

Client:
Richborough Estates

Project:
**Brascote Lane
Newbold Verdon**

Project No:
T20517
Report Title:
Transport Assessment

Prepared by:
Authorised by:
Rev:
Date:

ML
GM
A
09/05/2023

Hub Transport Planning Ltd
Radclyffe House
66/68 Hagley Road
Edgbaston
Birmingham
West Midlands B16 8PF
T. 0121 454 5530

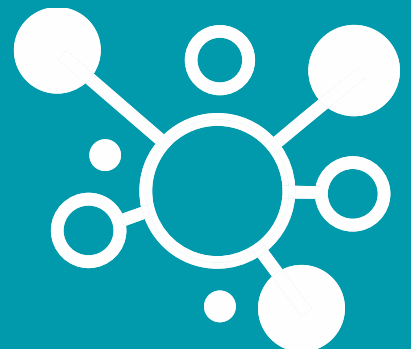


TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	POLICY REVIEW	3
3.0	BACKGROUND INFORMATION AND SUSTAINABILITY	7
4.0	DEVELOPMENT PROPOSALS	14
5.0	PAN REGIONAL TRAFFIC MODEL	15
6.0	TRIP GENERATION, DISTRIBUTION AND ASSIGNMENT	17
7.0	TRAFFIC IMPACT AND ANALYSIS	18
8.0	SUMMARY AND CONCLUSION	37

FIGURES

Figure 1.1	Site Location Plan
Figure 3.1	Local Facilities
Figure 3.2	Walk Distances
Figure 3.3	Cycle Distances
Figure 7.1	Area of Influence Junction Locations

DRAWINGS

T20517.001 rev B	Site Access Proposal
T20517.003 rev A	Site Access Proposal with Swept Paths

APPENDICES

Appendix A	AECOM Forecasting Report
Appendix B	Turning Flow Matrices
Appendix C	Accident Data
Appendix D	Speed Measurement and Visibility Calculations
Appendix E	Illustrative Masterplan
Appendix F	Site Access/Brascote Lane – PICADY Assessment
Appendix G	Main Street/Brascote Lane – PICADY Assessment
Appendix H	B582/Main Street – PICADY Assessment
Appendix I	B582/Dragon Lane – PICADY Assessment
Appendix J	B582/B585 – LinSig Assessment
Appendix K	B585/Bagworth Road – PICADY Assessment
Appendix L	A447/B585/Bosworth Road – PICADY Assessment
Appendix M	B582/Mill Lane – PICADY Assessment
Appendix N	B582/Kirkby Lane – PICADY Assessment
Appendix O	B585 Garland Lane/B585 Bagworth Road/Barlestone Road – PICADY Assessment
Appendix P	B585/Heath Road – PICADY Assessment
Appendix Q	B585/Merrylees Road – PICADY Assessment
Appendix R	Main Street/Dragon Lane – PICADY Assessment
Appendix S	Brascote Lane/Kirkby Lane/Newbold Road – PICADY Assessment
Appendix T	Bosworth Road/Newbold Road/Main Street/Stapleton Lane – PICADY Assessment
Appendix U	Main Street/Peckleton Road/Shilton Road/Church Road – PICADY Assessment
Appendix V	Church Road/Barwell Lane – PICADY Assessment
Appendix W	Kirkby Road/Elwell Avenue – PICADY Assessment
Appendix X	Kirkby Road/Charnwood Road – PICADY Assessment

T20517

Brascote Lane, Newbold Verdon

Appendix Y	Kirkby Road/Oxford Street – PICADY Assessment
Appendix Z	Stapleton Lane/Kirkby Road – PICADY Assessment
Appendix AA	Stapleton Lane/Shilton Road/Chapel Street/High Street – ARCADY Assessment
Appendix AB	A447/Bosworth Road – PICADY Assessment

1.0 Introduction

Background

- 1.1 Hub Transport Planning Ltd has been commissioned by Richborough Estates Ltd to provide transport advice for a proposed residential development off Brascote Lane, Newbold Verdon.
- 1.2 A Transport Assessment (TA) was previously submitted to support a planning application for up to 260 dwellings on the land east of Brascote Lane, Newbold Verdon following a scoping exercise with Leicestershire County Council (LCC).
- 1.3 Since submission of that TA LCC has provided further clarity on their requirements for the TA submission which includes determination of the area of influence through their Leicestershire PRTM model and using that model to assist in the forecasting of future year traffic flows.
- 1.4 In addition, LCC requested that the traffic model and TA forecasts are based on the illustrative site layout which indicates 239 dwellings; the site location is shown on **Figure 1.1**.

Structure of the Report

- 1.5 This report considers the relevant highway issues and indicate potential solutions, with reference to the impact of the proposed development site off Brascote Lane, Newbold Verdon.
- 1.6 A Scoping Report has previously been submitted to Leicestershire County Council (LCC) as the Local Highway Authority (LHA) for comment. In addition, a number of discussions have followed the submission of the initial TA in respect of use of the PRTM. This TA reflects the technical and geographical scope agreed during discussions with the LHA.
- 1.7 Following this introduction, the report is set out as follows:
 - Section 2.0 – Policy Review;
 - Section 3.0 – Background Information and Sustainability;
 - Section 4.0 – Development Proposals;
 - Section 5.0 – Pan Regional Traffic Model
 - Section 6.0 – Trip Generation, Distribution and Assignment;
 - Section 7.0 – Traffic Impact and Analysis;
 - Section 8.0 – Summary and Conclusion.

Limitations of the Report

- 1.8 This report has been undertaken at the request of Richborough Estates Ltd, thus should not be entrusted to any third party without written permission from Hub Transport Planning Ltd. However, should any information contained within this report be used by any unauthorised third party, it is done so entirely at their own risk and shall not be the responsibility of Hub Transport Planning Ltd.

T20517

Brascote Lane, Newbold Verdon

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- 1.9 This report has been compiled using data from several external sources (such as TRICS, traffic count data, PRTM model data, and public transport website information); these sources are considered trustworthy and therefore the data provided is considered accurate and relevant at the time of preparing this report.

2.0 Policy Review

Introduction

2.1 This section summarises the relevant transport policy documents against which the development proposals are considered at a national, regional, and local level. The most relevant policy documents relating to this study are detailed below:

- National Planning Policy Framework (July 2021)
- Leicestershire County Council Local Transport Plan 3 (2011-2026)
- Hinckley & Bosworth Local Plan 2006 to 2026: Core Strategy (December 2009)

National Policy

2.2 The latest National Planning Policy Framework (NPPF) was published in July 2021 and sets out the Government's planning policies and how these are expected to be applied.

2.3 In relation to transport, the NPPF states at paragraph 105 that:

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

2.4 When considering the effects the development may have on the local transport network, the NPPF states that:

'In assessing sites that may be allocated for development plans, or specific applications for development, it should be ensured that:

a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users;

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) any significant impacts from the development on the transport network (in terms of capacity and congestion) or on highway safety, can be cost effectively mitigated to an acceptable degree.

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.'

2.5 The NPPF further advises that:

'Within this context, applications for development should:

- a) 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;*
- b) address the needs of people with disabilities and reduces mobility in relation to all modes of transport;*
- c) 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;*
- d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.'*

2.6 In relation to parking policy the NPPF states that:

'If setting local parking standards for residential and non-residential development, policies should take into account:

- a) the accessibility of the development;*
- b) the type, mix and use of development;*
- c) the availability of and opportunities for public transport;*
- d) local car ownership levels; and*
- e) the need to ensure an adequate provision of spaces for charging plug-in and other ultra-low emission vehicles.'*

Leicestershire Local Transport Plan

2.7 Leicestershire County Council (LCC) have produced their Local Transport Plan (LTP) outlining the strategic transport goals for the county:

- *'A transport system that supports a prosperous economy and provides successfully for population growth.*
- *An efficient, resilient, and sustainable transport system that is well managed and maintained.*
- *A transport system that helps to reduce the carbon footprint of Leicestershire.*
- *An accessible and integrated transport system that helps promote equality of opportunity for all our residents.*

- *A transport system that improves the safety, health, and security of our residents.*
- *A transport system that helps to improve the quality of life for our residents and makes Leicestershire a more attractive place to live, work, and visit.'*

2.8 In terms of new developments, the LTP3 sets out a range of objectives that aim to ensure that new developments are sustainable and help to facilitate the above goals:

- *'Encourage more people to walk, cycle and use public transport will help to reduce congestion and achieve a transport system that provides for the effective and efficient movement of people, materials, and goods.*
- *Continuing to support bus services/alternative forms of public transport and seeking to ensure that new developments can access a range of facilities by means other than the private car, should help to promote equality of opportunity.*
- *Efforts to improve information about existing sustainable transport services and facilities should help to improve satisfaction with our transport system.'*

Hinckley & Bosworth Borough Council's Policy

2.9 Hinckley & Bosworth Borough Council's Core Strategy for the Local Plan sets out the overarching strategy and policies to guide the future development of the borough up to 2026. It builds on policy at a national and regional level.

2.10 The Core Strategy identifies Newbold Verdon as a Key Rural Centre. Policy 7 focuses on Rural Centres and their services:

"To support Key Rural Centres and ensure they can provide key services to their rural hinterland, the council will:

- *Support housing development within settlement boundaries that provide a mix of housing types and tenures as detailed in Policy 15 and Policy 16.'*
- *Support development under Policy 17: Local Needs.*
- *Require transport improvements in line with Policy 14."*

2.11 Policy 14 addresses the transport infrastructure and specifically that of rural areas:

"To support accessibility within the rural areas, the council will:

- *Support the delivery of a viable, high quality public transport network between the Key Rural Centres and their nearest urban centre and between the Rural Villages and their nearest Key Rural Centre of urban centre.*
- *Support the provision of accessible transport services for mobility impaired and rurally isolated residents.*

- *Deliver safe cycle paths as detailed in the Hinckley & Bosworth Council's Rural Parishes Cycle Network Plan. This will deliver safe routes to school, to residential and employment areas, Key Rural Centres/urban areas, community and leisure facilities and into the countryside.*

Developers will be required to contribute towards these initiatives through developer contributions and/or land where they meet the tests set out in national guidance. New development that would prejudice their implementation will not be permitted."

