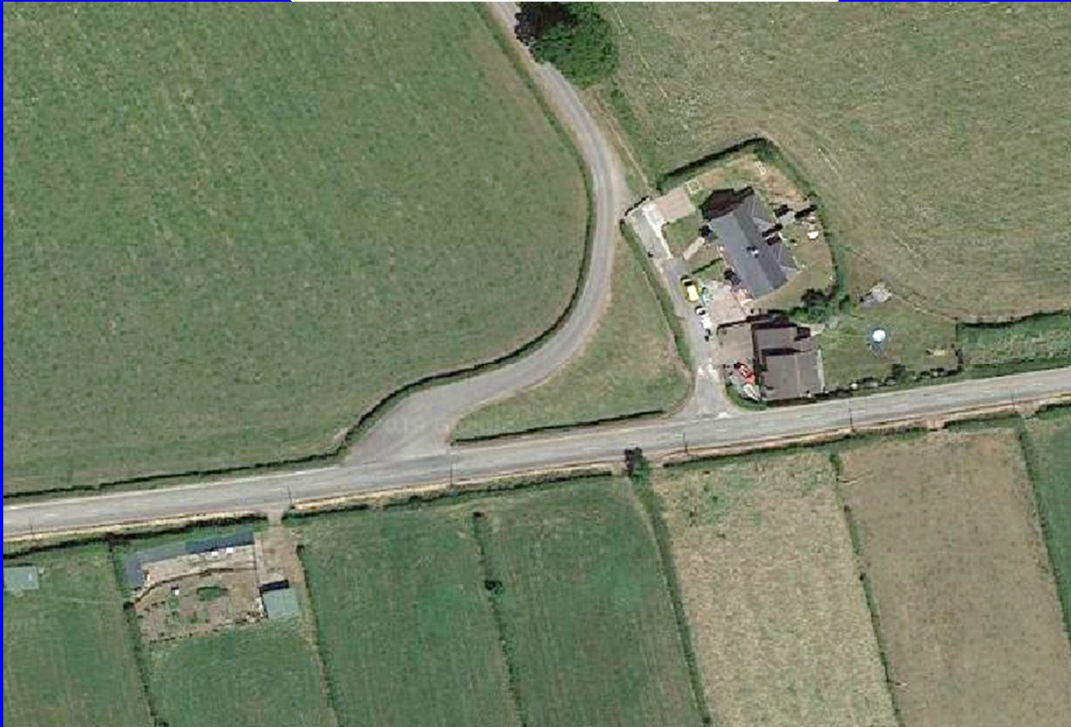


ACCESS ASSESSMENT

**FOR A PROPOSED FIRING RANGE
OFF
BORRAS ROAD WREXHAM**



**FOR
JONATHAN TOMLINSON**

REPORT VERIFICATION

SITE ADDRESS	Off Borrass Road Wrexham
REPORT TITLE	Access Assessment
JOB NUMBER	444-19
PREPARED BY	JRS

ISSUE NO.	DATE	STATUS	REPORT VERSION	ISSUED BY
1	22-03-19	For Planning	01	JRS

INDEX

1. BRIEF	3
2. SITE INFORMATION	3
4. VISIBILITY SPLAYS	3
5. CONCLUSION	5

APPENDICES

Appendix 1	Site Location Plan
Appendix 2	Photographs
Appendix 3	Visibility Splays drawing 444-19-10
Appendix 4	Speed Readings
Appendix 5	Weather History
Appendix 6	Speed & Visibility Splay Calculations

1. BRIEF

- 1.1. Sumner Consultancy has been appointed by Jonathan Tomlinson to provide an access assessment in connection with the proposed Change of Use of Land from Agricultural to a Mixed Use for Agricultural and Practice Firing Range in Association with Field and Falcon Gun Shop and Gunsmiths. The proposal is to use the existing access onto Borrass Road.
- 1.2. The assessment has been requested as a result of a memorandum dated 17th October 2018 from the Planning Control Manager which stated *"I would recommend that the applicant provides a suitably scaled plan indicating how it is proposed to provide the required visibility splays in both directions from the main access"*.

