

Project	A13394/VAA - Barnham Eastergate Westergate (BEW) Parcel SC1
Document Title or Subject	A27 Chichester Bypass / A259 Bognor Road / Vinnetrow Road Roundabout (the 'Bognor Road Roundabout') – SYSTRA Mitigation Scheme Sensitivity Test
Document Reference	A13394/VAA-PEF-XX-XX-TN-TR-000051
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1 Introduction

- 1.1.1 Pell Frischmann is commissioned by C.C. Projects alongside Ashmarden Ltd and Hanbury (PM) Ltd (promoting the site together as 'The Southern Consortium') (the 'Applicant') to provide transport planning and highways consultancy services, in connection with the outline planning application for the strategic residential-led mixed use development on land forming part of the site allocation at Barnham Eastergate Westergate (BEW), West Sussex.
- 1.1.2 A meeting was held between Hazel Morton of SYSTRA, on behalf of National Highways (NH), and Paul Smith, Stephen Evans and Charlotte Smith of Pell Frischmann, on behalf of the Applicant, on Tuesday 18 April 2023, to discuss the proposed layout of the A27 Chichester Bypass / A259 Bognor Road / Vinnetrow Road Roundabout (the 'Bognor Road Roundabout') and to clarify a previous comment from NH in relation to queue lengths on the A27 / Fontwell Avenue Roundabout. During the meeting, a number of actions were agreed and assigned. The purpose of this Technical Note is to address the actions arising from the meeting.

2 Response to National Highways (NH) / SYSTRA Comments

2.1 A27 / Fontwell Avenue Roundabout

- 2.1.1 Comment from National Highways response dated 20221216 – BN1122OUT BEW Parcel SC1 Barnham:

A27 / Fontwell Avenue - It is stated within the additional information submission of 22nd November that the 2031 and 2038 DM and DS modelling is based upon the mitigation scheme proposed in the Arun Transport Study Stage 3 report. We see that the assessment of queues within the 22 November 2022 technical note acknowledge the substantial growth in queues on the A27 North and A27 Arundel Road West arms in the AM and PM peaks. It is noted that the summary table includes all queuing vehicles, which are in practice split across two lanes on each arm. Drawings have been provided in the 22 November 2022 response showing the physical measured extent of the queues during the busiest scenarios; for the Arundel Road West arm this is stated to be 223 PCUs, however in the model output files the highest recorded length is 79.8 PCUs. For the A27 North arm, the 22 November 2022 response states a highest queue value of 131 PCUs, whereas the model output files state a figure of 458 PCUs.

- 2.1.2 The previous Pell Frischmann Technical Note, dated 22 November 2022, provides queue length information and drawings for the 2031 scenario, as agreed in the meeting with SYSTRA on 3 November 2022. The highest recorded queue lengths for Arundel Road (West) arm (223 PCUs [Passenger Car Units]) and the A27 (North) arm (131 PCUs) have been taken from the 2031 'with mitigation' scenarios. The queues of 79.8 PCUs and 458 PCUs on the Arundel Road (West) arm and the A27 (North) arm respectively refer to the 2038 'no mitigation' scenarios. Therefore, the queue length measurement drawings are correct and no further action is considered necessary.

2.2 A27 / A259 Bognor Road Roundabout

- 2.2.1 In Pell Frischmann's Transport Assessment (TA) Report, dated 13 January 2022, that accompanied the outline planning application submission, the A27 Chichester Bypass / A259 Bognor Road / Vinnetrow Road Roundabout (the 'Bognor Road Roundabout') was modelled with both the existing geometry, and the mitigation scheme as included in the Arun District Council (ADC) 'Arun Transport Study Stage 3 Report'. The modelling of the existing layout showed that the junction is forecast to operate over capacity in the forecast future years. With the ADC mitigation scheme applied, the performance of the junction is shown to be overall improved as a result of the mitigation scheme.
- 2.2.2 It is understood that SYSTRA, on behalf of NH, has developed a further mitigation scheme, which involves signalling the A27 southern arm of the roundabout, together with the complete closure of Vinnetrow Road – please refer to Appendix A of this Technical Note for the proposed drawing layout (SYSTRA drawing no. 103800_D002, dated September 2017, provided to Pell Frischmann on 10 May 2023).
- 2.2.3 Following the meeting on 18 April 2023, SYSTRA has provided Pell Frischmann with the LinSig model of their proposed mitigation scheme. Traffic flows which currently uses Vinnetrow Road have been rerouted along the A259 Bognor Road (East). The model includes the 2031 and 2038 DM scenarios. Pell Frischmann has added the 'with development' scenarios, i.e. 2031 and 2038 'Do Something' and 2031 'Do Something No Cala' to this model and has run a sensitivity test. Pell Frischmann's updated version of the model is included, in LinSig format, at Appendix B of this Technical Note, for reference.
- 2.2.4 The results of the modelling sensitivity test are shown in Tables 2.1 to 2.5, which provide the highest Degrees of Saturation (DoSs) on each arm, together with the longest mean maximum queues (MMQs). These results show that the roundabout would continue to operate over capacity, however that the net impact of the proposed development at BEW, in the Do Something scenarios, would remain minimal and not significant.
- 2.2.5 As discussed in the meeting with SYSTRA, it is understood that this mitigation scheme, which previously formed part of the Enterprise Bognor Regis (EBR) package of improvements, is unlikely to be delivery due to some design issues and because it will likely be superseded by a larger scheme.

