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Dearne Valley Parkway Mixed Use Development

Transport Assessment

March 2015

MIXED USE DEVELOPMENT
DEARNE VALLEY PARKWAY, BIRDWELL, SOUTH YORKSHIRE

HARTWOOD ESTATES LIMITED

TRANSPORT ASSESSMENT

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1.0 INTRODUCTION

1.1 This Transport Assessment (TA) forms part of an outline planning application by Hartwood Estates Limited, which seeks permission to develop an area of land off the A6195 Dearne Valley Parkway for an employment led mixed use site.

1.2 The land is currently un-developed grassland and is located to the south east of Birdwell. The site is bounded by the Rockingham Business Park to the north-west, by a highways depot to the south-west and by the A6195 Dearne Valley Parkway to the east.

1.3 The outline planning application for the employment led mixed use scheme comprises office (B1), general industrial (B2), warehouse/distribution (B8), food and drink (A3/A4), hotel (C1) and petrol filling station / fast food restaurant (sui generis/A3) and associated infrastructure. The quantum of development in the application is set out below:

- 600m^2 class A3/A4 unit;
- 2000m^2 class B1 business units;
- 500m^2 class B2 industrial units;
- 1000m^2 class B1/B2 units;
- 2287m^2 class B8 storage/distribution units;
- 1300m2 class C1 50-bed hotel; and
- 500m2 petrol filling station (PFS)/fast food restaurant.

The proposals include the construction of 253 associated car parking spaces.

1.4 Vehicular access to the site will be provided via a spur to the north west of the site from a fourth arm at the A6195 Dearne Valley Parkway Rockingham Roundabout. Pedestrian access will also be provided at this point via footways on both sides of the carriageway, with dropped kerbs and tactile paving crossing provided at the new roundabout arm. The fourth arm at Rockingham Roundabout and spur into the site will be constructed as part of the committed development on land to the north-east, planning reference 2015/0091.

1.5 This TA makes reference to the Department for Transport Communities and Local Government revised Planning Practice Guidance (March 2014). It considers the current usage of the local network and assesses its suitability to accommodate the traffic that is likely to be generated by the development of the site. It also considers the historic road safety record of the highway network in the vicinity of the site.

1.6 This TA further considers the sustainability and accessibility of the site, including its proximity to local public transport services and the availability of facilities and services within acceptable travelling distances by a variety of transport modes including on foot and cycling.

1.7 Following this introduction the TA will be structured into the following sections:

Section 2.0 Transport Policy

This section will set out the local and national policy relevant to the application site.

Section 3.0 Existing Situation

This section will describe the existing transport network and local infrastructure, in the vicinity of the site.

Section 4.0 Existing Operating Conditions

This section will assess the existing operation of the highway network in the absence of the development.

Section 5.0 Sustainable Transport

This section will describe, identify and propose sustainable transport measures aimed at reducing the reliance on the private car.

Section 6.0 Base Operating Conditions

This section will assess the future operation of the highway network in the absence of the development.

Section 7.0 Development Proposal

This section will describe the proposed development and the access strategy.

Section 8.0 Trip Generation and Assignment

This section presents appropriate trip generation rates for the development and describes the assignment of this traffic.

Section 9.0 Traffic Impact on the Local Highway Network

Using the trip generation calculated in Section 8.0, the impact of the traffic generated by development on the local transport network is presented in this section.

Section 10.0 Summary and Conclusions

This section will present a summary of the findings and the conclusions drawn from the analysis contained within the TA.

1.8 This TA demonstrates that, subject to local improvement schemes, the traffic likely to be generated by the development proposal can be safely and satisfactorily accommodated on the local highway network and will not result in severe impact on the operation of the network in the vicinity of the site, or be likely to create conditions that are detrimental to road safety.

1.9 It is, therefore, concluded that there are no traffic capacity or road safety related reasons why the development should not be granted planning approval.

2.0 TRANSPORT POLICY

National Planning Policy Framework

2.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how they are expected to be applied. At the heart of the NPPF is a presumption in favour of sustainable development which the document indicates should be seen as a 'golden thread' running through the decision making process.

2.2 Within the overarching roles that the planning system ought to play the NPPF indicates that there are a set of core land use planning principles which should underpin the decision making process. Specifically in relation to transport these principles include:

- Actively managing patterns of growth to make the fullest possible use of public transport, walking and cycling, and focussing significant development in locations which are or can be made sustainable.

2.3 The NPPF indicates that all developments which generate significant amounts of movement should be supported by a Transport Assessment and the decision making process should take account of whether:

- The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- Safe and suitable access to the site can be achieved for all people; and
- Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

2.4 The NPPF indicates that the decision making process should ensure that developments which generate significant movements are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised.

2.5 The NPPF further indicates that development should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed (where practical) to:

- Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones; and
- Consider the needs of people with disabilities by all modes of transport.