2. SITE INFORMATION

- 2.1. The Access is located on the northern side of the B5102 Borrass Road, approximately 1.5 miles to the west of Holt at Grid Reference X338416 Y353809 with the nearest post code of LL13 9JB. The Access Location Plan is in Appendix 1.
- 2.2. The section of the B5102 Borrass Road approaching and passed the Access is a straight section approximately 1.5 miles long. The road width is 5.3m with an approximate verge width on the northern side of 1.0m.
- 2.3. Photographs 1 & 2 in Appendix 2 show the views along the B5102 from the road channel at the centreline of the Access, and Photographs 3 & 4 the visibility from 2.4m. Photograph 5 shows the Access.
- 2.4. Speed readings were taken along the B5102 with a radar unit mounted on an adjoining telephone pole from 09-03-19 to 15-03-19, and the 85th Percentile Speeds were found to be 55.8mph westbound and 61.8mph eastbound. The Visibility Splays drawing 444-19-10 in Appendix 3, shows the location of the radar unit. A copies of the Speed Readings are in Appendix 4.
- 2.5. During the Speed Survey there were only a very small number of light showers, and overall the weather was dry, therefore in accordance with TA 22/81 Vehicle Speed Measurement on All Purpose Roads, a speed reduction of 2.5mph can be applied to the speed readings. The 85th Percentile Speeds will therefore be 53.3mph westbound and 59.3mph east bound. An extract from the weather for the period of the Speed Survey is in Appendix 5.
- 2.6. In respect of the traffic flows, Jonathan Tomlinson has stated that:

"During the past month the rifle and clay ranges together have averaged a total of two people per day using them, when measured against the traffic movements of customers and deliveries to the Field and Falcon gunshop, JFT Engineering workshop, Fre-energy office, AD plant deliveries and visitors and general farm usage feeding and bedding the cattle housed here I would estimate the percentage increase of traffic movements due to the ranges to be 3%"

3. VISIBILITY SPLAYS

- 3.1. The Department for Transport publication, Manual for Streets (MfS) specifies the visibility requirements for new streets and existing streets subject to re-design.
- 3.2. Measurements for visibility splays are generally taken from a point where the centreline of the minor road meets the channel of the major road, Point A. This is normally at the 'give way' line (or an imaginary 'give way' line if no such markings are provided). The distance back along the minor arm to Point B, from which visibility is measured is known as the X distance. This distance is normally measured along the centreline of the minor arm for simplicity, but in some circumstances (for example where there is a wide splitter island on the minor arm) it will be more appropriate to measure it from the actual position of the driver.

