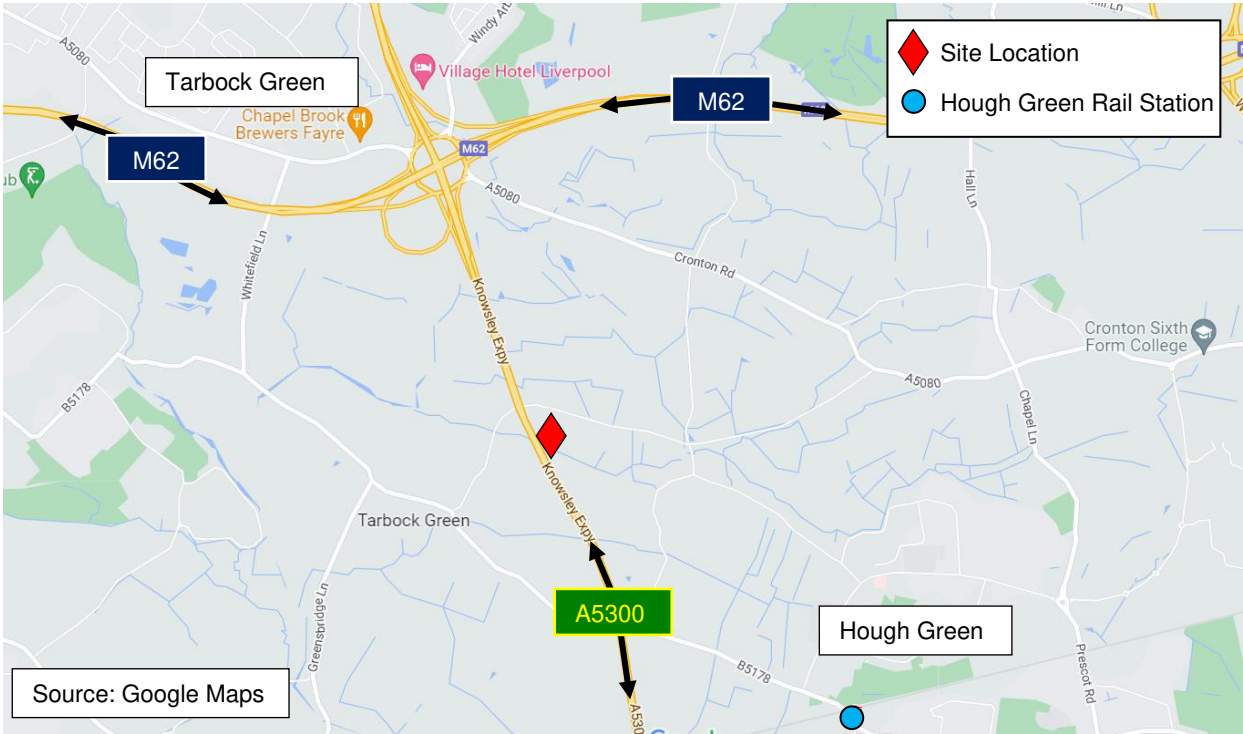


LB/220167/TN01 Rev B – 7th June 2022

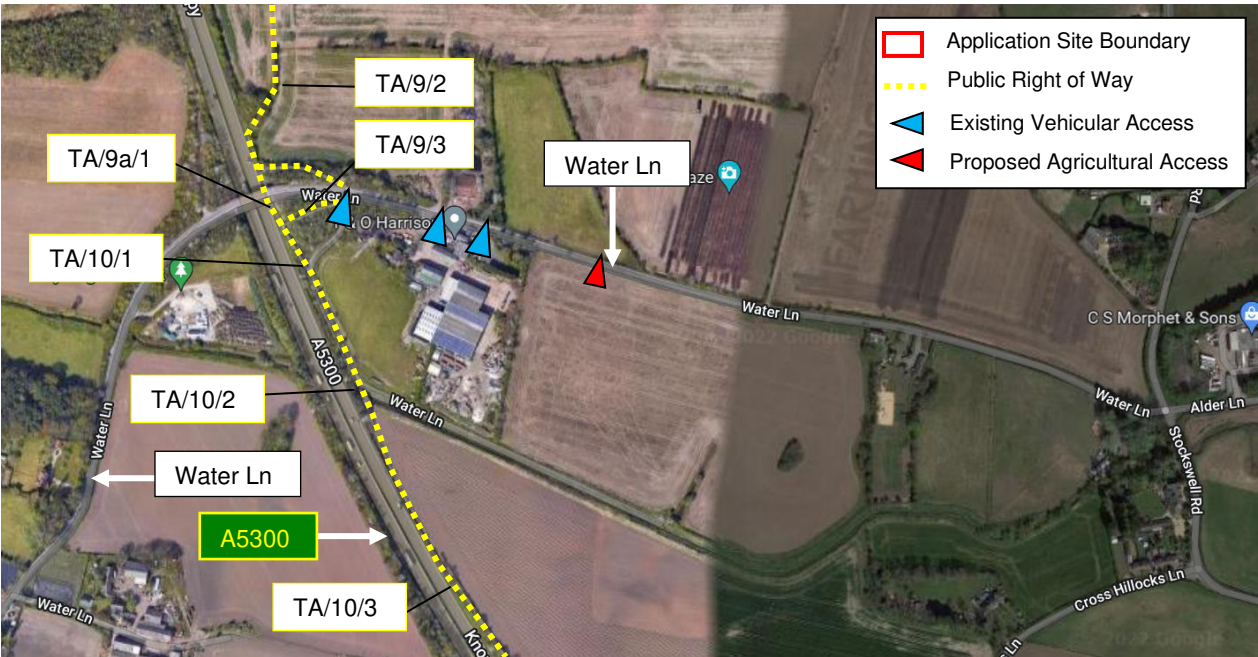
3. Water Lane Farm is a family run arable farm, farming circa 1,400 acres (320 acres owned) of mixed combinable crops such as Wheat, Barley, Sunflowers and Oil seed rape. The farm is a well-established complex located between Hough Green and Tarbock Green.
4. The location of Water Lane Farm in relation to the wider highway network is shown on **Figure 1** below:-

Figure 1 – Site Location Wider Highway Network



5. The location of the proposed site access in relation to local highway network is shown on **Figure 2** below:-

Figure 2 – Site Location Local Highway Network



6. Water Lane runs to the north of the site and provides a link between Prescot Road/Stockswell Road/Alder Lane to the south-east and Netherley Road to the south-west. Within the vicinity of the site, this section of Water Lane is subject to the national speed limit includes traffic calming features including 'slow' road markings and 'Farm Traffic' warning signs.

Existing Vehicular Accesses

7. Vehicular access to Water Lane farm is currently provided from a simple priority-controlled access from Water Lane as shown on **Figure 2** earlier and Drawing SCP/220167/D07 presented in **Appendix A** shows the visibility from the existing access. Water Lane is subject to the national speed limit and the achievable levels of visibility fall below the required standards based on the observed 85th percentile traffic speeds (as detailed later) and standards in the Design Manual for Roads and Bridges. The visibility is constrained by the bend in Water Lane to the west and existing buildings to the east.
8. This issue is acknowledged by the Council, with them installing mirrors provided immediately opposite the access in the grass verge along the northern section of the carriageway in order to improve visibility, particularly for vehicles exiting the access, as shown on **Figure 3** below.

Figure 3 – Visibility Mirrors at Existing Farm Access along Water Lane



9. The existing farm access issues are compounded when taking into account the agricultural vehicles which regularly use the access including tractors, hay wagons, trailers and harvesters. Due to the larger bonnet length of some of these vehicles, the driver setback is further within the site, which constrains visibility further and results in difficulties for vehicles exiting the farm and significant safety concerns.
10. Swept path analysis of a harvester and tractor attached to a hay wagon entering and leaving the existing farm access is shown on drawings SCP/220167/D02 and SCP/220167/D03 presented in **Appendix B**. Whilst it is possible for vehicles to make this manoeuvre, the movements are constrained.

Speed Survey and Visibility

11. In order to empirically determine what the design speed of Water Lane is in the vicinity of the proposed site access, SCP commissioned an independent radar speed survey which was undertaken by Andy Haxby Traffic Survey Consultancy Ltd. And took place on during the daytime on Wednesday 23rd March 2022, and measured traffic speeds on the eastbound and westbound approaches to the proposed site access location.
12. 150 speed readings were measured in the westbound direction and 48 speed readings were measured in the eastbound direction. The reason for the low number of readings in the eastbound direction is due to major road works which are currently taking place at the junction of Water Lane/Prescot Road/Alder Lane/Stockswell Road and results in the closure of Prescot Road and one-way operation along Alder Lane. The roadworks are currently ongoing until late June 2022.
13. A copy of the speed survey results and accompanying design speed analysis is contained in **Appendix C**. The speed survey confirmed that the 85th percentile design speeds of Water Lane on the approaches to the proposed site access location are as follows:-

85th Percentile Design Speed of Water Lane in Vicinity of the Proposed Site Access	
Eastbound	48.4mph / 78kph
Westbound	46.6mph / 75kph

14. The above speeds have been used to determine the required visibility splays from the site access, as detailed later.

Proposed Agricultural Access Arrangements

15. In order to address the safety concerns with the existing farm access, a new agricultural access is proposed at the same location as the existing agricultural access serving the field off Water Lane. The access will be widened to 7.5m and include 12.0m radii in order to accommodate large agricultural vehicles, as shown on drawing SCP/220167/D01 Rev B provided in **Appendix D**.
16. Swept path analysis of a harvester and tractor attached to a hay wagon entering and leaving the proposed access is also shown on the drawings provided in **Appendix D**.
17. Based on the results of the speed surveys presented above and using the formula presented in CD123 of the Design Manual for Roads and Bridges (DMRB), the required major road junction visibility distances are 139m to the right and 130m to the left from a minor arm setback distance (X distance) of 2.4m.
18. The drawing provided in **Appendix D** demonstrates these visibility distances are achievable. The hedgerow along the sites frontage will be cut back / relocated to the rear of the visibility splays.
19. A number of the existing vehicle movements generated by the farm will utilise this new access which will provide significant safety benefits as it will reduce the volume of traffic using the existing access which has substandard levels of visibility and is close to the bend.