- 2.12 With regards to new development proposals, Local Plan Policy DM17 within the Site Allocations and Development Management Policies DPD states:

"Development proposals will be supported where they:

- a) Seek to make the best use of existing public transport services and, where appropriate, provide opportunities for improving and sustaining the viability of those services;*
- b) Seek to ensure that there is a convenient and safe access for walking and cycling to services and facilities;*
- c) Demonstrate that there is not a significant adverse impact upon highway safety; and in the case of development that generates significant movement;*
- d) That the development is located where the need to travel will be minimised and the use of sustainable transport modes can be maximised;*
- e) Where it can be demonstrated that the residual cumulative impacts of development on the transport network are not severe.*

Where appropriate, improvements will be required to be undertaken to the highways and transportation network to limit any significant impacts arising from the development (taking into account cost effectiveness).

All proposals for new development and changes of use should reflect the highway design standards that are set out in the most up to date guidance adopted by the relevant highways authority."

- 2.13 With regards to developments that generate significant movement, Policy DM17, paragraph 14.69 states:

"In the case of proposals for development that generate significant movement, applications should be supported by a Transport Statement or Transport Assessment. In addition, such schemes should provide a Travel Plan to exploit opportunities for the use of sustainable transport modes. Applicants will be required to demonstrate that the Transport Statement or Assessment has informed the design of the proposed development and the accompanying Travel Plan. Leicestershire County Council (as Local Highway Authority) provides advice [sic] through the 6Cs Design Guide on the development thresholds for the submission of Transport Assessments, Transport Statements, Travel Plans and their scope."

3.0 Background Information and Sustainability

Site Location and Highway Network

- 3.1 The proposed development is located to the south of Newbold Verdon, beyond the existing allotments off Brascote Lane. The site is currently in agricultural use.
- 3.2 The carriageway of Brascote Lane is some 6.0m-6.2m wide along the site frontage and is subject to the national speed limit (60mph for cars) with a 30mph limit just to the north of the allotments. Although Brascote Lane is subject to the national speed limit along the site frontage, streetlights are present.
- 3.3 A footway is present running along the eastern side of the Brascote Lane carriageway. This footway measures c.2.0m in width and provides continuous access along the site frontage from The Windmill Inn north into Newbold Verdon.
- 3.4 The highway network throughout the village is two-lane single carriageway, is lit and has footways on either side of the carriageway apart from short sections of Dragon Lane and Main Street where a footway is present on only one side of the carriageway.
- 3.5 The village accesses the B582 and wider highway network via priority junctions at; Dragon Lane, Mill Lane, and Main Street. The B582 is subject to a 40mph speed limit through Newbold Verdon.

Traffic Conditions

- 3.6 Some minor queues were noted at the B582/B585 junction on the arm giving way, the B585 Bosworth Lane arm, during the AM peak hour of the site visit. The access junctions to the village were observed to operate with minimal queues and delays during the morning peak hour of the site visit.
- 3.7 Traffic flows around the village were observed to be modest and no capacity issues were noted. Brascote Lane, from which access would be taken, is lightly trafficked.

Traffic Data Collection

- 3.8 As part of the work to prepare the original TA for this site the following peak hour traffic counts were undertaken to provide a comprehensive assessment of the potential traffic impact of the proposed development;
 - B582/B585,
 - B585/Bagworth Road,
 - B582/Dragon Lane,
 - B582/Mill Lane,
 - B582/Main Street, and
 - Main Street/Brascote Lane.
- 3.9 Following submission, the LHA requested three further turning counts at the following junctions:
 - B582/Kirkby Lane,

- Kirkby Lane/Newbold Road/Brascote Lane, and
- Newbold Road/Bosworth Road

3.10 Subsequently, following a request from the LHA, the Area of Influence (AoI) of the development was to be evaluated using the PRTM model. Following receipt of the forecast AoI we conducted additional turning counts at numerous additional junctions.

3.11 The additional junctions at which traffic counts were undertaken is listed below:

- A447/B585/Bosworth Road,
- B582/Mill Lane,
- A447/Bosworth Road,
- B585 Garland Lane/B585 Bagworth Road/Barlestone Road,
- B585 Bagworth Road/Heath Road
- B585 Bagworth Road/Merrylees Road
- Main Street/Dragon Lane,
- Brascote Lane/Kirkby Lane/Newbold Road,
- Main Street/Peckleton Road/Shilton Road/Church Road,
- Church Road/Barwell Lane,
- Kirkby Road/Elwell Avenue,
- Kirkby Road/Charnwood Road,
- Kirkby Road/Oxford Street,
- Stapleton Lane/Kirkby Road, and
- Stapleton Lane/Shilton Road/Chapel Street/High Street.

Junction Turning Flow Adjustment Methodology

3.12 The Area of Influence (AoI) for the proposed development was identified using the PRTM model and is set out in the AECOM report included as **Appendix A**. The data collection exercise for peak hour junction turning counts is reflective of the AoI.

3.13 Turning count flows for the various scenarios under assessment have been extracted from the PRTM for junctions within the AoI. However, the Saturn model which forms part the PRTM is only validated and calibrated for link flows, and not junction turning flows. As a result, it is not deemed appropriate to use the turning flows directly extracted from the model. As a result, this section sets out the methodology for creating the appropriate turning flows to inform the standalone junction models.

3.14 The methodology used to factor and adjust the baseline turning counts is as follows:

- Observed turning counts obtained for all junctions under consideration. This includes data collected at different years.

- All observed traffic counts have been growthed to a common base year of 2024 using TEMPro growth factors, with certain data being adjusted based on LCC Covid-19 uplift factors.
- PRTM turning flows have been extracted from the PRTM for the common base year of 2024.
- At each junction under assessment the absolute change in flow between the PRTM 2024 base year and the forecast year 2029 (with and without development) has been calculated and sense checked to identify anomalous results.
- The change in flow has been applied to the observed turning count flows to provide the adjusted future year turning flow forecasts for the with and without development traffic scenarios.

- 3.15 The turning flow matrices and calculations for all scenarios are included in **Appendix B** for junctions within the Aol. Any COVID uplift factors and TEMPro growth factors applied are included within the appendix.
- 3.16 When calculating the change in flow between the PRTM 2024 Base and 2029 future year scenarios, two methodologies were considered, one which calculated the percentage change in flows, and one that considered the absolute change in vehicle numbers. In this instance the percentage changes were not considered to be appropriate as this over inflated the estimated increases or decreases between the PRTM scenarios and absolute changes have been applied.
- 3.17 As well as applying the TEMPro traffic growth to traffic counts, appropriate COVID uplift factors have also been applied to 2021 traffic data.

Highway Safety

- 3.18 To establish road safety conditions on the highway network in the vicinity of the site, Personal Injury Accident (PIA) data has been obtained from LCC and is included as **Appendix C** along with the search request area. The search area incorporates the village of Newbold Verdon.
- 3.19 In the recent five years and seven months period (01/01/2017 – 31/07/2022) a total of 11 PIAs have been recorded in the search area; five of these occurred on the B582 corridor. A summary of the accident data for the search area is included in **Table 1**.

Table 1 – Newbold Verdon PIAs

Location	Severity				Ped/Cyclist Involved	
	Slight	Serious	Fatal	Total	Pedestrian	Cyclist
Junctions						
B582/Dragon Ln	2	1		3	1	
B582/B585 Bosworth Ln						
B582/B585 Bagworth Rd						
B582/Mill Ln						
B582/Main St		1		1		
Main St/Newbold Rd (K. Mallory)		1		1		
Mill Ln/Enston St		1		1		
Links (Not at a Junction)						
B582		1		1		
B585						
Main St	1			1	1	
Dragon Ln	1			1		
Bosworth Rd (Kirkby Mallory)	1	1		2		
Total	5	6		11	1	0

- 3.20 The summary data above indicates that a total of eleven PIAs have occurred in the search area.
- 3.21 Overall, the analysis does not identify any specific accident patterns in vicinity of the site and the volume of accidents recorded does not appear particularly unusual.
- 3.22 Whilst all PIAs are regrettable, the quantity and severity of the PIAs recorded in the vicinity of the site does not give any undue cause for concern.
- 3.23 Furthermore, **Section 4.0** of this report demonstrates that the proposed development will not generate significant additional vehicle trips across the local highway network and will not give rise to an unacceptable impact on highway safety.

Sustainable Transport

- 3.24 It is understood that walking and cycling provide important alternatives to the private car and should also be encouraged to form part of longer journeys via public transport. Indeed, it is noteworthy that the Institute of Highways and Transportation (IHT) has prepared several guidance documents that provide advice with respect to the provision of sustainable travel in conjunction with new developments. The suggested acceptable walking distances to common facilities are presented in **Table 2** below.

Table 2– Suggested Walking Distances (IHT Guidelines)

	Town Centre (m)	Commuting/Schools/ Sightseeing (m)	Elsewhere
Desirable	200	500	400
Acceptable	400	1000	800
Preferred Maximum	800	2000	1200

- 3.25 In addition to the IHT guidance, Manual for Streets (MfS) and the National Design Guide (2021) states that 'walkable neighbourhoods' are typically characterised by having a range of facilities within 10 minutes (up to about 800m) walking distance of residential areas which residents may access comfortably on foot.
- 3.26 MfS also states that the 800m walking distance is not an upper limit and references the former PPG13 guidance in respect of walking replacing short car trips, particularly those under 2km.
- 3.27 In respect of walking, Table NTS0303 of the latest National Travel Survey (released August 2022) indicates that the average walk trip distance in 2021 was 0.8 miles or 1.28km.
- 3.28 As such, it is reasonable to assume that the average person will walk between 800m and 2.0km to a defined destination (such as local facilities), but also being mindful of the 1.28km average walk distance from the Nation Travel Survey.
- 3.29 We are also aware of the IHT document "Planning for Walking", April 2015. In that document it states that about 80% of journeys shorter than one mile are made wholly on foot and that between one and two miles 26% of journeys are made on foot.
- 3.30 In respect of cycling, Table NTS0303 indicates that the average cycle trip distance in 2021 was 3.6 miles or 5.76km.

- 3.31 There is potential for short car trips to be substituted for cycle trips, and for longer trips to be substituted by a combination of cycle and public transport trips. Guidance suggests that 5km is a useful benchmark for a commutable distance by cycle, which is broadly in line with the NTS average cycle trip distance.

Pedestrian Accessibility

- 3.32 Pedestrian access to the site will be provided via 2.0m footways on either side of the site access off Brascote Lane, connecting to the existing provision on the eastern side of Brascote Lane.
- 3.33 Most streets within the village are residential in nature and well-lit and, as such, routes to local facilities and services are considered appropriate for pedestrian use.
- 3.34 The proposed development site is located within walking distance of several local facilities on Main Street and around the village. The key local facilities in the vicinity of the site are listed in **Table 3** and can be identified in **Figure 3.1**.

