

JAMES SPRECKLEY MRICS

## Transport Statement

Proposed Development Site Land adjacent  
to B4224 Fownhope Herefordshire

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# 1 INTRODUCTION

- 1.1 James Spreckley is currently seeking planning permission on behalf of his client to develop land adjacent to the B4224 at Fownhope, Herefordshire to provide 15 residential units. The site location is shown in Figure 1.
- 1.2 Fownhope is a village in south-east Herefordshire, with 999 residents (2011 census results). The village is situated seven miles east of Hereford, nine miles north of Ross on Wye and 11 miles west of Ledbury.
- 1.3 There are a range of local businesses, including pubs, restaurants, hairdressers, various trades people, several bed and breakfast establishments, a shop/post office, a forge, a butcher, a leisure centre, a caravan park and farm shop. Services in the village include a primary school, a medical centre, a library (part time) and a local fire station. Facilities include the Memorial Hall, the playing fields and pavilion.
- 1.4 As part of the application process CHC Limited has been employed to prepare a transport statement for the site. When considering an earlier application the council's traffic manager has indicated some concerns about the speed of traffic on the B4224 outside the development.

**Figure 1 : Proposed Site Location**



## 2 PROPOSED DEVELOPMENT

- 2.1 The proposed site would provide a logical extension to the village, with a clear relationship to residential dwellings along the B4224. It is defined by mature field boundaries but there are otherwise few landscape constraints.
- 2.2 The site and an indicative layout are shown in Figure 2. The proposed development would have 15 houses.
- 2.3 Vehicular access would be off the B4224 as indicated in Figure 2. The access road width, visibility splay (taken from a 3.4m set-back as agreed with HC) and gradient are in accordance with HC design guidelines. Details of the sight-lines, access arrangement and gradient are shown in Appendix D.

**Figure 2: Proposed Site Layout**



- 2.4 Pedestrian access would be obtained utilising a 2m footpath linking the proposed development to Scotch Firs (shown in Figure 2). The proposed footpath would be designed in accordance with DfT and HC design guidelines for pedestrians (including the mobility impaired). Pedestrians would use the existing pedestrian footways through Scotch Firs to the B4224 and toward the village (shown in Figure 3).



**Figure 3 – Pedestrian route from proposed development**



- 2.5 The gradient of all footways providing pedestrian access to all the properties would not exceed 1:20. No purpose built pedestrian access would be provided adjacent to the access carriageway.
- 2.6 There are two existing public rights of way which are situated adjacent to the B4224 (fwb8) and running along the eastern boundary of the proposed development (fwb9). These would not be impeded by the proposals. The location of the existing public rights of way are shown in Figure 2 and Appendix D.
- 2.7 In a previous application the Council's Highway Engineer expressed some reservations about the existing traffic speeds on B4224 as the existing 30 mph speed limit does not extend past the proposed access. The local council has stressed that the assessment should take account of traffic speeds (and an injury incident caused by overtaking vehicles). It should be noted that a visibility splay takes account of overtaking vehicles.
- 2.8 No injury incidents have been recorded in the vicinity of the proposed development access within the last three years (to 2016).
- 2.9 The government's White Paper, "Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen", on the future of transport (published in January 2011) promotes the government's commitment to building economic growth and low carbon transport initiatives.
- 2.10 The National Planning Policy Framework (NPPF) indicates (in paragraph 32) that a development should only be refused on highways grounds where the residual impact is severe. This Transport Assessment will demonstrate that the proposal has a minimal impact.

### 3 ACCESSIBILITY ASSESSMENT

- 3.1 The development site is located within a largely rural area to the east of the village of Fownhope in Herefordshire. This chapter assesses the accessibility of the site by a range of transport.
- 3.2 It is important that any proposed site offers opportunities for travel by the more sustainable modes, such as walking, cycling and public transport. Each mode will be considered.
- 3.3 There are railway connections from Hereford and Ledbury. The bus service to and from Hereford runs every day, approximately every hour. Connections from Hereford bus station are good, around the county and to the national networks. Other services run to Ross-on-Wye and Ledbury. There are numerous public footpaths and bridleways, providing good access to the surrounding area.

#### Walking

- 3.4 Manual for Streets indicates that a walkable neighbourhood would typically be characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of a residential area, however, this should not be considered an upper limit. PPS13 states that walking offers the greatest potential to replace short car trips, particularly those under 2 km. An IHT publication 'Providing for Journeys on Foot' (2000) suggests that acceptable walking distances for various land uses (see Table 1 below).

