JUBB EXTENSION REPORT to the

JUBB Supplementary Report to East Grinstead and Surrounds November 2014 Survey and Review of Traffic Conditions.

Headline Summary Report V3 March 2015. A22 Junctions 6 day Survey.

23rd March 2015 see MSDC planning application file Ref DM/15/0429

Providing

A22 JUNCTION CAPACITY MODELLING REPORTS Including the Impact of Planning Application DM/15/0429 at Hill Place Farm East Grinstead.

Section 1 - Headline Summary Report VM1 July 2015

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On Behalf of

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1.0 INTRODUCTION

This report extends the scope of Jubb traffic survey 'Supplementary Report to East Grinstead and Surrounds November 2014 Survey and Review of Traffic Conditions. Headline Summary Report V3 March 2015. A22 Junctions 6 day Survey End February/Early March 2015 by evaluating the results from 'Capacity Modelling' of the acutely congested A22*Felbridge, Imberhorne and Lingfield junctions.

- 1.2 The modelling approach adopted by Jubb is compliant with the Transport Assessment requirements stipulated in 'MSDC Validation Criteria for planning applications, local requirements June 2015 Transport Assessment for residential development of 50 or more units '. This references, for guidance, West Sussex County Council Transport Assessment Methodology [June 2007] see Section 10.5.
- 1.3 The Jubb modelling also mirrors the Atkins Stage 3 May 2012 report modelling approach for these junctions using standard industry modelling software and calibrated and validated in accordance with the March 2015 Traffic Surveys.
- 1.4 Jubb have developed the LINSIG and ARCADY traffic models for these junctions, LINSIG Imberhorne and Felbridge Junctions, ARCADY Lingfield Junction, for the critical network peak hours and provides a quantitative assessment of existing and forecast network conditions [2019, 2021].
- 1.5 Vectos, Linden Ltd Transport Assessment for DM/15/0429 planning application 2nd February 2015 and Post Submission Highways Response 9th May 2015, has not provided a Transport Assessment which includes the modelling of the A22 Junctions etc., as required by MSDC Validation Criteria for planning applications, local requirements June 2015 for residential development of 50 or more units. Reference Section 10.5 of the WSCC Transport Assessment Methodology June 2007.
- 1.6 Vectos do not consider and comment on the 'Severe East Grinstead highway constraints*/acute congestion on the A22 traffic network** or assess the proposed Hill Place Farm development's impact on the A22 Junctions with the result that Vectos has not complied with the requirements of Section 10.5 of the WSCC Transport Assessment Methodology June 2007 and MSDC planning procedures.

Quotes ref MSDC May 2015 Local Plan under consultation - Settlement Hierarchy Review 4.4; ** WSCC Transport Plan 2011-2016 February 2011 page 62

^{*}Quote WSCC Transport Plan 2011-2016 February 2011 page 62.

- 1.7 In the absence of 1.5 above, in Section 6 pages 15,16 Table 3 from its 'modelling Jubb has determined for the 2019 scenario, which Vectos state as the completion year of the proposed Hill Place Farm development, the levels of congestion predicted from the Jubb March 2015 surveys results taking account of
 - the already approved/committed housing development,
 - the impact of proposed HPF development,
 - mitigation provided by the Atkins Stage 3 Do Minimum [DM] Infrastructure Improvement plan.
- Sections 4 -6 show the progressing of the 'cumulative' modelling and profiling of A22 traffic conditions evaluating Junction performance leading to 1.6 above, Illustrated by
 - Section 4 Existing Traffic Conditions Jubb March 2015 Survey v Atkins Stage
 3 November 2011 Survey to identify the change in congestion see pages 12,
 13 and Appendix A Table 1.
 - Section 5 the impact of the Already Approved Committed Housing not built/occupied on the Jubb March 2015 Survey Results in Section 4 see pages 15, 16 and appendix B Table 2.
 - Section 6 the 2019 scenario described in 1.6 above which is drawn up to meet WSCC TA Methodology June 2007 Section 10.5.6 requirements.
 - Section 7 Jubb has modelled and Forecast A22 junction Traffic conditions for 2021 as formatted in 1.6 above AM, PM Peak hours for comparison to 2021 Atkins Stage 3 Forecast Do Minimum predicted levels of congestion See Appendix D Table 4 and 5 also for reference Atkins Stage 3 May 2012 Report Table 29 and 30 pages 51 and 52.
- 1.9 The key findings of this comprehensive report demonstrate that
 - the Do Minimum Infrastructure improvement Plan does not mitigate for the proposed Hill Place Farm [HPF] Ref: DM/15/0429.
 - The detailed modelling of the 2019 traffic conditions which take into account traffic from the committed developments, Hill Place Farm and the proposed mitigation (Do Minimum) results in a Severe Cumulative Residual Impact on the A22. Therefore the proposed Hill Place Development is Contrary to Paragraph 32 of the NPPF.