Table 3 – Local Facilities

Facility	Distance (Approx.)
The Windmill Inn	250m
Newbold Verdon Methodist Church	800m
Church of St. James	800m
Newbold Verdon Baptist Church	850m
Main Street Facilities (Incl. Convenience Stores, Cafés, Hairdressers, Public House, and Takeaways)	850m–1.00km
Newbold Verdon Primary School	900m
Newbold Verdon Cricket Club	1.00km
Heathbrook Pharmacy	1.05km
The Co-Op Food	1.10km
Newbold Verdon Library	1.15km
Kareem's Balti	1.20km
Lotus House	1.25km
Newbold Verdon Medical Practice	1.35km
Newbold Verdon Equestrian Centre	1.50km

- 3.35 Most of the facilities listed above are located within the NTS 2021 average walking distance of 1.28km and all are comfortably within the MfS suggested upper limit, referenced in the former PPG13 guidance, of 2km.
- 3.36 The site benefits from being near the local primary school and medical centre, as well as places of worship, leisure, and retail facilities.
- 3.37 A plan of the local area showing 800m, 1.2km, and 2.0km walk distances from the site can be seen in **Figure 3.2**. These are the walk distances set out in the IHT guidance.
- 3.38 It is considered the site is appropriately located for accessing a range of local facilities on foot. A wider range of facilities can be accessed within the neighbouring larger urban areas using bus services, which are outlined below.

Cycling Accessibility

- 3.39 Brascote Lane is subject to a 30mph speed limit just to the north of the allotments north of the proposed development, as are all the roads within Newbold Verdon, and these roads can be considered suitable for use by cyclists.
- 3.40 Brascote Lane is subject to the National Speed Limit along the site frontage. However, it is a lightly trafficked rural lane that is suitable for cycling that continues into the surrounding countryside. It is proposed that the 30mph speed limit is extended southwards along the extent of the site frontage.
- 3.41 National Cycle Network (NCN) Route 52 and Route 63 can be accessed from near Market Bosworth and Bagworth, respectively. These are both more than 5.0km from the site but may be used as part of long-distance leisure trips.
- 3.42 A plan of the local area showing the 5.0km cycling distance around the site can be seen in **Figure 3.3**.

Bus Accessibility

- 3.43 The nearest bus stops to the site are located on Main Street at the junction with Brascote Lane c.700m north of the site. the eastbound stop provides a small shelter, whilst the eastbound stop takes the form of flagpole stops both of which are served by the number 153 bus service.
- 3.44 A summary of the frequency and destinations is provided in **Table 4** below. Up-to-date timetables can be found at the Traveline website (traveline.info).

Table 4 – Local Bus Services

Service No.	Route	Frequency (approx.)		
		Mon - Fri	Sat	Sun
153	Market Bosworth – Newbold Verdon – Desford – Leicester	Every 60 mins (07:49–19:24)	Every 60 mins (07:54–18:52)	N/A

- 3.45 **Table 4** demonstrates that there is a regular bus services during the day for those residents travelling between Market Bosworth and Leicester via Newbold Verdon.
- 3.46 Weekday early morning services to Leicester depart at 07:49, arriving at Leicester St. Margaret's Bus station at 08:40. Late afternoon services return from Leicester at 17:15 and 18:15, and additional later services are available until 20:15.
- 3.47 These services allow residents to travel to Leicester for education, employment, and leisure purposes via sustainable means.

Rail Accessibility

Hinckley Railway Station

- 3.48 Hinckley Railway Station is located c.14km to the south of the site and can be accessed by car (c.20 to 25-minute journey).
- The station benefits from 16 cycle parking spaces and 63 car parking spaces with two accessible spaces.

- Services from this station run to:
 - o Birmingham New Street (via Nuneaton, Coleshill Parkway, and Water Orton);
 - o Cambridge (via Narborough, Leicester, Melton Mowbray, Oakham, Stamford, Peterborough, March, and Ely).

Leicester Railway Station

3.49 Leicester Rail Station is located c.18km to the southwest of the site and can be accessed by bus (c.45-minute journey), or by car (c.30 to 35-minute journey).

- The station benefits from 222 cycle parking spaces and 488 car parking spaces with 20 accessible spaces available.
- Services from this station run to:
 - o London St Pancras (via Market Harborough and Kettering);
 - o Sheffield (via Derby and Chesterfield);
 - o Birmingham New Street (via Nuneaton and Coleshill Parkway);
 - o Nottingham (Via Loughborough, East Midlands Parkway, and Beeston); and
 - o Cambridge and Stanstead Airport (via Melton Mowbray, Oakham, Stamford, Peterborough, March, and Ely).

3.50 It can be considered that there is a realistic option for residents to travel by a combination of bus/train, or car/train to destinations further afield such as London and Birmingham. This can be achieved using either Hinckley Railway Station or Leicester Railway Station.

Summary

3.51 The above review demonstrates that the site is readily accessible by a variety of modes of transport that have the potential to reduce reliance upon the private car.

3.52 It is therefore considered that residents will have a real choice about how they travel and that the proposals therefore accord with the guiding principles of the NPPF.

4.0 Development Proposals

Proposed Development

- 4.1 The illustrative layout indicates 239 dwellings and that is the level of development assessed in this TA. Vehicular and pedestrian access is proposed from Brascote Lane a single priority/give-way access junction.
- 4.2 The masterplan includes a parking area for the existing allotments north of the development land, a water meadow and wildlife area in the centre of the site, and a country park.
- 4.3 The access arrangements have been designed where possible to meet the requirements set out in the Leicestershire Highway Design Guide (LHDG). The measured speeds from the ATC data suggest that the required visibility splays should be 2.4m x 160m according to Table DG4 in the LHDG.
- 4.4 Visibility splays of 2.4m x 160m can be achieved to the north and south of the proposed site access junction.
- 4.5 The vertical alignment along Brascote Lane has been considered and has influenced the location of the access point. The visibility envelope requirements both to and from the site access can be achieved from both the north and south along Brascote Lane.
- 4.6 The junction arrangements and visibility are set out in **Drawing T20517.001 rev B**. The speed measurements and visibility calculations are provided in **Appendix D**.
- 4.7 The proposed access roads have been designed to be 6.75m wide with 10.0m radii, and 2.0m wide footways on either side of the carriageway. The proposals include footway connections which link the site access junction to the existing footway provision along the Brascote Lane frontage.
- 4.8 The swept path analysis for the junctions is provided in **Drawing T20517.003 rev A**.

Internal Road Layout

- 4.9 The internal road layout will be designed in line with Leicestershire's Highway Design Guide and the principles set out in Manual for Streets.
- 4.10 An illustrative site layout is included as **Appendix E**.

5.0 Pan Regional Traffic Model

The Model

- 5.1 The PRTM is a strategic traffic model covering the highway network in Leicestershire and Leicester. It is a platform for strategic analysis that provides consistent travel forecast evidence to the transport planning process across Leicestershire with a regional capability.
- 5.2 The PRTM has been built using current industry best practice based on Government (Department for Transport's (DfT)) Transport Appraisal Guidance (TAG) and engagement/consultation with relevant stakeholders, such as National Highways (NH) and the Local Planning Authorities (LPA's).
- 5.3 The PRTM is comprised of:
 - A planning input module to derive forecast total travel demand.
 - A bespoke TAG-compliant variable demand model.
 - Highway and public transport supply models.
 - Environmental model components.
- 5.4 These can be run together or independently depending on the work being undertaken. From a current 2014 model base year, the PRTM forecasts in 5-year intervals between 2016 and 2051 using the latest planning data, infrastructure and economic assumptions.
- 5.5 The PRTM is used to forecast the impact of changes in transport policy, land-use and infrastructure on travel decisions, the environment, and the economy. Over the next 30 years, tens of thousands more houses and jobs will be created across the county to meet the demands of a growing population and economy. The location of these developments will affect travel patterns within their local areas, potentially extending further than originally envisaged. The PRTM can help in providing a robust and auditable evidence base to mitigate these impacts to the transport network.
- 5.6 Typical applications of the PRTM include:
 - Major scheme bids to central government.
 - Informing regional and local transport, and land-use policies/strategies.
 - Development control.
 - Environmental impact of changes in land-use and/or transport infrastructure.
 - Scheme development and design.
 - Provision of supporting transport evidence for business cases.
 - Used for the development of the planning process including core strategies, local plans, strategic growth plans and local transport plans.
 - Local and strategic transport-related environmental plans, carbon and air quality assessments.
- 5.7 In this instance the LCC has requested that Hub use the traffic model for the purpose of development control.

Committed Development Traffic

- 5.8 The PRTM outlines the forecast planning data and infrastructure schemes included within the model, these take the form of an uncertainty log and are included within the Forecasting Report.
- 5.9 The uncertainty log includes the following planning data assumptions summarised in **Table 5**.

Table 5 – Planning Data Assumptions

Location	Quantum	Timescale	Include
Land North East of Triumph Motorcycles	850	2021-2035	Y
Earl Shilton SUE	1,500	2029-2045	Y
Barwell SUE	2,500	2028-2051	Y
Land East of Hinckley Island Hotel Watling Street	121,032sqm	2019-2023	Y
Nailstone Colliery, Wood Road	121,520sqm	2022	Y
MIRA	1,788 jobs	2026-2035	Y

- 5.10 These schemes have been used in the model forecasts for all future year development scenarios.

6.0 Trip Generation, Distribution and Assignment

Traffic Generation

- 6.1 The traffic generation for the proposed development has been derived using the trip rates that were used to produce the Bosworth Lane Phase 2 application (ref: 20/00143/FUL), as advised by the LHA.
- 6.2 The trip rates and forecast development traffic are presented in **Table 6**.

Table 6 – Trip Rates and Vehicle Trips (as per application ref: 20/00143/FUL)

Peak Period	Trip Rate		Trips (239 Dwellings)		Total
	In	Out	In	Out	
AM	0.074	0.606	18	145	163
PM	0.521	0.170	125	41	166

NB: AM peak is 08:00-09:00, PM peak is 17:00-18:00; trips have been rounded.

