

EFSAC Trip Generation
Assessment
October 2021



Bentons Farm

Middle St, Nazeing EN9 2LN

Document History

JOB NUMBER: 3546/2021
DOCUMENT REF: EFSAC Trip Generation Assessment (01)
REVISION: B – For Submission

Revision	Comments	By	Checked	Authorised	Date
A	Client Draft	AJP	BM	SA	09/09/2021
B	For Submission	AJP	BM	SA	25/10/2021

Contents

1	Introduction	4			
2	Development	5			
	Site Location and Context	5			
	Existing and Proposed Use	5			
3	Analysis	6	5	Summary	9
	Existing Use Trip Generation	6	6	Appendices	10
	Proposed Use AADT – TRICS	6		Appendix: A – Location Plan	
	Trip Distribution – Census Journey to Work Data	7		Appendix: B – Epping Forest District Council Guidance Note	
	Distribution of AADT Trips	7		Appendix: C – EFSAC Map	
4	Summary of Trip Figures	8		Appendix: D – Proposed Site Plan	
	Introduction	8		Appendix: E – TRICS Output	
	Existing Land Use (a)	8		Appendix: F – Trip Distribution Spreadsheet	

1 Introduction

- 1.1 Epping Forest District Council ('EFDC' or 'the Council') has a duty under the Habitats Regulations to ensure that plans and projects, either alone or in combinations with other plans and projects, do not adversely affect the integrity of the Epping Forest Special Area of Conservation (EFSAC).
- 1.2 This includes an Air Pollution Mitigation Strategy (APMS), which involves assessing development proposals to determine whether expected net trip generation in terms of Annual Average Daily Trips (AADT) is greater than that modelled and thus may engender adverse effects.
- 1.3 The application site comprises vacant land comprising paddocks at Bentons Farm, located on Middle Lane, Nazeing EN9 2LN. **Appendix A** includes a location plan.
- 1.4 This report comprises an 'EFSAC Trip Generation Assessment' regarding a proposal to construct two new residential dwellings on unused land at Benton's Farm.
- 1.5 This Trip Generation Assessment has been prepared with regard to the Council's *Guidance note on site specific assessment process: effects of development on atmospheric pollution (December 2020)*. The guidance note is included at **Appendix B**.
- 1.6 This Assessment provides the figures regarding trip generation as set out in Section 3 Part 1 of the guidance note in order to facilitate EFDC's assessment of the proposals in terms of associated trip generation and if necessary calculate suitable mitigation measures.

2 Development

Site Location and Context

- 2.1 The application site is a paddocks at Bentons Farm, Middle Street, Nazeing, Essex EN9 2LN. **Appendix A** includes a location plan.
- 2.2 The site is located circa 5.8km northwest of the northern extremity of the EFSAC.
- 2.3 The site comprises undeveloped land used as a paddock at Bentons Farm, adjacent to recently constructed residential dwellings, located off Middle Street, to the north of Bumbles Green and to the southeast of Lower Nazeing.
- 2.4 A map of the EFSAC with a 200m buffer, as used in the route distribution analysis, is included at **Appendix C**.

Existing and Proposed Use

- 2.5 The site is undeveloped land comprising a paddock within the ownership of Bentons Farm and is located adjacent to a number of recently constructed residential dwellings. It is proposed to construct two new detached dwellings, resulting in a net increase of two dwellings.
- 2.6 **Appendix D** includes a plan of the proposed site.

3 Analysis

Existing Use Trip Generation

- 3.1 The existing site is vacant unused land and therefore for the purpose of this report has been assumed to have zero existing trips.

Proposed Use AADT – TRICS

- 3.2 There are no existing traffic surveys at Bentons Farm or the adjacent residential dwellings and therefore the TRICS database was interrogated to find surveys of sites that met the following criteria:
- Multimodal survey;
 - Privately owned houses (03/A);
 - Located in the England outside of London;
 - Situated in 'Edge of town' or 'Suburban area' locations;
 - Population within 1 mile of up to 10,000;
 - Carried out on a weekday in the last seven years (discounting surveys carried out since the onset of Covid-19).
- 3.3 Five surveys were found that met these criteria, from which estimates of trip generation for the proposed site are drawn, as summarised in Table 3.1 below. The TRICS datasheet is included at **Appendix E**.

Table 3.3 – TRICS trip rates (privately owned houses)

	Daily (07:00-19:00)		
	In	Out	Total
Vehicle trip rate (per unit)	2.553	2.436	4.989
Vehicle trip numbers (2 units)	5	5	10
OGV trip rate (per unit)	0.053	0.043	0.096
OGV trip numbers (2 units)	0	0	0

- 3.4 It can be seen above that the proposed site is expected to generate 10 (9.978) two-way vehicle trips over the 12-hour weekday period, with 0 (0.192) HGV trips (1.9%) over the same period.
- 3.5 The 12-hour weekday trip generation can then be converted into AADT using the COBA 2018 User Manual Part 4 Chapter 9. The 12-hour trip rate is first multiplied by 1.15 (E factor) to give 16-hour (06:00-22:00) trip rates, and then by an M factor to give the total annual trip rate. There are different M factors for each month in the year and given that the TRICS data comprise surveys from different months the M factors were averaged as 369.16. Finally, the figure is divided by 362.25 (days) to give an AADT.

$$9.978 \times 1.15 = 11.475 \times 369.16 = 4236.0 / 365.25 = 12 \text{ (11.6) AADT for the proposed use.}$$

$0.096 \times 1.15 = 0.11 \times 369.16 = 40.76 / 365.25 = 0$ (0.1) HGV AADT for the proposed use.