2.0 BACKGROUND

- 2.1 The current Mid Sussex Local Plan 2004 paragraph 12.5 states that one of the two major constraints to EG housing and commercial development relates to infrastructure and in particular roads.
- 2.2 Since 2004 New Highway provision has not kept pace with earlier development and general traffic growth and the existing highway is no longer adequate to cope with traffic demands placed on it. Unless significant improvements are made further large scale development would only exacerbate this situation and would not be appropriate.
- 2.3 WSCC Transport Plan 2011-2026 February 2011 page 62 concluded 'that East Grinstead suffers from acute congestion and safety issues at peak and off peak times due to current travel behaviour, which is dominated by private car use'. Shortly after, WSCC commissioned the 'Atkins East Grinstead Stage 3 Final May 2012 Report' which modelled and surveyed in November 2011 the A22 junctions. Although now 'out of date' it is an important backdrop and milestone in providing a quantitative assessment of the then existing and forecast levels of congestion in 2021 for A22 traffic network.
- 2.4 Atkins Stage 3 May 2012 Report concluded that a number of A22 Felbridge and Imberhorne junction arms are operating above practical capacity [over 90% Degree of Saturation [DOS]] with Lingfield and Moat Junctions over theoretical capacity [100% DOS]. The impact of the proposed 'Do Minimum' [DM] A22 infrastructure improvement investment at the predicted levels of 2021 congestion only partially addressed this situation, with a ceiling set at 765* new dwellings over the planned period, leaving the Lingfield junction near theoretical capacity and Moat Road Junction over.
- 2.5 At present, since the benchmark date of 1st April 2011, 1,088 new dwellings have been built or approved/committed which already exceeds the DM 765 ceiling by 323 units {42%} indicating that if DM was implemented now, all A22 junctions would be operating above theoretical capacity.
- 2.6 On the 18th July 2012 '3 tiers meeting' [WSCC, MSDC, EGTC] the Atkins Stage 3
 Report was reviewed and WSCC concluded that several A22 junctions were 'severe'
 with 12 junction arms at the Felbridge, Imberhorne Lane, Lingfield Road and Moat
 Road are at or close to capacity.

- 2.7 Based on theoretical capacities with the housing ceiling limit of 765 dwellings, 5 arms are over capacity, 2 arms close to capacity, and 5 have acceptable capacity in peak times. 'Do Minimum works' would result in 2 arms over capacity, 4 arms close to capacity and 6 acceptable within 10 years.
- 2.8 Mid 2014 Linden Homes [LH] announced its intention of making an outline planning application for building up to 200 residential units at Hill Place Farm [HPF]. This was followed by the planning application DM/15/0429 being lodged with MSDC on the 2nd February 2015 accompanied by technical submissions supporting the application including Vectos' Highway Response Transport Assessment [TA], added to later by 9th May 2015 Vectos Post Submission Highways Response.
- 2.9 During this period, Mr Peacock commissioned the Jubb Traffic Reports see 1.1 page 3 covering 8 survey days, 2 days in November 2014, 6 days end February/early March 2015 providing the most comprehensive 'Up to Date' survey ever of East Grinstead [EG] traffic conditions and the only EG traffic surveys compliant with NPPF 158.
- 2.10 These reports were submitted as part of Mr Peacocks MSDC Representations of Objections to DM/15/0429 12th March 2015 and can support the MSDC 2015 local plan and be used to review EG planning applications including the LH proposed Hill Place Farm development DM/15/0429.
- 2.11 Distributed widely, WSCC, MSDC, EGTC, Surrey County Council [SCC] Tandridge District Council [TDC] etc. the report's conclusions confirmed EG traffic conditions [as per the 3 tiers meeting see 2.6 above] were 'severe' and demonstrably unacceptable.
- 2.12 Running in parallel Jubb commenced dialogue with WSCC late December 2014 regarding EG traffic conditions and Jubb reports, but after an initial WSCC response 9th February 2015, key questions raised in Jubb letters to WSCC of 20th February 2015 and 23rd March 2015, and no reply by WSCC was received by Jubb until four months later in June. This reply and recent correspondence between the parties since, has still not answered key questions raised by Jubb.
- 2.13 However WSCC's letter of 8th June 2015 did state that 'the Jubb East Grinstead and Surrounds November 2014 Survey and Review of Traffic Conditions reports and the Jubb 6 day Supplementary Report are now included in the technical evidence that WSCC consider in relation to planning applications in East Grinstead'.
- 2.14 Noting now that the Jubb reports are a material consideration in EG planning applications placed the spotlight on the Vectos Transport Assessment and their Mid May 2015 Post-Submission. In these documents Vectos state that they had dismissed

consideration of the Jubb traffic report and A22 traffic conditions together with a detailed evaluation of the impact of the proposed HPF development on the A22 traffic network.

- 2.15 Surprisingly this was after Mr Ashdown's 26th September 2014 letter assurances to Mr Warren, Mr Peacock's advisor that 'I note the comments you have made and I can assure you that the planning application will need to be supported by a full suite of documents covering a wide range of issues. As part of this, a full transport assessment will be required and that will need to take into account the Atkins 3 report i.e. the A22 junctions. '
- 2.16 Noting the requirements in 1.5 above and Mr Ashdown's 26th September 2014 statement in 2.13, to date this has not happened, accordingly it appears from the public information available, that the applicants (Linden Homes) Transport Assessment that accompanies the planning application, is deficient.
- 2.17 Reference to Mr Gledhill's Consultation Response to MSDC 23rd July 2015 'Other Matters' paragraph 10 commenting on the WSCC position on the Jubb Reports as set out in their E mail of 29th June 2015. Jubb in response confirms that its letters of the 8th June 2015, 15 June 2015 and as evidenced by this report clearly takes into account existing traffic conditions and development also proposed mitigation where necessary in its letter/reports and in its judgements and not as claimed by the WSCC letter of 29th June 2015 primarily upon exiting traffic conditions.
- 2.18 This Jubb Extension Report enclosed provides the 'required' A22 Junction Capacity Modelling Reports for the Jubb Surveys including Planning Application DM/15/0429 at Hill Place Farm East Grinstead which are compliant with the TA requirements stipulated in 'MSDC Validation Criteria for planning applications local requirements June 2015 TA for residential developments of 50 or more units.

