APPLICATION NO: 15/01441/OUT		**OFFICER: Mr Martin Chandler**
DATE REGISTERED: 15th August 2015		**DATE OF EXPIRY** : 10th October 2015
WARD: Battledown		**PARISH:** CHARLK
APPLICANT:	Mr R.J. Ashton	
LOCATION:	Land off Harp Hill, Charlton Kings	
PROPOSAL:	Outline application for the erection of dwelling (revised submission following refusal of 14/01612/OUT)	

REPRESENTATIONS

Number of contributors	**7**
Number of objections	**7**
Number of representations	**0**
Number of supporting	**0**

18 Haywards Road
Charlton Kings
Cheltenham
Gloucestershire
GL52 6RH

Comments: 7th September 2015
Letter attached.

23 Bournside Road
Cheltenham
Gloucestershire
GL51 3AL

Comments: 7th September 2015
Letter attached.

146 Old Bath Road
Cheltenham
Gloucestershire
GL53 7DP

Comments: 8th September 2015
Letter attached.

High View
Harp Hill
Charlton Kings
Cheltenham
Gloucestershire
GL52 6PR

Comments: 27th October 2015
My wife and I live in High View next to the lane which leads to Vic Fry in King's Welcome. We support his objection to the application to build a large house on a triangular lot, which is very much smaller than the minimum permitted on Battledown Estate. We are also concerned at the overcrowding of the lane, which cannot be widened.

Would you please register our concern and objection to this proposal. Please let us know if we should take any further action to support our case. We have notified the Battledown Trustees of the above.

Comments: 6th November 2015
I was somewhat distressed to learn that Mr Baker has left Cheltenham, apparently without passing on our objection to a request to build a house at the top of the lane leading to Mr V Fry's house, Kings Welcome. This is to be on a small triangular lot of less than 1/4 acre in area.

Therefore I would like to your committee to accept this objection from my wife and myself. Also we would repeat that we would not wish to enlarge the lane in any way, nor would we be prepared to cut down any of our trees or hedges, or indeed to modify them in any way.

We understand that the meeting to discuss this application is scheduled for the 17 November. Please acknowledge receipt of this and let us know if we should make a more formal application. Any further comments would be welcome.

Rose Orchard
Harp Hill
Charlton Kings
Cheltenham
Gloucestershire
GL52 6PR

Comments: 4th September 2015
The comments submitted on the previous application are reproduced here, with some additional points regarding the new application.

I note the very long and wordy planning and access statement, together with the supporting documents submitted with this application.

However the Applicant has failed to consider the following.

1. AONB Policy CO2 states for no new building, except in very exceptional circumstances.

2. AONB Policy CO3 states only replacement dwellings, subject to increase in size of 10% or 45M3.

3. Related cases 'Land off Harp hill' was the subject of an earlier refusal.

4. Related cases 'Land at Harp Hill' Rose Orchard was permitted only by the replacement policy existing at the time, subject to many conditions.

5. I now refer to application 03/01494/OUT Haytor Harp Hill This was refused by the Planning officer and his decision was subsequently backed up by a dismissed appeal from the inspector.

   The carefully considered reasons for refusal, are most relevant to 14/01612/OUT. With particular respect to the location, the openness and sloping nature of the site and the close proximity of existing dwellings. Kindly refer to the various documents on 03/01494/OUT, rather than me quoting them verbatim.

The proposal is an undesirable form of back land development which would create a precedent where a significant environmental alteration is neither desirable nor achievable, contrary to Policy HS73.

Structure Plan Policy S3 requires that development should not be detrimental to the urban environment. PPG3 states that developments should not be viewed in isolation.

I note that Gloucestershire Highways, now seem to have capitulated and now approve this application. As one of the users of the current access, I can state that nothing has materially changed from the previous application. the vision splays did not comply previously and do not now. Joining the main road is dangerous particularly as traffic densities continue to increase. Soon to be considerably increased as the GCHQ development is built. I find the traffic speed survey results are dubious. I invite you to try leaving the drive as cars approach at high speed, in both directions. The passing place proposed in isolation is unacceptable and a second passing place at the beginning of the drive, is required if reversing onto Harp Hill is to be avoided.

In consideration of all the historical precedents related to above, The decision on this application must be refusal.

Kings Welcome
Harp Hill
Charlton Kings
Cheltenham
Gloucestershire
GL52 6PR

Comments: 9th September 2015
Letter attached.

Comments: 30th September 2015
Appraisal attached.

The Bredons
Harp Hill
Charlton Kings
Cheltenham
Gloucestershire
GL52 6PR

Comments: 24th August 2015

We wish to record our opposition to this application.

First, sited on such a disproportionately small plot in relation to all other houses in the surrounding area, it would result in a squeezed in form of development, just one effect of which would be an unnatural and uncomfortable closeness to the frontage of Kings Welcome.

Second, in turning down a previous application on the same site in November last, a problem was identified with the access and visibility at the driveway's entry/exit point with Harp Hill, and nothing has really changed in this respect. If safety was considered an issue then, it remains so.

The photo-shots of the "existing site" and the "proposed site" could perhaps be clarified so as not to create any confusion with another piece of land, that at road level adjacent to The Gray House.

Mr Ed Baker

Planning Officer

Planning Department

Cheltenham Borough Council

[redacted]

18 Haywards Road

Cheltenham GL52 6RH

[redacted]

REF: 14/01612/OUT

BUILT
3 SEP 2015
ENVIRONMENT

Dear Mr Baker,

Having grown up in Kings Welcome, Harp Hill where my Father still resides, I was concerned to hear about this planning application. There are many reasons why it should not be granted. First of all the shared narrow drive leading up to the proposed plot is only wide enough for one car at a time. On numerous occasions when two cars meet in the driveway one has to reverse to let the other through. They normally reverse onto the main road as it is easier to reverse downhill. A driver driving forwards down the drive way has a very poor view of oncoming traffic along the main road and has to ease out slowly, a car reversing out of the drive way would have no view at all. This would be a danger to any oncoming vehicles on the main road as well as to cyclists and the familiar horse riders seen on Harp Hill. Things have been made even more dangerous with the extra traffic that has emerged with the new development on the old GCHQ site and will get even worse as building continues.

Secondly, my Father and Mother bought Kings Welcome over 30 years ago and planned to live out their lives there as it was so peaceful with such a lovely view rarely found in other parts of Cheltenham. The building of any property on this very small plot would be an eye sore for my Father's house on top of the extra noise from extra traffic. My Father, who is in his 70's is suffering from ill health from the stress caused by this application. The proposed dwelling would just look out of place.

Just a word of note, the owner of the property hadn't maintained the land for over 30 years, but my Father has, by cutting back the hedges and trees that were left to grow wild.

Yours sincerely,

[redacted]

23 Bournside Road
Cheltenham
GL51 3AL

25th August 2015

Cheltenham Borough Council
PO Box 12
Municipal Offices
Promenade
Cheltenham
GL50 1PP

Attention: M/s Tracey Crewes – Head of Planning

Dear M/s Crewes

Proposal: Outline application for the erection of 1 dwelling at land off Harp Hill, Charlton Kings (Revised submission following refusal of 14/01612/OUT

I write with reference to the above planning application.

We are [redacted] Kings Welcome) son and daughter-in-law. We have used the single track lane up to Kings Welcome on occasions when we visit and have found it a daunting experience especially on our exit getting out onto Harp Hill as visibility is limited. We have had a number of occasions where vehicles have appeared on our right hand side from nowhere. We consider the lane to be unsuitable for any more vehicular use than it currently has. I must also stress that contrary to what the original planning application says this driveway is not a secondary access to Kings Welcome, it is and always will be the main access to Kings Welcome.

We also object to the proposed development on the basis that the proposed property will:-

1. Be a gross over-development of a very small plot.
2. Will infringe on the views of Kings Welcome with its size and close proximity.

Yours sincerely

[redacted]

H. D. WILKINSON **BSc(Est Man) MRICS**

146 Old Bath Road
CHELTENHAM
Gloucestershire GL53 7DP

CHARTERED SURVEYOR
Email : hugh.wilkinson@btinternet.com
VAT Reg No : 709 7071 26

Tel : (01242) 524890
Fax : (01242) 524890

3 September 2015

E Baker Esq
Planning Department
Cheltenham Borough Council
Promenade
CHELTENHAM Glos

Our Ref : DA151

Your Ref : 15/1441/OUT

Dear Mr Baker

Re : Planning Application for Dwelling on Harp Hill, Cheltenham.

I have been requested by my client, [redacted] of 'King's Welcome', Harp Hill to write on his behalf a letter of objection to the proposed planning application.

- The proposed development is too large for the site and therefore fails in our view to remain in keeping with the other properties on the Battledown Estate.

- [redacted] has always used the current driveway on to the main road and we feel that a further dwelling using this access will prove most dangerous.

- There is no provision for a passing point on this private road and if traffic does meet, then one vehicle has to reverse, causing problems.

- The access on to the main road is dangerous and there is insufficient visibility splay for cars turning right at this junction. Only recently the Highways Authority have placed a notice saying 'Slow Down' due to concealed entrance. I think that this highlights the danger of this access and the problems that another dwelling can only exacerbate.

[redacted] is undertaking his own private traffic survey by RSL Highways and Transportation and once this report is to hand, we will forward it to you.

We both feel that the refusal given on the 20th November 2014 still stands and none of the problems given in the Local Authority's Decision Notice have been answered in a positive manner and for this reason we think the Planning Application should be refused.

Yours sincerely

[redacted]

H D WILKINSON BSc MRICS

[redacted]
Kings Welcome
Harp Hill
Charlton Kings
Cheltenham
GL52 6PR

M/s Tracey Crews
Head of Planning
Cheltenham Borough Council
P O Box 12
Municipal Offices
Promenade
Cheltenham
GL50 1PP

Your Ref: 15/01441/OUT

4th September 2015

Dear M/s Crewes,

Proposal: Outline application for the erection of dwelling (revised submission following refusal of 14/01612/OUT) at land off Harp Hill, Charlton Kings

Thank you for your letter dated 17th August regarding the above proposal.

I am opposed to this proposal for the following reasons: -

1. The proposed house is shoehorned in to a much smaller plot than is usual for this immediate area and this results, amongst other things, in it's location being crammed in much too near to the southern boundary and uncomfortably close to the main frontage of my property, Kings Welcome.
2. The access via the drive onto Harp Hill was previously adjudged unsafe and nothing has changed since. Further, the proposed tight passing place is far too distant from the junction with Harp Hill to be fit for purpose in case of need. This is my own main access and is also used daily by my postman and other delivery services. From my own experience, I am of the firm opinion that the drive cannot safely bear the coming and going of a further 2 or maybe 3 vehicles which would be associated with a further property.
3. I am not aware of when the indicated speed check was undertaken, nor over what period of time. What I wish to point out is that, for many weeks in the recent past, there were traffic light controlled pipe excavation works immediately to the east of this driveway junction which as a consequence had the impact of suppressing the speed of traffic travelling in both directions.

Yours sincerely

[redacted]

ACCESS APPRAISAL OF THE
EXISTING DRIVEWAY SERVING
'ROSE ORCHARD' AND 'KINGS WELCOME'
HARP HILL
CHARLTON KINGS

Existing Driveway Serving
'Rose Orchard' and
'Kings Welcome'
Harp Hill
Charlton Kings
GL52 6PR

ACCESS APPRAISAL

Issue Date:- September 2015

Issue no. **3**

Author: *RPS*

Checked: *RS*

RSL Highways and Transportation
3rd Floor St Peters House
2 College Street
Gloucester
GL1 2NE
www.rslht.co.uk

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Figures

5.0 Appendices

1.0 INTRODUCTION

1.1 This Access Appraisal has been prepared by *RSL Highways and Transportation* for **Mr V Fry** to accompany a 'Letter of Objection' to a planning application to construct a new dwelling adjacent to 'Rose Orchard'(LPA ref: 15/01441/OUT).

1.2 This report aims to assess the suitability of the proposed access, vehicle speeds on the adjacent road, determine the required visibility and consult the current accident database to assess any road safety issues that may be present.

1.3 In addition, extracts from the planning application documents have been included in this report where required to demonstrate the available visibility and if it meets with the requirements.

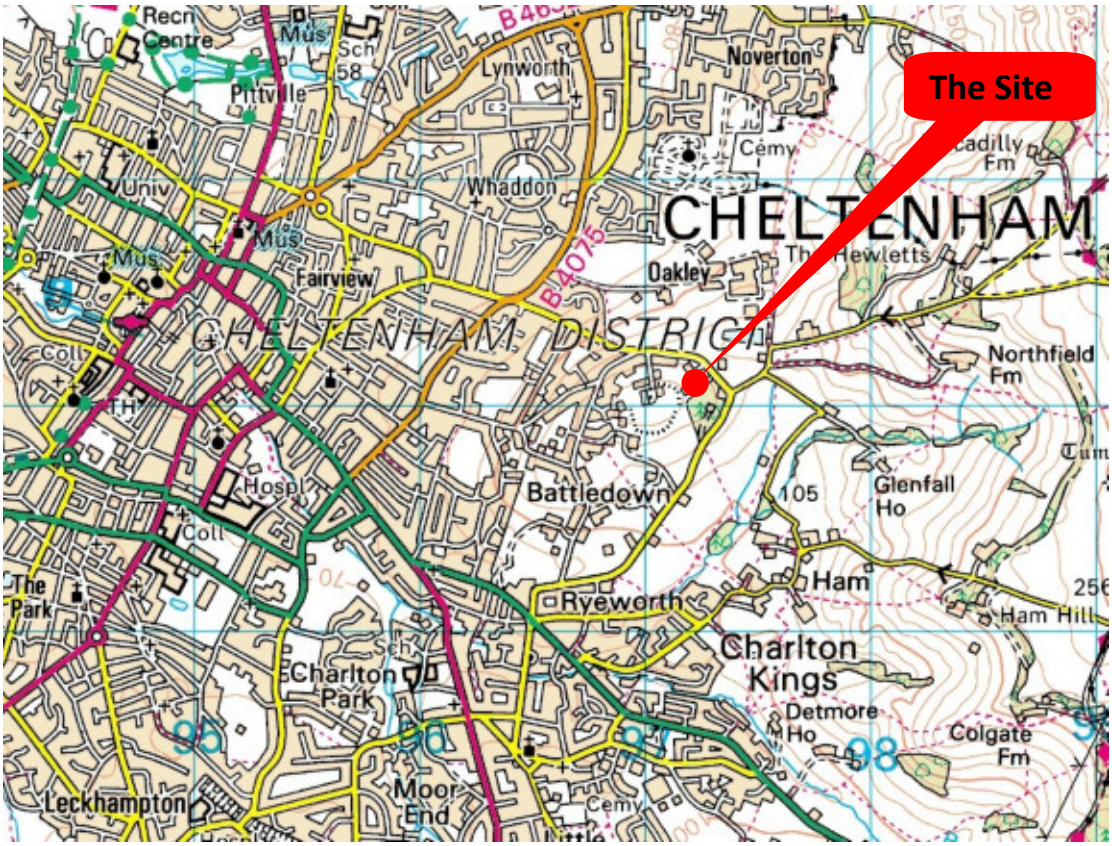
1.4 Appendix 1 contains a drawing (using Ordnance Survey data) incorporating the access and visibility splays.

2.0 Site Context

General

2.1 'Harp Hill' is situated on the eastern side of Cheltenham. It acts as a link road between Charlton Kings, the A40 and the town centre.

2.2 Figure 1 below identifies the site relative to the centre of Cheltenham.



2.3 'Harp Hill' is approximately 5.5m wide adjacent to the access that this report relates to. The posted speed limit on this section of road is 30mph.

2.4 There is a kerb edge on the southern side but no pavement. Residential development is on the southern side for which there are regular access points. Privacy has been created by the planting of, primarily, evergreen screening plants.

2.5 Visibility from the individual residential access points are constrained and there is clear evidence that property owners have moved planting back in order to improve the situation. One property appears to have felled a tree adjacent to the highway boundary.

2.6 On the eastern side of the road there is no edging. A narrow verge gives way to a short drop to a hedgerow at the highway boundary.

2.7 'Harp Hill' has street lighting adjacent to the existing access and for at least 100 metres either side.

2.8 There are regular access points from Pystol Lane serving residential dwellings. Due to the historical arrangement, these access points have restricted visibility. Some dwellings do not have on plot parking.

2.9 Automatic Vehicle Counters(ATC), installed either side of the access, recorded average weekday traffic(AWDT) of 3,460 vehicles per day, while at the weekend(AWET) 2,239 vehicles were recorded. In total, for the 7 day period, approximately 21,800 vehicles were recorded. The position of the counters is marked on the drawing attached to appendix 1.

2.10 The majority of vehicles recorded were either cars or light goods vehicles(LGVs). Less than 2% of vehicles were HGVs.

Speed Survey

2.11 A speed survey was conducted for a seven day period from the 8th to the 16th of September 2015. During that 7 day period, the 85% speed recorded was between 31.6mph and 36.1mph. Appendix 2 and 3 contains the detailed results for each site and for either direction.

2.12 The ATC west of the existing access(Site 1) recorded a maximum 59.3mph. In addition, almost 60% of vehicles exceeded the speed limit. The 85% speed at the location for traffic travelling east bound was 36.1mph.

2.13 The ATC east of the existing access(Site 2) recorded a maximum speed of 52.2mph. In addition, the percentage of vehicles exceeding the posted speed limit was 31.1%, lower than the number to the west.

2.14 The 85% speed at the location for traffic travelling east bound was 31.6mph.

2.15 Appendix 4 contains Speed Statistics by Hour for both sites for the duration of the survey.

Accident History

2.16 An examination of the accident records for the area revealed that 3 incidents were recorded within 250m of the site. Details are contained in Appendix 7.

2.17 The records do not suggest speed may have been the cause, however, inclement weather may have.

3.0 Existing Access Appraisal

3.1 The current driveway provides access to 'Rose Orchard' and 'Kings Welcome'. The owner of 'Kings Welcome' has created a new access to the west primarily for safety reasons, however, he still randomly uses the original access.

3.2 The Highway Authority has provided comments, as a statutory consultee, to the planning application. They have raised no objection to the application, however, they did raise an objection to a previous application, LPA reference 14/01612/OUT.

3.3 The access is 2.5m wide. From the edge of the access to the boundary is approximately 0.45m on either side.

3.4 At the junction with 'Harp Hill' there is a large tree on the eastern side. The edge of the trunk is set back approximately 2.6m form the edge of the carriageway.

3.5 Below is a photograph of the access as seen from the opposite side of the road:-

Visibility to the West

3.6 The 85% speed for vehicles travelling east, approaching the access, is 36.1mph. This is a "dry weather speed", the "wet weather speed" for design purposes will be 33.6mph. This broadly aligns with the measured speed contained in the application documents.

3.7 The "Standing Advice" contained in Appendix 6 published by Gloucestershire County Council states a visibility splay of 2.4m(X) x 54m(Y) is required at this location.

3.8 Using Manual for Streets 2(MfS2), the splay required is 52m. Details of the calculation is contained in Appendix 5.

3.9 The visibility splay to the west is achievable which can be seen in the photograph below:-

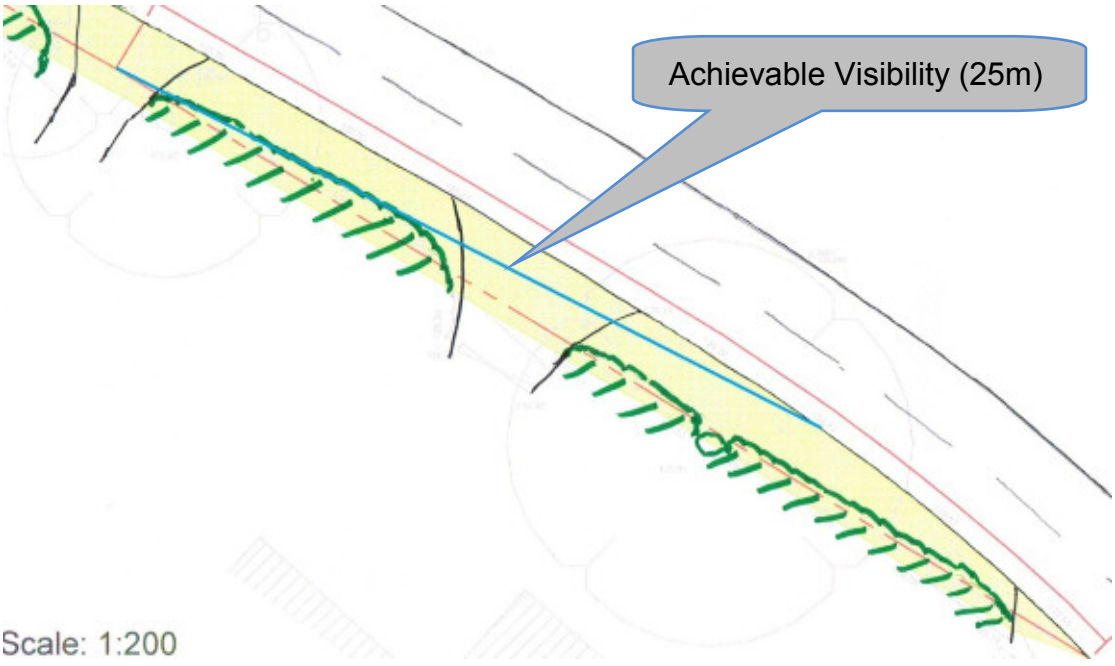
Visibility to the East

3.10 The 85% speed for vehicles travelling west, approaching the access, is 31.6mph. This is a "dry weather speed", the "wet weather speed" for design purposes will be 29.1mph. This is less than the measured speed contained in the application documents, however, the speed of vehicles increases as they travel west.

