



LAND AT PALK ROAD, HAVANT

ADDENDUM TRANSPORT ASSESSMENT

October 2023

Bellway Homes

**RESIDENTIAL DEVELOPMENT
LAND AT PALK ROAD
HAVANT**

ADDENDUM TRANSPORT ASSESSMENT

CONTROLLED DOCUMENT

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HAVANT**

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1. INTRODUCTION

- 1.1 This Addendum Transport Assessment (ATA) has been prepared by Paul Basham Associates on behalf of Bellway Homes to support a live full planning application for the redevelopment of a brownfield site to include the provision of 90 residential dwellings (including 27 affordable units) (C3 use), parking, public open space, landscaping and other associated works, including demolition of existing buildings on site, with access from Palk Road’.
- 1.2 The application was submitted in December 2022 and validated in January 2023 under planning application reference APP/22/01231. To support the planning application Paul Basham Associates provided a Transport Assessment (TA), Travel Plan (TP) and Walking, Cycling and Horse-Riding Assessment Review (WCHAR) in accordance with the pre-application advice provided by Hampshire County Council (HCC) as the local highway authority. Highway comments prepared by HCC were provided in May 2023 (dated 10th May 2023) in response to the planning application which are attached as **Appendix A** for reference.
- 1.3 This ATA has been prepared to respond to HCC’s comments which can be summarised as follows:
- Update WCHAR
 - Additional Bidbury Schools route
 - Consider a pedestrian crossing point to the west of Bedhampton Train Station
 - Footways on Palk Road
 - Consider a pedestrian crossing point to the east of Bedhampton Train Station
 - Palk Road Access Works
 - Review footways on Palk Road
 - Review of visibility splays along Palk Road
 - Existing on-street parking along Palk Road
 - West Street Works
 - Request for a dropped kerb/tactile paving crossing at Palk Road/West Street
 - Review pedestrian crossing points on West Street
 - Update visibility splays at Palk Road/West Street based on recorded vehicle speeds
 - Reconsider impact on parking and TRO
 - Prepare tracking plans at Palk Road/West Street junction
 - Consider junction model changes / or further develop suitable justification including impact with level crossing
 - Internal Layout
 - Include pedestrian crossing point to access the southern side of Palk Road

- Prepare visibility splay plans for the internal layout
- Outline internal crossing points (and visibility splays)
- Provide internal geometries plan
- Update vehicle tracking to 10mph, where possible
- Consult with refuse team
- Review visitor parking bays
- Clarify cycle parking, materials, kerbs, drainage, levels
- Obtain Stage 1 Road Safety Audit
- Travel Plan
 - Update to action comments

1.4 In addition to this ATA, an updated Travel Plan and WCHAR document have been provided to address the necessary comments relating to these documents. The changes to these documents will be summarised in each report. There will be some crossover between this document on the WCHAR updates and it is suggested the two are reviewed simultaneously.

1.5 This ATA will not address the internal layout comments at this stage which will be addressed under a separate cover.

1.6 In support of this ATA, meetings have been held with HCC Highways and HBC planning to discuss the proposals and in particular the works required along Palk Road and the ownership/status of Palk Road.

1.7 This report has been split into the following chapters, following the topics identified in the HCC Comments:

- Summary of WCHAR updates and off-site improvements
- Review of Palk Road
- Review of Palk Road/West Street Junction

2. WCHAR UPDATES AND OFF-SITE IMPROVEMENTS

- 2.1 The updated WCHAR (document reference: 043.0035/WCHAR/3) reviews the footway provision on Palk Road. It has been confirmed that the gates on the southern side of Palk Road immediately adjacent to the access are to be replaced such that they can no longer swing out and open into the carriageway and therefore there will be no further obstruction. In addition, the applicant is proposing to provide a dropped kerb tactile paving crossing across this access to aid pedestrian movements to and from the site which is shown in **Appendix B**. These works collectively ensure there is appropriate and continuous footway connections into the proposed site.
- 2.2 Given the works being provided on the southern side it is not considered necessary to provide further works on the northern side as the southern side will offer a continuous pedestrian route. Furthermore, the layout will be amended such that there will be an internal crossing point north to south in proximity of the site entrance to allow any pedestrians from the development on the northern side to safely cross onto the southern side and then continue onto the improved infrastructure along the southern side of Palk Road. There will be no continuous footway on the northern side of the development spine road which abuts Palk Road to encourage pedestrians to use the pedestrian crossing and travel on the southern side of Palk Road.
- 2.3 HCC comments identify the missing tactile paving at the existing dropped kerb crossing at the Palk Road/West Street junction. This will be provided as part of the development and is shown in **Appendix B**.
- 2.4 The location of the standalone crossing point along West Street has been raised as a concern by HCC highways with a recommendation for the crossing point to be relocated closer to the Meyrick Road/West Street junction. The same issues exist in this location with the presence of on-street vehicle parking on both the northern and southern sides of West Street and therefore the proposed location also does not address the concerns. Therefore, a crossing point has been shown to the west of the Palk Road/West Street junction which can be designed to standards without any conflict of parked cars in the visibility splay. This is shown in **Appendix C**.
- 2.5 It should be noted a crossing in this location would only result in a 10-15m detour off a potential desire line which is not considered to result in a severe impact on its useability. Furthermore, whilst this crossing point is moved north and there may be concerns over the queuing vehicles resulting from the level crossing to the west, when vehicles are queued this is because the barriers are down and thus no traffic is traveling along West Street in either direction at this location and therefore pedestrians are able to cross safely.

- 2.6 Regarding the cycle gully comment this is not considered necessary or fair in reasonable to the scale of the development in accordance with the planning tests when a suitable alternative already exists. As Network Rail have not raised comment on the need for this which is not common infrastructure on the south coast it is not considered necessary or to hold weight for a reason for refusal.
- 2.7 To consider this point further, the multimodal TRICS assessment completed as part of the original TA (document reference 043.0035/TA/2, Table 8) has been reviewed. This suggested a total of 10 cycle trips over a 12-hour day, with 2 occurring in the AM (0800-0900) peak and 2 in the PM (1700-1800). Within HCC's response no concerns were raised with the cyclist trip rates/generation calculations and instead reference was made to the pedestrian rates also needing to account for bus and train use to access these modes. Therefore, the demand for such a route would be very low and as such the proposed development should not be held accountable for delivering this.
- 2.8 The route east along West Street has been considered further however as a suitable pedestrian crossing is to provide to allow pedestrians to travel on the existing footway along the northern side of West Street no further improvements are proposed. As the HCC comments state, there are sections of West Street where there is no footway present on the southern side of the carriageway and the carriageway is not wide enough to provide a footway and retain two-way vehicular traffic. Given there are suitable alternatives with improvements being offered by the development, further works are not considered necessary to support the development. The West Street/Brockhampton Lane junction would not be used by the proposed development given the lack of continuous footway provision on the southern side of West Street and therefore all development pedestrian traffic would use the northern footway avoiding this junction. Therefore, no improvements are proposed to this junction.
- 2.9 Notwithstanding this, the arrangement of the West Street/Brockhampton Lane junction is such that a suitable crossing point with tactile paving lined up correctly could not be provided without removing the on-street parking on West Street. This is due to the location where the footway terminates on the western side not lining up with the footway on the eastern side. To achieve the alignment, the footway on the eastern side would need to be built out into the carriageway affecting on-street parking and vehicle tracking for those entering/existing Brockhampton Lane.
- 2.10 The route to the Bidbury Schools has been reviewed in detail within the updated WCHAR in accordance with HCC comments. An indicative refuge island crossing point has been designed to ensure such a crossing could be deliverable in accordance with standards, this is shown in **Appendix D**. We would

therefore suggest a proportionate contribution is offered to support the delivery of this crossing point which the use of other developments in the area.