3.0 MODELLING METHODOLOGY AND DOCUMENTATION

- This report extends the scope of Jubb traffic survey reports by evaluating the results from 'Capacity Modelling' of the acutely congested A22* Felbridge, Imberhorne and Lingfield junctions. *Quote WSCC Transport Plan 2011-2016 February 2011 page 62.
- 3.2 The modelling approach adopted by Jubb is compliant with the Transport Assessment requirements stipulated in 'MSDC Validation Criteria for planning applications, local requirements June 2015 Transport Assessment for residential development of 50 or more units '. This references, for guidance, West Sussex County Council Transport Assessment Methodology [June 2007] see Section 10.5.
- 3.3 Jubb have developed the LINSIG and ARCADY traffic models for these junctions, LINSIG Imberhorne and Felbridge Junctions, ARCADY Lingfield Junction, for the critical network peak hours and provides a quantitative assessment of existing and forecast network conditions [2019, 2021].
- 3.4 Signal Staging plans and junction layouts have been abstracted from the transport assessments submitted in support of the neighbouring committed developments [as defined for Lingfield Road Mini -Roundabout; Felbridge A22 / A264 Junction; Imberhorne Lane/A264 Junction as below in 3.6 to establish a calibrated traffic model for the identified junctions].
- 3.5 These were subsequently validated taking into account the observed exit blocking to replicate the lost capacity and thus the observed queuing length recorded Jubb Survey March 2015. The calibration and validation of the baseline traffic model has been carried out in compliance with Transport for London (TfL) Guidance on Traffic modelling.
- 3.6 To establish a baseline traffic condition, historical turning movements have been abstracted from the Atkins Stage 3 East Grinstead Traffic Management Study and Transport Assessment submitted in support of the neighbouring committed developments i.e. Lingfield Road Mini-Roundabout; Felbridge A22 / A264 Junction and Imberhorne Ln/ A264 Junction.
- 3.7 Local growth factors for East Grinstead have been established using TEMPRO 6.2 and NTM 2009 for Urban –All Roads to growth the survey data to 2015 baseline condition.
- 3.8 An opening and assessment year of 2019 and 2021 is also proposed to be consistent with the proposed /HPF development and Atkin Stage 3 Study.

- 3.9 The related approved Committed East Grinstead Development Traffic for the Jubb March 2015 survey is 1st April 2015 485 deliverable dwellings in the next 5 years, out of a total of 560 [i.e. MSDC Report May 2015 Appendices 5 Updated 17th June 2015 Appendix 1 Table 1 page 3].
- 3.10 The vehicle trip rates and distribution that were adopted within Atkins Stage 3 Report have been employed to establish the anticipated development traffic along the study network.
- 3.11 In addition outline planning permission has been granted for a 500 home development at Copthorne Village West. The submitted TA in support of this outline application indicated that a 2-way flow level of 69 vehicle movements will travel to/from East Grinstead direction along the A264 Copthorne Road via Turners Hill Roundabout during the weekday AM peak whereas 25 vehicles are predicted for the PM Peak.
- 3.12 I Gledhill WSCC Submission 4th June 2015 to MSDC regarding the proposed 200 HPF housing development DM/15/0429 paragraph 14 states that the HPF impact on the A22 corridor amounts to 42 vehicles in the AM peak and 46 vehicles in the PM peak. These increased traffic flows would not be confined to a single A22 Junction or arm of a junction, with vehicles turning off and onto the A22 through the peak hour.
- 3.13 The baseline traffic model has been calibrated and validated in accordance with the queuing delay obtained in the March 2015 traffic survey. These validated models then adopted as a base to predict the opening year of the proposed HPF development [2019], the impact of the approved committed developments in the area with the addition of the proposed HPF development see 3.8 and subsequently take into account of the proposed Do Minimum highway enhancements proposed within Atkins Stage 3 Report
- 3.14 The assessment year was chosen as 2021 the year chosen by Atkins Stage 3 as the year, enabling comparison of the modelling results with the Atkins Stage 3 2021 Forecast Network Conditions.

4.0 EXISTING TRAFFIC CONDITIONS - JUBB MARCH 2015 SURVEY.

- 4.1 The existing junction layouts of the identified A22 bottleneck junctions have been tested for a base year condition of 2015 Do Nothing scenarios using standard industrial software.
- 4.2 The established traffic models were subsequently calibrated and validated in accordance with the Jubb March 2015 traffic profile (as detailed in section 3.0) and subsequent modelling outputs for Lingfield, Imberhorne, and Felbridge Junctions during AM and PM peak hour are summarised in Appendix A Table 1.
- 4.3 The Capacity Tests indicates that the A22 corridor suffers sever capacity deficiency with a queuing length in excess of 900m [150 pcu] in each direction between Imberhorne Lane and Lingfield Road.
- 4.4 Existing junction traffic conditions and profiles have been compared between Jubb March Survey Results and Atkins Stage 3 Survey results November 2011.
- 4.5 The modelling confirms that the network performance has deteriorated significantly since November 2011 with a prolonged delay and increased queueing length experienced along the A22 corridor at the testing junctions. 'Severe' Traffic Conditions exist across the A22 Traffic Network and are demonstrably unacceptable.
- 4.6 The profiles below demonstrate the serious position of the nearby Imberhorne and Felbridge Junctions where all arms are well over theoretical capacity with nearly half operating at 131-144 % of the Degree of Saturation (DOS) incurring substantial delays of 499 -637 sec with long queues MMQ 125 [approx. 750m] to 190 [approx. 1,140m]. Looking at each junction's profile.
 - Felbridge Junction congestion has significantly increased between November 2011 and March 2015 All 3 Arms AM and PM are over 100% Saturation [Design Capacity] ranging from 103% to 139% with the Junction exhibiting a large negative Practical Reserve Capacity [PRC] of around 50% in the AM and PM.

Significant increase of around 4 to 5 times in queueing delay was recorded along the A264 from a combined queue length of 49 pcu in 2011 to 235 pcu in the 2015 in AM Peak and from 54 pcu in 2011 to 210 in the 2015 during the PM Peak.