3.11 The "Standing Advice" contained in Appendix 6 published by Gloucestershire County Council states a visibility splay of 2.4m(X) x 54m(Y) is required at this location.

3.12 Using Manual for Streets 2(MfS2), the splay required is 40m. Details of the calculation is contained in Appendix 5.

3.13 A drawing contained in the application documents titled "Access Arrangement with Visibility Splays" (see Appendix 8) illustrates that a splay of 54m is achievable. The drawing shows the large trees, however, the hedgerow is not shown. The latter severely impacts on visibility. Below is an extract of the drawing with the achievable splay and correct line of vegetation shown:-



3.14 The photograph below clearly confirms the achievable visibility:-

3.15 The drawing contained in Appendix 1 illustrates the splay for 54m and 40m. In addition the property boundaries can also be seen. If the vegetation was not a restriction then it is likely 3rd party land ownership issues would be. A detailed Land Registry Search is required to confirm boundaries.

Gloucestershire County Council – Standing Advice

3.16 The document is clear in its requirements for residential development in order to protect highway safety. A copy of the document is contained in Appendix 6.

3.17 Pages 7 to 9 of the "Standing Advice" clearly state a minimum access width of 4.1m is required irrespective of road class. The existing access is 2.5m which is substantial below the requirement. Furthermore, there is no space to achieve a width of 4.1m even for the first 20 metres.

4.0 SUMMARY & CONCLUSIONS

4.1 This Access Appraisal has been prepared by *RSL Highways and Transportation* for **Mr V Fry** to accompany a 'Letter of Objection' to a planning application to construct a new dwelling adjacent to 'Rose Orchard'(LPA ref: 15/01441/OUT).

4.2 The speed survey conducted from the 8th to the 16th of September confirm that the 85% is at or above 30mph which broadly accords with the documents attached to the application .

4.3 Visibility to the west in accordance with the "Standing Advice" is achievable, however, to the east vegetation and 3rd party land ownership issues severely restrict the visibility to 25 metres. The details shown in the application documents are incorrect.

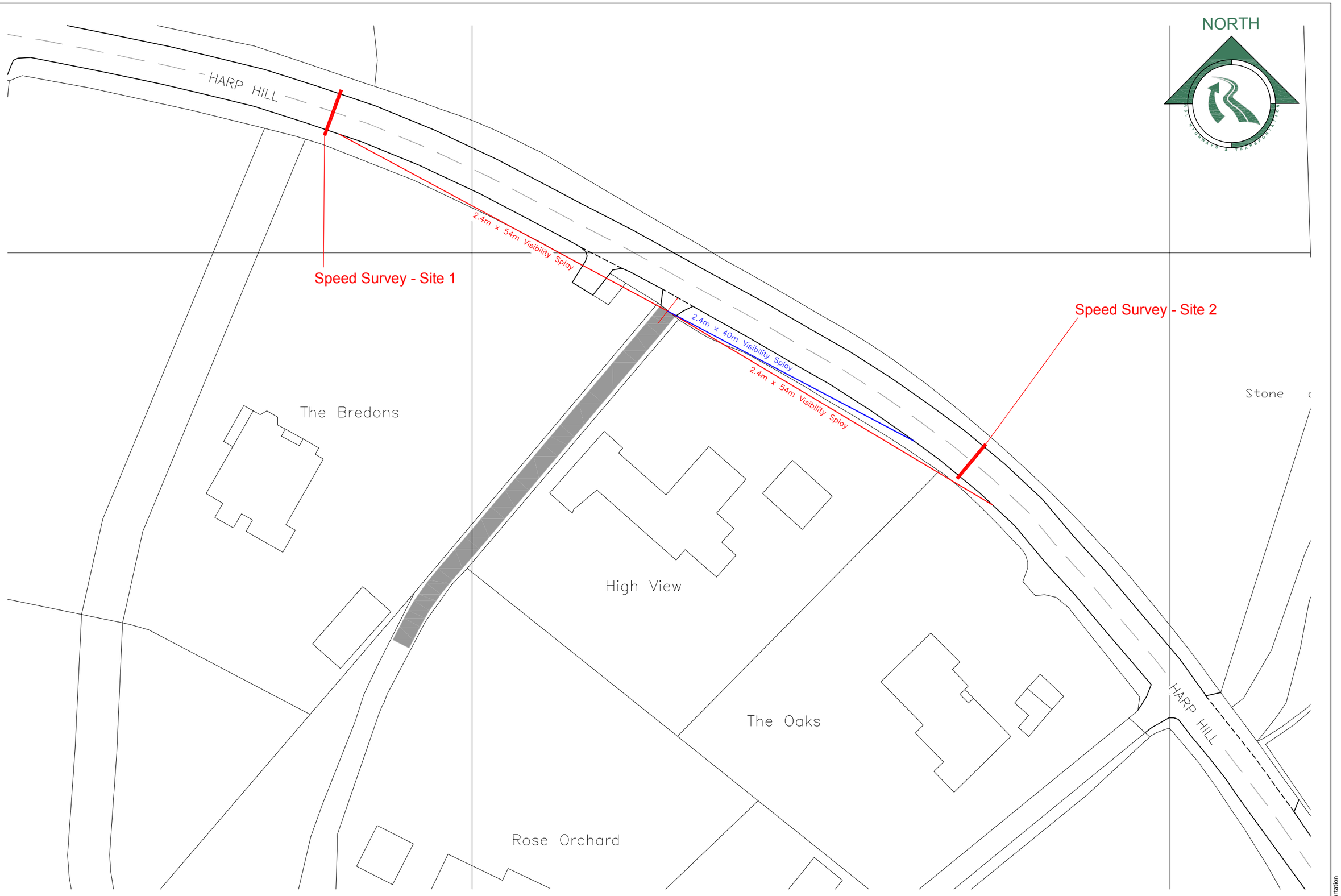
4.4 Finally, the existing access is 2.5m wide and well below the required minimum of 4.1m. There is no scope to increase the width due to 3rd party land ownership issues.

5.0 APPENDICES

5.1 APPENDIX 1

Exisitng Access and Visibility Splay

(RSLHT drg. no. 0010 rev 01)



Client	Project	Title	Notes	Drg. no.	Rev.	Scale
Mr V. Fry	Harp Hill Charlton Kings	Existing Access to 'Rose Orchard' and 'Kings Welcome' VISIBILITY SPLAYS	1. All Details shown on this drawing are subject to the approval of Local Authority. 2. Do Not Scale.	RSLHT–7180–P–0101	01	1:500 @ A3
				Revision Notes (18/09/15) Rev. 01 – First Issue		

RSL Highways and Transportation
3rd Floor St Peters House
2 College Street
Gloucester, GL1 2NE

5.2 APPENDIX 2

Speed Survey Results – Site 1

(west of existing access)

Virtual Week Report - Combined

Location: West of Entrance attached to LC25
Site name: Harp Hill, Charlton Kings, GL52 6PR - Site 1
Survey duration: 00:00 09 September 2015 to 00:00 16 September 2015 (7 days, 1 week)
Speed limit: 30 mph
Profile: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(5,99) Headway(>0), *Class scheme = DfT-UK*

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	AWDT	AWET
0	8	3	6	6	6	15	13	6	14
1	3	1	0	0	3	2	5	1	4
2	0	1	0	0	2	0	4	1	2
3	1	1	0	1	3	0	4	1	2
4	3	4	3	2	1	2	1	3	2
5	10	8	10	10	5	7	3	9	5
6	39	31	39	39	46	11	9	39	10
7	206	214	216	223	200	41	22	212	32
8	512	472	473	478	464	75	52	480	64
9	195	191	200	211	209	167	117	201	142
10	156	170	143	163	181	189	160	163	175
11	168	156	138	191	180	240	213	167	227
12	166	151	191	185	223	195	200	183	198
13	157	164	182	177	223	206	211	181	209
14	168	169	210	206	213	242	183	193	213
15	351	297	337	323	365	182	230	335	206
16	327	316	337	352	409	214	213	348	214
17	371	397	388	407	387	265	143	390	204
18	173	249	255	291	244	168	114	242	141
19	121	148	165	175	132	96	76	148	86
20	52	62	92	94	74	54	38	75	46
21	38	58	59	52	51	28	25	52	27
22	23	28	25	33	31	14	21	28	18
23	5	8	12	11	19	21	10	11	16
Total	**3253**	**3299**	**3481**	**3630**	**3671**	**2434**	**2067**	**3467**	**2251**

AM peak	512 (0800)	472 (0800)	473 (0800)	478 (0800)	466 (0745)	240 (1100)	222 (1115)
PM peak	377 (1515)	408 (1645)	388 (1700)	420 (1645)	422 (1645)	275 (1645)	241 (1515)

Speed								Ave 1 to 5	Ave 6 and 7	Ave 1 to 7
Mean	30.5	30.6	30.5	31.4	31.3	31.4	31.4	30.9	31.4	31.0
Speed 85%	35.1	34.9	35.1	35.8	35.8	35.8	35.8	35.3	35.8	35.5
Percent Ex	56.1	55.3	54.8	65.1	62.9	63.2	62.3	58.8	62.8	60.0

Project	Title	Date
Harp Hill **Charlton Kings GL52 6PR**	**Speed Survey - Site 1 - West of Entrance** **Both Directions (Two Way)**	20/09/2015
		Table No. S1/001 — Rev. 1

Virtual Week Report - WESTBOUND

Location: West of Entrance attached to LC25
Site name: Harp Hill, Charlton Kings, GL52 6PR - Site 1
Survey duration: 00:00 09 September 2015 to 00:00 16 September 2015 (7 days, 1 week)
Speed limit: 30 mph
Profile: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(5,99) Headway(>0), *Class scheme = DfT-UK*

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	AWDT	AWET
0	5	1	2	5	2	9	5	3	7
1	2	0	0	0	1	1	4	1	3
2	0	0	0	0	1	0	1	0	1
3	1	1	0	1	2	0	3	1	2
4	2	3	2	2	1	2	1	2	2
5	3	1	2	2	2	3	2	2	3
6	7	9	10	12	9	4	3	9	4
7	88	84	92	92	81	16	8	87	12
8	282	275	253	255	248	43	21	263	32
9	124	113	114	136	133	96	62	124	79
10	77	95	87	89	101	108	101	90	105
11	93	83	62	92	100	136	126	86	131
12	87	73	94	104	129	101	87	97	94
13	77	85	108	96	109	108	124	95	116
14	90	89	108	101	88	144	88	95	116
15	190	149	183	167	200	75	111	178	93
16	211	184	213	207	267	109	106	216	108
17	193	212	225	242	232	107	76	221	92
18	95	151	125	160	129	86	50	132	68
19	61	88	83	90	67	51	50	78	51
20	27	32	57	50	39	24	22	41	23
21	18	11	32	25	24	17	12	22	15
22	7	16	13	19	12	8	14	13	11
23	2	4	2	5	9	10	6	4	8
Total	**1742**	**1759**	**1867**	**1952**	**1986**	**1258**	**1083**	**1861**	**1171**

AM peak	282 (0800)	275 (0800)	253 (0800)	255 (0800)	248 (0800)	136 (1100)	133 (1115)
PM peak	240 (1545)	227 (1645)	232 (1645)	242 (1700)	275 (1545)	144 (1330)	124 (1300)

Speed								Ave 1 to 5	Ave 6 and 7	Ave 1 to 7
Mean	29.6	29.5	29.8	30.8	31.0	30.9	30.9	30.1	30.9	30.4
Speed 85%	34.0	33.8	34.2	35.1	35.6	35.6	35.1	34.5	35.4	34.8
Percent Ex	47.4	45.3	47.8	60.3	60.1	57.6	58	52.2	57.8	53.8

Project	Title	Date
Harp Hill Charlton Kings GL52 6PR	**Speed Survey - Site 1 - West of Entrance Westbound (B->A)**	20/09/2015
		Table No. S1/003 / Rev. 1

Virtual Week Report - EASTBOUND

Location: West of Entrance attached to LC25
Site name: Harp Hill, Charlton Kings, GL52 6PR - Site 1
Survey duration: 00:00 09 September 2015 to 00:00 16 September 2015 (7 days, 1 week)
Speed limit: 30 mph
Profile: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(5,99) Headway(>0), *Class scheme = DfT-UK*

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	AWDT	AWET
0	3	2	4	1	4	6	8	3	7
1	1	1	0	0	2	1	1	1	1
2	0	1	0	0	1	0	3	0	2
3	0	0	0	0	1	0	1	0	1
4	1	1	1	0	0	0	0	1	0
5	7	7	8	8	3	4	1	7	3
6	32	22	29	27	37	7	6	29	7
7	118	130	124	131	119	25	14	124	20
8	230	197	220	223	216	32	31	217	32
9	71	78	86	75	76	71	55	77	63
10	79	75	56	74	80	81	59	73	70
11	75	73	76	99	80	104	87	81	96
12	79	78	97	81	94	94	113	86	104
13	80	79	74	81	114	98	87	86	93
14	78	80	102	105	125	98	95	98	97
15	161	148	154	156	165	107	119	157	113
16	116	132	124	145	142	105	107	132	106
17	178	185	163	165	155	158	67	169	113
18	78	98	130	131	115	82	64	110	73
19	60	60	82	85	65	45	26	70	36
20	25	30	35	44	35	30	16	34	23
21	20	47	27	27	27	11	13	30	12
22	16	12	12	14	19	6	7	15	7
23	3	4	10	6	10	11	4	7	8
Total	**1511**	**1540**	**1614**	**1678**	**1685**	**1176**	**984**	**1606**	**1080**

AM peak	239 (0745)	209 (0745)	240 (0745)	223 (0745)	236 (0745)	104 (1100)	105 (1145)
PM peak	178 (1700)	185 (1700)	169 (1715)	179 (1645)	170 (1645)	158 (1700)	127 (1515)

Speed								Ave 1 to 5	Ave 6 and 7	Ave 1 to 7
Mean	31.6	31.8	31.3	32.1	31.7	31.9	32.0	31.7	32.0	31.8
Speed 85%	36.0	36.0	35.8	36.2	36.0	36.2	36.5	36.0	36.4	**36.1**
Percent Ex	66.2	66.6	62.9	70.7	66.2	69.3	67.0	66.5	68.2	67.0

Project	Title	Date
Harp Hill **Charlton Kings GL52 6PR**	**Speed Survey - Site 1 - West of Entrance** **Eastbound (A->B)**	20/09/2015
		Table No. S1/002 — Rev. 1

5.3 APPENDIX 3

Speed Survey Results – Site 2

(east of existing access)

Virtual Week Report - Combined

Location: East of Entrance attached to LC29
Site name: Harp Hill, Charlton Kings, GL52 6PR - Site 2
Survey duration: 00:00 09 September 2015 to 00:00 16 September 2015 (7 days, 1 week)
Speed limit: 30 mph
Profile: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(5,99) Headway(>0), *Class scheme = DfT-UK*

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	AWDT	AWET
0	8	3	6	6	5	15	13	6	14
1	3	1	0	0	3	2	5	1	4
2	0	1	0	0	2	0	4	1	2
3	1	1	0	1	3	0	4	1	2
4	3	4	3	2	1	2	1	3	2
5	10	8	9	10	5	7	1	8	4
6	36	28	40	39	43	11	9	37	10
7	209	211	212	220	197	39	21	210	30
8	510	474	474	490	473	76	52	484	64
9	197	188	200	209	206	167	114	200	141
10	160	171	139	164	180	188	158	163	173
11	162	156	137	189	179	240	213	165	227
12	169	150	193	182	221	196	198	183	197
13	160	161	182	176	221	210	207	180	209
14	165	165	211	209	213	238	182	193	210
15	346	299	336	326	362	180	225	334	203
16	322	315	333	352	411	211	214	347	213
17	370	399	388	409	391	269	142	391	206
18	170	252	256	291	246	165	116	243	141
19	124	147	165	173	133	96	76	148	86
20	52	62	92	96	75	55	38	75	47
21	39	58	58	53	49	27	25	51	26
22	23	28	25	33	32	14	21	28	18
23	5	8	12	12	18	21	10	11	16
Total	**3244**	**3290**	**3471**	**3642**	**3669**	**2429**	**2049**	**3463**	**2239**

AM peak	510 (0800)	474 (0800)	474 (0800)	490 (0800)	474 (0745)	240 (1100)	221 (1115)
PM peak	373 (1515)	412 (1645)	388 (1700)	422 (1645)	424 (1645)	279 (1645)	238 (1515)

Speed								Ave 1 to 5	Ave 6 and 7	Ave 1 to 7
Mean	28.1	28.4	27.8	28.2	28.4	28.4	28.5	28.2	28.5	28.3
Speed 85%	31.8	32.0	31.8	32.0	32.0	32.0	32.2	31.9	32.1	32.0
Percent Ex	30.3	31.0	29.0	31.8	32.8	31.0	31.6	31.0	31.3	31.1

Project	Title	Date	
Harp Hill **Charlton Kings GL52 6PR**	**Speed Survey - Site 2 - East of Entrance** **Both Directions (Two Way)**	20/09/2015	
		Table No. S2/001	Rev. 1

Virtual Week Report - EASTBOUND

Location: East of Entrance attached to LC29
Site name: Harp Hill, Charlton Kings, GL52 6PR - Site 2
Survey duration: 00:00 09 September 2015 to 00:00 16 September 2015 (7 days, 1 week)
Speed limit: 30 mph
Profile: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(5,99) Headway(>0), *Class scheme = DfT-UK*

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	AWDT	AWET
0	3	2	4	1	4	6	8	3	7
1	1	1	0	0	2	1	1	1	1
2	0	1	0	0	1	0	3	0	2
3	0	0	0	0	1	0	1	0	1
4	1	1	1	0	0	0	0	1	0
5	7	7	7	8	3	4	0	6	2
6	30	20	30	27	35	7	6	28	7
7	118	123	121	128	117	24	14	121	19
8	234	204	225	219	219	32	31	220	32
9	72	78	87	72	76	70	55	77	63
10	83	76	57	77	79	81	62	74	72
11	71	74	75	98	82	105	93	80	99
12	77	78	99	76	94	94	110	85	102
13	82	77	75	80	111	102	83	85	93
14	77	77	100	109	130	98	95	99	97
15	154	151	151	151	170	106	117	155	112
16	114	134	123	145	148	102	109	133	106
17	170	188	163	162	155	163	68	168	116
18	77	98	134	133	113	82	64	111	73
19	64	58	82	82	63	47	27	70	37
20	24	30	35	48	36	30	16	35	23
21	20	47	26	27	26	11	13	29	12
22	15	12	12	14	19	6	7	14	7
23	3	4	10	6	10	11	4	7	8
Total	**1497**	**1541**	**1617**	**1663**	**1694**	**1182**	**987**	**1602**	**1085**

AM peak	240 (0745)	214 (0745)	244 (0745)	223 (0745)	236 (0745)	106 (1115)	106 (1145)
PM peak	170 (1700)	188 (1700)	168 (1715)	175 (1645)	173 (1645)	163 (1700)	126 (1530)

Speed								Ave 1 to 5	Ave 6 and 7	Ave 1 to 7
Mean	28.2	28.4	28.0	28.4	28.3	28.5	28.7	28.3	28.6	28.4
Speed 85%	32.2	32.2	32.0	32.2	32.2	32.2	32.7	32.2	32.5	32.2
Percent Ex	32.3	32.8	31.4	34.5	33.2	32.7	33.8	32.8	33.3	33.0

Project	Title	Date
Harp Hill **Charlton Kings GL52 6PR**	**Speed Survey - Site 1 - East of Entrance** **Eastbound (A->B)**	20/09/2015
		Table No. S2/002 — Rev. 1

Virtual Week Report - WESTBOUND

Location: East of Entrance attached to LC29
Site name: Harp Hill, Charlton Kings, GL52 6PR - Site 2
Survey duration: 00:00 09 September 2015 to 00:00 16 September 2015 (7 days, 1 week)
Speed limit: 30 mph
Profile: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(5,99) Headway(>0), *Class scheme = DfT-UK*

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	AWDT	AWET
0	5	1	2	5	1	9	5	3	7
1	2	0	0	0	1	1	4	1	3
2	0	0	0	0	1	0	1	0	1
3	1	1	0	1	2	0	3	1	2
4	2	3	2	2	1	2	1	2	2
5	3	1	2	2	2	3	1	2	2
6	6	8	10	12	8	4	3	9	4
7	91	88	91	92	80	15	7	88	11
8	276	270	249	271	254	44	21	264	33
9	125	110	113	137	130	97	59	123	78
10	77	95	82	87	101	107	96	88	102
11	91	82	62	91	97	135	120	85	128
12	92	72	94	106	127	102	88	98	95
13	78	84	107	96	110	108	124	95	116
14	88	88	111	100	83	140	87	94	114
15	192	148	185	175	192	74	108	178	91
16	208	181	210	207	263	109	105	214	107
17	200	211	225	247	236	106	74	224	90
18	93	154	122	158	133	83	52	132	68
19	60	89	83	91	70	49	49	79	49
20	28	32	57	48	39	25	22	41	24
21	19	11	32	26	23	16	12	22	14
22	8	16	13	19	13	8	14	14	11
23	2	4	2	6	8	10	6	4	8
Total	**1747**	**1749**	**1854**	**1979**	**1975**	**1247**	**1062**	**1861**	**1155**

AM peak	276 (0800)	270 (0800)	249 (0800)	271 (0800)	254 (0800)	135 (1100)	128 (1115)
PM peak	236 (1545)	227 (1645)	228 (1530)	247 (1645)	269 (1530)	140 (1330)	124 (1300)