HGV trips comprise 1.9% of the existing use AADT.

Trip Distribution – Census Journey to Work Data

- 3.6 Trips were distributed on the road network based on journey to work data from Nomis table WU03EW '*Location of usual residence and place of work by method of travel to work (MSOA level)*'.
- 3.7 While not all trips will be commuting purposes, no other datasets give as comprehensive and robust an insight in trip origins and destinations as the census journey to work data, and it is expected that the distribution of workplaces broadly replicates the distribution of other land uses.
- 3.8 The site's MSOA, E02004528 (Epping Forest 002), was selected as the location of the place of work, with all other Epping Forest MSOAs plus all other districts/unitary authorities selected as the locations of residences.
- 3.9 Only the 'car or van driver' mode of travel was used to calculate the distribution from each origin/destination.
- 3.10 Next, the route by car between the site and the approximate centre of each of the areas of residences (i.e. MSOAs or district/unitary authorities) were plotted using Google Maps, with the fastest route by car selected as the route that would be driven between the site and the given origin/destination. Where there were two routes of similar journey duration both were noted.
- 3.11 These routes were then compared to the outline of the EFSAC with a 200m buffer, as per the EFDC guidance note.
- 3.12 A total of 2,058 people were found to have reported working in the site's MSOA, travelling from 98 MSOAs or districts/unitary authorities.
- 3.13 Of these, 1,521 (73.9%) would not be expected to route on roads in the EFSAC or within 200m of it; these are referred to as 'No' on the associated spreadsheet which is contained at **Appendix F**.
- 3.14 287 (14.0%) would be expected to route on roads within the EFSAC or within 200m of it; these are referred to as 'Yes' on the associated spreadsheet contained at **Appendix F**.
- 3.15 250 (12.1%) would be expected to have two routes of roughly similar duration, one of which routes on roads in the EFSAC or within 200m of it, and the other not doing so; these are referred to as '50/50' on the associated spreadsheet contained at **Appendix F**.
- 3.16 Taking half of the '50/50' trips in addition to the 'Yes' trips it is reasoned that 20% of trips associated with the site would route within 200m of the EFSAC.

Distribution of AADT Trips

- 3.17 Of the AADT of 12 associated with the proposed use there would be 2 (2.4) trips routing through or within 200m of the EFSAC, including 0 HGV trips.

4 Summary of Trip Figures

Introduction

- 4.1 The Section summarises from the broader calculations in Section 3 the specific required figures as set out in Section 3 Step 1 of the EFDC guidance note.

Existing Land Use (a)

- 4.2 The existing land use is undeveloped land used as a paddock at an existing farm complex.

Existing Use Trips (b)

- 4.3 AADT generated by the site = 0
 4.4 Proportion of AADT as HGVs = 0%
 4.5 Proportion of site generated AADT on roads within 200m of the EFSAC = 20.0%
 4.6 Proportion of site generated AADT as HGVs on roads within 200m of the EFSAC = 0%

Proposed Land Use (c)

- 4.7 The proposed use of the site is for a two residential dwellings.

Proposed Use Trips (d)

- 4.8 Total AADT forecast to be generated by the site = 12
 4.9 Proportion of AADT as HGVs = 1.9%
 4.10 Proportion of site generated AADT on roads within 200m of the EFSAC = 20.0%
 4.11 Proportion of site generated AADT as HGVs on roads within 200m of the EFSAC = 0.4%

Net AADT (e)

- 4.12 Net AADT (total) = 12
 4.13 Net AADT (roads within the EFSAC or within 200m) = 2

Results of Analysis

- 4.14 It is expected that there would be a net increase of vehicles routing through or within 200m of the EFSAC of 2. It is therefore expected that sufficient mitigation to offset this would be sought by EFDC.

