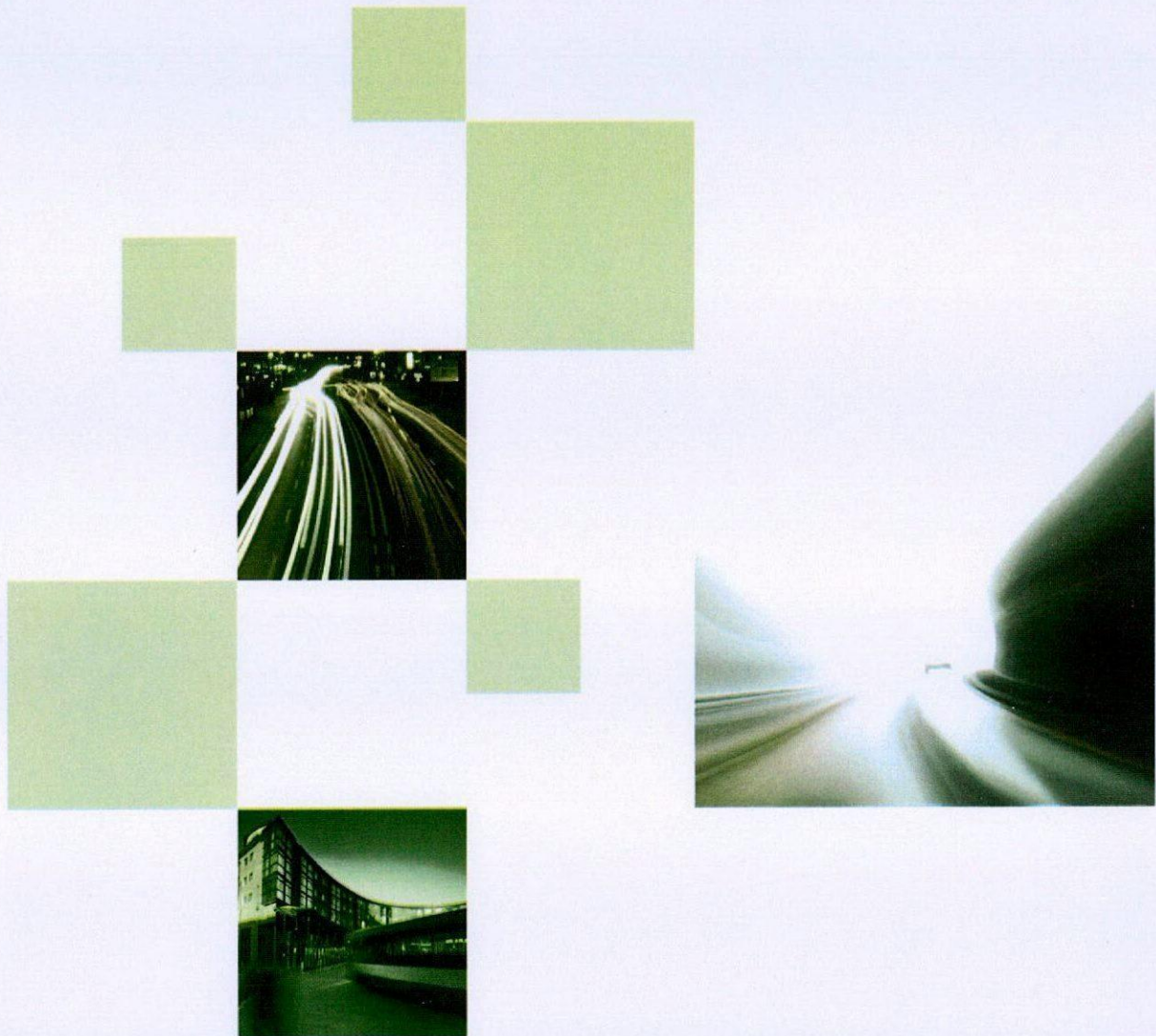


BRYAN G HALL

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Dearne Valley Parkway Mixed Use Development