Speed								Ave 1 to 5	Ave 6 and 7	Ave 1 to 7
Mean	28.0	28.3	27.7	28.1	28.5	28.3	28.3	28.1	28.3	28.2
Speed 85%	31.5	31.8	31.3	31.5	32.0	31.5	31.8	31.6	31.7	**31.6**
Percent Ex	28.6	29.3	26.9	29.5	32.4	29.5	29.5	0.0	29.5	0.0

Project	Title	Date
Harp Hill **Charlton Kings GL52 6PR**	**Speed Survey - Site 1 - East of Entrance** **Westbound (B->A)**	20/09/2015
		Table No. S2/003 — Rev. 1

5.4 APPENDIX 4

Speed Statistics by Hour – Site 1 & 2

MetroCount Traffic Executive
Speed Statistics by Hour

SpeedStatHour-526 -- English (ENG)

Datasets:

Site:	**[Site 1] !Harp Hill**
Attribute:	West of Proposed Access
Direction:	2 - East bound, A trigger first. **Lane:** 0
Survey Duration:	10:44 08 September 2015 => 05:21 16 September 2015,
Zone:	
File:	Site 1 0 2015-09-21 0059.EC0 (Plus)
Identifier:	GS55E459 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.05)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**00:00 09 September 2015 => 00:00 16 September 2015 (7)**
Included classes:	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	1 - 140 mph.
Direction:	North, East, South, West (bound), P = East
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (DfT-UK)
Units:	Part metric (metre, mi, m/s, mph, kg, tonne)
In profile:	Vehicles = 21835 / 24346 (89.69%)

Speed Statistics by Hour

SpeedStatHour-526
Site: Site 1.0.0E
Description: **!Harp Hill**
Filter time: **00:00 09 September 2015 => 00:00 16 September 2015**
Scheme: Vehicle classification (DfT-UK)
Filter: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(1,140) Headway(>0) Span(0 - 100)

Vehicles = 21835
Posted speed limit = 30 mph, Exceeding = 13055 (59.79%), Mean Exceeding = 33.98 mph
Maximum = 59.3 mph, **Minimum** = 4.4 mph, **Mean** = 31.0 mph
85% Speed = 35.6 mph, **95% Speed** = 38.7 mph, **Median** = 30.9 mph
10 mph Pace = 26 - 36, **Number in Pace** = 16408 (75.15%)
Variance = 24.20, **Standard Deviation** = 4.92 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 30 mph	
0000	57	0.3%	16.1	49.6	33.5	32.9	37.4	43.8	45	78.9%
0100	14	0.1%	22.6	53.1	31.5	28.9	37.6	40.7	6	42.9%
0200	7	0.0%	23.1	26.8	25.6	25.9	26.6	26.6	0	0.0%
0300	10	0.0%	25.1	39.1	32.8	31.8	38.7	38.9	8	80.0%
0400	16	0.1%	29.1	46.7	33.0	31.3	34.9	37.6	14	87.5%
0500	53	0.2%	20.5	46.1	33.7	33.1	38.3	41.6	45	84.9%
0600	214	1.0%	6.8	50.9	32.8	32.7	38.5	41.4	160	74.8%
0700	1122	5.1%	6.2	51.6	32.1	32.0	36.5	40.3	770	68.6%
0800	2526	11.6%	4.4	49.8	30.6	30.6	34.9	37.6	1448	57.3%
0900	1290	5.9%	8.4	53.0	30.9	30.6	35.3	38.7	755	58.5%
1000	1162	5.3%	10.4	48.8	30.5	30.2	35.3	38.3	626	53.9%
1100	1286	5.9%	7.7	54.6	30.7	30.4	35.6	38.3	723	56.2%
1200	1311	6.0%	7.1	53.3	30.9	30.6	35.1	38.5	742	56.6%
1300	1320	6.0%	7.4	48.4	30.7	30.6	35.3	38.5	764	57.9%
1400	1391	6.4%	9.5	59.3	30.7	30.6	35.3	38.7	770	55.4%
1500	2085	9.5%	4.9	55.6	30.2	30.2	34.7	37.6	1122	53.8%
1600	2168	9.9%	9.0	53.0	31.0	31.1	35.3	38.3	1350	62.3%
1700	2358	10.8%	5.9	54.9	31.4	31.3	35.8	38.5	1524	64.6%
1800	1494	6.8%	7.1	51.2	31.6	31.5	35.6	38.5	989	66.2%
1900	913	4.2%	6.6	49.8	31.1	31.1	35.8	39.6	561	61.4%
2000	466	2.1%	16.8	54.8	31.6	30.9	36.2	40.7	283	60.7%
2100	311	1.4%	13.3	50.6	31.8	31.1	36.9	39.8	186	59.8%
2200	175	0.8%	16.7	47.3	31.6	31.1	36.0	39.6	101	57.7%
2300	86	0.4%	20.3	44.7	33.5	32.7	38.5	42.5	63	73.3%
----	**21835**	**100.0%**	**4.4**	**59.3**	**31.0**	**30.9**	**35.6**	**38.7**	**13055**	**59.8%**

MetroCount Traffic Executive
Speed Statistics by Hour

SpeedStatHour-527 -- English (ENG)

Datasets:

Site:	**[Site 2] !Harp Hill**
Attribute:	East of Proposed Access
Direction:	2 - East bound, A trigger first. **Lane:** 0
Survey Duration:	10:55 08 September 2015 => 05:26 16 September 2015,
Zone:	
File:	Site 2 0 2015-09-21 0100.EC0 (Plus)
Identifier:	GS73R8TF MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm:	Factory default axle (v4.05)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**00:00 09 September 2015 => 00:00 16 September 2015 (7)**
Included classes:	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range:	1 - 140 mph.
Direction:	North, East, South, West (bound), P = East
Separation:	Headway > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (DfT-UK)
Units:	Part metric (metre, mi, m/s, mph, kg, tonne)
In profile:	Vehicles = 21794 / 24259 (89.84%)

Speed Statistics by Hour

SpeedStatHour-527
Site: Site 2.0.0E
Description: **!Harp Hill**
Filter time: **00:00 09 September 2015 => 00:00 16 September 2015**
Scheme: Vehicle classification (DfT-UK)
Filter: Cls(2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(1,140) Headway(>0) Span(0 - 100)

Vehicles = 21794
Posted speed limit = 30 mph, Exceeding = 6769 (31.06%), Mean Exceeding = 32.66 mph
Maximum = 52.2 mph, **Minimum** = 7.2 mph, **Mean** = 28.2 mph
85% Speed = 32.0 mph, **95% Speed** = 34.7 mph, **Median** = 28.2 mph
10 mph Pace = 23 - 33, **Number in Pace** = 17849 (81.90%)
Variance = 16.97, **Standard Deviation** = 4.12 mph

Hour Bins

Time	Bin		Min	Max	Mean	Median	85%	95%	>PSL 30 mph	
0000	56	0.3%	21.1	43.1	30.8	29.5	35.8	41.4	26	46.4%
0100	14	0.1%	25.1	46.6	30.4	26.8	35.8	37.1	5	35.7%
0200	7	0.0%	22.7	34.1	26.3	24.8	27.5	34.0	1	14.3%
0300	10	0.0%	26.4	36.5	30.4	30.4	31.8	36.5	6	60.0%
0400	16	0.1%	26.6	31.9	29.8	30.2	31.1	31.5	9	56.3%
0500	50	0.2%	22.7	42.0	31.1	30.4	35.1	38.9	29	58.0%
0600	206	0.9%	17.6	43.9	29.9	29.5	34.9	37.1	101	49.0%
0700	1109	5.1%	10.4	45.7	29.6	29.3	33.3	36.7	493	44.5%
0800	2549	11.7%	9.1	46.1	28.5	28.4	31.8	34.2	818	32.1%
0900	1281	5.9%	8.6	46.7	28.2	28.2	32.2	34.9	402	31.4%
1000	1160	5.3%	7.2	43.2	27.8	27.7	31.8	34.7	326	28.1%
1100	1276	5.9%	8.7	45.4	27.7	27.7	31.5	34.4	349	27.4%
1200	1309	6.0%	9.3	44.4	27.9	28.0	31.5	34.2	368	28.1%
1300	1317	6.0%	9.6	43.5	28.0	28.0	31.8	34.2	400	30.4%
1400	1383	6.3%	8.8	46.7	27.7	27.7	32.0	34.4	403	29.1%
1500	2074	9.5%	7.7	52.2	27.4	27.3	31.1	33.6	503	24.3%
1600	2158	9.9%	8.2	47.6	28.2	28.2	31.5	34.2	646	29.9%
1700	2368	10.9%	9.5	49.8	28.5	28.4	31.8	34.4	752	31.8%
1800	1496	6.9%	8.9	47.2	28.5	28.4	32.0	34.7	491	32.8%
1900	914	4.2%	10.7	44.1	28.0	27.7	32.0	35.1	258	28.2%
2000	470	2.2%	13.8	46.7	28.6	28.4	32.9	35.6	160	34.0%
2100	309	1.4%	13.3	46.3	28.8	28.4	33.6	37.4	110	35.6%
2200	176	0.8%	15.7	45.8	28.8	28.4	32.9	35.8	66	37.5%
2300	86	0.4%	18.7	41.3	30.4	30.6	34.7	36.7	47	54.7%
----	**21794**	**100.0%**	**7.2**	**52.2**	**28.2**	**28.2**	**32.0**	**34.7**	**6769**	**31.1%**

5.5 APPENDIX 5

MfS(2) Visibility Calculations

SSD = $v*t+(v^2/(2*(d+(0.1*a))))$

v = speed (m/s)
t = driver perception-reaction time (s)
d = deceleration (m/s/s)
a = longitudinal gradient (%)

Design Speed	Vehicle Type	Reaction Time (s)	Deceleration rate (g)	d
60 k/h (37.28 mph) or below	Car & LGV	1.5	0.45	4.41
	HGV	1.5	0.375	3.68
	Bus	1.5	0.375	3.68
Above 60 k/h (37.28 mph)	All vehicles	2	0.375 (Absolute min. SSD)	3.68
	All vehicles	2	0.25 (Desirable min. SSD)	2.45

N.B. 'a' is positive (+) if uphill and negative (-) if downhill

v (mph) = 36.1 (Dry Weather Speed)

v (mph) =	33.6	converted to --> v (m/s) =	15.02057	v*t =	22.53086
t =	1.5	from table above		v^2 =	225.61758
d =	4.41	from table above		0.1*a =	-0.20
a =	-2.0			d + (0.1*a) =	4.21
				2*(d + (0.1*a)) =	8.42
				$v^2/(2*(d + (0.1*a)))$ =	26.79544
				SSD =	49.33 m

Note: This calculation is based on Manual for Streets 2 para. 10.1.5 dated September 2010

"Y" Distance (SSD + 2.4m Bonnet Length) = **51.73 m**

Project	Title	Date	
Harp Hill, Charlton Kings Speed Survey	**SSD Visibility Calculation Looking West**	20/09/2015	RSL Highways and Transportation 3rd Floor St Peters House, 2 College Street, Gloucester, GL1 2NE.
		Rev. 01	

SSD = $v*t+(v^2/(2*(d+(0.1*a))))$

v = speed (m/s)
t = driver perception-reaction time (s)
d = deceleration (m/s/s)
a = longitudinal gradient (%)

Design Speed	Vehicle Type	Reaction Time (s)	Deceleration rate (g)	d
60 k/h (37.28 mph) or below	Car & LGV	1.5	0.45	4.41
	HGV	1.5	0.375	3.68
	Bus	1.5	0.375	3.68
Above 60 k/h (37.28 mph)	All vehicles	2	0.375 (Absolute min. SSD)	3.68
	All vehicles	2	0.25 (Desirable min. SSD)	2.45

N.B. 'a' is positive (+) if uphill and negative (-) if downhill

v (mph) = 31.6 (Dry Weather Speed)

v (mph) =	29.1	converted to --> v (m/s) =	13.00889	v*t =	19.51333
t =	1.5	from table above		v^2 =	169.23117
d =	4.41	from table above		0.1*a =	0.20
a =	2.0			d + (0.1*a) =	4.61
				2*(d + (0.1*a)) =	9.22
				$v^2/(2*(d + (0.1*a)))$ =	18.35479
				SSD =	37.87 m

Note: This calculation is based on Manual for Streets 2 para. 10.1.5 dated September 2010

"Y" Distance (SSD + 2.4m Bonnet Length) = **40.27 m**

Project	Title	Date	
Harp Hill, Charlton Kings Speed Survey	**SSD Visibility Calculation Looking East**	20/09/2015	RSL Highways and Transportation 3rd Floor St Peters House, 2 College Street, Gloucester, GL1 2NE.
		Rev. 01	

5.6 APPENDIX 6

Gloucestershire County Council Standing Advice

Gloucestershire County Council

Highways Development Co-ordination

Standing Advice

Proposed or Existing

Residential Development

comprising 5 dwellings or less.

1.0 Introduction

1.1 Gloucestershire County Council grants planning permission for a range of developments within Gloucestershire, including minerals extraction, waste management and disposal and the County Council's own developments (for example, schools and libraries). All other planning applications, including applications for residential, office, industrial, and retail development are determined by the six Local Planning Authorities (LPA's).

1.2 The LPA's consult Gloucestershire County Council as Highway Authority under the Town and Country Planning (Development Management Procedure) Order 2010 on any relevant highway and transportation issues relating to the proposal, where development:-

- is likely to result in a material increase in the volume or a material change in the character of traffic entering or leaving a classified road or proposed highway;
- is likely to prejudice the improvement or construction of a classified road or proposed highway;
- involves the formation, laying out or alteration of any means of access to a highway; or
- consists of or includes the laying out or construction of a new street

1.3 In response to Section 16 1 (d) of the Town and Country Planning (Development Management Procedure) (England) Order 2010, Gloucestershire County Council, as Local Highway Authority, has resolved that it does not intend to make representations to Local Planning Authorities on new or existing residential developments comprising 5 dwellings or less which are accessed off a Class 3 highway that is subject to a 30mph speed limit, or off a Class 4 (or lower) highway, as defined in this Standing Advice, subject to the exceptions set out in this Standing Advice.

2.0 Criteria to be Applied

2.1 If a planning application is for a residential development of 5 dwellings or less, and:

either:-

a). the application site is adjacent to a Class 3 highway subject to a 30mph speed limit or lower; or

b). the application site is adjacent to a Class 4 highway or lower;

and

the circumstances of paragraph 2.4 do not apply,

then the Highway Authority need not be contacted direct and the guidance contained in Section 3 and the Appendices of this document should be utilised.

2,2 Any queries regarding the classification of a highway should be referred to Gloucestershire County Council Highway Records Team tel. (01452) 426398 or (01452) 425563 or e-mail highwayrecords@gloucestershire.gov.uk.

2.3 The Highway Authority should be consulted on all other types of development that meet the criteria set out in section 1.2 above. It is recommended that the Highway Authority should not be consulted in respect of minor developments/improvements comprising replacement windows/doors, replacement facia, facia signs, hanging signs, conservatories, erection of walls and retaining walls (below 1.37m and beyond 3.6m from the highway), porches, swimming pools, car ports, single and double garages, loft conversions, reroofing/roofing improvements, re-cladding, erection of sheds/summerhouses, CCTV equipment, non-illuminated signs, demolition of sheds or outbuildings, single storey extensions to existing residential properties, or vegetation removal.

2.4 There are other circumstances which are not covered by the above selection criteria:

a). the Highway Authority will provide a consultation response where the application affects any road improvement, traffic scheme, or ongoing transportation study. This will be identified by the Highway Authority.

b). the Highway Authority will provide a consultation response when a written request to do so is made by the LPA due to special circumstances or a County Council member within whose Division the development is located,

c). the Highway Authority reserves the right to comment on any planning application that could potentially affect the operation or road safety of any highway under the control of the County Council. This is to allow for sites falling outside the above criteria which may have site-specific issues that could result in significant highway impacts,

d). in some locations individual plots have previously provided small lengths of footway across their frontage. Any such future planning applications should be referred to the County Council for a consultation response.

2.5 The LPA will need to acquire certain basic information from the applicant about the highway elements of the planning application in order for the County Council to carry out the consultation. The County Council may request further information on the larger and more complex applications.

3.0 Guidance to Local Planning Authorities

The following best practice should be applied by LPA's to planning applications with highway matters not considered by the Highway Authority.

3.1 Domestic Accesses / Drives – Geometric Layout

3.1.1 For a single domestic vehicular access from adopted public highway the access arrangement should be as set out in Figures 3.1 to 3.4 below depending on local context.

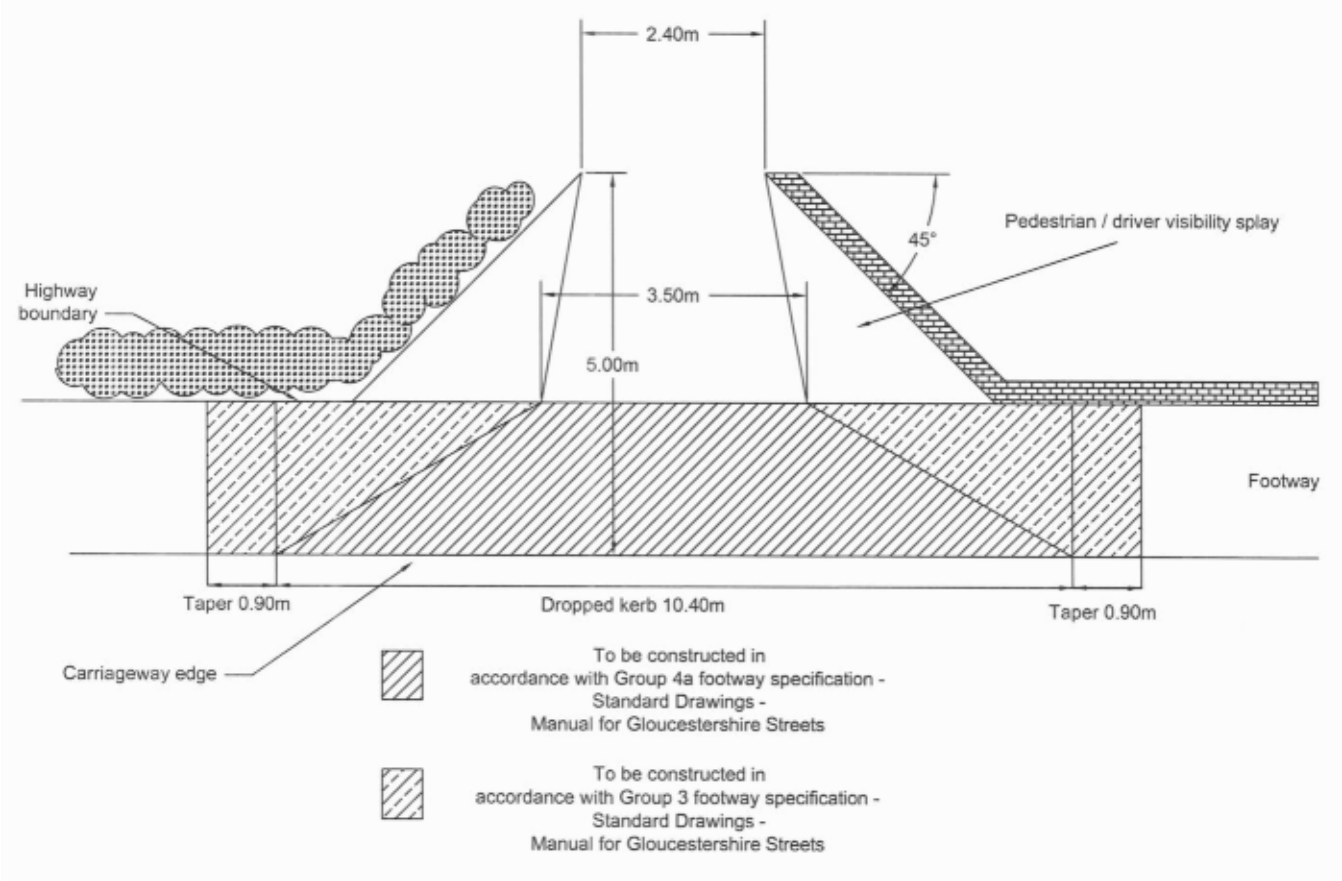


Figure 3.1 – Standard access to 1 dwelling over footway.

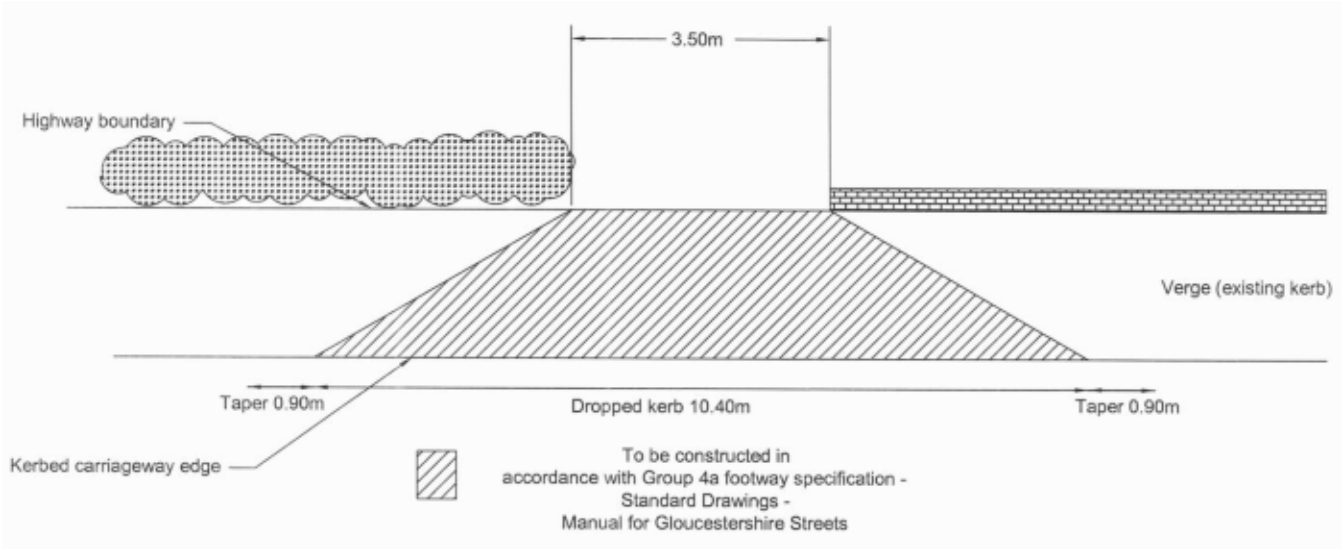


Figure 3.2 – Standard access to 1 dwelling over kerbed highway verge.