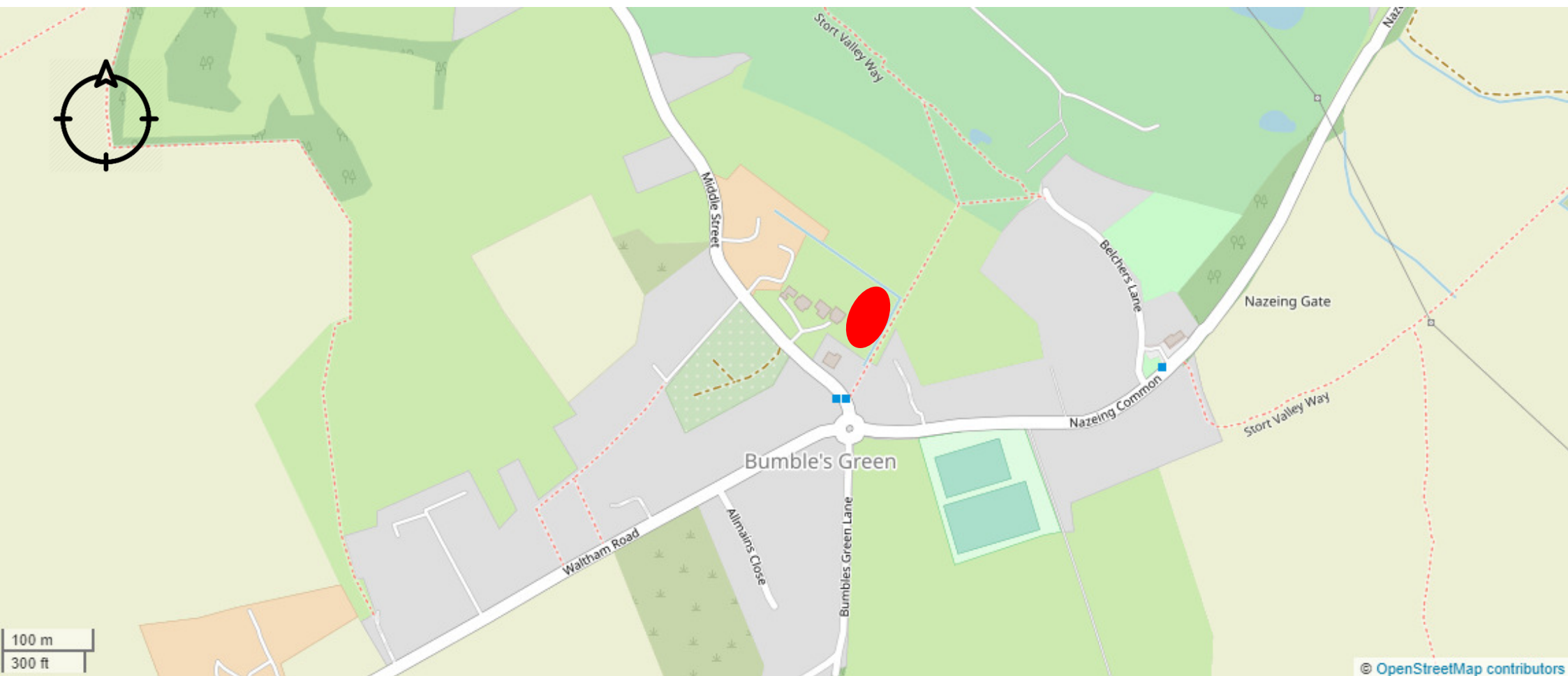
5 Summary

- 5.1 The existing site comprises vacant land at Bentons Farm, on which it is proposed to construct two new residential dwellings, giving a net increase of two residential dwellings.
- 5.2 To estimate trip generation associated with the existing use of one residential dwelling and the proposed use of an additional residential unit TRICS data and COBA Manual conversion factors were used.
- 5.3 Census journey to work data was used to distribute AADT on the road network, in order to calculate the number of total vehicle and HGV trips routing through or within 200m of the EFSAC.
- 5.4 Longer calculations and explanations are provided in Section 3, with the key figures, as set out in Section 3 Step 1 of EFDC's guidance note, summarised in Section 4.
- 5.5 Net AADT was calculated as being 12 trips, of which 2 would be expected to route through or within 200m of the EFSAC. It is therefore expected suitable mitigation would be sought by EFDC on the basis of a net increase of AADT of 2 trips routing through or within 200m of the EFSAC.
- 5.6 Supporting data are included in the Appendices.

6 Appendices

Appendix: A – Location Plan
Appendix: B – Epping Forest District Council Guidance Note
Appendix: C – EFSAC Map
Appendix: D – Proposed Site Plan
Appendix: E – TRICS Outputs
Appendix: F – Trip Distribution Spreadsheet TRICS Outputs

Appendix: A – Location Plan



Location Plan



Site Location



Appendix: B – Epping Forest District Council Guidance Note

Epping Forest District Council Habitats Regulations: Site-specific assessment processes in relation to the effects of development on atmospheric pollution

December 2020

1. Introduction

- 1.1 Under UK legislation, Epping Forest District Council (the Council) is a competent authority with a duty to ensure that plans and projects (including the emerging Local Plan) will not adversely affect the integrity of the Epping Forest Special Area of Conservation (EFSAC). As part of that responsibility, the Council has undertaken a Habitats Regulations Assessment (HRA) of its emerging Local Plan. The Habitats Regulations places a legal duty on the Council that it must carry out an Appropriate Assessment on any plan or project likely to have a significant effect on internationally important ecological assets, either alone, or in combination with other plans and projects. The Council's Local Plan evidence base has identified that development proposed for allocation within the emerging Local Plan would have an adverse impact on the Epping Forest Special Area of Conservation (EFSAC) as a result of, amongst other things, atmospheric pollution arising primarily from vehicle emissions.
- 1.2 In order to be able to draw a conclusion of no adverse effect on the integrity of the EFSAC in relation to atmospheric pollution, the Council has adopted an Air Pollution Mitigation Strategy (APMS). The APMS and the evidence published alongside it is based on the quantum, distribution and nature of development proposed for allocation in the emerging Local Plan and a small proportion of 'windfall' developments based on an annual average.
- 1.3 The Council recognises that planning applications may be submitted on Local Plan sites with proposals that differ in land use or quantum from that originally assessed as part of the Council's air pollution evidence base. In such cases, there is a need to undertake an assessment of the proposals against the evidence base to confirm if there are additional adverse effects over and above that which the APMS seeks to address, i.e. adverse effects which may arise if the Annual Average Daily Trips from the site is greater than that modelled. Of specific importance in this regard is the number of vehicle trips associated with each site expected to use roads within the EFSAC or within 200 metres of the EFSAC.
- 1.4 This guidance note has been prepared to set out the Council's process for reviewing and assessing potential impacts arising from proposals where additional vehicle trips through the EFSAC may occur in order to help applicants. This includes, for example, where the quantum or nature of development on a site differs from that modelled as

part of the emerging Local Plan's evidence base. It identifies the triggers for when such an assessment will be necessary, and the information required to be provided by applicants to enable the Council to undertake an appropriate analysis in accordance with the requirements of the Habitats Regulations.