**Table 1: Suggested Acceptable Walking Distances**

Definition	Town centre	Commuting/Schools	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1000m	800m
Preferred Maximum	800m	2000m	1200m

Source: IHT (Providing for journeys on foot)

- 3.5 The guidance also suggests a walking speed of 4.8km/h, or 5 minutes for every 400m. The 'maximum' distances above represent a walk of 25 minutes (work / education / leisure) and 15 minutes elsewhere.
- 3.6 There is a useful range of local facilities within walking distance (200m to 800m) of the proposed site, in particular;
- Bus stops
  - The local public houses/restaurants/cafes (375m)
  - The local church/chapel
  - Primary school (775m)
  - Village hall (575m)
  - Local shop and Post Office (350m)
  - Butcher (675m)
- 3.7 The medical centre is less than 1 km from the proposed development.
- 3.8 There are two public rights of way adjacent to the proposed site (footpaths fwb8 and fwb9).

#### Cycling

- 3.9 Cycling is usually considered an important mode for trips of up to five kms in distance.
- 3.10 The village centre, and all local facilities are within one km.

## Public transport

3.11 A number of bus services run close to the proposed development, which are:

- **Route 453 – Hereford to Fownhope**  
Monday to Saturday – three leaving and returning per day
- **Route 454 – Hereford to to Woolhope**  
Monday to Saturday – six leaving and returning per day
- **Route 458 – Ross on Wye to Mordiford**  
Thursdays – one leaving (toward Ross on Wye)

3.12 The closest railway stations are at Hereford (7 miles) and Ledbury (11 miles) which offer a range of direct services to a variety of destinations, including Birmingham, Crewe, Cardiff/Swansea, Glasgow, London and Manchester.

#### 4 LOCAL MODE SPLIT

- 4.1 Data from the 2011 Census for distance travelled to work has not yet been released. The data presented here is from the 2001 Census. The highest proportion (24%) of Herefordshire's residents travel less than 2km to work, which is a higher proportion than the West Midlands region and England (both 20%).
- 4.2 Another noticeable difference is the proportion of people working from home; with 7.2% in the locality of the proposed development site, which is higher than Herefordshire (6%). At the opposite end of the distance travelled scale, Herefordshire has slightly higher proportions (4%) travelling 60km and over, compared to England (3%) and the West Midlands (2%).
- 4.3 To gain an understanding of how the availability of the transport modes detailed above impact on trip making in the area, data from the 2011 Census has been examined (shown in Appendix A). The information studied details the mode of transport for journeys to for those in the locality of the site who travel to work, as shown in Table 2. Of the working age population 7.2% of work mainly, or at, home and 59.5% travel to work.
- 4.4 Of those people travelling to work the majority of people (83.3%) in the locality of the site do so by car (as a driver or passenger). Walking accounts for 8.6%, cycling 2.7% with the remaining 5.2% being made up of motorcycle and public transport.

**Table 2: Journey to Work Mode Split**

Mode	Local Small Output Area (Fownbishop)		Herefordshire Council	
	No.	%	No.	%
Driving a car or van	572	78.4	56606	69.2
On foot	63	8.6	13170	16.1
Passenger in car or van	36	4.9	4744	5.8
Bicycle	20	2.7	3267	4.0
Bus, minibus or coach	13	1.8	1554	1.9
Train	2	0.3	654	0.8
Motorcycle, scooter or moped	10	1.4	654	0.8
Taxi	1	0.1	327	0.4
Underground, tram, metro	0	0	82	0.1
Other	13	1.8	736	0.9
<b>Total travel to work</b>	<b>730</b>	<b>100</b>	<b>81801</b>	<b>100</b>
Work at home	88	7.20%	8407	6.3%

Source: ONS 2011 Census Output Area Dataset

- 4.5 A greater percentage of local residents work at home compared to Herefordshire whilst a greater percentage travel to work. The local area has higher car use, and lower walk mode splits than the local authority as a whole.

## 5 TRIP GENERATION & IMPACT

- 5.1 This chapter sets out the trip generation and impact implications of the proposed development.

### Automatic Traffic Counts

- 5.2 An Automatic traffic counter was installed at a location to the west of the proposed site access on the B4224. The location of the ATC is shown in Figure 4.

**Figure 4 – Location of the ATC**



- 5.3 The ATCs recorded traffic movements, vehicle type and speed over a seven day period (15 March to 21 March 2014). Results of the ATC data are shown in Appendix B.

### Proposed Site Trip Generation

#### *Traffic Impact*

- 5.4 Analysis of empirical data from a residential site in Cradley, Herefordshire indicates that the anticipated generation of traffic during the morning and afternoon peaks for estates with 15 properties would generate 8 trips during the morning peak and 10 trips during the evening peak, of which 9 return to the development.
- 5.5 The empirical survey is considered to provide appropriate data from which to determine trip generation figures for Fownhope. The 2011 census travel to work data demonstrates that both locations have similar travel statistics. The Cradley site lies within the Hope End ward. The Fownhope site lies within the Fownbishop LSOA area of the Backbury ward (see Appendix A).
- 5.6 The percentage of the working population who travel to work 83.3% from Fownbishop and 83.4% from Hope End, travel as either a driver or passenger, in a car or van. A larger percentage of the working population in Fownhope walk to work (8.6% compared to 6.6%).

