Hallam Land Management

Codsall, South Staffordshire

Traffic and Transport Appraisal

November 2021

BANCROFT CONSULTING

bancroftconsulting.co.uk

CODSALL, SOUTH STAFFORDSHIRE
TRAFFIC AND TRANSPORT APPRAISAL
NOVEMBER 2021

1.0 INTRODUCTION

1.1 Bancroft Consulting were appointed by Hallam Land Management to provide highways and transportation advice in respect of a potential residential development of up to 115 dwellings on land at Codsall, South Staffordshire. **Figure 1** shows the detailed location of the site and outlines how the site has two frontages, one at Sandy Lane to the south and one at Watery Lane to the east.

1.2 This report has been prepared to assist with allocating the site within the South Staffordshire Local Plan. **Appendix A** contains the initial site masterplan.

1.3 The objective of this Traffic and Transport Appraisal is to consider how the site should be suitable for allocation in the Local Plan by demonstrating how satisfactory vehicular access could be provided to serve the potential development. At this stage, consideration will be given for the potential to deliver a site access at either Sandy Lane or Watery Lane. The assessment has considered current local and national policy guidance, including that within the National Planning Policy Framework (MHCLG, Revised July 2021).

1.4 To inform this report, a detailed site visit was undertaken between 0955 and 1200 hours on 12 November 2021, when the weather conditions were fine and dry. During the site visit, a manual speed survey was conducted at the site frontage on both Sandy Lane and Watery Lane. An initial review of the surrounding highway network was also completed, including at the recently constructed 'Wheatfield Manor' residential development located adjacent to the site (South Staffordshire Council Planning Reference Number: 16/00495/REM). **Appendix B** contains a selection of images taken during the site visit for reference.

2.0 BACKGROUND INFORMATION

2.1 Highway Conditions

2.1.1 The site comprises land to the north of Sandy Lane and west of Watery Lane at Codsall, South Staffordshire. The majority of this land is open fields; however, it also includes a small section of allotments and some agricultural buildings which appear to be in a derelict state.

2.1.2 An initial assessment of the highway network highlights that to the east of the site the surrounding roads (including both Sandy Lane and Watery Lane) have adequate widths and geometry to accommodate the increase in traffic associated with the potential development. Regular street lighting is also provided along Sandy Lane and there is a comprehensive network of footways and crossings provided in the vicinity of the site to support pedestrian movement. To the west of the site Sandy Lane narrows as the carriageway bends to the south and passes Gunstone Lane. There are no footways or street lighting throughout this section of highway. Sandy Lane then turns into Church Road where footways and streetlighting recommence.

2.1.3 The 'CrashMap' website (www.crashmap.co.uk) confirms that over the latest available five-year study period (2016 to 2020), there has been a single accident recorded within the immediate vicinity of the site. As shown in **Figure 2**, this accident occurred at the Watery Lane / Bilbrook Road / Farran Drive roundabout. This accident occurred on 11 November 2019 and was classified as 'slight'. There have been no recorded incidents at Sandy Lane or Watery Lane, including the narrowed section of Sandy Lane that does not include footways or streetlighting. It is therefore reasonable to conclude that there are no ongoing highway safety issues near the site.

2.2 Speed Survey Results

2.2.1 Manual radar speed surveys were conducted at both the Sandy Lane and Watery Lane site frontages. The surveys were completed on 12 November 2021 between

0955 and 1200 hours when weather conditions were dry with no standing water on the carriageway.

2.2.2 The Sandy Lane survey recorded 85th percentile vehicle approach speeds of 28.92mph (46.5kph) in the eastbound direction and 33.63mph (54.1kph) in the westbound direction. Using these vehicle speeds, calculations shown in **Appendix C** demonstrate that visibility splays of 51 metres to the east (westbound traffic) and 41 metres to the west (eastbound traffic) would be required along Sandy Lane.

2.2.3 The Watery Lane survey recorded 85th percentile vehicle approach speeds of 41.34mph (66.5kph) in the northbound direction and 47.58mph (76.6kph) in the southbound direction. Using these vehicle speeds, calculations shown in **Appendix D** demonstrate that visibility splays of 137 metres to the north (southbound traffic) and 109 metres to the south (northbound traffic) would be required along Watery Lane.

2.3 Potential Traffic Generation and Off-Site Impact

2.3.1 The development of up to 115 dwellings is expected to generate up to 68 peak hour and 585 daily two-way movements as shown in **Table 1**. This has been established by using the same TRICS trip rates as shown in Table 5 presented within Section 7 of the Transport Assessment produced to support the adjacent 'Wheatfield Manor' residential development of up to 160 dwellings (South Staffordshire Council Planning Reference Number: 16/00495/REM). Full details of the trip rates and TRICS output data have been extracted from the Transport Assessment and are included at **Appendix E**.

2.3.2 **Figure 3** shows the percentage distribution for arrivals and departures to/from the potential site access on Sandy Lane. This distribution model has been calculated using the Census 2011 'Location of usual residence and place of work by method of travel to work' dataset (WU03EW). Using the 'Google Maps' route planning tool, a distribution model has been identified (contained in **Appendix F**) and peak hour traffic assignment based on this is shown in **Figure 4**. This demonstrates that the majority of vehicles would travel east from the site towards the Sandy Lane / Elliotts

Lane / Watery Lane T-junction where there could be up to an additional 62 two-way turning movements spread throughout the busiest peak hour (an average of 1 new vehicle movement every minute during this period). It has been demonstrated that there is no evidence of any accident problems at this location, and the junction is considered to provide good visibility in both directions, with clear sight of approaching vehicles. Furthermore, during the site visit there were no signs of any capacity problems and vehicles were able to manoeuvre comfortably utilising the large corner radii. As such, it is not expected that the predicted traffic increases at this location would represent a material concern.

2.3.3 From this point, the majority of vehicles would travel to the Watery Lane / Bilbrook Road / Farran Drive roundabout where there could be up to an additional 38 two-way turning movements spread throughout the busiest peak hour (an average of 1 new vehicle movement every 1.5 minutes during this period). It has been demonstrated that there is no evidence of any accident problem at this location and considering that it has recently been reconfigured to deliver access to the adjacent 'Wheatfield Manor' development, it should be reasonable to presume that it satisfies current design requirements. This includes sufficient carriageway widths, kerb radii, and entry path deflection.

2.3.4 Notwithstanding the above, as part of any future planning application further details of the potential traffic impact of the development will be assessed in detail within any accompanying Transport Assessment for the scheme. However, based on this initial review with access via Sandy Lane the study area is likely to comprise the following junctions:

- Proposed site access / Sandy Lane
- Sandy Lane / Elliotts Lane / Watery Lane
- Watery Lane / Bilbrook Road / Farran Drive

2.3.5 **Figure 5** shows the percentage distribution for arrivals and departures to/from the potential site access on Watery Lane. By using the 'Google Maps' route planning tool, a distribution model has been identified (contained in **Appendix G**) and peak hour traffic assignment based on this is shown in **Figure 6**. This demonstrates that there is expected to be an even split of vehicles travelling north and south. This

could result in additional 34 two-way turning movements spread throughout the busiest peak-hour (an average of 1 new vehicle movement every 1.7 minutes during this period) at both the Watery Lane / Port Lane / Whitehouse Lane / Penderford Hall Lane junction and Watery Lane / Bilbrook Road / Farran Drive roundabout.

2.3.6 As stated above the Watery Lane / Bilbrook Road / Farran Drive roundabout has no evidence of any accident problems and an initial review suggests it has been designed in accordance with the required standards. Accordingly, there should be no reason to expect that access from Watery Lane would create or exacerbate any problems at this location that could affect delivery of the development.

2.3.7 In terms of the Watery Lane / Port Lane / Whitehouse Lane / Penderford Hall Lane junction, on-site observations suggest that visibility at the junction is satisfactory with good visibility splays accommodated by wide verges throughout. These verges could also provide opportunities to improve the junction if required. The details of any off-site impact would be addressed in full as part of any subsequent planning application and agreed with the Highway Authority. However, based on this initial review, with access via Watery Lane the study area is likely to comprise the following junctions:

- Proposed site access / Watery Lane
- Watery Lane / Port Lane / Whitehouse Lane / Penderford Hall Lane
- Watery Lane / Bilbrook Road / Farran Drive

2.3.8 All details of the proposed development trip generation and assignment would be submitted to the Highway Authority and agreed as part of any subsequent planning application. However, the details presented above are based on best practice for preparing Transport Assessments and reflect already agreed precedents from the nearby development. Hence they should be viewed as robust and reliable.

2.4 Sustainable Transport

2.4.1 As mentioned above, there is a short section of Sandy Lane to the west of the site that does not include any footways or streetlighting. Beyond this, there is a good

network of footways throughout the immediate surrounding area to the south and east of the site. In considering the implications of the current layout, pedestrians associated with the west and Bakers Way are most likely to use the route via Chillington Drive, which is opposite the potential access location and includes footways and streetlighting throughout. Nevertheless, as part of any future planning application the developer could look to improve conditions through the implementation of a more comprensive traffic calming scheme that seeks to ensure slow traffic speeds and increased awareness of pedestrians and cyclists at this point.

2.4.2 At Watery Lane there is a footway that extends along the western edge of the carriageway between the site frontage and the adjacent residential development to the south. Approximately 50 metres south of the site frontage the footway bends to the west and enters the residential estate with no continuation along Watery Lane. This minimises the distance that pedestrians would be required to walk alongside the derestricted speed limit carriageway to the south. Whilst residents from the potential development would be able to utilise this opportunity, it could also be possible for any future application to consider the extension of the footway further to the south where large verges exist within what appears to be public highway land, particularly at the eastern edge of Watery Lane. This could also include a Traffic Regulation Order to deliver a reduction in the speed limit, to say 40mph, which would benefit all users of the link.

2.4.3 The existing infrastructure would in general provide good opportunities to connect pedestrians and cyclists to a range of local amenities and employment areas located within Codsall and Bilbrook. Excluding the short section of Sandy Lane immediately to the west of the site the carriageway narrows and there are no footways or street lighting, a comprehensive footway network exists within the surrounding highway layout. This includes ample crossing opportunities so that residents would have easy access to the local amenities including Codsall Community High School, Co-operative Food, Nationwide Bank and Greggs.

2.4.4 A section of Sandy Lane is a designated ‘on-road route’ as part of National Cycle Network Route 81 which passes through Codsall and connects the site to

Wolverhampton, Telford and Shrewsbury. It is also considered that the majority of roads in Codsall generally have low traffic speed and could accommodate cyclists safely.

2.4.5 **Figure 7** shows the closest bus stops to the site are at 'Codsall Community High School' located approximately 300 metres away from both the site frontage at Sandy Lane and Watery Lane. These stops are served by bus routes '5', '10B' and '710' which are all operated by National Express West Midlands and connect the site to a variety of destinations including Wolverhampton. Bus route '5' includes 12 combined services during the morning peak hour (0800 to 0900 hours) and 11 services during the evening peak hour (1700 to 1800 hours). It also has an off-peak frequency of one service every 20 minutes, offering a frequent bus service to residents.

2.4.6 Codsall Train Station is located approximately 800 metres from the site frontage at Sandy Lane and 2 kilometres from the frontage at Watery Lane. The station is operated by West Midlands Railway and includes services to Shrewsbury and Birmingham New Street throughout the day. Residents would therefore also have the option to travel by train.

3.0 ACCESS OPPORTUNITIES

3.1 The following section highlights that there are two potential access locations to the site, one at Sandy Lane and one at Watery Lane. It is understood that at this stage, Watery Lane would be the applicant's preferred access location. These layouts have been designed following local and national design guidance and would be subject to agreement with the Highway Authority.

Sandy Lane

3.2 At the site frontage, Sandy Lane is subject to a 30mph speed limit and has a carriageway width of approximately 5.5 metres with 2 metres wide footways on both sides of the carriageway.