- 3.3. The Planning Control Manager considers that the appropriate X distance for this access is 2.4m back from the road edge.
- 3.4. The Y distance represents the distance that a driver who is about to exit from the minor arm can see to his left and right along the main alignment. For simplicity it is measured along the nearside kerb line of the main arm to Point C, although vehicles will normally be travelling a distance from the kerb line. Therefore a more accurate assessment of visibility splays is made by measuring to the nearside edge of the vehicle track. The measurement is taken from the point where this line intersects the centreline of the minor arm, Point A, (unless, as above, there is a splitter island in the minor arm).
- 3.5. Currently there are two standards for determining visibility splays, which are defined in Manual for Streets (MfS), and TAN 18.
- 3.6. MfS focuses on lightly trafficked residential streets, but many of its key principles may be applicable to other types of street, for example high streets and lightly-trafficked lanes in rural areas. Generally this is limited to locations with traffic speeds less than 40mph. MfS does not apply to the Trunk Road Network.
- 3.7. TAN 18 is generally applicable to trunk roads where traffic speeds are 40mph and above.
- 3.8. However there are some Highway Authorities, such as Shropshire and Powys who are prepared to consider visibility splays derived by Dorset County Council for speeds in excess of 40mph. These visibility splays are based on the formula outlined in MfS.
- 3.9. It's also understood that the Planning Inspectorate is allowing appeals for visibility splays for speeds in excess of 40mph based on the formula outlined in MfS.
- 3.10. The determination of the Y distance for the visibility splays is based on the actual speed of vehicles along the road and not the speed limit.
- 3.11. In Appendix 6 are the Speed & Visibility Splay Calculations:
 - 3.11.1. Based on the formula in MfS, for a westbound speed of 53.3mph (adjusted for wet weather) the required visibility splay to the east is 127.2m, and for an eastbound speed of 59.3mph, it is 150.9m to the west.
 - 3.11.2. Based on TAN 18, for a westbound speed of 53.3mph (adjusted for wet weather) the required visibility splay to the east is 163.0m, and for an eastbound speed of 59.3mph, it is 198.4m to the west.
- 3.12. To the west, both visibility splays pass over the highway boundary hedge, which is in the ownership of Jonathan Tomlinson, therefore providing the height of the hedge is maintained as it is at the moment, then the visibility is acceptable.
- 3.13. To the east the splays also pass over a boundary hedge between the Access and the adjoining house. However the boundary wall to the adjoining house does obstruct the visibility.
- 3.14. MfS states that in determining the Y distance a more accurate assessment of visibility splays is made by measuring to the nearside edge of the vehicle track. This has normally been taken to be 1.0m from the road channel, whereas TAN 18 states it should be to the nearside channel. However Wrexham Highways have said they will accept the measurement to be taken to a distance of 0.4m from the channel.
- 3.15. Based on MfS, the potential visibility splay to the east over the highway or land owned or controlled by Jonathan Tomlinson from 2.4m to 1.0m from the channel is 123.0m.
- 3.16. Based on TAN 18, the potential visibility splay to the east over the highway or land owned or controlled by Jonathan Tomlinson from 2.4m to 0.4m from the channel is 110.0m.

3.17. If the centreline of the Access is moved further to the west the visibility splay based on TAN 18 would be:

Distance Moved	Splay Distance
20m	124m
30m	144m

4. CONCLUSION

- 4.1. To the west, both visibility splays pass over the highway boundary hedge, which is in the ownership of Jonathan Tomlinson, therefore providing the height of the hedge is maintained as it is at the moment, then the visibility is acceptable, which has also been noted by the Planning Control Manager.
- 4.2. Based on MfS, the potential visibility splay to the east over the highway or land owned or controlled by Jonathan Tomlinson from 2.4m to 1.0m from the channel is 123.0m, which is only 4.0m less than the requirement, and therefore considered to be acceptable.
- 4.3. Based on TAN 18, the potential visibility splay to the east over the highway or land owned or controlled by Jonathan Tomlinson from 2.4m to 0.4m from the channel is 110.0m, which is 53.0m less than the requirement or 32.5% less.
- 4.4. Even if the access is moved further to the west, by up to 30m, then the splay distance to the east would be 144m, and 19.0m less than the distance specified in TAN 18.
- 4.5. However Jonathan Tomlinson considers that there will be only a 3% increase in traffic movements as a result of the proposals.
- 4.6. Due to this insignificant increase in traffic movements it is therefore considered that it is not necessary to try and improve the visibility splays.
- 4.7. If this application were to be refused because the splays did not conform to TAN 18, then from our understanding of the views of the Planning Inspectorate, it is likely they will accept the determination of the visibility splays on the formula outlined in MfS.