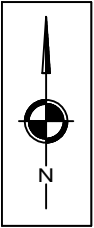
Summary and Conclusions

20. SCP have been instructed by Water Lane Farm to provide highway, traffic and transport advice in connection with a planning application for a proposed agricultural access off Water Lane, Knowsley.
21. Water Lane Farm is a family run arable farm, farming circa 1,400 acres (320 acres owned) of mixed combinable crops such as Wheat, Barley, Sunflowers and Oil seed rape. The farm is a well-established complex located between Hough Green and Tarbock Green.

22. Vehicular access to Water Lane farm is currently provided from a simple priority-controlled access from Water Lane. The achievable levels of visibility fall below the required standards, based on the observed 85th percentile traffic speeds and standards in the Design Manual for Roads and Bridges, and are constrained by the bend in Water Lane to the west and existing buildings to the east. This issue is acknowledged by the council as here are already mirrors provided immediately outside of the access in order to help improve visibility. These issues are compounded when taking into account the agricultural vehicles which access the site including tractors, hay wagons, trailers and harvesters. Due to the larger bonnet length of some of these vehicles it makes leaving the existing farm access substantially harder and ultimately is deemed unsafe.
23. In order to address the safety concerns with the existing farm access, a new agricultural access is proposed at the same location as the existing agricultural access serving the field off Water Lane. The access will be widened to 7.5m and include 12.0m radii in order to accommodate large agricultural vehicles. Visibility from the new access meets the requirements based on the observed 85th percentile traffic speeds.
24. A number of the existing vehicle movements generated by the farm will utilise this new access which will provide significant safety benefits as it will reduce the volume of traffic using the existing access which has substandard levels of visibility and is close to the bend.
25. In conclusion, having regard to the analysis presented in this Technical Note, the new access will provide clear highway safety benefits and there are no highway related reasons to withhold planning permission.

S|C|P

APPENDIX A



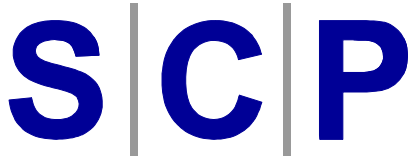
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NOTES

REVISIONS

REV	DESCRIPTION	DATE	BY
-	-	-	-



Client Name:

WATER LANE FARM

Project Title:

WATER LANE, KNOWSLEY

Drawing Title:

EXISTING VISIBILTY

Drawn By:

AM

Date:

07.06.2022

Checked:

LB

Scale:

AS STATED @ A3

Drawing No.

SCP/220167/D07

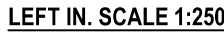
Rev.

-

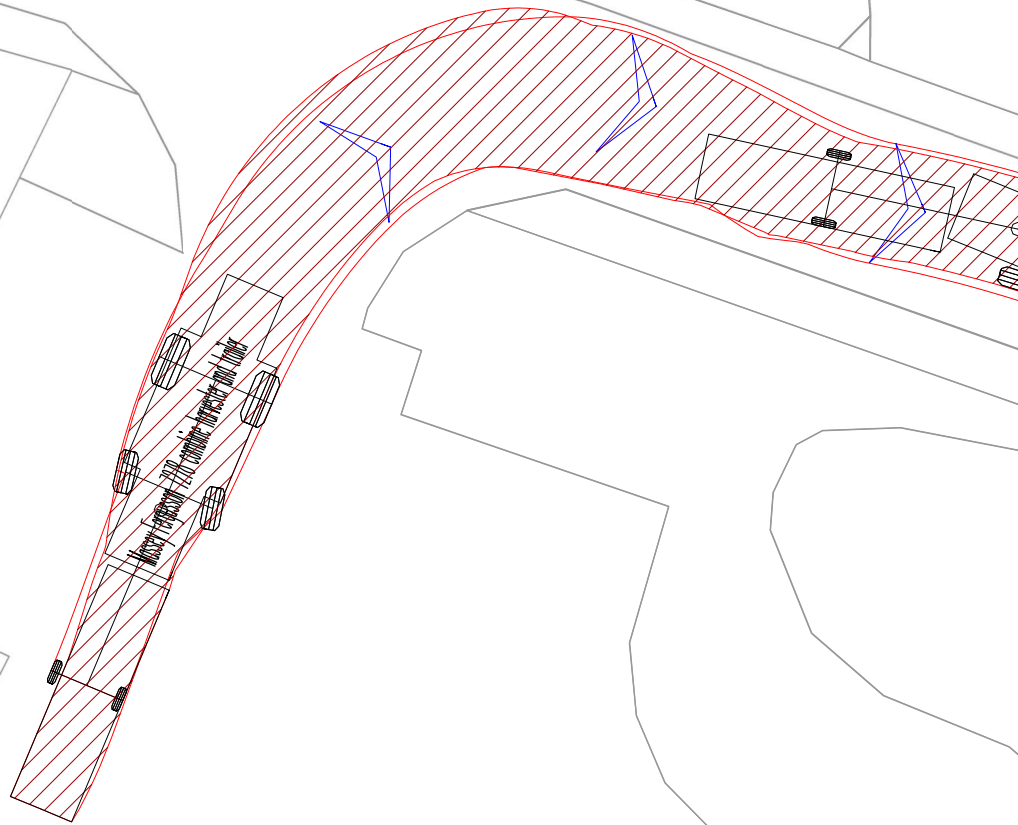
Water Lane Farm

S|C|P

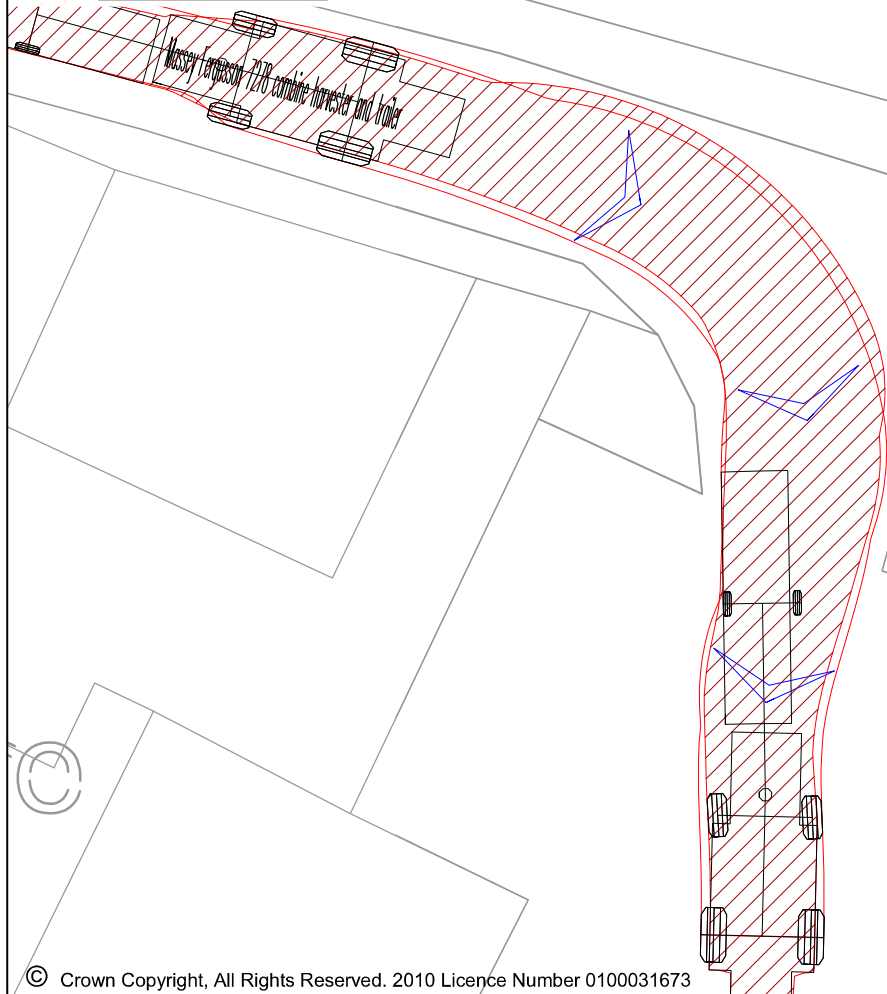
APPENDIX B



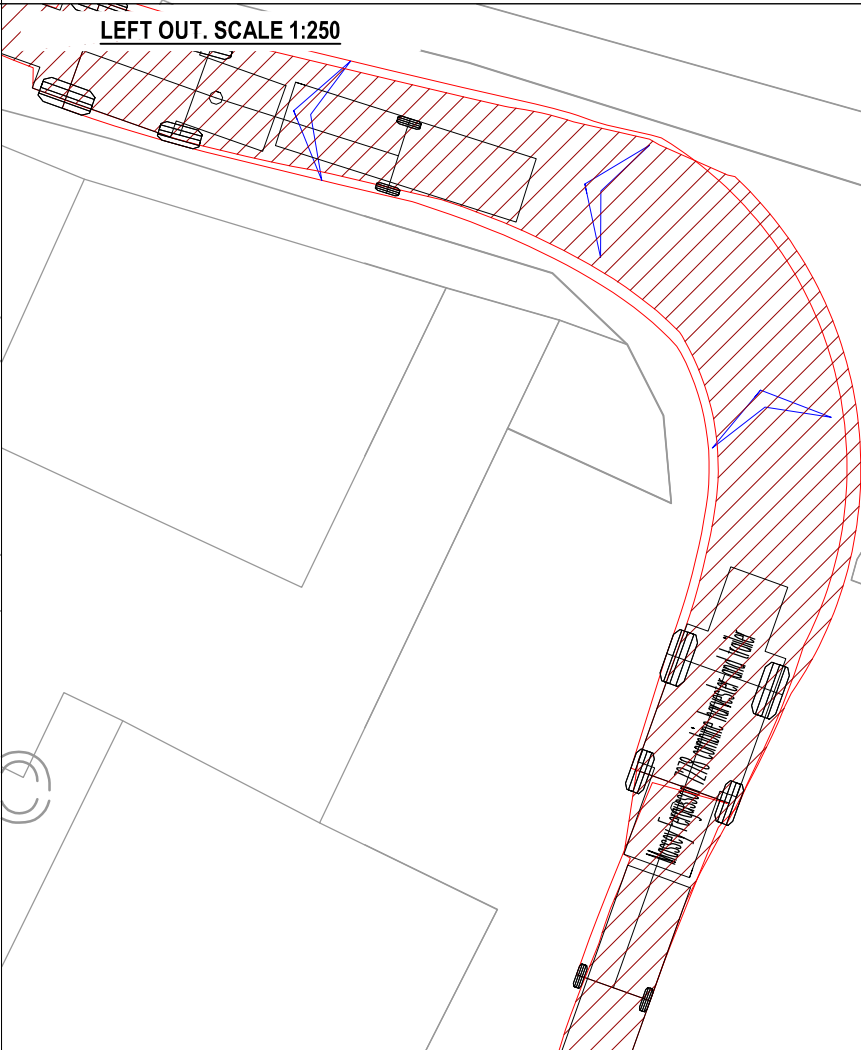
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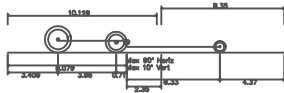
RIGHT IN. SCALE 1:250