- 2.11 Reference is made to PROW connections by HCC, however, as referenced within the original TA due to land ownership boundaries it is not possible to offer any connections into these PROW routes. This includes the connections into the adjacent site on Meyrick Road. The ability to deliver the connection into the Meyrick Road application was indeed considered within the TA, however, the original conclusion still stands such that the land to facilitate this connection is not within Bellway Homes ownership and this cannot therefore be secured or delivered. Planning conditions and obligations can and should only be secured where there is realistic opportunity that the applicant can sufficiently meet or discharge. There are suitable alternative links available and as such this route is not considered a requirement.
- 2.12 It is recognised that the Highway Authority aspire to provide dedicated cycle provision between Brockhampton Lane and Harts Farm Way via Solent Road and the Brockhampton Road roundabout. HCC's comments reference that this connection would connect the site with existing facilities on Harts Farm Way and the Park Road North/West Street junction.
- 2.13 It is not agreed that works to improve Brockhampton Lane or Solent Road would be utilised by the proposed development when accessing Harts Farm Way. Instead, residents of the proposed development would use Brockhampton Road from its junction with West Street to Harts Farm Way. This is demonstrated in **Figure 1**.

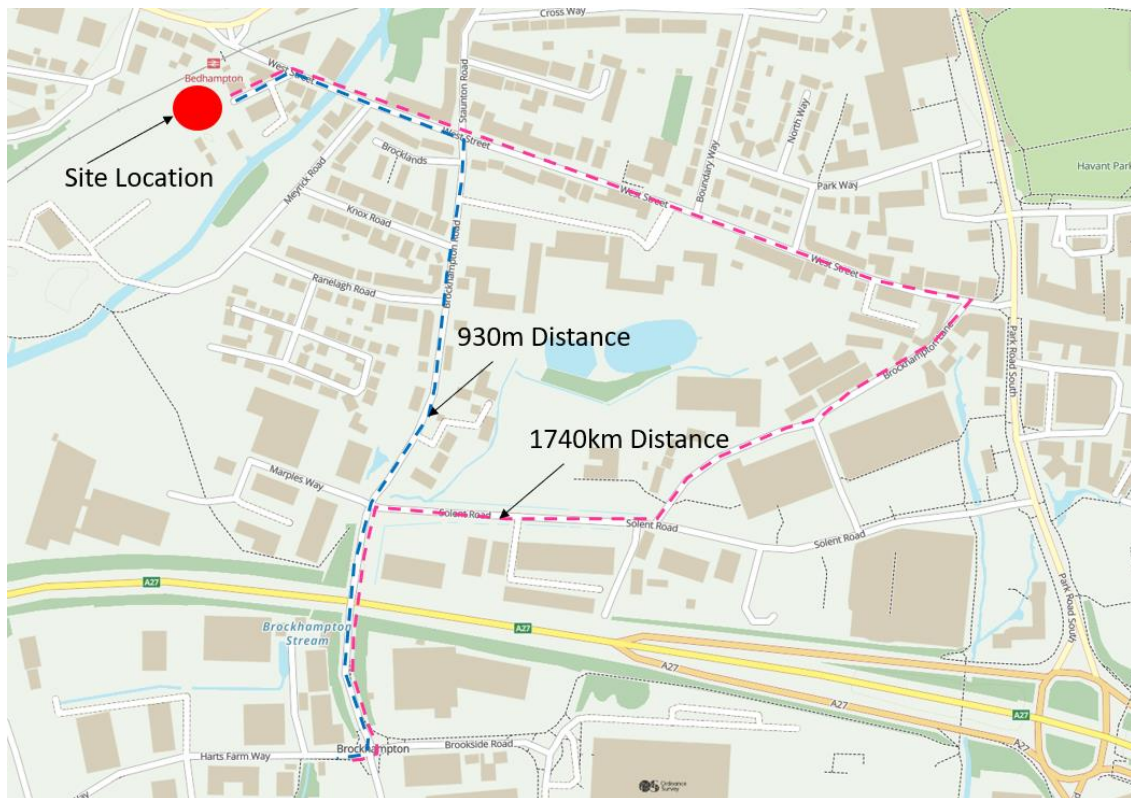


Figure 1: Routes to Harts Farm Way

- 2.14 Therefore, only a small portion of the HCC desired route between the Brockhampton Road/Solent Road/Marples Way roundabout and the Brockhampton Road/Brookside/Southmoor Lane/Harts Farm Way roundabout would be utilised, a circa 250m stretch, out of a total 980m based on HCC's desired route. Therefore, this route was not considered in detail within the WCHAR or TA as pedestrians or cyclists from the proposed development would not use this route. Given that only a small portion of the route would be used by residents, a fair and reasonable contribution seems sensible, as delivery of the full route would not pass the necessary planning tests being necessary or reasonable scale. It should also be noted that it is not the responsibility of the proposed development to independently solve existing deficits in infrastructure, particularly along routes which would not be used by the development.
- 2.15 As per paragraph 2.7 when the anticipated number of cycle trips is considered, the demand for such a route would be very low and thus the proposed development could not be held accountable for solely delivering this infrastructure. Any contribution would need to be considered against the other off-site works and contributions also being sought by HCC Highways.
- 2.16 A suitable contribution towards works along Solent Road to provide an inline crossing point and works to upgrade the LCWIP Route 276 could be agreeable, however, these would need to be considered

against the other contributions and off-site highway infrastructure works also being sought for this 90-unit brownfield development as well as the distance of these routes which are not in close proximity of the proposed development. As aforementioned, it is unlikely residents of the proposed development would utilise Solent Road and the crossing point mentioned and therefore this must be considered when the overall contribution values are being considered.

- 2.17 We welcome agreement that no works are required towards improving equestrian facilities.
- 2.18 A drawing has been prepared, attached as **Appendix E** to demonstrate potential upgrades to the existing crossing point along New Road, which includes the provision of tactile paving. The provision of this upgrade must be considered with the requirements for the Meyrick Road application (planning reference APP/22/00669) which, being a larger development, could route more vehicles and pedestrians through this junction and therefore a proportionate contribution would be appropriate to provide these improvements, again considered against other contributions being sought and in the context of viability in redevelopment of a brownfield site.

3. PALK ROAD

3.1 Concern has been raised over the operational width of the Palk Road carriageway due to the presence of on-street vehicle parking and that further assessment is required. As part of this further assessment a variety of parking surveys have been completed to understand the number and location of vehicles parked along Palk Road. This includes:

- Snapshot parking survey completed Wednesday 12th July 2023 at 12:00
- Independent third party survey completed Friday 16th June and Friday 17th June 2023, data attached as **Appendix F**
- Snapshot parking survey completed Monday 11th September at 14:30
- Snapshot parking survey completed Tuesday 19th September at 21:10

3.2 The snapshot parking surveys completed reviewed the number of vehicles parked on Palk Road as well as the number of vehicles parked and the number of spaces in the two car parks associated with the two flatted developments. It is confirmed that a total of 9 spaces are provided in the northern car park (Chapel House) and a total of 18 spaces in the southern car park (Bellinger House). A summary of the results is shown in **Table 1**.

Survey Date	Number of Vehicles Parked on Palk Road	Number of Vehicles Parked in Northern Car Park	Number of Vehicles Parked in Southern Car Park
12 th July 2023	6	5	6
11 th September 2023	5	5	7
19 th September 2023	8	8	8

Table 1: Palk Road Snapshot Parking Surveys

3.3 It was witnessed on site that people park vehicles on Palk Road and then walk into the flatted developments. This corresponds with the theory that the majority of vehicles parking on Palk Road do so for convenience with a shorter distance to the front door than utilising the designated car parks. The survey results suggest that the two formal car parks for the flatted development are underutilised which would either suggest they have a low car ownership or more likely they park on Palk Road for convenience. Should all parked cars on Palk Road need to be accommodated elsewhere they could all be accommodated in the two formal car parks. It is therefore suggested that parking management measures along at least one side of Palk Road could be implemented to address HCC's concern. This would retain a useable width of circa 4.3m which is sufficient for two cars to pass in accordance with Manual for Streets Figure 7.1.