Transport Assessment

November 2014



PROPOSED MIXED USE DEVELOPMENT
BIRDWELL, SOUTH YORKSHIRE

HARTWOOD ESTATES LIMITED

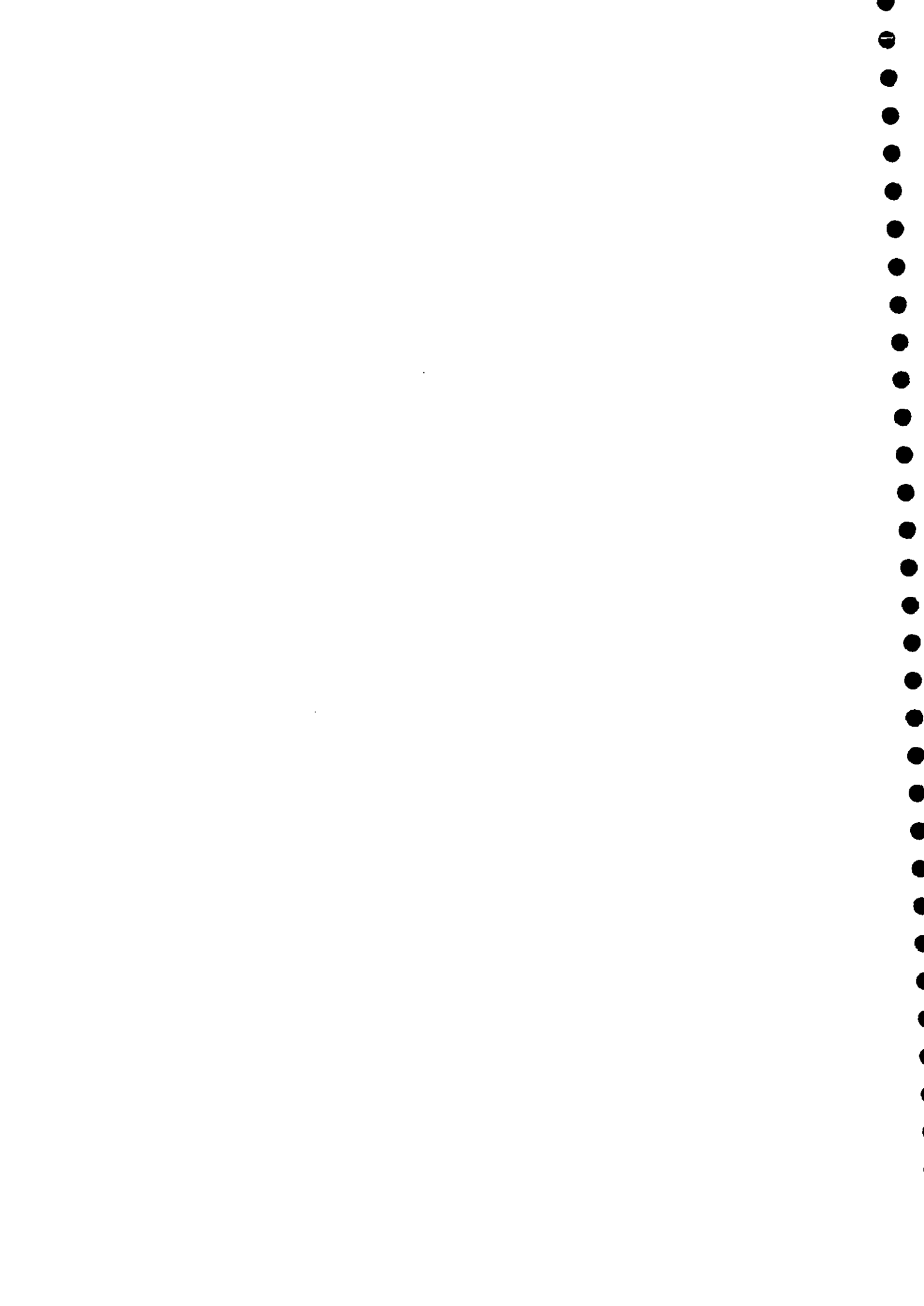
TRANSPORT ASSESSMENT

Report by: Nick Calder

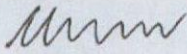
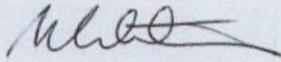
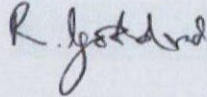
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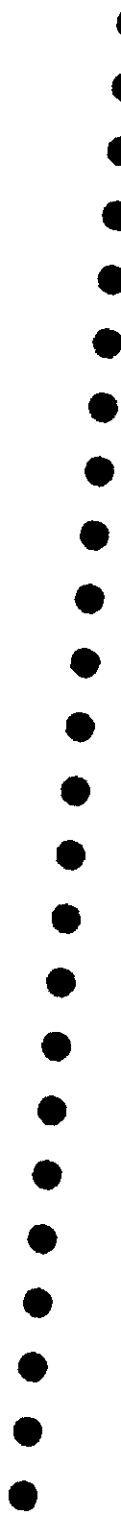
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Date: November 2014



Report Reference No: 10-336-002.01

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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 a mixed use site.

1.2 The land is currently un-developed grassland, which is located to the south east of Birdwell. The development 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 proposal includes the construction of a mixed use development with associated car parking provision and servicing facilities. The latest development proposals seek approval to construct:

- 497m² class A1 retail units;
- 498m² class A2 office;
- 304m² class A3 café;
- 669m² class A4 public house;
- 336m² class A5 fast food unit with drive-through;
- 2588m² class B2 industrial units;
- 689m² class D1 day/healthcare;
- 2166m² 80-bed hotel;
- 466m² petrol filling station (PFS) with retail area.

The proposals include the construction of 339 associated car parking spaces.

1.4 Vehicular access to the site will be provided by constructing a new access on A6195 Dearne Valley Parkway, accessible from the northbound carriageway, via a left-in/left-out arrangement. Pedestrian access will also be provided at this point via footways alongside the vehicular access on Dearne Valley Parkway with a separate pedestrian only access also provided along the site frontage to the south of the main vehicular access.

1.5 As part of the proposed development, and following consultation with local residents, the provision of a signalised controlled crossing over the A6195 Dearne Valley Parkway will be provided just to the north of the Birdwell Roundabout. A pedestrian crossing point will also be provided across the proposed site access and egress.



- 1.6 This Transport Assessment makes reference to the Department for Transport Communities and Local Government publication 'Guidance on Transport Assessment' (March 2007). 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.
- 1.7 This Transport Assessment 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.
- 1.8 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 The Existing Situation
- This section will describe the existing transport network and local infrastructure.
- 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 Traffic 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

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 rates 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 the conclusions drawn from the analysis contained within the Transport Assessment.

- 1.9 This Transport Assessment 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 likely to create conditions that are detrimental to road safety.
- 1.10 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 limit 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.

Guidance on Transport Assessment

2.8 This document provides up to date guidance on the preparation of Transport Assessments to address the potential implications of development proposals on the entire transport system (buses, rail and trams), the Strategic Road Network (SRN), local highways and footways.

2.9 Paragraph 1.19 sets out that the following considerations are relevant in preparing a Transport Assessment.

- Reducing the need to travel, especially by car - reducing the need for travel, reducing the length of trips and promoting multi-purpose or linked trips by promoting more sustainable patterns of development and more sustainable communities that reduce the physical separation of key land uses.
- Improving sustainable transport choices - by making it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking and cycling.
- The accessibility of the location - the extent to which a site is, or is capable of becoming accessible by non-car modes, particularly for large developments which involve major generators of travel demand.
- Other measures which may assist in influencing travel behaviour (ITB), achieving reductions in car usage (particularly single occupancy vehicles), by measures such as car sharing/pooling, High Occupancy Vehicle (HOV) lanes and parking control.

South Yorkshire Local Transport Plan

2.10 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.

2.11 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

2.12 Birdwell is also 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.

2.13 Outlined in the Core Strategy are various strategic objectives, the relevant 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

2.14 As part of the Core Strategy, Barnsley Metropolitan Borough Council (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”.

- 2.15 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.”