LEFT OUT. SCALE 1:250



NOTES



Maxsey Ferguson 7278 combine harvester and trailer	
Overall Length	18.779m
Overall Width	3.450m
Overall Body Height	0.805m
Min Body Ground Clearance	0.400m
Max Track Width	4.060m
Lock to lock time	5.00s
Kerb to Kerb turning Radius	12.770m

REVISIONS

REV	DESCRIPTION	DATE	BY
-	-	-	-
	-		

SCP

Transportation Planning : Infrastructure Design

Client Name:

WATER LANE FARM

Project Title:

WATER LANE, KNOWSLEY

Drawing Title:

SWEPT PATH ANALYSIS- COMBINE HARVESTER

Drawn By:

AM

Date:

20.04.2022

Checked:

LB

Scale

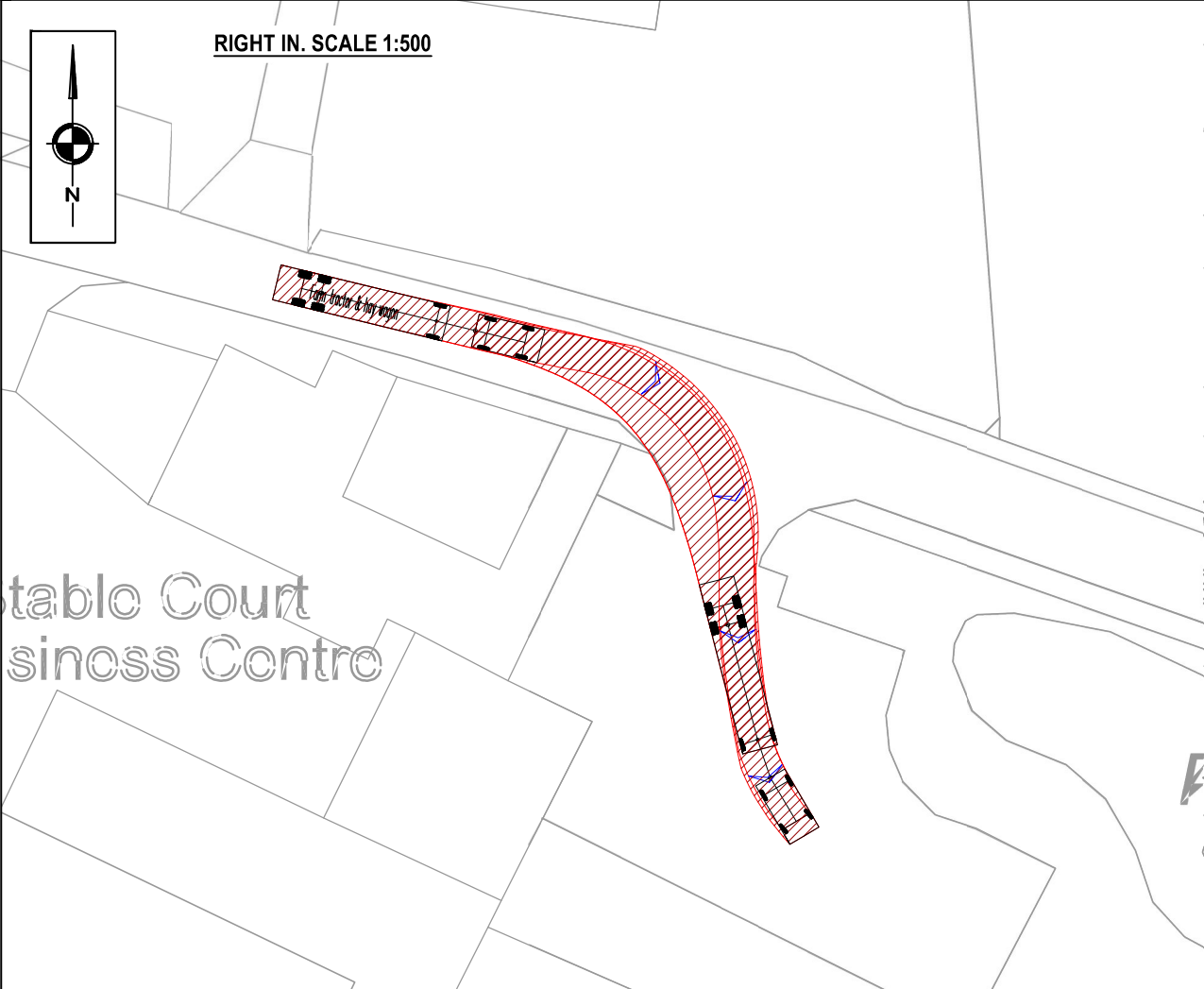
AS STATED @ A3

Drawing No.

SCP/220167/D02

Rev.

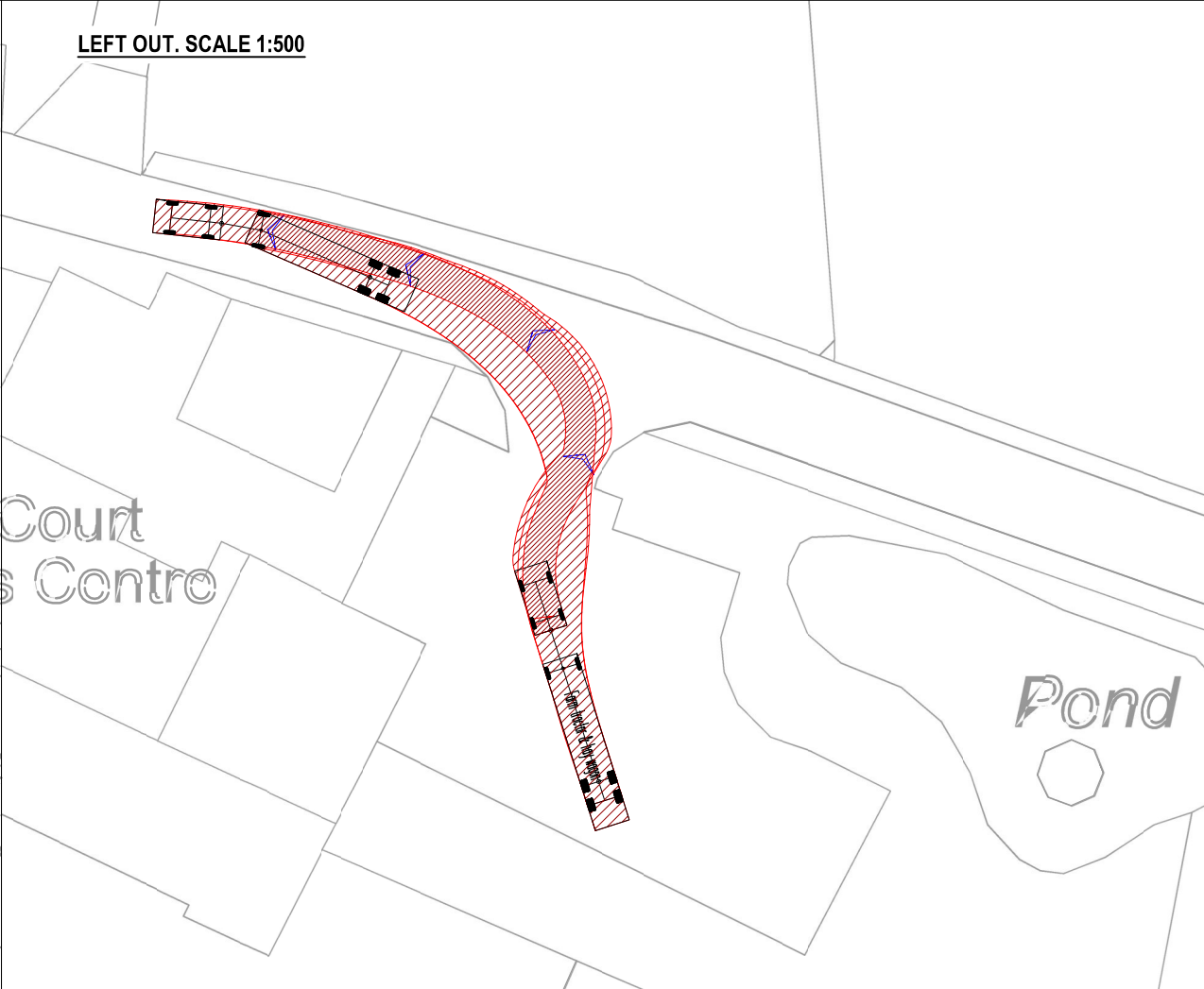
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RIGHT OUT. SCALE 1:500

Pond

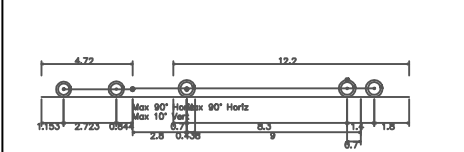
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LEFT IN. SCALE 1:500

Diagram showing the proposed extension to the existing car park. The extension is indicated by a red hatched area. The existing car park is shown with black parking spaces. The extension is located adjacent to the existing car park and the building. The extension is bounded by a red line. The extension is shown with a red hatched area. The extension is located adjacent to the existing car park and the building. The extension is bounded by a red line. The extension is shown with a red hatched area.

