.
- Swept path - Vehicle Overhang.

Rev	Date	Details	Drawn by	Checked by	Approved by
B	03.12.20	Updated site plan	JA	JH	JH
A	25.11.20	Updated site plan	JA	JH	JH

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Manchester
Oxford
Welwyn Garden City



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CLIENT: **King & Co**

PROJECT:
**Wells Farm,
Northaw Road,
Cuffley**

TITLE:
**Proposed Site
Refuse Tracking -
Turning Head**

STATUS:
PLANNING

SCALE: 1:250	DATE: 18.11.20	DRAWN: JA	CHECKED: JH	APPROVED: JH
JOB NO: 1911-066	DRAWING NO: SP102	REVISION: B		

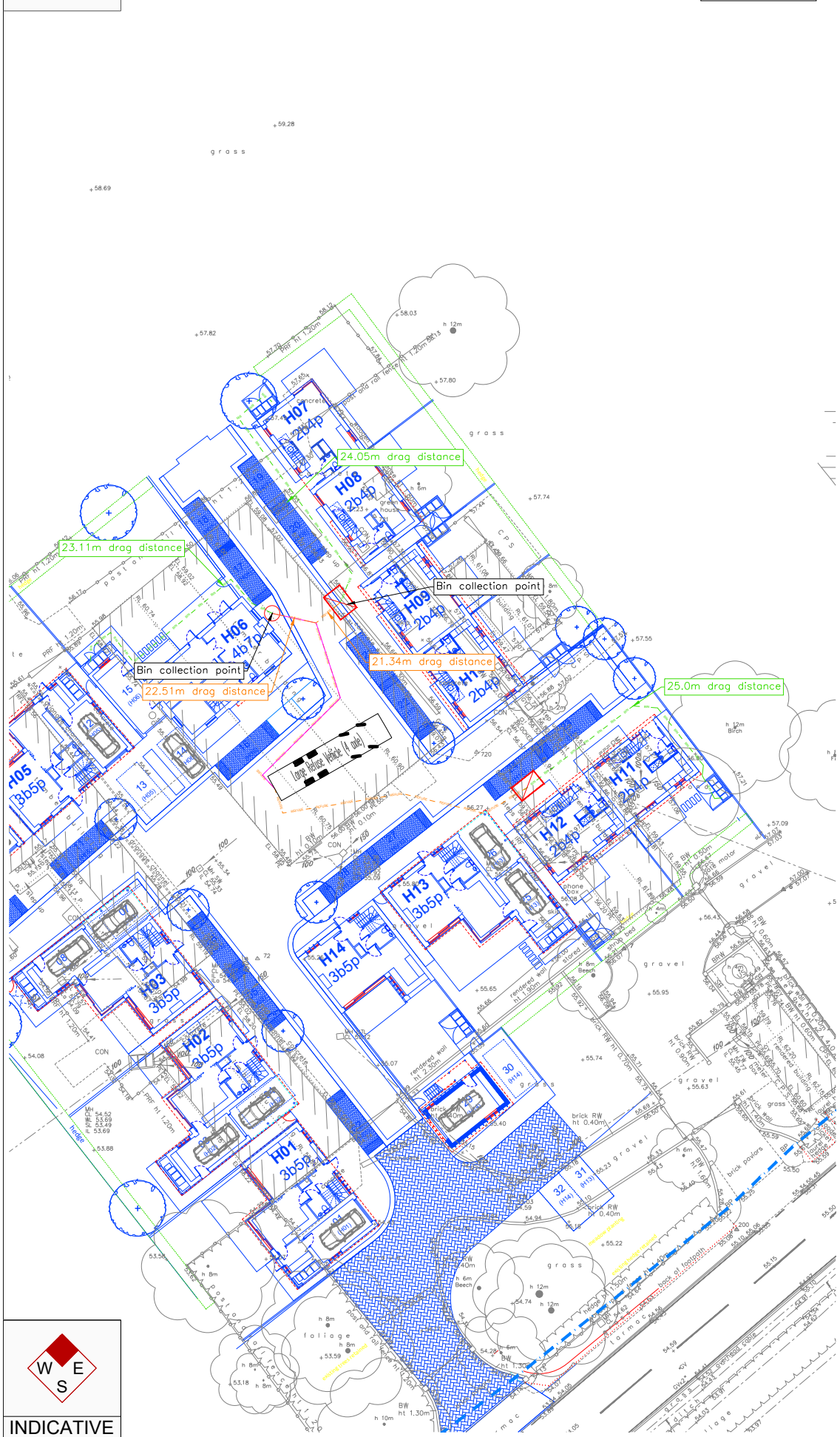


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A3

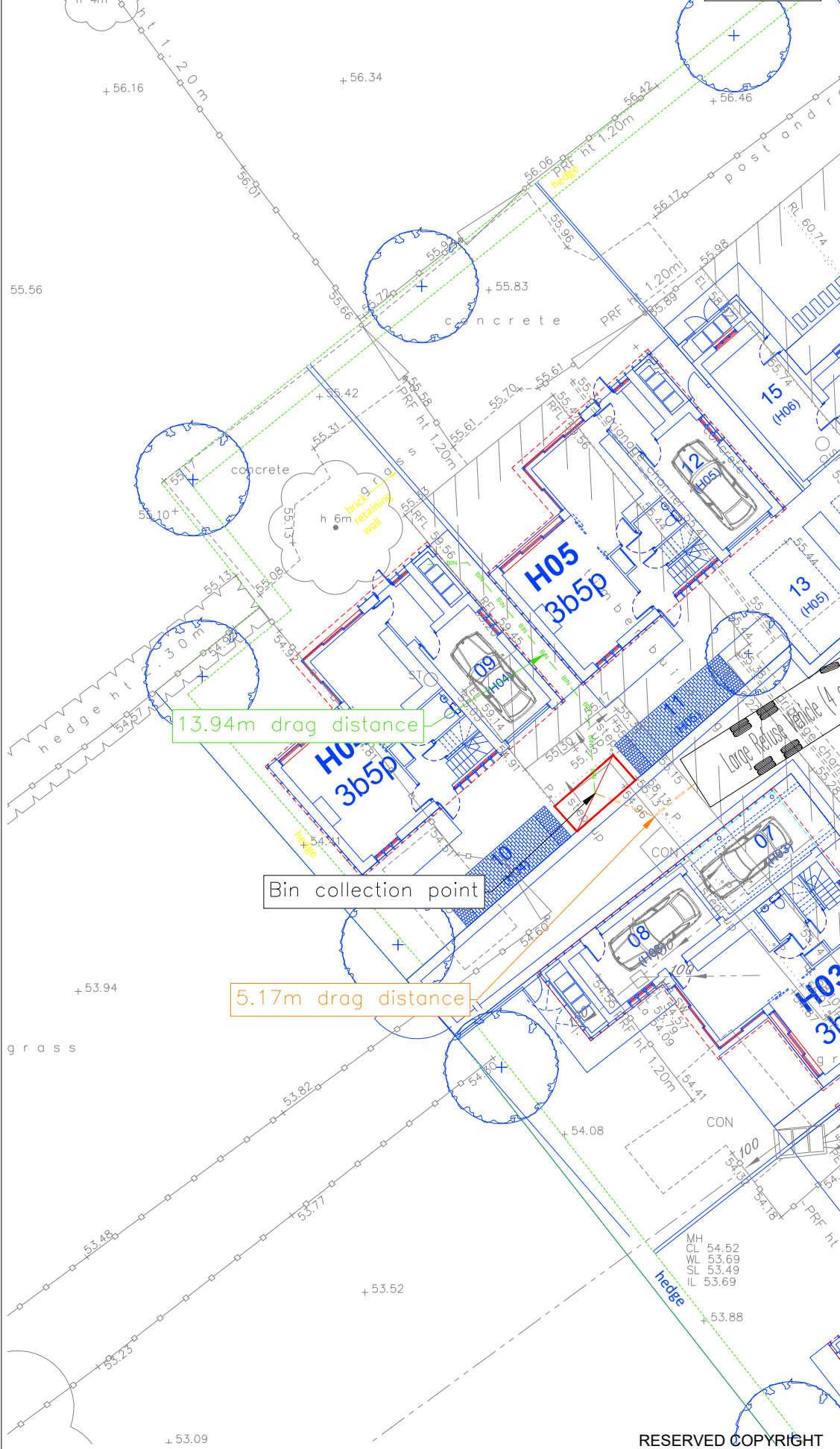
ORIGINAL
PLOT SIZE

Scale:-
1:500



INDICATIVE

Scale:-
1:250



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NOTES:

KEY

- BIN — Residents - Drag Distance.
- REFUSE — Refuse Collector - Drag Distance.

Rev	Date	Details	Drawn by	Checked by	Approved by
A	03.12.20	Updated site plan	JA	JH	JH

Bristol
 Cambridge
 London
 Manchester
 Oxford