- 3.4 The third party parking beat surveys were completed every 30 minutes over a 48 hour period covering both a weekday and weekend day to accommodate any potential traffic resulting from weekend travel to Bedhampton Train Station. The parking survey results would also suggest that vehicles parked on Palk Road would be local residents as opposed to vehicles parking on Palk Road and heading to the train station or into Havant Town Centre for example. This conclusion is based on the highest parking stress (89%) occurring between 00:00-08:00 which left 1 space free, whilst the lowest stress % was recorded between 08:30-15:00. It is worth noting that a total of 9 spaces were recorded as available with the lowest occupancy through a weekday being 5 vehicles parked, leaving 4 spaces. This therefore shows that Palk Road is fairly busy with parking which is as expected. It is important to note that the survey did not record any vehicles parked on the double yellow lines on either the Friday or Saturday and the survey suggests that Palk Road never reached full capacity.
- 3.5 Collectively the various surveys suggest that Palk Road and the two car parks for the flatted development are not at full capacity and that implementing parking management measures along the full extent of the northern carriageway, for example, would not result in any significant overspill or unauthorised parking.
- 3.6 As requested, visibility splays along Palk Road have been considered. It is only considered necessary that that splays are assessed for the commercial site adjacent to the site (to the east) and on the southern side of Palk Road (the access where the gates are being upgraded). Visibility splays have been drawn at this existing access based on a 20mph speed given the nature of Palk Road and are shown as achievable in the secondary direction which is the only direction which may be affected by the proposed development. This is shown in **Appendix B**. No other access points would be impacted by the proposed development, including the north-western property (called Wengen) as their visibility to the west is already compromised by a close boarded fence. This access has been operational when the existing site was in use for storage and no highway safety concerns were raised. It is therefore considered that this point is suitable addressed.
- 3.7 Comments on the internal footway reference the footway on the northern side of the carriageway internal to the site not aligning with the existing Palk Road carriageway. As outlined in Paragraph 2.2 of this ATA, as part of a revised design, the northern footway will terminate before the eastern site boundary with an internal pedestrian crossing point to aid pedestrian movements south and to travel along the southern side of Palk Road.

- 3.8 This ATA has outlined the proposed works along Palk Road which are considered to address HCC comments and ensure a safe and suitable access is provided for vehicles, pedestrians and cyclists. No further improvements are proposed. Points raised in relation to the unregistered status of Palk Road are a legal rather than highway matter.

4. PALK ROAD/WEST STREET JUNCTION

- 4.1 Visibility splays at the Palk Road/West Street junction have been reviewed against an Automated Traffic Count (ATC) survey completed between 17th -23rd June 2023. The results (attached as **Appendix G**) confirm 85th percentile speeds of 27.1mph eastbound and 26.5mph westbound, based on the 7-day average (which results in higher speeds than 5-day). When using HCC's TG3 calculator this results in visibility splay lengths of 36m in the primary direction and 37m in the secondary direction. A revised visibility splay drawing calculated using the recoded 85th percentile speeds is shown in **Appendix H**.
- 4.2 The visibility splays shown in **Appendix H** demonstrate that these still pass through 2 parked vehicles which is a reduction of 1 vehicle compared to the visibility requirements of the 30mph speed limit. Whilst HCC through the pre-app did not allow the highway impact of the proposed development to be considered against the existing/former B2/B8 uses on site it cannot be ignored that the site has had a former use. This former use as storage generated more vehicular trips than the proposed development, as evidenced through the pre-app scoping note along with generating more larger vehicle movements than the proposed development. In addition, while the existing permission for B2 use on part of the site (ref: APP/19/00078) is personal to Premier Pallet Supplies who continue to operate on the site, that permission reverts to a permanent B8 consent when they cease to occupy the land. This is confirmed within the Officers Report attached to that permission which states 'the site has a long standing authorised use for storage and distribution i.e. a B8 use'. As such there is planning permission for development which would attract multiple large vehicles without restriction and therefore could operate 24 hours a day 7 days a week.
- 4.3 The existing Palk Road/West Street junction has therefore been operating safely, satisfactorily and without a capacity concern for many years. The Personal Injury Accident (PIA) data review confirmed that there have been no recorded incidents at the Palk Road/West Street junction during a 5-year period when the existing site would have been in full use. Therefore, the junction has been proved to operate safely with the parking in the visibility splays.
- 4.4 This is most likely due to commentary outlined in Manual for Streets as well as Manual for Streets 2, which the ATC speed survey confirms are acceptable guidance to use in this location. MfS paragraph 7.8.5 states that 'parking in visibility splays in built up areas is quite common, yet it does not appear to create significant problems in practice'. This is the case for this existing junction which does not have an existing safety concern relating to its use and parking in the visibility splay.
- 4.5 Manual for Streets 2 (Chapter 10.7) further expands on this point stating, 'at urban junctions where visibility is limited by buildings and parked cars, drivers of vehicles on the minor arm tend to nose out

carefully until they can see oncoming traffic and vice versa'. This is likely to be the existing operation in place, including when the proposed development's former use as storage was in full use and has not resulted in any recorded safety concerns. The visibility splays therefore shown at the Palk Road/West Street junction are an existing situation which would not be exacerbated by the proposed development and as demonstrated through the site's former use and lack of highway accidents would not result in a severe impact on highway safety.

4.6 HCC also raised concerns with the geometry of the Palk Road/West junction and the operation of the junction considering the intensification of use with the addition of development traffic. Tracking was requested at the junction to show a delivery vehicle and car passing in a safe and suitable manner. Whilst this concern is noted and the tracking exercise completed and attached as **Appendix I**, it is worth re-iterating that the proposed development is a brownfield development and had been in operation as B8 storage for over 100 years for various land uses/owners. A commercial land use still remains on the site immediately adjacent to the east of the proposed development. Therefore, the junction has been operating satisfactorily for many years with much larger vehicles likely to have utilised the Palk Road/West Street junction without any recorded Personal Injury Accident (PIA) incidents. Therefore, the change of use from commercial to residential would reduce the number of larger vehicles using this access and thus provide a betterment than the previous situation. The tracking shown in **Appendix I** shows that a car and delivery vehicle can operate suitably and safely at the access.

4.7 Updates to the modelling of the Palk Road/West Street junction have been completed using the Junctions 9 software to address HCC concerns which were:

- Modelling not considered the parking obstructions
- General alignment
- Reduced visibility
- Reduced carriageway widths

4.8 It is unclear what changes were required to address the 'general alignment' query as the vehicle tracking and its existing use means the junction is safe, suitable and fully operation and thus no changes have been made to directly reflect this comment. Reduced visibility splays have been included. With regards to the parking obstruction, due to the nature of the junction being a priority, West Street East should always be Arm A. Within Junctions 9, you cannot enter geometries for Arm A because this arm will always have priority, i.e. never has to give way, so you cannot amend the road width for Arm A to accommodate the parked vehicles. The only way the parking obstructions could be accounted for would be to amend the geometries of Arm C (West Street West) the software does allow manual input for this

arm geometry. However, there are no parking obstructions on Arm C so the width should remain as per existing. However, in an attempt to address HCC's comments, the geometries of Arm C have been amended to a 4.8m road width which is a very robust and worst case assessment as technically this arm is wider. The 4.8m road width still retains two way vehicle movement in accordance with MfS Figure 7.1 and reflects the movements on the ground where vehicles do not need to stop and give way and as such travel simultaneously. Carriageway widths on Palk Road remain as per the previous model as there is no need to change these based on traffic flows as this does not affect any available widths and there are double yellow lines on both sides of the carriageway for the first 25m. A summary of the updated results to reflect these changes are provided in **Table 2**, whilst the Junctions 9 modelling outputs are attached as **Appendix J**.