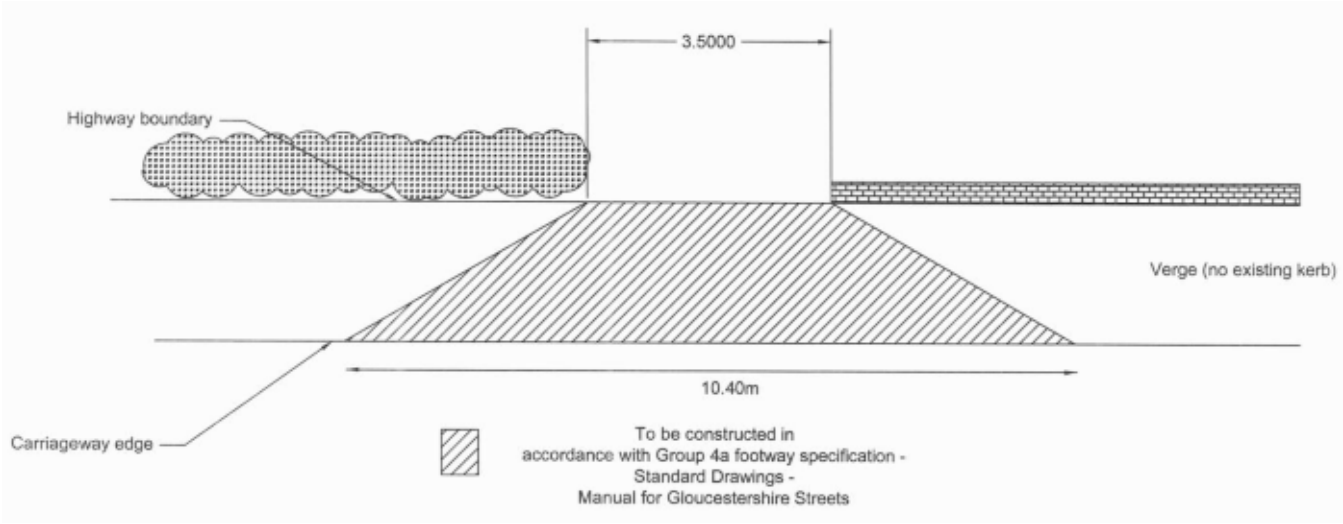


Figure 3.3 – Standard access to 1 dwelling over highway verge (no kerb).

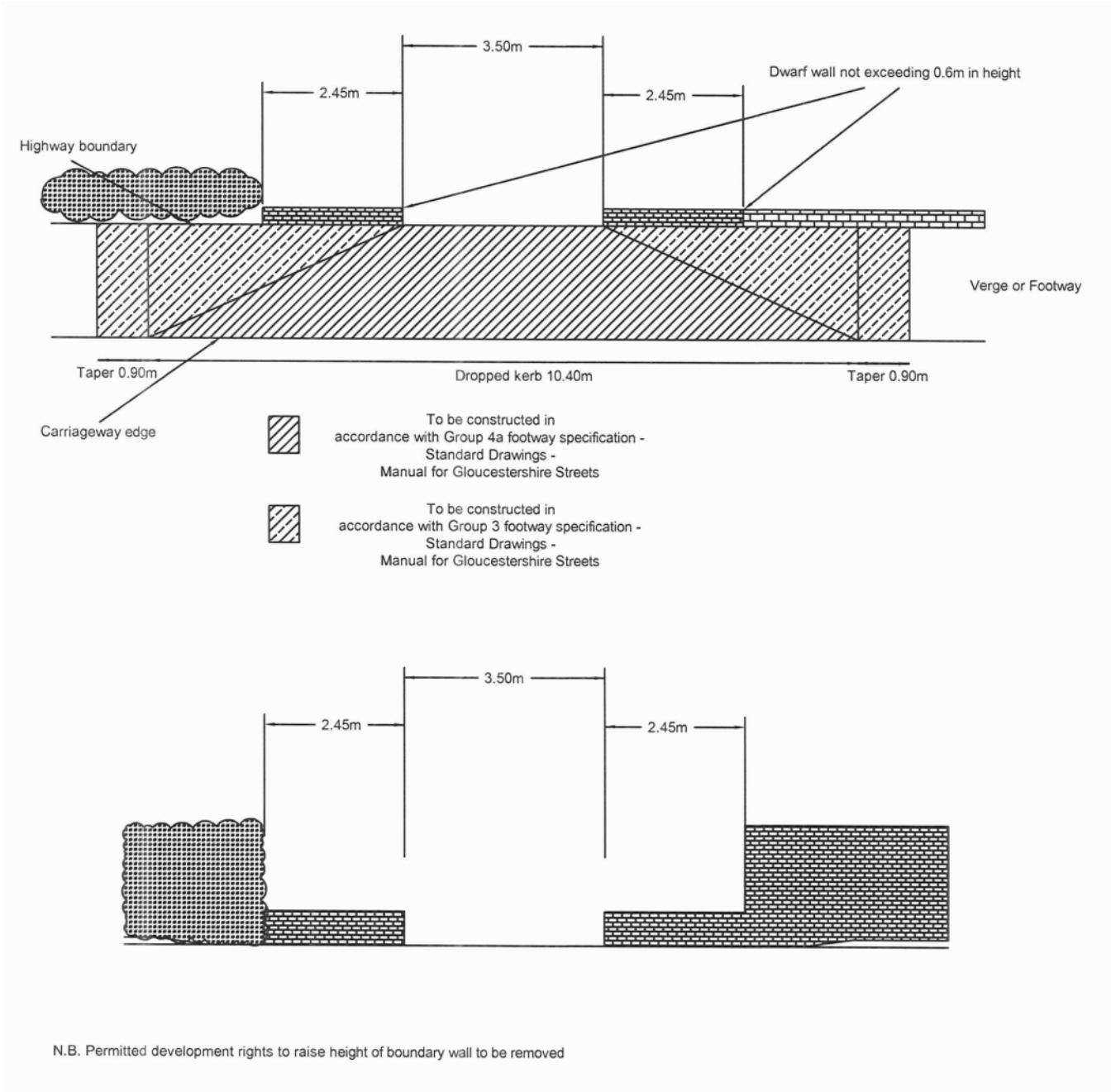


Figure 3.4 – Alternative access to 1 dwelling on constrained site where gate post positions cannot be set back 5.0m.

3.1.2 A shared vehicular access from a Class 4 (or lower) highway serving between 2 and 5 dwellings should be designed to accord with the access layouts as set out in Figures 3.5 or 3.6 below. All shared accesses should be designed to a target speed of no greater than 20mph. It is considered acceptable for servicing and deliveries to take place from the existing highway and there is no requirement to accommodate large vehicles within the site. Access should be via a dropped kerb (see 3.1.3 below).

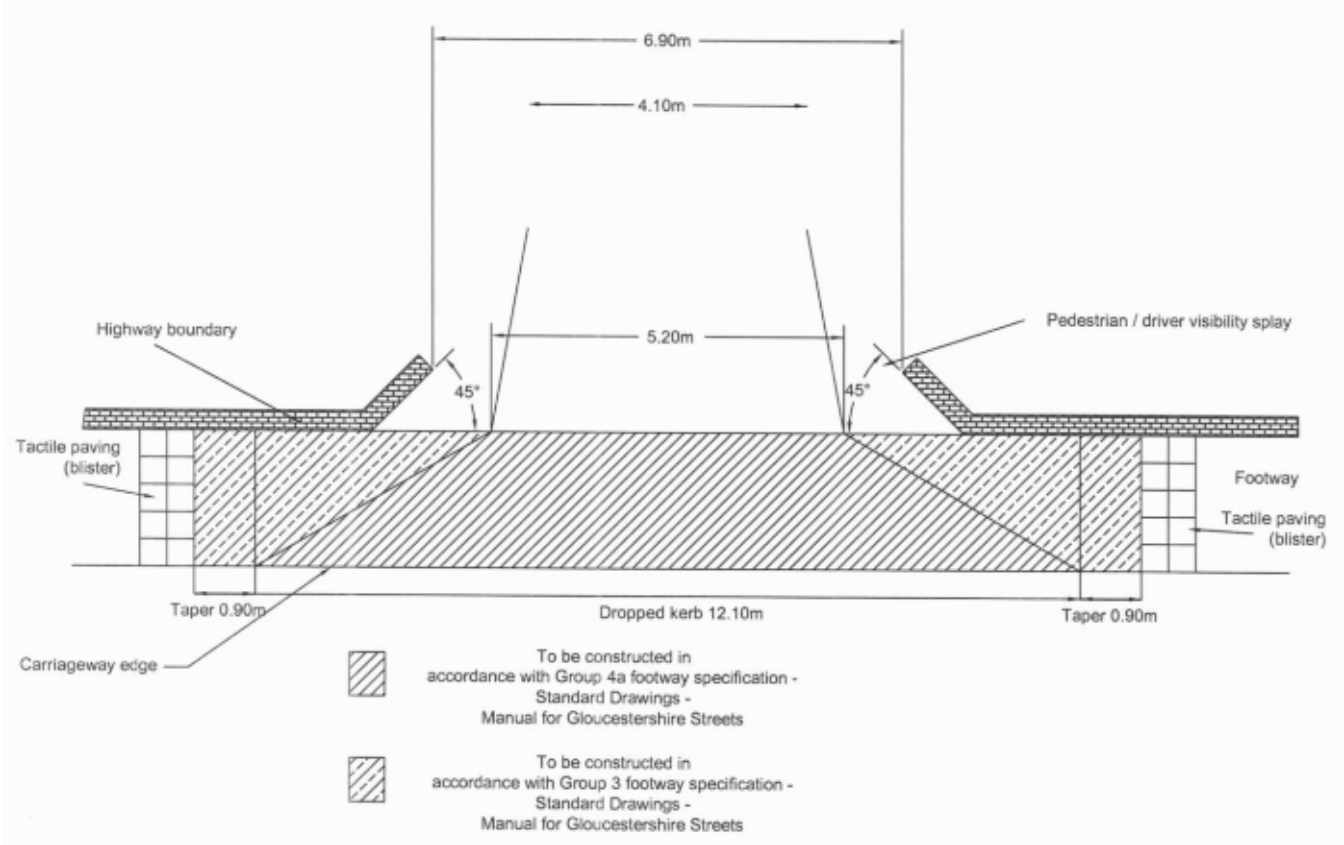


Figure 3.5 – Standard access to 2 to 5 dwellings over footway (only to be used on Class 4 highway or below).

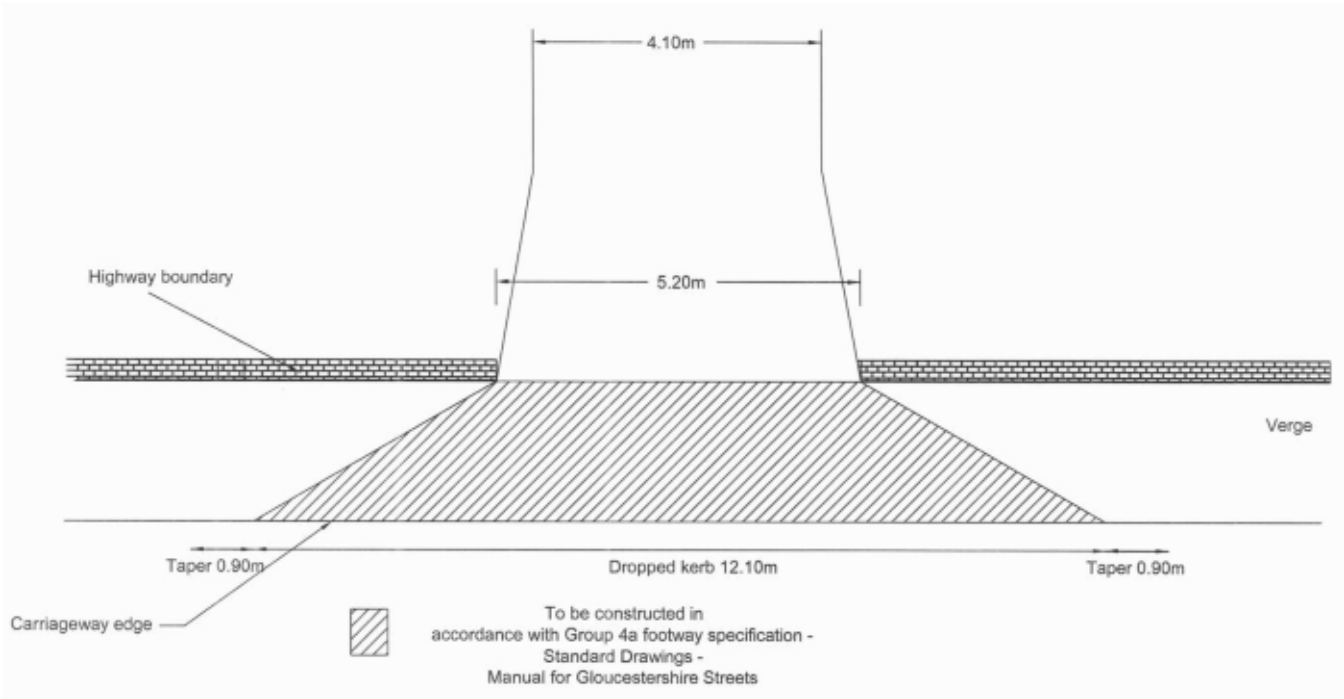


Figure 3.6 – Standard access to 2 to 5 dwellings over verge (only to be used on Class 4 highway or below).

3.1.3 Where access is being taken via a dropped kerb, the maximum longitudinal gradient is 10% (1 in 10) and the maximum crossfall gradient in 2.5% (1 in 40), unless the existing topography prevents this. The maximum kerb height across the access is 25mm. To achieve these requirements it is likely that the back of footway will need to be dropped and a corresponding lowering in height of the private access to the rear of the footway. Details are set out in Figure 3.7 below.

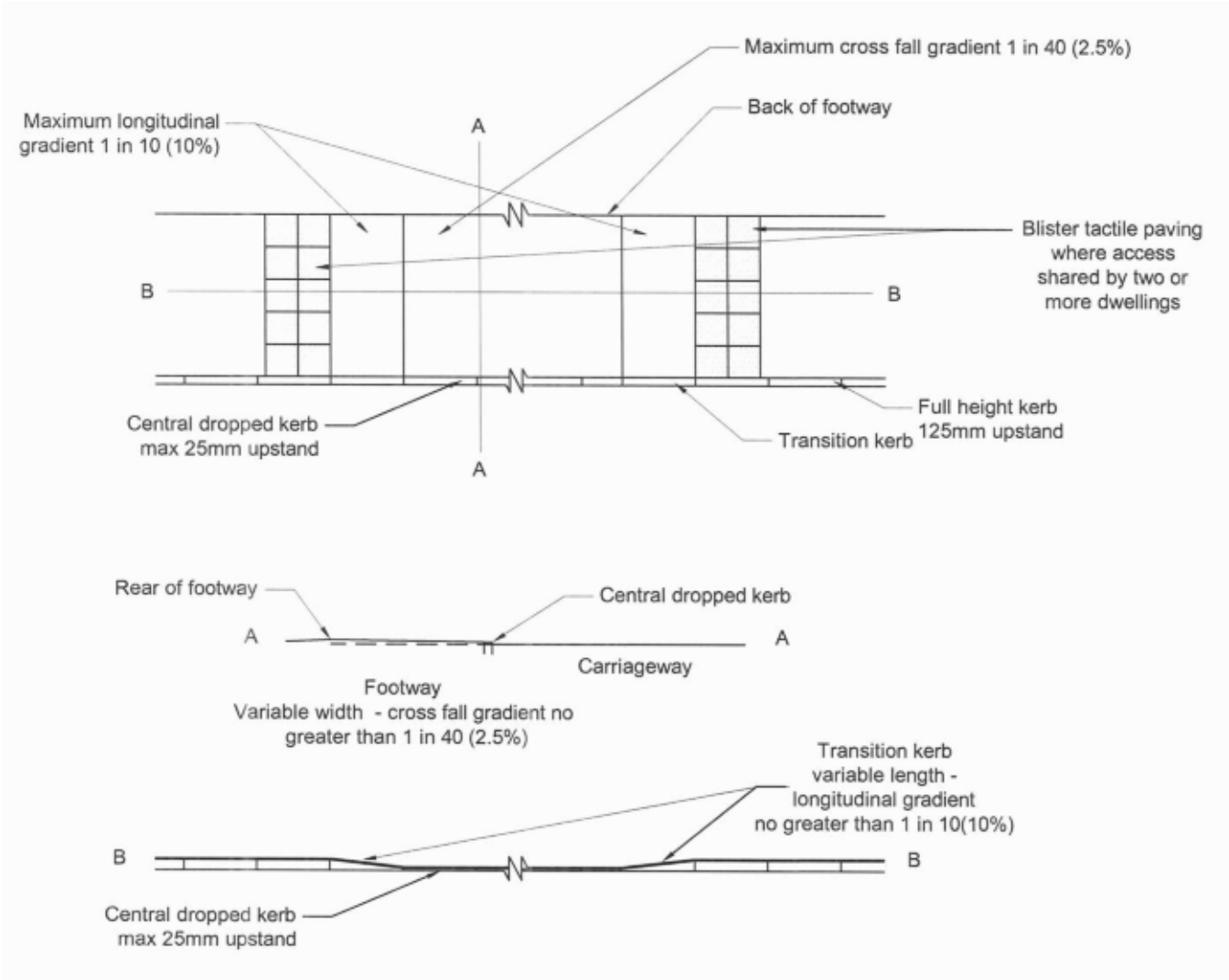


Figure 3.7 – Kerb and tactile paving detail in respect of standard access to 2 to 5 dwellings over footway (only to be used on Class 4 highway or below).

3.1.4 A shared vehicular access from a Class 3 (subject to a 30mph speed limit) highway serving between 2 and 5 dwellings should be designed to accord with the layout set out in Figure 3.8 below . It is considered appropriate to retain the free flow of traffic on a Class 3 highway and there is a requirement to accommodate large vehicles within the site. Facilities for pedestrians need to be provided across the access and details are set out in Figure 3.9 below.

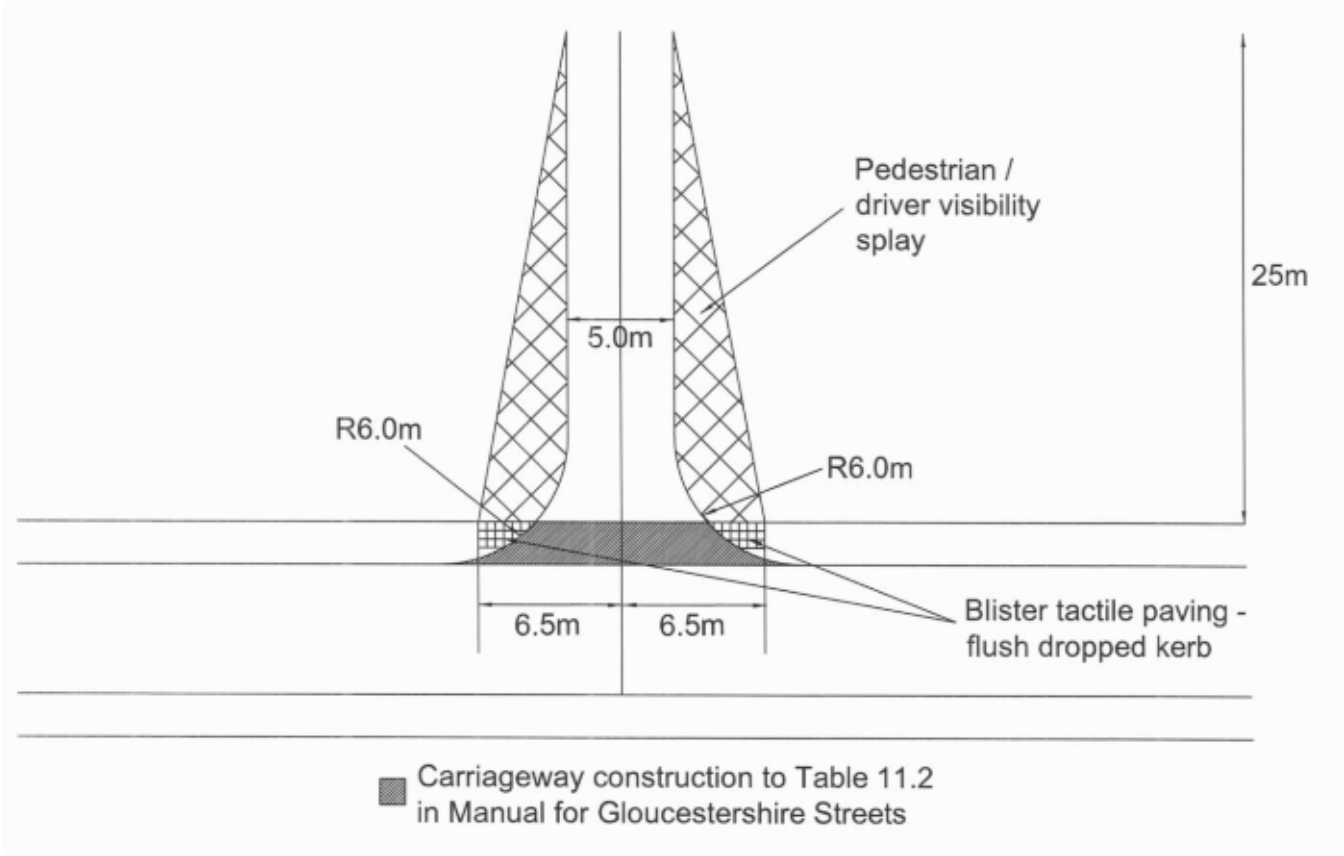


Figure 3.8 – Standard access to 2 to 5 dwellings over footway (to be used on Class 3 highway).