This is not surprising as the 6 day Supplementary report identified that the Felbridge junction MQ's were between 4.1 [PM] and 4.8 times [AM] longer than November 2011 with queue lengths at A264 Copthorne Road reaching 1.1m-1.4km. This arm

profile now records a DOS of 133-139% significantly over theoretical capacity with delays reaching 577 secs

 Out of the three, the Imberhorne Junction is the most congested with all three arms operating well above theoretical capacity during AM and PM peak a dramatic change from Atkins 3 survey of November 2011

The operation of this bottleneck junction is well stretched beyond theoretical capacity reaching a DOS of 131-144 on 50% of the arms AM/PM with average delays ranging from 499 to 637 secs exhibiting a PRC of - 45.5% in the PM - 60% in the AM.

The junction has struggled to cope with the existing traffic demand with severe queuing delay that extends to the upstream junction impeding the operation of Felbridge Junction. The traffic model illustrates the serious overloading of the A22 corridors.

The 6 day Supplementary report March 2015 identified that total MQ's were AM 5.4 times higher and in PM 3.5 times higher than November 2011 reaching an average of 900 reaching 1.3km on A22 London Road South.

- The March 2015 survey results for the Lingfield Junction shows discernible deterioration in congestion along all A22 approaches since the Atkins Stage 3 November 2011 surveys. The junction is considerably oversaturated with prolonged queuing delays over half a kilometre recorded along the A22 in both directions.

The queue length at the A22 London Road [N] and A22 London Road [S] arms has surged significantly between 23% and 59%, reaching from 134 to 279 pcu's in PM Peak and 161 to 179 in the AM Peak . Whereas delay time lengthens 10% to 59% ranging from 638 sec to 1,051 secs in AM and 728 to 988 in the PM.

RFC for both arms remain well above 1.0 between 1.2 and 1.33 similar to November 2011 which is very unacceptable in modelling terms being well above the limit of satisfactory performance of 0.85.

The Lingfield Rd arm shows some reduction in congestion but the arm still records a RFC around 1.0 with a 265 sec delay in the PM and still operates at around 1.0 RFC [AM 0.98, PM 1.05].

5.0 IMPACT OF APPROVED/COMMITTED HOUSING DEVELOPMENT ON EXISTING TRAFFIC CONDITIONS

- 5.1 Having evaluated, quantified and confirmed in Section 4 ' the Severe Current Traffic Conditions ' identified by the Jubb March 2015 Surveys that exist across the A22 (see Appendix A Table 1), the 'realistic and true' benchmark for assessing the full current traffic conditions has to, in addition, recognised the already Approved/Committed Housing in EG and surrounding area which directly impacts the A22 junctions (See Appendix B, Table 2]
- 5.2 At the 1st April 2015 MSDC stated that EG had a large pipeline of 560 dwellings already approved / committed but not built/occupied, of which 485 units are deliverable within 5 years. 485 units has been used in the Junction Modelling together with the forecasted traffic flow to and from the new 500 home development at Copthorne Village West. The impact of this approved development is shown in Appendix B Table 2
- 5.3 The Study shows that the already approved development above has a major adverse impact on the existing 'Severely congested' A22 junctions (see Appendix B, Table 2] as over a half of the Lingfield, Imberhorne and Felbridge Junction arms are operating at a DOS/RFC ranging from 130 to 159 during the AM and PM Peak with the rest in excess of theoretical capacity.
- 5.4 Traffic delays, at these junctions, will surge dramatically over the March 2015 profile reaching around 1200 sec delay at the Lingfield A22 London Road Northern and Southern arms with average MQ's 262 pcus around 1.6km. At the stretched Felbridge A264 Copthorne Road and Imberhorne A22 London Road Southern arms delays average 666 secs with the equivalent queue length 190 pcu's around 1.14km
- 5.5 Focusing on each Individual junction the study highlights that
 - Lingfield Junction shows significant deterioration along the A22 London Road in each direction during both AM and PM peak with the arms operating at a high RFC value in the band of 1.31 to 1.41 resulting in delays ranging from 996 secs to 1319 secs.
 - At the Felbridge junction, the DOS of the problematic A264 Copthorne Rd arm reaches 154% as delays increase to 720 secs with the overall junction Practical Reserve Capacity (PRC) exhibiting a negative high of 71.2%.
 - Imberhorne junction AM Peak model exhibits a negative PRC Value of 76% from 60% recorded for the March 2015 profile with A22 London Rd Southern approach reaching 158 DOS with a queue length of 246 pcu's or 1.5km creating a delay of 761 secs. A similar tendency was also observed in the PM Peak tests with a prolong

- queuing delay in excess of 530 secs predicted at both the Imberhorne Lane and the A22 London Road South which is 25 60% up on the March 2015 level.
- 5.6 The above indicates that without any significant highway enhancements, the network is brought to a standstill with a severe queuing delay of over 1.2 km predicted along the A22 corridor in both directions.
- 5.7 The capacity of the system will be further exceeded when taking into account the committed developments as any form of traffic growth will add to this burden and result in a deterioration of the junction performance prolonging network delay.
- 5.8 The modelling results demonstrate that there is an urgent need to provide a solution to the severe delay predicted along the A22 as the poor performance of this gateway access will inevitably hinder the economic growth of East Grinstead and affect the living quality of local residents.