3.3 **Drawing Number F21178/01** shows how the site access could be located at Sandy Lane. In accordance with design standards contained within the 'Staffordshire Residential Design Guide' document for a 'Major Residential Access Road' suitable to serve up to 300 dwellings, the access would provide a 5.5 metres wide carriageway with 2 metres wide footways and 6 metres kerb radii. This layout should be suitable to serve the 115 dwellings as a single point of access. The highway boundary plan (included in **Appendix H**) demonstrates that the footways on both edges of Sandy Lane form part of the public highway, allowing for the required visibility splays to be achieved in both directions at the access.

3.4 **Drawing Number F21178/01** also demonstrates how the access could include a dropped kerb with tactile paving crossing to facilitate pedestrians along Sandy Lane. It also includes the potential to offer improvements along the site frontage by providing two new crossing points (with dropped kerbs and tactile paving), connecting the site to the footway along the southern edge of Sandy Lane.

3.5 It has already been demonstrated that the current highway layout at Sandy Lane does not experience any specific highway safety problems, including the short section whereby the carriageway narrows and there are no footways or street lighting. The predicted traffic assignments show that only minimal peak hour increases would be expected to the west of the site with vehicular access off Sandy Lane so it is unlikely that a problem would occur. Furthermore, given the residential nature of Sandy Lane it would seem reasonable for residential access to be located there. It is therefore considered that, subject to any future capacity assessment, the proposed development could be satisfactorily served via a new access junction at Sandy Lane.

Watery Lane

3.6 At the site frontage Watery Lane is subject to national derestricted speed limit restrictions and has a carriageway width of approximately 6.5 metres with a 2 metres wide footway at the western edge of the carriageway.

3.7 **Drawing Number F21178/02** shows how there is potential for the site to be accessed from Watery Lane. In accordance with design standards for a 'Major Residential Access Road' suitable to serve up to 300 dwellings, this would include a 5.5 metres wide carriageway with 2 metres wide footways and 10 metres kerb radii. This kerb radii reflects the guidance which states that *"the junction radius requirement to County Roads and Higher-Order Roads will be 10 metres".* This layout should be suitable to serve the 115 dwellings as a single point of access. The highway boundary plan (included in **Appendix H**) demonstrates that the footways/verges at both edges of Watery Lane form part of the public highway, allowing for the required visibility splays to be achieved in both directions and offering the potential for further improvements.

3.8 **Drawing Number F21178/02** also demonstrates how the access could include a dropped kerb with tactile paving crossing to facilitate pedestrians along Watery Lane. It also includes the potential to offer improvements along the site frontage by providing a new crossing point at the existing footway along the western edge of Watery Lane (with dropped kerbs and tactile paving). This could potentially connect to a new footway link which would extend towards the Public Footpath at Jubilee Wood.

Summary

3.9 This assessment has demonstrated that suitable access could be delivered at either Sandy Lane or Watery Lane to serve the proposed development. In considering the overall benefits vehicular access via Watery Lane would minimise any traffic increases through the narrow section of Sandy Lane and to the south of the site. Whilst this access would be supported by the existing footway at Watery Lane, access to areas south of the site for pedestrians and cyclists could be improved by including a bespoke pedestrian/cyclist access directly onto Sandy Lane. Although both vehicular accesses presented within this assessment should be deliverable, it is considered that this arrangement would represent the optimum solution for the potential development, which could be supported by further options for further improving access by walking and cycling and thereby connections to

surrounding facilities and amenities including ‘Codsall Community High School’ and Codsall Train Station.

4.0 SUMMARY AND CONCLUSIONS

4.1 Bancroft Consulting were appointed by Hallam Land Management to provide highways and transportation advice in respect of a potential residential development of up to 115 dwellings at land in Codsall, South Staffordshire. **Figure 1** shows the detailed location of the site.

4.2 This report has been prepared to assist in allocating the site within the South Staffordshire Local Plan. It has the objective of demonstrating how suitable vehicular access could be provided to serve the potential development. At this stage, consideration has been given to the potential of delivering a site access at either Sandy Lane or Watery Lane.

4.3 An initial assessment of the highway network highlights that the surrounding roads generally have adequate widths and geometry to accommodate the increase in traffic associated with the potential development. An assessment of Personal Injury Accident records for the immediate site surrouniding area has shown that there are no specific highway safety problems that present an immediate cause for concern.

4.4 The existing infrastructure surrounding the site provides good opportunities to connect pedestrians and cyclists with a wide range of local amenities and employment areas within Codsall and Bilbrook. The site is also located near bus stops, Codsall Train Station and National Cycle Route 81. These could be further improved by the provision of a footway along the edge of Watery Lane along with an accompanying reduction in the speed limit, which would benefit all users of the network in this location.

4.5 **Table 1** outlines how the development could generate up to 68 peak hour and 585 daily two-way movements. This has been established by using the same TRICS trip rates as presented within Section 7 of the Transport Assessment produced to support the adjacent ‘Wheatfield Manor’ residential development of up to 160

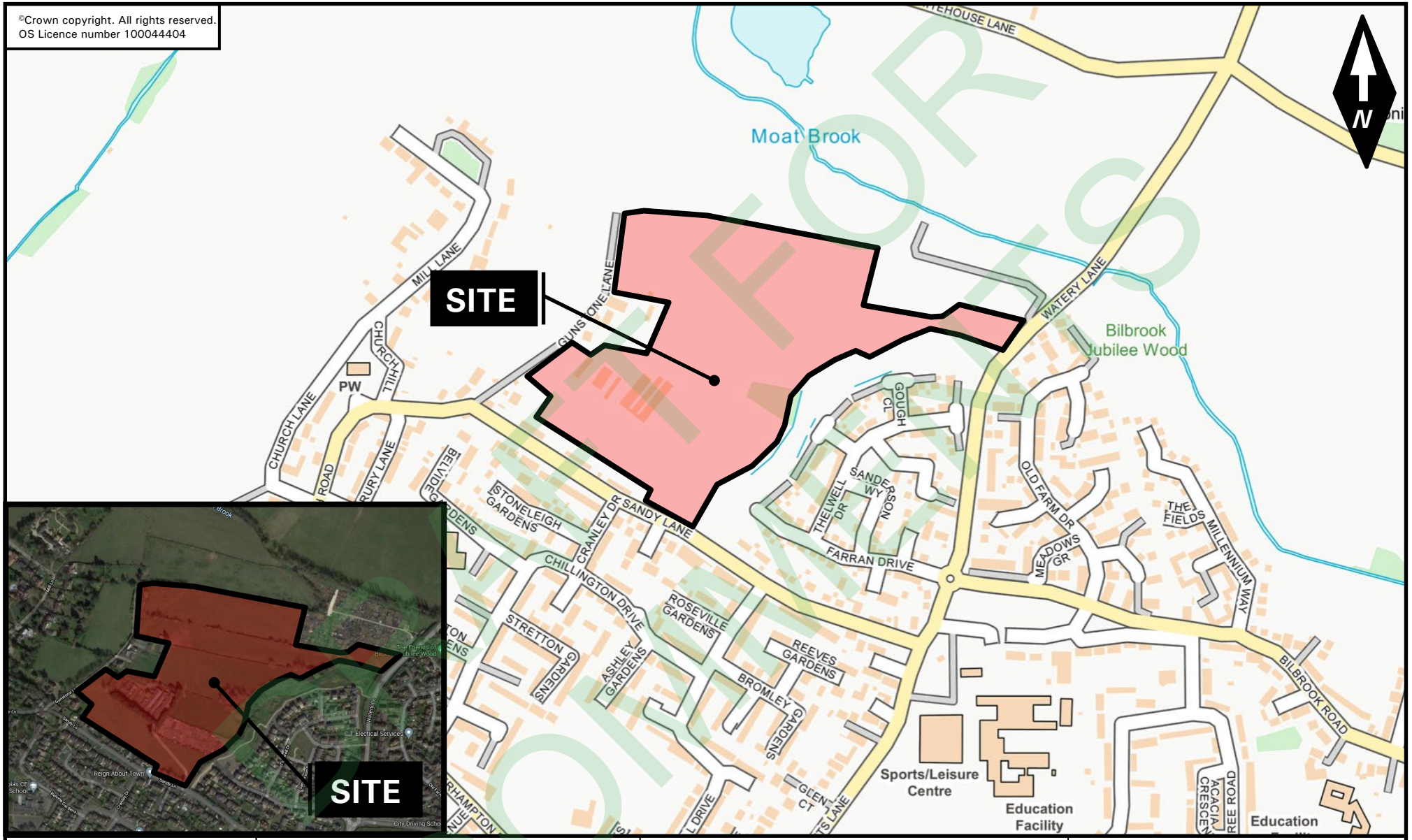
dwellings. An initial review of the potential off-site impact of the development has highlighted a number of local junctions that would require further detailed assessment within any future Transport Assessment. However, following an initial analysis, including a review of accident data, it is considered that there should be no immediate concerns that would constitute a severe residual cumulative impact or unsafe highway operation.

4.7 **Drawing Numbers F21178/01** and **F21178/02** each demonstrate how suitable access could be provided at either Sandy Lane or Watery Lane, respectively. Both accesses have been designed in accordance with the local design standards and provide the required visibility splays based on speed survey findings. Both drawings also include areas of potential improvement including new pedestrian crossings. Notwithstanding this, it is recommended that the preferred access solution would comprise vehicular access at Watery Lane supported by a pedestrian/cyclist link that connects to Sandy Lane, at the location of the junction shown in **Drawing Number F21178/01**.

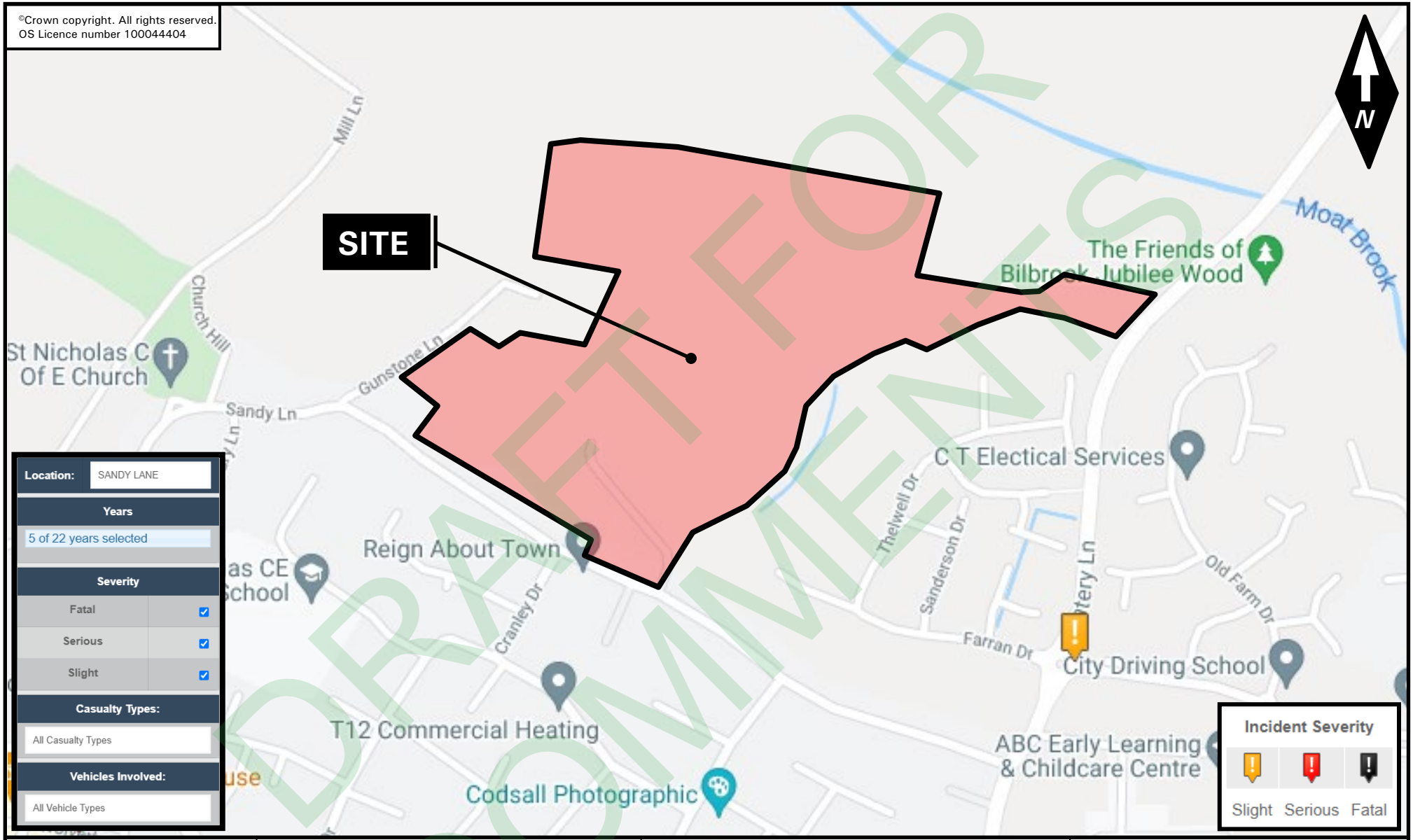
4.8 This assessment has demonstrated that the potential development of up to 115 dwellings could be delivered in accordance with the requirements of the National Planning Policy Framework, with suitable access at either Sandy Lane or Watery Lane and good opportunities for sustainable travel. Although full details of the potential scheme would need to be examined in full as part of any subsequent planning application, it should be reasonable to conclude that the site would therefore be suitable for allocation within the future South Staffordshire Local Plan.