2.6 The NPPF indicates that a key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan, and the application for this site is accompanied by a Framework Travel Plan.

2.7 The NPPF indicates that planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities.

Planning Practice Guidance

2.8 The Planning Practice Guidance contains the chapter "Travel plans, transport assessments and statements in decision-taking." The chapter makes reference to the NPPF, which states that that all developments that generate significant amounts of transport movement should be supported by a Transport Statement or Transport Assessment.

2.9 In paragraph 13 the guidance stipulates that in order to determine whether a Transport Assessment or Statement will be needed for a proposed development, local planning authorities should take into account the following considerations:

- *The Transport Assessment and Statement policies (if any) of the Local Plan;*
- *The scale of the proposed development and its potential for additional trip generation (smaller applications with limited impacts may not need a Transport Assessment or Statement);*
- *Existing intensity of transport use and the availability of public transport;*
- *Proximity to nearby environmental designations or sensitive areas ;*
- *Impact on other priorities/strategies (such as promoting walking and cycling);*

- *The cumulative impacts of multiple developments within a particular area; and*

- *Whether there are particular types of impacts around which to focus the Transport Assessment or Statement (e.g. assessing traffic generated at peak times).*

2.10 It is suggested that the development proposals and associated trip generation would meet some of the above criteria and therefore this Transport Assessment has been produced in accordance with the scope agreed with Barnsley Metropolitan Borough Council (BMBC).

South Yorkshire Local Transport Plan

2.12 Birdwell is covered by the third South Yorkshire Local Transport Plan (SYLTP3) covering the period 2011-2026. The Plan objectives, set out with reference to the national shared priorities for transport agreed by the Department for Transport and the Local Government Association, are for the transport system to support the economic growth of the Sheffield City Region (SCR), enhance social inclusion and health, reduce emissions from vehicles and to make transport increasingly safe and secure.

2.13 The issues to be tackled by SYLTP are delivering accessibility, tackling congestion, providing safer roads, better air quality and effective asset management. The LTP recognises that Travel Plans have a part to play in dealing with three of these five issues and the Framework Travel Plan that accompanies this TA will address this requirement.

Barnsley Local Development Framework (LDF) – Core Strategy

2.14 Birdwell is covered by the Barnsley Core Strategy, published in 2010 as part of the Council's Local Development Framework. It sets out the key elements of the planning framework for Barnsley and surrounding areas, and the approach to its long term physical development up to the year 2026.

2.15 Outlined in the Core Strategy are various strategic objectives, the relevant ones being to:

- Improve access, movement and connectivity with sustainable travel through reducing the reliance on the private car and improving public transport links between settlements;
- Make efficient use of land and infrastructure through delivering planned growth and making the best use of existing and proposed infrastructure;

- Ensure all new development is sustainably designed and built to the highest standards

2.16 As part of the Core Strategy, BMBC has introduced core strategic policies which are intended to guide the location, type and quality of development in the borough. CSP 11 aims at providing strategic employment locations;

> *"We will allocate 350 hectares of land in sustainable locations to meet the development needs of existing and future industry and business up to 2026. This will provide a choice of sites in places that meet the needs of businesses and their workforce in terms of accessibility and are accessible from communities that would benefit from greater access to job opportunities".*

2.17 CSP 12 is a policy regarding the distribution of new employment sites and provides the limits of new employment sites within the Barnsley boroughs. It sets out between 50-65 hectares for new development in Hoyland, and up to 15 hectares for other minor towns and villages. The policy states:

> *"An allowance has been made of up to 15 ha of employment land in other parts of the borough outside Urban Barnsley and the Principal Towns to allow some flexibility. It should be noted that there is no minimum level of provision outside Urban Barnsley and the Principal Towns, and hence no requirement that there be any particular level of provision. Sites outside Urban Barnsley and the Principal Towns will have to demonstrate improved accessibility and the sustainability of their location."*

One Barnsley's Sustainable Community Strategy (SCS)

2.18 Barnsley's SCS sets out the strategic vision for Barnsley as:

> *"A successful, uniquely distinctive 21st century market town at the centre of a borough that offers prosperity and a high quality of life for all."*

To achieve this vision BMBC has set out two key priorities to ensure that the right environment for more private sector growth is created to increase the boroughs employments levels:

- Grow a 21st century economy in the Borough;
- Grow a 21st century relationship between citizens, voluntary/community groups and public sector agencies and organisations within Barnsley

3.0 THE EXISTING SITUATION

The Application Site

3.1 The site is bounded by the Rockingham Business Park to the north-west, by a highways depot to the south-west and by the A6195 Dearne Valley Parkway to the east. A plan showing the location of the site is attached at **Appendix BGH1**.

3.2 The land is currently un-developed grassland, which is located to the south east of Birdwell with no existing vehicular access.