- 1.5 Applicants are strongly encouraged to complete these assessments early in the process, and ideally through the Council's pre-application service. This will help the Council to assess applications, in consultation with Natural England, and determine them efficiently and effectively.

2. Scoping and triggers for HRA assessment

- 2.1 The method of assessing transport and highway impacts associated with each development will need to proceed through a scoping exercise with the Council, Essex County Council (ECC) and in some cases Highways England (HE), ideally at the pre-application stage. During this exercise, the requirement for and scope of a Transport Statement (TS) or Transport Assessment (TA) to support an application will be determined, as well as the need to undertake a specific assessment of potential impacts on the EFSAC.
- 2.2 The triggers for determining if the transport impact of a development proposal being brought forward need to be assessed in relation to its effects on the EFSAC are:
 - a) If the development proposal is not specifically proposed for allocation within the emerging Local Plan (in relation to residential developments this will apply to proposals for six or more dwellings or those greater than 0.2 Ha recognising that a small sites windfall allowance has been included in the evidence work); or
 - b) if the development proposal represents a variation (which results to an increase in the quantum of development or changes the proposed use) from the site's land use allocation as set out in the emerging Local Plan.
- 2.3 In these instances, applicants will be required to provide evidence to support an assessment against the traffic and air quality modelling used to support the development of the adopted APMS. This assessment will be undertaken by the Council and, if necessary, its consultant team. The process for such an assessment is set out in the following section.
- 2.4 If a proposed development does not involve any of the above triggers, no additional assessment by EFDC's consultant team will be required. In either case a project-level HRA will still be required, and a TS or TA may be necessary for highway/transport assessment purposes to support a development proposal, the need for which should be determined and agreed at the pre-application phase.

3. HRA assessment process

- 3.1 For development sites that meet either of the triggers set out above, there will be a need to review the traffic generating characteristics of the site in further detail, and assess any potential adverse effects on the EFSAC over and above that accounted for in the Council's adopted APMS. This will enable the Council and Natural England to be satisfied that any adverse effects in connection with each site application will either not arise, or if they do, will be either appropriately mitigated through the APMS or identify where further mitigation measures are required.
- 3.2 It is expected that for development proposals requiring a TS/TA, the trip generation methodology feeding into the HRA assessment will be scoped by the applicant and reviewed by the Council/ECC/HE at an early stage as appropriate.
- 3.3 The assessment process follows four steps, set out as follows:

Step 1:

As part of pre-application and transport scoping discussions with the Council, applicants will be required to provide the following information relating to each development site:

- (a) The land use and quantum of the authorised existing use of the subject land as was correct at February 2017¹, or confirmation that the site was vacant or not generating traffic at that time (in which case proceed to [c]);
- (b) Calculation of the number of vehicle trips in Annual Average Daily Traffic (AADT) generated by the site under its existing use, including:
 - i. Total AADT generated by the site, including heavy duty vehicles as a proportion of total AADT (HDV%).
 - ii. Proportion of site generated AADT on roads within 200 metres of the EFSAC, including HDV%.

These calculations must be supported by evidence such as traffic surveys or other appropriate data source, e.g. TRICS, journey to work data, etc². If it can be clearly demonstrated that a site which was vacant prior to February 2017 could be brought back into use for the purposes for which it was authorised (without the need for any planning permission) the Council may be in a position to consider taking this into account in calculating (b) above.

¹ This date is significant as it represents the period during which traffic survey data was collected to inform the "Baseline" scenario for the Local Plan transport modelling.

² The source of the evidence, calculation methods and all relevant details must be provided. When using empirical data such as TRICS, applicants should ensure they rely on data points which best represent the nature and location of land uses on each site.

- (c) A schedule of the land use and quantum proposed at the site (as is best known at the time).
- (d) Calculation of the forecast number of vehicle trips (AADT) generated by the site under its proposed use to the end of the plan period in 2033:
 - i. Total AADT forecast to be generated by the site, including HDV%.
 - ii. Proportion of site generated AADT on roads within 200 metres of the EFSAC, including HDV%.

These calculations must be supported by evidence such as traffic surveys or other appropriate data source, e.g. TRICS, journey to work data³, etc

- (e) A calculation of the net AADT figure (proposed (d) minus existing (b)) both in total and for roads within the EFSAC or within 200 metres of the EFSAC.
- (f) Details of any mitigation measures proposed to be secured through recognised planning mechanisms in support of the application, and if the proposed mitigation is expected to impact on trip generation and/or distribution. Forecasts under (d) and (e) should be provided for both 'with' and 'without' the proposed mitigation.