NOTES



Farm tractor & hay wagon	
Overall Length	19.020m
Overall Width	2.500m
Overall Body Height	0.438m
Min Body Ground Clearance	0.398m
Max Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	4.620m

REV	DESCRIPTION	DATE	BY
-	- -	-	-



Client Name:

WATER LANE FARM

Project Title:

WATER LANE, KNOWSLEY

Drawing Title:

SWEPT PATH ANALYSIS-
TRACTOR

Drawn By: AM	Date: 20.04.2022
Checked: LB	Scale: AS STATED @ A3

AM	20.04.2022
Checked: LB	Scale: AS STATED @ A3

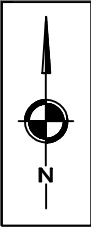
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Drawing No.	SCP/220167/D03	Rev.	-
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S|C|P

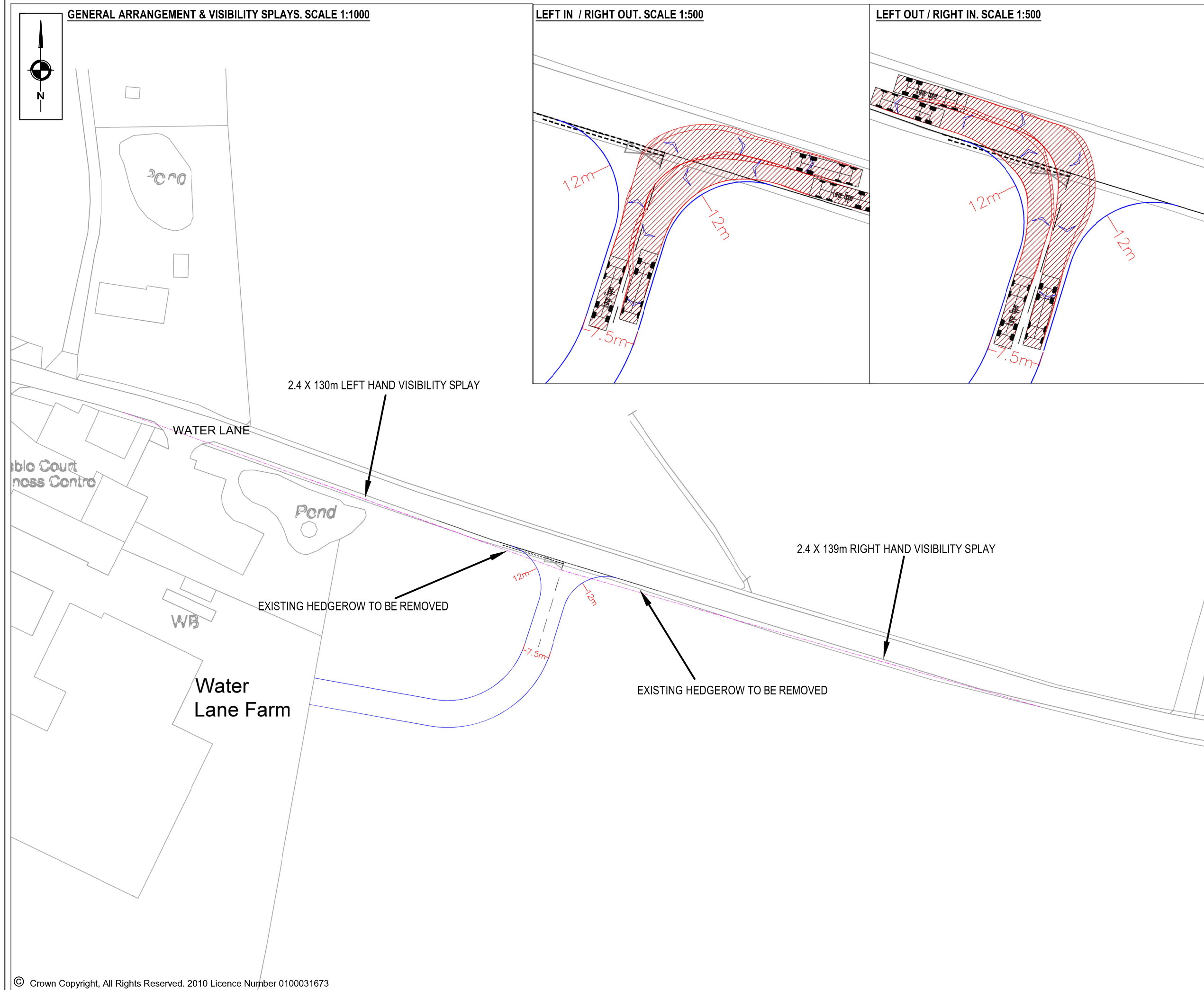
APPENDIX C



GENERAL ARRANGEMENT & VISIBILITY SPLAYS. SCALE 1:1000

LEFT IN / RIGHT OUT. SCALE 1:500

LEFT OUT / RIGHT IN. SCALE 1:500



NOTES

REVISIONS			
REV	DESCRIPTION	DATE	BY
A	INTERNAL ACCESS ROAD UPDATED	28.04.22	LB
B	INTERNAL ACCESS ROAD UPDATED	07.06.22	LB

SCP

Transportation Planning : Infrastructure Design

Client Name:

WATER LANE FARM

Project Title:

WATER LANE, KNOWSLEY

Drawing Title:

PROPOSED ACCESS
ARRANGEMENT AND VISIBILITY

Drawn By:
BA/LB

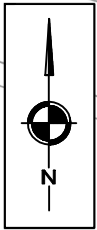
Date:
31.03.2022

Checked:
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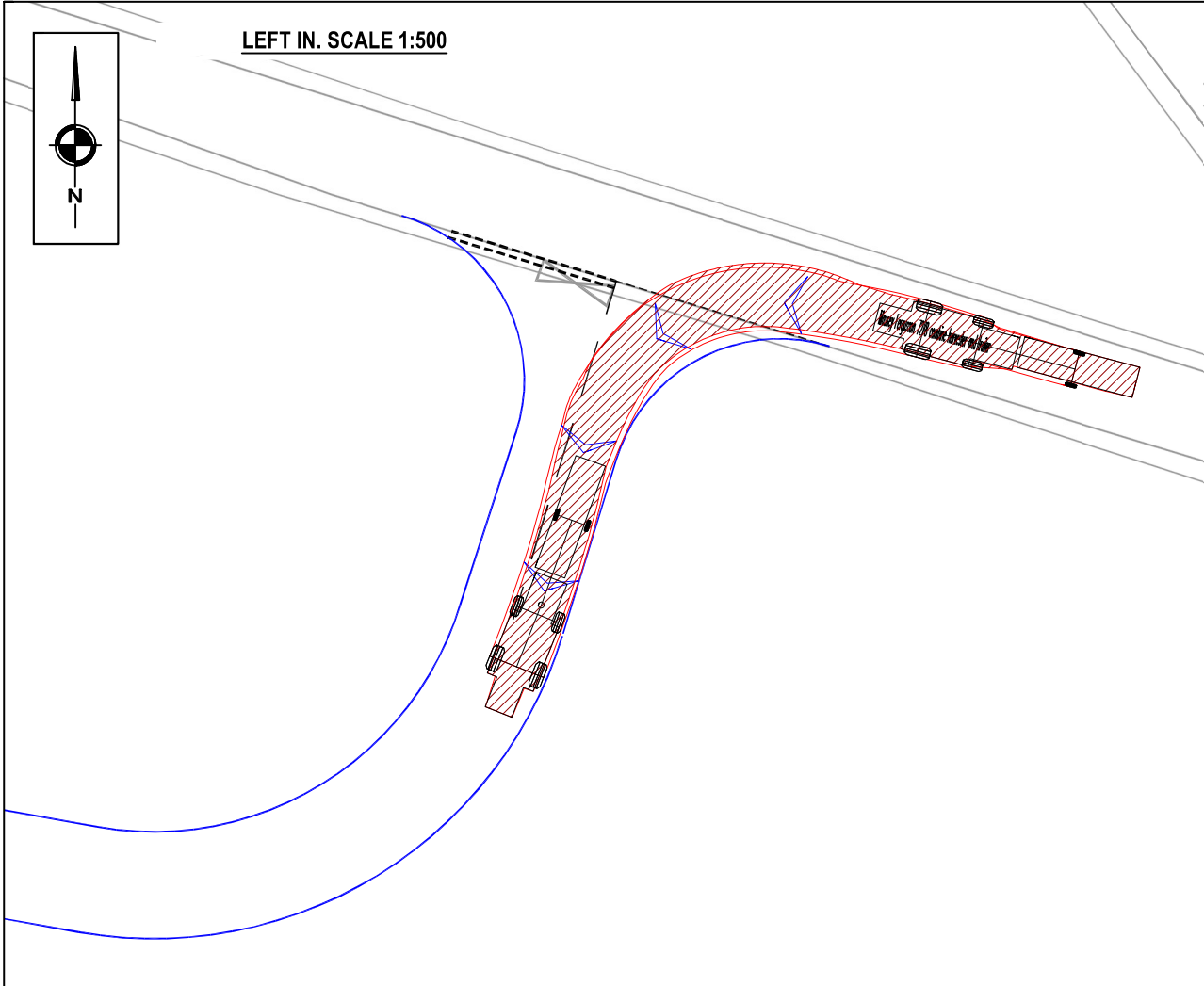
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Drawing No.
SCP/220167/D01