 Welwyn Garden City



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CLIENT: **King & Co**

PROJECT:
**Wells Farm,
 Northaw Road,
 Cuffley**

TITLE:
**Proposed Site
 Refuse Collection Points**

STATUS:
PLANNING

SCALE: As Shown	DATE: 25.11.20	DRAWN: JA	CHECKED: JH	APPROVED: JH
JOB NO: 1911-066	DRAWING NO: PL05		REVISION: A	

APPENDIX I

Calculation Reference: AUDIT-219603-190910-0901

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : C - INDUSTRIAL UNIT
 VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	HC HAMPSHIRE	1 days
	RE READING	1 days
03	SOUTH WEST	
	BR BRISTOL CITY	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
06	WEST MIDLANDS	
	HE HEREFORDSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	WY WEST YORKSHIRE	1 days
11	SCOTLAND	
	SR STIRLING	1 days

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

Secondary 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: Gross floor area
 Actual Range: 645 to 3000 (units: sqm)
 Range Selected by User: 150 to 3000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 06/11/18

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	1 days
Tuesday	2 days
Wednesday	1 days
Thursday	2 days
Friday	1 days

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

Selected survey types:

Manual count	7 days
Directional ATC Count	0 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 undertaken using machines.

Selected Locations:

Edge of Town	6
Neighbourhood Centre (PPS6 Local Centre)	1

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:

Industrial Zone	5
Commercial Zone	1
Village	1

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.

Secondary Filtering selection:

Use Class:

Not Known	1 days
B1	5 days
B2	1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	2 days
10,001 to 15,000	2 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days

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

Population within 5 miles:

50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	1 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	2 days
1.1 to 1.5	5 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:

No	7 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	7 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	BR-02-C-02 SOUTH LIBERTY LANE BRISTOL	STAINLESS FITTINGS	BRISTOL CITY
	Edge of Town Industrial Zone Total Gross floor area: 1475 sqm <i>Survey date: TUESDAY 22/09/15</i>		<i>Survey Type: MANUAL</i>
2	HC-02-C-01 JAYS CLOSE BASINGSTOKE	ENGINEERING COMPANY	HAMPSHIRE
	Edge of Town Industrial Zone Total Gross floor area: 3000 sqm <i>Survey date: THURSDAY 16/06/16</i>		<i>Survey Type: MANUAL</i>
3	HE-02-C-02 COLLEGE ROAD HEREFORD BURCOTT	THERMAL PROCESSING	HEREFORDSHIRE
	Edge of Town Commercial Zone Total Gross floor area: 1880 sqm <i>Survey date: TUESDAY 22/10/13</i>		<i>Survey Type: MANUAL</i>
4	RE-02-C-01 COMMERCIAL ROAD READING	SHEET METAL FABRICATION	READING
	Edge of Town Industrial Zone Total Gross floor area: 645 sqm <i>Survey date: THURSDAY 22/11/12</i>		<i>Survey Type: MANUAL</i>
5	SF-02-C-01 ANSON ROAD IPSWICH MARTLESHAM HEATH	JOINERY	SUFFOLK
	Edge of Town Industrial Zone Total Gross floor area: 1100 sqm <i>Survey date: FRIDAY 12/07/13</i>		<i>Survey Type: MANUAL</i>
6	SR-02-C-01 BORROWMEADOW ROAD STIRLING	SPECIALIST MODEL MAKING	STIRLING
	Edge of Town Industrial Zone Total Gross floor area: 2350 sqm <i>Survey date: MONDAY 16/06/14</i>		<i>Survey Type: MANUAL</i>
7	WY-02-C-03 INMOOR ROAD NEAR BRADFORD BIRKENSHAW Neighbourhood Centre (PPS6 Local Centre) Village	COMPUTER MANUFACTURER	WEST YORKSHIRE
	Total Gross floor area: 1890 sqm <i>Survey date: WEDNESDAY 10/10/18</i>		<i>Survey Type: MANUAL</i>

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 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00	1	2350	0.298	1	2350	0.043	1	2350	0.341
07:00 - 07:30	6	1742	0.278	6	1742	0.057	6	1742	0.335
07:30 - 08:00	6	1742	0.316	6	1742	0.019	6	1742	0.335
08:00 - 08:30	7	1763	0.300	7	1763	0.049	7	1763	0.349
08:30 - 09:00	7	1763	0.438	7	1763	0.089	7	1763	0.527
09:00 - 09:30	7	1763	0.292	7	1763	0.089	7	1763	0.381
09:30 - 10:00	7	1763	0.203	7	1763	0.113	7	1763	0.316
10:00 - 10:30	7	1763	0.235	7	1763	0.130	7	1763	0.365
10:30 - 11:00	7	1763	0.146	7	1763	0.194	7	1763	0.340
11:00 - 11:30	7	1763	0.138	7	1763	0.130	7	1763	0.268
11:30 - 12:00	7	1763	0.138	7	1763	0.154	7	1763	0.292
12:00 - 12:30	7	1763	0.186	7	1763	0.170	7	1763	0.356
12:30 - 13:00	7	1763	0.146	7	1763	0.146	7	1763	0.292
13:00 - 13:30	7	1763	0.219	7	1763	0.243	7	1763	0.462
13:30 - 14:00	7	1763	0.170	7	1763	0.243	7	1763	0.413
14:00 - 14:30	7	1763	0.178	7	1763	0.138	7	1763	0.316
14:30 - 15:00	7	1763	0.211	7	1763	0.267	7	1763	0.478
15:00 - 15:30	7	1763	0.113	7	1763	0.154	7	1763	0.267
15:30 - 16:00	7	1763	0.113	7	1763	0.284	7	1763	0.397
16:00 - 16:30	7	1763	0.154	7	1763	0.170	7	1763	0.324
16:30 - 17:00	7	1763	0.113	7	1763	0.340	7	1763	0.453
17:00 - 17:30	7	1763	0.113	7	1763	0.373	7	1763	0.486
17:30 - 18:00	7	1763	0.089	7	1763	0.357	7	1763	0.446
18:00 - 18:30	7	1763	0.032	7	1763	0.276	7	1763	0.308
18:30 - 19:00	6	1665	0.060	6	1665	0.090	6	1665	0.150
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			4.679			4.318			8.997

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.

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Parameter summary

Trip rate parameter range selected:	645 - 3000 (units: sqm)
Survey date date range:	01/01/11 - 06/11/18
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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 J

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	KC KENT	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LE LEICESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	2 days
09	NORTH	
	TW TYNE & WEAR	1 days

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

Secondary 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: Number of dwellings
 Actual Range: 8 to 85 (units:)
 Range Selected by User: 5 to 100 (units:)

Parking Spaces Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/11 to 20/11/18

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:

Tuesday	2 days
Thursday	2 days
Friday	3 days

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

Selected survey types:

Manual count	7 days
Directional ATC Count	0 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 undertaken using machines.