- 6.3 The forecast traffic generation detailed in **Table 5** above indicates that the proposed development would result in 163 two-way vehicle trips in the AM peak period and 166 two-way vehicle trips in the PM peak period.
- 6.4 This generation equates to less than three additional vehicles on the highway network every minute during each peak period.

Traffic Distribution and Assignment

- 6.5 All distribution and assignment of traffic is forecast using the PRTM.
- 6.6 The outputs of the traffic model indicates that 76 two-way development trips travel to/from the north on Brascote Lane in the AM peak hour with 87 to/from the south. In the PM peak hour, the figures are 89 and 76 north:south, respectively.
- 6.7 Traffic flow matrices (in PCUs) for all junctions assessed are provided in **Appendix B**.

7.0 Traffic Impact and Analysis

Introduction

7.1 The geographic scope of the assessment has been determined by the Area of Influence (AoI) plots provided from the PRTM model and is described by the following junctions;

1. Site Access /Brascote Lane.
2. Main Street/Brascote Lane
3. B582 Barlestone Road (B582)/Main Street.
4. B582 Barlestone Road/Dragon Lane.
5. B582 Barlestone Road/Bosworth Lane.
6. B585 Barlestone Road/Bagworth Road.
7. B585 Bosworth Lane/A447/Bosworth Road.
8. B582 Desford Road/Mill Lane.
9. B582 Desford Road/Kirkby Road.
10. B585 Garland Lane/B585 Bagworth Road/Barlestone Road.
11. B585 Bagworth Road/Heath Road.
12. B585 Bagworth Road/Merrylees Road.
13. Main Street/Dragon Lane.
14. Brascote Lane/Kirkby Lane/Newbold Road.
15. Bosworth Road/Newbold Road/Main Street/Stapleton Lane.
16. Main Street/Peckleton Road/Shilton Road/Church Road.
17. Church Road/Barwell Lane.
18. Kirkby Road/Elwell Avenue.
19. Kirkby Road/Charnwood Road.
20. Kirkby Road/Oxford Street.
21. Stapleton Lane/Kirkby Road.
22. Stapleton Lane/Shilton Road/Chapel Street/High Street.
23. A447/Ashby Road/Bosworth Road.

7.2 The junction locations are indicated on **Figure 7.1**.

Traffic Growth

7.3 Committed development traffic and background traffic growth is included within the PRTM model.

7.4 Initial data collection was conducted in 2021 and appropriate factors applied for any prevailing COVID conditions at that time. Those traffic counts were submitted as part of the original TA. Having worked through the PRTM modelling and AoI additional traffic counts for the wider assessment were undertaken in 2023.

7.5 Background traffic growth was applied to the adjusted 2021 and 2023 data to growth the counts to a 2024 base year. The local TEMPRO growth factors applied (adjusted by NTM) for the Local Authority District Hinckley & Bosworth and are as follows:

- 2021 to 2024 AM = 1.0254
- 2021 to 2024 PM = 1.0252
- 2023 to 2024 AM = 1.0083

- 2023 to 2024 PM = 1.0082

- 7.6 The adjusted 2029 Base and 2029 Base plus Development adjusted counts were arrived at by comparison of the 2029 Base PRTM outputs and 2029 Base plus Development PRTM outputs against the 2024 Base PRTM outputs.
- 7.7 The highway network in the vicinity of the site has been assessed during the AM and PM peak periods for the following scenarios as agreed with LCC:
- 2024 Growthed Base;
 - 2029 Adjusted Base;
 - 2029 Base + Development.

Junction Analysis

- 7.8 The analysis of priority junctions has been conducted using Junctions 10 (PICADY & ARCADY Modules) software. Signalled junctions have been assessed using LINSIG software.

1. Proposed Site Access Junction – Capacity Assessment

- 7.9 The site access junction off Brascote Lane has been modelled as a priority T-junction. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix F**.
- 7.10 **Table 7** summarises the operation of the proposed site access junction for the future assessment year scenario, with the proposed development traffic added to the network.

Table 7 – Site Access (Brascote Lane) Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2029 + Committed + Development						
Site Access	0.29	0	9	0.08	0	7
Brascote Lane	0.02	0	5	0.10	0	6

Notes: RFC is Ratio of Flow to Capacity. Queues are measured in vehicles and Delay in seconds per PCU.

- 7.11 The analysis indicates that the proposed site access would operate well within capacity at the future assessment.

2. Main Street/Brascote Lane Junction – Capacity Assessment

- 7.12 The Main Street/Brascote Lane junction to the north of the site, through which most of the development traffic is forecast to travel, has been modelled as a priority T-junction. The full output file for the junction, showing geometry and capacity calculations, are shown in **Appendix G**.
- 7.13 **Table 8** summarises the operation of the Main Street/Brascote Lane junction.

Table 8 – Main Street/Brascote Lane Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Brascote Lane	0.16	0	7	0.29	0	9
Main Street	0.08	0	6	0.14	0	7
2029 Adjusted Base						
Brascote Lane	0.19	0	7	0.33	1	10
Main Street	0.09	0	7	0.16	0	7
2029 + Development Adjusted						
Brascote Lane	0.33	1	9	0.40	1	11
Main Street	0.13	0	7	0.29	1	8

7.14 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

3. Barlestone Road (B582)/Main Street Junction – Capacity Assessment

7.15 The Barlestone Road (B582)/Main Street junction to the northeast of the village has been modelled as a priority T-junction. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix H**.

7.16 **Table 9** summarises the operation of the Barlestone Road (B582)/Main Street junction for the existing and future year scenarios.

Table 9 – Barlestone Road (B582)/Main Street Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Main Street	0.32	1	13	0.30	0	14
B582	0.02	0	5	0.07	0	5
2029 Adjusted Base						
Main Street	0.32	1	13	0.32	1	14
B582	0.02	0	5	0.08	0	5
2029 + Development Adjusted						
Main Street	0.36	1	14	0.36	1	15
B582	0.02	0	5	0.07	0	5

7.17 The analysis indicates that the proposed site access would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

4. Barlestone Road (B582)/Dragon Lane Junction – Capacity Assessment

7.18 The Barlestone Road (B582)/Dragon Lane junction is one of the two junctions that has an unorthodox arrangement and is separated into three distinct give-way junctions. This junction has been modelled as a two-lane priority T-junction; a robust assessment incorporated all traffic interactions. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix I**.

7.19 **Table 10** summarises the operation of the Barlestone Road (B582)/Dragon Lane junction.

Table 10 – Barlestone Road (B582)/Dragon Lane Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growth Base						
Dragon Lane (LT)	0.28	0	10	0.21	0	9
Dragon Lane (RT)	0.16	0	15	0.08	0	15
Barlestone Road	0.26	1	6	0.38	1	7
2029 Adjusted Base						
Dragon Lane (LT)	0.34	1	11	0.27	0	10
Dragon Lane (RT)	0.16	0	15	0.08	0	16
Barlestone Road	0.29	1	6	0.41	1	7
2029 + Development Adjusted						
Dragon Lane (LT)	0.46	1	13	0.32	1	11
Dragon Lane (RT)	0.17	0	15	0.09	0	18
Barlestone Road	0.35	1	6	0.60	2	11

7.20 The analysis indicates that the proposed site access would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

5. Barlestone Road (B582)/Bosworth Lane (B585) Signalised Junction – Capacity Assessment

7.21 The Barlestone Road (B582)/Bosworth Lane (B585) junction has recently been upgraded to a fully signalised junction as part of the Bosworth Lane Phase 2 development. It has been modelled as a signalised junction in LinSig using the parameters set out within the Bosworth Lane application.

7.22 **Table 11** summarises the operation of the Barlestone Road (B582)/Bosworth Lane (B585) junction for the future year scenarios. The LinSig output is provided as **Appendix J**.

Table 11 – Barlestone Road (B582)/Bosworth Lane (B585) Signals – LinSig Summary Results

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	Sat (%)	Queue	Delay (s)	Sat (%)	Queue	Delay (s)
2024 Growthed						
Barlestone Road (NW)	44.7	7	18	32.8	4	18
Barlestone Road (SE)	60.1	11	24	74.2	15	27
Bosworth Lane	59.5	8	35	71.5	9	42
Cycle Time (s)	90			90		
PRC (%)	49.7			21.2		
Delay (PCU/Hr)	9.00			11.04		
2029 Adjusted Base						
Barlestone Road (NW)	49.3	7	20	32.9	4	17
Barlestone Road (SE)	63.0	11	24	74.5	16	26
Bosworth Lane	61.4	8	37	73.0	9	45
Cycle Time (s)	90			90		
PRC (%)	42.8			20.9		
Delay (PCU/Hr)	9.97			11.06		
2029 + Development Adjusted						
Barlestone Road (NW)	47.8	7	18	36.6	5	17
Barlestone Road (SE)	66.1	13	24	78.4	17	28
Bosworth Lane	66.5	8	40	75.4	10	45
Cycle Time (s)	90			90		
PRC (%)	35.3			14.8		
Delay (PCU/Hr)	10.34			12.24		

Sat is Degree of Saturation (%), Queues are in PCUs, and Delay is in seconds PCUs.

7.23 **Table 11** demonstrates that the junction operates within capacity during the AM and PM peak hours with the development traffic added.

7.24 The results indicate that the development traffic would have a minimal impact on the forecast operation of the junction.

6. Barlestone Road (B585)/Bagworth Road Junction – Capacity Assessment

7.25 The Barlestone Road (B585)/Bagworth Road junction is the other of the two junctions that has an unorthodox arrangement and is separated into three distinct give-way junctions. As stated previously, this has been modelled as a two-lane priority T-junction, a robust assessment incorporated all traffic interactions. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix K**.

7.26 **Table 12** summarises the operation of the Barlestone Road (B585)/Bagworth Road junction for the existing and future year scenarios.

Table 12 – Barlestone Road (B585)/Bagworth Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Adjusted						
Bagworth Road (LT)	0.41	1	10	0.42	1	10
Bagworth Road (RT)	0.04	0	10	0.09	0	10
Barlestone Road	0.42	1	9	0.45	1	8
2029 Adjusted Base						
Bagworth Road (LT)	0.72	3	21	0.44	1	10
Bagworth Road (RT)	0.04	0	9	0.09	0	11
Barlestone Road	0.28	1	8	0.47	1	8
2029 + Development Adjusted						
Bagworth Road (LT)	0.72	3	21	0.49	1	11
Bagworth Road (RT)	0.04	0	9	0.09	0	11
Barlestone Road	0.34	1	8	0.49	1	9

7.27 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

7. Bosworth Lane/A447/Bosworth Road

7.28 The Bosworth Lane/A447/Bosworth Road junction lies to the southwest of the village has been modelled as a priority staggered crossroads junction. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix L**.