Step 2:

Council officers will undertake an initial appraisal of the existing (if applicable) and proposed AADT forecasts and liaise with the applicant to ensure the required information has been supplied and is fit for purpose. Where applicable, the proposed methodology will also be reviewed against any pre-application scoping discussions and advice from ECC/HE.

Step 3:

The relevant site information and AADT will be provided to the Council's appointed transport consultant to check against the site-specific land use and trip data previously forecast in the Council's evidence base.

A short technical note will be prepared setting out any difference in AADT between the site allocation assumptions used in the Council's evidence base and the applicant's forecasts, including any reasoning for this (e.g. difference in land use assumptions, application of a different trip rate and/or trip distribution, mitigation impacts, etc).

The assessment will indicate either:

- (a) There is no forecast increase in AADT at any location that would alter the outputs of the evidence base; or

- (b) There is likely to be an increase in AADT of any number at any location that may alter the outputs of the evidence base.
- (b1) Whether there is an overall increase in the distance travelled by vehicles or HDVs associated with the development on roads within the EFSAC or within 200 metres of the EFSAC as this would result in an increase in pollution within the EFSAC.

Where outcome (a) is reached, no further site-specific assessment of HRA impacts will be required. Where outcome (b) is reached and/or (b1) is also true, the assessment will move to Step 4.

Step 4:

The relevant transport data will be provided to the Council's appointed air pollution modelling consultant, who will undertake a revised assessment to determine the effects against those presented within the Council's evidence base and subsequently addressed through the adopted APMS.

Specifically, the revised assessment outcomes will be reviewed to determine if the mitigation measures identified within the APMS will be capable of satisfactorily addressing any further impact, or if additional measures need to be secured. Such measures will need to be considered on a site-by-site basis and may require additional assessment(s).

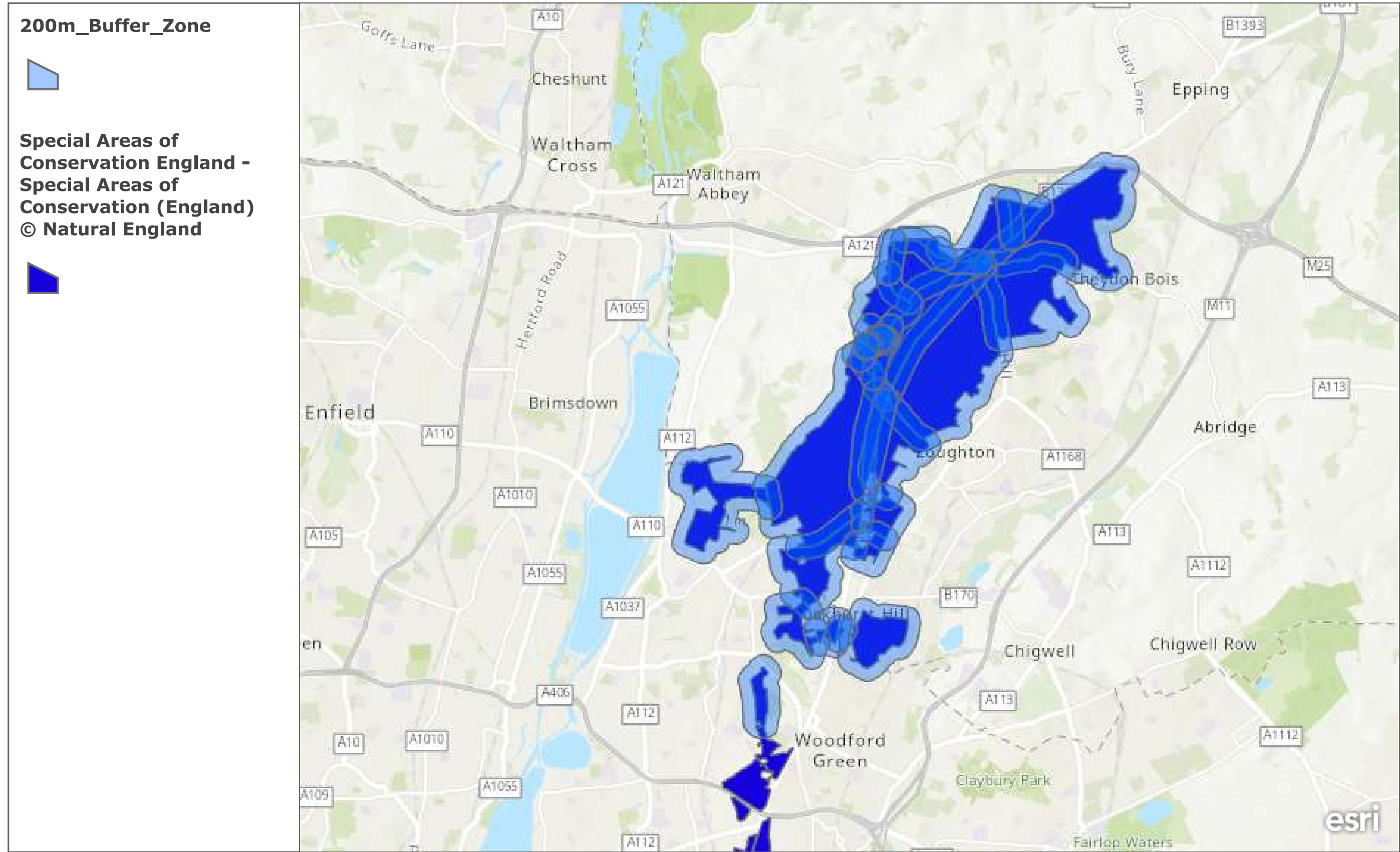
4. Costs

- 4.1 Site promoters will be responsible for covering the Council's costs associated with undertaking the above assessments. The level of cost associated with each site will depend on how many assessment steps the application proceeds through.
- 4.2 These costs are separate from any contribution applicants will be required to make towards the implementation of the APMS.
- 4.3 The costs for undertaking each step assuming one enquiry and the corresponding technical note per site is as follows:

<u>Step 1:</u>	Nil (To be completed by the applicant)
<u>Step 2:</u>	£215-800 per site (internal EFDC review)
<u>Step 3:</u>	Initial assessment (EFDC appointed consultant) £900 plus VAT per site
<u>Step 4:</u>	initial assessment (EFDC appointed consultant) £3,180 plus VAT per site

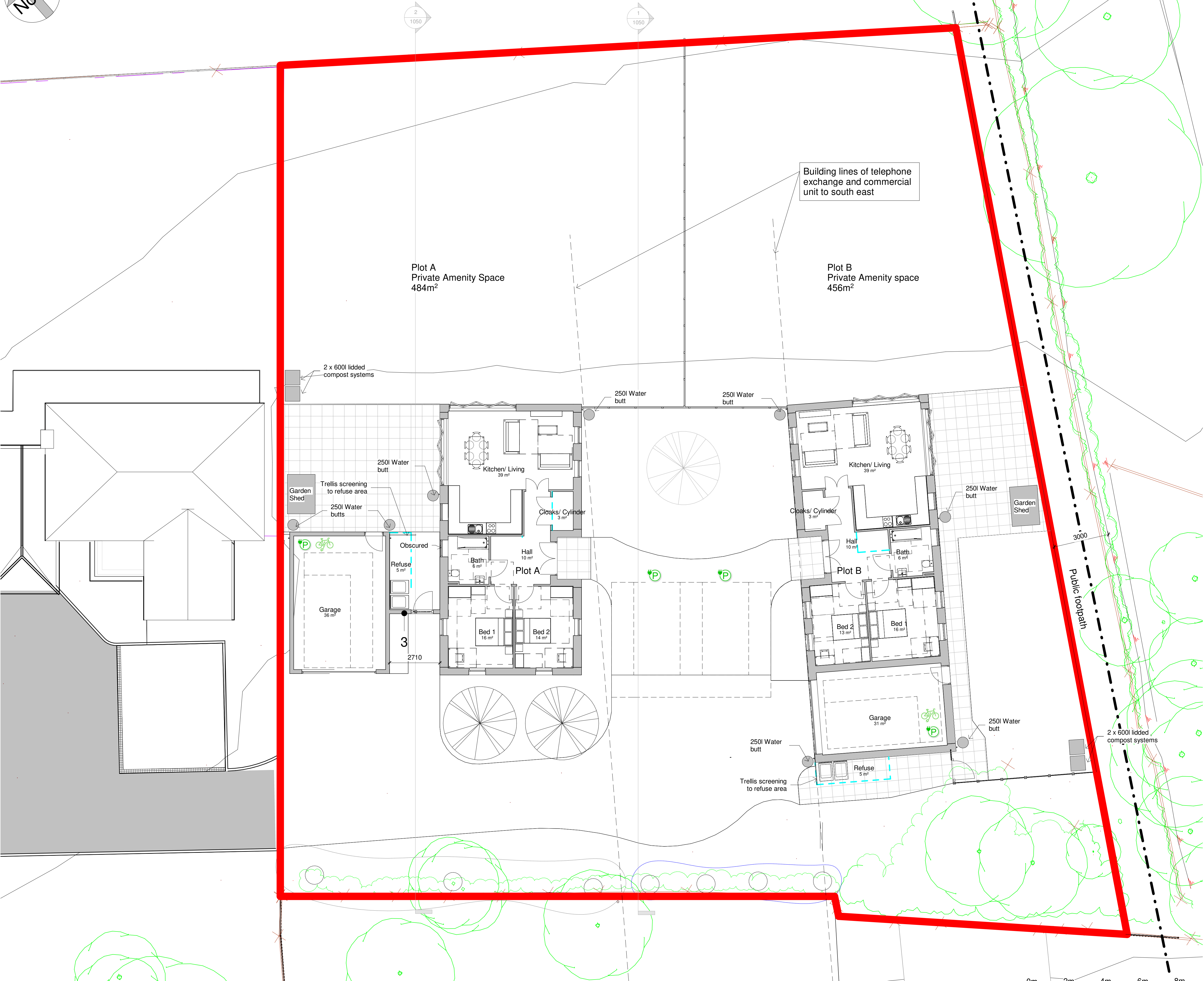
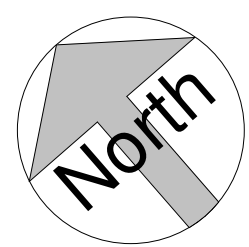
Appendix: C – EFSAC Map