Table 2-1: 2031 do minimum junction modelling results (A27 / A259 / Vinnetrow Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	DoS %	MMQ PCU's	DoS %	MMQ PCU's
A27 Chichester Bypass (N)	95%	12	82%	2
A259 Bognor Road (E)	135%	166	82%	2
A27 Chichester Bypass (S)	89%	26	98%	34
A259 Bognor Road (W)	96%	22	100%	42

Table 2-2: 2038 do minimum junction modelling results (A27 / A259 / Vinnetrow Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	DoS %	MMQ PCU's	DoS %	MMQ PCU's
A27 Chichester Bypass (N)	96%	25	71%	3
A259 Bognor Road (E)	135%	162	88%	3
A27 Chichester Bypass (S)	60%	14	104%	48
A259 Bognor Road (W)	102%	58	102%	55

Table 2-3: 2031 do something junction modelling results (A27 / A259 / Vinnetrow Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	DoS %	MMQ PCU's	DoS %	MMQ PCU's
A27 Chichester Bypass (N)	96%	11	83%	2
A259 Bognor Road (E)	136%	164	82%	2
A27 Chichester Bypass (S)	59%	14	101%	41
A259 Bognor Road (W)	102%	58	102%	48

Table 2-4: 2038 do something junction modelling results (A27 / A259 / Vinnetrow Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	DoS %	MMQ PCU's	DoS %	MMQ PCU's
A27 Chichester Bypass (N)	100%	99	89%	4
A259 Bognor Road (E)	140%	173	86%	3
A27 Chichester Bypass (S)	59%	14	107%	58
A259 Bognor Road (W)	103%	59	107%	68

Table 2-5: 2031 do something No Cala junction modelling results (A27 / A259 / Vinnetrow Road: Bognor Road Roundabout)

	AM Peak		PM Peak	
	DoS %	MMQ PCU's	DoS %	MMQ PCU's
A27 Chichester Bypass (N)	96%	13	82%	2
A259 Bognor Road (E)	136%	148	117%	113
A27 Chichester Bypass (S)	80%	17	91%	22
A259 Bognor Road (W)	98%	21	111%	57

3 Summary and Conclusions

- 3.1.1 Pell Frischmann is commissioned by C.C. Projects alongside Ashmarden Ltd and Hanbury (PM) Ltd (promoting the site together as 'The Southern Consortium') (the 'Applicant') to provide transport planning and highways consultancy services, in connection with the outline planning application for the strategic residential-led mixed use development on land forming part of the site allocation at Barnham Eastergate Westergate (BEW), West Sussex.
- 3.1.2 A meeting was held between SYSTRA, on behalf of National Highways (NH), and Pell Frischmann, on behalf of the Applicant, on Tuesday 18 April 2023, to discuss the proposed layout of the Bognor Road Roundabout and to clarify a previous comment from NH in relation to queue lengths on the A27 / Fortwell Avenue Roundabout. During the meeting, a number of actions were agreed and assigned. The purpose of this Technical Note is to address the actions arising from the meeting.
- 3.1.3 This Technical Note has provided clarification in relation to queue length queries raised by NH. It has also presented results relating to sensitivity testing of the Bognor Road Roundabout, testing a mitigation scheme which previously formed part of the Enterprise Bognor Regis (EBR) package of improvements.

- 3.1.4 Although it is understood that this mitigation scheme at the Bognor Road Roundabout is unlikely to be delivered, due to some design issues and because it will likely be superseded by a larger scheme, the sensitivity test presented within this Technical Note however demonstrates that the impact of the proposed development at Barnham Eastergate Westergate (BEW), in the Do Something scenarios, would remain minimal and not significant.

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Rev	Suit	Description	Date	Originator	Checker	Approver
001	-	Draft for Client / Project Team review and comments.	04-May-2023	CS	SME	POS
002	-	Revised draft incorporating Client comments.	09-May-2023	CS	SME	POS
F01	-	Final issue to National Highways.	10-May-2023	CS	SME	POS

Ref. reference. Rev revision. Suit suitability

Appendix A A27 / A259 Bognor Road Roundabout SYSTRA Mitigation Scheme Drawing
(SYSTRA drawing no: 103800__D002, dated September 2017)

Appendix B A27 / A259 Bognor Road Roundabout LinSig Model File
(Filename: 'Bognor Road Roundabout - Mitigation Scheme + DEV\lsg3x', dated 10 May 2023)

