1. Introduction

1.1. This Technical Note provides a review, on behalf of the Highways Agency, of the ‘Highways Position Statement Addendum’ document prepared by Ardent Consulting Engineers (ACE) in May 2013, relating to the proposed development at Sorrells Land, Hatfield Peverel.

1.2. AECOM previously reviewed the Highway Position Statement document and identified a number of issues in our Technical Note 1, which can be summarised as follows:

- Observed speeds and consequent visibility requirements at the site access junction;
- Junction design and road safety issues at the site access;
- The capacity of the junction between Bury Lane and The Street and the risk of a queue of traffic tailing back from this junction to the A12 Trunk Road.

1.3. Further material has now been provided, as detailed in the sections that follow in this Note.

2. Collision Data

2.1. ACE have provided collision data for the five year period to 31 December 2012, covering the A12 northbound off-slip, Bury Lane and B1137 The Street.

2.2. AECOM have reviewed the data and can confirm that there does not appear to be any specific problem at Bury Lane that would apply to the site access.

3. Speed Survey

3.1. As AECOM highlighted that the speed survey undertaken in February 2013 was not compliant with DMRB standards, ACE repeated the survey with Automatic Traffic Counts (ATC) on the northbound approach to the 30mph ‘gateway’ for a 7-day period commencing 13 May 2013.

3.2. The ATC was positioned 50m south of the 30mph ‘gateway’, which ACE state is commensurate with the furthest position where a vehicle can be seen by a driver waiting to turn right into the proposed site access. This would appear a more appropriate location.

3.3. A resulting 85th percentile wet weather seed of 37.1mph (59.7kph) was recorded (6mph/9kph higher than recorded in the February survey).
**Stopping Sight Distance**

3.4. ACE refer to TA22/81 (Vehicle speed measurements on all purpose roads) that states: 'For new major/ minor junctions or accesses on existing roads, the normal design methods are based on the 85th percentile wet weather journey speed for vehicles.

3.5. ACE has therefore calculated the stopping sight distance (SSD) of vehicles travelling on the northbound off-slip to the proposed junction using the 85th percentile weather speeds based on formula set out in Manual for Streets. Based on this, ACE calculate that for an 85th percentile wet weather speed of 37.1mph (59.7kph), a SSD of 80m is required (82m is achievable).

3.6. AECOM acknowledge the argument put forward by ACE, but would also refer to TD42/95 which states in paragraph 2.16 ‘it is important that any driver wishing to turn right across the opposing traffic stream into the access shall be able to see oncoming traffic for the desirable minimum SSD as set out in TD9 for the design speed of the road and paragraph 2.24 ‘in calculating sightlines it is important to ensure that the trunk road traffic shall have at least desirable minimum SSD on the approaches to the access (TD9)’.

3.7. The speed measured by ACE (rounded up to 60kph) would require a forward SSD of 90m (TD9) which is not currently available. It should be noted that the emerging visibility splay of 90m from the minor road shown on the junction layout drawing can now be confirmed as adequate.

3.8. The issues outlined above will need to be discussed further in the future. However, if considered necessary, it is likely that speed reducing measures could be provided to slow vehicles on the approach to the junction (for example relocating the gateway) to mitigate the visibility issues identified. These could be investigated at the planning application stage.

3.9. On the basis of the above, AECOM advise that this issue need not be pursued any further by the Highways Agency at this stage of the planning process. However, it should be re-visited in any Transport Assessment produced at Planning Application stage.

4. **Site Access & Road Safety Audit**

4.1. AECOM raised a number of points with regards to the layout of the site access, namely:

   a) Provision of tapers and the swept paths of large goods vehicles
   b) The historic issue of drivers joining the A12 slip road in the wrong direction
   c) The spacing of the new and existing junction

4.2. With reference to a) ACE state that it is anticipated that any minor amendments to the junction design can be undertaken following consultation with Essex County Council at the planning application stage. This would appear reasonable at this stage of the planning process.

4.3. With regards to the swept path of heavy goods vehicles, ACE acknowledge that heavy goods vehicles will need to enter the opposing lane, however make reference to the low passing westbound traffic flows which will afford opportunity to egress safely. This would appear a valid argument.
4.4. With regards to b) ACE state that no collisions were reported at the slip road. Whilst this may be the case, local knowledge suggests that such behaviour occurs, although it may not have resulted in any recorded collisions. ACE consider the existing signage to be sufficiently robust in alerting drivers that no entry is permissible to the slip road, however state that this can be reviewed in detail at the planning application stage. This would appear a reasonable way forward with regards to this issue.