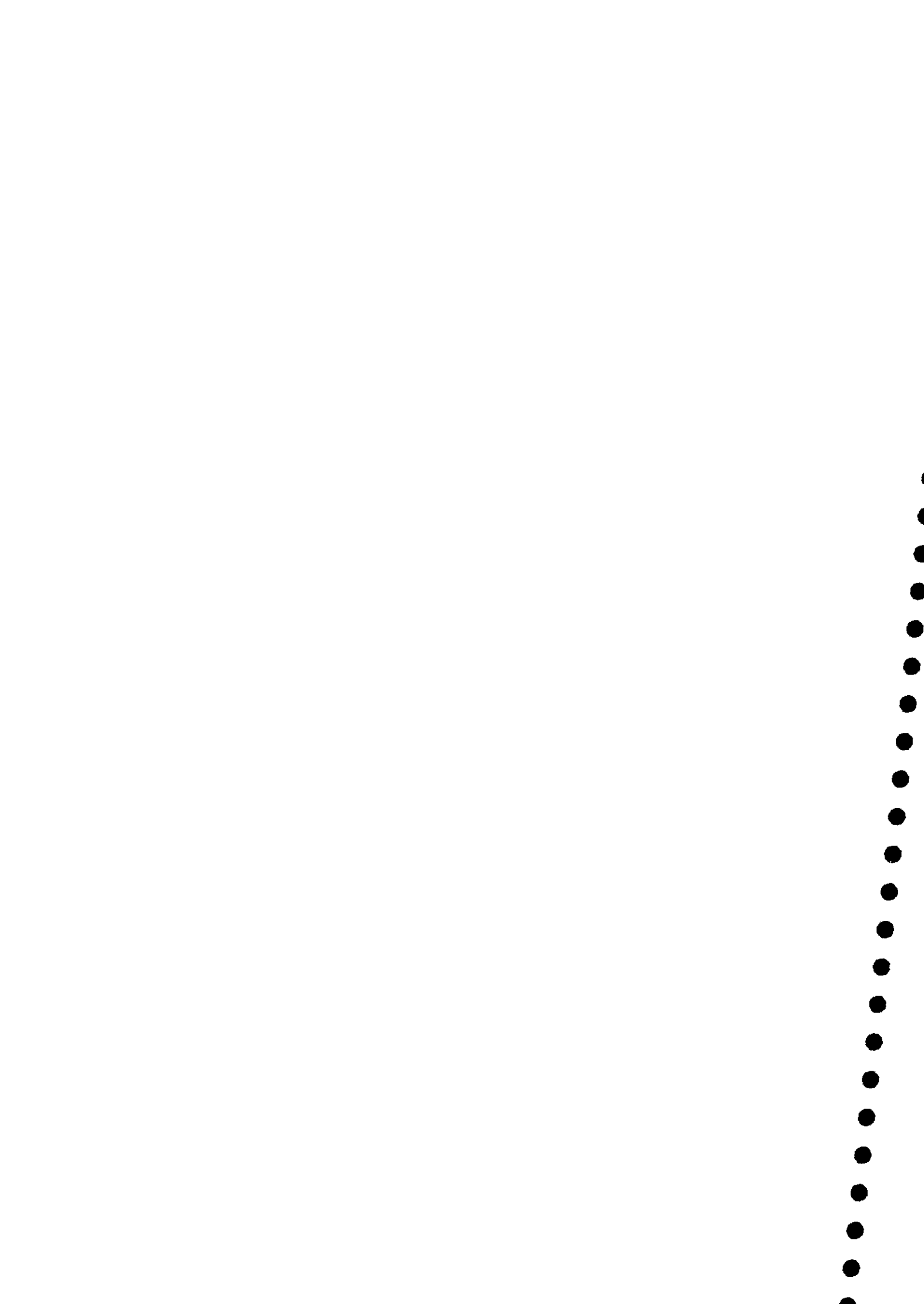
One Barnsley’s Sustainable Community Strategy (SCS)

- 2.16 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 development 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 site currently comprises a grassed area with no existing vehicular access, bounded by developments to the north and south and by a highway fence alongside the A6195 Dearne Valley Parkway.

The Local Highway Network

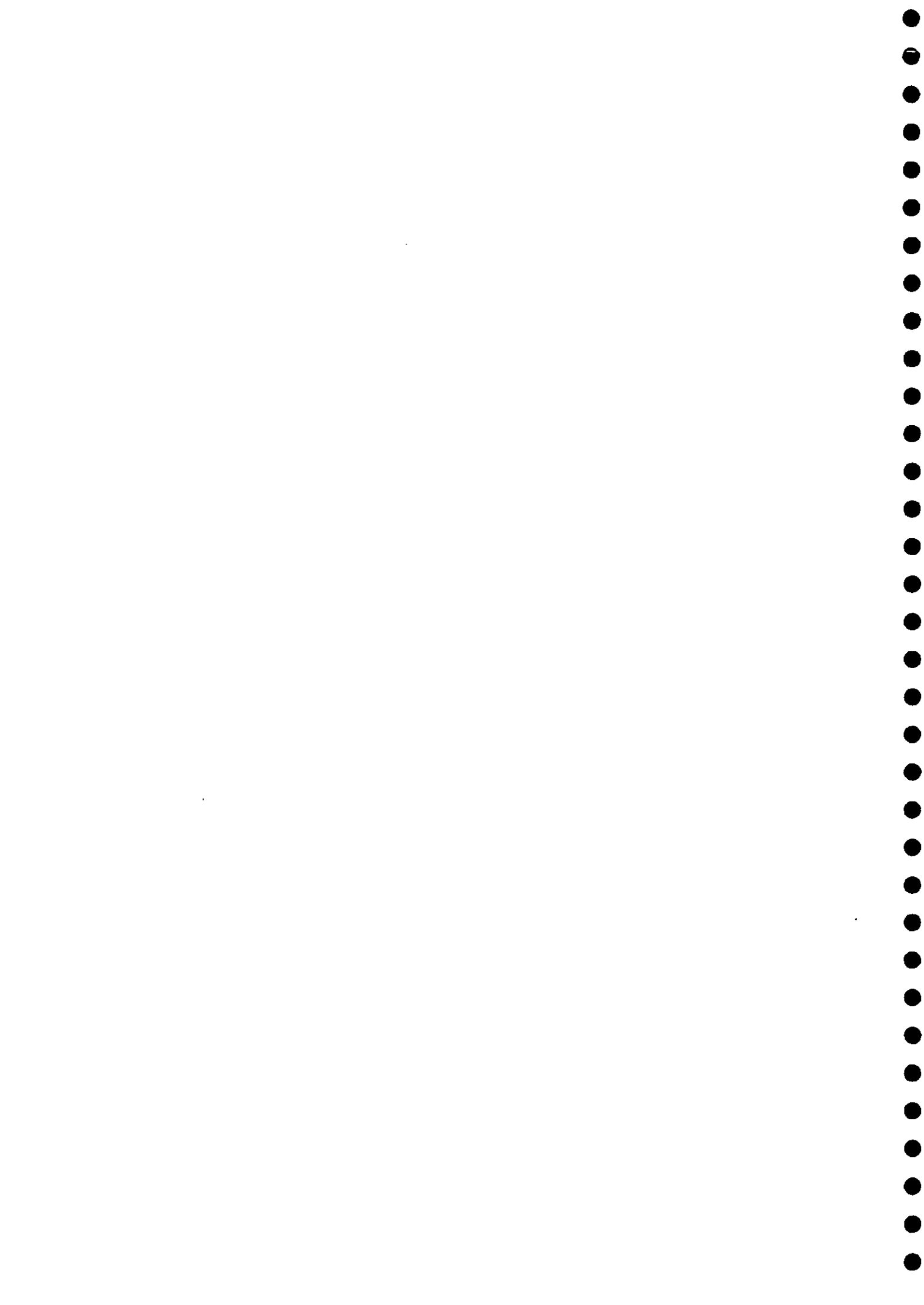
- 3.3 Dearne Valley Parkway, classified A6195, runs in a north-south direction for approximately 380 metres, alongside the sites eastern boundary, from Birdwell roundabout to Rockingham roundabout. It is dualled in both directions with traffic flow separated by a central reserve and safety barrier along the centre of the carriageway. 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 cause 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 other 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 – 2-way traffic along the A6195, Dearne Valley Parkway

- 4.2 The results of the surveys are attached at **Appendix BGH3** and show that the Friday 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 respectively, with maximum queues of 17 and 12 vehicles. Therefore, whilst still technically accommodating the traffic flows, and operating below the theoretical capacity, i.e. RFC below 1.0, RFC's in this order generally indicate longer waiting times and queues at a junction.