- 5.7 Based on a development of 15 dwellings the anticipated development peak hour trip generation is shown in Table 3 below.

**Table 3: Summary of trip generation data**

Factored for 15 unit development	AM Peak (8am to 9am)			PM Peak (5pm to 6pm)		
	IN	OUT	TOTAL	IN	OUT	TOTAL
<b>Residential site</b>	1	7	8	8	2	10

Source: CHC Surveys

- 5.8 The data indicates that 1 vehicle movements would be generated during the morning peak, of these 7 would leave the site (averaging at one every nine minutes). During the afternoon peak 10 vehicle movements would be generated, of which 8 would be returning to the site (averaging at fewer than one every seven minutes).
- 5.9 Automatic traffic count surveys have been carried out as part of this study on B4224 (outside the proposed access). Table 4 shows existing average peak hour traffic flows, proposed development flows and percentage impact.

**Table 4: Traffic Impact**

Period	Existing Two-Way Flow	Development Flows	Existing + Development Flows	% Increase
AM Peak Hour (08:00-09:00)	679	8	687	1%
PM Peak Hour (17:00-18:00)	549	10	559	2%

Source: NDC surveys / CHC surveys

- 5.41 The data suggests that the development could lead to a minor increase in vehicle flows on B4224 adjacent to the site.

### ***Junction Analysis***

- 5.10 CHC considers that the trip generation of the proposed development is not significant and would not warrant detailed junction capacity analysis.
- 5.11 In terms of traffic distribution the development traffic would quickly disperse into the local network without causing a significant impact on the operation or efficiency of the local road junctions.



## 6 ACCESS & SERVICING

### Vehicular Access to Site

- 6.1 Access to the proposed site would utilise the existing road network with vehicular access from the B4224, which runs between Hereford and Ross on Wye. The access would be from a simple priority junction.
- 6.2 The proposed access to the site would make use of a new entrance. The proposed layout (shown in Figure 3 and Appendix D) has a 4.8 metre wide carriageway. The proposed carriageway corresponds with the requirement for a development of less than 50 dwellings as specified in the Herefordshire Council design guide.

### Visibility at site junction with B4224

- 6.3 The visibility splay required at a junction takes account of the plated, or actual speeds recorded at a location. Analysis of the proposed junction has been undertaken to ensure that it would comply with Herefordshire Council design guidelines in terms of visibility.
- 6.4 The existing speed restriction of 30mph starts at the edge of the village of Fownhope, approximately 100m from the proposed site access. Speed readings taken near to the start of the existing speed restriction (outside the local shop with a speed radar gun) indicate that the 85th percentile speed was found to be 32.5mph (or 52kph). These readings indicate that compliance with speed restrictions is good. However, the readings were taken some 300m away from the access to the proposed development.
- 6.5 The ATC speed recordings taken to the outside the proposed access (outside the existing area of speed restriction) where the off peak 85<sup>th</sup> percentile speed for traffic is 45.6mph (74 kph).
- 6.6 The extension of the 30mph limit to the north western extreme of the proposed development site could be accompanied by an entry treatment, central reserve island, road markings to state to motorists that they are entering a built up area. The introduction of traffic management measures (as outlined) in association with an extension to the 30mph speed limit could also deter inappropriate driving. The visibility splay required within a 30mph speed restricted area (in accordance with Herefordshire Council guidelines) would be 90 metres, which can be achieved. An extension of the existing 30mph speed restriction is proposed (with outlined traffic management measures)
- 6.7 However, application of the recorded traffic data (average off peak 85<sup>th</sup> percentile speed for traffic is 45.6mph (74 kph).
- 6.8 Table 10.1 of Manual for Streets 2 (MfS2) provides a summary of recommended stopping sight distances (SSD). These distances are based on perception and deceleration rates. The visibility splays stated in TD42/95 (Herefordshire design guidelines) are provided to enable emerging motorists adequate visibility to see oncoming vehicles in sufficient time to make their manoeuvre safely without influencing the major road traffic speed, whereas MfS2 provides adequate distance for vehicles to stop safely in order to avoid a collision.
- 6.9 Applying the SSD calculation derived Table 10.1 in MfS2 the safe stopping distance required at a recorded speed of 45.6mph (74 kph), to stop a distance of 116 metres would be required. The SSD derived from the MfS2 calculation process is achievable.
- 6.10 The required sightlines are shown in Appendix D.