7.29 **Table 13** summarises the operation of the Bosworth Lane/A447/Bosworth Road junction for the future year scenarios.

Table 13 – B585 Bosworth Lane/A447/Bosworth Road Staggered Crossroads

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Adjusted						
B585 (LT)	0.30	0	13	0.23	0	10
B585 (AR)	0.61	2	35	0.52	1	24
A447(N)	0.13	0	8	0.10	0	7
Bosworth Rd (LT)	0.41	1	48	0.25	0	16
Bosworth Rd (AR)	0.87	5	71	0.71	2	35
A447(S)	0.22	0	10	0.29	0	10
2029 Adjusted Base						
B585 (LT)	0.51	1	23	0.23	0	9
B585 (AR)	0.77	3	57	0.50	1	22
A447(N)	0.14	0	8	0.10	0	8
Bosworth Rd (LT)	0.47	1	60	0.26	0	16
Bosworth Rd (AR)	0.88	6	77	0.72	2	35
A447(S)	0.22	0	10	0.24	0	9
2029 + Development Adjusted						
B585 (LT)	0.53	1	29	0.20	0	9
B585 (AR)	0.82	4	67	0.49	1	21
A447(N)	0.14	0	8	0.10	0	7
Bosworth Rd (LT)	0.50	1	67	0.29	0	19
Bosworth Rd (AR)	0.89	6	79	0.76	3	41
A447(S)	0.21	0	10	0.23	0	9

- 7.30 The analysis indicates that the Bosworth Road arm of the junction goes beyond the 0.85 RFC indicator of theoretical capacity in the 2024 and 2029 adjusted forecast traffic flow scenarios in the AM peak hour. However, the addition of development traffic has only a minimal impact on forecast queues and vehicle delays.

8. B582 Desford Road/Mill Lane

- 7.31 The B582 Desford Road/Mill Lane junction to the northeast of the village has been modelled as a priority T-junction. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix M**.
- 7.32 **Table 14** summarises the operation of the B582 Desford Road/Mill Lane junction for the future year scenarios.

Table 14 – B582 Desford Road/Mill Lane Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Mill Lane	0.18	0	9	0.10	0	8
B582 (W)	0.07	0	5	0.11	0	5
2029 Adjusted Base						
Mill Lane	0.18	0	9	0.10	0	8
B582 (W)	0.07	0	5	0.11	0	5
2029 + Development Adjusted						
Mill Lane	0.18	0	9	0.10	0	8
B582 (W)	0.07	0	5	0.11	0	5

7.33 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

9. B582 Desford Road/Kirkby Lane

7.34 The B582 Desford Road/Kirkby Road junction to the east of the village has been modelled as a priority T-junction. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix N. Table 15** summarises the operation of the B582 Desford Road/Kirkby Lane junction for the future year scenarios.

Table 15 – B582 Desford Road/Kirkby Lane Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Kirkby Lane	0.09	0	10	0.10	0	10
B582 (W)	0.04	0	5	0.02	0	5
2029 Adjusted Base						
Kirkby Lane	0.06	0	9	0.22	0	12
B582 (W)	0.04	0	5	0.02	0	5
2029 + Development Adjusted						
Kirkby Lane	0.06	0	9	0.23	0	13
B582 (W)	0.04	0	5	0.02	0	5

7.35 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

10. B585 Garland Lane/B585 Bagworth Road/Barlestone Road

- 7.36 This junction is a priority T-junction with Bagworth Road giving way. The junction lies to the northwest of Newbold Verdon.
- 7.37 The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix O**. **Table 16** summarises the operation of the B585 Garland Lane/B585 Bagworth Road/Barlestone Road junction for the future year scenarios.

Table 16 – B585 Garland Lane/B585 Bagworth Road/Barlestone Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growth Base						
Bagworth Road (LT)	0.41	1	10	0.42	1	10
Bagworth Road (RT)	0.04	0	10	0.09	0	10
Barlestone Road	0.42	1	9	0.45	1	8
2029 Adjusted Base						
Bagworth Road (LT)	0.72	3	21	0.44	1	10
Bagworth Road (RT)	0.04	0	9	0.09	0	11
Barlestone Road	0.28	1	8	0.47	1	8
2029 + Development Adjusted						
Bagworth Road (LT)	0.72	3	21	0.49	1	11
Bagworth Road (RT)	0.04	0	9	0.09	0	11
Barlestone Road	0.34	1	8	0.49	1	9

- 7.38 The analysis indicates that the junction would operate within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

11. B585 Bagworth Road/Heath Road

- 7.39 This junction is a priority T-junction with Heath Road giving way. The junction lies to the northwest of Newbold Verdon.
- 7.40 The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix P**. **Table 17** summarises the operation of the B585 Bagworth Road/Heath Road junction for the future year scenarios.

Table 17 – B585 Bagworth Road/Heath Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Heath Road (LT)	0.01	0	6	0.02	0	6
Heath Road (RT)	0.09	0	8	0.19	0	9
B585 (S)	0.04	0	6	0.01	0	5
2029 Adjusted Base						
Heath Road (LT)	0.01	0	6	0.02	0	7
Heath Road (RT)	0.15	0	9	0.29	0	10
B585 (S)	0.04	0	6	0.01	0	5
2029 + Development Adjusted						
Heath Road (LT)	0.02	0	7	0.02	0	7
Heath Road (RT)	0.29	0	11	5.30	0	10
B585 (S)	0.01	0	6	0.01	0	5

7.41 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

12. B585 Bagworth Road/Merrylees Road

7.42 This junction is a priority T-junction with Merrylees Road giving way. The junction lies to the northwest of Newbold Verdon.

7.43 The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix Q**. **Table 18** summarises the operation of the B585 Bagworth Road/Merrylees Road junction for the future year scenarios.

Table 18 – B585 Bagworth Road/Merrylees Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Merrylees Road	0.14	0	7	0.14	0	7
B585 (S)	0.11	0	6	0.08	0	5
2029 Adjusted Base						
Merrylees Road	0.14	0	7	0.13	0	7
B585 (S)	0.10	0	6	0.10	0	5
2029 + Development Adjusted						
Merrylees Road	0.14	0	7	0.13	0	7
B585 (S)	0.10	0	6	0.10	0	5

- 7.44 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

13. Main Street/Dragon Lane

- 7.45 This junction is a priority T-junction within Newbold Verdon, with the western arm of Main Street giving way.
- 7.46 The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix R**. **Table 19** summarises the operation of the B585 Bagworth Road/Merrylees Road junction for the future year scenarios.

Table 19 – Main Street/Dragon Lane Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Main St (W)	0.03	0.0	6	0.01	0.0	6
Dragon Lane (N)	0.00	0.0	5	0.01	0.0	5
2029 Adjusted Base						
Main St (W)	0.03	0.0	6	0.01	0.0	6
Dragon Lane (N)	0.00	0.0	5	0.01	0.0	5
2029 + Development Adjusted						
Main St (W)	0.03	0.0	6	0.01	0.0	6
Dragon Lane (N)	0.00	0.0	5	0.01	0.0	5

- 7.47 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

14. Brascote Lane/Kirkby Lane/Newbold Road

- 7.48 This junction is a priority T-junction to the southeast of Newbold Verdon, with the Kirkby Lane arm of the junction giving way.
- 7.49 The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix S**. **Table 20** summarises the operation of the Brascote Lane/Kirkby Lane/Newbold Road junction for the future year scenarios.

Table 20 – Brascote Lane/Kirkby Lane/Newbold Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Kirkby Ln (LT)	0.06	0	6	0.04	0	6
Kirkby Ln (RT)	0.00	0	0	0.00	0	6
Newbold Rd (S)	0.04	0	6	0.07	0	6
2029 Adjusted Base						
Kirkby Ln (LT)	0.05	0	6	0.04	0	6
Kirkby Ln (RT)	0.00	0	0	0.00	0	6
Newbold Rd (S)	0.02	0	6	0.15	0	7
2029 + Development Adjusted						
Kirkby Ln (LT)	0.05	0	6	0.04	0	6
Kirkby Ln (RT)	0.00	0	0	0.00	0	7
Newbold Rd (S)	0.02	0	6	0.15	0	6

- 7.50 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

15. Bosworth Road/Newbold Road/Main Street/Stapleton Lane

- 7.51 This crossroads junction lies to the south of Newbold Verdon in Kirkby Mallory. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix T. Table 21** summarises the operation of the junction.

Table 21 – Bosworth Road/Newbold Road/Main Street/Stapleton Lane

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Adjusted						
Newbold Road	0.30	0	12	0.17	0	8
Bosworth Road	0.06	0	6	0.02	0	5
Stapleton Lane	0.02	0	6	0.09	0	6
Main Street	0.08	0	6	0.10	0	6
2029 Adjusted Base						
Newbold Road	0.27	0	11	0.21	0	9
Bosworth Road	0.06	0	6	0.02	0	5
Stapleton Lane	0.02	0	6	0.09	0	6
Main Street	0.14	0	7	0.18	0	7
2029 + Development Adjusted						
Newbold Road	0.47	1	15	0.27	0	10
Bosworth Road	0.07	0	6	0.02	0	5
Stapleton Lane	0.02	0	6	0.09	0	6
Main Street	0.16	0	7	0.27	1	7

7.52 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

16. Main Street/Peckleton Road/Shilton Road/Church Road

7.53 This crossroads junction is also situated in Kirkby Mallory. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix U. Table 22** summarises the operation of the junction.

Table 22 – Bosworth Road/Newbold Road/Main Street/Stapleton Lane

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Adjusted						
Peckleton Road	0.25	0	11	0.26	0	11
Main Street	0.06	0	5	0.10	0	6
Church Road (LT)	0.10	0	8	0.05	0	6
Church Road (AR)	0.07	0	9	0.03	0	8
Shilton Road	0.02	0	6	0.00	0	6
2029 Adjusted Base						
Peckleton Road	0.28	0	12	0.26	0	11
Main Street	0.12	0	6	0.13	0	6
Church Road (LT)	0.16	0	8	0.12	0	7
Church Road (AR)	0.06	0	9	0.03	0	9
Shilton Road	0.02	0	6	0.00	0	5
2029 + Development Adjusted						
Peckleton Road	0.29	0	12	0.30	0	13
Main Street	0.22	0	6	0.20	0	6
Church Road (LT)	0.17	0	8	0.19	0	9
Church Road (AR)	0.06	0	9	0.09	0	10
Shilton Road	0.02	0	6	0.01	0	5

- 7.54 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

17. Church Road/Barwell Lane

- 7.55 This is a priority T-junction situated in Kirkby Mallory with Barwell Lane giving way to Church Road. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix V. Table 23** summarises the operation of the junction.