John Sumner IEng MICE
Director
Sumner Consultancy Ltd
March 2019

APPENDIX 1

SITE LOCATION PLAN

SITE LOCATION PLAN

Nearest Post Code LL13 9JB
Grid Reference X338416 Y353809



APPENDIX 2

PHOTOGRAPHS



PHOTOGRAPH 1
From road channel looking east



PHOTOGRAPH 2
From road channel looking west



PHOTOGRAPH 3
From 2.4m looking east



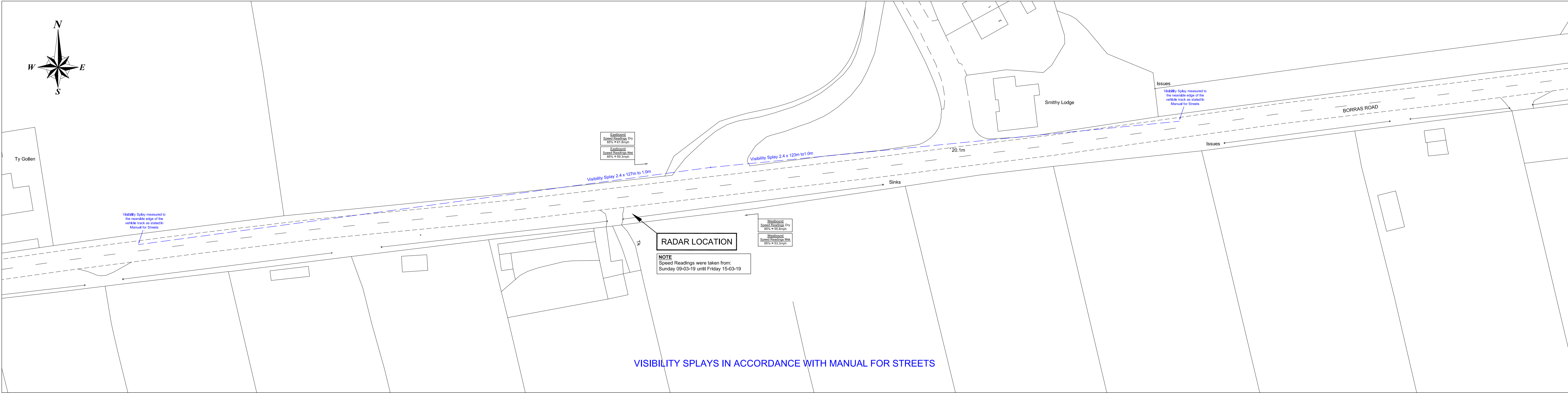
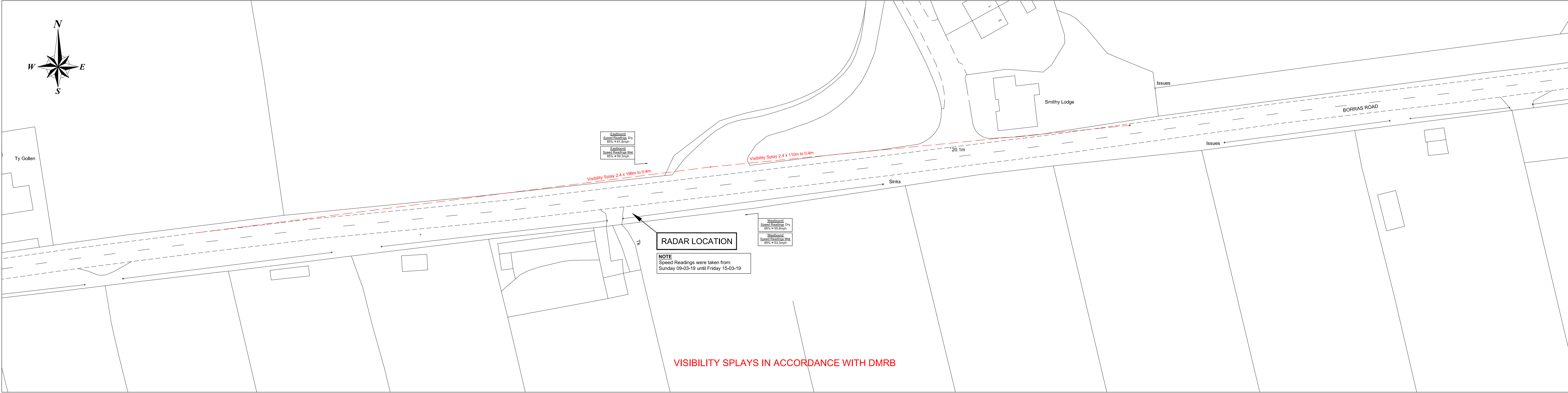
PHOTOGRAPH 4
From 2.4m looking west



PHOTOGRAPH 5
Access

APPENDIX 3

VISIBILITY SPLAYS DRAWING 444-19-10



Notes

1. Do not scale from this drawing.

2. All drawings are to be checked by the contractor and setting out engineer and read in conjunction with one another to ensure they are mutually compatible with each other before any setting out or construction commences.