Time Period	Trip Rates (per dwelling)		Traffic Generation (115 dwellings)		
	Arrive	Depart	Arrive	Depart	Total
07:00-08:00	0.076	0.285	9	33	42
08:00-09:00	0.143	0.405	16	47	63
09:00-10:00	0.163	0.206	19	24	43
10:00-11:00	0.143	0.180	16	21	37
11:00-12:00	0.173	0.166	20	19	39
12:00-13:00	0.193	0.170	22	20	42
13:00-14:00	0.174	0.162	20	19	39
14:00-15:00	0.180	0.192	21	22	43
15:00-16:00	0.291	0.204	33	23	56
16:00-17:00	0.319	0.192	37	22	59
17:00-18:00	0.375	0.215	43	25	68
18:00-19:00	0.268	0.199	31	23	54
Daily	2.498	2.576	287	298	585

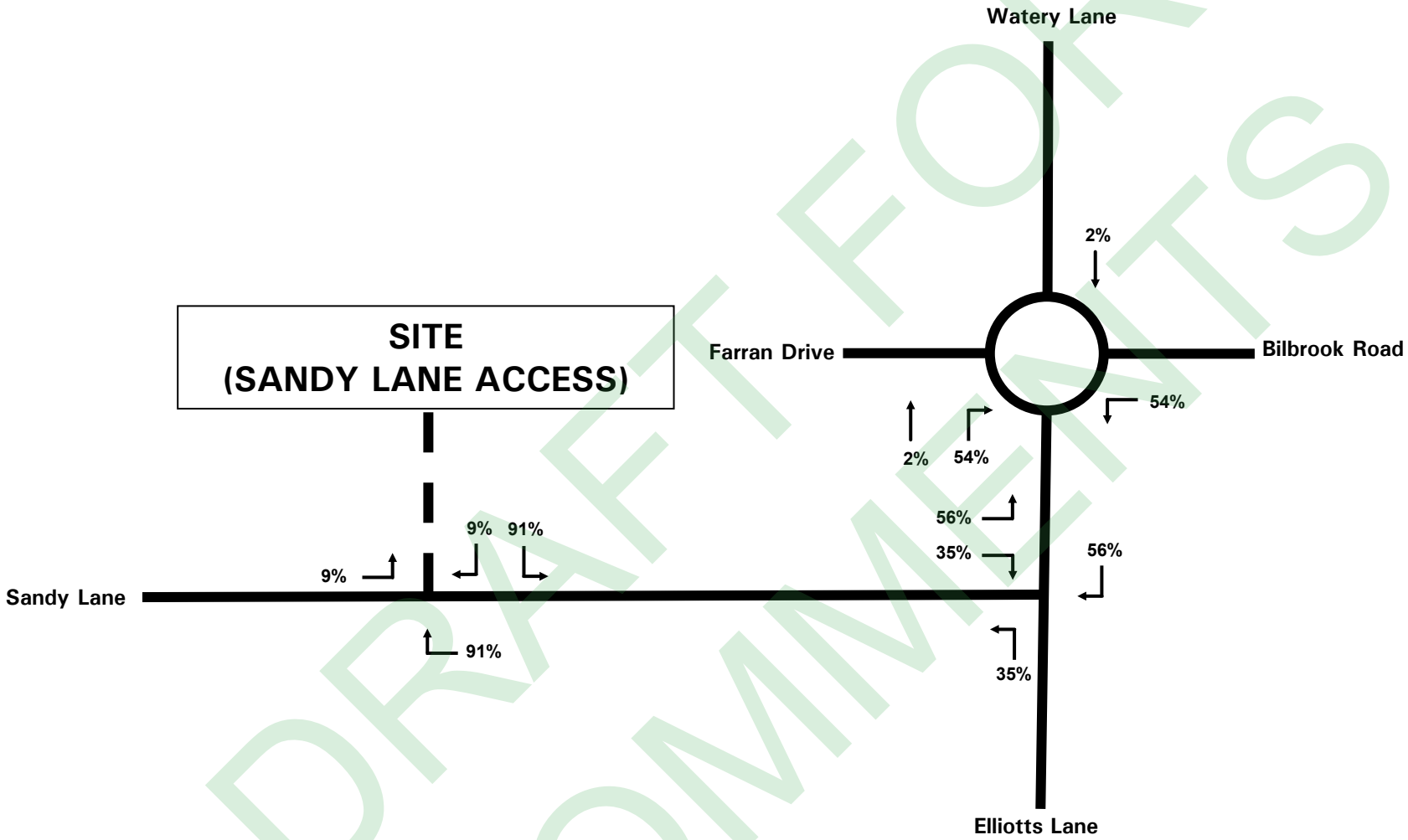
TABLE 1: PROPOSED '115 DWELLINGS' DAILY TRAFFIC GENERATION PROFILE (WEEKDAY)



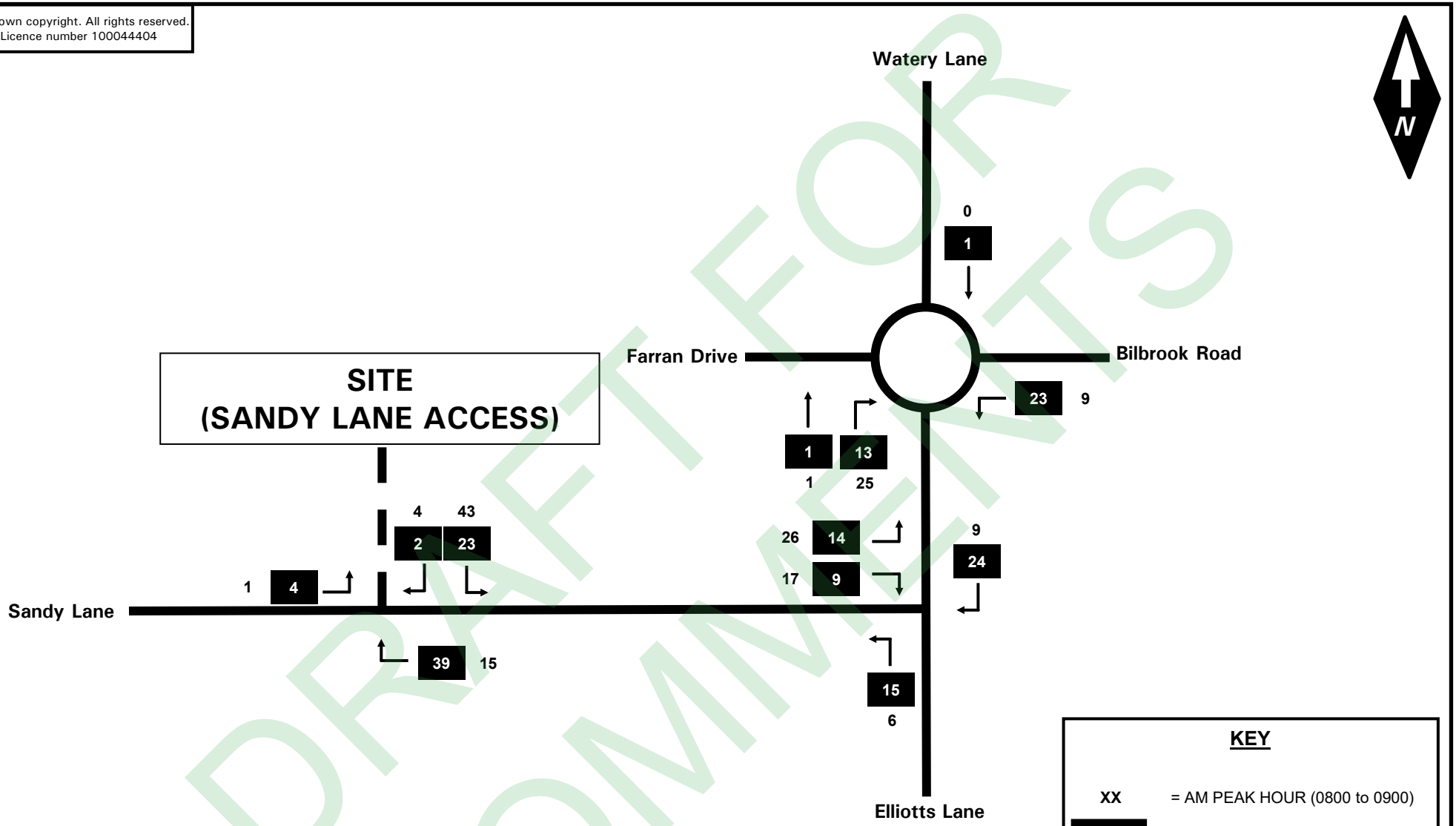
SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING
DATE: 16.11.21			
DRAWN: MB	TITLE: DETAILED SITE LOCATION PLAN	JOB NUMBER: F21178	FIGURE: 1



SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING
DATE: 16.11.21	TITLE: ACCIDENT DATA TAKEN FROM CRASHMAP.CO.UK (2016-2020)	JOB NUMBER: F21178	FIGURE: 2
DRAWN: MB			



SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING
DATE: 16.11.21	TITLE: PROPOSED DEVELOPMENT TRAFFIC DISTRIBUTION (SANDY LANE ACCESS)	JOB NUMBER: F21178	FIGURE: 3
DRAWN: MB			