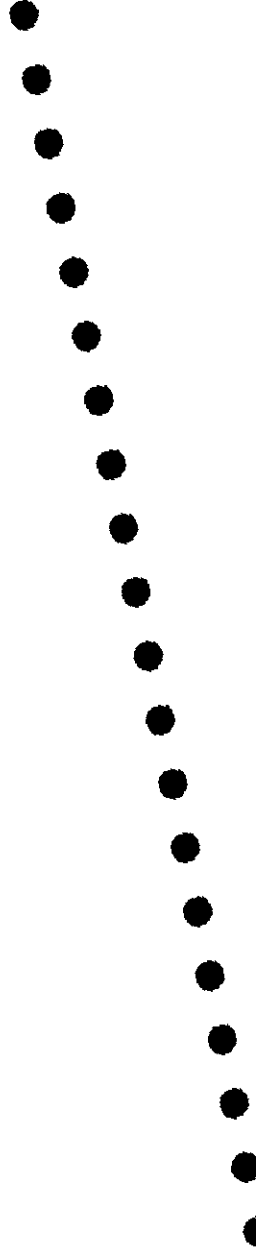


Table 4.1
2014 Existing Peak Hour Operation – Birdwell Priority Roundabout

Link	Existing Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.57	1	0.58	1	0.49	1
A61 South	0.53	1	0.84	5	0.47	1
A61 Birdwell	0.98	17	0.96	12	0.67	2
A6195 Dearne Valley Parkway	0.69	2	0.69	2	0.43	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 Friday AM, PM and Saturday peak periods, with practically no queuing.

Table 4.2
2014 Existing Peak Hour Operation – Rockingham Priority Roundabout

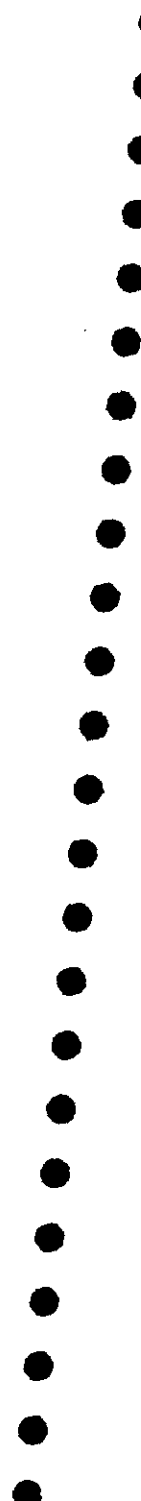
Link	Existing Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6195 Dearne Valley Parkway South	0.37	1	0.39	1	0.24	0
A6195 Dearne Valley Parkway North	0.33	0	0.32	0	0.21	0

Speed Surveys

- 4.6 A number of existing vehicle speed surveys were undertaken by an independent traffic survey company 'Andy Haxby Surveys Limited' to ascertain the existing speeds at various points on A6195 Dearne Valley Parkway.
- 4.7 The speed surveys were carried out in accordance with Design Manual for Roads and Bridges TD22/81 Vehicle Speed Measurement on All Purpose Roads.
- 4.8 A total of seven speed surveys were carried out on Dearne Valley Parkway. Three surveys were carried out on the northbound exit from Birdwell Roundabout on the A6195 Dearne Valley Parkway on 26th September, 9th October and 13th October 2014. Three further surveys were undertaken on the same dates northbound on A6195 Dearne Valley Parkway at the location of the proposed site access. In effect these surveys show the speed of traffic exiting Birdwell roundabout on the approach to the site access and as they approach Rockingham roundabout. In addition a further survey was undertaken on 9th October on the southbound approach of Dearne Valley Parkway approximately 75 metres in advance of Birdwell Roundabout.
- 4.9 The 85thile wet weather speeds were calculated to be as follows:

85th Percentile Wet Weather Speeds along Dearne Valley Parkway

Date	Location	Speed
26 th September	Northbound Roundabout Exit	27mph
9 th October	Northbound Roundabout Exit	27mph
13 th October	Northbound Roundabout Exit	29mph
26 th September	Northbound Site Access Location	42mph
9 th October	Northbound Site Access Location	44mph
13 th October	Northbound Site Access Location	42mph
9 th October	Southbound Approach to Roundabout	28mph



- 4.10 The full raw data obtained from Andy Haxby Surveys are attached **Appendix BGH6**. In summary speeds of northbound traffic exiting the roundabout are less than 30 mph with vehicles accelerating steadily to just over 40 mph by the time they reach the proposed site access. Southbound as vehicles approach Birdwell Roundabout they are decelerating in anticipation of having to stop, and by the time they reach a point around 75 metres from the roundabout they are travelling at less than 30 mph.
- 4.11 The speed surveys that have been undertaken on three separate occasions in relation to the northbound movement on the A6195 Dearne Valley Parkway demonstrate that the prevailing speeds on the road are significantly less than the current speed limit.



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 350 metres to the west and 500 metres to the east of the site.
- 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 BGH7**.



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 BGH8** 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 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.