In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Summer Consultancy accepts no liability in the event of not being so notified and where construction work has commenced.

3. The survey has been reproduced via Promap from the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright. Summer Consultancy Ltd Ordnance Survey Paper Mapping Licence Number 100059047.

Revisions

Rev	Date	Description
-----	------	-------------

© Copyright 2019 Summer Consultancy Ltd
This drawing must not be reproduced without the written consent of Summer Consultancy Ltd

Drawing Size: A1

Summer

consultancy

UK Engineering & Transportative Consultant

The Old School

Astley

Shrewsbury

SY4 4BP

Tel: 01939 519 765

Email: info@summerconsultancy.co.uk

Web: www.summerconsultancy.co.uk

Client:

JONATHAN TOMLINSON

Project:

BORRAS ROAD WREXHAM

Drawing Title:

VISIBILITY SPALYS

Scale:

1:500

Drawn by:

JRS

Date:

March 2019

Drawing Number:

444-19-10

Revision:

APPENDIX 4

SPEED READINGS

Lodge Farm. Commonwood
From 09/03/2019 To 15/03/2019

Speed Summary (All Days)-Limit 60 Mph

Channel: From Holt

Time Begin	Total Vol.	85th %ile	Mean Ave.	Std. Dev.	Bin 1 <10Mph	Bin 2 10-<15	Bin 3 15-<20	Bin 4 20-<25	Bin 5 25-<30	Bin 6 30-<35	Bin 7 35-<40	Bin 8 40-<45	Bin 9 45-<50	Bin 10 50-<55	Bin 11 55-<60	Bin 12 60-<70	Bin 13 70-<80	Bin 14 =>80
0:00	1	-	50.6	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00	0	-	55.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00	0	-	32.5	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	0	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	1	-	52.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00	2	-	37.9	10.7	0	0	0	0	0	0	0	1	1	0	0	0	0	0
6:00	5	-	42.9	7.9	0	0	0	0	0	1	1	1	1	1	0	0	0	0
7:00	20	56.1	48.3	7.9	0	0	0	0	0	1	1	4	4	6	3	1	0	0
8:00	45	58.0	48.9	9.1	0	0	0	0	1	2	4	8	11	8	7	4	0	0
9:00	27	55.0	46.4	9.5	0	0	0	0	1	2	3	6	5	5	2	2	0	0
10:00	24	52.8	43.0	8.8	0	0	0	0	2	1	4	4	5	4	2	0	0	0
11:00	24	53.5	44.0	10.5	0	0	0	1	0	2	5	4	5	3	2	2	0	0
12:00	29	52.1	43.5	8.9	0	0	0	0	1	4	4	7	6	4	2	1	0	0
13:00	26	52.3	43.9	8.0	0	0	0	0	1	3	4	6	6	3	2	0	0	0
14:00	25	53.9	45.7	8.9	0	0	0	0	1	2	4	4	6	6	2	1	0	0
15:00	34	54.5	45.5	8.8	0	0	0	0	1	3	3	8	7	5	4	1	0	0
16:00	38	56.0	47.5	8.2	0	0	0	0	0	1	4	7	10	7	4	3	0	0
17:00	35	58.5	49.5	8.7	0	0	0	0	0	1	4	5	9	7	5	4	0	0
18:00	22	55.7	47.7	7.5	0	0	0	0	0	0	3	4	6	4	3	1	0	0
19:00	15	56.2	47.4	9.2	0	0	0	0	0	1	3	3	3	2	2	1	0	0
20:00	9	-	46.5	8.5	0	0	0	0	0	1	1	2	1	2	1	0	0	0
21:00	6	-	46.5	10.9	0	0	0	0	0	0	1	1	1	1	1	1	0	0
22:00	5	-	46.0	8.1	0	0	0	0	0	0	1	1	1	1	1	0	0	0
23:00	3	-	45.6	7.6	0	0	0	0	0	0	0	1	0	1	0	0	0	0
12H,7-19	349	55.8	46.7	9.0	0	0	0	2	8	22	43	67	80	62	38	20	0	0
16H,6-22	384	55.8	46.7	9.0	0	0	0	2	8	25	49	74	86	68	42	22	0	0
18H,6-24	392	55.8	46.7	8.9	0	0	0	2	8	25	50	76	87	70	43	22	0	0
24H,0-24	396	55.8	46.7	8.9	0	0	0	2	8	25	50	77	88	70	43	22	0	0
Am Peak	8:00 45	- -	- -	- -	10:00 0	10:00 0	9:00 0	11:00 1	10:00 2	11:00 2	11:00 5	8:00 8	8:00 11	8:00 8	8:00 7	8:00 4	10:00 0	8:00 0
Pm Peak	16:00 38	- -	17:00 49.5	21:00 10.9	22:00 0	16:00 0	13:00 0	13:00 0	15:00 1	12:00 4	14:00 4	15:00 8	16:00 10	17:00 7	17:00 5	17:00 4	18:00 0	- -