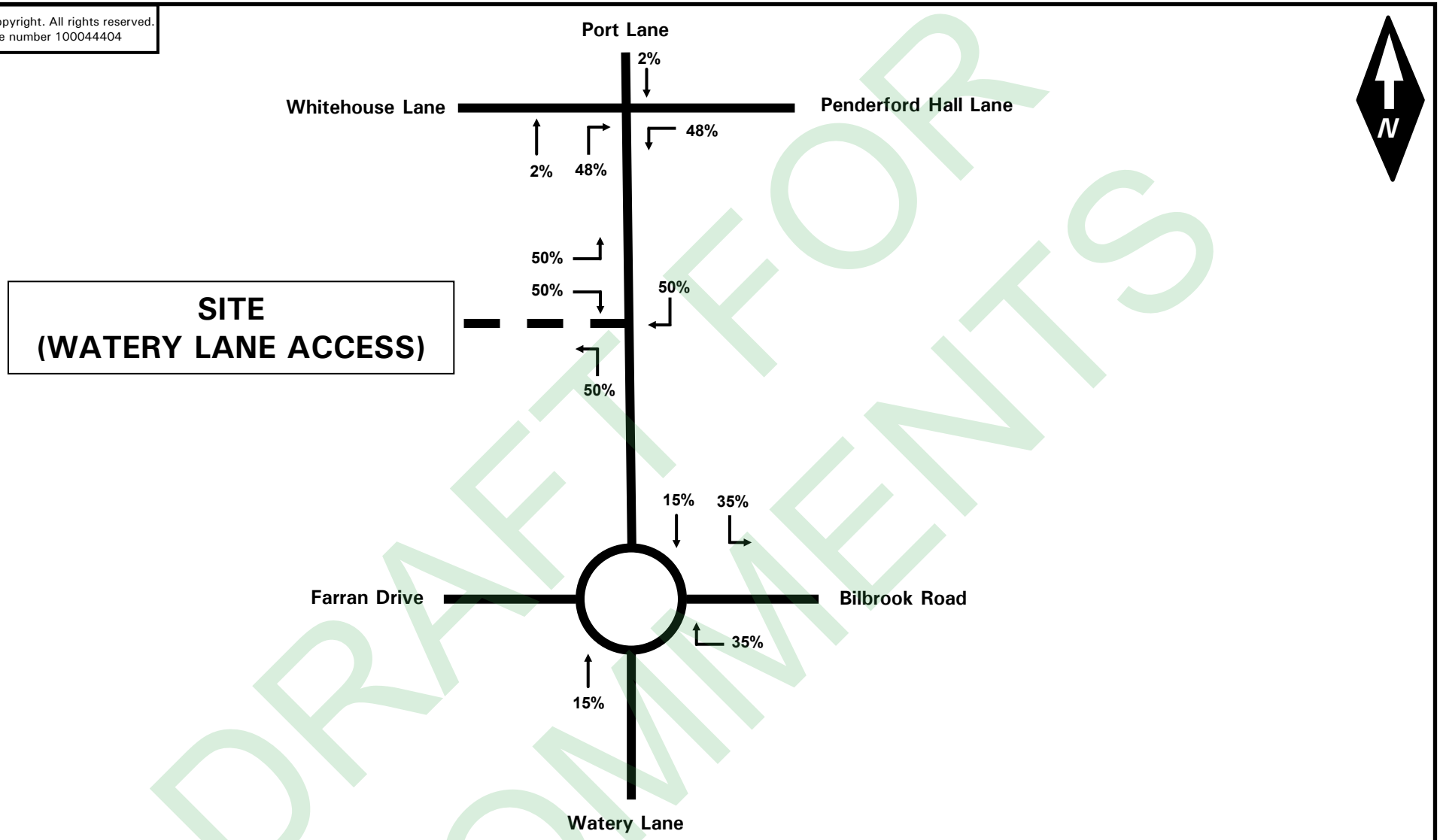
KEY

XX = AM PEAK HOUR (0800 to 0900)

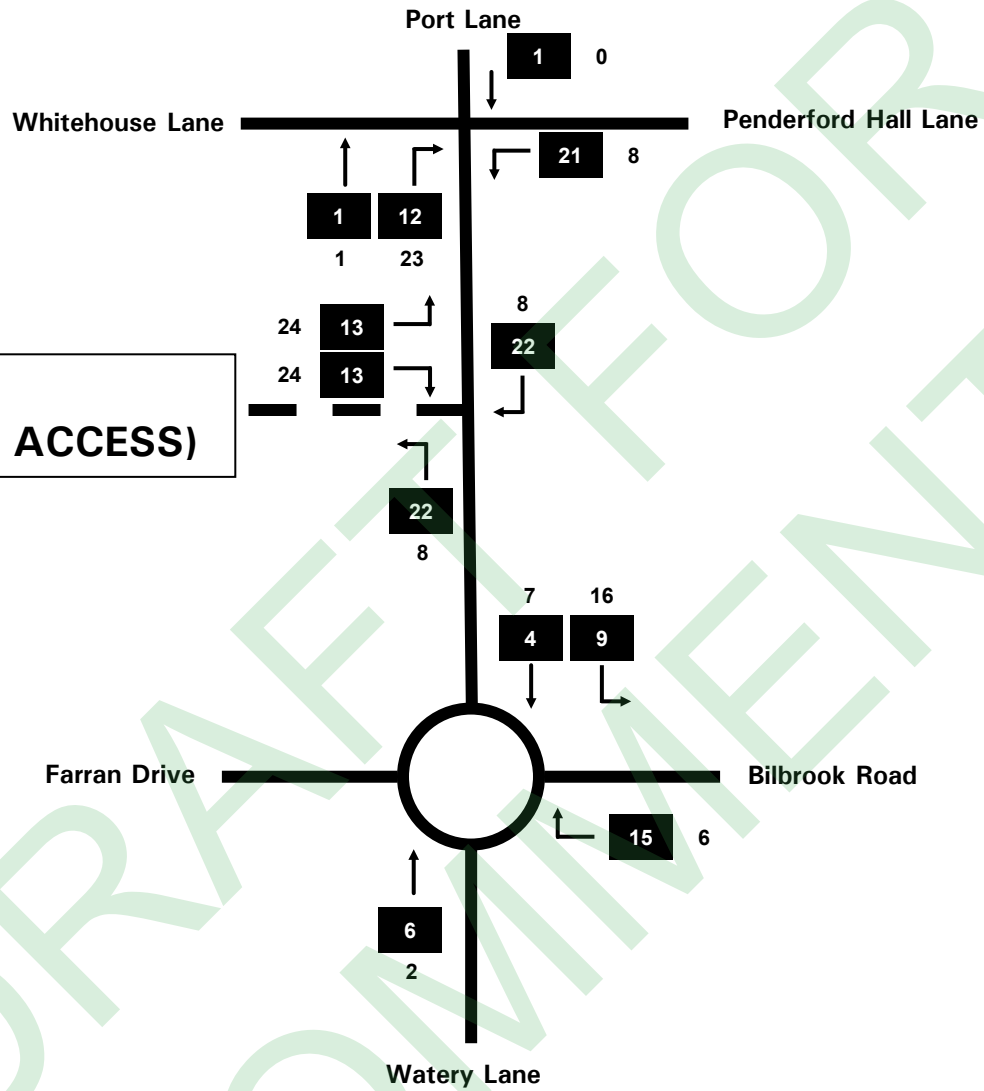
XX = PM PEAK HOUR (1700 to 1800)

Numbers have been rounded

SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING	
DATE: 16.11.21	TITLE: PROPOSED TRAFFIC ASSIGNMENT (SANDY LANE ACCESS)		JOB NUMBER: F21178	FIGURE: 4
DRAWN: MB				



SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING
DATE: 16.11.21	TITLE: PROPOSED DEVELOPMENT TRAFFIC DISTRIBUTION (WATERY LANE ACCESS)	JOB NUMBER: F21178	FIGURE: 5
DRAWN: MB			



SITE (WATERY LANE ACCESS)

N

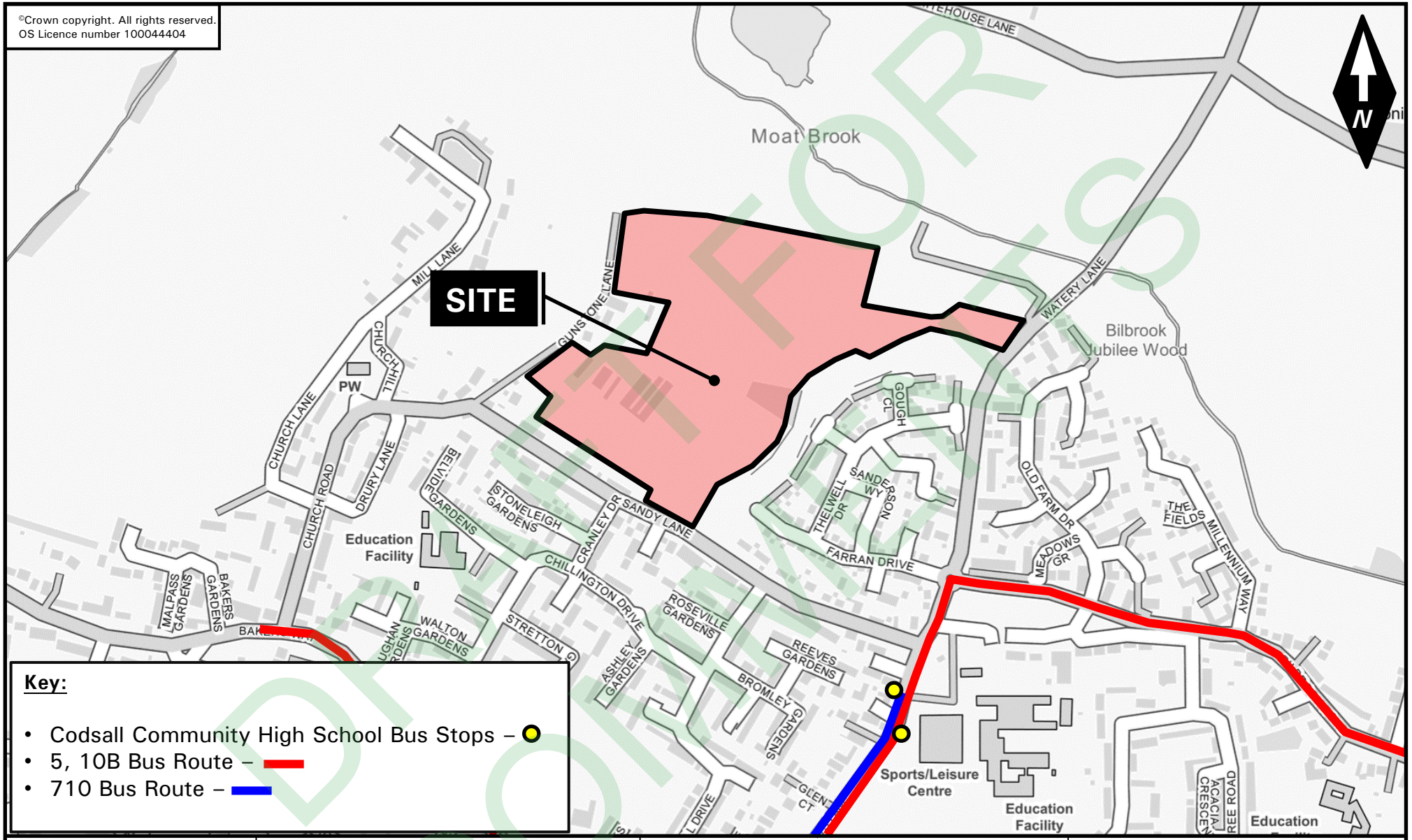
KEY

XX = AM PEAK HOUR (0800 to 0900)

XX = PM PEAK HOUR (1700 to 1800)

Numbers have been rounded

SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING
DATE: 16.11.21	TITLE: PROPOSED TRAFFIC ASSIGNMENT (WATERY LANE ACCESS)	JOB NUMBER: F21178	FIGURE: 6
DRAWN: MB			



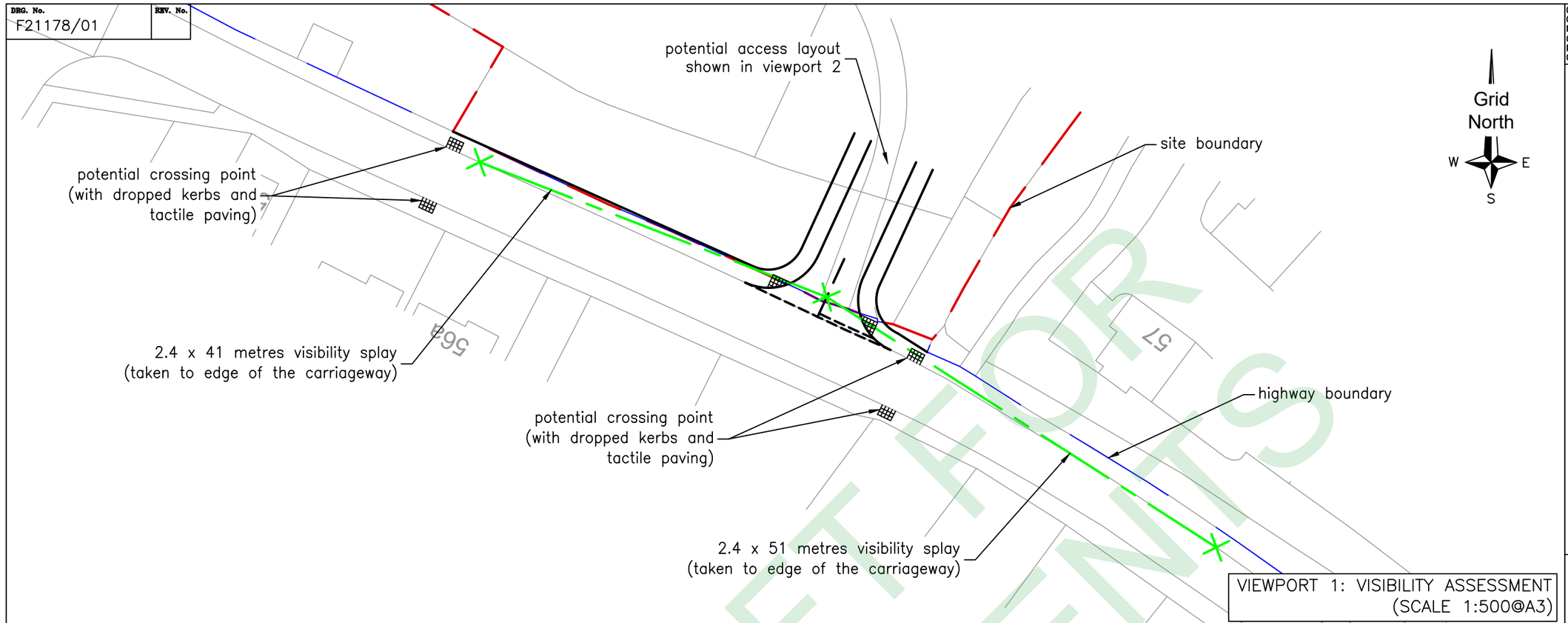
Key:

- Codsall Community High School Bus Stops –
- 5, 10B Bus Route –
- 710 Bus Route –

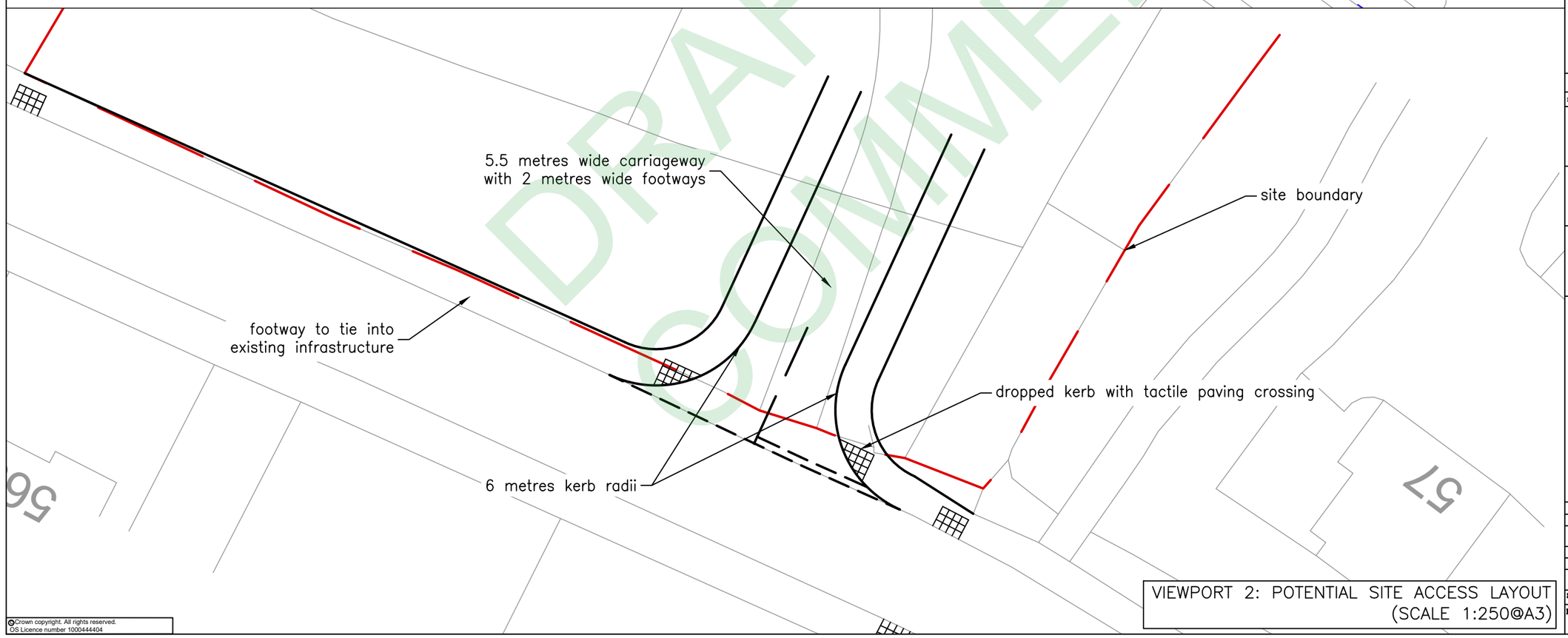
SCALE: Do Not Scale	CLIENT: HALLAM LAND MANAGEMENT	JOB TITLE: COADSALL, SOUTH STAFFORDSHIRE	BANCROFT CONSULTING
DATE: 16.11.21			
DRAWN: MB	TITLE: LOCAL BUS ROUTES	JOB NUMBER: F21178	FIGURE: 7

DRG. No. F21178/01 | REV. No.

NOTES:



VIEWPORT 1: VISIBILITY ASSESSMENT (SCALE 1:500@A3)



VIEWPORT 2: POTENTIAL SITE ACCESS LAYOUT (SCALE 1:250@A3)

DEV.	DATE	DESCRIPTION	DRN	CHK'D

CLIENT
HALLAM LAND MANAGEMENT

CONTRACT
CODSALL,
SOUTH STAFFORDSHIRE

TITLE
POTENTIAL SITE ACCESS LAYOUT AND VISIBILITY ASSESSMENT (SANDY LANE)

BANCROFT CONSULTING
Bancroft Consulting Ltd
Jarodale House
7 Gregory Boulevard
Nottingham
NG7 6LB
t 0115 9602919
f 0115 9648201
e office@bancroftconsulting.co.uk

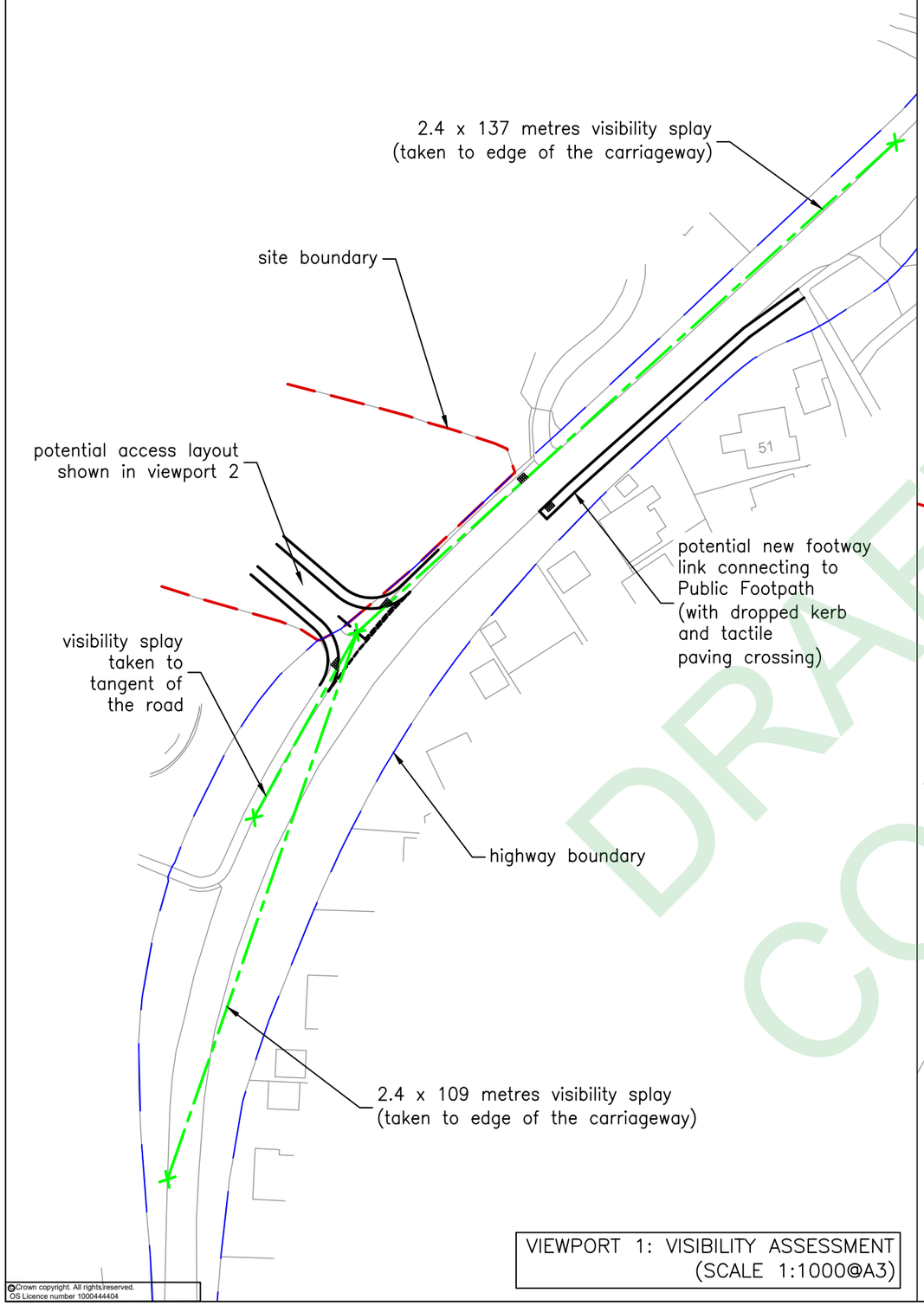
DRAWN BY	
NAME (PRINT)	DATE
WM	15.11.21
CHECKED BY	
NAME (PRINT)	DATE
CJB	15.11.21