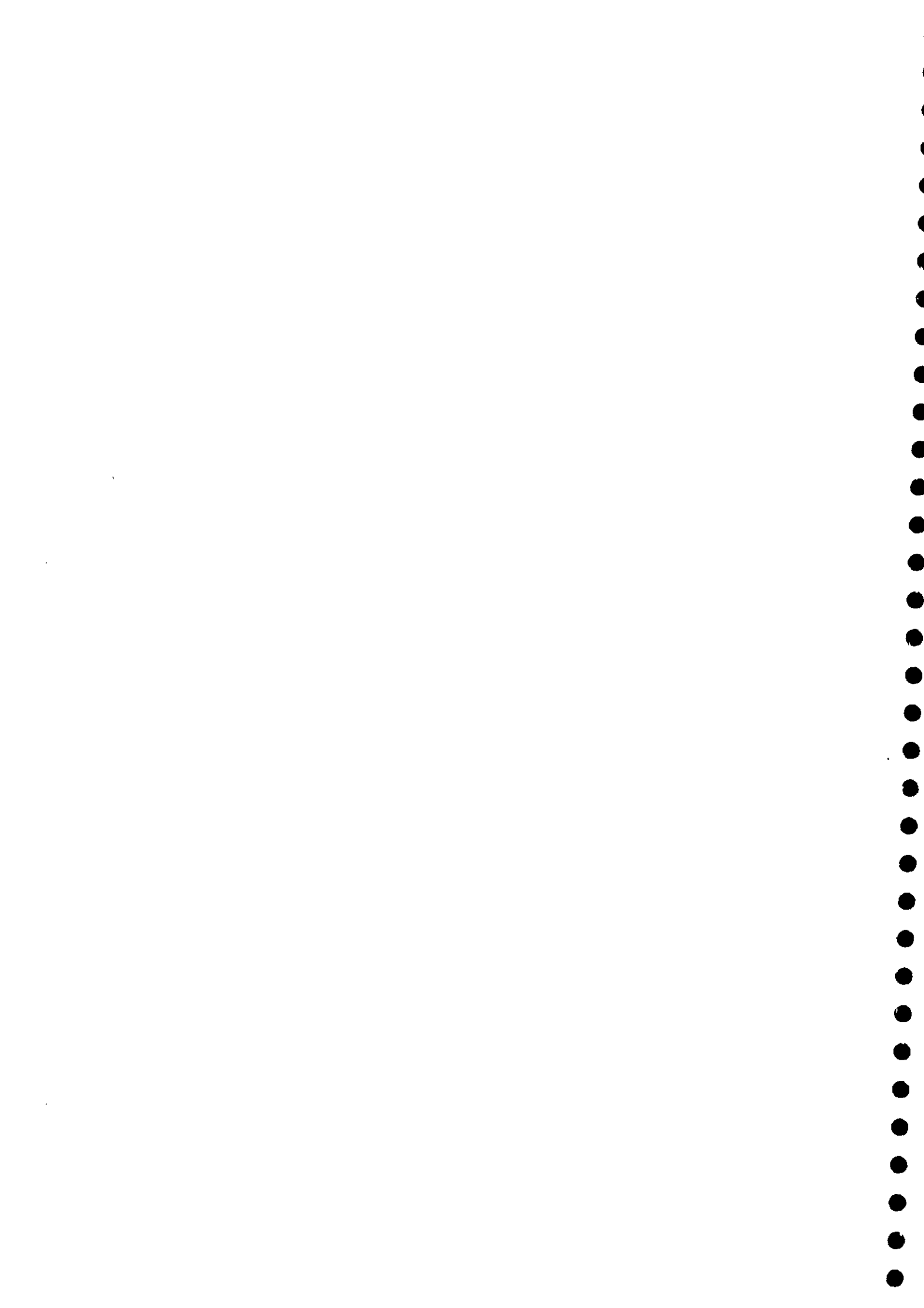
5.9 Pedestrian access to the development will be provided from the proposed vehicular access to the development on Dearne Valley Parkway. This will incorporate a central island refuge with dropped kerbs and tactile paving for pedestrians wishing to cross the access. In addition as indicated earlier as part of the proposed development, and following consultation with local residents, the provision of a signalised controlled crossing (Puffin) across A6195 Dearne Valley Parkway will be provided just to the north of the Birdwell Roundabout to facilitate improved access to Hoyland.

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 BGH9** 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 2 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 Department for Transport document 'Guidance on Transport Assessment' notes that a development should be assessed at a period no less than five years after the date of registration of the application. The proposed development has therefore been assessed at the year 2019.

6.2 Peak hour traffic flows (without development) at 2019 have been determined using Temprow adjusted National Transport Model (NTM) growth factors for the Hoyland Nether area, as set out in Table 6.1 below.

Table 6.1
Temprow Adjusted National Transport Model Growth Factors

	NTM Growth Factors		
	Weekday AM Peak Period	Weekday PM Peak Period	Saturday Peak Period
2014 – 2019 Hoyland Nether	1.0561	1.05915	1.06265

6.3 Application of these 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**.

Birdwell Roundabout

6.4 The growthed peak hour flows for the Birdwell priority roundabout has been assessed using Junctions 8 computer modelling software, with the results summarised in Table 6.2 overleaf and the full technical output attached at **Appendix BGH11**. It can be seen that with the additional flow associated with the growthed future year the junction is predicted to operate above 1.0 RFC. The A61 Sheffield Road for the weekday AM and PM peak is predicted to operate with maximum queues of 47 and 40 vehicles respectively. The junction is predicted to operate within capacity in the Saturday peak.

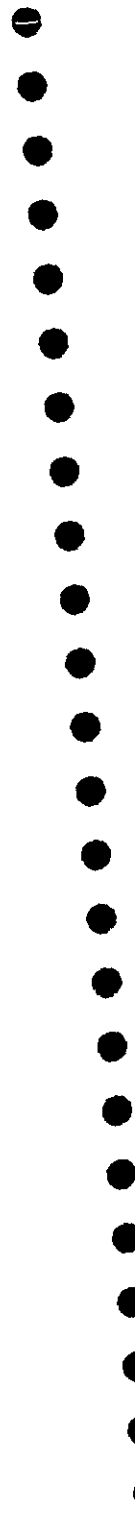


Table 6.2
2019 Grownthed Peak Hour Operation – Birdwell Priority Roundabout

Link	Existing Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.63	2	0.63	2	0.54	1
A61 South	0.56	1	0.90	9	0.51	1
A61 Birdwell	1.07	47	1.08	40	0.74	3
A6195 Dearne Valley Parkway	0.73	3	0.73	3	0.46	1

Rockingham Roundabout

6.5

The grownthed peak hour operational characteristics of the Rockingham priority 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 BGH11**. It can be seen that the junction is predicted to continue to operate within capacity in the future year scenario.

Table 6.3
2019 Grownthed Peak Hour Operation – Rockingham Priority Roundabout

Link	Existing Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6195 Dearne Valley Parkway South	0.39	1	0.42	1	0.26	0
A6195 Dearne Valley Parkway North	0.34	1	0.34	1	0.22	0