The Local Highway Network

3.3 Dearne Valley Parkway, classified A6195, runs in a north-south direction for approximately 380 metres, alongside the sites eastern boundary, from Birdwell roundabout to Rockingham roundabout. It is dualled in both directions with traffic flow separated by a central reserve with safety barrier. It is street lit, and subject to the national speed limit.

3.4 Birdwell roundabout (four arms) distributes traffic between Junction 36 of the M1 and the A61 towards Barnsley and Birdwell, the A6135 towards Hoyland and the A6195 Dearne Valley Parkway. Rockingham roundabout to the north (four arms) currently facilitates the through movement along the A6195 Dearne Valley Parkway, although the two stub arms to the north west and south east have clearly been provided to provide future access to development sites.

3.5 In the vicinity of the development site, Sheffield Road is a single carriageway, two-way road which is typically some 8.5-9.5 metres wide with variable width 1.5-2.5 metre wide footways on both sides of the carriageway. The A61 Sheffield Road forms the north western (A61) arm of Birdwell roundabout, distributing traffic towards Birdwell and Barnsley whilst to the south east Sheffield Road is classified as the A6135 and serves Hoyland. Sheffield Road is lit and is subject to a 30mph speed limit from its junction with Birdwell roundabout, although the roundabout itself is subject to the national speed limit.

3.6 The A61 also forms the southern arm of the Birdwell roundabout, connecting to the M1 J36 as well as settlements to the west, such as Tankersley, Burncross, Chapeltown and ultimately Sheffield. From Birdwell roundabout, the A61 continues as a dual carriageway for approximately 80m before meeting with Barnsley roundabout the grade separated Junction 36 of the M1. Junction 36 provides grade separated access to the M1, with the off slip roads signalised at

the circulatory carriageway of the roundabout. To the west of J36 the A61 is subject to a 50 mph speed limit.

Personal Injury Accidents

3.7 The record of personal injury accidents that have occurred on the local highway network in the vicinity of the site during the five year period commencing 1st January 2009 has been obtained from BMBC and is attached at **Appendix BGH2**. Within the area considered, there have been a total of 15 personal injury accidents (two on the approach to Barnsley roundabout), all 15 of which have been classified as slight in severity.

3.8 The 15 accidents resulted in 20 casualties (all 20 slight). This equates to a severity ratio of 0 (killed and seriously injured [KSI] casualties/all casualties).

3.9 There is one recorded accident along the site frontage on Dearne Valley Parkway during the five year period under scrutiny. The accident involved a vehicle colliding with the rear of another vehicle and was the result of the lead vehicle suddenly braking and the following vehicle failing to react appropriately and take evasive action.

3.10 Six of the accidents occurred on the eastern approach to the Birdwell roundabout (Sheffield Road, A6135), with 11 in total occurring across the whole roundabout. The accident record at Birdwell roundabout equates to 2.2 injury accidents/year. An examination of the details indicates that there is a pattern of rear shunts, particularly in relation to vehicles waiting to enter the roundabout from the east. However, the road at this point is subject to a 30mph speed limit, there are appropriate traffic signs indicating the location of the roundabout, and good visibility on the approach. Clearly rear shunts are a relatively common accident type at roundabouts, and, as it does not appear that the traffic collisions are as a consequence of the highway layout, there may be merit in the highway authority checking the surface skid resistance on the approach and perhaps considering some form of anti-skid surfacing to try and address this issue. There are no recurring causation factors in relation to the four accidents that have occurred at the junction which were not classified as rear shunts.

3.11 Overall, it is considered that there are no highway layout characteristics adversely affecting road safety in the vicinity of the site that would be directly impacted upon by the additional traffic associated with the development.

4.0 EXISTING OPERATING CONDITIONS

4.1 In order to determine the existing traffic situation in the peak hours on the local highway network, traffic surveys were undertaken on Thursday 9th October 2014 between 7:00am – 10:00am, 4:00pm to 7:00pm and Saturday 11th October 2014 between 11:30am - 2:30pm at the following roundabouts:

- Birdwell roundabout – between the A6195, A6135 and A61
- Rockingham roundabout – two-way traffic along the A6195, Dearne Valley Parkway

4.2 The results of the surveys are attached at **Appendix BGH3** and show that the weekday AM and PM peak periods occurred between 7:30am – 8:30am and 16:45pm – 17:45pm respectively, and the Saturday peak period between 13:00pm – 14:00pm. Diagrams showing the existing peak hour traffic flows at the junctions are attached at **Appendix BGH4.**

Birdwell Roundabout

4.3 The current peak hour operational characteristics of the Birdwell roundabout has been assessed using Junctions 8 computer modelling software, with the results summarised in Table 4.1 overleaf and the full technical output attached at **Appendix BGH5**.