6.0 EXISTING TRAFFIC CONDITIONS V 2019 FORECAST CONDITIONS INCLUDING IMPACT OF DM AND HPF

- 6.1 Atkins 3 Report paragraph 10.2.2 page 66 states 'The Do Minimum [DM] Scenario broadly accommodates the 765 units already committed with the network operating within theoretical capacity but congestion will not be eliminated'. The development enablement on the A22 London Road is constrained to 765 residential units as a ceiling to growth in the town'.
- 6.2 DM provides signal optimisation of the Lingfield, Imberhorne, and Felbridge Junctions also at Felbridge Junction to provide two lanes on the A22 southbound exit from the junction to permit the planned two lanes of turning traffic to complete this manoeuvre safely. DM enables optimisation of the network within the existing boundary the signal optimisation upgrades these junctions coordinated on a SCOOT system to control the progression of traffic
- 6.3 Appendix C, Table 3 presents the modelling results predicted for completion year of the proposed HPF development Year 2019 (the opening year). The scenario was built upon the predicted Year 2019 baseline condition (2015 Baseline Traffic x TEMPRO Growth) plus the MSDC approved /committed housing developments { by 1st April 2015] and the proposed HPF development that are all mitigated by the Atkins Stage 3 Do Minimum A22 infrastructure improvement programme outlined above against the March 2015 Existing Traffic Conditions. This table shows
 - Imberhorne Lane Junction, despite the signal timing have been optimised to reduce the total junction delay (as proposed by Atkins Stage 3 Report), a significant increase in queue length is predicted along Imberhorne Lane and the A22 London Road South during both AM and PM Peak upon the 2015 March Profile.
 - Extended delays of 660sec and 1068 secs is predicted respectively at Imberhorne Lane and A22 London Road South during the AM Peak which is an average increase of 52% above the 2015 profile as the negative Practical Reserve Capacity (PRC) doubles to 132%. Whereas a combined increase of 88% in delay was predicted for the PM Peak across the tow arms with recorded queue lengths extending from 126 pcu to 219 pcu along A22 London Road South and 52 pcu to 124 pcu at Imberhorne Lane.
 - Taking into account the proposed Atkins Stage 3 "Do Minimum" Highway Enhancements, the operational efficiency of Felbridge Junction will slightly deteriorate in PM upon the 2015 baseline profile with a PRC value from -54.1 to- 52.5 in the AM Peak and -47.4% to -53.0% in the PM Peak.
 - Congestion at the A264 is aggravated with an increase of 18 and 34 pcu predicted in queue length respectively in AM and PM Peak extending the queue length to 918m and 954m 20% above the 2015 March level. Whereas, a reduction in queueing delay was predicted along the A22 London Road North during both AM and PM Peak.

- Betterment is predicted at Lingfield junction as result of the proposed signalisation, the degree of saturation (ratio of capacity) on each individual arms is brought back to around 100% despite a negative PRC value of -12.7% in the AM Peak and -17.5% in the PM. Significant improvements are predicted along the A22 London Road arm with the northern approach down to 69% in the AM and 79% in the PM Peak and the southern entry around 100-105.7%.
- 6.4 In view of this, the study concludes that despite the proposed Atkins Stage 3 Do Minimum infrastructure programme showing a certain degree of betterment at the Lingfield Road junction, the improvements do not deliver a long term highway solution that will mitigate the impact of both the committed and HPF developments and thus resolve the severe traffic conditions along the A22 Corridor with the Felbridge and Imberhorne Lane Junctions still experiencing extreme congestion.

6.5 The Capacity study proves that:

- The Do Minimum Infrastructure improvement Plan does not mitigate for the proposed Hill Place Farm [HPF] Ref: DM/15/0429.
- The detailed modelling of the 2019 traffic conditions which take into account traffic from the committed developments, Hill Place Farm and the proposed mitigation (Do Minimum) results in a Severe Cumulative Residual Impact on the A22. Therefore the proposed Hill Place Development is Contrary to Paragraph 32 of the NPPF.

7.0 2021 FORECAST 'DM' TRAFFIC CONDITIONS ATKINS STAGE 3 v JUBB Including HPF

- 7.1 The Atkins Stage 3 DO MINIMUM (DM) infrastructure improvement programme was designed to provide a solution to address the existing November 2011 traffic conditions and the forecasted 2021 congestion issues accommodating the 765 already committed housing units 1st April 2011 (which represents a ceiling limit). The Atkins Stage 3 report stated that it enabled the traffic network to operate within theoretical capacity in forecast year 2021 although congestion was not eliminated.
- 7.2 This DM 2021 forecast A22 Network profile shown by Appendix D Table 4 AM, Table 5 PM (reference Atkins Stage 3 Report Table 29 page 51, Table 30 page 52) is compared to the equivalent Up to Date Jubb 2021 profile. This includes
 - the modelled traffic for Jubb March 2015 survey;
 - the traffic from the 485 units* approved/ committed EG development (including the traffic to and from EG from the 500 Copthorne Village West -CVW project);
 - traffic from the 200 unit proposed Hill Place Farm site; and
 - the mitigation as per the DM infrastructure investment programme.
- 7.3 The principle difference between these two profiles is that Jubb which includes 1,288 dwellings (together with the traffic flow from CVW to and from EG) is 533 units (70%) in excess of the DM unit design ceiling of 765 units , much more housing than DM can absorb. This outstrips the A22's capacity, leaving it overloaded resulting in very severe traffic conditions even after DM has been implemented.
- 7.4 This is clearly shown by the comparison tables 4 and 5 for the Felbridge, Imberhorne and Lingfield junctions which, after the relief of DM, confirms:
 - Felbridge Junction the Jubb forecast 2021 profile shows a major adverse change to the predicted Atkins Stage 3 profile recording severe congestion with a Practical Reserve Capacity (PRC) AM peak hour 55.1%; PM peak hour 64.1% with all arms operating with increased saturation against Atkins Stage 3 2021 forecasts.

The A264 Copthorne Rd arm AM, PM is substantially above theoretical capacity and heavily congested as AM DOS 140 has a queue of 162 pcu's approx. 972m with delay 592 secs. PM DOS 148 has a queue of 188 pcu's approx. 1,128m wit delay 670 secs. The two other arms operate around theoretical capacity with increased delays.