7.0 THE DEVELOPMENT PROPOSAL

7.1 The planning application by Hartwood Estates Limited comprises:

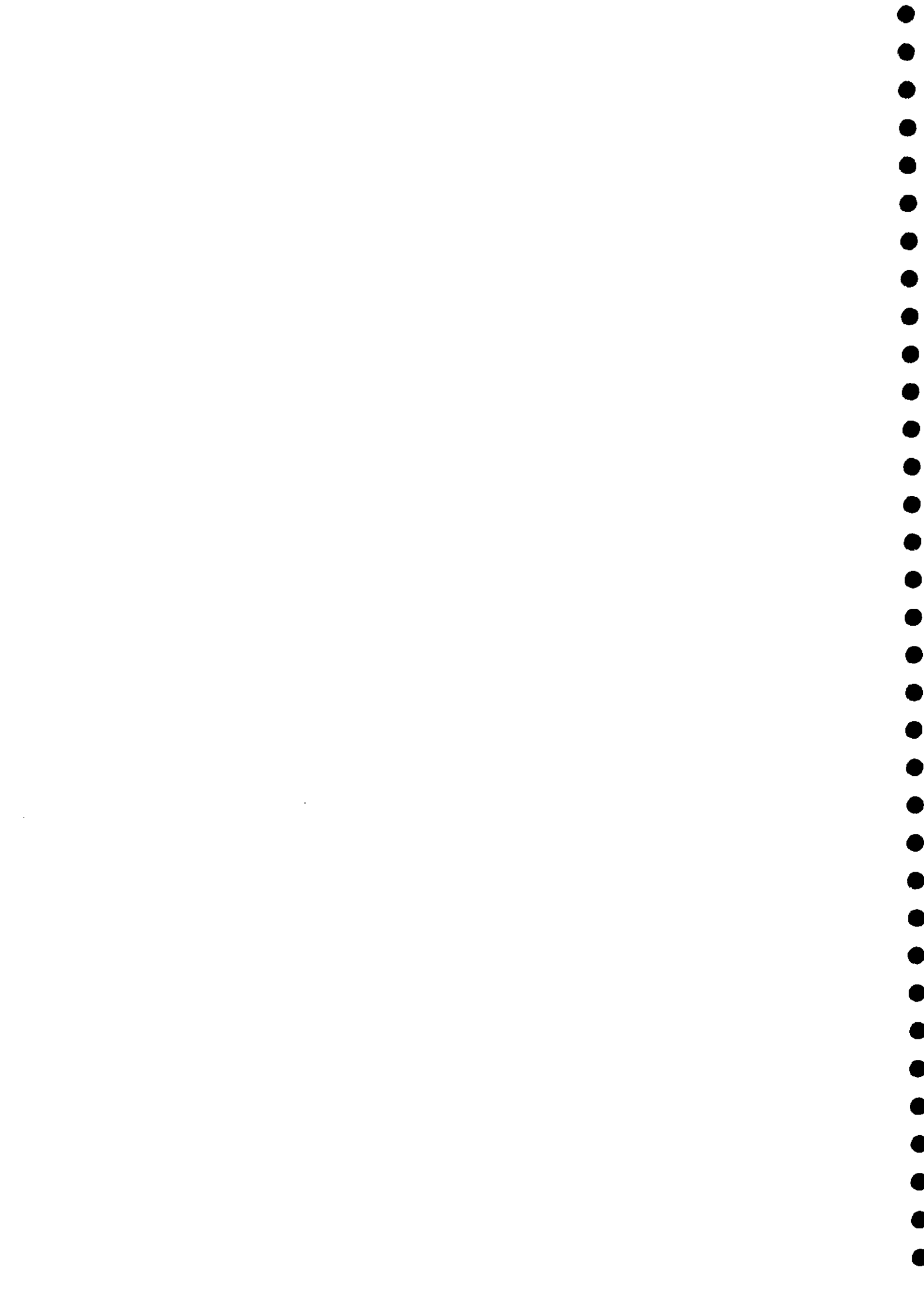
- 497m² class A1 retail units;
- 498m² class A2 office;
- 304m² class A3 café;
- 669m² class A4 public house;
- 336m² class A5 fast food unit with drive-through;
- 2588m² class B2 industrial units;
- 689m² class D1 day/healthcare;
- 2166m² 80-bed hotel;
- 466m² petrol filling station (PFS) with retail area.

The above proposals are accompanied by a total of 339 associated car parking spaces with 14 disabled bays and 12 cycle storage spaces, as shown on the site layout plan attached at **Appendix BGH12**.

7.2 Vehicular access to the site will be provided by constructing a new access on to the A6195 Dearne Valley Parkway, accessible only from the northbound carriageway as indicated on the drawing at **Appendix BGH19**. The proximity of Birdwell and Rockingham roundabouts to the site access will allow vehicles to gain access to the site from the north or indeed leave the site to the south, via U turns at the roundabouts. Pedestrian access will also be provided adjacent to the vehicular access on the A6195 Dearne Valley Parkway with a separate pedestrian only access also provided along the site frontage to the south of the main vehicular access.

7.3 The access has been designed with nearside diverging and merging tapers in accordance with the Design Manual for Roads and Bridges TD42/95 Geometric Design of Major/Minor Priority Junctions. In paragraph 7.2 it is indicated that the geometric standards for junctions are related to the traffic speed of the major road. In this instance the design has been based on the 85thile speeds presented in Section 4 of this TA, and a design speed of 70kph, normally associated with a speed limit of 40mph including an allowance for vehicles travelling above the speed limit, has therefore been adopted for the key geometric parameters within the design given the prevailing speed of traffic on the road.

7.4 BMBC are proposing an improvement scheme to the A61 Birdwell roundabout at Junction 36 of the M1. These improvements include creating two new



roundabouts with a road to access the Dearne Valley employment sites, together with the realignment of the A6135. Also proposed, is a dedicated lane from the motorway slip road onto the A61, into Barnsley. The site access proposals associated with this development have been designed such that they will not prejudice the future construction of the BMBC Birdwell Gyratory scheme.

- 7.5 The development site will be serviced from the same point of access on A6195 Dearne Valley Parkway from where delivery vehicles can access all parts of the site as appropriate.
- 7.6 As part of the proposed development and following consultation with local residents the provision of a signalised controlled crossing (Puffin) over A6195 Dearne Valley Parkway will be provided just to the north of the Birdwell Roundabout, as indicated in the drawing attached at **Appendix BGH19**. Again the speeds on the A6195 Dearne Valley Parkway have been measured to ensure the prevailing speed of traffic on the approaches to the crossing is acceptable and for both crossing points the speed surveys have shown that the prevailing speed of traffic is less than 30 mph.
- 7.7 The 339 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 below the maximum number allowed by BMBC parking standards.



Table 7.1
Car Parking Distribution

Land Use	BMBC Parking guidelines	GFA of unit (m ²)	Maximum no. of spaces allowed	Allocated Spaces
Retail	1 space per 20m ²	497	25	24
Office	1 space per 35m ² *	498	14	14
Café	1 customer space per 4m ²	318	80	17
Public House	1 space per staff	669	167	75
Drive-through fast food	1 space per 3 non-residential staff	336	84	25
Industrial	1 space per 30-50m ²	2584	65	56
Day/Health Centre	1 space per full time staff	636	Not specified	4
Hotel	-	2226	Not specified	85
PFS with retail	-	466	Not specified	14
Not allocated				25
Total	N/A	N/A	435	339

- 7.8 It is considered that, given the general desire to influence travel habits and reduce car borne access, the proximity of the site to frequent bus services, the provision of a direct 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, whilst not being too low and risk over spill parking on the adjacent highway

8.0 TRIP GENERATION AND ASSIGNMENT

8.1 The site consists of previously un-developed land, effectively comprising a grass field. As such the site is currently not generating any traffic and hence any generated trips are considered as new trips added on to the local highway network or, in relation to certain land uses proposed, already passing by the site as part of an existing trip.

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 BGH13**. The resulting generated traffic levels are set out in Table 8.2 overleaf.