4.4 The model results show Ratio of Flow to Capacity (RFC) values for the A61 Sheffield Road approach to Birdwell roundabout (from the north) as being above the 0.85 threshold RFC value but below 1.0 for the weekday AM and PM peak, with maximum queues of 9 and 7 vehicles respectively. Therefore, whilst the junction is operating below the theoretical maximum capacity, it is at the point where queuing and delay start to occur, i.e. RFC below 1.0, RFC's in this order generally indicate longer waiting times and queues at a junction.

Table 4.1
2014 Existing– Birdwell Priority Roundabout

Link	Existing Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.56	1	0.56	1	0.48	1
A61 South	0.50	1	0.80	4	0.45	1
A61 Birdwell	0.91	9	0.89	7	0.63	2
A6195 Dearne Valley Parkway	0.67	2	0.67	2	0.41	1

Rockingham Roundabout

4.5 The current peak hour operational characteristics of the Rockingham Road roundabout have also been assessed using the Junctions8 computer modelling software, with the results summarised in Table 4.2 below and the full technical output attached at **Appendix BGH5**. It can be seen that the junction is currently operating well within capacity during both the Weekday AM, PM and Saturday peak periods, with practically no queuing.

Table 4.2
2014 Existing– Rockingham Priority Roundabout

Link	Existing Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6195 Dearne Valley Parkway South	0.37	1	0.39	1	0.24	0
A6195 Dearne Valley Parkway North	0.33	0	0.32	0	0.21	0

5.0 SUSTAINABLE TRANSPORT

5.1 National and local transport policies seek to reduce the need to travel and to promote the use of alternative modes to the private car. The development proposal is consistent with these objectives and includes provision of a Framework Travel Plan to encourage the use of public transport, walking and cycling.

Public Transport Accessibility

5.2 With regard to public transport provision at new development, the Institution of Highways and Transportation publication 'Guidelines for Public Transport in Developments' states:

> *"The maximum walking distance to a bus stop should not exceed 400m and preferably be no more than 300m. These distances are quoted for guidance, and should not be followed slavishly if that would lead to complex or indirect bus routes"*

5.3 'Planning for Public Transport in Developments' also sets out that new infrastructure should be located so that walking distances to the nearest bus stop are less than 400 metres and less than 200 metres in city centres.

5.4 There are currently no operating bus routes along Dearne Valley Parkway in the vicinity of the development site. There are various bus routes along the A61/A6135 corridor, operating frequent services between Sheffield and Barnsley, as well as smaller towns such as Birdwell, Hoyland, Tankersley and Worsbrough.

5.5 The nearest bus stops to the proposed development are located on the A61 and A6135 Sheffield Road, approximately 180 metres to the west and 340 metres to the east of Birdwell roundabout, or 265 and 450 metres from the pedestrian access onto Dearne Valley Parkway.

5.6 Details of the services which are available at these stops are shown in Table 5.1 below with an extract from the South Yorkshire Transport services map attached at **Appendix BGH6**.

Table 5.1
Summary of Existing Bus Services

Route Number	Route Description	Frequency		
		Monday - Saturday	Evening	Sunday
66/N66	Barnsley-Birdwell-Hoyland-Jump-Elsecar	10mins	60mins	30mins
67/67A	Barnsley-Worsbrough-Birdwell-Hoyland-Jump-Wombwell	60mins	60mins	120mins
7/7A	Barnsley-Worsbrough-Platts Common-Hoyland-Tankersley-Pilley-Birdwell	120mins	-	-
227	Rotherham-Greasbrough - Wentworth-Elsecar-Hoyland-Birdwell-Barnsley	60mins	60mins	60mins
265	Sheffield-Ecclesfield-Chapeltown-Hoyland-Birdwell-Worsbrough-Barnsley	30mins	60mins	60mins
X10	Barnsley-Worsbrough-Birdwell-Hoyland-Chapeltown-Ecclesfield-Meadowhall	60mins	-	-

Pedestrian Accessibility

5.7 With regard pedestrian provision at new development the Institution of Highways and Transportation 'Guidelines for Providing for Journeys on Foot' sets out the following suggested acceptable walking distances to and from development for commuting/school and other journeys (including retail and shopping).

Table 5.2
IHT Recommended Walking Distances

	Trip Purpose	
	Commuting/School	Other Journeys (Retail/Shopping)
Desirable Maximum Distance	500 metres	400 metres
Acceptable Maximum Distance	1,000 metres	800 metres
Preferred Maximum Distance	2,000 metres	1,200 metres

5.8 The plan at **Appendix BGH7** shows a 0.4km, 0.8km, 1.2km, 1.6km and 2.0km walking catchment area around the application site and demonstrates that the site is well within an acceptable walking distance of several residential areas, principally to the north-west of the site at Birdwell and to the east towards Hoyland. It is therefore considered that the site is reasonably located to promote trips by foot.