Table 23 – Church Road/Barwell Lane Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Barwell Lane	0.14	0	8	0.07	0	7
Church Road	0.01	0	6	0.00	0	6
2029 Adjusted Base						
Barwell Lane	0.19	0	9	0.14	0	8
Church Road	0.01	0	6	0.00	0	6
2029 + Development Adjusted						
Barwell Lane	0.19	0	9	0.18	0	9
Church Road	0.01	0	6	0.00	0	6

7.56 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

18. Kirkby Road/Elwell Avenue

7.57 This is a priority T-junction situated at the northern edge of Barwell with Elwell Lane giving way to Kirkby Road. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix W**. **Table 24** summarises the operation of the junction.

Table 24 – Kirkby Road/Elwell Avenue Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Elwell Avenue	0.08	0	7	0.05	0	6
Kirkby Road	0.02	0	6	0.02	0	6
2029 Adjusted Base						
Elwell Avenue	0.08	0	7	0.05	0	6
Kirkby Road	0.02	0	6	0.02	0	6
2029 + Development Adjusted						
Elwell Avenue	0.08	0	7	0.05	0	6
Kirkby Road	0.02	0	6	0.02	0	6

7.58 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

19. Kirkby Road/Charnwood Road

7.59 This is a priority T-junction situated towards the north of Barwell with Charnwood Road giving way to Kirkby Road. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix X. Table 25** summarises the operation of the junction.

Table 25 – Kirkby Road/Charnwood Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Charnwood Rd (LT)	0.15	0	6	0.09	0	6
Charnwood Rd (RT)	0.03	0	7	0.01	0	6
Kirkby Road	0.18	0	7	0.15	0	7
2029 Adjusted Base						
Charnwood Rd (LT)	0.10	0	6	0.07	0	6
Charnwood Rd (RT)	0.06	0	7	0.03	0	7
Kirkby Road	0.18	0	7	0.14	0	7
2029 + Development Adjusted						
Charnwood Rd (LT)	0.10	0	6	0.08	0	6
Charnwood Rd (RT)	0.06	0	7	0.04	0	7
Kirkby Road	0.18	0	7	0.14	0	7

7.60 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

20. Kirkby Road/Oxford Street

7.61 This is a priority T-junction situated in Barwell with Oxford Street giving way to Kirkby Road. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix Y. Table 26** summarises the operation of the junction.

Table 26 – Kirkby Road/Oxford Street Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Oxford Street	0.10	0	7	0.08	7	0
Kirkby Road	0.08	0	6	0.13	6	0
2029 Adjusted Base						
Oxford Street	0.10	0	7	0.09	7	0
Kirkby Road	0.07	0	6	0.12	5	0
2029 + Development Adjusted						
Oxford Street	0.10	0	7	0.09	7	0
Kirkby Road	0.07	0	6	0.12	6	0

7.62 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

21. Stapleton Lane/Kirkby Road

7.63 This is a priority T-junction situated in Barwell with Kirkby Road giving way to Stapleton Lane. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix Z. Table 27** summarises the operation of the junction.

Table 27 – Stapleton Lane/Kirkby Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Kirkby Road	0.43	1	11	0.32	1	9
Stapleton Lane	0.36	1	8	0.52	1	11
2029 Adjusted Base						
Kirkby Road	0.41	1	11	0.27	0	9
Stapleton Lane	0.32	1	8	0.50	1	11
2029 + Development Adjusted						
Kirkby Road	0.47	1	11	0.31	0	9
Stapleton Lane	0.32	1	8	0.52	1	11

7.64 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

T20517

Brascote Lane, Newbold Verdon

22. Stapleton Lane/Shilton Road/Chapel Street/High Street

7.65 This is a mini-roundabout junction in Barwell. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix AA. Table 28** summarises the operation of the junction.

Table 28 – Stapleton Lane/Shilton Road/Chapel Street/High Street Capacity Analysis

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Adjusted						
Stapleton Lane	0.36	1	6	0.37	1	6
Shilton Road	0.19	0	4	0.13	0	4
Chapel Street	0.49	1	13	0.56	1	13
High Street	0.16	0	4	0.24	2	5
2029 Adjusted Base						
Stapleton Lane	0.33	1	6	0.24	0	5
Shilton Road	0.15	0	4	0.09	0	3
Chapel Street	0.51	1	13	0.64	2	15
High Street	0.07	0	4	0.13	0	5
2029 + Development Adjusted						
Stapleton Lane	0.35	1	6	0.25	0	5
Shilton Road	0.15	0	4	0.09	0	3
Chapel Street	0.53	1	14	0.65	2	16
High Street	0.07	0	4	0.13	0	5

23. A447 Ashby Road/Bosworth Road

7.66 This junction is a priority T-junction to the southwest of Newbold Verdon with Bosworth Road giving way to the A447. The full output file for the junction, showing geometry and capacity calculations, is included in **Appendix AB. Table 29** summarises the operation of the junction.

Table 29 – A447 Ashby Road/Bosworth Road Junction Capacity Assessment

Approach	AM Peak 08:00-09:00			PM Peak 17:00-18:00		
	RFC	Queue	Delay (s)	RFC	Queue	Delay (s)
2024 Growthed Base						
Bosworth Rd (LT)	0.14	0	11	0.08	0	9
Bosworth Rd (RT)	0.54	0	25	0.32	1	15
A447 Ashby Rd	0.07	0	5	0.11	0	5
2029 Adjusted Base						
Bosworth Rd (LT)	0.16	0	14	0.09	0	9
Bosworth Rd (RT)	0.65	2	29	0.41	1	16
A447 Ashby Rd	0.07	0	5	0.12	0	5
2029 + Development Adjusted						
Bosworth Rd (LT)	0.05	0	11	0.08	0	9
Bosworth Rd (RT)	0.60	2	23	0.38	1	16
A447 Ashby Rd	0.07	0	5	0.19	0	5

- 7.67 The analysis indicates that the junction would operate well within capacity at future assessment years and the addition of development traffic has minimal impact on forecast queues and vehicle delays which remain low.

Analysis Summary

- 7.68 The analysis summarised above demonstrates that the proposed site access junction will operate well within capacity in the future year scenario of 2029.
- 7.69 All off-site junctions assessed also currently operate with minimal queuing and delay during peak hours. These will continue to do so during the future year scenarios with the addition of committed development traffic and the proposed development traffic.
- 7.70 The proposed development will have a negligible/minor impact on the operation of the local highway network in Newbold Verdon and all junctions within the calculated Aol.

8.0 Summary and Conclusion

Summary

- 8.1 Hub Transport Planning Ltd has been commissioned by Richborough Estates Ltd to provide transport advice for a proposed residential development off Brascote Lane, Newbold Verdon. This report considers the potential transport and highway impacts of 239 dwellings.
- 8.2 On-site observations have indicated that the existing highway network in the vicinity of the site is operating well within capacity, with minimal queues and delays on the network.
- 8.3 This site is in a suitable location in transport terms, with local facilities within comfortable walking distance and sustainable transport infrastructure and services present; the proposed development will deliver 2.0m wide footways tying into the existing footway along Brascote Lane.
- 8.4 The site benefits from being close to bus stops, with Main Street served by a good bus service for the surrounding urban areas of Leicester, Hinckley, and Coalville. Hinckley Railway Station and Leicester Railway Station are accessible from the site, allowing multi-modal (bus/rail and car/rail) connections to be made to regional and national destinations.
- 8.5 A review of PIA data obtained from LCC indicated that 11 PIAs have occurred within the Newbold Verdon area. The volume and pattern of accidents recorded in the area does not give any undue cause for concern.
- 8.6 Safe and suitable access to the site for all modes will be provided via a priority T-junction with Brascote Lane.
- 8.7 It is estimated that the development proposal has the potential to generate a maximum of 166 two-way vehicle trips during any peak hour period. This equates to less than three additional vehicle movements on the local highway network every minute during any peak hour, which is demonstrated to have a minimal or negligible traffic impact when assigned to the network.
- 8.8 Capacity assessments have indicated that the development proposals would not have a material impact at any off-site junctions, which are forecast to continue to operate with limited queuing and delays at the 2029 future assessment year.
- 8.9 Car and cycle parking at the site will be in line with the guidance set out in the LHDG.

Conclusion

- 8.10 The National Planning Policy Framework (NPPF) states that opportunities to promote sustainable transport modes should be taken up and that safe and suitable access to the site is achievable for all users.
- 8.11 The development is located to make use of existing infrastructure and services and is suitable in transport terms. The development will promote the use of sustainable modes to transport, and the site provides safe and suitable access for all users.
- 8.12 Bearing the above in mind, the NPPF states at paragraph 111 that:

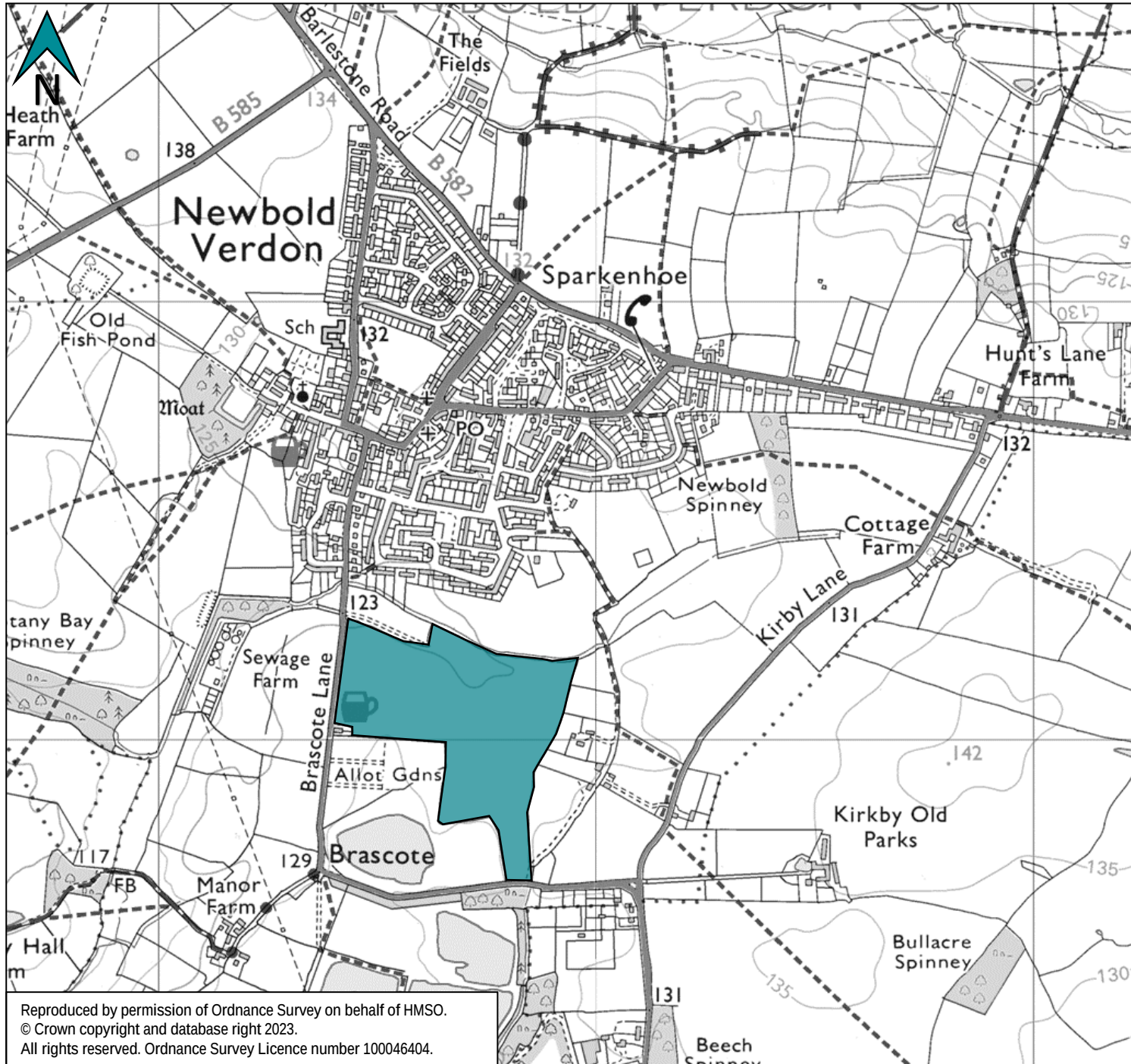
'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual impact on the road network would be severe.'

-
- 8.13 The assessment work undertaken and detailed in this report demonstrates that, in NPPF terms, the development will not have a severe impact on the operation of the local highway network nor any unacceptable impact on highway safety.
- 8.14 It is therefore concluded that the proposals accord with national, regional, and local transport related policies and, as such, it is considered there are no reasons why the proposals should be resisted on traffic or transportation grounds.

T20517
Brascote Lane, Newbold Verdon



Figures



Legend



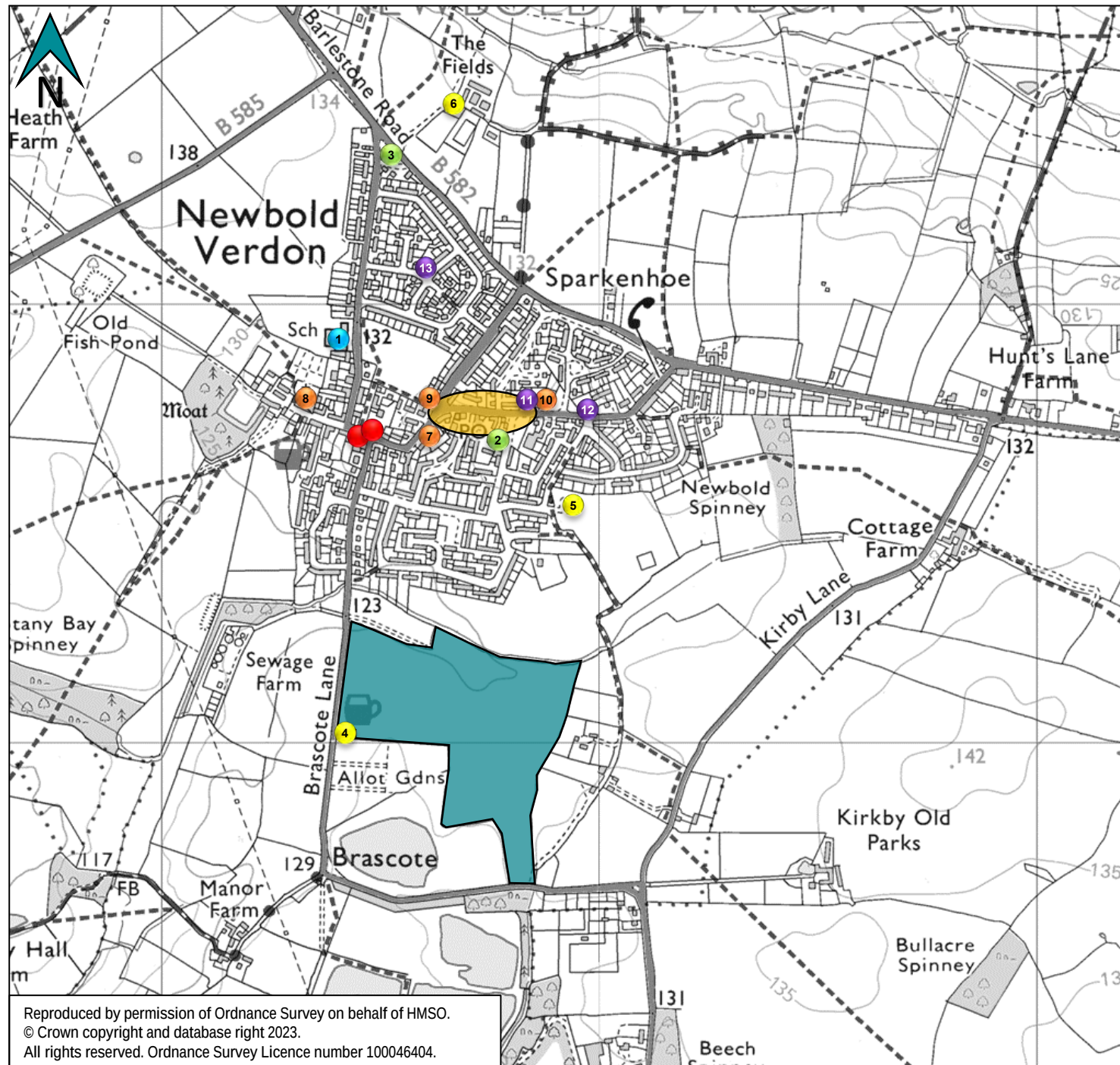
Not to Scale

Brascote Lane

Newbold Verdon

Figure 1.1 – Site Location

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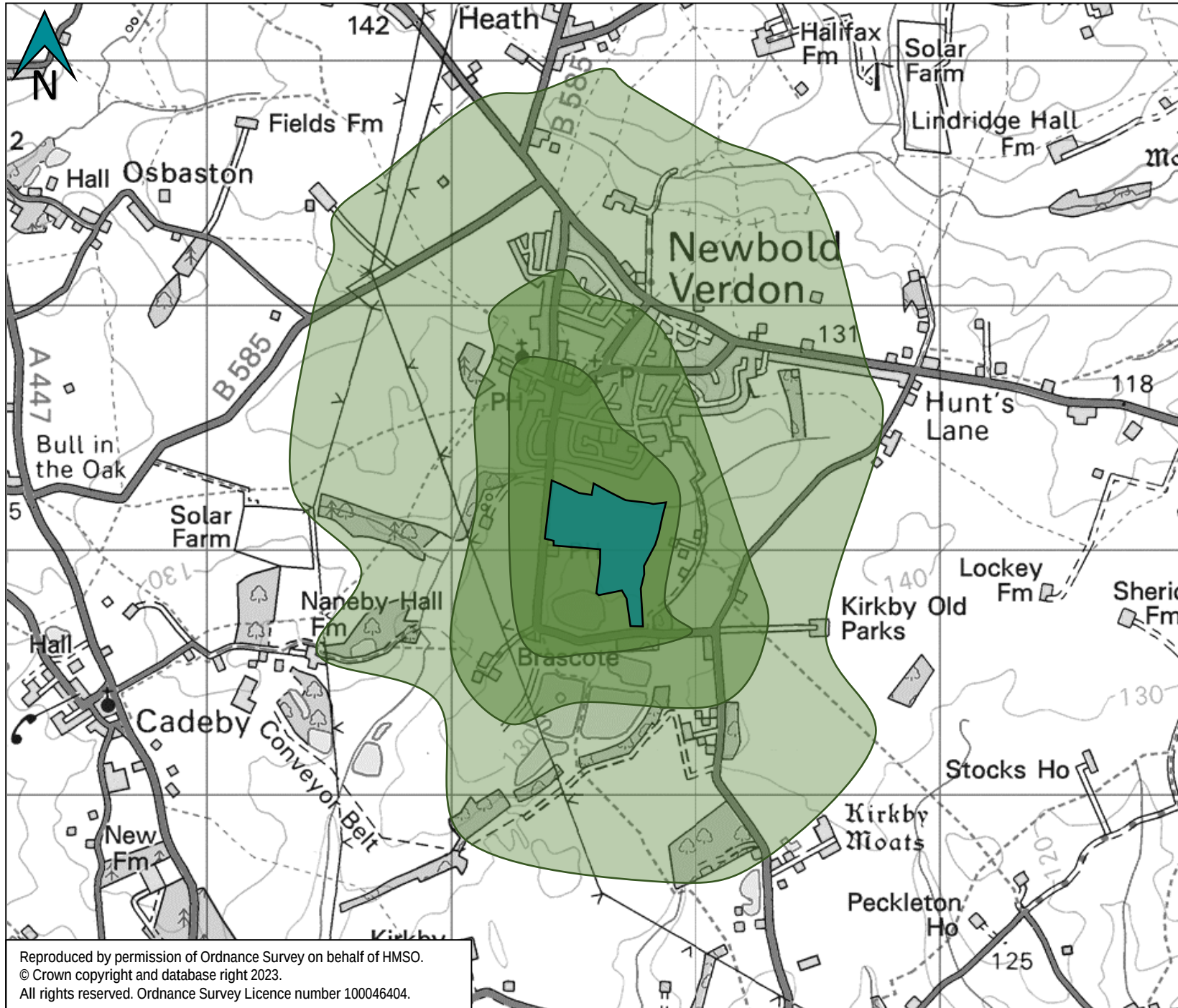
Legend