Table 8.1
Trip Rates for the Development Proposal

Land Use	Friday AM Peak Hour			Friday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Retail	4.638	4.372	9.01	5.689	6	11.689	6.065	6.657	12.722
Office	1.406	0.249	1.655	0.208	1.289	1.497	0	0	0
Café	0.398	0.321	0.719	3.012	2.875	5.887	5.032	4.934	9.966
Public House	0.398	0.321	0.719	3.012	2.875	5.887	5.032	4.934	9.966
Drive-through	7.043	6.348	13.391	10.429	11	21.429	27.896	28.267	56.163
Industrial	0.286	0.055	0.341	0.104	0.243	0.347	0	0	0
Day/Health Centre	5.377	4.761	10.138	4.037	4.399	8.436	0	0	0
Hotel	0.175	0.237	0.412	0.199	0.122	0.321	0.132	0.355	0.487
PFS with retail	14.785	14.742	29.527	16.641	17.302	33.943	24.071	24.618	48.689

Table 8.2
Development Generated Traffic

Land Use	Friday AM Peak Hour			Friday PM Peak Hour			Saturday Peak Hour		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Retail	23	23	46	28	29	57	30	33	63
Office	7	1	8	1	6	7	0	0	0
Café	1	1	2	10	9	19	16	16	32
Public House	3	2	5	20	19	39	34	33	67
Drive-through	24	21	45	35	37	72	94	95	189
Industrial	8	0	8	0	8	8	0	0	0
Day/Health Centre	34	30	64	26	28	54	0	0	0
Hotel	14	19	33	16	10	26	11	28	39
PFS with retail	69	69	138	78	81	158	112	115	227
Total	182	167	349	216	226	442	296	320	616

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. Of the proposed units, it is considered that a proportion of the drive through restaurant traffic will already be passing the site, whilst all of the PFS generated trips will be either a linked trip associated with another use on the site or will already be passing the site. For the purposes of this TA it has been assumed that 100% of the PFS generated trips are pass-by trips as it is unlikely that any trips will be made for the sole purpose of refuelling, whilst 30% of the drive through trips are similarly pass-by trips. All of the remaining trip generation is considered to be new to the road network in the vicinity of the site.

8.4

On the basis of these assumptions and the vehicle generations identified above, Table 8.3 sets out the likely element of pass-by trips for the PFS, and drive

through elements of the development proposals during the Friday AM, PM and Saturday peak periods.

Table 8.3
Pass-by Traffic

Land Use	Friday AM Peak			Friday PM Peak			Saturday Peak		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
PFS	69	69	138	78	81	159	112	115	227
Drive Through	8	7	15	12	12	24	31	32	63
Total	77	76	153	90	93	183	143	147	290

8.5 The pass-by trips in Table 8.3 above have been deducted from the generated traffic flows (other than at the site access junction where they comprise existing movements on the A6195 Dearne Valley Parkway breaking their journey to turn into and out of the site) , with the resulting final development traffic flows shown at **Appendix BGH14**.

8.6 The resultant generated trips from Tables 8.2 and 8.3 above have been distributed on the local highway network according to the 2001 Travel to Work Census by area of residence/area of workplace. The 2001 Census data is preferred to the more recent 2011 data as the areas of residence and workplace are significantly smaller, providing a much more accurate assignment of the generated traffic onto the highway network.

8.7 The assignment of the generated development flows is shown at **Appendix BGH15**.

9.0 TRAFFIC IMPACT ON THE LOCAL HIGHWAY NETWORK

- 9.1 The traffic likely to be generated by the development proposal has been added to the 2019 growthed flows at **Appendix BGH10** to provide predicted traffic flows on the network in 2019, as shown on the diagram at **Appendix BGH16**.

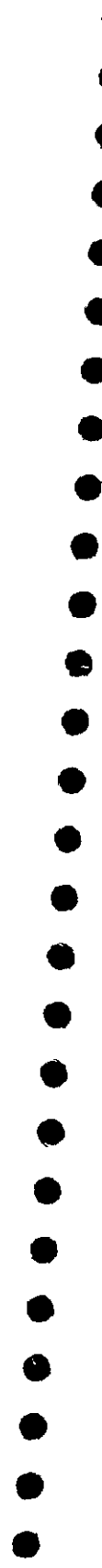
Birdwell Roundabout

- 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 Peak Hour Operation – Birdwell Priority Roundabout

Link	Predicted Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.68	2	0.70	2	0.62	2
A61 South	0.58	1	0.94	14	0.54	1
A61 Birdwell	1.15	80	1.19	77	0.81	4
A6195 Dearne Valley Parkway	0.77	3	0.80	4	0.57	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 above 1.0 in the AM peak and PM on the A61 Sheffield Road Birdwell approach (as it did in the 2019 Base scenarios). The predicted queue with the development traffic added is 80 vehicles in the AM peak an increase of 33 vehicles over the base position, and 77 vehicles in the PM peak an increase of 37 vehicles over the base position. Given the above, mitigation-measures at this junction are considered appropriate.
- 9.4 The mitigation measure proposed is a minor widening of the entry to the junction from the A61 Sheffield Road (Birdwell) approach to ease the flow of traffic on this approach to the roundabout, as indicated in the drawing attached at **Appendix BGH19**. 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 and queuing less than in the 2019 Base operation.

Table 9.2
2019 Predicted Peak Hour Operation with Mitigation Measures– Birdwell
Priority Roundabout

Link	Predicted Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6135 Sheffield Road	0.71	2	0.72	3	0.62	2
A61 South	0.58	1	0.94	14	0.54	1
A61 Birdwell	0.99	20	1.00	21	0.71	2
A6195 Dearne Valley Parkway	0.80	4	0.83	5	0.57	1