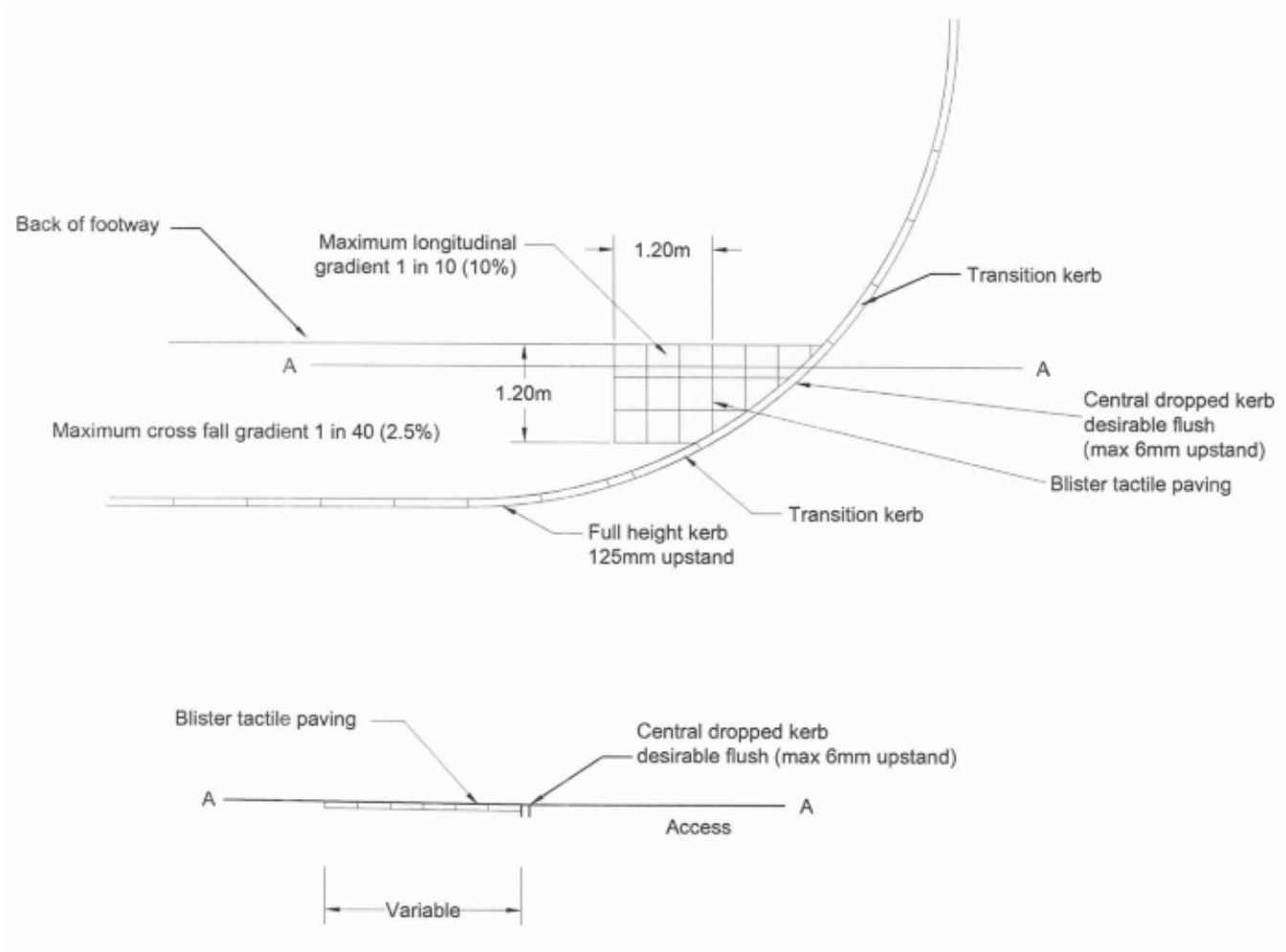


Figure 3.9 – Kerb and tactile paving detail in respect of standard access to 2 to 5 dwellings (to be used on Class 3 highway).

3.1.5 Works on the public highway to drop the footway to provide access requires the permission of the County Council. Application forms for permissions can be obtained by telephoning Gloucestershire Highways tel. 08000 514 514.

3.2 Visibility

3.2.1 The provision of adequate visibility between all highway users as a result of the development is vital for the safety of all road users. Visibility splays should be measured as set out in Figures 3.10 to 3.14 below, depending on the alignment of the adjacent public highway.

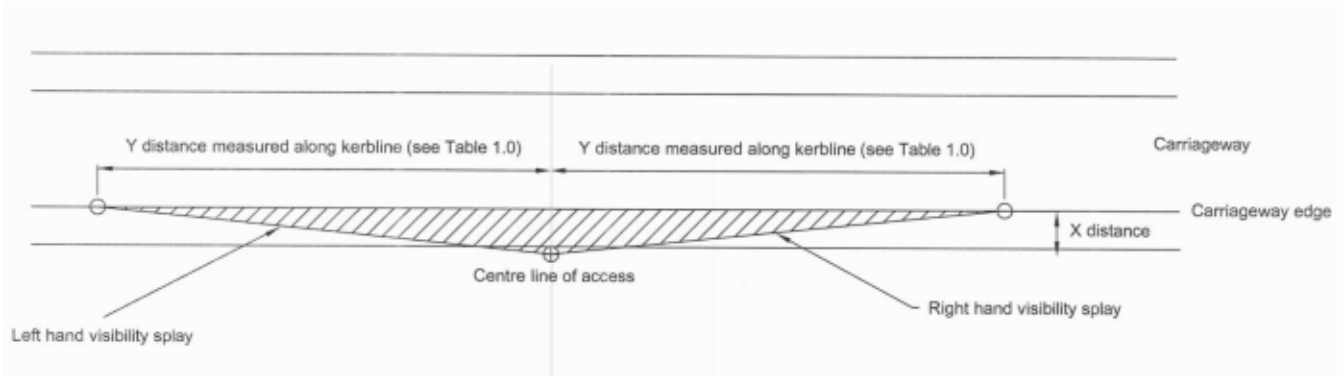


Figure 3.10 – Access visibility splay for traffic exiting development access where access is on a straight highway (measured to nearside edge of carriageway).

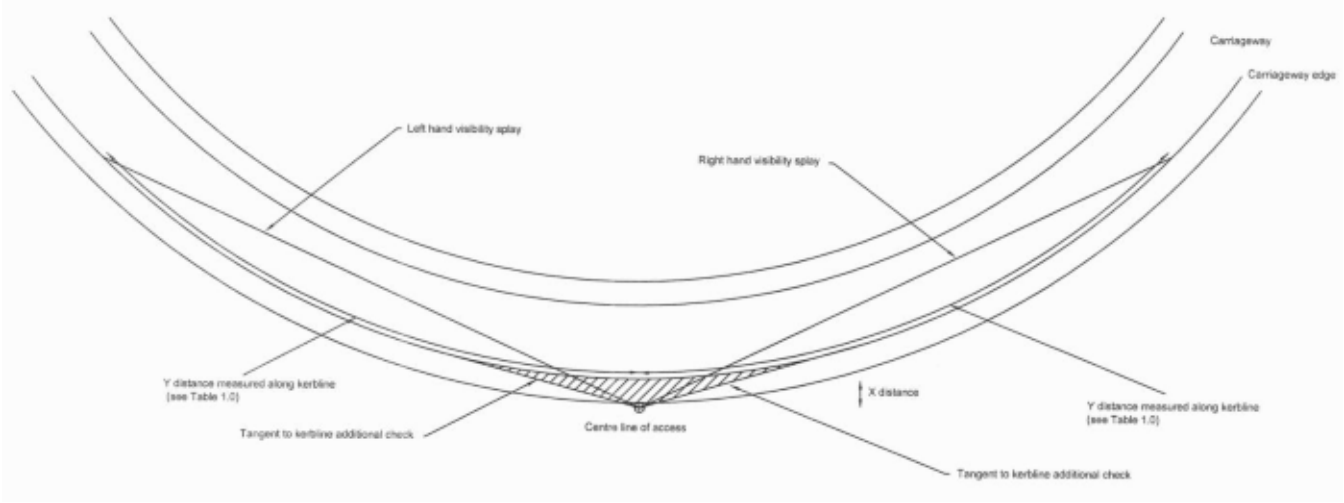


Figure 3.11 – Access visibility splay for traffic exiting development access where access in on the outside of a bend (measured to nearside edge of carriageway).

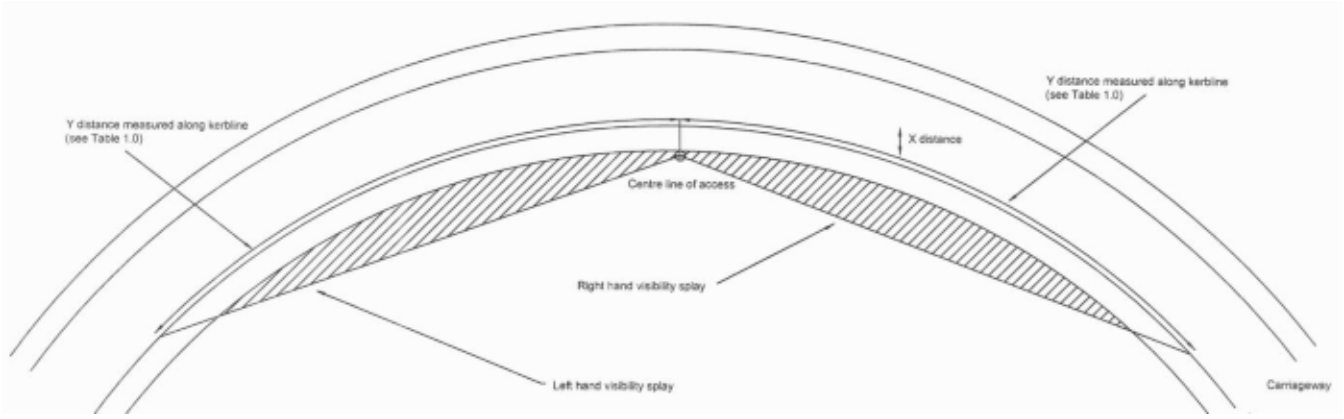


Figure 3.12 – Access visibility splay for traffic exiting development access where access in on the inside of a bend (measured to nearside edge of carriageway)

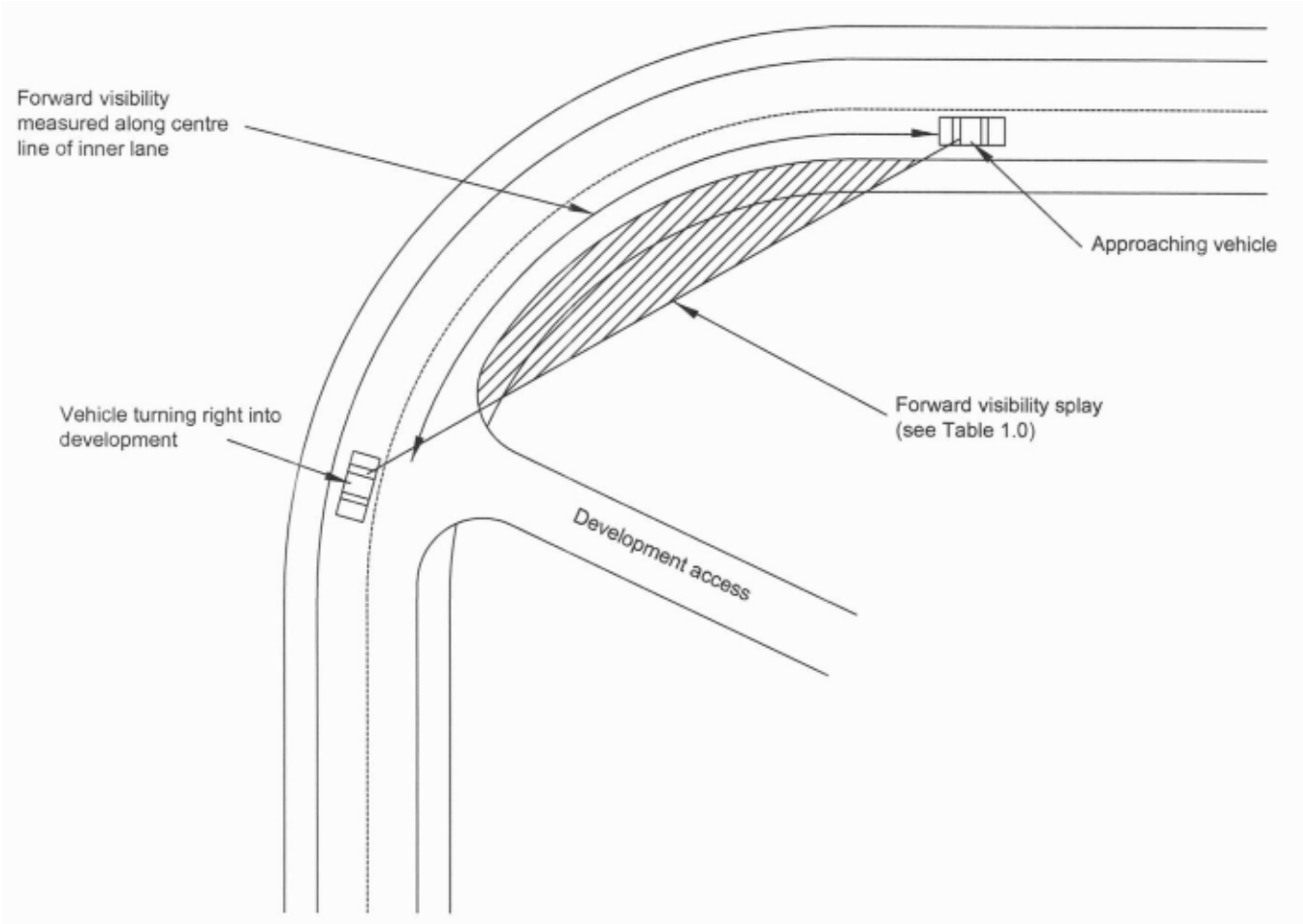


Figure 3.13 – Forward visibility splay for right turning traffic into development access (measured along centre line of inner lane).

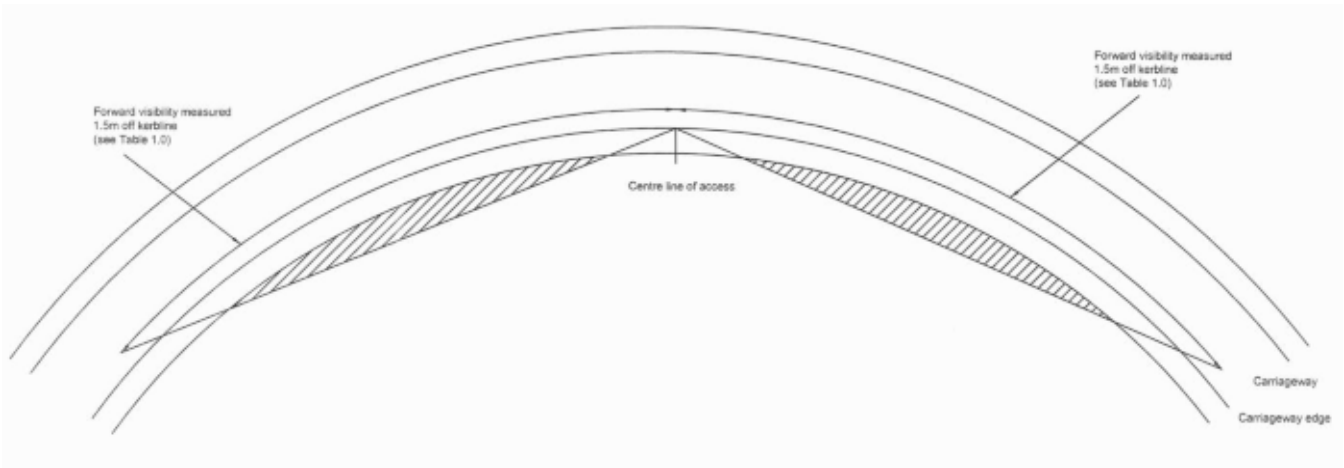


Figure 3.14 – Forward visibility splay for traffic approaching development access (measured 1.5m off edge of carriageway).

3.2.2 If visibility splays cannot be provided in accordance with the deemed to satisfy requirements set out below, the appropriate level of visibility can be derived from a speed survey.

Deemed to Satisfy Visibility Standards

Speed Limit (mph)	20	30	40	50	60	70
Y-distance (m)	22	54	120	160	215	295

Table 3.10

Note: Local evidence from the Gloucestershire County Council (Annual Speed Monitoring Report 1998 to 2006) indicates that the 85%ile speeds for 30mph highway is 34mph;

3.2.3 The speed survey should be undertaken in accordance with TA22/81 (Appendix 2). Confirmation of compliance will be required from the survey company commissioned by the Applicant. In the opinion of the County Council, on 30mph highway a speed survey can be undertaken using a hand held radar gun is acceptable. On 40mph highway, an automatic survey should be undertaken over a 7 day period.

3.2.4 x-distance

The default x-distance for this Standing Advice is 2.4m. Where 2.4m cannot be achieved, consideration can be given to reducing the x-distance to 2.0m where:-

a). the speed limit is no greater than 30mph; and

b). the site is located on a residential street; and

c). there is no departure from the forward visibility requirements; and

d). the adjacent highway carriageway width is not less than 5.5m.

3.2.5 y-distance

The parameters to be used to determine the appropriate y-distances are dependent upon the character of the highway. On highway subject to a 30mph speed limit or lower, the parameters will come from Manual for Streets, although these will depend on whether the site is located on a bus route, whether the adjacent highway has a high HGV content (above 5%) and whether the corrected 85%ile wet weather speed is greater than 37mph.

This is to take account of the different braking characteristics of types of vehicles and driver behaviour.

On a highway subject to a 40mph speed limit, it is possible that drivers treat the highway as a street, depending on local context. The way the highway is treated can be determined from traffic data, the assumption being that where the average speed is at or below the speed limit, the highway is being treated as a street. If the average speed is greater than the speed limit, the highway is being treated as a road and, under such circumstances, it would be necessary to use the parameters from the Design Manual for Roads and Bridges (DMRB).

On highways with speeds limits of 50mph, 60mph or 70mph, it is necessary to use the parameters from DMRB.

The Y-distances for each scenario are set out in Appendix 1.

3.3 Pedestrian Movement

3.3.1 Design of footways and footpaths:

As identified in Section 2 of this document, schemes proposing alterations to the existing public highway (including changes the carriageway, footway, cycleway, verge and street furniture) or proposing the adoption of highway should be referred to the Highway Authority for highways development management advice.

3.3.2 Improve existing highway and access continuity:

Always attempt to link all private footpaths with the adjacent adopted footway provision to ensure a safe and suitable access for all people.

3.3.3 Crime Prevention:

Footpaths and cycleways should be designed so as to encourage use (i.e. direct and along desire lines) and be lit and overlooked.

3.4 Cycle Movement

3.4.1 Design of highways:

It should be recognised that cyclists will use all streets within and leading to development. Street design should therefore be suitable for this purpose both with regard to safety and the suitability of surfaces.

Where footpaths are to be provided that provide more direct routes than the streets within or to outside the development, consideration should be given to building these as cycleways.

Where cycleways are to be provided, these should meet the Council's Cycle Facility Guidelines, with particular attention to achieving good sightlines at junctions for typical cycling

speeds of 15mph. Where the cycleway intersects a carriageway it should be flush and connect seamlessly without the use of dropped kerbs. Where possible, a separate (segregated by level difference) footway should be provided be pedestrians.

3.4.2 Cycle Parking

All dwellings should be provided with covered, secure storage for cycles. The provision of a garage will be sufficient to provide an adequate facility. Where no garages are proposed, dedicate cycle storage should be provided close to the main entrance and be as close and convenient as any proposed car parking.

Bespoke cycle accommodation to match the dwelling is preferred but various commercial products are also available.

3.5 Surface Water Drainage

3.5.1 Adequate provision should be made to ensure that surface water does not drain on to the public highway. Equally any new access should be designed to ensure that highway water does not drain on to the development site.

3.6 Rights Of Way

3.6.1 The planning application should identify if there is any effect on public rights of way. The need for stopping up or diversion orders should be identified. For further advice on the process please contact the Public Rights of Way section of Gloucestershire County Council.

3.6.2 The planning application should establish rights of access of others to the highway and consider any subsequent effects. It should be noted however that in many cases private rights of access issues will be a civil matter.