## **Servicing**

6.11 Servicing of the proposed units will comprise refuse and re-cycling collection.

## 7 SUMMARY & CONCLUSIONS

### 7.1 The following conclusions are reached:

- i) This is an application for residential development of up to 15 units.
- ii) A vehicular access to appropriate design standards, in terms of carriageway width, radii and safe visibility, would be provided.
- iii) The trip generation analysis has identified that the proposed development would not result in a significant impact on the local traffic network. The quantity of trips generated would have a negligible impact on the local highway network and road safety
- iv) A dedicated footpath would be provided within the development site linking the proposed development to the village, via Scotch Firs. This access would reduce walking distances to public transport and the village centre.
- v) The site is situated in a location which allows travel by sustainable modes to a wide range of local facilities.
- vi) There are no material traffic impacts associated with these proposals. The National Planning Policy Framework (paragraph 32) states that a development should only be refused on highway grounds where the residual impact is severe.
- vii) Overall the development will not give rise to any materially unacceptable travel or transport impacts and will encourage sustainable travel behaviour. It is therefore considered that the development is acceptable in relation to transport and highways matters.

### 7.2 Having completed the review of the proposals and the local network it is concluded that the residual cumulative impact would not be severe. There are no material transportation issues associated with these proposals, therefore planning permission should not be refused on transport grounds.

**APPENDIX A**  
**Local 2011 Census Data**

# TRANSPORT



	Greater Bosbury LSOA	Greater Marnon LSOA	Colwall Chase LSOA	Lesser Cradley LSOA	Hope End ward	Herefordshire
<b>TRAVEL TO WORK</b> <span style="float: right;">table QS701</span>						
<i>If a respondent ticked 'work mainly at or from home', but also ticked a mode of travel, they were counted in the 'Travel to work' group (in the 2001 Census they would have been counted as working mainly at or from home).</i>						
<b>Number of residents aged 16-74 years and over</b>	957	1,061	1,029	1,040	4,087	133,442
<b>% of residents aged 16-74 who:</b>						
Are not in employment	35.6%	39.0%	40.5%	35.3%	37.7%	32.4%
Work mainly at or from home	12.6%	10.1%	8.6%	8.7%	10.0%	6.3%
Travel to work	51.7%	50.9%	50.8%	56.1%	52.4%	61.3%
<b>Number of residents aged 16 to 74 who travel to work</b>	495	540	523	583	2,141	81,801
<b>% of residents aged 16 to 74 who travel to work and get there by:</b>						
Driving a car or van	80.2%	76.9%	75.0%	83.4%	78.9%	69.2%
On foot	5.5%	7.4%	9.0%	4.8%	6.6%	16.1%
Passenger in a car or van	3.6%	5.2%	3.4%	5.5%	4.5%	5.8%
Bicycle	2.6%	1.3%	3.4%	1.2%	2.1%	4.0%
Bus, minibus or coach	1.6%	0.7%	1.0%	0.7%	1.0%	1.9%
Train	2.4%	5.6%	5.9%	2.2%	4.0%	0.8%
Motorcycle, scooter or moped	0.8%	1.3%	1.1%	0.5%	0.9%	0.8%
Taxi	0.6%	0.2%	0.0%	0.2%	0.2%	0.4%
Underground, metro, light rail, tram	0.2%	0.2%	0.0%	0.2%	0.1%	0.1%
Other method of travel to work	2.4%	1.3%	1.1%	1.4%	1.5%	0.9%
<b>CAR AND VAN AVAILABILITY</b> <span style="float: right;">table KS404</span>						
<b>Number of households (one person or a group of people with common housekeeping)</b>	532	624	656	587	2,399	78,319
<b>% of households with access to the following number of cars or vans:</b>						
None	6.0%	7.1%	17.1%	8.0%	9.8%	16.4%
One	33.5%	36.9%	37.7%	29.3%	34.5%	41.6%
Two	42.3%	37.0%	33.2%	43.3%	38.7%	30.4%
Three	12.0%	12.5%	8.2%	13.8%	11.5%	8.2%
Four or more	6.2%	6.6%	3.8%	5.6%	5.5%	3.5%
<b>Number of cars or vans in the area</b>	974	1,137	953	1,073	4,137	111,829



## 2011 Census Area Profile

## Backbury Ward

## TRANSPORT



Fownbishop LSOA

Hoppsvalley LSOA

Backbury ward

Herefordshire

## TRAVEL TO WORK

table QS701

If a respondent ticked 'work mainly at or from home', but also ticked a mode of travel, they were counted in the 'Travel to work' group (in the 2001 Census they would have been counted as working mainly at or from home).