- Imberhorne Junction the Jubb forecast 2021 shows substantial adverse change to the predicted Atkins Stage 3 profile with PRC well above the severely congested Felbridge junction at AM peak hour PRC -146.7%; PM peak hour 90.9% with all arms above 100% DOS as A22 London Rd South arm with DOS 220 AM ,172 PM records queues of 234 and 390 pcu's approx. 1.4km to 2.3km with long delays of 862 to 1,124 secs with the Imberhorne Lane arm having a DOS 153 AM; 168 PM generating queues of 133 pcus 798m incurring delays of 700 to 815 secs leaving A22 London Rd North arm at around theoretical capacity with limited queues and delays.
- Lingfield Rd Junction has a similar AM profiles as Atkins Stage 3 with PM Lingfield Rd and A22 London Rd South operating above theoretical capacity at DOS 110 with delays of around 220 secs.
- 7.5 Two years later than the Jubb 2019 profiles in section 6, Tables 4 and 5 show the severe A22 congestion has materially worsened. The above shows that with the house building profiled in 7.2 above, well above the Atkins capacity ceiling of the 765 unit DM Solution, the DM has not solved the A22 congestion problem it was designed for, leaving a major problem and exceptionally severe congestion at the Felbridge and Imberhorne Junctions.
- 7.6 Immediate recognition of the size of A22 traffic problem is required, and a moratorium placed on any further major development proposals in EG (such as Hill Place Farm ref DM/15/0429) until a strategic highways solution is implemented to overcome these severe traffic conditions and bring the affected junctions well within practical capacity.

8.0 CONCLUSION

- 8.1 This Jubb Modelling report on A22 traffic conditions, as per their recent surveys is the first, to be carried out since Atkins Stage 3 in May 2012. It is compliant with the Transport Assessment [TA] requirements stipulated in MSDC Validation Criteria for planning applications June 2015 TA for residential development of 50 or more units. Both the Jubb Surveys and modelling reports are the 'most up to date' and conform to NPPF 158.
- 8.2 Linden Homes TA for planning application DM/15/0429 for the proposed Hill Place Farm development is in breach of the MSDC Validation Criteria above in 8.1 by not complying with WSCC TA Methodology 21st June 2007, failing to meet the requirements of Section 10.5. No modelling of the current traffic conditions on the A22 has been carried out nor the impact of the HPF development itself assessed in detail see WSCC Section 10, 10.5.1, 10.5.18, 10.5.6, 10.5.13 etc.
- 8.3 Section 4 and Table 1 shows the results of modelling the Jubb March 2015 6 day Survey results at the A22 Junctions Felbridge, Imberhorne and Lingfield. It quantifies the severity of existing traffic conditions, with
 - the Imberhorne and nearby Felbridge junctions having all 6 arms operating over their theoretical capacity [100% degree of saturation -DOS] with nearly half operating at a high 131-144 DOS incurring substantial delays 499 -637 secs with long queues approx. 750m to 1,150m. Both Junctions operate with a large negative [lack of] Practical Reserve Capacity [PRC] of around 50% at Felbridge reaching 60% at Imberhorne.
 - The Lingfield Junction shows discernible deterioration along the A22 approaches since Atkins Stage 3 surveys in November 2011. The Junction is considerably oversaturated with prolonged queuing delays of over half a kilometre along the A22 in both directions. Queue lengths on the A22 London Rd [N] and A22 London Rd [S] reaching MMQ 179 pcus approx. 1,150m and MMQ 279 pcus 1,600m respectively.
- 8.4 The 'realistic and true' benchmark for assessing the full current traffic conditions has to, in addition, recognised the 'Already Approved /Committed not built/occupied residential units which directly impact upon the A22 junctions.
- 8.5 Section 5 Table 2 sets out the scene which shows the already approved development has a major adverse impact on 8.3 above. Traffic delays surge dramatically over the March 2015 profile reaching:

- 1,200 sec delay at the Lingfield, A22 London Road Northern and Southern arms with average MQ 262 pcus around 1,600m.
- At Felbridge A264 Copthorne Road and Imberhorne, A22 London Road Southern arms delays averaging 666 secs with the queue length 190 pcus around 1,140m.
- Against this background traffic conditions are forecast for 2019 the predicted year of completion of the proposed HPF development, the opening year, see Section 6 Table
 The impact of proposed HPF development with the proposed Do Minimum mitigation measures added has been compared to existing traffic condition seen during the Jubb March 2015 Survey concluding.
 - There is a dramatic escalation in the severe congestion at Imberhorne Lane Junction as during:
 - ➤ The AM peak negative Practical Reserve Capacity [PRC] doubles to -132% as extended delays at Imberhorne Lane and A22 London Rd South arms increase on average 52% above the 2015 profile. Delays are 660 and 1068 sec respectively with long queue lengths of 732m [MMQ 122 pcus] and 2,188m [MMQ 364 pcus]
 - ➤ The PM peak negative PRC nearly doubles to 81.60% with delay average increase along Imberhorne Lane and A22 London Rd South arms 87% to around 785 secs as queue length extend to 744m [MMQ 124 pcus] and 1,314m [MMQ 219 pcu's] respectively.
 - At Felbridge traffic conditions slightly deteriorate in operational efficiency with negative PRC in AM peak moving from -54.1% to 52.5% and from -47.4% to -53.0% in the PM peak.
 - Congestion at the A264 is aggravated with an increase of 18 and 34 pcu predicted in queue length respectively in the AM and PM Peaks extending the queue length to 918m and 954m, 20% above the 2015 March level. Whereas, a reduction in queuing delay was predicted along the A22 London Road North during both AM and PM Peak.
- 8.7 The above profile and model concludes that the proposed 'Do Minimum' Infrastructure improvement plan does not provide adequate mitigation for the proposed HPF development.
- 8.8 The above detailed Modelling proves that the 2019 traffic conditions which take into account Traffic from the Commitment Development, Hill Place Farm and the proposed mitigation [Do Minimum] would result in a Severe Cumulative Residual

Impact on the A22. Therefore the proposed Hill Place Development is Contrary to Paragraph 32 of the NPPF and should be refused.