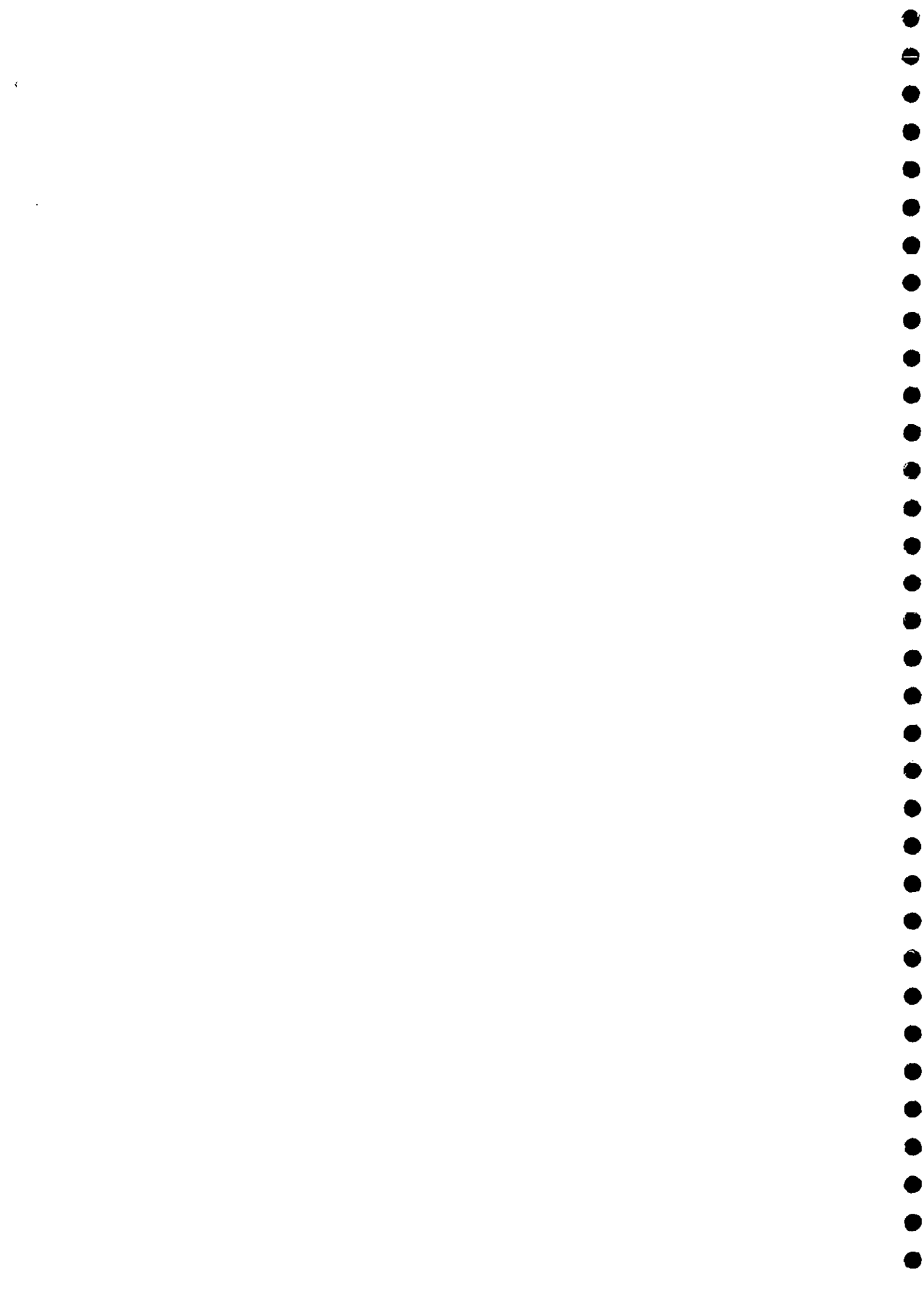
Rockingham Roundabout

9.5

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

Table 9.3
2019 Predicted Peak Hour Operation – Rockingham Priority Roundabout

Link	Predicted Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
A6195 Dearne Valley Parkway South	0.42	1	0.46	1	0.32	0
A6195 Dearne Valley Parkway North	0.36	1	0.36	1	0.25	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.

Site Access

- 9.7 Finally, the predicted peak hour operational characteristics of the Site Access has been assessed using Junctions 8 computer modelling software. The junction has been modelled as a standard priority T junction, even though the junction benefits from diverging and merging taper lanes, with the results summarised in Table 9.4 below and the full technical output attached at **Appendix BGH17**.

Table 9.4
2019 Predicted Peak Hour Operation – Site Access

Link	Predicted Flows					
	Friday AM Peak Hour		Friday PM Peak Hour		Saturday Peak Hour	
	RFC	Max Queue	RFC	Max Queue	RFC	Max Queue
Site Access	0.30	1	0.48	1	0.45	1

- 9.8 It can be seen that the site access junction is predicted to operate with minimal queuing and RFC's of below 0.85.

10.0 SUMMARY & CONCLUSIONS

10.1 This Transport Assessment 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 latest development proposals seek approval to construct:

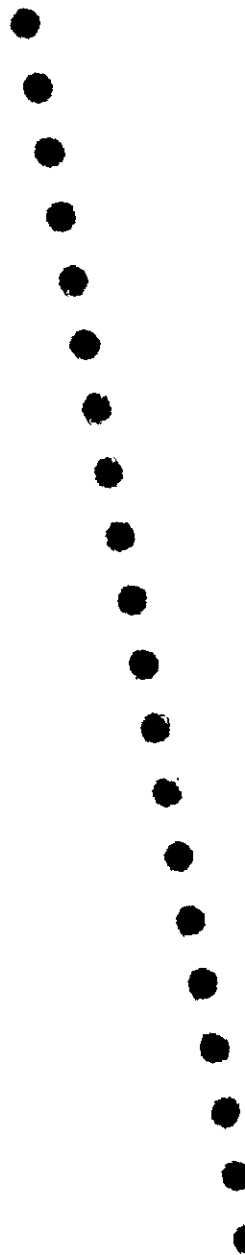
- 497m² class A1 retail units;
- 498m² class A2 office;
- 304m² class A3 café;
- 669m² class A4 public house;
- 336m² class A5 fast food unit with drive-through;
- 2588m² class B2 industrial units;
- 689m² class D1 day/healthcare;
- 2166m² 80-bed hotel;
- 466m² petrol filling station (PFS) with retail area.

The proposals include the construction of 339 associated car parking spaces.

10.3 Vehicular access to the site will be provided by constructing a new access directly onto the A6195 Dearne Valley Parkway, accessible from the northbound carriageway, via a left-in/left-out arrangement. Pedestrian access will also be provided alongside the vehicular access on Dearne Valley Parkway and via a separate pedestrian only access along the site frontage. The site access proposals associated with this development have been designed such that they will not prejudice the future construction of the BMBC Birdwell Gyratory improvement scheme.

10.4 As part of the development, and following consultation with local residents, the provision of a signalised controlled crossing over Dearne Valley Parkway will be provided just to the north of the Birdwell Roundabout. This will improve pedestrian access to the site as well as addressing a local road safety concern.

10.5 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.



- 10.6 The application site is in a sustainable location and offers a wide opportunity for utilising sustainable modes of travel. This will assist in reducing reliance upon the private car to access the proposed development.
- 10.7 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. The Rockingham priority roundabout and the Site Access junction will operate well within capacity following completion of the development.
- 10.8 In summary, this Transport Assessment 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 introduction in full of the measures proposed in the Framework Travel Plan prepared for the site;
 - The provision of the left in/left out site access arrangement and associated pedestrian routes into the site;
 - The provision of a signalised pedestrian crossing located on the A6195 Dearne Valley Parkway north of Birdwell Roundabout; and
 - The introduction of the widening improvement scheme on the A61 Sheffield Road (Birdwell) approach to Birdwell roundabout.