Scenario	Road Names/Arm	AM Peak Period			PM Peak Period		
		RFC	Queue	Delay	RFC	Queue	Delay
Baseline 2023 Plus CD* Plus PD**	Palk Road (Arm B)	0.05	0.1	8.57	0.03	0.0	8.77
	West Street (West) (Arm C)	0.01	0.0	6.16	0.02	0.0	6.36

Table 2: Palk Road/West Street Modelling Updates

*CD = Committed Development

**PD = Permitted Development

- 4.9 As shown in **Table 2**, with the changes made, there is little impact in the operation of the junction which remains operating within capacity in all scenarios and therefore the development would not have a severe impact on the operation of this junction under free-flowing conditions i.e. when the level crossing is up.
- 4.10 The applicant is happy to agree to re-paint the 'KEEP CLEAR' box at the Palk Road/West Street junction, which is an ongoing maintenance requirement of HCC.
- 4.11 Furthermore, HCC have requested further consideration is given to the operation of the Palk Road/West Street junction during the period when the barriers are down for the Bedhampton Level Crossing, which occurs for around half an hour during the peak periods. Junctions 9 has again been reviewed to understand whether the model can be adjusted to account for the impact of the level crossing. Similar to the constraints on the parking obstructions, Junctions 9 also has constraints with assessing the impact of a level crossing. This is primarily due to the level crossing being located to the west of the junction and thus being on Arm C. To mimic the level crossing, a signalised crossing was placed on Arm C (West Street West) with signal timings to match the average barrier down time of 160-176 seconds, i.e. 3 circa

minutes, calculated from Table 20 of the TA. However, within the software it is not possible to include a signalised crossing without deselect that C-B traffic blocks C-A traffic, when in reality it does. Even when deselecting this, this still only affects queuing on Arm C, as Arm A in Junctions 9 will always have priority and never has to give way. It was therefore considered whether a signalised crossing point could also be added to Arm A to introduce a queue, however, the queue in the model would only ever form to the east of Palk Road and thus not across/in front of Palk Road. Therefore, extensive small and minor tweaks were being made to the model which still did not reflect the 'on the ground' scenario and still did not fully consider the impact of the level crossing as requested by HCC. The impact of the level crossing therefore needs to be looked at holistically and cannot be modelled accurately.

- 4.12 It was also considered whether the junction could be modelled using LinSig modelling software with all arms giving way, however, modelling the interaction of the level crossing and Palk Road / West Street junction using LinSig software would not produce useful results. LinSig is designed to model signalised junctions, requiring inputs such as traffic signal controller phases and stages, intergreens and saturation flows. These are not relevant to the situation in question and difficult to approximate in a meaningful way. Furthermore, the mathematical relationships that determine how 'give way' arrangements are modelled in LinSig relate to either right turning traffic giving way to oncoming movements, as often found in signalised junctions, or left turns at priority junctions. The software is not calibrated to accurately model right turns at priority junctions. It is therefore not appropriate to model this junction using LinSig.
- 4.13 When considering the impact of the level crossing, despite HCC's concern with the permission of the existing/recently withdrawn uses on site, it cannot be ignored that the existing Palk Road/West Street junction was used frequently by commercial vehicles which are larger than a typical car and the use of the junction has not resulted in operational or safety concerns to date. Our initial Pre-Application Scoping Note also outlined that the previous site use would have resulted in more vehicle trips than the proposed development.
- 4.14 In addition, as aforementioned, the site has extant unrestricted permission for B8 on part of the site which would attract multiple large vehicles without restriction and therefore could operate 24 hours a day 7 days a week. Therefore, the Palk Road/West Street junction has been deemed suitable to accommodate HGV movements without concern of the impact on the congestion due to the level crossing to the west.
- 4.15 When considering the impact, it is important to review the recorded Mean Max Queue (MMQ) from the level crossing queue length survey as per standard practice which results in 5 vehicles in the AM

peak and 7 vehicles in the PM peak, calculated from the results in Table 20 of the TA. Therefore, only in the PM peak would the queue pass Palk Road. In the PM peak when the queue is longest, development departures are lower than those in the AM peak, with the development adding 1 vehicle every 7.5 minutes over the one hour period. It is therefore unlikely that every departing vehicle would reach the junction when the barrier is down and with 1 vehicle every 7.5 minutes being generated by the development, a significant queue is unlikely to form. Therefore, whilst HCC have raised concerns with drivers completing unsafe overtaking manoeuvres to avoid sitting in a queue on Palk Road, in reality a queue is very unlikely to form. This is even more apparent when the 'sensitivity test' revised distributions to account for the change in routing to avoid the level crossing are reviewed which suggests that 85% of traffic would then turn right out of Palk Road and therefore the likelihood of vehicles waiting to turn left is much lower and again unlikely to form a queue with the infrequent arrivals as those waiting to turn right will be able to do so freely as there will be no vehicles moving on West Street.

5. SUMMARY AND CONCLUSIONS

- 5.1 This Addendum Transport Assessment (ATA) has been prepared by Paul Basham Associates on behalf of Bellway Homes to address comments provided by the Local Highway Authority (HCC) in response to planning application reference APP/22/01231 for the redevelopment of a brownfield site to accommodate 90 dwellings at Land at Palk Road, Havant.
- 5.2 The report has reviewed the updates to the WCHAR and the improvements to the walking and cycling infrastructure, the works along Palk Road and a review of the operation of the Palk/Road West Street junction.
- 5.3 It is hoped this report addresses the outstanding highway comments, aside from the comments in relation to the internal layout review which will be addressed in parallel with responding to other consultee feedback and that works can progress to agreeing appropriate highway contributions.

Appendix A

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Date 10 May 2023

My reference 048724
Your reference APP/22/01231
Email havantdc@hants.gov.uk

Dear Ms Miszewska,

Land at, Palk Road, Havant

Redevelopment of a brownfield site to include the provision of 4No. Apartment blocks comprising of 90No. residential dwellings (including 27 affordable units) (Use class C3 residential), parking, public open space, landscaping and other associated works, including demolition of existing buildings on site, with access from Palk Road

Thank you for your consultation on the above full planning application. The Highway Authority have considered the information providing within the Transport Assessment (reference 043.0035/TA/2), hereafter TA. Comments regarding the proposed development are set out below.

Policy Status

The application site was allocated in the now withdrawn Havant Borough Council emerging local plan under policy reference H26 and within the adopted local plan under policy reference H19. The Highway Authority note that policy H19 does not cover the whole area proposed within this site red line and only refers to the northern parcel of the site, whereas this planning application covers a wider development area.

Policy H19 within the adopted local plan suggests that the allocation has the capacity to provide residential development for circa 21 dwellings. It is noted that the number of proposed dwellings exceeds the allocation number. Specifically in relation to the H19 allocation, and the highway matters, the policy requires:

- Utilisation of the existing access point at Palk Road;

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- Transport Assessment considering the existing industrial traffic along Palk Road and how this will be accommodated with residential use; and
- Assess the impact of possible increase in pedestrian and/or vehicular usage on the Bedhampton Level Crossing

Whilst residential use was accepted in policy terms for the site, the level of additional proposed dwellings will give rise to additional demand of the Palk Road access and therefore, it is likely that there will be a requirement for additional highway measures over what was stated within the policy. The quantum of development proposed within this application immediately raises concerns on the suitability of Palk Road to cater safely for the associated movements.

The TA, which supports this planning application provides a summary of the relevant transport planning policies.

Site History

The TA sets out the extensive planning history that this site has been subject to. The land has a complicated history with several temporary approvals and refusals. It is noted that these temporary permissions have been due to highway safety concerns of the access point to the site. The TA refers to a current planning consent for B2 and B8 use under planning reference APP/19/00078. It is noted that the decision notice makes reference to personal planning consent for the benefit of Premier Pallet Supplies only, with the site reverting back to B8 use once no longer in occupation by Premier Pallet. The B8 use under planning reference (APP/15/00447) is restricted to Portsmouth Water use only due to concerns with the access arrangements.

It is however considered by the Highway Authority that the extant use for the site cannot be discounted or considered against to benefit the assessment for the site, considering the proposed use is substantially different to the previous planning consents and heavily restricted.

Pre-application advice

The applicant has engaged with the Highway Authority on a number of occasions. In the most recent pre-application engagement (August 2022), the Highway Authority raised a number of concerns regarding the access arrangement. Further information was requested regarding the junction modelling, trip generation and distribution.

It is noted that since the pre-application discussions have taken place the quantum of development has reduced from 92 to 90 dwellings. This quantum change is not significant enough to alter the views raised within the Pre-App response.

Site Location

The proposed development is adjacent to a residential development along Palk Road, where the site is proposed to be accessed from. The site is bound by a railway line to the north and is located circa 160m south of the West Street level crossing. Currently,

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the site is used from B8 storage with a track road in situ to access the area from Palk Road.