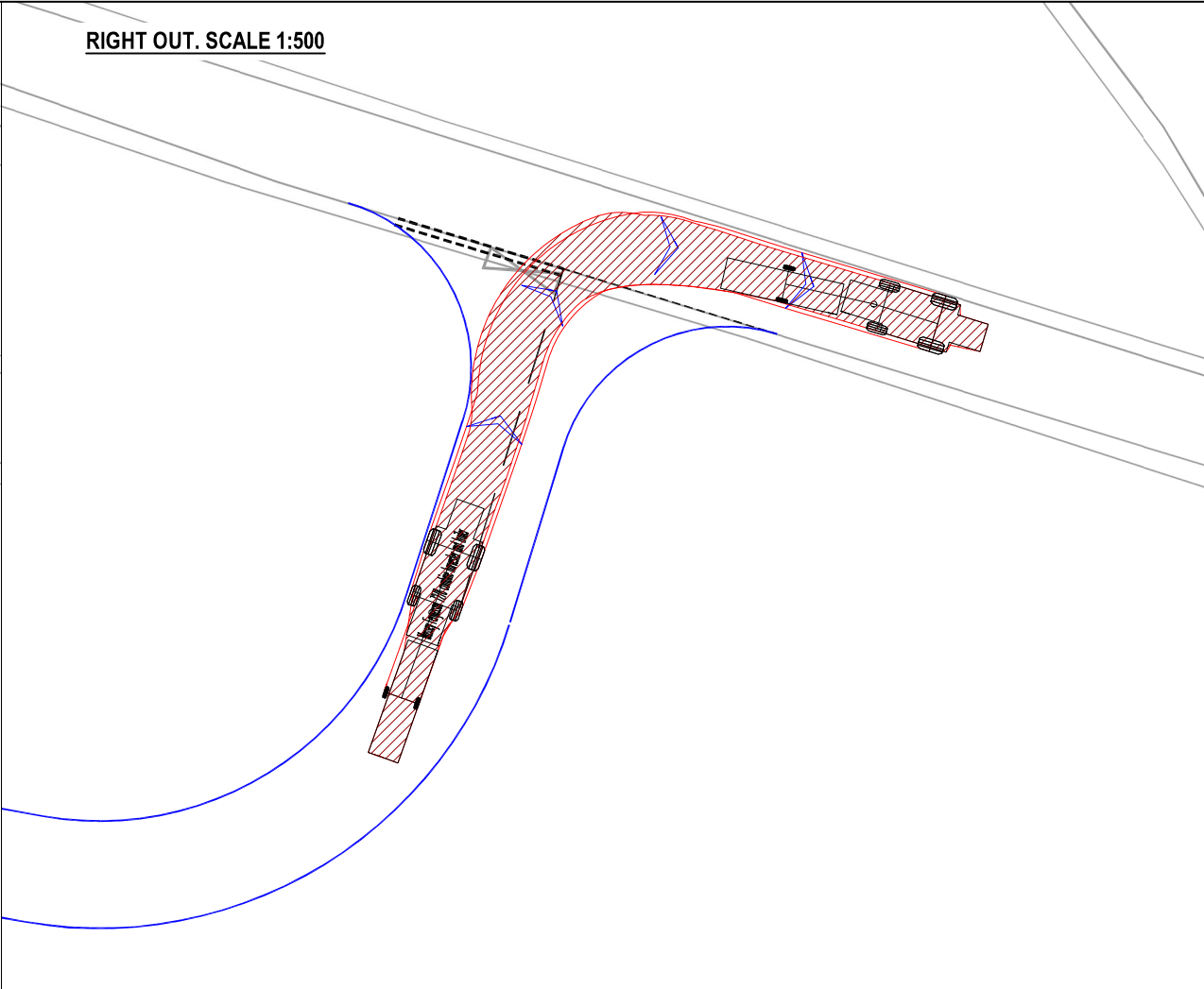
Rev.
B



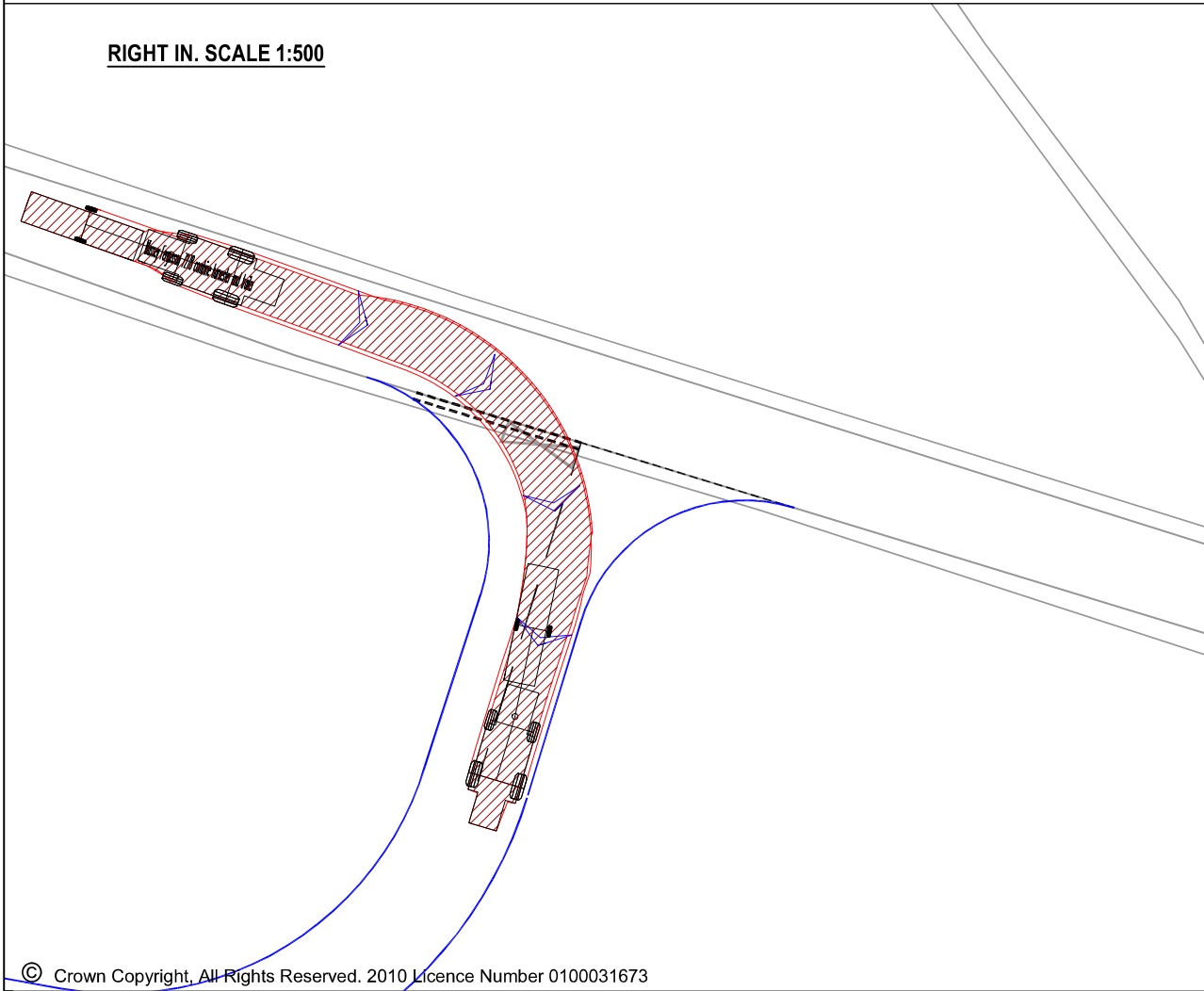
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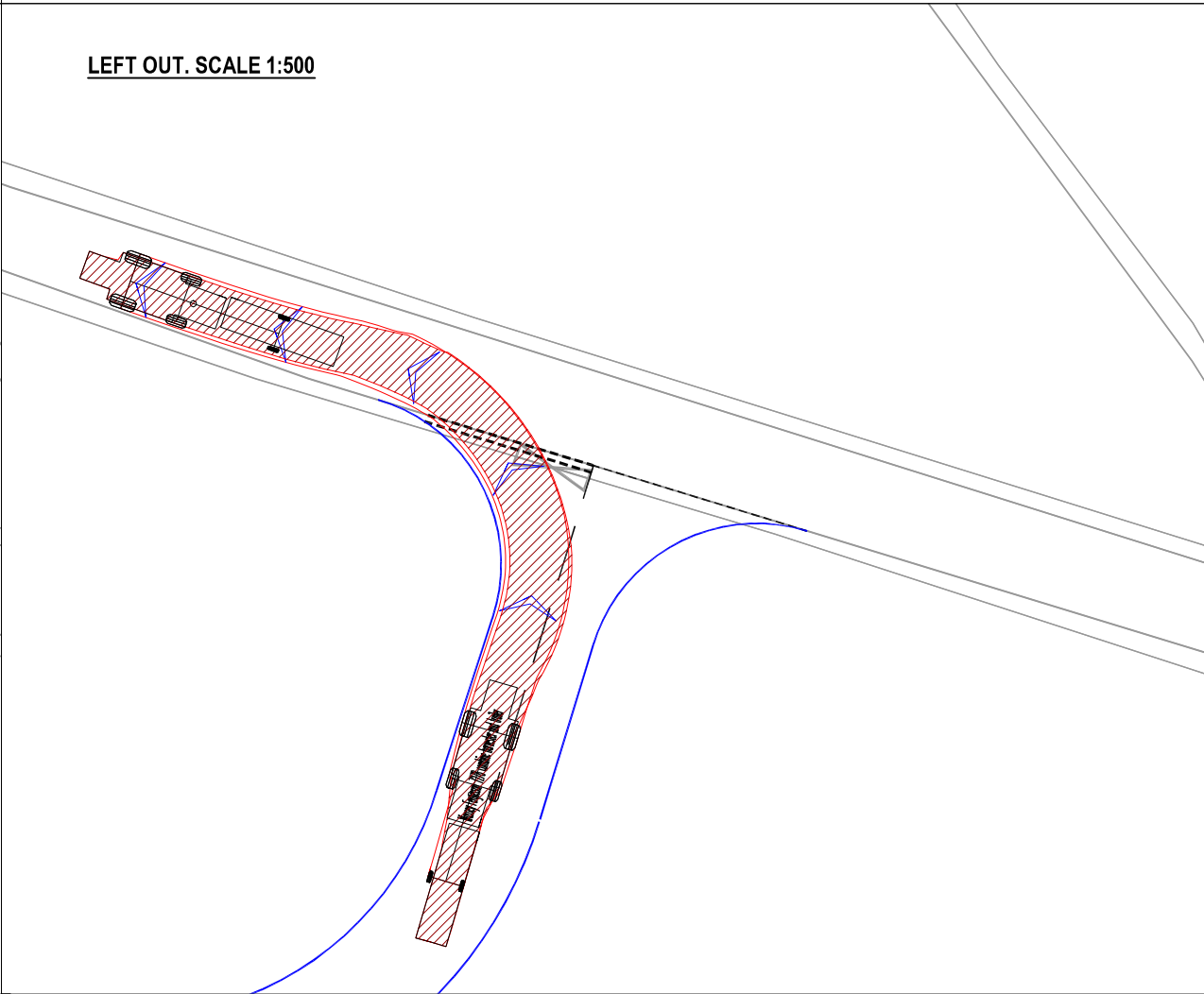
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RIGHT IN. SCALE 1:500