5.9 Pedestrian access will also be provided into the site via pedestrian only routes from Dearne Valley Parkway. Pedestrian access will also be provided to the site via footways alongside the proposed vehicular access on the north-western arm of Rockingham roundabout, from Dearne Valley Parkway, with dropped kerbs and tactile paving provided across this arm and along the road into the site.

Cycle Accessibility

5.10 Cycling has clear potential to substitute for short car trips, particularly those within 5.0 km - 8.0 km and to form part of a longer journey by public transport. The plan at **Appendix BGH8** shows that the areas of Hoyland, Brampton, Chapeltown, Wombwell and a large part of Barnsley are within 8.0 km of the application site. The development site is therefore located within cycling distance of a very large population, however more importantly it is readily accessible to local residents and businesses.

5.11 There are no designated cycle lanes in the area; however there are two nearby Cycle Routes:

- National Cycle Route No 67 runs from Long Whatton near Loughborough to join National Route 71 near Northallerton in North Yorkshire and is located approximately 300 metres to the south of the site; and
- A timberland/trans trail travelling west through Tankersley that meets National Cycle Route 6 by Wortley.

6.0 BASE OPERATING CONDITIONS

6.1 The development has been assessed five years after the date of registration of the application (2019). Peak hour traffic flows (without development) at 2019 have been determined using Tempro adjusted National Transport Model (NTM) growth factors for the Hoyland Nether area, as set out in Table 6.1 below.

Table 6.1
Tempro Adjusted National Transport Model Growth Factors

	NTM Growth Factors		
	Weekday AM Peak Period	**Weekday PM Peak Period**	**Saturday Peak Period**
2014 – 2019 Hoyland Nether	1.0817	1.0848	1.0884

6.2 Whilst it is acknowledged that when affecting the Strategic Road Network (SRN), a period of at least 10 years is normally applied, the attached correspondence at **Appendix BGH9** from the Highways Agency confirms that assessment of the SRN is not necessary.

6.3 Application of the above growth factors to the existing peak hour flows shown on the diagrams at **Appendix BGH4**; provide growthed peak hour flows at 2019, as shown on the diagrams at **Appendix BGH10**. As the analysis of the SRN is not required, Tankersley Roundabout and the adjoining links at junction 36 of the M1 have not been assessed.

Committed Developments

6.4 Several committed developments in the local vicinity of the site have been considered, with traffic flows obtained from their submitted Transport Assessments. The committed developments considered are:

- Mixed Use Retail Park on land to the north-east, reference 2015/0091
- 41 unit residential development on land at New Road, Pilley, reference 2013/1007
- 35 unit residential development on land at Lidgett Lane, Pilley, reference 2013/1006
- Aldi Store on Sheffield Road, Birdwell, reference 2014/0701

The flows resulting from the developments have been obtained and are shown together at **Appendix BGH11**.

6.5 As part of the Mixed Use Retail Park development on land to the north-east, 0.2 metre widening was proposed on the A61 Birdwell approach to the Birdwell Roundabout with associated effective flare length increase.

Birdwell Roundabout

6.6 The growthed plus committed peak hour flows for the Birdwell roundabout have been assessed using Junctions 8 computer modelling software, with the results summarised in Table 6.2 below and the full technical output attached at **Appendix BGH12**. These flows include those of the committed developments and the associated geometric improvements to the roundabout. It can be seen that with these additional flows and the improvements, the junction is predicted to operate with a maximum RFC of 0.91.

Table 6.2
2019 Growthed & Committed – Birdwell Roundabout

Link	Growthed & Committed Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.68	2	0.70	3	0.60	2
A61 South	0.56	1	0.91	9	0.54	1
A61 Birdwell	0.88	7	0.91	8	0.64	2
A6195 Dearne Valley Parkway	0.77	3	0.80	4	0.53	1

Rockingham Roundabout

6.7 The growthed plus committed traffic flow peak hour operational characteristics of the Rockingham roundabout have also been assessed using Junctions8 computer modelling software, with the results summarised in Table 6.3 below and the full technical output attached at **Appendix BGH12**. The flows used include those associated with the committed developments. It can be seen that the junction is predicted to continue to operate within capacity in the future year scenario.

Table 6.3
2019 Growthed & Committed– Rockingham Roundabout

Link	Growthed & Committed Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6195 Dearne Valley Parkway South	0.42	1	0.45	1	0.28	0
Site Access	0.13	0	0.15	0	0.11	0
A6195 Dearne Valley Parkway North	0.37	1	0.36	1	0.24	0

7.0 THE DEVELOPMENT PROPOSAL

7.1 The outline planning application for the employment led mixed use scheme comprises office (B1), general industrial (B2), warehouse/distribution (B8), food and drink (A3/A4), hotel (C1) and petrol filling station / fast food restaurant (sui generis/A3) and associated infrastructure. The quantum of development in this application is set out below:

- 600m^2 class A3/A4 unit;
- 2000m^2 class B1 business units;
- 500m^2 class B2 industrial units;
- 1000m^2 class B1/B2 units;
- 2287m^2 class B8 storage/distribution units;
- 1300m2 class C1 50-bed hotel; and
- 500m2 petrol filling station (PFS)/fast food restaurant.