SCALE AS SHOWN | STATUS PRELIMINARY

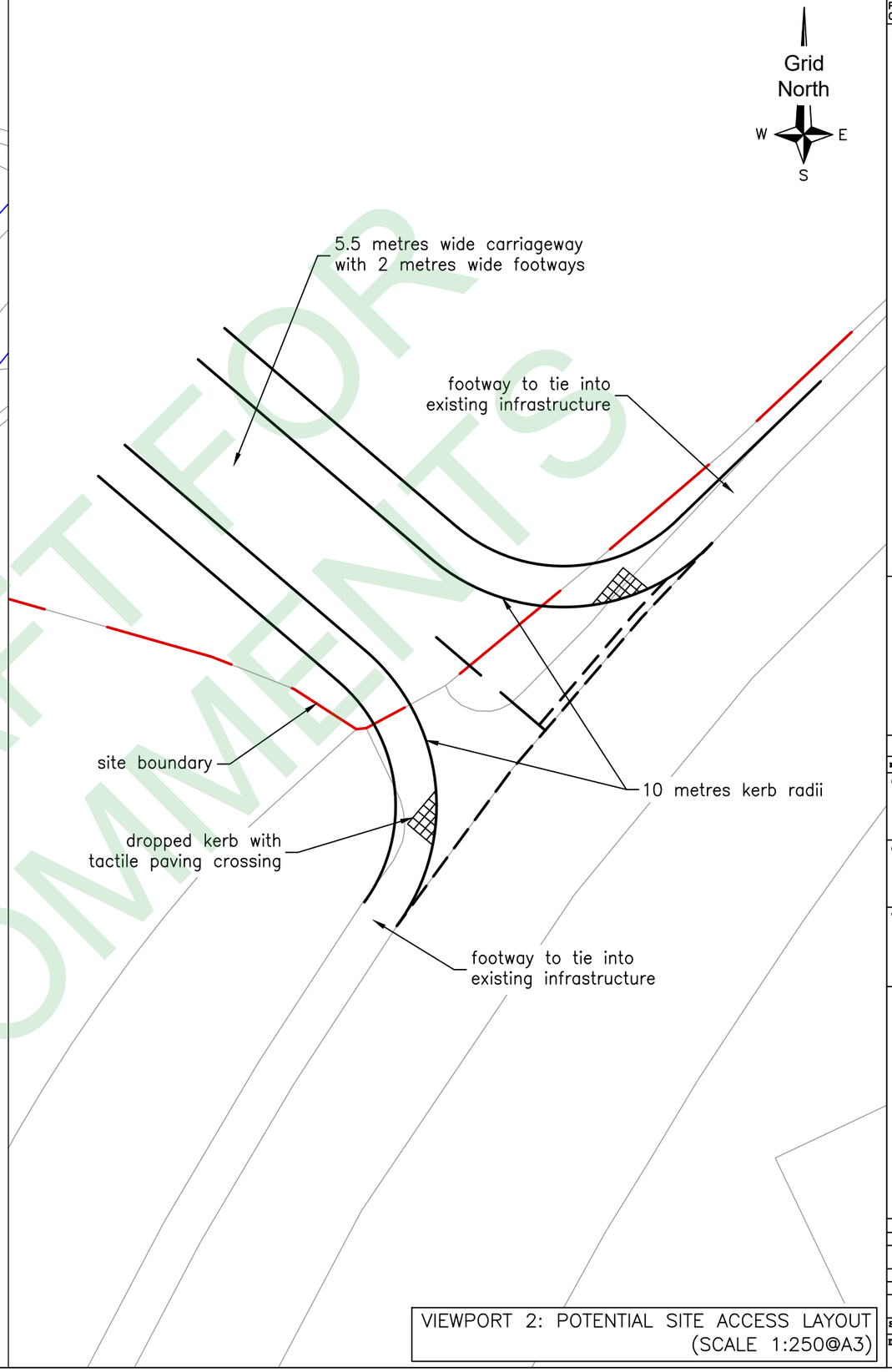
DRG. NO. F21178/01 | REV

DRG. No. F21178/02 | REV. No.

NOTES:



VIEWPORT 1: VISIBILITY ASSESSMENT
(SCALE 1:1000@A3)



VIEWPORT 2: POTENTIAL SITE ACCESS LAYOUT
(SCALE 1:250@A3)

REV.	DATE	DESCRIPTION	DRN	CHK'D

CLIENT
HALLAM LAND MANAGEMENT

CONTRACT
CODSALL,
SOUTH STAFFORDSHIRE

TITLE
POTENTIAL SITE ACCESS LAYOUT AND VISIBILITY ASSESSMENT (WATERY LANE)

BANCROFT CONSULTING
Bancroft Consulting Ltd
Jarodale House
7 Gregory Boulevard
Nottingham
NG7 6LB
t 0115 9602919
f 0115 9648201
e office@bancroftconsulting.co.uk

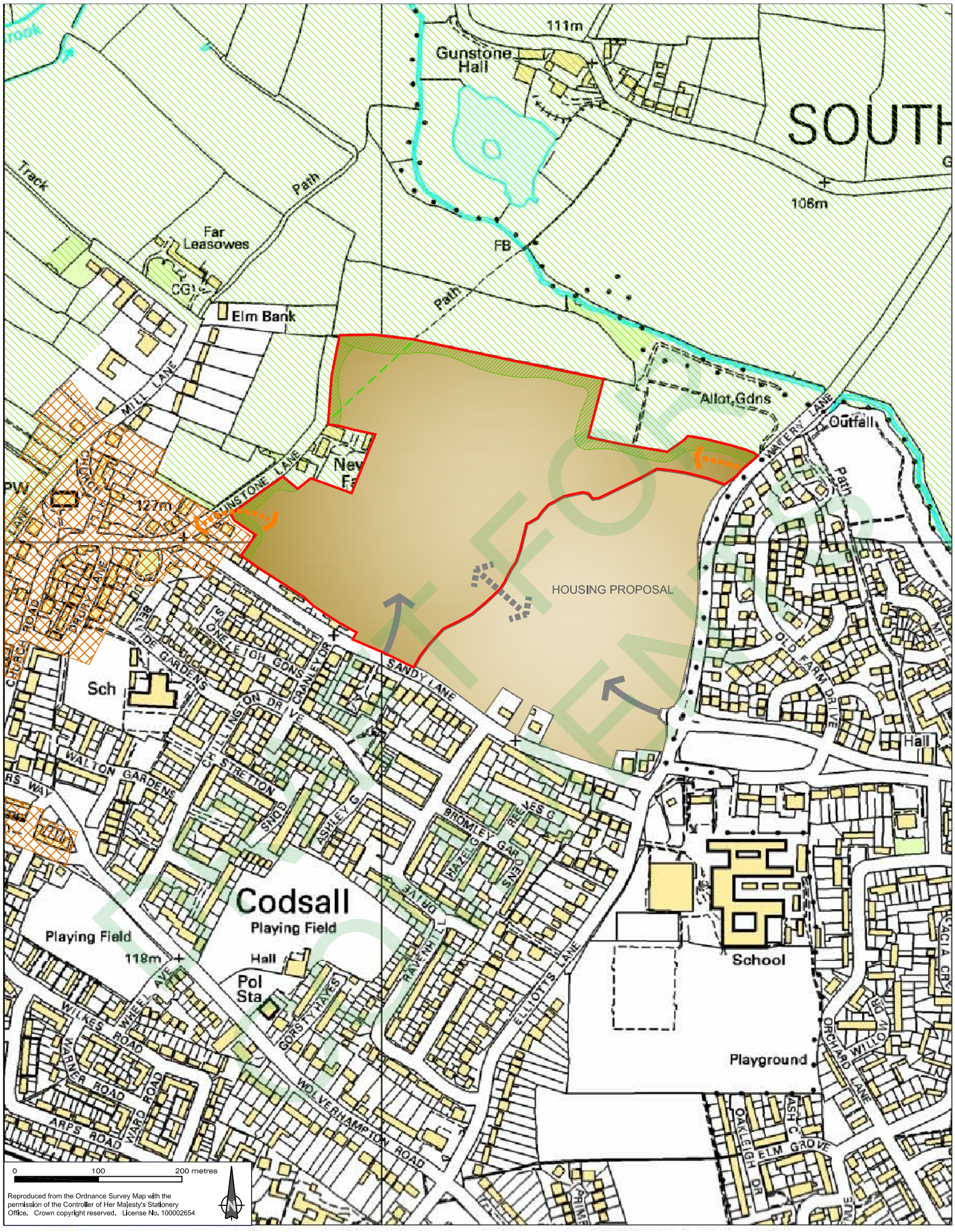
DRAWN BY	
NAME (PRINT)	DATE
WM	15.11.21
CHECKED BY	
NAME (PRINT)	DATE
CJB	15.11.21

SCALE AS SHOWN | STATUS PRELIMINARY

DRG. NO. F21178/02 | REV

APPENDIX A – INITIAL SITE MASTERPLAN

A3



Key:

- Red line boundary 10.83 hec
- Housing Proposal on non Green Belt land
- Vehicular Access
- Green Belt
- Public Footpath
- Structure Planting
- Proposed further Residential Development
- Pedestrian Access
- Conservation Area

HLM Hallam Land Management

Revisions: –

Project: Land North of Sandy Lane, Codsall

Scale(s): 1:5000 @ A3

Date: 16.03.09

Drawing Title: MASTERPLAN

Drawing No: O195/01

Revision: –

APPENDIX B – SITE VISIT IMAGES

Sandy Lane -

Watery Lane -

APPENDIX C – SPEED SURVEY SUMMARY AND VISIBILITY CALCULATIONS (SANDY LANE)

observed speed mph	no. of readings n	n×x	$n \times x^2$
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	2	40	800
21	4	84	1764
22	4	88	1936
23	8	184	4232
24	6	144	3456
25	9	225	5625
26	2	52	1352
27	6	162	4374
28	3	84	2352
29	5	145	4205
30	5	150	4500
31	0	0	0
32	1	32	1024
33	1	33	1089
34	0	0	0
35	0	0	0
36	0	0	0
37	1	37	1369
38	0	0	0
39	0	0	0
40	0	0	0
41	0	0	0
42	0	0	0
43	0	0	0
44	0	0	0
45	0	0	0
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n =	Σv =	Σv² =
Total Σ	57	1460	38078

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Sandy Lane, Codsall**
direction: **Eastbound**
day: **Friday**
date **12.11.21**
time: **0955 to 1200**

SUMMARY

mean	25.61 mph	41.2 kph
85%ile	28.92 mph	46.5 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$

$m =$ 25.61 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$

$\sum (v - m)^2 =$ 681.51

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$

$s =$ 3.31 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$

$p =$ 28.92

checks: 85%ile/mean = 1.13
should be 1.1 to 1.25

S.D./mean = 0.13
should be approx 1/6 (0.17)

SANDY LANE, CODSALL - EASTBOUND SPEED SURVEY RESULTS

observed speed mph	no. of readings n	n×x	$n \times x^2$
10	0	0	0
11	0	0	0
12	0	0	0
13	1	13	169
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	3	63	1323
22	2	44	968
23	6	138	3174
24	4	96	2304
25	6	150	3750
26	6	156	4056
27	11	297	8019
28	9	252	7056
29	3	87	2523
30	9	270	8100
31	2	62	1922
32	4	128	4096
33	1	33	1089
34	1	34	1156
35	4	140	4900
36	1	36	1296
37	1	37	1369
38	1	38	1444
39	0	0	0
40	0	0	0
41	0	0	0
42	0	0	0
43	0	0	0
44	0	0	0
45	1	45	2025
46	0	0	0
47	0	0	0
48	0	0	0
49	0	0	0
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	1	54	2916
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n =	Σv =	Σv^2 =
Total Σ	77	2173	63655

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Sandy Lane, Codsall**
direction: **Westbound**
day: **Friday**
date **12.11.21**
time: **0955 to 1200**

SUMMARY

mean	28.22 mph	45.4 kph
85%ile	33.63 mph	54.1 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$

m = 28.22 **mph**

Step 2:
Finding Value Σ

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$

$\Sigma (v - m)^2$ = 2331.25

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$

s = 5.41 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$

p = 33.63

checks: 85%ile/mean = 1.19
should be 1.1 to 1.25

S.D./mean = 0.19
should be approx 1/6 (0.17)

SANDY LANE, CODSALL - WESTBOUND SPEED SURVEY RESULTS

Vehicle speeds	**28.92**	mph
	46.53	kph
	12.93	v (m/s)
	167.07	v^2
Driver Perception-Reaction time	**1.5**	t (s)
	19.39	v x t
Deceleration Rate	**0.45**	g
	4.41	d (m/s)
	8.83	2d
Gradient	**0.00**	a*
	4.41	d+0.1a
	8.829	2(d+0.1a)

Formula: $SSD = vt + v^2/2(d+0.1a)$

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate (g = 9.81m/s^2)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

	v t	+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**19.39**	+	**18.92**	=	**38.31**
SSD Bonnet Adjusted (SSD+2.4)**	**40.71**				

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: SANDY LANE, CODSALL - EASTBOUND

Vehicle speeds	**33.63**	mph
	54.11	kph
	15.03	v (m/s)
	225.92	v^2
Driver Perception-Reaction time	**1.5**	t (s)
	22.55	v x t
Deceleration Rate	**0.45**	g
	4.41	d (m/s)
	8.83	2d
Gradient	**0.00**	a*
	4.41	d+0.1a
	8.829	2(d+0.1a)

Formula: $SSD = vt + v^2/2(d+0.1a)$

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate (g = 9.81m/s^2)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

	v t	+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**22.55**	+	**25.59**	=	**48.13**
SSD Bonnet Adjusted (SSD+2.4)**	**50.53**				

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: SANDY LANE, CODSALL - WESTBOUND