3.7 Overhanging

3.7.1 Anything that overhangs the highway must be over 2.1m above the footway level (or a minimum 3.5m above a cycleway level) and no closer than 500mm from the carriageway edge.

3.8 Planting

3.8.1 Roots or overhanging vegetation which causes damage or obstruction to the highway can be removed by the appropriate order by the County Council. It is advised that any planting scheme, especially proposals for trees, allows sufficient clearance from the highway allowing for seasonal growth of vegetation.

3.9 Lighting

3.9.1 Any development shall ensure that any external lighting systems do not interfere with the use of highway.

3.10 Car Parking

3.10.1 Car parking provision should be in accordance with the Development Plan policies and other material consideration, including the National Planning Policy Framework. Residential development should provide sufficient car parking to accommodate likely demand (taking into account he accessibility of the site, the type of dwellings, the availability of and opportunities for public transport, local car ownership levels and the overall need to reduce the use of high-emission vehicles.)

3.10.2 The minimum dimensions of a usable car parking space are 2.4m wide and 4.8m long. If the parking space is also the only available pedestrian route to the dwelling, the width should be increased to 3.2m. If walls are to be constructed on both sides of the proposed car parking space and an alternative pedestrian route is available, the minimum internal width of the parking facility is 3.0m, to allow doors to be opened. However, if this is also the only available pedestrian route to the dwelling, the width should be increased to 3.2m.

3.10.3 For garages, the minimum internal dimensions are 6.0m by 3.0m, with a 2.4m wide access.

3.10.4 In respect of communal residential car parking facilities, provision can be either parallel or angled arrangements. The minimum width of a parallel parking bay is 2.0m where any boundary structure adjacent to the bay is set back at least 1.8m or where a footway is to be provided. The width of the bay should be increased to 3.2m where access will be restricted, to allow access for disabled people. Parallel parking bays should not be provided to the rear of footways, since this could reduce the amount of existing on-street parking. Details are shown in Figure 3.15 below.

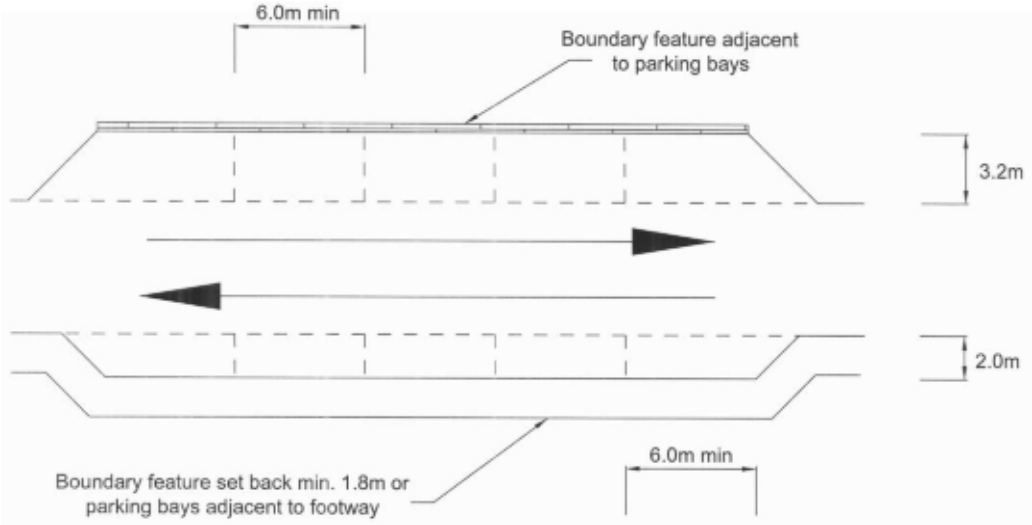


Figure 3.15 – Parallel parking bay detail

3.10.5 The width needed to access echelon or perpendicular spaces conveniently, depends on the width of the bay and the angle of approach. For a 2.4 m wide bay, these values are:

- at 90 degrees, W = 6.0 m;
- at 60 degrees, W = 4.2 m;
- at 45 degrees, W = 3.6 m.

These width requirements can be reduced if the spaces are made wider. Swept-path analysis can be used to assess the effect of oversized spaces on reducing the need for manoeuvring space. Details are shown in Figure 3.16 in below.

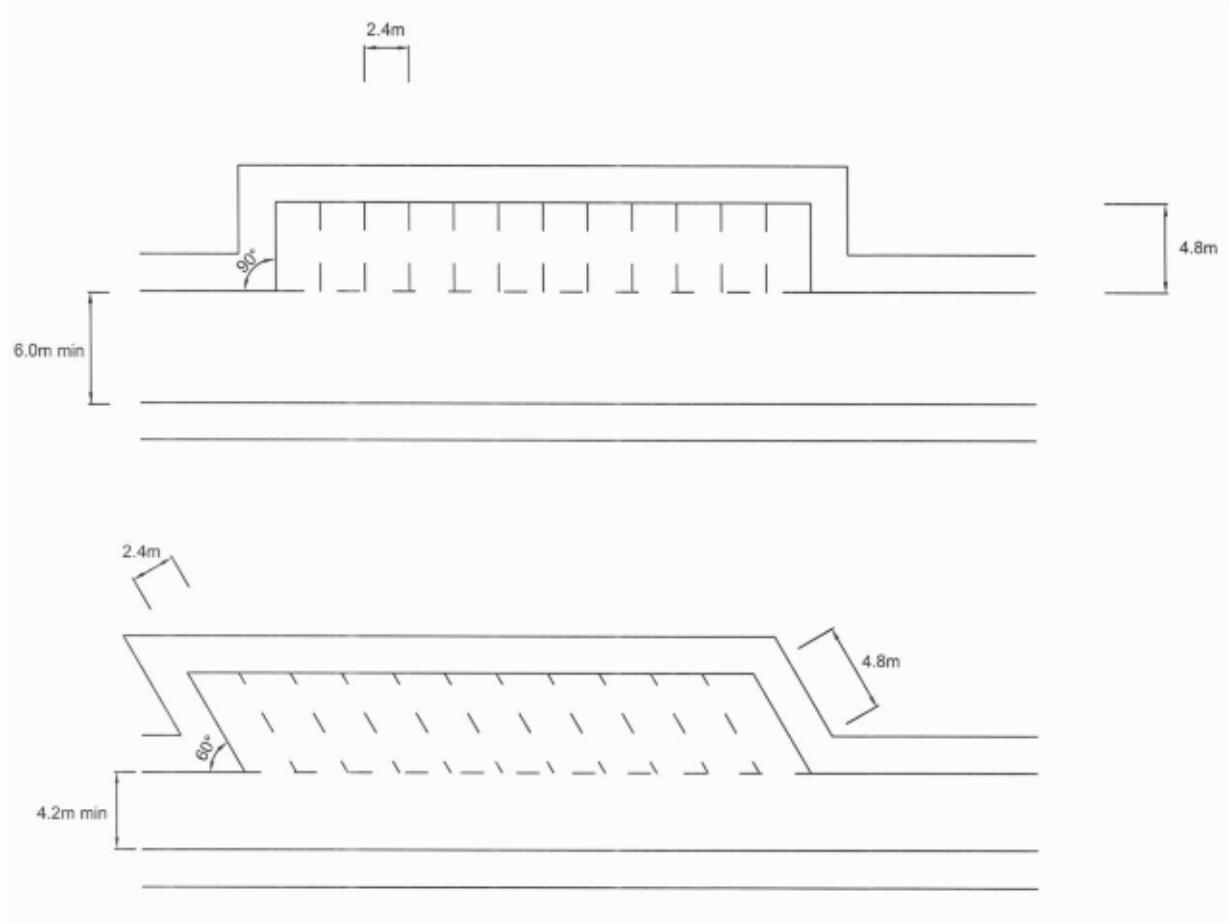


Figure 3.16 – Angled parking bay details.

3.11 Turning Areas

3.11.1 A single residential drive will not require turning facilities.

3.11.2 Shared residential drives serving between 2 and 5 dwellings accessed off a Class 4 street (or lower) should provide turning facilities sufficient to accommodate a car. The deemed to satisfy standards are set out in Figures 3.17 to 3.20 below.

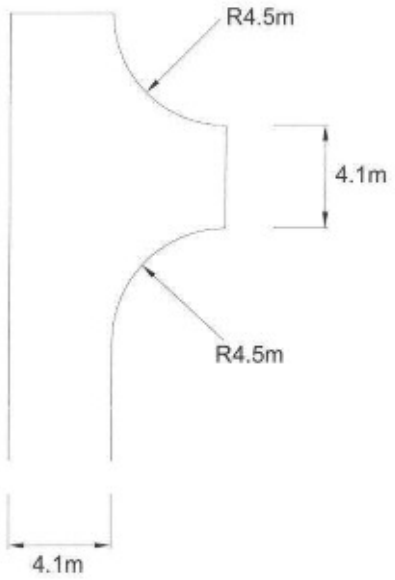


Figure 3.17 – Car turning facility – Option 1

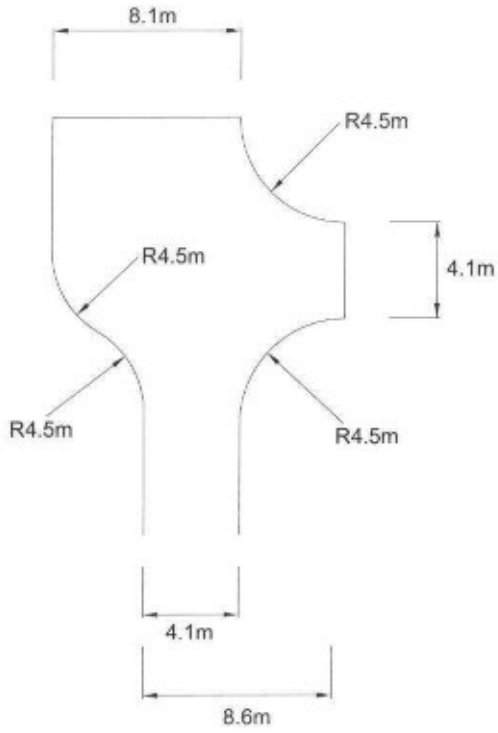


Figure 3.18 – Car turning facility – Option 2

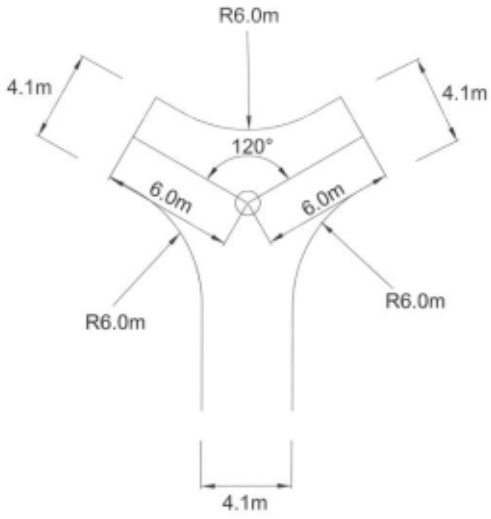


Figure 3.19 – Car turning facility – Option 3

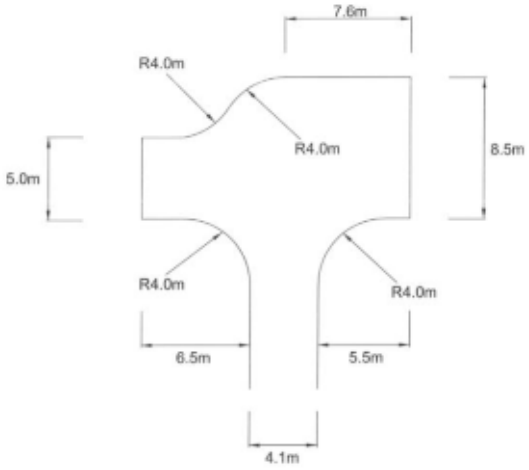


Figure 3.20 – Car turning facility – Option 4

3.11.3 Shared residential drives serving between 2 and 5 dwellings accessed off a Class 3 street subject to a 30mph speed limit (or lower) should provide turning facilities suitable for use by a large refuse vehicle. The deemed to satisfy options as set out in Figures 3.21 to 3.22 below.

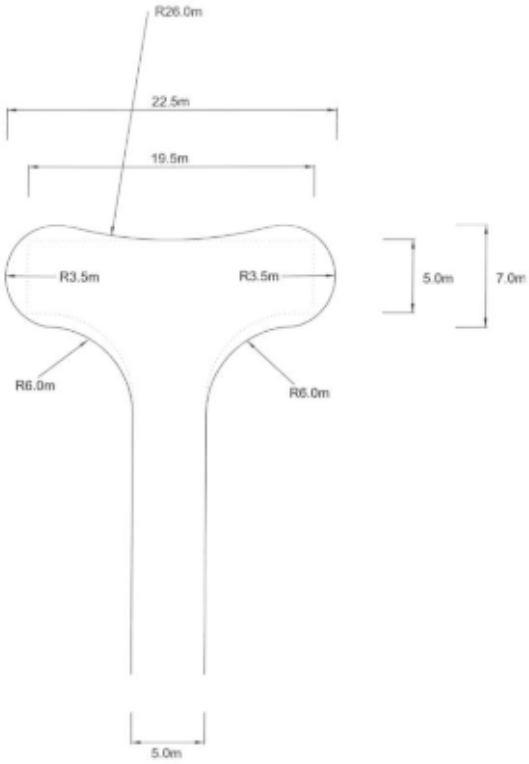


Figure 3.21 – Large vehicle turning facility Option 1

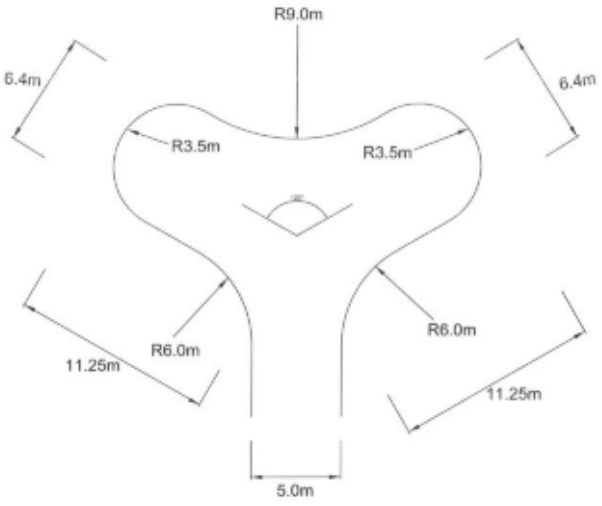


Figure 3.22 – Large vehicle turning facility Option 2

4.0 Reasons and Conditions for refusal.

4.1 Appendix 3 of this Standing Advice includes examples of Model Highway Conditions and consideration should be given to attaching such conditions where the relevant tests are met. The list of examples is not intended to be exhaustive. They provide a prompt for Local Planning Authorities to help them undertake their own assessment of planning applications not considered by the County Council.

4.2 In the event that the LPA is considering refusing an application on highways/transport grounds early discussion with Highway Authority officers is strongly recommended. Support in the event of an appeal will only be considered if such liaison has taken place.

APPENDIX 1

Y-Distances

MfS

i). The first column relates to sites not on a bus route and/or a highway with low HGV use (below 5%). This parameter has a reaction time of 1.5 seconds and deceleration rate of 4.41m/s up to 37mph and a reaction time of 2 seconds and deceleration rate of 3.68 m/s thereafter. The distance in brackets is to be used for forward visibility where allowance has been made for bonnet lengths.

ii). The second column relates to sites either on a bus route or on a highway with significant HGV use (above 5%). This parameter has a reaction time of 1.5 seconds and deceleration rate of 3.68m/s up to 37mph and a reaction time of 2 seconds and deceleration rate of 3.68 m/s thereafter. The distance in brackets is to be used for forward visibility where allowance has been made for bonnet lengths.

85%ile	Y-distances	
speed	Column 1	Column 2
<=12mph	12m (14m)	12m (14m)
13mph	13m (15m)	13m (16m)
14mph	14m (16m)	15m (17m)
15mph	15m (18m)	16m (19m)
16mph	17m (19m)	18m (20m)
17mph	18m (20m)	19m (22m)
18mph	19m (22m)	21m (23m)
19mph	21m (23m)	23m (25m)
20mph	22m (25m)	24m (27m)
21mph	24m (26m)	26m (28m)
22mph	26m (28m)	28m (30m)
23mph	27m (30m)	30m (32m)
24mph	29m (32m)	32m (34m)
25mph	31m (33m)	34m (36m)
26mph	33m (35m)	36m (38m)
27mph	35m (37m)	38m (40m)
28mph	37m (39m)	40m (42m)
29mph	39m (41m)	42m (45m)
30mph	41m (43m)	45m (47m)
31mph	43m (45m)	47m (49m)
32mph	45m (47m)	49m (52m)
33mph	47m (49m)	52m (54m)
34mph	49m (51m)	54m (57m)
35mph	51m (54m)	57m (59m)
36mph	54m (56m)	59m (62m)
37mph	62m (64m)	62m (64m)
38mph	73m (76m)	73m (76m)
39mph	76m (79m)	76m (79m)
40mph	79m (82m)	79m (82m)
41mph	82m (85m)	82m (85m)
42mph	85m (88m)	85m (88m)
43mph	89m (91m)	89m (91m)
44mph	92m (94m)	92m (94m)
45mph	95m (98m)	95m (98m)
46mph	99m (101m)	99m (101m)
47mph	102m (104m)	102m (104m)

DMRB

i). This parameter has a reaction time of 2 seconds and deceleration rate of 2.45m/s. The distance in brackets is to be used for forward visibility where allowance has been made for bonnet lengths.

85%ile speed	Y-distances
45mph	123m (125m)
46mph	127m (130m)
47mph	132m (135m)
48mph	137m (139m)
49mph	142m (144m)
50mph	147m (149m)
51mph	152m (154m)
52mph	157m (159m)
53mph	162m (165m)
54mph	167m (170m)
55mph	173m (175m)
56mph	178m (180m)
57mph	183m (186m)
58mph	189m (191m)
59mph	195m (197m)
60mph	200m (203m)
61mph	206m (209m)
62mph	212m (215m)
63mph	218m (221m)
64mph	224m (227m)
65mph	230m (233m)
66mph	237m (239m)
67mph	243m (245m)
68mph	249m (252m)
69mph	256m (258m)

APPENDIX 2

TA 22/81 – Vehicle Speed Measurements on All Purpose Roads.

THE HIGHWAYS AGENCY TA 22/81

THE SCOTTISH OFFICE DEVELOPMENT DEPARTMENT

THE WELSH OFFICE
Y SWYDDFA GYMREIG

THE DEPARTMENT OF THE ENVIRONMENT FOR
NORTHERN IRELAND

Vehicle Speed Measurement on All Purpose Roads

Summary: This Advice Note provides advice on vehicle speed measurement for determining speed limits, for the improvement of alignments and major/minor junctions and accesses, for the layout of new major/minor junctions and accesses on existing roads, and for traffic signal design.

VOLUME 5	ASSESSMENT AND PREPARATION OF ROAD SCHEMES
SECTION 1	ASSESSMENT OF ROAD SCHEMES

TA 22/81

VEHICLE SPEED MEASUREMENT ON ALL PURPOSE ROADS

Contents

Chapter

November 1981

1. INTRODUCTION

1.1 The Department's current advice on speed limits (Ref 1) contains a reference to detailed guidance on the "measurement and analysis of speed". This note provides some further advice on vehicle speed measurement for the purpose of determining speed limits. It discusses in detail techniques for carrying out measurement of speed using recently developed methods and for analysing results and supersedes paragraphs 27 and 28 of Ref 1.

1.2 There are also applications for improvement of alignments on all purpose roads such as at bends and short diversions. Whereas for new works and major improvements the Department's Highway Link Design Standard (Ref 2) details the necessary techniques for geometric design using as a basis recent speed/flow/geometry relations, minor scheme design can better be based on the use of the measured 85 percentile vehicle speed of approach to the improvement section.

1.3 The layout of major/minor junctions and accesses as described in Departmental Advice Note TA 20/81 (Ref 3) is also, in a number of ways, dependent on a correct assessment of the 85 percentile vehicle speed. The advice herein should therefore be used as a basis.

1.4 Additionally there are applications for the design of traffic signal installations. Here the position of the speed measurement is important, especially for new installations.

2. SCOPE

The methods described herein are

Radar speedmeter measurement.

Measurement using vehicle detectors/timers such as inductive loops or noisy cables.

This note is concerned with "when?", "where?", "how much?" and "how accurate?". Although the note generally applies to vehicles the sample can be confined to cars. Mention of this is made in the text at the appropriate points. Other publications such as Ref 4 provide useful information though of earlier date.

3. EXPLANATION OF TERMS AND CONCEPTS

The following explanations are given to amplify terms and concepts used in this Advice Note.

3.1 Spot speed/Journey speed

The former is the instantaneous vehicle speed measured at a point as distinct from the latter which is measured over a length of road. Spot speeds are measured using devices such as radar speed meters or inductive loops. Journey speeds are measured by moving observer methods or by recording and matching registration numbers at times of passing.

3.2 Free flow

There is no generally accepted definition of this term. However, it may be stated that in free flow conditions headways and lateral displacements are usually so large as to ensure that drivers are in no way prevented, by the close proximity of other vehicles, from driving at the speed of their own choice. These conditions cannot be measured precisely and so it must be a subjective judgement as to whether or not traffic is in a free flow condition. For the purposes of this document it is considered more helpful to suggest times and circumstances when free flow conditions are most unlikely to occur -

Well defined directional morning and evening peaks

Times of high heavy vehicle flow

Directional weekend peaks

Local events (market days,sports events, etc.)