SAC Map



Esri, Intermap, NASA, NGA, USGS | Esri UK, Esri, HERE, Garmin, METI/NASA, USGS

Appendix: D – Proposed Site Plan



Rev	Date	Issued by	Checked by	Description
A	23/06/21	KC	MC	First issue to client
B	08/07/21	KC	MC	Update for client meeting
C	29/07/21	KC	MC	Update following clients comments
D	22/09/21	KC	MC	General update
E	22/10/21	JH	MC	Planning Issue

- 1) This drawing and design are copyright and may not be reproduced without the written consent of Derrick Wade Waters limited. Derrick Wade Waters and DWW Design are trading names of Derrick Wade Waters limited.
- 2) Please do not scale for construction measurements - use only dimensions stated on the drawing. Drawings can be scaled for planning purposes.
- 3) The contractor is to check and verify all dimensions and levels stated on the drawing, and cross reference same with site checks. Derrick Wade Waters are to be informed of any contradictions and discrepancies.
- 4) The contractor is to check the drawing against all other relevant drawings, specifications and bills of quantities as issued and appropriate. Derrick Wade Waters are to be informed of any contradictions and discrepancies.
- 5) If in doubt ask!

Key



Electric cycle charging point



Electric vehicle charging point

NOTE: For landscaping and boundary treatments refer to drawing no. 1069.21.1B



DWW DESIGN | FIELD HOUSE | STATION APPROACH | HARLOW CM20 2FB

CLIENT
Bray Family Homes
JOB TITLE
Bentons Farm, Middle Street, Nazeing, EN9 2LN
DRAWING TITLE
Proposed Site Plan

Job/ Dwg No/ Rev: **HD21016 1001 E**

Drawn:	Checked:	Appr:	Date:
KC	MC	GCW	06/15/21
Drawing status:			PLANNING

Scale: 1 : 100 @ A1



Appendix: E – TRICS Output

Calculation Reference: AUDIT-743101-210831-0832

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	HF HERTFORDSHIRE	1 days
	KC KENT	1 days
04	EAST ANGLIA	
	NF NORFOLK	2 days
08	NORTH WEST	
	CH CHESHIRE	1 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
 Actual Range: 40 to 288 (units:)
 Range Selected by User: 6 to 1817 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 31/08/16 to 01/03/20

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	1 days
Wednesday	2 days
Thursday	1 days

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

Selected survey types:

Manual count	5 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	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:

Residential Zone	5
------------------	---

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 5 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 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000 1 days
5,001 to 10,000 4 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 2 days
25,001 to 50,000 1 days
50,001 to 75,000 2 days

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

Car ownership within 5 miles:

1.1 to 1.5 4 days
1.6 to 2.0 1 days

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

Travel Plan:

Yes 4 days
No 1 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 5 days

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

LIST OF SITES relevant to selection parameters

1	CH-03-A-10 MEADOW DRIVE NORTHWICH BARNTON Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: TUESDAY</i>	SEMI -DETACHED & TERRACED 40 04/06/19	CHESHIRE	<i>Survey Type: MANUAL</i>
2	HF-03-A-03 HARE STREET ROAD BUNTINGFORD Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: MONDAY</i>	MIXED HOUSES 160 08/07/19	HERTFORDSHIRE	<i>Survey Type: MANUAL</i>
3	KC-03-A-07 RECULVER ROAD HERNE BAY Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: WEDNESDAY</i>	MIXED HOUSES 288 27/09/17	KENT	<i>Survey Type: MANUAL</i>
4	NF-03-A-04 NORTH WALSHAM ROAD NORTH WALSHAM Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: WEDNESDAY</i>	MIXED HOUSES 70 18/09/19	NORFOLK	<i>Survey Type: MANUAL</i>
5	NF-03-A-05 HEATH DRIVE HOLT Edge of Town Residential Zone Total No of Dwellings: <i>Survey date: THURSDAY</i>	MIXED HOUSES 40 19/09/19	NORFOLK	<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

MULTI-MODAL TOTAL 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	5	120	0.072	5	120	0.319	5	120	0.391
08:00 - 09:00	5	120	0.187	5	120	0.338	5	120	0.525
09:00 - 10:00	5	120	0.157	5	120	0.184	5	120	0.341
10:00 - 11:00	5	120	0.142	5	120	0.197	5	120	0.339
11:00 - 12:00	5	120	0.130	5	120	0.189	5	120	0.319
12:00 - 13:00	5	120	0.162	5	120	0.154	5	120	0.316
13:00 - 14:00	5	120	0.166	5	120	0.142	5	120	0.308
14:00 - 15:00	5	120	0.234	5	120	0.196	5	120	0.430
15:00 - 16:00	5	120	0.326	5	120	0.187	5	120	0.513
16:00 - 17:00	5	120	0.293	5	120	0.162	5	120	0.455
17:00 - 18:00	5	120	0.360	5	120	0.151	5	120	0.511
18:00 - 19:00	5	120	0.324	5	120	0.217	5	120	0.541
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.553			2.436			4.989

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.