LEFT OUT. SCALE 1:500



NOTES

REVISIONS			
REV	DESCRIPTION	DATE	BY
A	UPDATE TO INTERNAL ACCESS ROAD	28.04.22	LB
B	INTERNAL ACCESS ROAD UPDATED	07.06.22	LB

S|C|P

Transportation Planning : Infrastructure Design

Client Name:

WATER LANE FARM

Project Title:

WATER LANE, KNOWSLEY

Drawing Title:
SWEPT PATH ANALYSIS-
HARVESTER

Drawn By:
AM

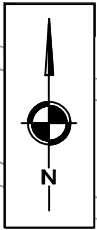
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21.04.2022

Checked:
LB

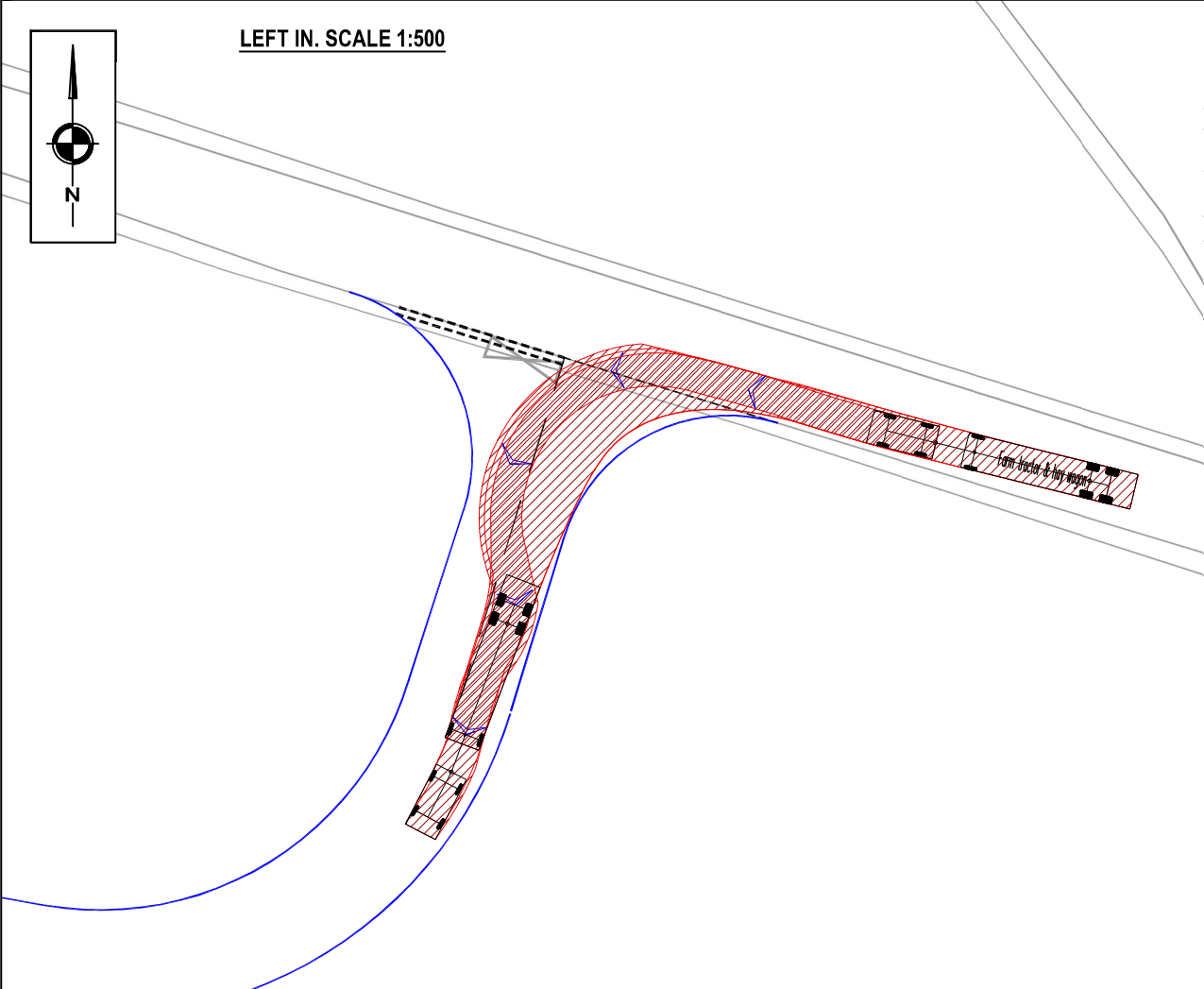
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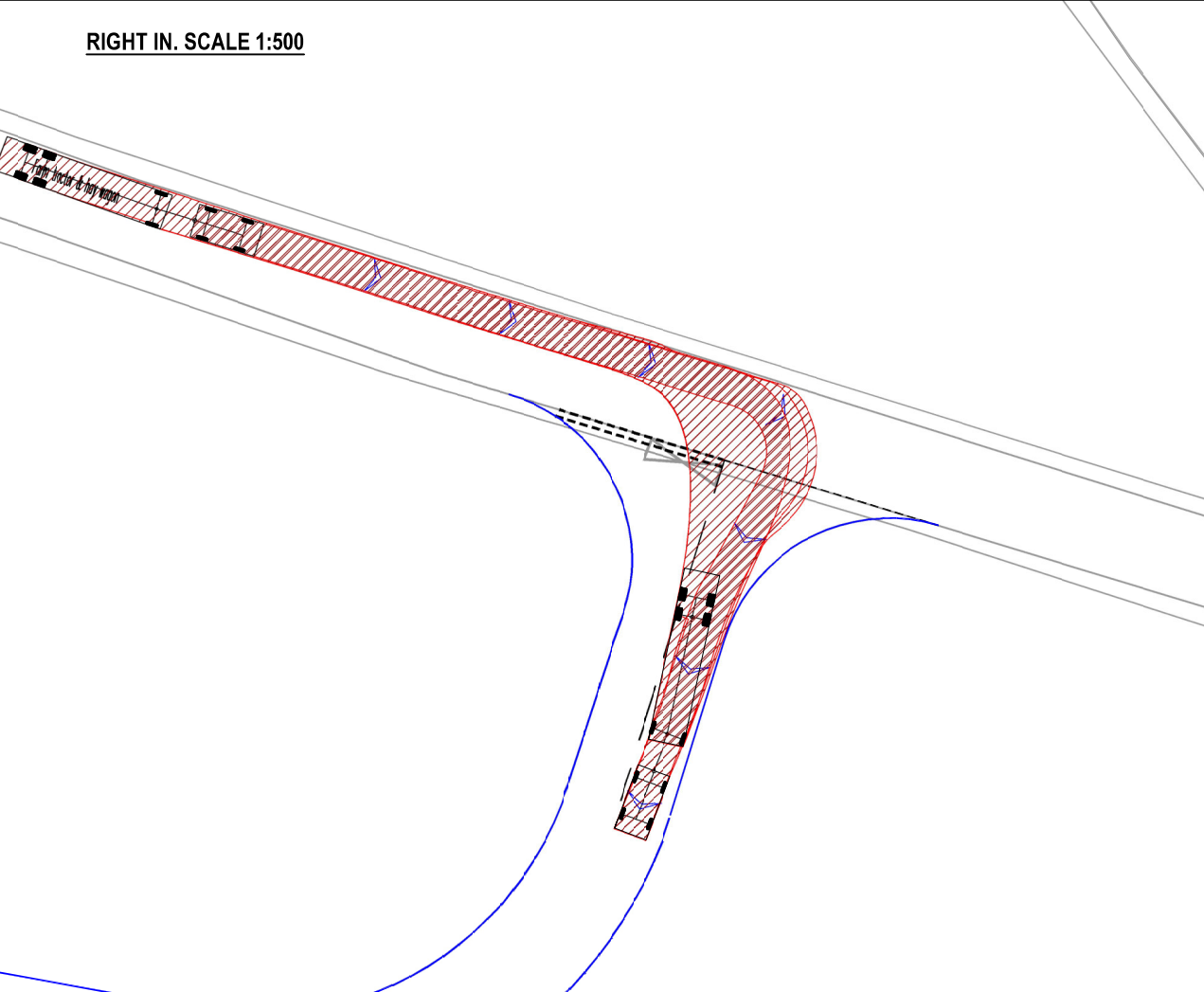
Rev.
B