Roadworks

Bad weather

Additionally, sections of the road under consideration where the layout is likely to restrict speeds to a level markedly below that at other points should be avoided. However, if most of the length consists of such features it is neither desirable nor possible to avoid them.

3.3 Speeds (speed limits)

For determining speed limits the 85 percentile dry weather spot speed of cars is used as a yardstick. This is the speed only exceeded by 15% of the cars. When the 85 percentile spot speed has been arrived at, as described later in this Advice Note,it is used to determine the speed limit in the way described in Ref 1.

3.4 Speeds (improvement of alignment and junctions)

Whereas for speed limits the 85 percentile dry weather spot speed of cars is required, for improvement of alignments and major/minor junctions or accesses, and for new major/minor junctions or accesses on existing roads, the normal design methods are based on the 85 percentile wet weather journey speed of vehicles. The precise point at which the measurements are taken and the timing is important. A point just before the scheme length and a time of free flow are suitable. Measurements must be taken at both ends of the scheme so that traffic approaching from both directions is covered. If different values are obtained the higher speed value should be used in the design process. To get from the dry weather spot speed of vehicles measured to the wet weather journey speed used in design one of the following correction factors should be used -

For AP Dual carriageways ... deduct 8kph

For AP Single carriageways ... deduct 4kph

3.5 Speeds (traffic signal design)

These remarks are confined to areas outside 30mph speed limits. Two types of signal equipment are currently in use related to the following conditions:-

a) 85 percentile dry weather spot speed of vehicle approach between 55 and 72kph, double vehicle extensions with speed discrimination.

b) 85 percentile dry weather spot speed of vehicle approach between 72 and 105kph with either triple vehicle extensions with speed discrimination or double vehicle extension with speed assessment.

For a) above measurements should be taken at not less than 80m in advance of the stop line (as seen by traffic) nor more than 100m.

For b) above the values should be 150m to 200m.

To ensure accuracy certain conditions are necessary which are listed at Appendix 1.

4. SOURCES OF VARIABILITY IN SPEEDS

4.1 The results of the measurements are likely to be taken as representative of the speeds of all vehicles using the road in some undefined period - probably a whole year - but the measurements will have been taken within a much shorter period - perhaps no more than two or three hours. The way in which the measurement periods are chosen is every bit as important as the size of the sample.

4.2 Speeds vary from hour to hour, from day to day, from month to month, and from year to year, in a fairly systematic way. They have also been found to vary from one occasion to another more than would be expected from their variability on any one occasion. The total effect of all these variations, even when the times mentioned in paragraph 3.2 above are excluded and only one year is considered, may produce a difference of more than 5kph between the highest and lowest levels of speed. It is essential, therefore, that more than one set of measurements be taken. At least two (and preferably more) recording periods at the site are required, at different times of day and on different days of the week. If measurements cannot be taken in different months, they should be taken in a month that is "neutral" as far as seasonal variation in traffic is concerned - late Spring and early Autumn are recommended, avoiding Bank Holidays - though this is less necessary for urban roads.

4.3 During each recording period at the site, the number of speeds measured will affect the reliability of the result as an estimate of the true value at that time, obviously the larger the sample the better. A sample of 200 vehicles would normally give an estimate of the 85 percentile speed for that period to within + or - 3% at the 95% confidence level, eg, 65 kph + or - 2.0 kph. The value for another period may well be less than 60 or more than 70 kph.

4.4 When using vehicle detectors/timers (inductive loops/noisy cables) at least whole hour periods of free flow (see para 3.2) can be examined at any one time, if not more.

4.5 Measurement error may also arise from the choice of sites, from the way in which the recording device is set up and used, and from the way in which the data are analysed.

4.6 Finally, it cannot be emphasised too strongly that a small total sample from a radar speedmeter is perhaps much more useful than a large sample obtained with little thought provided the survey is carefully planned, executed and analysed by the methods described in this Advice Note. With vehicle detectors/timers, given measurement in free flow periods, the sample problem does not arise to the same extent as it can be very large.

5. SETTING-UP AND USE OF RECORDING INSTRUMENTS

5.1 General

5.1.1 If there is any doubt that the traffic in one direction only, at one site, can be regarded as representative of free flowing traffic on the length of road in question, measurements will have to be made at other places, or in the other direction. Roughly equal samples should be obtained for each site/direction/occasion. In the case of measurement for improvement of alignments and major/minor junctions or accesses, and for new major/minor junctions or accesses on existing roads, the directional samples should be taken at either end of the proposed scheme.

5.1.2 Weather conditions and any unusual circumstances should be recorded at the time and not left until later.

5.2 Radar Speedmeters

5.2.1 When using a radar speedmeter the first requirement is that a chosen site should have sufficient space to accommodate the meter and the observers (usually in a car) without disturbing the traffic. A verge, an unused entrance, or the beginning of a layby, are suitable. The installation should be an inconspicuous as possible, and if the meter's antenna unit can be mounted on a car window instead of on a tripod it will be less noticeable.

5.2.2 The site should not be near junctions (unless readings are being taken in connection with improvements to the junction) or bus stops, see paragraph 3.2 above. Situations where the radar beam may be obstructed by parked cars, or where vehicles are likely to be accelerating or braking, should also be avoided. Except at very light flows, it is not advisable to measure the speeds of vehicles on the far side of a single carriageway (and especially not on the far carriageway of a dual carriageway road).

5.2.3. The operating instructions for the meter should be carefully followed, especially in relation to interference and calibration. Some meters can be adjusted to ignore vehicles travelling in the "wrong" direction. With most meters, however, the response to those vehicles should be minimised by careful aiming of the antenna or by reducing the range setting. The aiming of the antenna is important, since a meter measures speeds along the centreline of the beam and then allows for any intended angle between that and the direction of the road. With meters that are designed to be aimed straight along the road, an error of 10 degrees either way (towards the road, or away from it) will cause the meter to underread by 1.5%. With meters that have a built-in offset correction, and are designed to be set with the beam at a particular angle to the road direction (say 20 degrees) an error of 10 degrees will cause the meter to overread by 5% or underread by 8%. When correctly set, the error of the meter is probably less than 2 kph.

5.2.4 It is best to have two observers, one reading the meter and the other recording the values. Using this method measurements can be confined to cars only if required. Provided that the traffic flow is light enough, and the observers have had enough practice, the speed readings for all vehicles (in one direction) should be recorded if possible. If the flow is too heavy for all vehicles (cars) to be measured some sort of sampling procedure is needed. To avoid bias, the sampling must be based on an attribute that is not related to speed, and is easily decided. The most satisfactory bases are colour (white cars for instance have been found to be representative in type and age, and to give approximately a 20% sample but this will change over the years), or registration number (where odd or even numbers will give a 50% sample, and specified first or last digits will give 10%, 20%, etc - approximately). The latter method is necessary if all vehicles are being sampled.

5.2.5 A value should be recorded for every vehicle that satisfies the sampling criterion. Ideally, that value would be a steady reading on the meter, but except at very low flows, it will not be possible to get a steady reading for every vehicle that passes. Sometimes the meter will give a brief indication - a flick of the needle, or a flicker of the digits - that can be recognised and accepted as the speed of the vehicle in question. Sometimes there will be no response at all. There are two different situations where readings are likely to be missed completely:-

a) where a vehicle is overtaking another vehicle while both are in the radar beam.

b) where a vehicle is following closely behind other vehicles,and the observer cannot be sure that the meter gave a separate reading for each.

If the missed readings are simply ignored, or recorded as a vehicle passing but no speed registered and then omitted from the analysis, it is equivalent to assuming that the true speeds of these vehicles have the same distribution as those that were measured, and with the same mean. But if these missed speeds are likely to form a significant proportion of the total (say, more than 10%) some alternative assumptions are preferable. They are:-

a) that vehicles travelling in a fairly compact bunch all have the same speed; and

b) that overtaking vehicles are travelling (say) 15 kph faster than the overtaken vehicle. Since the overtaken vehicle will often be a large vehicle, and since it is in any case closer to the meter, it will probably give a reliable reading.

Values arrived at in this way should carry a distinguishing mark in the records.

5.2.6 On dual carriageways, an alternative procedure is to record the lane of travel for all vehicles passing, and to assume that missed vehicles in either lane have the same speed distribution as those recorded in the same lane. Speeds in the two lanes would then be analysed separately, and combined in the proportions of the numbers of vehicles passing in each lane, not the numbers with speeds recorded.

5.2.7 These practices may seem complicated, and if they are not necessary (as at low flows), they should be avoided. However, if a lot of speeds are missed, to ignore them may bias the answer. The best time to estimate an individual speed is when the vehicle passes - not later, when the observer's memory of the circumstances will have faded. It is reasonable to expect that a sensible observer's estimate is better than the assumption that the missed vehicles are average.

5.2.8 Where measurements are required for modifying an existing traffic signal installation a different technique may be used with radar speedmeters or other methods which require an operator to be present. The sample should include only those vehicles that pass (at a point 150-200m back from the stop line) while a green signal is showing and no queue is present.

5.3 Vehicle Detectors/Timers

5.3.1 Speed measuring equipment based on vehicle detectors is entirely automatic in operation. It can provide mean speeds and frequency distributions, and other traffic data. However, unlike radar speedmeters, it cannot distinguish cars from other vehicles, although vehicle separation by length is possible. Pairs of inductive loops or noisy cables are stuck to (or installed in) the road surface and connected to a detector/timer/counter unit which is securely fastened to some convenient roadside furniture. The passage of a vehicle over a loop/cable generates an electrical signal. The time interval between the start of the signal from the first loop/cable and the start of the signal from the second loop/cable is measured and, using the separation distance of the loops/cables, converted into a speed, which is recorded.

5.3.2 In one version of this sort of equipment, the detector/timer/counter unit is very small and inconspicuous. A separate control/output unit is temporarily connected to it to enable site information (including loop/cable spacing) to be programmed and the equipment to be tested, and is then removed. At the end of the measurement period, the control/output unit is reconnected to extract the results and it will then display them on command, or output them to a printer or VDU. The output can consist of a frequency distribution, or mean speed and various percentile speeds, for preset intervals over a period (eg, every hour for two weeks). Up to three lanes of traffic can be dealt with.

5.3.3 Where inductive loops are used each loop should consist of 4-6 turns if possible, at least 2m wide (ie, across the road) and 1m long (along the road), accurately laid and securely fastened - loose loops can be a traffic hazard.Two loops about 1m apart are laid in each lane of travel, so that the separation of their leading edges is about 2m, but this will vary with the type of equipment used. On dual carriageways each loop pair should be at least 2m laterally from the loop pair in the adjacent lane, to minimise double counting of straddling vehicles. On single carriageways one loop pair will generally be used for each direction, and vehicles crossing the loops in the wrong direction will not be recorded.

5.3.4 The manufacturer's installation and operating instructions should be carefully followed and these will include checks to ensure that the equipment is working properly. Wherever possible a vehicle with a calibrated speedometer should be used for a broad check on the readings given.

5.3.5 If the equipment can distinguish short vehicles, say those less than 5m long, longer vehicles may be excluded. If all vehicles are included a correction can be applied later in order to estimate the 85 percentile speed of cars only (see paragraph 6.6).

6. ANALYSIS AND ASSESSMENT OF RESULTS

6.1 Appendix 2 gives a check list to apply to results before analysing and assessing them. It is emphasised that the value finally arrived at is reliable only if the surveys were carefully planned, the measurements carefully taken and the results carefully assessed. The checks in Appendix 2 are therefore important and must not be overlooked.

6.2 There are several ways of estimating the 85 percentile speed from sets of measurements. The most direct way is to list all the speeds in ascending order, and count from the highest value until 15% of the total number of values have been passed. The speed arrived at is the 85 percentile speed. A quicker method is to group the values into, say, 10 kph groups and then plot the "cumulative frequency distribution" as explained in Appendix 3.

6.3 A quite different way of estimating the 85 percentile speed, and the only way that can be recommended for total samples of less than, say, 200 speeds such as may be obtained with a radar speedmeter is to make use of the well known shape of speed distributions. They are, for all practical purposes, Gaussian (ie, Normal). For a Normal Distribution, the 85 percentile is 1.037 standard deviations above the mean, where the standard deviation of speed, v, is estimated as-

$$\sqrt{\frac{(v-mean)^2}{n-1}}$$

It is sufficiently accurate to take

85 percentile = mean + standard deviation

Some electronic speed measuring equipment gives the mean and standard deviation (and/or the 85 percentile) in its output and many pocket calculators will give the mean and standard deviation of values entered in case they are needed; however, the formulae are given in Appendix 3.

6.4 Separate calculation of either the 85 percentile speed (as in para 6.2) or the standard deviation (as in para 6.3) provides a useful check on the reliability of the measurements, since the ratio

$$\frac{\text{85 percentile}}{\text{mean}} \quad \text{or} \quad \frac{\text{standard deviation}}{\text{mean}}$$

can then be compared with its expected value.

Because the standard deviation of speeds is usually equal to about one sixth of the mean speed, the ratio:-

85 percentile/mean

usually lies in the range 1.1-1.25. (In Highway Link Design, Ref 2, this ratio is taken as the fourth root of 2 or 1.18 approximately. Further advice is given in the Advice Note on Highway Link Design.)

6.5 Where measurements are required for modifying an existing traffic signal installation and all the vehicles have been included (rather than the restricted sample defined in paragraph 5.2.8) the mean speed will reflect the lower speed of vehicles approaching a red signal or a queue. In these circumstances the 85 percentile speed must be derived directly as in paragraph 6.2 and not from the mean speed. The ratios

$$\frac{\text{85 percentile}}{\text{mean}} \quad \text{and} \quad \frac{\text{standard deviation}}{\text{mean}}$$

given above will not apply.

6.6 The 85 percentile speed of cars required for speed limit setting may be estimated from the 85 percentile speed of all vehicles (including long vehicles) by adding 1kph on single carriageways or 2 kph on dual carriageways for every 15% of heavy vehicles.

6 Do not set up the equipment at or near:-

a junction

traffic lights (including pelicans)

roadworks

pedestrian crossings

parked or stationary vehicles

considerable frontage access

features where traffic has to slow down, eg, a sharp bend, where the road narrows, a steep gradient, etc.

7 In addition to the points above read the manufacturer's instructions regarding setting up the equipment and follow them carefully. Check that the equipment and the operators are not conspicuous to drivers as this could affect speeds.

8 When vehicle detector/timers having peripheral logic and print-out facilities are being used the 85 percentile speeds printed out can be used with confidence for subsequent determination of speed limits provided items 1-7 above have been fully complied with and the advice for converting vehicle speeds to car speeds in paragraph 6.6 of the Advice Note is followed. In other circumstances the instructions in paragraph 6 and appendices 2 and 3 should be taken into account as applicable.

9 Refer to DTp Circular Roads 1/80 "Local Speed Limits" for general advice in determining speed limits.

GENERAL CHECKLIST FOR THOSE PLANNING TO SET UP VEHICLE DETECTOR/TIMERS OR RADAR SPEEDMETERS FOR TAKING MEASUREMENTS TO ASSESS THE NEED FOR SPEED LIMITS

(The implications of various points below are discussed in the main text)

1 Take readings where possible in late spring or early autumn.

2 Take readings at different times of the day and on different days of the week. A minimum of two sets is required, for instance,during the morning on one day and during the afternoon on another day.

3 A set of readings must include a minimum of 200 vehicles. However, the longer the period measured the more accurate will be the results. Always take as many measurements as is practical.

4 The preferred times for taking readings are 10.00 - 12.00 and 14.00 - 16.00 hours.

5 Do not take readings during:-

morning and evening peaks if these cause congestion

local events, eg market days, local holidays, fetes, race meetings, etc.

bank holidays

weekends

bad weather

high heavy goods vehicle flows

This procedure should enable an accurate assessment to be made of the speed of vehicles along the road in "free flow" conditions.

Standard deviation, s $= \sqrt{\Sigma v - m^2/n - 1}$

For calculation purposes, a useful relationship is:-

$$\Sigma(v-m)^2 = \Sigma v^2 - (\Sigma v)^2/n$$

For example, if 150 speeds are measured, and the sum of the speeds is 7,500 and the sum of the squares of the speeds is 385,765, then:-

$$m = \Sigma v/n = 7{,}500/150 = \underline{50.0}$$

$$\Sigma v - m^2 = \Sigma v^2 - (\Sigma v)^2/n = 385{,}765 - 7{,}500^2/150$$
$$= 385{,}765 - 375{,}000 = 10{,}765$$

$$s = \sqrt{\Sigma(v-m)^2/n-1} = \sqrt{10{,}765/149} = \sqrt{72.25} = \underline{8.5}$$

Note that the standard deviation, 8.5, is approximately one sixth of the mean:

$$50 \div 6 = 8.3$$

the 85 percentile is then given by

$$v = m + s = 50 + 8.5 = \underline{58.5}$$

which should be rounded to 59. (If use in minor scheme design is intended the caveats/corrections given in paragraph 3.4 need taking into account).

a) There should not be a parked vehicle or other obstruction, such as roadworks, within 100m of the measuring point.

b) Measurements should be taken as close to the 80m and 160m points as possible.

c) Only those vehicles which can be expected to be anticipating a clear run through the junction should be included. Any which deliberately speed up to go through on amber should be included using subjective judgement.

d) Care should be taken by any enumerators to be as inconspicuous as possible so as not to influence traffic behaviour.

e) Because the (proposed) equipment does not come into use at higher flows, as the signals run to maximum, measurements should be taken when flow does not exceed 50% of maximum flow.

f) The ideal arrangement is to take speed measurements when flows are 20-40% of maximum.

b) Have more than 20% of speeds been estimated in the way suggested? If so, it may be concluded that a radar speedmeter is not suitable for measuring speeds in such difficult conditions. In that case, can the traffic fairly be described as free flowing?

c) Do the speeds recorded (excluding those estimated) show any obvious bias towards round numbers like 30, 35, 50? If so, check more carefully. About 10% of the values should end in "5", and 10% in "0", but up to twice those proportions would be acceptable in a sample of 100 or so. Beyond that, regard the measurements with suspicion.

d) Do the speeds recorded show any obvious bias towards odd or even numbers? This is especially likely with meters that have a needle on a scale display, rather than a digital display, and is not important.

Data recorded by measurement using vehicle/detector timers such as inductive loops or noisy cables are not prone to the faults above, but other faults are possible. Some equipment, for example, may give spurious readings for closely spaced vehicles. These faults may be obvious in the output - perhaps through a suspiciously high number of very low speeds. They may, however, be detected during the analysis of results.

full reasons for each condition imposed, specifying all policies and proposals in the development plan which are relevant to the decision;

However, not all development plan policies have been saved and circumstances are constantly changing. The weight to be given even to 'saved' policies can be diminished by later planning policy guidance, particularly if the guidance is at odds with the development plan policies. The general (that is not site specific) 'saved' Local Plan policies that currently appear to make some reference to highways and transport issues are appended.

Highway safety is a matter of acknowledged importance, hence the requirement in the GDPO for the LPA to consult the LHA in some circumstances. Thus, even in the absence of reference to a specific development plan policy, any recommendation that a condition (or refusal reason) be imposed for highway safety purposes should be taken into account as a material consideration. The need for the LPA to refer to a specific policy is likely to be more necessary when our representations relate to accessibility or provision of transport infrastructure.

Timing

Some of the common beginnings to conditions that can be used instead of the

wording in the model conditions below are:-

a) Prior to occupation of the dwelling hereby permitted ….

b) No dwelling on the development hereby permitted shall be occupied until….

c) No works shall commence on site until…

d) Prior to the change of use hereby permitted occurring…

e) Within 3 months of the date of this permission (use for retrospective proposals)

The timing in the model conditions is shown in italics and optional text most likely to be amended to suit development-specific situations is shown in square brackets [.]. Some common options are shown below the reason. Asterisks represent details to be added.

Condition #1: ACCESS

Prior to the occupation of the development hereby permitted, the vehicular access shall be laid out and constructed in accordance with the submitted plan [drawing no.*****][1] [with any gates situated at least [4.5m][2] back from the carriageway edge of the public road and hung so as not to open outwards towards the public highway and][3] [with the area of driveway within at least 4.5m of the carriageway edge of the public road surfaced in bound material][4], and shall be maintained thereafter.

Reason: - To reduce potential highway impact by ensuring the access is suitably laid out and constructed [and in accordance with Policy **][5].

1 insert drawing number if known or date received by LPA

2 amend distance to allow vehicle to wait clear of carriageway

3 or [without entrance gates and]

4 only use if acceptable surfacing not shown on plan

5 insert relevant Local Plan policy if available

Condition #2: DRAINAGE (SURFACE WATER)

The vehicular access hereby permitted shall not be brought into use until provision has been made within the site for the catchment and disposal of surface water, and such provision shall be maintained thereafter.

Reason:- To reduce potential highway impact by ensuring that surface water does not have to be discharged on to the public highway, [and in accordance with Policy **][1].

1 insert relevant Local Plan policy if available

Condition #3: PARKING & TURNING

The building(s) hereby permitted shall not be occupied until the vehicular parking [and turning][1] [and loading/unloading][2] facilities have been provided in accordance with the submitted plan [drawing no.*****][3], and those facilities shall be maintained available for those purposes thereafter.

Reason:- To reduce potential highway impact by ensuring that adequate parking and manoeuvring facilities are available within the site, [and in accordance with Policy **][4].

1 if turning area shown and required

2 if facilities for goods vehicles are shown and required.