Number of residents aged 16 74 years and over  
1,227

992

2,219

133,442

## % of residents aged 16-74 who:

Are not in employment	33.3%	34.0%	33.6%	32.4%
Work mainly at or from home	7.2%	9.1%	8.0%	6.3%
Travel to work	59.5%	57.0%	58.4%	61.3%

Number of residents aged 16 to 74 who travel to work  
730

565

1,295

81,801

## % of residents aged 16 to 74 who travel to work and get there by:

Driving a car or van	78.4%	81.6%	79.8%	69.2%
On foot	8.6%	5.0%	7.0%	16.1%
Passenger in a car or van	4.9%	0.7%	5.7%	5.8%
Bicycle	2.7%	1.6%	2.2%	4.0%
Bus, minibus or coach	1.8%	1.9%	1.9%	1.9%
Train	0.3%	0.5%	0.4%	0.8%
Motorcycle, scooter or moped	1.4%	1.2%	1.3%	0.8%
Taxi	0.1%	0.0%	0.1%	0.4%
Underground, metro, light rail, tram	0.0%	0.2%	0.1%	0.1%
Other method of travel to work	1.8%	1.2%	1.5%	0.9%

## CAR AND VAN AVAILABILITY

table KS404

Number of households (one person or a group of people with common housekeeping)

751

536

1,287

78,319

## % of households with access to the following number of cars or vans:

None	10.5%	8.2%	9.6%	16.4%
One	39.8%	33.0%	37.0%	41.6%
Two	36.2%	40.9%	38.2%	30.4%
Three	9.1%	12.7%	10.6%	8.2%
Four or more	4.4%	5.2%	4.7%	3.5%

## Number of cars or vans in the area

1,206

945

2,151

111,829


[www.herefordshire.gov.uk/census](http://www.herefordshire.gov.uk/census)


Herefordshire Council

May 2013 (v 1.0)



## APPENDIX B ATC Data Summary

# Transport Statement - Land Adjacent to B4224, Fownhope



3781 / Fownhope  
March 2014  
Automatic Traffic Count

Site No.	Location.	Direction.	Speed Limit - psl (mph)	Start Date.	End Date.	Total Vehicles.	5 Day Ave.	7 Day Ave.	No. > Speed Limit.	% > Speed Limit.	No. > ACPD Limit.	% > ACPD Limit.	No. > DfT Limit.	% > DfT Limit.	Mean Speed	85thile Speed
1	B4224, Aft - fence, OSGR: SO 57424 34036	North	60	Sat. 15 March 2014	Fri. 21 March 2014	18708	2985	2673	77	0.4	9	0.0	4	0.0	39.9	45.4
		South	60	Sat. 15 March 2014	Fri. 21 March 2014	18314	2941	2616	105	0.6	17	0.1	3	0.0	40.5	45.1
		Two way	60	Sat. 15 March 2014	Fri. 21 March 2014	37022	5926	5289	182	0.5	26	0.1	7	0.0	40.2	45.6

Nationwide Data Collection  
for  
CHC LTD

## **APPENDIX C**

### **Herefordshire Design Guidelines**



## Herefordshire Council Environment Directorate

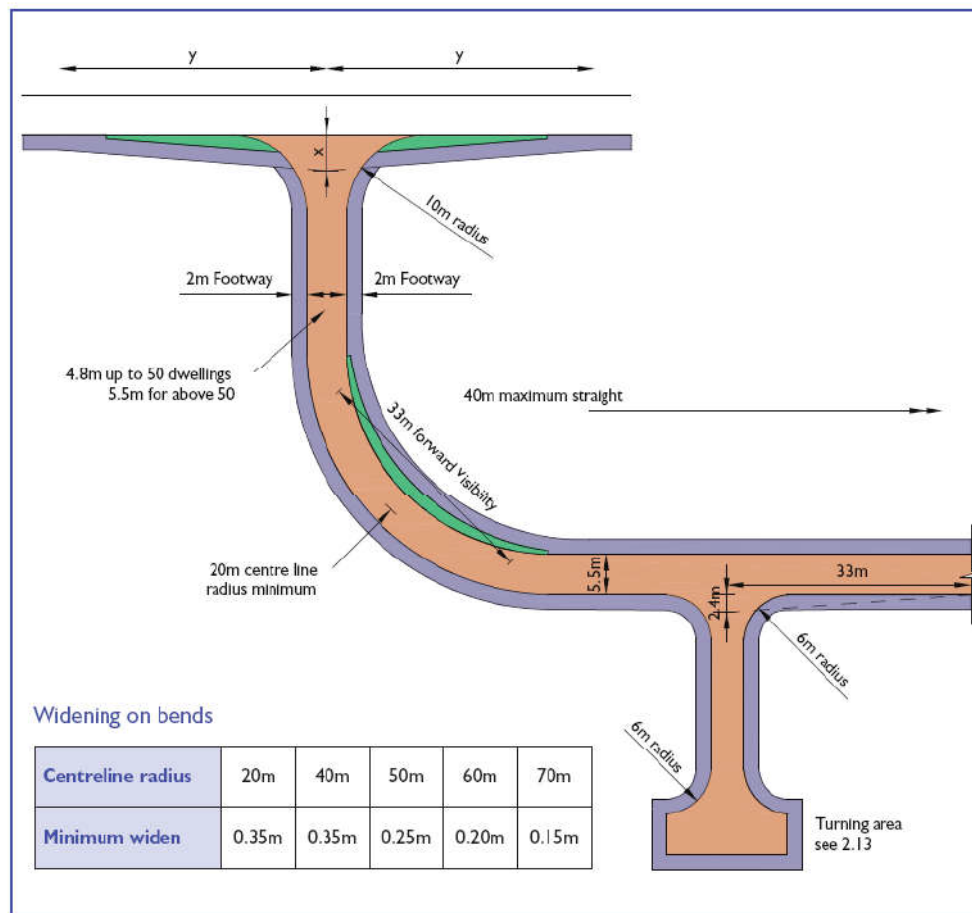
# Highways Design Guide for New Developments