The proposals include the construction of 253 associated car parking spaces as shown on the indicative site layout plan attached at **Appendix BGH13.**

7.2 Vehicular access to the site will be provided via a spur from a fourth arm to the north-west on the A6195 Dearne Valley Parkway Rockingham Roundabout. Pedestrian access will also be provided at this point via footways on both sides of the carriageway, with dropped kerbs and tactile paving provided at the new roundabout arm. This arm and spur road will be constructed as part of the committed development on land to the north-east, planning reference 2015/0091.

7.3 An improvement scheme for the A61 Birdwell roundabout at Junction 36 of the M1 has recently been approved by BMBC (planning reference: 2014/1516). These improvements include creating two new roundabouts with a road to access the Dearne Valley employment sites, together with the realignment of the A6135. There is partial signalisation of the scheme, which also includes signalised pedestrians crossings. Also proposed, is a dedicated lane from the motorway slip road onto the A61, into Barnsley. As and when this scheme is implemented the road network in the vicinity of the site will benefit from a significant increase in available capacity as well as providing benefits to pedestrian and cycle accessibility.

7.4 Servicing access to the development site will be from the same point of access on the A6195 Dearne Valley Parkway, Rockingham roundabout, from where, delivery vehicles will be able to access all parts of the site as appropriate.

7.5 The 253 associated car parking spaces are distributed amongst the units of the development as shown in Table 7.1 below. The table shows that the number of allocated parking spaces is in line with the number allowed by BMBC parking standards.

Table 7.1
Car Parking Distribution

Land Use	GFA of unit (m^2)	BMBC Parking guidelines	Maximum no. of spaces allowed	Allocated Spaces
Food Drink A3/A4	600	1 customer space per $4m^2$ 1 space per staff 1 space per 3 non-residential staff	155	81
Business B1	2000	1 space per $35m^2$	57	73
Industrial B2	500	1 space per $60m^2$	8	N/A
Industrial/Business B1/B2	1000	1 space per 1 space per $50m^2$	20	22
Storage/Distribution B8	2287	1 space per $60m^2$ up to $300m^2$, then 1 space per $100m^2$ up to $1000m^2$, and 1 space per $150m^2$ thereafter	21	6
50 Bed Hotel C1	1300	-	Not specified	61
PFS with retail	500	-	Not specified	10
Total	**8187**	**N/A**	**261**	**253**

7.6 It is considered that, given the general desire to influence travel behaviour and reduce car borne access, the proximity of the site to frequent bus services, the provision of a direct footway link to the surrounding residential areas and the developer's commitment to introduce travel planning measures, the proposed level of parking provision is appropriate to serve the development. It is considered that the level of parking proposed is adequate to accommodate peak demand.

8.0 TRIP GENERATION AND ASSIGNMENT

8.1 The site consists of previously un-developed land, effectively comprising a grassed area. As such the site is currently not generating any traffic and hence any generated trips are considered as new trips to the local highway network.

8.2 The likely trip generation of each of the component parts of the proposed development has been established using the Trip Rate Information Computer System (TRICS) database. The relevant vehicular trip rates are summarised in Table 8.1 below, with full TRICS outputs attached at **Appendix BGH14**. The resulting generated traffic levels are set out in Table 8.2 overleaf.

Table 8.1
Trip Rates for the Development Proposal

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Food/Drink A3/A4	0.398	0.321	0.719	3.012	2.875	5.887	5.032	4.934	9.966
Business	0.676	0.188	0.864	0.096	0.724	0.82	0	0	0
Industrial	0.286	0.055	0.341	0.104	0.243	0.347	0	0	0
Business / Industrial	0.286	0.055	0.341	0.104	0.243	0.347	0	0	0
Storage / Distribution	0.056	0.032	0.088	0.047	0.044	0.091	0	0	0
50-bed hotel	0.175	0.237	0.412	0.199	0.122	0.321	0.132	0.355	0.487
PFS	9.431	9.404	18.835	10.615	11.037	21.652	13.618	13.927	27.545

Table 8.2
Development Generated Traffic Flows

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Food/Drink A3/A4	2	2	4	18	17	35	30	30	60
Business	14	4	17	2	14	16	0	0	0
Industrial	1	0	2	1	1	2	0	0	0
Business / Industrial	3	1	3	1	2	3	0	0	0
Storage / Distribution	1	1	2	1	1	2	0	0	0
50-bed hotel	9	12	21	10	6	16	7	18	24
PFS (30% pass-by)	53	53	105	59	62	121	76	78	154
Total	**83**	**72**	**155**	**92**	**104**	**196**	**113**	**125**	**238**

8.3 With all new developments of this nature, a proportion of the generated trips will be passing by the site, i.e. trips that are already on the highway network adjacent to the development which turn into the site, and it is usual to factor in a reduction to reflect this. It is assumed for this assessment that 30% of the traffic generated by the PFS are pass-by trips.