Lodge Farm. Commonwood
From 09/03/2019 To 15/03/2019

Speed Summary (All Days)-Limit 60 Mph

Channel: To Holt

Time Begin	Total Vol.	85th %ile	Mean Ave.	Std. Dev.	Bin 1 <10Mph	Bin 2 10-<15	Bin 3 15-<20	Bin 4 20-<25	Bin 5 25-<30	Bin 6 30-<35	Bin 7 35-<40	Bin 8 40-<45	Bin 9 45-<50	Bin 10 50-<55	Bin 11 55-<60	Bin 12 60-<70	Bin 13 70-<80	Bin 14 =>80
0:00	4	-	26.3	3.6	0	0	0	2	2	0	0	0	0	0	0	0	0	0
1:00	4	-	28.3	9.7	0	0	1	2	0	0	0	0	0	0	0	0	0	0
2:00	0	-	42.5	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00	1	-	55.0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	11	55.8	31.4	14.6	0	0	1	7	0	1	0	0	0	0	2	0	0	0
5:00	28	28.0	24.8	8.1	0	0	6	14	6	0	0	0	1	1	0	0	0	0
6:00	16	45.1	27.4	12.7	0	2	4	6	0	0	0	1	1	1	0	0	0	0
7:00	32	61.4	43.4	18.8	0	1	4	4	1	1	2	2	4	4	2	4	2	0
8:00	40	63.5	53.0	9.6	0	0	0	0	1	1	1	3	5	10	8	9	0	0
9:00	18	62.2	47.7	14.7	0	0	0	1	1	1	0	3	3	1	2	3	1	0
10:00	23	59.7	48.0	12.1	0	0	0	1	1	0	2	4	2	4	4	4	0	0
11:00	25	56.2	44.4	14.4	0	0	1	2	2	1	1	3	3	6	3	1	1	0
12:00	32	59.3	45.0	14.7	0	0	1	2	2	3	4	3	4	3	4	4	1	0
13:00	25	61.8	46.9	15.1	0	0	1	2	1	0	2	3	5	2	3	4	1	0
14:00	27	61.8	49.7	12.5	0	0	0	1	1	1	2	4	5	4	4	5	1	0
15:00	35	62.8	50.7	11.7	0	0	0	0	2	2	1	4	4	8	5	6	1	0
16:00	62	61.7	42.7	17.7	0	1	5	11	6	2	2	5	4	7	9	8	2	0
17:00	43	62.0	49.8	14.0	0	0	2	2	1	1	1	3	7	9	8	6	2	0
18:00	20	59.4	50.8	9.2	0	0	0	0	0	1	1	3	4	4	4	3	0	0
19:00	15	60.0	48.8	11.3	0	0	0	0	1	0	1	2	2	2	2	2	0	0
20:00	7	-	49.9	10.5	0	0	0	0	0	1	0	1	1	1	3	1	0	0
21:00	6	-	53.5	9.5	0	0	0	0	0	0	0	1	1	1	1	2	0	0
22:00	3	-	51.8	8.7	0	0	0	0	0	0	0	0	1	1	1	1	0	0
23:00	1	-	53.9	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12H,7-19	382	62.1	47.5	14.8	0	3	14	26	19	15	19	40	50	62	56	56	12	0
16H,6-22	426	61.8	47.0	15.0	0	4	18	32	20	16	20	45	55	67	62	61	12	0
18H,6-24	430	61.8	47.1	15.0	0	4	18	32	20	16	20	45	56	68	63	62	12	0
24H,0-24	478	60.6	44.9	15.9	0	4	26	58	28	17	20	45	57	69	66	62	12	0
Am Peak	8:00 40	- -	3:00 55.0	- -	- -	6:00 2	5:00 6	5:00 14	5:00 6	7:00 1	10:00 2	10:00 4	8:00 5	8:00 10	8:00 8	8:00 9	7:00 2	7:00 0
Pm Peak	16:00 62	- -	23:00 53.9	- -	- -	16:00 1	16:00 5	16:00 11	16:00 6	12:00 3	12:00 4	16:00 5	17:00 7	17:00 9	16:00 9	16:00 8	16:00 2	16:00 0