## Design Guide



## 2.7 Minor Access Roads

- Serving up to 100 dwellings
- Design speed 20mph
- Standard carriageway width 5.5m, may be reduced to 4.8m where less than 50 houses are served
- 2m wide footways to be provided on each side where dwellings have direct access
- Turning areas in accordance with section 2.13
- Visibility splays in accordance with section 2.12



### Entry Radii

With major access road	6m minimum
With higher category of road	10m minimum

### Junction Spacing

Same side	Not restricted
Opposite side	Not restricted

### X Dimensions

To be measured along the centreline of the side road, from the channel of the priority road.

9m	Only to be used at major new junctions at the discretion of the Director of Environment
4.5m	The standard required for major new road junctions, for junctions of busy access roads, and for busy private access points
2.4m	The minimum necessary for junctions within development to enable a driver who has stopped at a junction to see down the major road without encroaching onto it. To be used on cycletrack junctions
2m	For single dwellings or small groups of up to half a dozen dwellings or thereabouts
Less than 2m	Only in exceptional circumstances will a distance of less than 2m be considered

### Y Dimensions

To be measured along the channel of the priority road.

The Y dimension will depend on the speed of traffic on the priority road: the appropriate distance can be read off Table A or B. If the highest traffic speed on the road in wet weather (excluding the fastest 15% of vehicles) is known (DTp Advice

Note TA 22/81) then this speed or the next highest speed which appears in the table should be used as the priority road speed in Table A to arrive at the appropriate Y distance. Where there is a speed limit and the actual speed of traffic on the priority road is not known it will normally be necessary to provide Y distances as indicated within Table B.

Table A (Known vehicle speeds)

Major road speed (kph)	120	100	85	70	60	50	40	30
Major road distance (m)	295	215	160	120	90	70	45	33

Table B (Speed limit)

Speed limit (mph)	70	60	50	40	30	20
Major road distance (m)	295	215	160	120	90*	45*

\* Includes an allowance for motorists travelling at 10kph above the speed limit. In addition to the dimensions quoted, where it can be shown that vehicle speeds will be contained to either 30mph or 20mph the respective Y distances in Table B can be amended to 60m and 33m respectively.

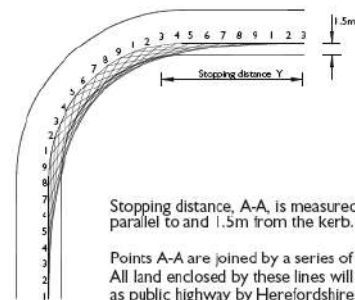
The speeds for residential areas shown in bold.

### Forward Visibility

Stopping distances and forward visibility requirements:

Speed (mph)	30	25	20	15	10	5
Stopping distance Y (m)	60	45	33	23	14	6

- Required on bends as specified right;
- Note that the stopping distance Y is measured along the driven line rather than along a straight line between points; and
- The area required for forward visibility should be defined by positioning the footway to the rear of the visibility splay.