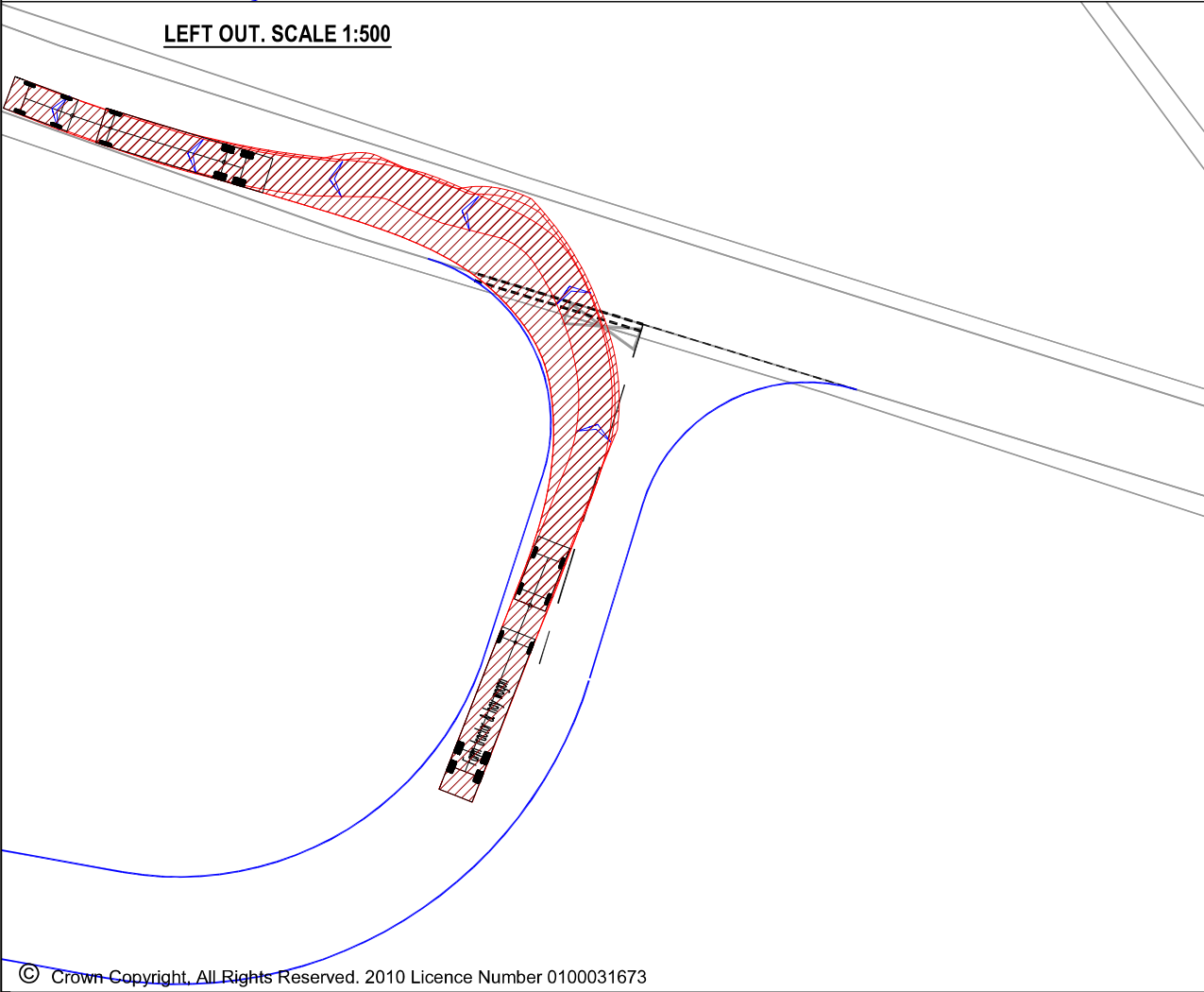
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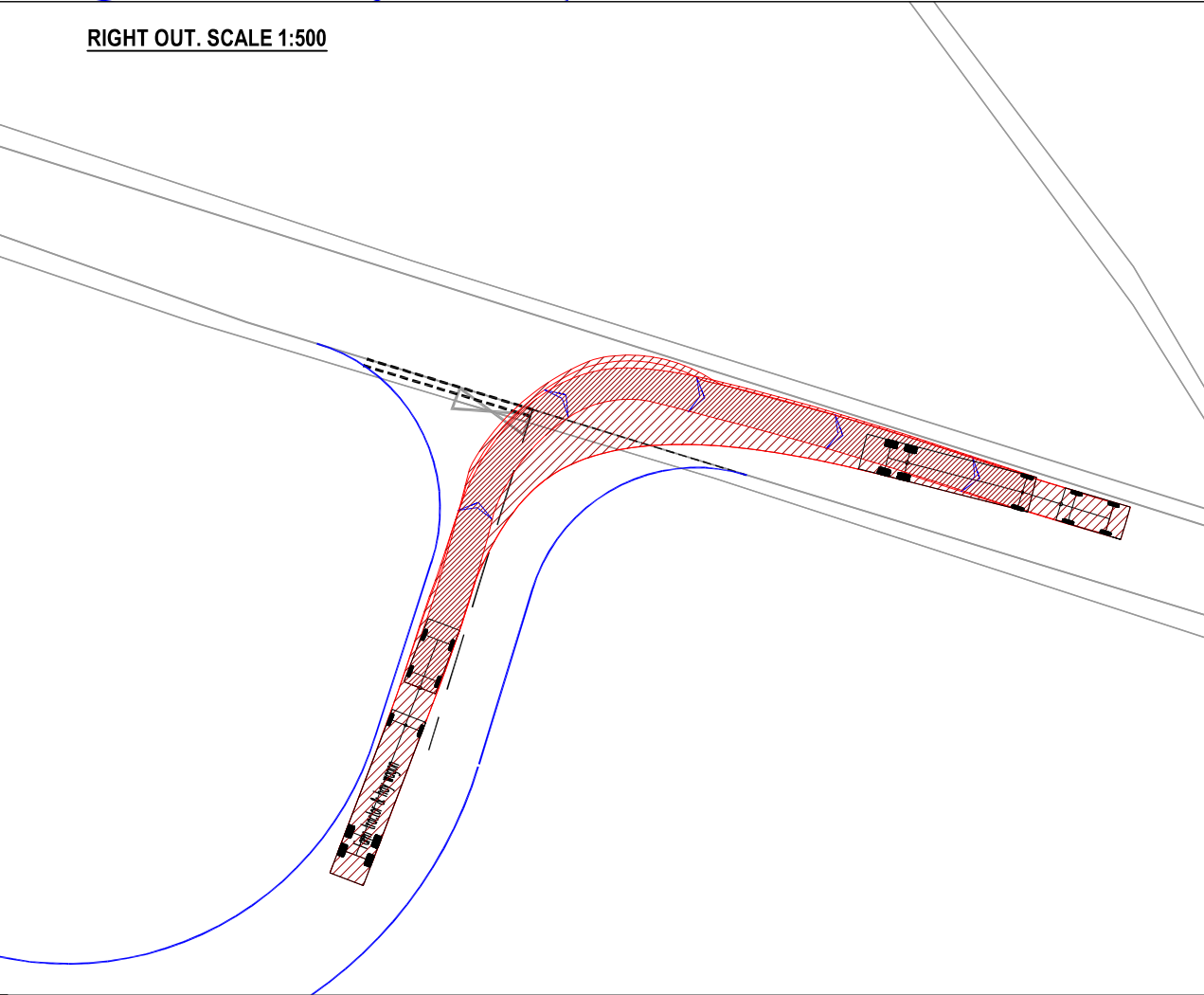
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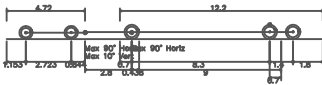
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RIGHT OUT. SCALE 1:500



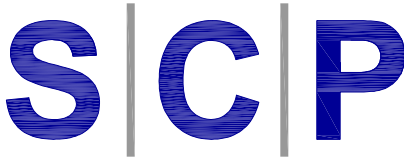
NOTES



Farm tractor & hay wagon	19.020m
Overall Length	2.500m
Overall Width	0.438m
Overall Body Height	0.385m
Min Body Ground Clearance	2.500m
Max Track Width	4.10s
Lock to lock time	4.620m
Kerb to kerb turning Radius	

REVISIONS

REV	DESCRIPTION	DATE	BY
A	UPDATE TO INTERNAL ACCESS ROAD	28.04.22	LB
B	INTERNAL ACCESS ROAD UPDATED	07.06.22	LB



Client Name:

WATER LANE FARM

Project Title:

WATER LANE, KNOWSLEY

Drawing Title:

SWEPT PATH ANALYSIS-
TRACTOR

Drawn By:

AM

Date:

21.04.2022

Checked:

LB

Scale:

AS STATED @ A3

Drawing No.

SCP/220167/D05

Rev.

B

S|C|P

APPENDIX D

Water Lane, Cronton - Speed Survey (Wednesday 23rd March 2022)

Weather Conditions - Fine & Sunny/Road Surface - Dry

Westbound

41	52	36	43	35	52	44	35	48	39
31	41	50	33	38	48	35	43	51	46
37	31	41	39	44	50	40	28	36	41
42	44	41	46	41	38	29	53	33	39
39	43	54	31	42	46	43	30	40	35
43	38	40	44	48	40	34	42	37	46
43	46	41	43	34	38	43	39	33	42
44	48	42	44	39	42	36	43	38	33
39	42	46	36	72	37	44	33	57	42
37	42	54	42	36	42	46	32	42	36
31	36	40	32	39	47	31	43	37	40
37	30	45	31	48	38	35	40	29	36
37	44	34	39	31	39	28	40	35	38
39	35	29	44	50	40	32	37	44	32
48	39	50	34	42	27	35	33	46	38

Max - 72

Min - 27

85% - 46

Ave - 40

Sp. Limit - 60

41 - Cars/LGV's

35 - HGV's/PSV's

Eastbound

34	38	46	34	49	37	47	39	54	44
50	44	55	37	45	59	44	50	30	47
40	35	53	47	42	46	33	38	44	47
37	44	41	32	37	42	37	41	38	40
41	36	44	39	43	36	40	44		

Max - 59

Min - 30

85% - 49

Ave - 42

Sp. Limit - 60

34 - Cars/LGV's

36 - HGV's/PSV's

Speed (mph)	Frequency	f*x
x	f	f*x
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	1	27
28	2	56
29	3	87
30	2	60
31	7	217
32	4	128
33	6	198
34	4	136
35	8	280
36	8	288
37	8	296
38	8	304
39	12	468
40	9	360
41	7	287
42	13	546
43	10	430
44	10	440
45	1	45
46	8	368
47	1	47
48	6	288
49	0	0
50	4	200
51	1	51
52	2	104
53	1	53
54	2	108
55	0	0
56	0	0
57	1	57
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	1	72
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	0	0
98	0	0
Total	150	6001