8.6 The resultant generated trips from Tables 8.1 and 8.2 above have been distributed on the local highway network according to the 2011 Travel to Work Census by area of residence/area of workplace. The assignment of the generated development flows is shown at **Appendix BGH15**.

Modal Split of the Generated Trips to the site

8.7 The development traffic flows presented above in Table 8.2 show the anticipated numbers of car trips to the site. However, it is possible to predict the number of trips, by all modes, that the site will generate i.e. “person trips”.

8.8 In the absence of any baseline data or travel to work surveys for the site, the 2011 Census Method of Travel to Work database has been interrogated to determine

mode splits for "Barnsley 028 2011 super output area - middle layer" i.e. the area in which the site is located (Image 1) and these are summarised in Table 8.3 overleaf.

Image 1 Barnsley 028 2011 super output area - middle layer

Table 8.3: Mode of Travel to Work for Barnsley 028 2011 super output area - middle layer

Mode of Travel to Work	2011 Census (%)
Rail	0
Bus	6
Driving a car or van	76
Passenger in a car or van	7
Bicycle	1
Foot	8
Other	2

8.9 The table above shows the likely mode of travel to the site based on existing journeys to work. The table overleaf identifies the person trips by all modes using the census journey to work data, and the trip generation of private cars associated with the development from the TRCS database.

8.10 Targets have been set within the Framework Travel Plan to reduce the modal split for single occupancy car trips from 76% to 65%, a reduction of 15%. The table below also therefore shows the person trips by all modes with the target mode share from the Travel Plan applied.

Table 8.4: Person Trips based on the TRICS database and Mode of Travel to Work data

Method of Travel	2011 Census			Travel Plan Targets		
	AM Peak	PM Peak	Sat Peak	AM Peak	PM Peak	Sat Peak
Rail	0	0	0	0	0	0
Bus	12	15	19	18	23	28
Driving a car or van	155	196	238	133	168	204
Passenger in a car or van	14	18	22	20	26	31
Bicycle	2	3	3	6	8	9
Foot	16	21	25	22	28	34
Other	4	5	6	4	5	6

9.0 TRAFFIC IMPACT ON THE LOCAL HIGHWAY NETWORK

9.1 The traffic likely to be generated by the development proposal (**Appendix BGH15**) has been added to the 2019 base flows at **Appendix BGH10** and the flows of the committed schemes at **Appendix BGH11** to provide predicted traffic flows on the network in 2019, as shown on the diagram at **Appendix BGH16**.

Birdwell Roundabout

9.2 The predicted peak hour operational characteristics of the Birdwell roundabout, including development traffic, has been assessed using Junctions 8 computer modelling software, with the results summarised in Table 9.1 below and the full technical output attached at **Appendix BGH17**.

Table 9.1
2019 Predicted – Birdwell Roundabout

Link	Predicted Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.72	2	0.76	3	0.64	2
A61 South	0.58	1	0.93	12	0.56	1
A61 Birdwell	0.93	10	0.97	15	0.70	2
A6195 Dearne Valley Parkway	0.81	4	0.86	5	0.60	1

9.3 A comparison of the results summarised at Tables 6.2 and 9.1 illustrates that the junction is predicted to operate with an RFC value of below 1.0 in the AM peak and PM on the A61 Sheffield Road Birdwell approach. The predicted queue with the development and committed development traffic combined is 10 vehicles in the AM peak, an increase of 3 vehicles over the growthed plus committed position, and 15 vehicles in the PM peak, an increase of 7 vehicles over the growthed plus committed position. Given the above, mitigation measures at this junction are proposed.

9.4 As part of the committed development on land to the north-east, a 0.2 metre widening of the entry to the junction within the available hatched area from the

A61 Sheffield Road (Birdwell) approach was proposed with associated effective flare length increase. The mitigation measure proposed as part of this development is a further 0.55 metre widening of this entry, within the same hatched area, to further increase the capacity, as indicated in the drawing attached at **Appendix BGH18**. The results of the improvement scheme modelling are summarised below and demonstrate that the scheme would mitigate the impacts of the development with predicted queue lengths and RFC's (all below 1.0) at similar levels to those in the 2019 growthed and committed scenario. The technical output is attached at **Appendix BGH19**.