APPENDIX D – SPEED SURVEY SUMMARY AND VISIBILITY CALCULATIONS (WATERY LANE)

observed speed mph	no. of readings n	n×x	n×x²
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	1	28	784
29	1	29	841
30	2	60	1800
31	6	186	5766
32	5	160	5120
33	9	297	9801
34	6	204	6936
35	9	315	11025
36	9	324	11664
37	10	370	13690
38	5	190	7220
39	9	351	13689
40	6	240	9600
41	4	164	6724
42	6	252	10584
43	2	86	3698
44	6	264	11616
45	1	45	2025
46	1	46	2116
47	0	0	0
48	1	48	2304
49	1	49	2401
50	0	0	0
51	0	0	0
52	0	0	0
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	0	0	0
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n =	Σv =	Σv² =
Total Σ	100	3708	139404

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Watery Lane, Codsall**
direction: **Northbound**
day: **Friday**
date **12.11.21**
time: **1000 to 1050**

SUMMARY

mean	37.08 mph	59.7 kph
85%ile	41.34 mph	66.5 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$

m = 37.08 **mph**

Step 2:
Finding Value Σ

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$

$\sum (v - m)^2$ = 1911.36

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$

s = 4.26 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$

p = 41.34

checks: 85%ile/mean = 1.11
should be 1.1 to 1.25

S.D./mean = 0.11
should be approx 1/6 (0.17)

WATERY LANE, CODSALL - NORTHBOUND SPEED SURVEY RESULTS

observed speed mph	no. of readings n	n×x	$n \times x^2$
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	1	28	784
29	0	0	0
30	0	0	0
31	1	31	961
32	2	64	2048
33	2	66	2178
34	2	68	2312
35	4	140	4900
36	3	108	3888
37	6	222	8214
38	6	228	8664
39	7	273	10647
40	6	240	9600
41	9	369	15129
42	9	378	15876
43	4	172	7396
44	8	352	15488
45	7	315	14175
46	3	138	6348
47	4	188	8836
48	4	192	9216
49	2	98	4802
50	5	250	12500
51	0	0	0
52	2	104	5408
53	1	53	2809
54	1	54	2916
55	0	0	0
56	0	0	0
57	0	0	0
58	0	0	0
59	0	0	0
60	0	0	0
61	0	0	0
62	0	0	0
63	0	0	0
64	0	0	0
65	1	65	4225
66	0	0	0
67	0	0	0
68	0	0	0
69	0	0	0
70	0	0	0
71	0	0	0
72	0	0	0
73	0	0	0
74	0	0	0
75	0	0	0
76	0	0	0
77	0	0	0
78	0	0	0
79	0	0	0
80	0	0	0
	n =	Σv =	Σv² =
Total Σ	100	4196	179320

SPEED READINGS FOR SINGLE CARRIAGEWAYS

location: **Watery Lane, Codsall**
direction: **Southbound**
day: **Friday**
date **12.11.21**
time: **1000 to 1050**

SUMMARY

mean	41.96 mph	67.5 kph
85%ile	47.58 mph	76.6 kph

Step 1:
Mean speed

$$m = \frac{\sum v}{n}$$ $m =$ 41.96 **mph**

Step 2:
Finding Value ∑

$$\sum(v\text{-}m)^2 = \sum v^2 - \frac{(\sum v^2)}{n}$$ $\sum (v - m)^2 =$ 3255.84

Step 3:
Standard deviation

$$s = \sqrt{\frac{\sum(v-m)^2}{n-1}}$$ $s =$ 5.62 **mph**

Step 4:
85 percentile dry weather spot speed

$$p85 = m + s$$ $p =$ 47.58

checks: 85%ile/mean = 1.13
should be 1.1 to 1.25

S.D./mean = 0.13
should be approx 1/6 (0.17)

WATERY LANE, CODSALL - SOUTHBOUND SPEED SURVEY RESULTS

Vehicle speeds	**41.34**	mph				
	66.52	kph				
	18.48	v (m/s)				
	341.39	v^2				
Driver Perception-Reaction time	**2**	t (s)				
	36.95	v x t				
Deceleration Rate	**0.25**	g				
	2.45	d (m/s)				
	4.91	2d				
Gradient	**0.00**	a*				
	2.45	d+0.1a				
	4.905	2(d+0.1a)				
	v t		+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**36.95**		+	**69.60**	=	**106.55**
SSD Bonnet Adjusted (SSD+2.4)**	**108.95**					

Formula: $SSD = vt + v^2/2(d+0.1a)$

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate ($g = 9.81m/s^2$)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: WATERY LANE, CODSALL - NORTHBOUND

Vehicle speeds	**47.58**	mph
	76.56	kph
	21.27	v (m/s)
	452.23	v^2
Driver Perception-Reaction time	**2**	t (s)
	42.53	v x t
Deceleration Rate	**0.25**	g
	2.45	d (m/s)
	4.91	2d
Gradient	**0.00**	a*
	2.45	d+0.1a
	4.905	2(d+0.1a)

Formula: $SSD = vt + v^2/2(d+0.1a)$

	Manual for Streets 2		DMRB	
	Light Vehicles (less than 5% HGVs)	HGVs/Buses (over 5% of total vehicles)	All traffic (Maximum decel.)	All traffic (Desirable decel.)
Perception-Reaction Time (t)	**1.5s**	**1.5s**	**2s**	**2s**
Deceleration Rate (g = 9.81m/s^2)	**0.45g**	**0.375g**	**0.375g**	**0.25g**

Enter gradient as positive for uphill towards junction and negative for downhill towards junction

	v t	+	v^2 / 2(d+0.1a)	=	SSD
Stopping Sight Distance (SSD) =	**42.53**	+	**92.20**	=	**134.73**
SSD Bonnet Adjusted (SSD+2.4)**	**137.13**				

* for simplicity, gradient will be given as zero where details of levels are unavailable and observed gradients are deemed to be insignificant in terms of the effect on vehicle braking

** 2.4 metres added to splay to allow for bonnet length of approaching vehicles

VISIBILITY SPLAY CALCULATOR: WATERY LANE, CODSALL - SOUTHBOUND

APPENDIX E – TRICS DATA

PROPOSED RESIDENTIAL DEVELOPMENT, WATERY LANE, CODSALL, STAFFORDSH IRE

TRANSPORT ASSESSMENT

APRIL 2015

REPORT REF: 21038/04-15/3832

Consulting Development Engineers

PROPOSED RESIDENTIAL DEVELOPMENT, WATERY LANE, CODSALL, STAFFORDSHIRE

TRANSPORT ASSESSMENT

APRIL 2015

REPORT REF: 21038/04-15/3832

CLIENT: Richborough Estates Ltd

ENGINEER: Mewies Engineering Consultants
Wellington House
Leicester Road
Ibstock
Leicestershire
LE67 6HP

Tel: 01530 264753
Fax: 01530 588116
Email ibstock@m-ec.co.uk

Report Prepared By:

[redacted]

.....
Kwabena Darfour
BSc (Hons) MSc MCIHT

Report Checked By:

[redacted]

.....
Tim Rose
BA (Hons) MCIHT MTPS

Report Approved By:

[redacted]

.....
Alexander Bennett
BSc (Hons) MCIHT MTPS

Table 5: Estimated Vehicular Trip Generation (TRICS Database)

Land Use: C3 Residential (Private)	AM Peak Hour Weekday (08.00 –09.00)		PM Peak Hour Weekday (17.00 –18.00)	
	Arrivals	Departures	Arrivals	Departures
Ave. Vehicle Trip Rate/Dwelling	0.143	0.405	0.375	0.215
Trip Generation (180 Dwellings)	**26 trips**	**73 trips**	**73 trips**	**39 trips**
Two-Way Total	***99***		***112***	

Trip Distribution

7.15 The development traffic will be distributed onto the local highway network using 'Location of usual residence and place of work by method of travel to work (MSOA level)' data for the 'South Staffordshire (009)' area. Data for travel to MSOA within the authority of South Staffordshire, and for travel to all other districts in the UK has been sourced from https://www.nomisweb.co.uk.

7.16 MSOA data has been used because ward data is not currently available for 2011 census data. A MSOA is an administrative area somewhat larger than a ward but significantly smaller than a district. A copy of this data is contained in Appendix I.

7.17 Google Maps route finder has been used to make route choices based on the distance and/or time taken; where multiple choices exist these have been weighted based on assumptions as to their relative merit.

7.18 The work locations for residents of Codsall ward have been assumed to represent the main trip destination for traffic generated in the peak periods. These destinations have then been manually applied to the likely routes that residents would take using both the local and strategic road network. This is illustrated in Table 6, which gives the route taken to the destinations identified, as well as the percentage of trips that are expected to travel along this route during peak periods. It should be noted that traffic has not been distributed via localised residential roads with significant levels of on-street parking and traffic calming e.g. Joeys Lane.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
	SC	SURREY	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
	DC	DORSET	2 days
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	NF	NORFOLK	2 days
	SF	SUFFOLK	3 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LN	LINCOLNSHIRE	3 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	2 days
	WM	WEST MIDLANDS	2 days
	WO	WORCESTERSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	1 days
	NY	NORTH YORKSHIRE	6 days
	SY	SOUTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	2 days
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	CB	CUMBRIA	2 days
10	WALES		
	CF	CARDIFF	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Number of dwellings
Actual Range:	20 to 432 (units:)
Range Selected by User:	20 to 500 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/06 to 20/05/14

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	10 days
Tuesday	10 days
Wednesday	6 days
Thursday	6 days
Friday	6 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	38 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	16
Edge of Town	21
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	30
Out of Town	1
No Sub Category	7

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Filtering Stage 3 selection:

Use Class:

C1	1 days
C3	37 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

1,001 to 5,000	5 days
5,001 to 10,000	9 days
10,001 to 15,000	6 days
15,001 to 20,000	10 days
20,001 to 25,000	3 days
25,001 to 50,000	5 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	3 days
25,001 to 50,000	3 days
50,001 to 75,000	3 days
75,001 to 100,000	7 days
100,001 to 125,000	7 days
125,001 to 250,000	7 days
250,001 to 500,000	7 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	11 days
1.1 to 1.5	26 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	37 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1 CB-03-A-03 SEMI DETACHED CUMBRIA
HAWKSHEAD AVENUE

WORKINGTON
Edge of Town
Residential Zone
Total Number of dwellings: 40
Survey date: THURSDAY *20/11/08* *Survey Type: MANUAL*

2 CB-03-A-04 SEMI DETACHED CUMBRIA
MOORCLOSE ROAD
SALTERBACK
WORKINGTON
Edge of Town
No Sub Category
Total Number of dwellings: 82
Survey date: FRIDAY *24/04/09* *Survey Type: MANUAL*

3 CF-03-A-02 MIXED HOUSES CARDIFF
DROPE ROAD

CARDIFF
Edge of Town
Residential Zone
Total Number of dwellings: 196
Survey date: FRIDAY *05/10/07* *Survey Type: MANUAL*

4 CF-03-A-03 DETACHED CARDIFF
LLANTRISANT ROAD

CARDIFF
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 29
Survey date: MONDAY *08/10/07* *Survey Type: MANUAL*

5 CH-03-A-02 HOUSES/FLATS CHESHIRE
SYDNEY ROAD

CREWE
Edge of Town
Residential Zone
Total Number of dwellings: 174
Survey date: TUESDAY *14/10/08* *Survey Type: MANUAL*

6 CH-03-A-06 SEMI-DET./BUNGALOWS CHESHIRE
CREWE ROAD

CREWE
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 129
Survey date: TUESDAY *14/10/08* *Survey Type: MANUAL*

7 CW-03-A-02 SEMI D./DETATCHED CORNWALL
BOSVEAN GARDENS

TRURO
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 73
Survey date: TUESDAY *18/09/07* *Survey Type: MANUAL*

8 DC-03-A-01 DETACHED DORSET
ISAACS CLOSE

POOLE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 51
Survey date: WEDNESDAY *16/07/08* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

9 DC-03-A-08 BUNGALOWS DORSET
HURSTDENE ROAD
CASTLE LANE WEST
BOURNEMOUTH
Edge of Town
Residential Zone
Total Number of dwellings: 28
Survey date: MONDAY *24/03/14* *Survey Type: MANUAL*

10 DS-03-A-01 SEMI D./TERRACED DERBYSHIRE
THE AVENUE
HOLMESDALE
DRONFIELD
Neighbourhood Centre (PPS6 Local Centre)
Residential Zone
Total Number of dwellings: 20
Survey date: THURSDAY *22/06/06* *Survey Type: MANUAL*