Sustainable Access

Walking and Cycling:

The applicant has undertaken a WCHAR assessment in accordance with Hampshire County Council Technical Guidance TG19. The WCHAR study area covers the following walking and cycling routes and highlights a number of opportunities for improvements to existing infrastructure:

- Existing conditions along Palk Road;
- Western Route towards local school;
- Eastern Route towards Havant Town Centre, Central Retail Park and Solent Retail Park;
- Northern Route via New Road towards Havant and South Downs College, Havant Station and Havant Town Centre;
- Southern Route via Brockhampton Road towards Solent Retail Park

Whilst most routes are agreed, the current routing to Bidbury Infant and Junior schools reviewed would not be considered the most direct route for future residents and should be reconsidered based on the information further within this response.

The TA states that footways flank both sides of the carriageway along Palk Road, however, this is not an accurate representation of the position. The Highway Authority are aware of a circa 20m stretch along the northern side of Palk Road from the proposed site access where no formal footway facilities are present. Additionally, there is a section on the southern side which is obstructed by private gates which open out onto the carriageway, with no formal footway facilities. Therefore, there are no appropriate footway connections into the proposed site. The WCHAR refers to the fact that there is no requirement to upgrade this northern stretch considering a continuous footway is present along the southern side of Palk Road. This is not agreed, and the applicant should provide a continuous footway in this location.

At the Palk Road/West Street junction a dropped kerb crossing is present however tactile paving is missing. This should be provided. As mentioned during pre-application discussions, the applicant has proposed a crossing point in the vicinity of the Palk Road/West Street junction as shown on drawing 043.0035.003 to overcome the deficits in crossing provision along West Street. The proposed crossing is not regarded to be in the most appropriate location considering this will require the extension of the existing TRO along West Street, the removal of 3 existing parking spaces in front of No1 Brook Villas and removal of the existing guard rail. The Highway Authority are not satisfied that the TRO process would likely be successful in this location which is discussed further within this response. Further consideration should therefore be given to the

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location of this crossing point. It is envisaged that a more appropriate location would be in the vicinity of the Meyrick Road/West Street junction.

To the west of Palk Road, the footway extends over the level crossing as a 'virtual footway' tying into the existing infrastructure along Bedhampton Road. A footbridge is also present allowing pedestrians and pedal cyclists (by carrying their bike) to cross whilst the level crossing is in use. No cycle gully is provided on the footbridge and discussions should be had with Network Rail on whether this is a feasible improvement.

It is noted that the Network Rail response to the application has not specifically engaged on pedestrian and cycle accessibility at the crossing and their views should be sought on these matters.

To the east, footways flank both sides of West Street to access Havant Town Centre. However, the footways along the southern side of the carriageway reduce to substandard width beyond the Meyrick Road/West Street junction, and in some places no footway is present. Tactile paving is also missing from the majority of the crossing points along this route. Within the Havant LCWIP, the route to Havant Town Centre via Bedhampton Road and West Street is identified as a key route for walking and cycling. It was requested during pre-application discussions that consideration was given to improve this route, particularly considering this site is within the Bidbury School catchment area. No improvements have been noted within the TA or the WCHAR, except provision of tactile paving where this is lacking and informal crossing points along West Street. At the West Street/Brockhampton Lane junction, the footway terminates with no suitable crossing facilities present and no tactile paving in this vicinity, which is not identified in the WCHAR. The applicant should explore the scope to improve the footway connections within the vicinity of this junction.

As noted previously within this response, the routing to Bidbury Infant and Junior schools is not agreed and therefore the existing crossing provision identified within the WCHAR is unlikely to be adequate as it does not account for desire lines. From on-site observations, it is noted that pedestrians cross informally utilising the extended central reservations opposite the Bedhampton Road/West Street junction. The Highway Authority aspire to provide a refuge crossing with tactile paving in the vicinity of this junction and North Street to provide a safer crossing point for future residents of the site. The Highway Authority would welcome a discussion with the applicant on this point.

A number of Public Right of Way (PRoW) footpaths run in close proximity of the site providing connections to local facilities including local schools, as well as a longer distance recreational route (the Wayfarers Walk). As noted further within this response, the applicant should explore the scope to connect the site onto the PRoW to increase pedestrian and cycle permeability to local facilities and recreational routes.

Regarding cycling, National Cycle Network (NCN) Route 22 runs near the site with access via West Street or Brockhampton Road. NCN 22 provides cycle connections to Portsmouth and the wider cycle network. Despite not being mentioned within the TA, a

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shared footway/cycleway is present along the western side of Park Road South providing cycle connections towards Hayling Island to connect with NCN Route 2.

The applicant was made aware at the pre-application stage that the Highway Authority aspire to provide dedicated cycle provision between Brockhampton Lane and Harts Farm Way via Solent Road and the Brockhampton Lane roundabout. This would connect the site with existing facilities on Harts Farm Way and the Park Road North/West Street junction. This has not been covered adequately in the application, however, the WCHAR and TA refer to providing proportionate monetary contributions towards works that are being discussed to be delivered as part of the adjacent Kingscroft Farm application, should this receive planning consent. A scheme is yet to be identified for the Kingscroft Farm application and delivery mechanisms have not been agreed. It should not be assumed that works are to be delivered via a proportionate monetary contribution.

The WCHAR does not identify that the current crossing point at Brockhampton Lane to Solent Retail Park forces pedestrians to go against desire lines. The Highway Authority as part of the improvement works along Solent Road have an aspiration to provide an inline crossing point at this location improving pedestrian and cyclist connectivity to Solent Retail Park. The Highway Authority are in discussions with the applicant as part of the Bosmere Medical Centre site (planning reference APP/21/00601) to have this come forward as part of the off-site highway works for their development. Should this site not come forward, the Highway Authority would seek to use contributions provided from this site to put towards this crossing point to improve pedestrian and cycle connections to a key employment and leisure facility as part of a wider package of improvement works along the Solent Road corridor.

Within the Havant LCWIP, Route 276 from Bedhampton Railway Station to Eastern Road has been identified as a secondary route that currently has no formal cycle infrastructure. Considering this route is a key walking and cycling connection to employment and local facilities, there is opportunity for improvements to the existing infrastructure. Further consideration should be given by the applicant towards cycle improvements along this route through s106 provisions.

It was requested during pre-application discussions that the applicant should consider pedestrian and cycle connectivity to tie in with the adjacent site on Meyrick Road (planning reference APP/22/000669) to increase permeability between the two sites. This did not mean a comparison between the two WCHARs to compare improvements proposed for both developments but to provide a physical connection between the two sites over the Hermitage Stream and linking into the PRoW should this be possible. It is noted that the TA refers to the fact that this connection is not possible due to a strip of third-party land between the two site boundaries. It is requested that this connection is still pursued, and relevant conversations should be had with the third-party landowner for public rights to pass and repass to improve pedestrian and cycle permeability between the two developments should either come forward.

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It is agreed that no provision needs to be made towards equestrian facilities within the study area of the WCHAR.

Buses:

The nearest bus stops to the development are on Bedhampton Road, circa 360m and 410m eastbound and westbound, respectively, with both stops subject to sheltered seating and timetable information. Bus Services 23 and 20 provided regular connections to Southsea, Leigh Park, Havant and Hayling Island, with service 737 providing one connection a day to Petersfield on weekdays. School services 654, SD5 and SD7 also run from these stops providing one service every weekday at typical school pick up and drop off times.

The distance of the bus stops from the site are considered acceptable. As noted within the response The Highway Authority aspire to provide a refuge crossing with tactile paving in the vicinity of the Bedhampton Road/West Street junction and North Street. This would also benefit those residents intending to access the eastbound bus stops.

Rail:

Bedhampton Railway Station, the closest station to the site, is located circa 220m north of the proposed development. The station provides 2 services an hour to Portsmouth and Southsea, and 1 service an hour to London Waterloo and Littlehampton.

Despite being located further away (circa 1.4km east of the proposed site), it is anticipated that Havant Railway Station will be a more attractive station for residents providing more regular services to the above locations as well as direct services to Portsmouth Harbour, Brighton and Southampton Central.