APPENDIX 5

WEATHER HISTORY

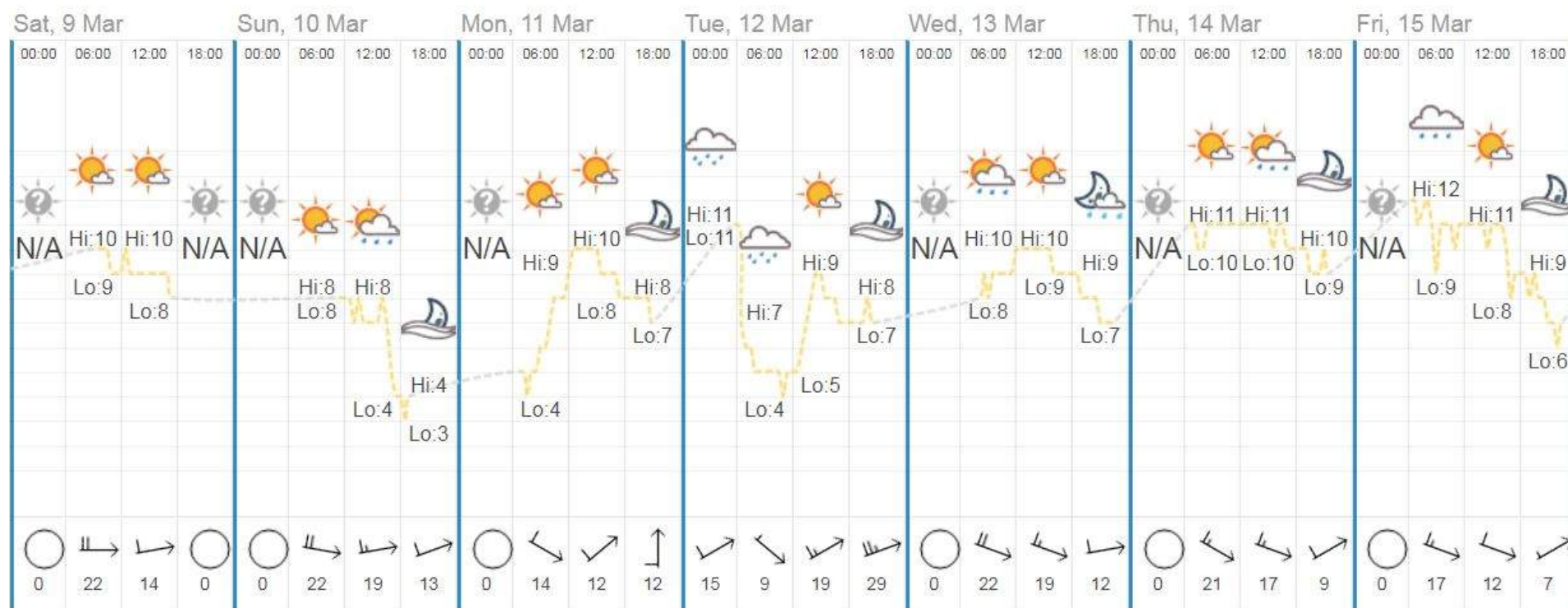
WEATHER HISTORY

SPEED SURVEY

From 9th March 2019 to 15th March 2019

Weather information obtained from timeanddate.com

Past Weather in Wrexham — Graph



APPENDIX 6

SPEED & VISIBILITY SPLAY CALCULATIONS

SPEED & VISIBILITY SPLAY CALCULATIONS

Manual for Streets (MfS)



Site Location **Borras Road Wrexham**

Grid Reference **X338416 Y353809**

Nearest Post Code **LL13 9JB**

Speed readings were taken on 09-03-19 for 7 days

Traffic Direction Westbound mph
85th Percentile 55.8

Traffic Direction Eastbound mph
85th Percentile 61.8

Speed in wet weather

TA 22/81 Vehicle Speed Measurement on All Purpose Roads

Speed reduction for wet weather 2.5 mph (4 kph for AP Single Carriageways)

Traffic Direction Westbound mph
85th Percentile 53.3 Speed is above 60kph. For min. SSD use t=2 & d=0.375

Traffic Direction Eastbound mph
85th Percentile 59.3 Speed is above 60kph. For min. SSD use t=2 & d=0.375

Visibility Distances From Manual for Streets

SPEED	Km/h	16	20	24	25	30	32	40	45	48	50	60
	mph	10	12	15	16	19	20	25	28	30	31	37
SSD (metres)		9	12	15	16	20	22	31	36	40	43	56
SSD adjusted for bonnet length		11	14	17	18	23	25	33	39	43	45	59

Traffic Direction Westbound

85th Percentile Visibility Splay 127.1 m Adjusted for speeds in wet weather

Traffic Direction Eastbound

85th Percentile Visibility Splay 150.9 m Adjusted for speeds in wet weather

Where:

Stopping Sight Distance = $vt + \frac{v^2}{2(d+0.1a)}$

v = Speed (m/s)

t = Reaction Time (s) = 2

d = Deceleration Time (g) = 0.375

g = Gravity (m/s^2) = 9.81

Bonnet Length (m) = 2.4

a = Longitudinal Gradient (%)

Westbound Gradient (%) = 1.4%

Eastbound Gradient (%) = -1.4%

Note: The calculations above are based on the formula in Manual for Streets 2 for determining the Stopping Sight Distance

SPEED & VISIBILITY SPLAY CALCULATIONS

The Design Manual for Roads and Bridges (DMRB)



Site Location **Borras Road Wrexham**

Grid Reference **X338416 Y353809**

Nearest Post Code **LL13 9JB**

Speed readings were taken on 09-03-19 for 7 days

Traffic Direction Westbound mph
85th Percentile 55.8

Traffic Direction Eastbound mph
85th Percentile 61.8

Speed in wet weather

TA 22/81 Vehicle Speed Measurement on All Purpose Roads

Speed reduction for wet weather 2.5 mph (4 kph for AP Single Carriageways)

Traffic Direction Westbound mph
85th Percentile 53.3

Traffic Direction Eastbound mph
85th Percentile 59.3

Visibility Distances From The Minor Road – TD42/95

SPEED OF MAJOR ROAD	Km/h	50	60	70	85	100	120
	mph	31.1	37.3	43.5	52.8	62.1	74.6
Y DISTANCE (m)		70	90	120	160	215	295

Traffic Direction Westbound
85th Percentile Visibility Splay 163.0 m

Traffic Direction Eastbound
85th Percentile Visibility Splay 198.4 m

Note: The calculations above are based on interpolation of the intermediate vehicle speeds from the Visibility Distances Table