11 ES-03-A-02 PRIVATE HOUSING EAST SUSSEX
SOUTH COAST ROAD

PEACEHAVEN
Edge of Town
Residential Zone
Total Number of dwellings: 37
Survey date: FRIDAY *18/11/11* *Survey Type: MANUAL*

12 EX-03-A-01 SEMI-DET. ESSEX
MILTON ROAD
CORRINGHAM
STANFORD-LE-HOPE
Edge of Town
Residential Zone
Total Number of dwellings: 237
Survey date: TUESDAY *13/05/08* *Survey Type: MANUAL*

13 GM-03-A-10 DETACHED/SEMI GREATER MANCHESTER
BUTT HILL DRIVE
PRESTWICH
MANCHESTER
Edge of Town
Residential Zone
Total Number of dwellings: 29
Survey date: WEDNESDAY *12/10/11* *Survey Type: MANUAL*

14 LN-03-A-01 MIXED HOUSES LINCOLNSHIRE
BRANT ROAD
BRACEBRIDGE
LINCOLN
Edge of Town
Residential Zone
Total Number of dwellings: 150
Survey date: TUESDAY *15/05/07* *Survey Type: MANUAL*

15 LN-03-A-02 MIXED HOUSES LINCOLNSHIRE
HYKEHAM ROAD

LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 186
Survey date: MONDAY *14/05/07* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

16 LN-03-A-03 SEMI DETACHED LINCOLNSHIRE
ROOKERY LANE
BOULTHAM
LINCOLN
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 22
Survey date: TUESDAY 18/09/12 Survey Type: MANUAL

17 NE-03-A-02 SEMI DETACHED & DETACHED NORTH EAST LINCOLNSHIRE
HANOVER WALK

SCUNTHORPE
Edge of Town
No Sub Category
Total Number of dwellings: 432
Survey date: MONDAY 12/05/14 Survey Type: MANUAL

18 NF-03-A-01 SEMI DET. & BUNGALOWS NORFOLK
YARMOUTH ROAD

CAISTER-ON-SEA
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 27
Survey date: TUESDAY 16/10/12 Survey Type: MANUAL

19 NF-03-A-02 HOUSES & FLATS NORFOLK
DEREHAM ROAD

NORWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 98
Survey date: MONDAY 22/10/12 Survey Type: MANUAL

20 NT-03-A-03 SEMI DETACHED NOTTINGHAMSHIRE
B6018 SUTTON ROAD

KIRKBY-IN-ASHFIELD
Edge of Town
Residential Zone
Total Number of dwellings: 166
Survey date: WEDNESDAY 28/06/06 Survey Type: MANUAL

21 NY-03-A-06 BUNGALOWS & SEMI DET. NORTH YORKSHIRE
HORSEFAIR

BOROUGHBRIDGE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 115
Survey date: FRIDAY 14/10/11 Survey Type: MANUAL

22 NY-03-A-07 DETACHED & SEMI DET. NORTH YORKSHIRE
CRAVEN WAY

BOROUGHBRIDGE
Edge of Town
No Sub Category
Total Number of dwellings: 23
Survey date: TUESDAY 18/10/11 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

23 NY-03-A-08 TERRACED HOUSES NORTH YORKSHIRE
NICHOLAS STREET

YORK
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 21
Survey date: MONDAY *16/09/13* *Survey Type: MANUAL*

24 NY-03-A-09 MIXED HOUSING NORTH YORKSHIRE
GRAMMAR SCHOOL LANE

NORTHALLERTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 52
Survey date: MONDAY *16/09/13* *Survey Type: MANUAL*

25 NY-03-A-10 HOUSES AND FLATS NORTH YORKSHIRE
BOROUGHBRIDGE ROAD

RIPON
Edge of Town
No Sub Category
Total Number of dwellings: 71
Survey date: TUESDAY *17/09/13* *Survey Type: MANUAL*

26 NY-03-A-11 PRIVATE HOUSING NORTH YORKSHIRE
HORSEFAIR

BOROUGHBRIDGE
Edge of Town
Residential Zone
Total Number of dwellings: 23
Survey date: WEDNESDAY *18/09/13* *Survey Type: MANUAL*

27 SC-03-A-04 DETACHED & TERRACED SURREY
HIGH ROAD

BYFLEET
Edge of Town
Residential Zone
Total Number of dwellings: 71
Survey date: THURSDAY *23/01/14* *Survey Type: MANUAL*

28 SF-03-A-01 SEMI DETACHED SUFFOLK
A1156 FELIXSTOWE ROAD
RACECOURSE
IPSWICH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 77
Survey date: WEDNESDAY *23/05/07* *Survey Type: MANUAL*

29 SF-03-A-02 SEMI DET./TERRACED SUFFOLK
STOKE PARK DRIVE
MAIDENHALL
IPSWICH
Edge of Town
Residential Zone
Total Number of dwellings: 230
Survey date: THURSDAY *24/05/07* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

30 SF-03-A-03 MIXED HOUSES SUFFOLK
BARTON HILL
FORNHAM ST MARTIN
BURY ST EDMUNDS
Edge of Town
Out of Town
Total Number of dwellings: 101
Survey date: MONDAY *15/05/06* *Survey Type: MANUAL*

31 SH-03-A-04 TERRACED SHROPSHIRE
ST MICHAEL'S STREET

SHREWSBURY
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Number of dwellings: 108
Survey date: THURSDAY *11/06/09* *Survey Type: MANUAL*

32 SH-03-A-05 SEMI-DETACHED/TERRACED SHROPSHIRE
SANDCROFT
SUTTON HILL
TELFORD
Edge of Town
Residential Zone
Total Number of dwellings: 54
Survey date: THURSDAY *24/10/13* *Survey Type: MANUAL*

33 SY-03-A-01 SEMI DETACHED HOUSES SOUTH YORKSHIRE
A19 BENTLEY ROAD
BENTLEY RISE
DONCASTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 54
Survey date: WEDNESDAY *18/09/13* *Survey Type: MANUAL*

34 WL-03-A-01 SEMI D./TERRACED W. BASSETT WILTSHIRE
MAPLE DRIVE

WOOTTON BASSETT
Edge of Town
Residential Zone
Total Number of dwellings: 99
Survey date: MONDAY *02/10/06* *Survey Type: MANUAL*

35 WM-03-A-01 TERRACED WEST MIDLANDS
FOLESHILL ROAD
FOLESHILL
COVENTRY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 79
Survey date: FRIDAY *03/02/06* *Survey Type: MANUAL*

36 WM-03-A-03 MIXED HOUSING WEST MIDLANDS
BASELEY WAY
ROWLEYS GREEN
COVENTRY
Edge of Town
Residential Zone
Total Number of dwellings: 84
Survey date: MONDAY *24/09/07* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

37 WO-03-A-02 SEMI DETACHED WORCESTERSHIRE
MEADOWHILL ROAD

REDDITCH
Edge of Town
No Sub Category
Total Number of dwellings: 48
Survey date: TUESDAY *02/05/06* *Survey Type: MANUAL*

38 WO-03-A-03 DETACHED WORCESTERSHIRE
BLAKEBROOK
BLAKEBROOK
KIDDERMINSTER
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 138
Survey date: FRIDAY *05/05/06* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	38	96	0.076	38	96	0.285	38	96	0.361
08:00 - 09:00	38	96	0.143	38	96	0.405	38	96	0.548
09:00 - 10:00	38	96	0.163	38	96	0.206	38	96	0.369
10:00 - 11:00	38	96	0.143	38	96	0.180	38	96	0.323
11:00 - 12:00	38	96	0.173	38	96	0.166	38	96	0.339
12:00 - 13:00	38	96	0.193	38	96	0.170	38	96	0.363
13:00 - 14:00	38	96	0.174	38	96	0.162	38	96	0.336
14:00 - 15:00	38	96	0.180	38	96	0.192	38	96	0.372
15:00 - 16:00	38	96	0.291	38	96	0.204	38	96	0.495
16:00 - 17:00	38	96	0.319	38	96	0.192	38	96	0.511
17:00 - 18:00	38	96	0.375	38	96	0.215	38	96	0.590
18:00 - 19:00	38	96	0.268	38	96	0.199	38	96	0.467
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.498			2.576			5.074

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	20 - 432 (units:)
Survey date date range:	01/01/06 - 20/05/14
Number of weekdays (Monday-Friday):	38
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	2

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

APPENDIX F – DISTRIBUTION (SANDY LANE)

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van

usual residence (South Staffordshire 009 MSOA)

place of work : 2011 census merged local authority district	Driving a car or van	% Split	Route		
Telford and Wrekin	143	8%	R1/R2		
Shropshire	91	5%	R1		
South Staffordshire	336	18%	R2/R3/R4		
Birmingham	86	5%	R2		
Dudley	107	6%	R3	Route 1	9%
Sandwell	81	4%	R2	Route 2	54%
Walsall	114	6%	R2	Route 3	35%
Wolverhampton	892	48%	R2/R3	Route 4	2%
Total	1,850	100%			100%

Route 1:	Sandy Lane (W), Bakers Way (W)
Route 2:	Sandy Lane (E), Watery Lane (N), Bilbrook Road (E)
Route 3:	Sandy Lane (E) , Elliots Lane (S)
Route 4:	Sandy Lane (E) , Watery Lane (N)

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van

usual residence (South Staffordshire 009 MSOA)

place of work : 2011 census merged local authority district	Driving a car or van	% Split	Route		
South Staffordshire 003 (Brewood)	21	9%	R4	Route 1	
South Staffordshire 006 (Coven)	29	12%	R2	Route 2	63%
South Staffordshire 008 (Bilbrook)	122	51%	R2	Route 3	28%
South Staffordshire 009 (Codsall)	66	28%	R3	Route 4	9%
Total	238	100%			100%

Route 1:	Sandy Lane (W), Bakers Way (W)
Route 2:	Sandy Lane (E), Watery Lane (N), Bilbrook Road (E)
Route 3:	Sandy Lane (E) , Elliots Lane (S)
Route 4:	Sandy Lane (E) , Watery Lane (N)

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

APPENDIX G – DISTRIBUTION (WATERY LANE)

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van

usual residence (South Staffordshire 009 MSOA)

place of work : 2011 census merged local authority district	Driving a car or van	% Split	Route		
Telford and Wrekin	143	8%	R1/R2		
Shropshire	91	5%	R1/R2		
South Staffordshire	336	18%	R1/R2/R3/R4		
Birmingham	86	5%	R2		
Dudley	107	6%	R1/R3	Route 1	15%
Sandwell	81	4%	R2	Route 2	48%
Walsall	114	6%	R2	Route 3	36%
Wolverhampton	892	48%	R2/R3	Route 4	2%
Total	1,850	100%			100%

Route 1:	Watery Lane (S), Elliots Lane (S)
Route 2:	Watery Lane (N), Pendeford Hall Lane (E)
Route 3:	Watery Lane (S), Bilbrook Road (E)
Route 4:	Watery Lane (N), Port Lane (N)

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

population	All usual residents aged 16 and over in employment the week before the census
units	Persons
date	2011
method of travel to work	Driving a car or van

usual residence (South Staffordshire 009 MSOA)

place of work : 2011 census merged local authority district	Driving a car or van	% Split	Route		
South Staffordshire 003 (Brewood)	21	9%	R4	Route 1	28%
South Staffordshire 006 (Coven)	29	12%	R2	Route 2	12%
South Staffordshire 008 (Bilbrook)	122	51%	R3	Route 3	51%
South Staffordshire 009 (Codsall)	66	28%	R1	Route 4	9%
Total	238	100%			100%

Route 1:	Watery Lane (S), Elliots Lane (S)
Route 2:	Watery Lane (N), Pendeford Hall Lane (E)
Route 3:	Watery Lane (S), Bilbrook Road (E)
Route 4:	Watery Lane (N), Port Lane (N)

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

APPENDIX H – HIGHWAY BOUNDARY PLANS

Jarodale House
7 Gregory Boulevard
Nottingham NG7 6LB

0115 960 2919
office@bancroftconsulting.co.uk

bancroftconsulting.co.uk