Personal Injury Accidents (PIA)

The applicant has provided PIA data for a 5-year period between December 2016 to November 2021. It is noted that this data is over a year out of date, and thus is not consider acceptable. However, the Highway Authority have undertaken an internal review of more recent data and are aware of 4 additional accidents that have occurred between November 2021 and September 2022: 1 slight, 2 serious and 1 fatal. As the Highway Authority have undertaken their own internal review, the applicant does not need to obtain any further data sets, however these additional accidents will be taken into consideration within this response.

The scope of the PIA data was agreed at the pre-application stage. In total 19 PIA's, considering the additional accidents noted above, were recorded over the study period (8 'serious', 10 'slight' and 1 fatal).

The Highway Authority are aware that the fatal accident that occurred in August 2022 was at a location where the pedestrian crossing facilities cross New Road in the vicinity of the Ingledne Close. The WCHAR identified that the existing informal crossing point along New Road could be upgraded into a formal crossing facility to make it clear to pedestrians and vehicular users that this is a crossing point. It is requested that the

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applicant explores the scope to provide a formal crossing point in this location to overcome the current deficits considering this route is an identified walking route for future residents of the site to access Havant and South Downs College, Havant Leisure Centre and Havant Railway Station.

Local Facilities

The TA provides a review of the local facilities and services available to the proposed development. As requested at the pre-application stage the applicant has measured the distances to facilities from the centre of the site to provide a more accurate distance for residents. It is noted that the assessment has not been undertaken using CIHT (2000) *'Providing for Journeys on Foot'* guidance as requested at the pre-application stage. However, the Highway Authority have undertaken their own assessment with the requested guidance. A handful of local facilities to the site are located within the acceptable walking and cycling distances, with the majority located within the preferred maximum.

It should be noted that Havant Park, The Meridian Centre and Havant Railway Centre are located outside of the preferred maximum walking distances. However, the walking and cycling improvements as laid out within the response will increase the attractiveness of travelling to these facilities reducing the reliance on the private car.

Site Access

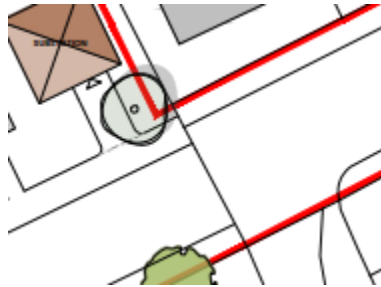
Access to the development is proposed to be a continuation of Palk Road as per the existing arrangement into the site. The existing carriageway width is circa 7.0 metres; however, Palk Road is not a consistent width, and this assessment has not taken into consideration parked cars that frequently occur on both sides of the carriageway. The operational carriageway width is therefore a concern considering the occurrence of on-carriageway parking and variable width. Concerns with the operation of Palk Road with the addition of development traffic is discussed further within this response. Within the development the carriageway width is proposed to be circa 5.0 metres as it enters the site, before narrowing further to 4.8-5.0 metres further within the site.

As requested at the pre-application stage, visibility splays should be provided at the accesses along Palk Road in close proximity to the extended Palk Road site access to ensure these accesses remain safe and suitable. This point is still outstanding and should be addressed.

Additionally, it was requested that consideration should be given to the existing on-street parking which is present along Palk Road. It is not agreed that no additional assessments need to be undertaken. The Highway Authority have concerns that the on-street parking along Palk Road could cause access and egress issues for the new residents due to on-street parking and the variable width meaning a two-way flow is not present. Further consideration should be given to the on-street parking in regard to the access arrangement.

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It is noted that the existing Palk Road 'informal' footway and the proposed footway do not tie in. As shown below, part of the footway within the internal road network currently shows to be tying in with the carriageway of Palk Road. This is unacceptable and should be revised.



The Highway Authority are aware that Palk Road sits on unregistered land. The TA makes reference to the fact that the applicant is reviewing options to address this to secure future maintenance of Palk Road, this should also allow for the upgrading of the walking and cycling infrastructure and amendments to access arrangements for 3rd Party land to enable integration of the proposed access into the existing Palk Road alignment. Confirmation of these arrangements should be provided.

Palk Road/West Street Visibility:

Visibility splays for the Palk Road/West Street junction are shown in drawing 043.0035.002. It is not agreed that visibility is unobstructed in each direction. The existing on-street parking and the pedestrian barrier along West Street in the vicinity of the Palk Road junction does impact the achievable visibility for vehicles existing the junction. It is noted that the visibility has not been assessed based on the HCC TG3 guidance. It is requested that a speed survey is undertaken to confirm the visibility requirements at the Palk Road junction to ensure that appropriate visibility can be achieved in accordance with recorded speeds.

Whilst it is noted Manual for Streets refers to the fact that parking in visibility splays is quite common, visibility splays should not be permanently obstructed by parking spaces that are regularly utilised, however the nature of these parking spaces means they are regularly occupied and therefore achievable visibility in the primary direction will be regularly obstructed.

Thus, the achievable visibility is reliant on a TRO to remove existing long-established parking spaces for residents along West Street, which is subject to its own statutory process. The applicant should consider appropriate mitigation to mitigate against the impact of parking loss for these residents which is further discussed within this response.

Palk Road/West Street Junction:

The Highway Authority have concerns with the geometry of the Palk Road/West Street

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junction and the operation of the junction considering the intensification of use with the addition of development traffic. Tracking should be provided at the Palk Road/West Street junction for a delivery vehicle and car to ensure that this regular movement can be operated in a safe and suitable manner.

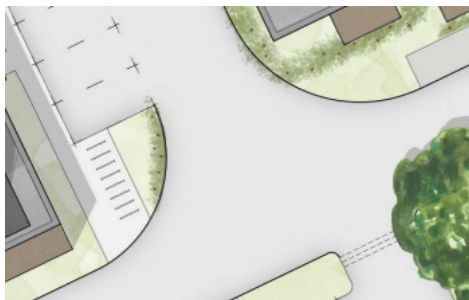
Internal Road Network

The applicant is not intending to offer the internal road network up for adoption by Hampshire County Council. Whilst this is the case, it is advisable that the developer ensures that the roads and footways are designed to minimum industry standards and / or Hampshire County Council's best practice as set out in <https://www.hants.gov.uk/transport/developers/constructionstandards>, and that an appropriate Private Management Plan is put in place to deal with any future issues.

Additionally, developers should also be made aware of the Advanced Payment Code (APC) that will be required by the Highway Authority. Details of this can be found via the following link:
<http://documents.hants.gov.uk/transport/APCProcess-Guidancedocumentforwebsitev22018-04-02.pdf>

Whilst the internals are to remain private, the Highway Authority still have a responsibility to ensure a safe and suitable layout is provided. The Highway Authority therefore have reviewed the internal road network and have the following comments to make.

No visibility splays have been provided for the internal road network. Forward visibility splays should also be provided for bends at a minimum of 25m for a 20mph design speed. It is noted that the location of hedge planting and the corner of apartment block A would currently block any achievable visibility as shown below and the layout should be revised.



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The raised crossing point within the site has no ramp details and these should be provided for comments on their suitability.

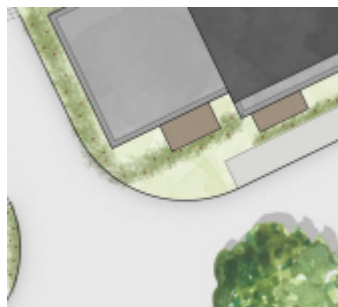


Aside from the raised crossing point, no further crossing facilities have been provided throughout the site. Adequate crossing points should be provided throughout the internals with dropped kerbs and tactile paving. Visibility splays should also be submitted in accordance with HCC TG3 and Manual for Streets to assess their suitability.

There are several buildouts (as shown below) throughout the internal road network. These should be minimised or removed entirely as they can be struck by vehicles if they are not clearly marked by vertical reflective markers.



The footway width for the internal network has not been provided and should be confirmed. It is noted that the footway running in front of apartment block A terminates with no obvious footway connection for where pedestrians are expected to go. Further consideration should be given to the layout in this location regarding pedestrian connections.