4.5. For c), ACE have ascertained the view of the Road Safety Audit Team who undertook the Stage 1 RSA on the proposed layout with regards to the issue identified. The Audit Team’s response is detailed below in italics, together with AECOM’s comments:

- This section of Bury Lane is not a through route and serves a small number of properties, the main producer of movements is Arla foods, which is relocating its access, thereby reducing the movements on this section of Bury Lane.
  
  AECOM agree that this is the case.

- Traffic heading westbound indicating to turn right, will in fact reach the new access first, and their intentions should therefore be clear and this should not be problematic. This situation could exist to a lesser degree at present with vehicles accessing the field or Sorrells Cottages.
  
  AECOM agree that this is the case.

- Traffic heading eastbound indicating to turn left into either Bury Lane, the new site access, or Sorrells Cottages. The present situation exists where vehicles indicating could enter the field, Bury Lane or Sorrells Cottages at this point.
  
  Whilst the Audit Team’s comments are noted, it is AECOM’s view that the number of daily trips to/from the farm access is likely to be minimal, with the access to Sorrells cottages serving only two dwellings. The provision of a new access will reduce the number of trips on Bury Lane, however Bury Lane does still appear to serve a number of residential dwellings.

- This situation could exist with any accesses in close proximity, and the onus must remain on the road users not to anticipate the movements of other vehicles on the highway.
  
  AECOM agree that this is the case, however the potential for any issues to exist would appear significantly lower at present. The point regarding the onus on users of the highway is however duly noted.

4.6. AECOM remain concerned about the close proximity of the two junctions. However, the Audit Team have satisfied themselves that this should not be an issue, and on this basis it is recommended that this is considered again at the planning application stage, subject to Essex County Council (the Local Highway Authority in this instance) being content with the design as proposed at this stage.
5. **Bury Lane/ The Street Junction**

*Trip Generation and Distribution*

5.1. ACE have used AECOM’s trip generation figures for the proposed site from our Technical Note 1 to assess the impact of the development on the Bury Lane/ The Street junction. AECOM consider this approach reasonable.

5.2. ACE have distributed trips on the network based on 2001 Census Travel to Work origin-destination (O-D) data for the residential population of the Hatfield Peverel ward who drive to/from work. This resulted in a 60/40 split for journeys to/from the direction of Chelmsford and Colchester respectively. AECOM consider this broadly reasonable.

5.3. AECOM confirm that the traffic flows have been correctly applied to the traffic flow diagrams.

*Future Year Growth*

5.4. ACE have interrogated TEMPRO v6.2 to obtain future growth factors to project 2013 traffic flows to a future assessment year of 2026. AECOM can confirm that this is the latest version of TEMPRO and NTEM dataset.

5.5. The proposed development has not been discounted in the derivation of NTEM rates, and therefore ACE state that the element of double-counting allows for a robust factor. AECOM would recommend that growth from the proposed development is discounted to ensure that the most likely scenario is represented, thus avoiding any unnecessary mitigation.

5.6. ACE obtained the following growth factors:

| Table 1: TEMPRO Growth Rates 2013 – 2026 (ACE) |
|-----------------|-----------------|-----------------|
| Road Type       | AM              | PM              |
| Rural Trunk Roads | 1.079           | 1.088           |
| Rural Minor Roads | 1.178           | 1.188           |

5.7. AECOM have not been able to reproduce the figures obtained by ACE. In addition, we note that the ‘rural trunk roads’ growth rates appear to be very low. Table 2 shows AECOM’s figures, with growth rates adjusted for the proposed site.

| Table 2: TEMPRO Growth Rates 2013 – 2026 (AECOM) |
|-----------------|-----------------|-----------------|
| Road Type       | AM              | PM              |
| Rural Trunk Roads | 1.1686          | 1.1762          |
| Rural Minor Roads | 1.1331          | 1.1404          |

5.8. AECOM would advise that ACE clarify the growth rates used.

*Traffic Impact*

5.9. ACE have produced a PICADY model run of the Bury Lane/ The Street junction.
5.10. A manual turning count survey undertaken on 15 May 2013 between 07:00 & 10:00 and 16:00 & 18:00 was used to ascertain the AM and PM peak hours. A morning peak hour of 07:30 – 08:30 and evening peak hour of 17:00 – 18:00 was determined. AECOM consider this broadly reasonable.

5.11. During the course of the survey, average queues of 2-3 vehicles were observed on Bury Lane in the morning peak hour, increasing to 4-5 in the evening peak hour.

5.12. AECOM have reviewed the junction geometry inputs within PICADY and have found various discrepancies between our figures and ACE’s. The below table shows road geometry where differences of more than 5% have been found been ACE’s and our figures.