**APPENDIX D**  
**B4224 Sight Lines / Visibility Splays**  
**& Profiles**

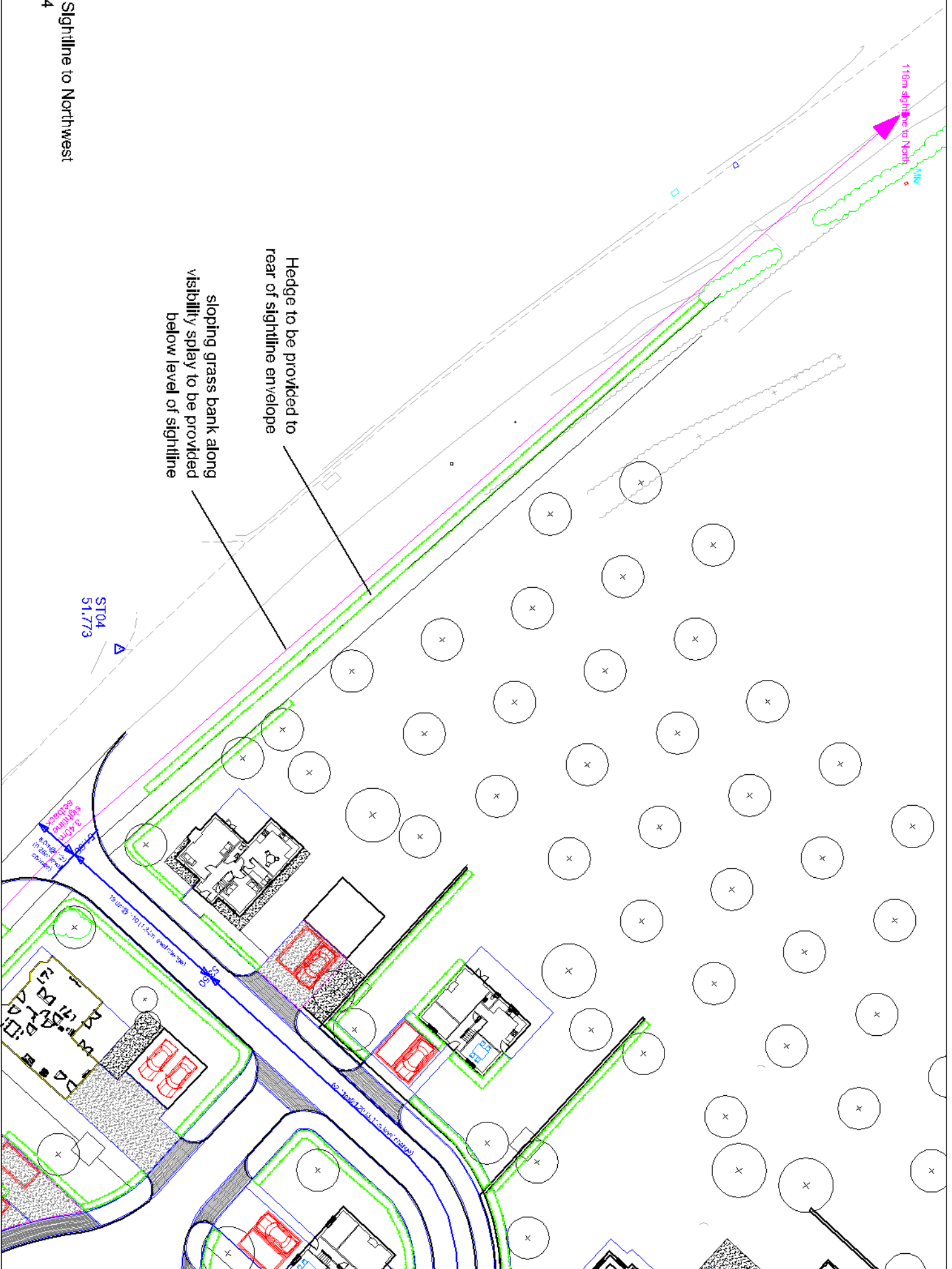


Figure 1. Sightline to Northwest  
1:500@A4





Figure 4a Gradient Profile Along Access Road Centre Line  
1:400@A4

Red Line - Existing Contour Profile  
Blue Line - Proposed Carriageway Surface

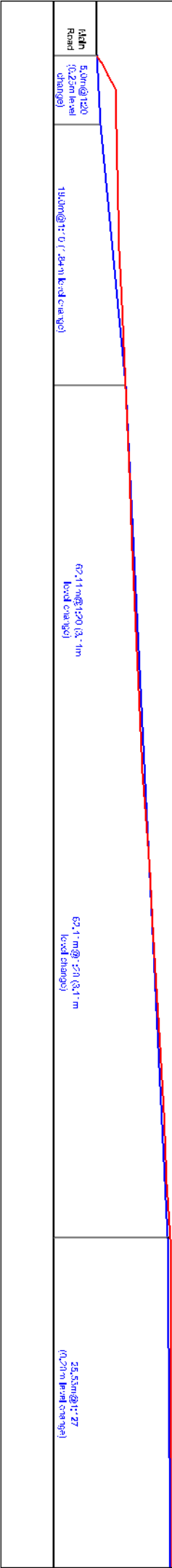


Figure 4b Gradient Profile Along Access Road Centre Line (Lower Section)  
1:200@A4