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The applicant should be made aware that measures should be put in place to avoid tree roots and hedges damaging the footways and the carriageway.

Refuse/Servicing:

Refuse collection is to take place within the development. Each block of flats is to have a bin storage/collection area as shown in drawing 101. Swept path analysis for an 11.20m 'super large' refuse vehicle is shown in drawing 043.0035.004 Rev A. Drawing 043.0035.005 Rev A shows tracking for a fire tender. It is noted that tracking has been undertaken at 5mph which is not agreed to be an appropriate tracking speed. All tracking should be undertaken at 10mph.

It is noted that the refuse vehicle and fire tender are to access the apartment blocks in line with the appropriate distances as laid out within Manual for Streets.

Tracking should be provided for a refuse past a car throughout the development at a tracking speed of 10mph. Given the proposed road width and given the nature of the site it is accepted that a refuse vehicle will not be able to pass a car for the full extent of the internal layout, however there should be sufficient opportunity within the site for the vehicles to pass and this is demonstrated through the provision of the requested tracking.

It was requested at the pre-application stage that the refuse team should be consulted to ensure that there are no existing access issues along Palk Road which the Highway Authority should be aware of, which remains outstanding.

Parking Provision

Car Parking:

The applicant is proposing 113 parking spaces in total, of which 81 are to be unallocated, 15 would be allocated with 17 visitor parking spaces. It is noted that this is a shortfall of the requirement as laid out within Havant Borough Council's Parking Supplementary Planning Document (dated September 2019) of 12 unallocated spaces and 7 visitor spaces.

To support this shortfall in parking, the applicant has reviewed 2011 census data to assess the levels of car ownership for residents in flats in the Havant 014 and 018 wards. The data suggests that 51% of households who live in flats do not own a car a van, 41% own 1 car/van and 8% own 2 or more cars/vans.

It is noted that Havant's Parking SPD refers to the fact that a shortfall in parking may be accepted if the site is in an accessible location and the level of parking does not result in displacement of parking pressure into nearby residential roads.

Whilst parking is a matter for Havant Borough Council to comment on as the Local Parking Authority, the Highway Authority have concerns that an under provision in parking will put pressure on a constrained internal road network, Palk Road, and the wider highway network. As mentioned previously, and at the pre-application stage, the

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Highway Authority already have concerns with the presence of on-street parking along Palk Road and the impact this will have on the access proposals. Thus, this shortfall in parking is not agreed and the applicant should provide further parking on site.

The internal network design does not accommodate any additional on-street parking. Additionally, roads in the vicinity are also unable to accommodate further parking demand, which encourages parking on the highway in unsuitable locations. Additional provision on site should be considered to be provided to accommodate for the loss of parking for dwellings along West Street should the TRO be implemented successfully to provide improved visibility at the Palk Road/West Street junction. The applicant should also consider providing parking for residents within the development to accommodate the existing parking along Palk Road should additional parking restrictions be the solution for managing the concerns in relation to operational safety.

Havant Borough Council will determine if the shortfall in parking is acceptable, in their role as parking authority. The Highway Authority also have the following comments to make on the parking layout. The visitor parking bays that extend into the carriageway are unacceptable and could be a safety issue. If they are to remain, road markings may need to be installed for vehicles to remain within. It is recommended that the layout of these visitor parking bays is revised.

Whilst tracking for car parking spaces is shown in drawing 043.0035.006 Rev A, there are concerns that end spaces are tight for vehicle users to navigate in and out of. Dimensions of parking spaces should be provided for both the standard and parallel parking spaces. The aisle width in between parking spaces should also be confirmed to ensure there is appropriate space for vehicle users to manoeuvre into the parking spaces.

Clarification is requested as to what kerbs or measures are going to be put in place to prevent vehicles from driving over the partition as shown below:



It is noted that Electric Vehicle charging infrastructure is to be provided to serve each dwelling and is agreed.

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Disabled Parking:

The applicant is providing 5 disabled parking spaces in accordance with Havant Borough Council's Parking SPD. This is noted and agreed. Disabled parking spaces should be clearly annotated on the site layout plan and dimensions should be confirmed to ensure they are compliant with the standards.

Cycle Parking:

The applicant is proposing to provide 146 cycle storage spaces in line with Havant Borough Council's Parking Supplementary Planning Document dated July 2016. Cycle parking is to be provided within secure covered areas within each of the apartment blocks.

29 visitor cycle spaces are also to be provided. Clarification is requested as to whether this provision accounted for within the cycle parking arrangements for residents within the secure cycle parking within the apartment blocks, or whether alternative storage areas are provided for visitors.

Stage One Road Safety Audit (RSA1)

The TA makes reference to the fact that the Stage One Road Safety Audit (RSA1) will be submitted to the Highway Authority once this has been undertaken. All comments on the site access and internal road network at this time are subject to the findings of the RSA1. The Highway Authority reserve the right to make further comments on the site access proposals and internal network upon receipt of the RSA1.

Materials

Material details do not show construction depths, and these should be provided for consideration to ensure that the proposed materials tie in with the existing infrastructure along Palk Road appropriately.

Drainage

No detailed drainage plans have been submitted for this site. Details regarding the drainage can be secured through an appropriate planning condition to be provided prior to commencement. The proposed drainage will need to ensure it does not impact with highway drainage.

Levels

No levels plan has been submitted for this site. The final ground levels plan should be secured through an appropriate planning condition to be provided prior to commencement to ensure that levels do not create concerns for highway safety through inappropriate gradients and/or adverse cambers as well as ensuring that the tie in arrangements with Palk Road can be achieved appropriately.

Trip Generation

The applicant has undertaken a trip generation assessment using the TRICS database for private flats. Considering the proposed development is solely for flats, this

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parameter is considered acceptable. As agreed at the pre-application stage, the agreed vehicular trip rates and trip generation for the development are as follows:

	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)		12-Hour Flows
	Arr.	Dept.	Arr.	Dept.	
Trip Rate (per unit)	0.057	0.182	0.168	0.085	2.200
Trip Generation (90 units)	5	16	15	8	198
Total	21		23		

Multi-modal trip generation:

The applicant has utilised the same parameters for vehicular trip generation using the TRICS database to analyse the proposed multimodal trip generation. As noted above, WCHAR has been undertaken to assess the suitability of the local road network to accommodate the additional 168 walking and cycling trips a day as a result of the development (assumed that access to bus and rail services would be or should be on foot given the location of these facilities). The applicant has identified a number of deficits in the infrastructure that require improvements a package of measures is yet to be fully set out and agreed.

Traffic Distribution/Assignment

The applicant has estimated traffic distribution based on the 2011 'Travel to Work' Census Data for Havant 014. The following majority of the distribution on the wider highway network is as follows:

- Havant – 30.6%
- Portsmouth – 11.0%
- Chichester – 10.9%
- Waterloooville – 8.9%; and
- Cosham – 8.1%

At the pre-application stage, whilst the method for calculating trip distribution based on census data was agreed, it was not agreed that the distribution would be the same when the level crossing is in use. It is anticipated that when the level barriers are down, residents would access the A27/A3(M) via Harts Farm Way to the southeast as this would be regarded as the quickest route. Thus, estimated trip distribution has been provided for when the level barriers are not in use, based on census data, and when they are in use. Estimated traffic distribution within the AM and PM peak periods is therefore as follows:

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Direction		% Distribution (level crossing not in use)	Trips	% Distribution (level crossing in use)	Trips
East (right out of Palk Road)	AM Peak	59.4%	10	87.5%	14
	PM Peak		5		7
West (left out of Palk Road)	AM Peak	40.6%	7	12.5%	2
	PM Peak		3		1

The assessment laid out above suggests that vehicle trips turning right out of Palk Road increases by 28% when the level barriers are in use which equates to an additional 4 vehicular trips in the AM and PM peak. Further assessment work at the Bedhampton Level Crossing is noted further within this response.

The Highway Authority are content with the trip distribution as laid out above and that the trip generation will not have any significant off-site highway impacts beyond the Palk Road/West Street junction due to the quantum of development and in the majority of cases, a suitable alternative route can be established without the need to turn left when the level crossing is in use. It is understood that the route future residents choose to take will be down to personal choice and for some locations, residents will still choose to turn left out of Palk Road when the level crossing is in use.