3 insert drawing number if known or date received by LPA

4 insert relevant Local Plan policy if available

Condition #4: TURNING/PARKING (no details required - only use this condition if you are certain that there is sufficient land within the site to comply. Otherwise obtain details of the proposed turning and parking facilities and secure by attaching Condition #3 above)

The dwellings hereby permitted shall not be occupied until space has been laid out within the site for [**][1] cars to be parked, and for all vehicles to be able to turn so as to enter and leave the site in forward gear, and such provision shall be maintained thereafter.

Reason: To reduce potential highway impact by ensuring that vehicles do not have to reverse to or from the public highway, [and in accordance with Policy **][2].

1 insert a number of spaces if necessary

2 insert relevant Local Plan policy if available

Condition #5: PARKING (full permission)

[The dwelling hereby permitted shall not be occupied][1] until the car parking associated with that dwelling (including garages and car ports where proposed) has been provided in accordance with the submitted plan [drawing no.*****][2], and shall be maintained available for that purpose thereafter.

Reason: - To reduce potential highway impact by ensuring that vehicles do not have to park on the highway, [and in accordance with Policy **][3]

1 for multiple dwellings use [None of the dwellings hereby permitted shall be occupied]

2 insert drawing number if known or date received by LPA

3 insert relevant Local Plan policy if available

Condition #6: VISIBILITY (Vehicular)

The vehicular access hereby permitted shall not be brought into use until the existing roadside frontage boundaries have been [set back][1] to provide visibility splays extending from a point [2.4m][2] back along the centre of the access (measured from the public road carriageway edge) to a point on the nearer carriageway edge of the public road [**m][3] distant in both directions, and the area between those splays and the carriageway shall be reduced in level and thereafter maintained so as to provide clear visibility between those points at a height of between 1 metre and 2.1m above the adjacent carriageway level.

Reason:- To reduce potential highway impact by ensuring that adequate visibility is provided and maintained, [and in accordance with Policy **][4].

1 could be [lowered] in some situations

2 [2.0m] could be consider in some very lightly-trafficked and slow speed situations (see section 3.2.4 above)

3 distance based on criteria in appropriate guidance (see section 3.2.5 above)

4 insert relevant Local Plan policy if available

Condition #7: VISIBILITY (pedestrian)

The vehicular access hereby permitted shall not be brought into use until the existing roadside frontage boundaries have been set back to provide visibility splays extending from a point 4.5m back along the centre of the access, measured nearer edge of the footway, extending at an angle of 45 degrees to the footway, and the area between those splays and the footway shall be reduced in level and thereafter maintained so as to provide clear visibility at a height of 600mm above the adjacent footway level.

Reason:- To reduce potential highway impact by ensuring that adequate pedestrian visibility is provided and maintained, [and in accordance with Policy **][1]

1 insert relevant Local Plan policy if available

Condition #8: JUNCTION COMPLETION

No works shall commence on site (other than those required by this condition) on the development hereby permitted until the first [20m][1] of the proposed access road, including the junction with the existing public road and associated visibility splays, has been completed to at least binder course level.

Reason:- To reduce potential highway impact by ensuring that there is a satisfactory access at the commencement of construction works [and in accordance with Policy **][2].

1 alter as appropriate

2 insert relevant Local Plan policy if available

Condition #9: ACCESS RESTRICTION (outline - 'access' reserved)

The vehicular access to the development shall be gained only from [High Street][1&2].

Reason: - To reduce potential highway impact by ensuring that there is no additional vehicular access to [ROAD NAME] from and use of a road considered unsuitable to serve further development

1 insert road name as appropriate

2 or specify location such as [situated at the western extremity of the site frontage] or [shall be positioned to provide optimum visibility]

Condition #10: CLOSURE OF ACCESS

The vehicular access hereby permitted shall not be brought into use until all existing vehicular accesses to the site (other than that intended to serve the development) have been permanently closed, and the footway/verge in front has been reinstated, in accordance with details to be submitted to and agreed in writing beforehand by the Local Planning Authority.

Reason:- To reduce potential highway impact by ensuring there is no further use of an access that is deemed to be unsuitable to the serve the development.

Condition #11: CONSTRUCTION METHOD STATEMENT

No development shall take place, including any works of demolition, until a Construction Method Statement has been submitted to, and approved in writing by, the local planning authority. The approved Statement shall be adhered to throughout the construction period. The Statement shall:

i. specify the type and number of vehicles;

ii. provide for the parking of vehicles of site operatives and visitors;

iii. provide for the loading and unloading of plant and materials;

iv. provide for the storage of plant and materials used in constructing the development;

v. provide for wheel washing facilities;

vi. specify the intended hours of construction operations;

vii. measures to control the emission of dust and dirt during construction

Reason: To reduce the potential impact on the public highway [and in accordance with Policy **][1].

1 insert relevant Local Plan policy if available

Condition #12: RETROSPECTIVE PERMISSION

Unless within [one][1] month of the date of this decision a scheme for [whatever works are required][2], is submitted in writing to the Local Planning Authority for approval, and unless the approved scheme is then implemented within [three][3] months of the Local Planning Authority's approval, the use of the site for the purpose otherwise permitted by this permission shall cease.

Reason:- To ensure that the development is carried out in a manner that does not have a detrimental effect on the public highway [and in accordance with Policy **][4].

1 amend as appropriate

2 specify works required

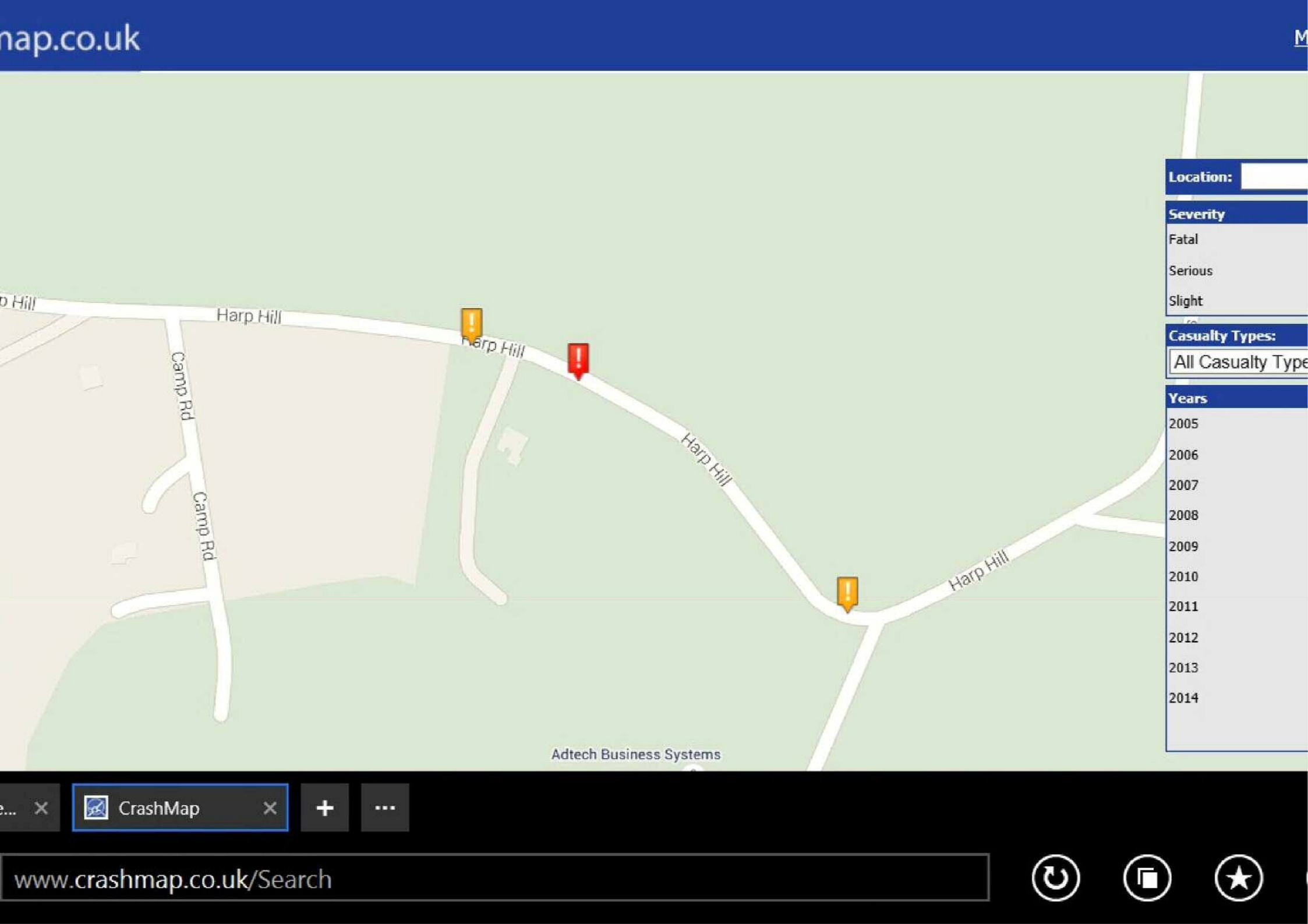
3 amend as appropriate

4 insert relevant Local Plan policy if available

5.7 APPENDIX 7

Accident Data

(CrashMap)


map.co.uk
Harp Hill
Harp Hill
Harp Hill
Harp Hill
Camp Rd
Camp Rd
Adtech Business Systems
Location:
Severity
Fatal
Serious
Slight
Casualty Types:
All Casualty Type
Years
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
CrashMap
www.crashmap.co.uk/Search

crashmap.co.uk

Crash Report including Vehicle and Casualty Information

Crash Date:	Saturday, February 04, 2006	**Time of Crash:**	1:45:00 PM	**Crash Reference:**	**2006530185309**
Highest Injury Severity:	Slight	**Number of Vehicles:**	2	**Number of Casualties:**	1
Highway Authority:	Gloucestershire			**OS Grid Reference:**	397150 222230
Local Authority:	Cheltenham Borough				
Road Number:	U0	**Road Type:**	Single carriageway		
Weather Description:	Fine without high winds				
Road Surface Description:	Snow				
Speed Limit:	60	**Junction Control:**	Unknown		
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre
1	Car (excluding private hire cars 2005 onwards)	16	Female	46 - 55	Vehicle proceeding normally along the carriageway, not on a bend
2	Car (excluding private hire cars 2005 onwards)	5	Male	46 - 55	Vehicle proceeding normally along the carriageway, not on a bend

For more information about the data please visit: *http://www.crashmap.com/home/aboutthedata* and *http://www.crashmap.com/home/definitions*

Crash Report including Vehicle and Casualty Information

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Female	46 - 55	Unknown or other	Unknown or other

For more information about the data please visit: *http://www.crashmap.com/home/aboutthedata* and *http://www.crashmap.com/home/definitions*

crashmap.co.uk

Crash Report including Vehicle and Casualty Information

Crash Date:	Tuesday, July 01, 2008	**Time of Crash:**	1:10:00 AM	**Crash Reference:**	**2008530195099**
Highest Injury Severity:	Serious	**Number of Vehicles:**	1	**Number of Casualties:**	2
Highway Authority:	Gloucestershire			**OS Grid Reference:**	397210 222210
Local Authority:	Cheltenham Borough				
Road Number:	U0	**Road Type:**	Single carriageway		
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30	**Junction Control:**	Unknown		
Light Conditions:	Darkness: street lights present and lit				
Carriageway Hazards:	None				
Junction Detail:	Not at or within 20 metres of junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre
1	Motorcycle over 125cc and up to 500cc (2005 onwards)	-1	Male	16 - 20	Vehicle proceeding normally along the carriageway, on a left hand bend

For more information about the data please visit: *http://www.crashmap.com/home/aboutthedata* and *http://www.crashmap.com/home/definitions*

Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Serious	Driver or rider	Male	16 - 20	Unknown or other	Unknown or other
1	2	Serious	Vehicle or pillion passenger	Male	11 - 15	Unknown or other	Unknown or other

For more information about the data please visit: *http://www.crashmap.com/home/aboutthedata* and *http://www.crashmap.com/home/definitions*

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Crash Report including Vehicle and Casualty Information

Crash Date:	Friday, May 22, 2009	**Time of Crash:**	5:39:00 PM	**Crash Reference:**	**2009530198568**
Highest Injury Severity:	Slight	**Number of Vehicles:**	2	**Number of Casualties:**	1
Highway Authority:	Gloucestershire			**OS Grid Reference:**	397360 222080
Local Authority:	Cheltenham Borough				
Road Number:	U0	**Road Type:**	Single carriageway		
Weather Description:	Fine without high winds				
Road Surface Description:	Dry				
Speed Limit:	30	**Junction Control:**	Give way or uncontrolled		
Light Conditions:	Daylight: regardless of presence of streetlights				
Carriageway Hazards:	None				
Junction Detail:	Other junction				
Junction Pedestrian Crossing:	No physical crossing facility within 50 metres				

Vehicles involved

Vehicle Ref	Vehicle Type	Vehicle Age	Driver Gender	Driver Age Band	Vehicle Maneouvre
1	Car (excluding private hire cars 2005 onwards)	12	Male	26 - 35	Vehicle is slowing down or stopping
2	Car (excluding private hire cars 2005 onwards)	-1	Male	36 - 45	Vehicle proceeding normally along the carriageway, not on a bend

For more information about the data please visit: *http://www.crashmap.com/home/aboutthedata* and *http://www.crashmap.com/home/definitions*

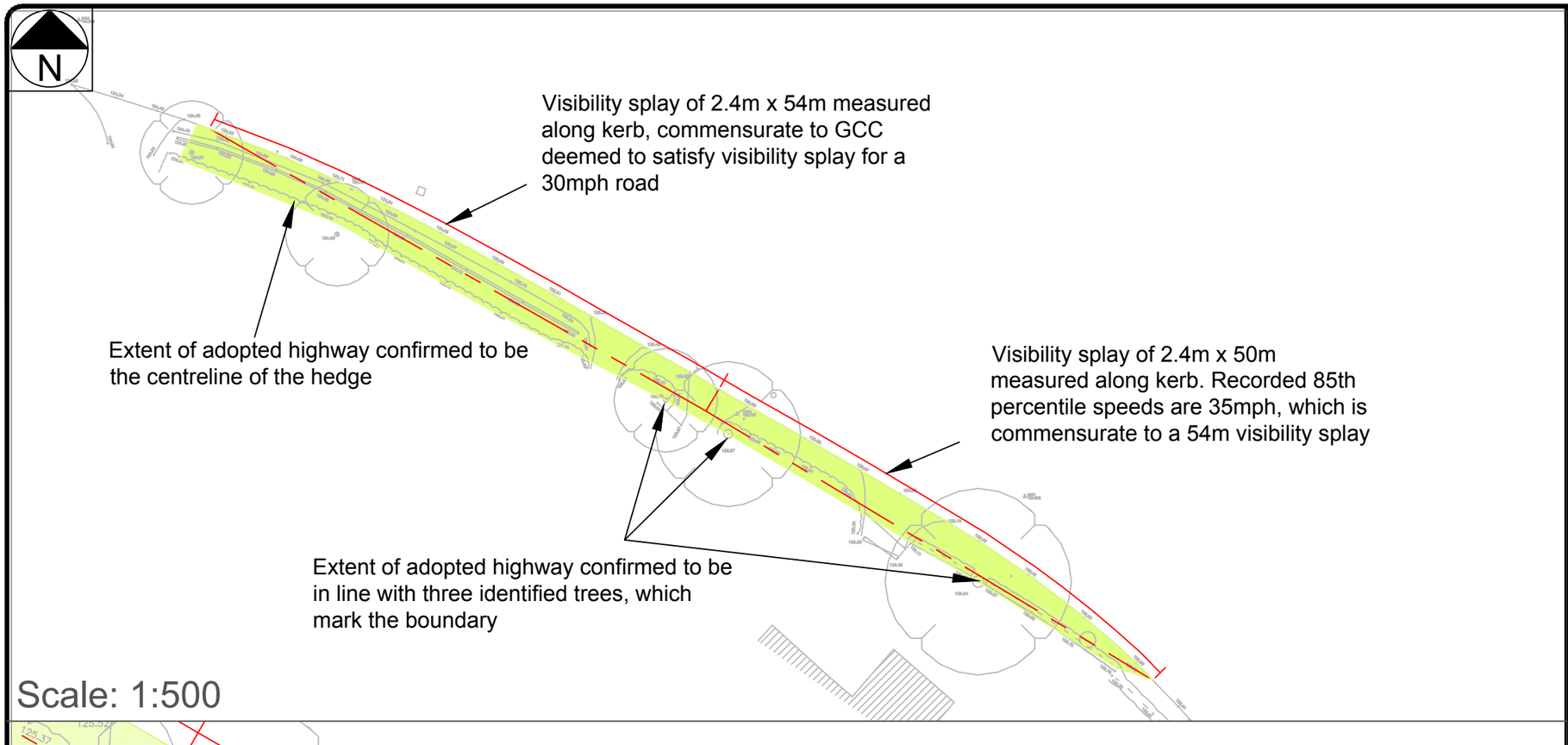
Casualties

Vehicle Ref	Casualty Ref	Injury Severity	Casualty Class	Gender	Age Band	Pedestrian Location	Pedestrian Movement
1	1	Slight	Driver or rider	Male	26 - 35	Unknown or other	Unknown or other

5.8 APPENDIX 8

"Access Arrangement with Visibility Splays"

(published by CTP drg. No. SK_01)



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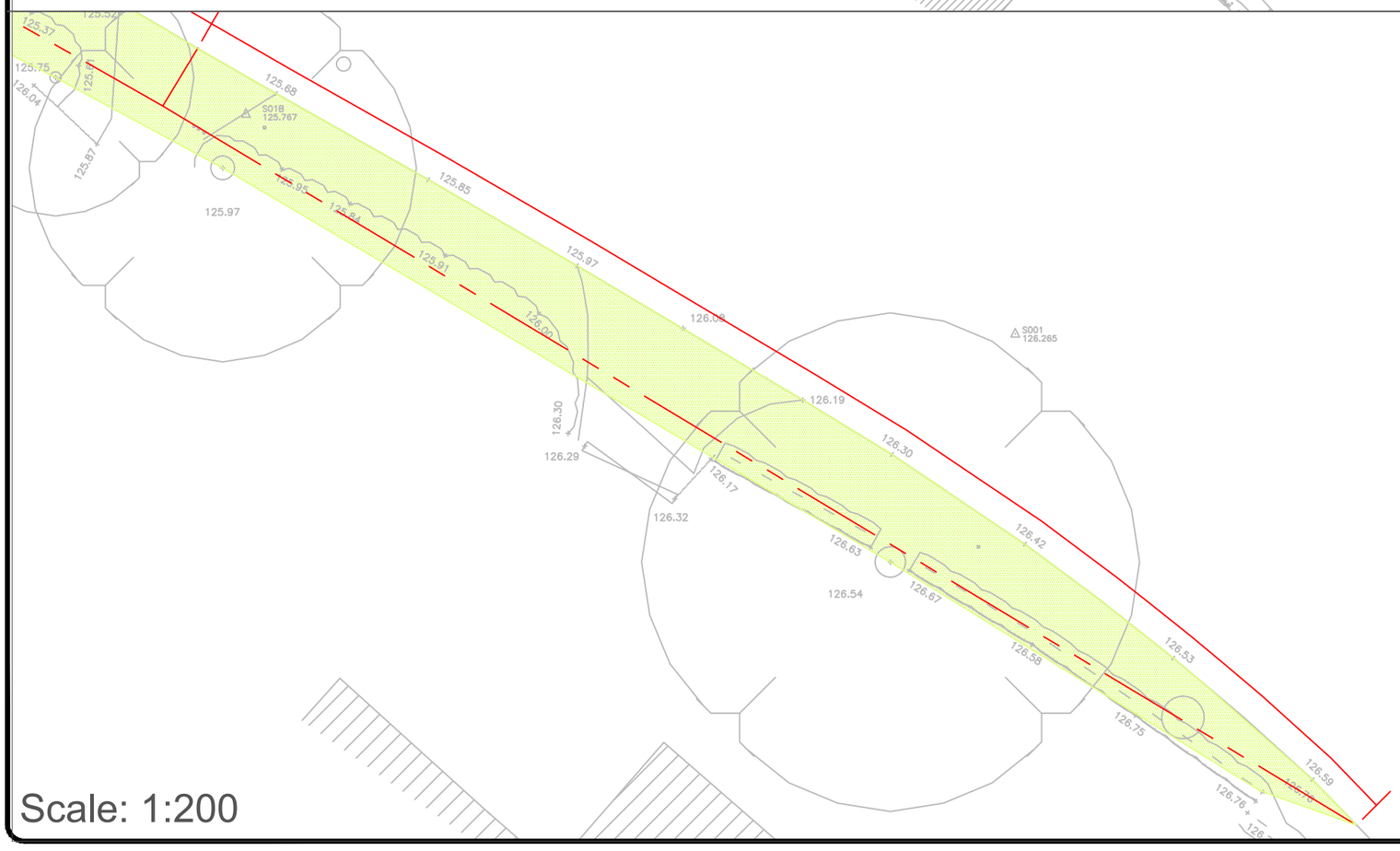

Scale: 1:200

Notes:

Extent of adopted highway

COTSWOLD TRANSPORT PLANNING

Cotswold Transport Planning Ltd
121 Promenade
Cheltenham Tel: 01242 370283
Gloucestershire cheltenham@cotswoldtp.co.uk
GL50 1NW www.cotswoldtp.co.uk

Drawing Title:
Access Arrangement with Visibility Splays

Client:
Mr R. J. Ashton

Project:
Land off Harp Hill, Cheltenham

Drawing No:	Revision:
SK_01	B
Date Drawn: 02/03/15	Issue Date:
Drawn by: AP	Checked by: AP
Project Code: CTP-15-109	Scale at A3: AS SHOWN

Drawing Status:
INFORMATION

Last Page