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

Parameter summary

Trip rate parameter range selected:	40 - 288 (units:)
Survey date range:	31/08/16 - 01/03/20
Number of weekdays (Monday-Friday):	5
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 shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL OGVS

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	5	120	0.003	5	120	0.002	5	120	0.005
08:00 - 09:00	5	120	0.002	5	120	0.000	5	120	0.002
09:00 - 10:00	5	120	0.010	5	120	0.007	5	120	0.017
10:00 - 11:00	5	120	0.005	5	120	0.005	5	120	0.010
11:00 - 12:00	5	120	0.002	5	120	0.008	5	120	0.010
12:00 - 13:00	5	120	0.002	5	120	0.002	5	120	0.004
13:00 - 14:00	5	120	0.002	5	120	0.002	5	120	0.004
14:00 - 15:00	5	120	0.005	5	120	0.003	5	120	0.008
15:00 - 16:00	5	120	0.007	5	120	0.005	5	120	0.012
16:00 - 17:00	5	120	0.002	5	120	0.003	5	120	0.005
17:00 - 18:00	5	120	0.010	5	120	0.003	5	120	0.013
18:00 - 19:00	5	120	0.003	5	120	0.003	5	120	0.006
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.053			0.043			0.096

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.

Appendix: F – Trip Distribution Spreadsheet

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

ONS Crown Copyright Reserved [from Nomis on 7 September 2021]

population All usual residents aged 16 and over in employment the week before the census
units Persons
date 2011
usual residence E02004528 : Epping Forest 002 (2011 super output area - middle layer)

place of work	All categories:		Driving a car or van	EFSAC			
	Method of travel to work (2001 specification)						
Waltham Forest	67	60	Yes		Results Passes through EFSAC 287 13.9% 50/50 250 12.1% Doesn't pass through EFSAC 1,521 73.9% Total 2,058		
Redbridge	52	45	Yes				
E02004535 : Epping Forest 009	38	34	Yes				
Tower Hamlets	84	25	Yes				
Westminster, City of London	298	25	Yes				
E02004537 : Epping Forest 011	23	18	Yes				
Islington	45	15	Yes				
Barking and Dagenham	14	13	Yes				
Newham	22	13	Yes				
E02004538 : Epping Forest 012	15	11	Yes				
E02004541 : Epping Forest 015	13	9	Yes				
E02004542 : Epping Forest 016	8	6	Yes				
E02004539 : Epping Forest 013	7	4	Yes				
Greenwich	7	4	Yes				
E02004536 : Epping Forest 010	5	3	Yes				
E02004540 : Epping Forest 014	3	2	Yes				
E02004531 : Epping Forest 005	58	45	50/50				
Haringey	50	44	50/50				
Havering	30	28	50/50				
Brentwood	36	23	50/50				
Chelmsford	24	18	50/50				
Camden	57	14	50/50				
Hackney	38	13	50/50				
Thurrock	11	10	50/50				
Basildon	14	10	50/50				
E02004529 : Epping Forest 003	12	8	50/50				
Southwark	29	6	50/50				
Southend-on-Sea	3	3	50/50				
Tendring	3	3	50/50				
Bexley	3	3	50/50				
Lambeth	6	3	50/50				
Sevenoaks	3	3	50/50				
Castle Point	2	2	50/50				
Colchester	2	2	50/50				
Dartford	2	2	50/50				
Tandridge	2	2	50/50				
Maldon	1	1	50/50				
Rochford	1	1	50/50				
Lewisham	3	1	50/50				
Wandsworth	1	1	50/50				
Medway	1	1	50/50				
Hastings	1	1	50/50				
Gravesham	1	1	50/50				
Chichester	1	1	50/50				
Broxbourne	456	399	No				
Harlow	295	234	No				
East Hertfordshire	217	199	No				
Enfield	197	174	No				
E02004528 : Epping Forest 002	256	160	No				
Welwyn Hatfield	51	47	No				
Uttlesford	40	37	No				
Barnet	33	30	No				
Stevenage	33	29	No				
Hertsmere	28	25	No				
E02004527 : Epping Forest 001	25	21	No				
E02004534 : Epping Forest 008	24	21	No				
Braintree	14	13	No				
St Albans	17	12	No				
E02004532 : Epping Forest 006	15	10	No				
Luton	11	10	No				
E02004533 : Epping Forest 007	10	9	No				
North Hertfordshire	8	8	No				
E02004530 : Epping Forest 004	9	7	No				
Brent	7	6	No				
Hillingdon	5	5	No				
Milton Keynes	5	5	No				
Watford	4	4	No				
Ealing	9	4	No				
Harrow	6	4	No				
Cambridge	4	3	No				
Dacorum	3	3	No				
Hounslow	4	3	No				
Slough	3	3	No				
Aylesbury Vale	3	3	No				
Runnymede	3	3	No				
Warwick	2	2	No				
Central Bedfordshire	2	2	No				
Fenland	2	2	No				
Hammersmith and Fulham	7	2	No				
Kensington and Chelsea	6	2	No				
Surrey Heath	2	2	No				
West Dorset	2	2	No				
Middlesbrough	1	1	No				
Amber Valley	1	1	No				
Shropshire	1	1	No				
Huntingdonshire	1	1	No				
Three Rivers	1	1	No				
South Norfolk	1	1	No				
Forest Heath	1	1	No				
Mid Suffolk	1	1	No				
St Edmundsbury	1	1	No				
West Berkshire	1	1	No				
Wycombe	1	1	No				
Guildford	1	1	No				
Waverley	1	1	No				
Woking	1	1	No				
Cornwall, Isles of Scilly	1	1	No				
Swansea	1	1	No				
		2,058					

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.