- 8.9 Atkins Stage 3 prediction for 2021 seriously underestimated the severe nature of the traffic congestion and delays in and around East Grinstead Jubb Predictions for 2021 including HPF and mitigation DM show that, all junctions are operating with substantially more congestion, as delays and queue lengths significantly increase above that Atkins 3 DM Predicted for 2021 at:
 - Imberhorne Lane Junction shows substantial adverse change to Atkins 3 as DOS AM, PM doubles for Imberhorne Lane and A22 London Rd South arms varying between highs of 153 to 222 incurring queue lengths from 792m [MMQ 132 pcus] and 2,340m [MMQ 390 pcus] with delays of 700secs to 1124 secs.
 - Felbridge Junction also experiences a major adverse change to Atkins 3 as DOS rise to theoretical capacity and above with A264 Copthorne Rd arm reaching AM, PM 140 - 148 which incurs queue lengths of around 1 km and delays of 600 secs and above.
 - Lingfield Junction PM deteriorates above Atkins 3 as Linfield Rd and A22 London Rd South arms rise to 110 DOS from around 85 and delay times extend to approx. 200 sec with queue on the A22 London Rd South Arm reaching 630m from 144m.
- 8.10 In addition Jubb 2021 prediction indicate further deterioration in congestion for this assessment year from that Jubb predicted in 2019 in 8.6 above the 'opening year' for HPF development year as defined by WSCC TA Methodology June 2007 per paragraph 10.5.6.
- 8.11 The modelling results demonstrate that there is an urgent need to provide a solution to the severe delay predicted along the A22 as the poor performance of this gateway access will inevitably hinder the economic growth of East Grinstead and affect the living quality of local residents.

APPENDIX A - TRAFFIC TABLE 1

Existing Traffic Conditions Jubb March 2015 Survey v Atkins 3 November 2011 Survey

Felbridge		tkins 3 mber 2	011		Jubb Ma	rch 20:	15	% Increase		
Junction	MMQ	DOS%	Delay (s)	ммо	DOS%	Delay (s)	PRC	ммо	Delay (s)	
AM Peak										
A22 London Road (N)	9	84.00%	46	50	118.50%	362		456%	687%	
A22 London Road (S)	10	80.00%	14	50	106.20%	144	-54.10%	400%	929%	
A264 Copthorne Rd	30	96.00%	62	135	138.60%	577		350%	831%	
PM Peak										
A22 London Road (N)	16	77.00%	37	32	103.50%	147		100%	297%	
A22 London Road (S)	12	86.00%	19	53	104.80%	125	-47.40%	342%	558%	
A264 Copthorne Rd	26	91.00%	45	125	132.70%	513		381%	1040%	
Imberhorne Ln Junction	ммQ	DOS%	Delay (s)	ммQ	DOS%	Delay (s)	PRC	ммQ	Delay (s)	
AM Peak										
A22 London Road (N)	25	68.00%	51	68	110.80%	214		172%	320%	
A22 London Road (S)	23	76.00%	27	190	144.00%	637	-60.00%	726%	2259%	
Imberhorne Ln	15	75.00%	45	84	131.70%	500		460%	1011%	
PM Peak										
A22 London Road (N)	27	74.00%	27	45	118.30%	126		67%	367%	
A22 London Road (S)	20	72.00%	26	126	131.00%	499	-45.50%	530%	1819%	
Imberhorne Ln	16	78.00%	48	52	118.10%	335		225%	598%	
Lingfield Road Junction	Queue MMQ	RFC	Delay (s)	Queue MMQ	RFC	Delay (s)	Junction Delay	ммQ	Delay (s)	
AM Peak										
Lingfield Rd	57	1.18	420	18	0.98	124		-68%	-71%	
A22 London Road (N)	101	1.28	660	161	1.33	1051	630.68	59%	59%	
A22 London Road (S)	141	1.25	540	179	1.2	638		27%	18%	
PM Peak										
Lingfield Rd	48	1.16	360	37.56	1.05	265		-22%	-26%	
A22 London Road (N)	109	1.28	660	134	1.22	728	755.47	23%	10%	
A22 London Road (S)	215	1.34	780	279	1.31	988		30%	27%	

APPENDIX B TRAFFIC TABLE 2

Impact of Approved/Committed Development on Existing Traffic Conditions

Felbridge Junction		Jubb Mai	rch 201	15	Jubb March 2015 + Approved Committed Houses Not Built					% Increase	
	ммо	DOS%	Delay (s)	PRC	ммо	DOS%	Delay (s)	PRC	ммQ	Delay (s)	
AM Peak											
A22 London Road (N)	50	118.50%	362		59	122.60%	414	-71.20%	18%	14%	
A22 London Road (S)	50	106.20%	144	-54.10%	119	118.10%	307		138%	113%	
A264 Copthorne Rd	135	138.60%	577		183	154.10%	720		36%	25%	
PM Peak											
A22 London Road (N)	32	103.50%	147		53	110.90%	248	-62.70%	66%	69%	
A22 London Road (S)	53	104.80%	125	-47.40%	89	109.80%	198		68%	58%	
A264 Copthorne Rd	125	132.70%	513		171	146.40%	652		37%	27%	
Imberhorne Ln Junction	ммQ	DOS% Delay PRC		PRC	ммQ	DOS%	Delay (s)	PRC	ммо	Delay (s)	
AM Peak											
A22 London Road (N)	68	110.80%	214		113	119.30%	326	-75.90%	66%	52%	
A22 London Road (S)	190	144.00%	637	-60.00%	246	158.30%	761		29%	19%	
Imberhorne Ln	84	131.70%	500		105	141.30%	599		25%	20%	
PM Peak											
A22 London Road (N)	45	118.30%	126		105	130.40%	282	-55.70%	133%	124%	
A22 London Road (S)	126	131.00%	499	-45.50%	158	140.10%	597		25%	20%	
Imberhorne Ln	52	118.10%	335		83	134.70%	532		60%	59%	
Lingfield Rd	MQ	RFC	Delay (s)	Junction Delay	MQ	RFC	Delay (s)	Junction Delay	ммо	Delay (s)	
AM Peak											
Lingfield Rd	18	0.98	123.78		31.52	1.03	202		74%	63%	
A22 London Road (N)	161	1.33	1051	630.68	208.57	1.41	1319	905.1	30%	25%	
A22 London Road (S)	179	1.2	637.82		280.12	1.31	996		56%	56%	
PM Peak											
Lingfield Rd	37.56	1.05	265		52.09	1.09	357		39%	35%	
A22 London Road (N)	134	1.22	728	755.47	218.16	1.36	1162	1018.99	63%	60%	
A22 London Road (S)	279	1.31	988		340.89	1.38	1210		22%	22%	