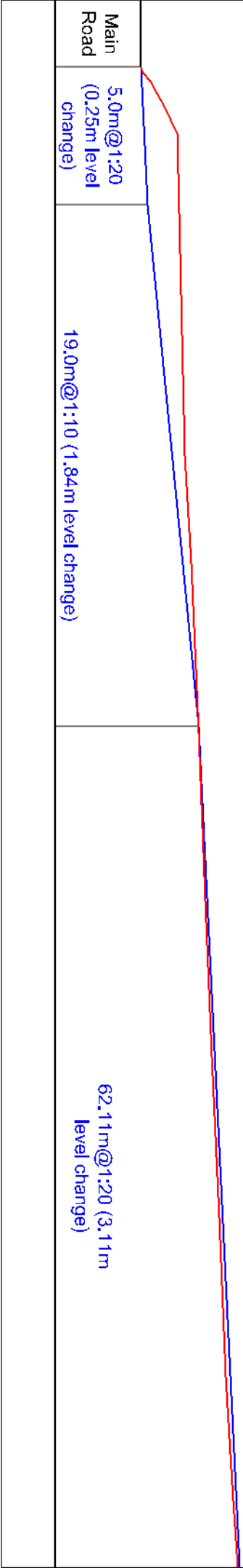


Figure 4c Gradient Profile Along Access Road Centre Line (Upper Section)  
1:200@A4

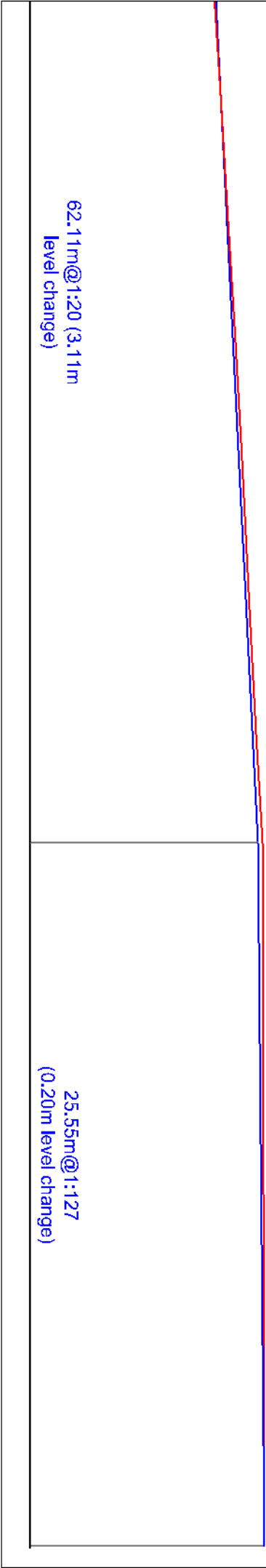


Figure 5a Gradient Profile Along Access Sightline to South 1:500@A4

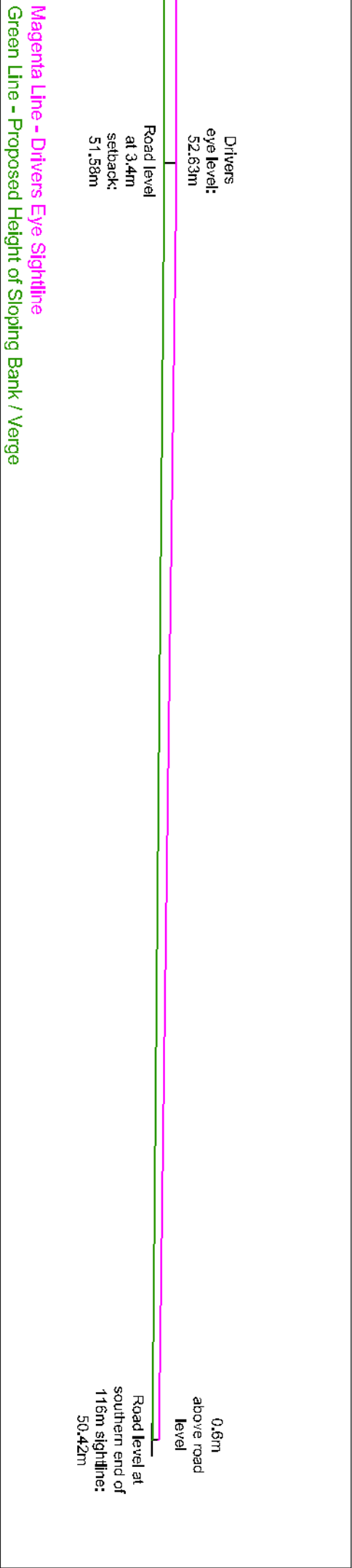


Figure 5a Gradient Profile Along Access Sightline to North 1:500@A4