- Site
- Bus Stops
- 1 Newbold Verdon Primary School
- 2 Heathbrook Pharmacy
- 3 Newbold Verdon Medical Practice
- 4 The Windmill Inn
- 5 Newbold Verdon Cricket Club
- 6 Newbold Verdon Equestrian Centre
- 7 Newbold Verdon Methodist Church
- 8 Church of St. James
- 9 Newbold Verdon Baptist Church
- 10 Newbold Verdon Library
- 11 The Co-Op Food
- 12 Kareem's Balti
- 13 Lotus House
- Main Street Facilities (Incl. Convenience Stores, Cafés, Hairdressers, Public House, and Takeaways)



Not to Scale
Brascote Lane
Newbold Verdon
Figure 3.1 – Local Facilities

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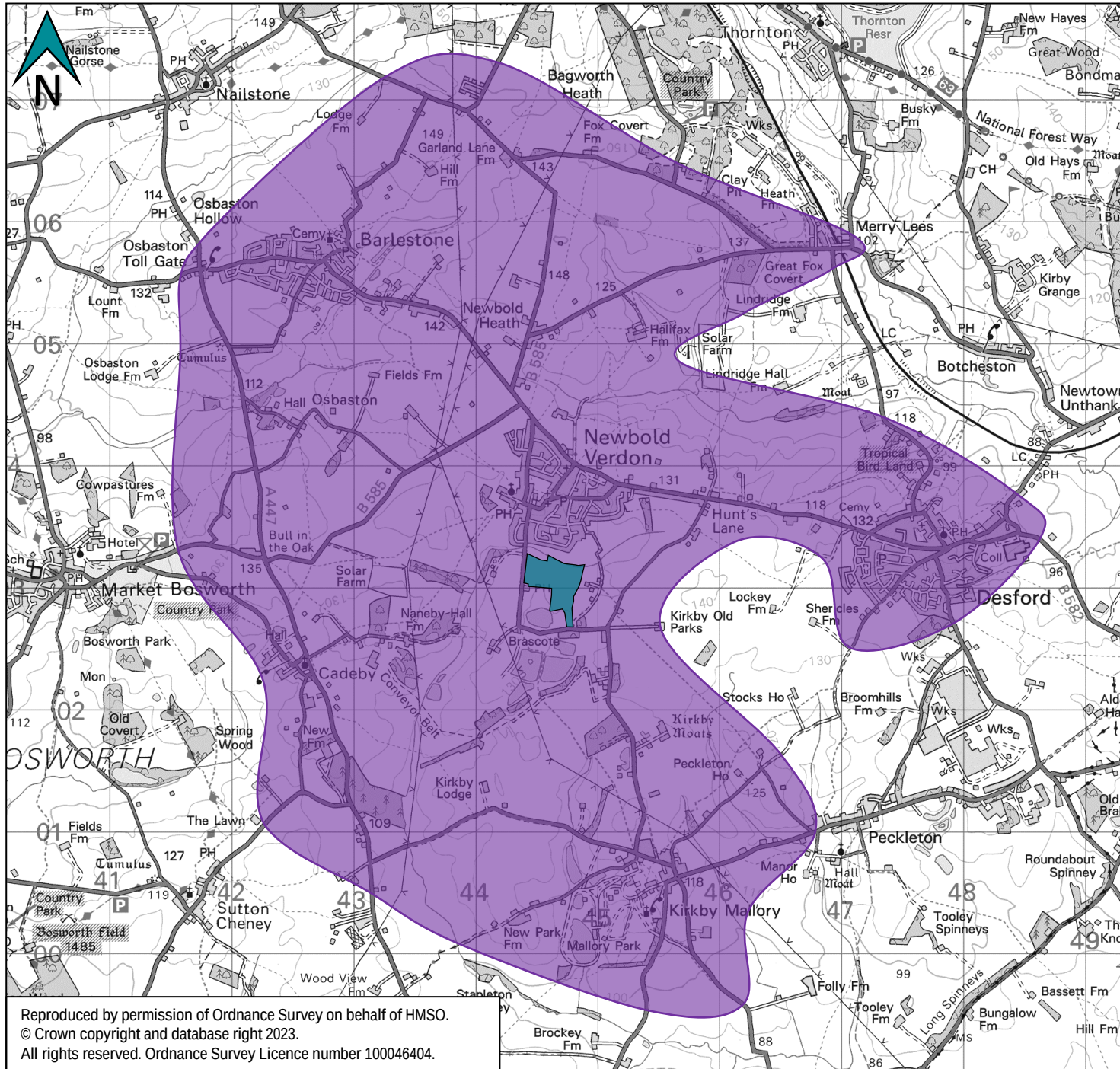
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-  Site
-  800 Walk Distance
-  1.20km Walk Distance
-  2.0km Walk Distance



Not to Scale
Brascote Lane
Newbold Verdon
Figure 3.2 – Walk Distances

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Legend



Site



5.0km Cycle Distance



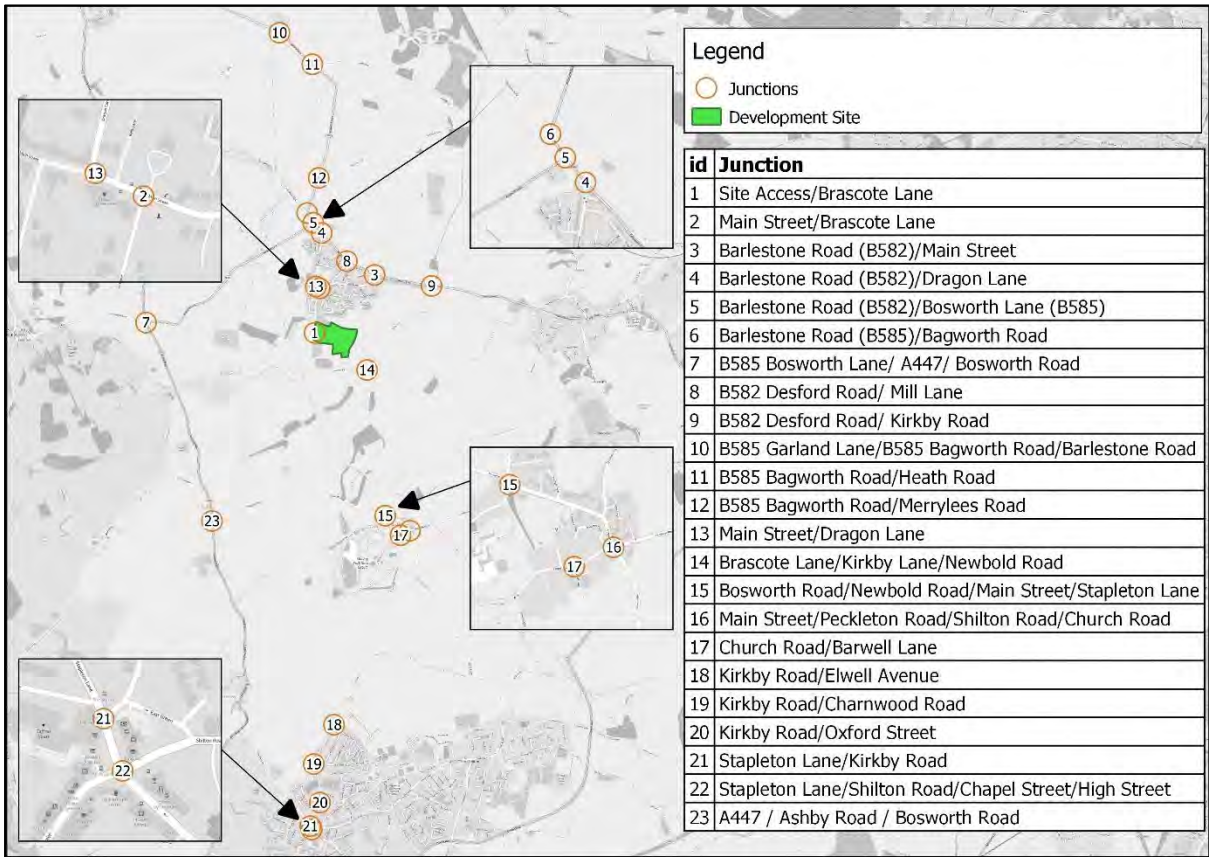
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Brascote Lane

Newbold Verdon

Figure 3.3 – Cycle Distances

Figure 3.7: Location of Forecast Turning Flow Data



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T20517
Brascote Lane, Newbold Verdon



Drawings

1:250

KEY

- EXISTING ROAD LEVEL ALONG CENTRELINE
- VISIBILITY ENVELOPE FROM SITE ACCESS JUNCTION TO THE SOUTH ALONG BRASCOTE LANE
- VISIBILITY ENVELOPE FROM SITE ACCESS JUNCTION TO THE NORTH ALONG BRASCOTE LANE

127.41m - LORRY DRIVER HEIGHT 2.0m ABOVE EXISTING ROAD LEVEL AT 2.4m BACK FROM GIVEWAY LINE

126.46m - DRIVER HEIGHT 1.05m ABOVE EXISTING ROAD LEVEL 2.4m BACK FROM GIVEWAY LINE

1.05m ABOVE EXISTING CARRIAGEWAY

0.6m ABOVE EXISTING CARRIAGEWAY

1.05m ABOVE EXISTING CARRIAGEWAY

0.6m ABOVE EXISTING CARRIAGEWAY

160.00

160.00

SITE ACCESS

CHANCE

EXISTING LEVEL

- [illegible]

hub
TRANSPORT PLANNING LTD

Hub Transport Planning Ltd
Radclyffe House
66/68 Hagley Road
Edgbaston
Birmingham
West Midlands
B16 8PF

T : 0121 454 5530

PROJECT

LAND OFF BRASCOTE LANE
NEWBOLD VERDON

DRAWN	AUTHORISED	SCALE	SHEET SIZE	DATE
ML	GM	AS SHOWN	A2	28.07.22

PROJECT NO.	DRAWING NO.	REV
T20517	001	B