Table 9.2
2019 Predicted with Mitigation Measures– Birdwell Roundabout

Link	Predicted Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.72	3	0.76	3	0.64	2
A61 South	0.58	1	0.93	12	0.56	1
A61 Birdwell	0.88	7	0.91	8	0.69	2
A6195 Dearne Valley Parkway	0.81	4	0.86	6	0.60	1

Rockingham Roundabout

9.5 The predicted peak hour operational characteristics of the Rockingham roundabout have also been assessed using Junctions8 computer modelling software, with the results summarised in Table 9.3 and the full technical output attached at **Appendix BGH17.**

Table 9.3
2019 Predicted– Rockingham Roundabout

Link	Predicted Flows					
	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6195 Dearne Valley Parkway South	0.45	1	0.48	1	0.31	0
Site Access	0.21	0	0.27	0	0.22	0
A6195 Dearne Valley Parkway North	0.38	1	0.38	1	0.26	0

9.6 It can be seen that the junction is predicted to continue to operate with minimal queuing and RFC's of below 0.85.

Birdwell Gyratory Scheme and VISSIM Modelling

9.7 As referred to previously, an improvement scheme to the A61 Birdwell roundabout at Junction 36 of the M1 has recently been approved by BMBC (planning reference: 2014/1516). These improvements include creating two new roundabouts with a road to access the Dearne Valley employment sites, together with the realignment of the A6135. There is partial signalisation of the scheme, which also includes signalised pedestrians crossings. A dedicated lane from the motorway slip road onto the A61, into Barnsley is also part of the scheme.

9.8 As part of the planning application for the scheme AECOM on behalf of BMBC constructed a VISSIM model of both the existing road network and the proposed road network. This was produced to demonstrate the impact of the scheme.

9.9 It has been agreed with BMBC that the proposed development, the subject of this TA, should be assessed using the VISSIM model for the existing road layout. AECOM have been commissioned to undertake a series of model runs to identify the impact of the development proposals using the following scenarios:

- Opening Year plus Committed Development (AM and PM Peak)
- Design Year VISSIM modelling plus Committed Development plus Development (AM and PM Peak)
- Design Year VISSIM modelling plus Committed Development plus Development plus Mitigation (AM and PM Peak)

9.10 The VISSIM modelling work is ongoing and will be reported on by AECOM as soon as it is available.

9.11 Given that the Birdwell Gyratory scheme will significantly increase the road capacity it has been agreed with BMBC that an assessment of the development impact is not required using the VISSIM model with the Birdwell Gyratory scheme in place.

10.0 SUMMARY & CONCLUSIONS

10.1 This TA forms part of a planning application submitted by Hartwood Estates Limited to develop land off A6195 Dearne Valley Parkway. The application proposes the construction of a mixed use development with associated car parking provision and servicing facilities.

10.2 The outline planning application for the employment led mixed use scheme comprises office (B1), general industrial (B2), warehouse/distribution (B8), food and drink (A3/A4), hotel (C1) and petrol filling station / fast food restaurant (sui generis/A3) and associated infrastructure. The quantum of development in this application is set out below:

- 600m^2 class A3/A4 unit;
- 2000m^2 class B1 business units;
- 500m^2 class B2 industrial units;
- 1000m^2 class B1/B2 units;
- 2287m^2 class B8 storage/distribution units;
- 1300m2 class C1 50-bed hotel; and
- 500m2 petrol filling station (PFS)/fast food restaurant.

The proposals include the construction of 253 associated car parking spaces.

10.3 Vehicular access to the site will be provided via a spur from a fourth arm to the north-west on the A6195 Dearne Valley Parkway Rockingham Roundabout. Pedestrian access will also be provided at this point via footways on both sides of the carriageway, with dropped kerbs and tactile paving provided at the new roundabout arm. This arm and spur road will be constructed as part of the committed development on land to the north-east, planning reference 2015/0091.

10.4 The development is served by a number of bus services on the Sheffield Road corridor which will encourage both employees and customers to use public transport when travelling to/from the development. The site is also suitably located to promote trips by foot and by cycle from the surrounding residential areas and benefits from a good local network of footways.

10.5 Unmitigated, the development will increase the queuing on the A61 Sheffield Road (Birdwell) approach to the Birdwell roundabout and as a consequence a scheme is proposed to widen this approach and mitigate the impact of the development.

10.6 The Rockingham priority roundabout will operate well within capacity following completion of the development, and provides direct access to the site.

10.7 In summary, this TA has shown that the proposed development site will be accessible by all modes of transport, consistent with both national and local transport planning policies. It has been demonstrated that the development will not result in severe harm to the highway network, and as such in accordance with paragraph 32 of NPPF, the development should not be prevented or refused on transport grounds subject to:

- The provision of a spur road off a fourth arm of the Rockingham Roundabout;
- The introduction of the widening improvement scheme on the A61 Sheffield Road (Birdwell) approach to Birdwell roundabout; and
- The introduction in full of the measures proposed in the Framework Travel Plan prepared for the site.

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