Selected Locations:

Edge of Town	2
Neighbourhood Centre (PPS6 Local Centre)	5

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:

Village	5
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.

Secondary Filtering selection:

Use Class:

C3 7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	3 days
5,001 to 10,000	2 days
10,001 to 15,000	1 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	1 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	1 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	1 days
1.1 to 1.5	4 days
1.6 to 2.0	2 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:

No 7 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 7 days

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

LIST OF SITES relevant to selection parameters

1	KC-03-A-05 ROCHESTER ROAD NEAR CHATHAM BURHAM Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 8 <i>Survey date: FRIDAY 22/09/17</i>	DETACHED & SEMI -DETACHED	KENT	<i>Survey Type: MANUAL</i>
2	LE-03-A-02 MELBOURNE ROAD IBSTOCK Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 85 <i>Survey date: THURSDAY 28/06/18</i>	DETACHED & OTHERS	LEICESTERSHIRE	<i>Survey Type: MANUAL</i>
3	NY-03-A-07 CRAVEN WAY BOROUGHBRIDGE Edge of Town No Sub Category Total Number of dwellings: 23 <i>Survey date: TUESDAY 18/10/11</i>	DETACHED & SEMI DET.	NORTH YORKSHIRE	<i>Survey Type: MANUAL</i>
4	NY-03-A-10 BOROUGHBRIDGE ROAD RIPON Edge of Town No Sub Category Total Number of dwellings: 71 <i>Survey date: TUESDAY 17/09/13</i>	HOUSES AND FLATS	NORTH YORKSHIRE	<i>Survey Type: MANUAL</i>
5	SF-03-A-06 BURY ROAD KENTFORD Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 38 <i>Survey date: FRIDAY 22/09/17</i>	DETACHED & SEMI -DETACHED	SUFFOLK	<i>Survey Type: MANUAL</i>
6	TW-03-A-03 STATION ROAD NEAR NEWCASTLE BACKWORTH Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 33 <i>Survey date: FRIDAY 13/11/15</i>	MIXED HOUSES	TYNE & WEAR	<i>Survey Type: MANUAL</i>
7	WS-03-A-07 EMMS LANE NEAR HORSHAM BROOKS GREEN Neighbourhood Centre (PPS6 Local Centre) Village Total Number of dwellings: 57 <i>Survey date: THURSDAY 19/10/17</i>	BUNGALOWS	WEST SUSSEX	<i>Survey Type: MANUAL</i>

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
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	7	45	0.054	7	45	0.257	7	45	0.311
08:00 - 09:00	7	45	0.159	7	45	0.352	7	45	0.511
09:00 - 10:00	7	45	0.130	7	45	0.149	7	45	0.279
10:00 - 11:00	7	45	0.140	7	45	0.181	7	45	0.321
11:00 - 12:00	7	45	0.127	7	45	0.156	7	45	0.283
12:00 - 13:00	7	45	0.162	7	45	0.171	7	45	0.333
13:00 - 14:00	7	45	0.162	7	45	0.171	7	45	0.333
14:00 - 15:00	7	45	0.181	7	45	0.162	7	45	0.343
15:00 - 16:00	7	45	0.229	7	45	0.168	7	45	0.397
16:00 - 17:00	7	45	0.314	7	45	0.175	7	45	0.489
17:00 - 18:00	7	45	0.317	7	45	0.149	7	45	0.466
18:00 - 19:00	7	45	0.238	7	45	0.140	7	45	0.378
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.213			2.231			4.444

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.

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Parameter summary

Trip rate parameter range selected:	8 - 85 (units:)
Survey date date range:	01/01/11 - 20/11/18
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
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.