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APPENDIX C TRAFFIC TABLE 3

2019 Baseline + Impact of Approved Committed Dwellings + HPF + Mitigation DM] V Jubb March 2015 Survey

Felbridge Junction	Jubb March 2015					9 Baseline nitted + HI (Atkin	% Increase			
	ммо	DOS%	Delay (s)	PRC	ммо	DOS%	Delay (s)	PRC	ммо	Delay (s)
AM Peak										
A22 London Road (N)	50	118.50%	362		19	97.20%	92	-52.50%	-62%	-75%
A22 London Road (S)	50	106.20%	144	-54.10%	22	96.90%	41		-56%	-72%
A264 Copthorne Rd	135	138.60%	577		153	137.20%	568		13%	-2%
PM Peak										
A22 London Road (N)	32	103.50%	147		19	91.60%	52		-41%	-65%
A22 London Road (S)	53	104.80%	125	-47.40%	64	105.40%	131	-53.00%	21%	5%
A264 Copthorne Rd	125	132.70%	513		159	137.70%	572		27%	12%
Imberhorne Ln Junction	ммQ	DOS%	Delay (s)	PRC	ммо	DOS%	Delay (s)	PRC	ммQ	Delay (s)
AM Peak										
A22 London Road (N)	68	110.80%	214	-60.00%	29	99.80%	64	-132.20%	-57%	-70%
A22 London Road (S)	190	144.00%	637		364	209.00%	1068		92%	68%
Imberhorne Ln	84	131.70%	500		122	148.50%	660		45%	32%
PM Peak										
A22 London Road (N)	45	118.30%	126		21	103.30%	40		-53%	-68%
A22 London Road (S)	126	131.00%	499	-45.50%	219	161.60%	789	-81.60%	74%	58%
Imberhorne Ln	52	118.10%	335		124	163.40%	782		138%	133%
Lingfield Rd RA	Queue MMQ	RFC	Delay (s)	Junction Delay	Queue MMQ	DOS%	Delay (s)	PRC	ммQ	Delay (s)
AM Peak										
Lingfield Rd	18	0.98	123.78		28	101.50%	121		55%	-2%
A22 London Road (N)	161	1.33	1051	630.68	14	69.30%	22	-12.70%	-91%	-98%
A22 London Road (S)	179	1.2	637.82		46	99.50%	62		-74%	-90%
PM Peak										
Lingfield Rd	37.56	1.05	265		28	102.70%	139		-25%	-48%
A22 London Road (N)	134	1.22	728	755.47	19	79.00%	24	-17.50%	-86%	-97%
A22 London Road (S)	279	1.31	988		78	105.70%	142		-72%	-86%

APPENDIX D TRAFFIC TABLES 4 AND 5

COMPARISON OF FORCAST A22 TRAFFIC NETWORK CONDITIONS 2021

Atkins Stage 3 Nov 2011 Surveys v Jubb March 2015 Survey

Table 4 - AM Peak	Atkins	Atkins 3 Do Minimum (DM)			March 2015 S owth + Appro ment + HPF DM	% Increase						
	DOS%	Q (pcu)	Delay (s)	DOS%	Q (pcu)	Delay (s)	ммQ	Delay (s)				
Felbridge Junction												
A264 Copthorne Rd	88	18	43	140	162.00	592	800%	1277%				
A22 London Road (N)	82	9	40	99	22.00	108	144%	170%				
A22 London Road (S)	90	14	20	99	30.00	56	114%	180%				
Imberhorne Ln												
Imberhorne Ln	87	19	59	153	132.00	700	595%	1086%				
A22 London Road (N)	96	20	99	99	27.00	54	35%	-45%				
A22 London Road (S)	92	34	43	222	390.00	1124	1047%	2514%				
Lingfield Road												
Lingfield Road	99	22.00	3	98	23.00	88	5%	2833%				
A22 London Road (N)	85	16.00	0	74	16.00	25	0%	-				
A22 London Road (S)	97	37.00	2	105	73.00	132	97%	6500%				

Table 5 - PM Peak	Atkins	3 Do Mini (DM)	imum	G	March 2015 : rowth + Appi pment + HPF DM	% Increase				
	DOS%	Q (pcu)	Delay (s)	DOS%	Q (pcu)	Delay (s)	ммQ	Delay (s)		
Felbridge Junction										
A264 Copthorne Rd	85	17	35	148	188.00	670	1006%	1814%		
A22 London Road (N)	72	16	31	89	18.00	44	13%	42%		
A22 London Road (S)	84	12	15	105	63.00	122	425%	713%		
Imberhorne Ln										
Imberhorne Ln	81	18	50	168	133.00	815	639%	1530%		
A22 London Road (N)	87	17	68	101	16.00	25	-6%	-63%		
A22 London Road (S)	85	27	36	172	244.00	862	804%	2294%		
Lingfield Road	Lingfield Road									
Lingfield Road	87	17.00	11	110	43.00	229	153%	1982%		
A22 London Road (N)	90	22.00	1	79	19.00	23	-14%	2200%		
A22 London Road (S)	82	24.00	0	110	105.00	211	338%	_		

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