Table 3: PICADY Geometry Input Comparison

<table>
<thead>
<tr>
<th>Data Item</th>
<th>Minor Road B</th>
<th>Measurement agreed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total major road carriageway width</td>
<td>6.25m</td>
<td>6.0m</td>
</tr>
<tr>
<td></td>
<td>Ace</td>
<td>AECOM</td>
</tr>
<tr>
<td>Major road right turn width</td>
<td>2.2m</td>
<td>2.2m</td>
</tr>
<tr>
<td>Minor road visibility to left</td>
<td>25.0m</td>
<td>21.0m</td>
</tr>
<tr>
<td>Minor road visibility to right</td>
<td>21.0m</td>
<td>37.0m</td>
</tr>
<tr>
<td>Width at 0m from junction</td>
<td>10.0m</td>
<td>10.0m</td>
</tr>
<tr>
<td>Width at 5m from junction</td>
<td>5.2m</td>
<td>4.8m</td>
</tr>
<tr>
<td>Width at 10m from junction</td>
<td>3.4m</td>
<td>3.2m</td>
</tr>
<tr>
<td>Width at 15m from junction</td>
<td>3.2m</td>
<td>2.8m</td>
</tr>
<tr>
<td>Width at 20m from junction</td>
<td>3.2m</td>
<td>2.8m</td>
</tr>
</tbody>
</table>

5.13. AECOM would advise ACE to revisit the figures used.

5.14. AECOM confirm that the traffic flows have been correctly entered into PICADY. However, given that the growth rates may need to be adjusted, the PICADY model may need to be rerun with updated figures. The PICADY results are shown below.

Table 4: PICADY Results – Bury Lane/ The Street Junction

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Bury Lane approach to the junction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AM</td>
</tr>
<tr>
<td></td>
<td>Max RFC</td>
</tr>
<tr>
<td>2013 Observed</td>
<td>0.467</td>
</tr>
<tr>
<td>2026 without Development</td>
<td>0.520</td>
</tr>
<tr>
<td>2026 with Development</td>
<td>0.545</td>
</tr>
</tbody>
</table>

5.15. Based on the above table, the maximum queue at the junction would be 17 PCUs during the ‘2026 with Development’ PM peak scenario. This would extend up to the bridge over the A12, however it would not block the site entrance and would appear to have a low risk of tailing back to the Trunk Road.

5.16. This may change once PICADY is updated. Notwithstanding this and taking the PICADY results at face value, AECOM consider this to be more of a Local Highways Authority issue rather than Highways Agency, as the A12 slip road does not appear to be affected.
6. Conclusions

6.1. AECOM have reviewed on behalf of the Highways Agency, the ‘Highways Position Statement Addendum’ document prepared by Ardent Consulting Engineers (ACE) in May 2013, relating to the proposed development at Sorrells Land, Hatfield Peverel.

6.2. AECOM have made the following comments:

- Regarding the forward visibility stopping sight distance (SSD), AECOM acknowledge ACE’s argument, but would refer to TD42/95 paragraphs 2.16 & 2.24 in respect of the DMRB visibility requirement.
- The speed measured by ACE would require a forward visibility SSD of 90m on the approach to the site access junction which is not currently available. However, it is likely that speed reducing measures could be provided to slow vehicles on the approach to the junction to mitigate visibility issues.
- Regarding the historic issue of drivers joining the A12 slip road in the wrong direction, ACE consider the existing signage sufficiently robust in alerting drivers that no entry is permissible to the slip road, however they state that this can be reviewed later at the planning application stage. AECOM agree with this.
- AECOM remain concerned about the close proximity of the two junctions. However, the Audit Team have satisfied themselves that this should not be an issue, and on this basis AECOM recommend that this is considered again at the planning application stage.
- AECOM have not been able to reproduce the TEMPRO plus NTM growth rates used by ACE and would advise that this is clarified, and if necessary the design flows for the Bury Lane/ The Street junction updated at the planning application stage.
- AECOM would advise that ACE revisit the junction geometries used in the PICADY model of the Bury Lane/ The Street junction.
- Notwithstanding this, AECOM consider the predicted queue levels at the Bury Lane/ The Street junction not of direct concern to the Highways Agency given that it is unlikely to block back to the A12 slip road.

6.3. AECOM consider that these issues do not require to be pursued further at this stage of the planning process by the Highways Agency and would advise that they are re-visited in the Transport Assessment at the planning application stage.

6.4. On this basis, there appears to be no requirement for the Highways Agency to object to the allocation of this site.