Speed (mph)	Frequency	Class Mark	x - mean	e*f
Band	f	x	e	e*f
6.5-7.4	0	7	1089.44	0.00
7.5-8.4	0	8	1024.43	0.00
8.5-9.4	0	9	961.41	0.00
9.5-10.4	0	10	900.40	0.00
10.5-11.4	0	11	841.39	0.00
11.5-12.4	0	12	784.37	0.00
12.5-13.4	0	13	729.36	0.00
13.5-14.4	0	14	676.35	0.00
14.5-15.4	0	15	625.33	0.00
15.5-16.4	0	16	576.32	0.00
16.5-17.4	0	17	529.31	0.00
17.5-18.4	0	18	484.29	0.00
18.5-19.4	0	19	441.28	0.00
19.5-20.4	0	20	400.27	0.00
20.5-21.4	0	21	361.25	0.00
21.5-22.4	0	22	324.24	0.00
22.5-23.4	0	23	289.23	0.00
23.5-24.4	0	24	256.21	0.00
24.5-25.4	0	25	225.20	0.00
25.5-26.4	0	26	196.19	0.00
26.5-27.4	1	27	169.17	169.17
27.5-28.4	2	28	144.16	288.32
28.5-29.4	3	29	121.15	363.44
29.5-30.4	2	30	100.13	200.27
30.5-31.4	7	31	81.12	567.84
31.5-32.4	4	32	64.11	256.43
32.5-33.4	6	33	49.09	294.56
33.5-34.4	4	34	36.08	144.32
34.5-35.4	8	35	25.07	200.53
35.5-36.4	8	36	16.05	128.43
36.5-37.4	8	37	9.04	72.32
37.5-38.4	8	38	4.03	32.21
38.5-39.4	12	39	1.01	12.16
39.5-40.4	9	40	0.00	0.00
40.5-41.4	7	41	0.99	6.91
41.5-42.4	13	42	3.97	51.65
42.5-43.4	10	43	8.96	89.60
43.5-44.4	10	44	15.95	159.47
44.5-45.4	1	45	24.93	24.93
45.5-46.4	8	46	35.92	287.36
46.5-47.4	1	47	48.91	48.91
47.5-48.4	6	48	63.89	383.36
48.5-49.4	0	49	80.88	0.00
49.5-50.4	4	50	99.87	399.47
50.5-51.4	1	51	120.85	120.85
51.5-52.4	2	52	143.84	287.68
52.5-53.4	1	53	168.83	168.83
53.5-54.4	2	54	195.81	391.63
54.5-55.4	0	55	224.80	0.00
55.5-56.4	0	56	255.79	0.00
56.5-57.4	1	57	288.77	288.77
57.5-58.4	0	58	323.76	0.00
58.5-59.4	0	59	360.75	0.00
59.5-60.4	0	60	399.73	0.00
60.5-61.4	0	61	440.72	0.00
61.5-62.4	0	62	483.71	0.00
62.5-63.4	0	63	528.69	0.00
63.5-64.4	0	64	575.68	0.00
64.5-65.4	0	65	624.67	0.00
65.5-66.4	0	66	675.65	0.00
66.5-67.4	0	67	728.64	0.00
67.5-68.4	0	68	783.63	0.00
68.5-69.4	0	69	840.61	0.00
69.5-70.4	0	70	899.60	0.00
70.5-71.4	0	71	960.59	0.00
71.5-72.4	1	72	1023.57	1023.57
72.5-73.4	0	73	1088.56	0.00
73.5-74.4	0	74	1155.55	0.00
74.5-75.4	0	75	1224.53	0.00
75.5-76.4	0	76	1295.52	0.00
76.5-77.4	0	77	1368.51	0.00
77.5-78.4	0	78	1443.49	0.00
78.5-79.4	0	79	1520.48	0.00
79.5-80.4	0	80	1599.47	0.00
80.5-81.4	0	81	1680.45	0.00
81.5-82.4	0	82	1763.44	0.00
82.5-83.4	0	83	1848.43	0.00
83.5-84.4	0	84	1935.41	0.00
84.5-85.4	0	85	2024.40	0.00
85.5-86.4	0	86	2115.39	0.00
86.5-87.4	0	87	2208.37	0.00
87.5-88.4	0	88	2303.36	0.00
88.5-89.4	0	89	2400.35	0.00
89.5-90.4	0	90	2499.33	0.00
90.5-91.4	0	91	2600.32	0.00
91.5-92.4	0	92	2703.31	0.00
92.5-93.4	0	93	2808.29	0.00
93.5-94.4	0	94	2915.28	0.00
94.5-95.4	0	95	3024.27	0.00
95.5-96.4	0	96	3135.25	0.00
96.5-97.4	0	97	3248.24	0.00
97.5-98.4	0	98	3363.23	0.00
Total	150			6462.99

Survey Details

Date: 23/03/2022
Road / Location: Water Lane, Knowsley
Direction of traffic: Westbound
Weather: Dry

Speed Limit: 60

DMRB - TA22/81 Calculations

Mean Speed = $\sum(f \cdot x) / \sum(f)$ 40.01 mph
Standard deviation = $\sqrt{\sum(e \cdot f) / \sum(f)}$ 6.59 mph
85th%ile Design Speed = Mean Speed + Standard Deviation

Therefore, the 85th%ile = 46.59 mph
or
74.97 kph

Speed (mph)	Frequency	f*x
x	f	f*x
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	1	30
31	0	0
32	1	32
33	1	33
34	2	68
35	1	35
36	2	72
37	5	185
38	3	114
39	2	78
40	3	120
41	3	123
42	2	84
43	1	43
44	7	308
45	1	45
46	2	92
47	4	188
48	0	0
49	1	49
50	2	100
51	0	0
52	0	0
53	1	53
54	1	54
55	1	55
56	0	0
57	0	0
58	0	0
59	1	59
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	0	0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	0	0
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	0	0
80	0	0
81	0	0
82	0	0
83	0	0
84	0	0
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	0	0
91	0	0
92	0	0
93	0	0
94	0	0
95	0	0
96	0	0
97	0	0
98	0	0
Total	48	2020

Speed (mph)	Frequency	Class Mark	x - mean	e*f
Band	f	x	e	e*f
6.5-7.4	0	7	1230.84	0.00
7.5-8.4	0	8	1161.67	0.00
8.5-9.4	0	9	1094.51	0.00
9.5-10.4	0	10	1029.34	0.00
10.5-11.4	0	11	966.17	0.00
11.5-12.4	0	12	905.01	0.00
12.5-13.4	0	13	845.84	0.00
13.5-14.4	0	14	788.67	0.00
14.5-15.4	0	15	733.51	0.00
15.5-16.4	0	16	680.34	0.00
16.5-17.4	0	17	629.17	0.00
17.5-18.4	0	18	580.01	0.00
18.5-19.4	0	19	532.84	0.00
19.5-20.4	0	20	487.67	0.00
20.5-21.4	0	21	444.51	0.00
21.5-22.4	0	22	403.34	0.00
22.5-23.4	0	23	364.17	0.00
23.5-24.4	0	24	327.01	0.00
24.5-25.4	0	25	291.84	0.00
25.5-26.4	0	26	258.67	0.00
26.5-27.4	0	27	227.51	0.00
27.5-28.4	0	28	198.34	0.00
28.5-29.4	0	29	171.17	0.00
29.5-30.4	1	30	146.01	146.01
30.5-31.4	0	31	122.84	0.00
31.5-32.4	1	32	101.67	101.67
32.5-33.4	1	33	82.51	82.51
33.5-34.4	2	34	65.34	130.68
34.5-35.4	1	35	50.17	50.17
35.5-36.4	2	36	37.01	74.01
36.5-37.4	5	37	25.84	129.20
37.5-38.4	3	38	16.67	50.02
38.5-39.4	2	39	9.51	19.01
39.5-40.4	3	40	4.34	13.02
40.5-41.4	3	41	1.17	3.52
41.5-42.4	2	42	0.01	0.01
42.5-43.4	1	43	0.84	0.84
43.5-44.4	7	44	3.67	25.72
44.5-45.4	1	45	8.51	8.51
45.5-46.4	2	46	15.34	30.68
46.5-47.4	4	47	24.17	96.69
47.5-48.4	0	48	35.01	0.00
48.5-49.4	1	49	47.84	47.84
49.5-50.4	2	50	62.67	125.35
50.5-51.4	0	51	79.51	0.00
51.5-52.4	0	52	98.34	0.00
52.5-53.4	1	53	119.17	119.17
53.5-54.4	1	54	142.01	142.01
54.5-55.4	1	55	166.84	166.84
55.5-56.4	0	56	193.67	0.00
56.5-57.4	0	57	222.51	0.00
57.5-58.4	0	58	253.34	0.00
58.5-59.4	1	59	286.17	286.17
59.5-60.4	0	60	321.01	0.00
60.5-61.4	0	61	357.84	0.00
61.5-62.4	0	62	396.67	0.00
62.5-63.4	0	63	437.51	0.00
63.5-64.4	0	64	480.34	0.00
64.5-65.4	0	65	525.17	0.00
65.5-66.4	0	66	572.01	0.00
66.5-67.4	0	67	620.84	0.00
67.5-68.4	0	68	671.67	0.00
68.5-69.4	0	69	724.51	0.00
69.5-70.4	0	70	779.34	0.00
70.5-71.4	0	71	836.17	0.00
71.5-72.4	0	72	895.01	0.00
72.5-73.4	0	73	955.84	0.00
73.5-74.4	0	74	1018.67	0.00
74.5-75.4	0	75	1083.51	0.00
75.5-76.4	0	76	1150.34	0.00
76.5-77.4	0	77	1219.17	0.00
77.5-78.4	0	78	1290.01	0.00
78.5-79.4	0	79	1362.84	0.00
79.5-80.4	0	80	1437.67	0.00
80.5-81.4	0	81	1514.51	0.00
81.5-82.4	0	82	1593.34	0.00
82.5-83.4	0	83	1674.17	0.00
83.5-84.4	0	84	1757.01	0.00
84.5-85.4	0	85	1841.84	0.00
85.5-86.4	0	86	1928.67	0.00
86.5-87.4	0	87	2017.51	0.00
87.5-88.4	0	88	2108.34	0.00
88.5-89.4	0	89	2201.17	0.00
89.5-90.4	0	90	2296.01	0.00
90.5-91.4	0	91	2392.84	0.00
91.5-92.4	0	92	2491.67	0.00
92.5-93.4	0	93	2592.51	0.00
93.5-94.4	0	94	2695.34	0.00
94.5-95.4	0	95	2800.17	0.00
95.5-96.4	0	96	2907.01	0.00
96.5-97.4	0	97	3015.84	0.00
97.5-98.4	0	98	3126.67	0.00
Total	48			1849.67

Survey Details

Date: 23/03/2022
Road / Location: Water Lane, Knowsley
Direction of traffic: Eastbound
Weather: Dry

Speed Limit: 60

DMRB - TA22/81 Calculations

Mean Speed = $\sum(f \cdot x) / \sum(f)$ 42.08 mph
Standard deviation = $\sqrt{\sum(e \cdot f) / \sum(f)}$ 6.27 mph
85th%ile Design Speed = Mean Speed + Standard Deviation

Therefore, the 85th%ile = 48.36 mph
or
77.81 kph