Whilst this is the case, this does not override the concerns of the Highway Authority regarding the operation of the Palk Road/West Street junction, and whether the junction (and Palk Road itself) can support the increase in capacity of traffic when the level crossing is in use.

Traffic Flow Data and Surveys

To establish baseline traffic flows on the local road network, camera surveys were undertaken at the following agreed junctions:

- Palk Road/West Street;
- West Street/Bedhampton Road;
- Park Road South/Solent Road;
- Brockhampton Road/Solent Road/Marples Way; and
- Brockhampton Road/Brookside Road/Southmoor Lane/Harts Farm Way

From the assessment undertaken it was identified that each junction was subject to different AM and PM peak periods. However, for robustness, the peak hours of

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08:00-09:00 and 16:15-17:15 have been utilised for modelling and traffic distribution to cover the busiest periods as identified within the above assessment. This is agreed.

TEMPRO Growth Factors:

TEMPRO growth factors have been applied to provide the 2027 baseline traffic flows to assess the capacity at the Palk Road/West Street junction. The utilised growth factors are as follows:

AM Peak (08:00-09:00)	PM Peak (17:00-18:00)
1.0593	1.0587

Committed Developments:

As requested at the pre-application stage, despite not being allocated or having planning consent, the adjacent proposed development “Land at Kingscroft Farm” (planning reference APP/22/00669) has been included as a committed development.

Junction Assessments

To identify the highway impact of the development proposals, junction assessments have been undertaken for the following scenarios:

- 2022 Baseline;
- 2027 Baseline;
- 2027 + Committed Development; and
- 2027 + Committed Development + Proposed Development

It was initially requested at the pre-application stage that the following junctions should be modelled:

- Palk Road/West Street junction;
- West Street/Bedhampton Road junction;
- Bedhampton Level Crossing;
- Park Road South/Solent Road junction;
- Brockhampton Road/Solent Road/Marples Way roundabout; and
- Brockhampton Road/Brookside Road/Southmoor Lane/Harts Farm Way roundabout

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However, following further pre-application discussions it was agreed that only the Palk Road/West Street junction needed to be modelled given the low percentage impact of the proposed development traffic on local junctions.

Palk Road/West Street junction:

The applicant modelled the Palk Road/West Street junction using Junctions 9 modelling software. The maximum RFC value for the Baseline 2027 + Committed Development + Proposed Development scenario was 0.01 suggesting that the junction can operate well within capacity including the addition of the development traffic.

Further junction assessments have been undertaken to assess how the junction will operate when the level crossing is in use. It has been assessed that the maximum RFC value for the Baseline 2027 + Committed Development + Proposed Development scenario when the level crossing is down was 0.04, again suggesting that the junction can operate well within capacity.

Whilst according to modelling the junction seems to operate within capacity, the Highway Authority have concerns that the modelling has not considered the parking obstructions, general alignment, reduced visibility and the consequential reduced carriageway widths along Palk Road when taking into consideration the additional development traffic.

The traffic generated by the development would lead to 17 trips turning out and 5 trips turning into Palk Road within the AM peak and 8 trips turning out and 15 trips turning into Palk Road within the PM peak. This would lead to a greater quantum of queuing vehicles along Palk Road, in addition to the existing traffic should vehicles not be able to turn out due to queueing vehicles on West Street when the level crossing is in use.

It was suggested at the pre-application stage that the existing 'keep clear' box at the Palk Road/West Street junction was upgraded to a yellow box. The Highway Authority have however discussed this with the Traffic Management team, and it is suggested that the existing Keep Clear marking should be retained and extended across the full width of Palk Road. It is noted that this would benefit from re-painting which the applicant should provide as part of their development proposals.

Bedhampton Level Crossing Assessment:

The junction capacity assessments discussed above do not take into consideration the proximity of the Palk Road/West Street Junction being circa 50m west of the Bedhampton Level Crossing. Thus, queue lengths are not representative of when the level crossing is operational.

As requested during pre-application discussions, further assessment work has been undertaken at the Bedhampton Level Crossing. The applicant has carried out a queue length survey for the level crossing which was undertaken during peak hours on

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Gary Westbrook

Tuesday 5th July 2022 to assess how the addition of any development traffic may affect the operation of this junction.

The full results are noted within the TA, however for ease, the longest recorded queues and time in which the barriers were in operation are shown below for both the AM and PM peak periods:

	Time Barrier in Operation	Longest Westbound Queue	Longest Eastbound Queue
AM Peak (08:00-09:00)	9 minutes and 35 seconds	12	16
PM Peak (17:00-18:00)	3 minutes and 53 seconds	15	
	3 minutes and 40 seconds		13

In addition to the longest recorded times, and queue lengths, the total time the barrier is in operation is circa 34 minutes in the AM peak and circa 30 minutes in the PM peak. The TA also suggests that in some cases the barriers are only up for a minute before they go down again, with the queue not always able to clear. When this is the case, it is likely queuing vehicles along Palk Road may not be able to egress, providing operational concerns of Palk Road itself and its junction with West Street. The geometry of Palk Road in addition to the parking obstructions and carriageway widths would mean that vehicle users would not be able to turn into or turn out of Palk Road should a vehicle be waiting at the junction, providing operational highway concerns due to frustration caused by the delays.

Due to the proximity of Palk Road and the level crossing, queuing vehicles can block the access easily when the level crossing is in operation. It is anticipated circa 5 vehicles queuing would impact the operation of Palk Road, and most queue lengths recorded were in excess of this.

As noted previously within the trip distribution section, it is anticipated an additional 4 vehicles will turn right out of Palk Road in the peak periods when the level crossing is in use. However, should queuing vehicles be present along Palk Road, then vehicles will be unable to egress and turn right out or turn left in due to the constraints with the geometry of Palk Road.

These concerns as laid out above are further exacerbated when considering the total number of vehicles utilising Palk Road within the 2027 Baseline + Development + Committed Development scenario. Within the AM peak, the trip distribution suggests that 23 vehicles turn out and 17 turn in, with 12 turning out and 8 turning in within the

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PM peak. With free flow traffic only present over the level crossing for circa 26 minutes in the AM Peak and circa 30 minutes in the PM peak, this equates to approximately 2 and 1 vehicles per minute utilising the junction within the AM and PM peak respectively. Should the barrier be in operation for circa 10 minutes as recorded during the level crossing survey, due to staked vehicles along Palk Road, vehicles will be unable to access and egress due to the geometry of the junction, particularly when queuing vehicles are present along West Street. This may encourage unsafe manoeuvres and travelling on the wrong side of the carriageway.

Whilst it is understood there are currently no accidents at this junction, the addition of the development traffic intensifies the use of Palk Road and its junction with West Street during the peak hours. The Highway Authority have concerns as to how Palk Road and its junction will operate safely, prevent unsafe movements and a not create potential highway safety issue when taking into consideration queuing vehicles, the restricted visibility at the junction and the constraints with the geometry of Palk Road.

Further consideration should be given by the applicant on the operation of Palk Road and the Palk Road/West Street junction to override the potential operational highway safety concerns.

Percentage Impact Assessments:

As agreed at the pre-application stage, no further junction modelling is required, however, the applicant has provided a summary of the percentage impact at each of the previously requested junctions to be modelled, to assess the impact of the development traffic on the 2027 + Committed Development scenario.

It is noted that the maximum percentage impact is 1.06% and 0.85% at the Brockhampton Road / Solent Road Marples Way roundabout in the AM peak and PM peak respectively. The same assessment has been undertaken to consider the impact the level crossing in operation will have on the percentage impact at the aforementioned junctions. Taking this into account, the maximum percentage impacts are 1.59% and 1.38% in the AM and PM peak respectively at the Brockhampton Road / Solent Road / Marples Way roundabout.

Based on the above, it is agreed that the addition of the development traffic will have a minimal impact on the local road network and the operation of this junction. The Highway Authority are satisfied that no further junction modelling is required as part of this planning consent.

Travel Plan

This Full Travel Plan (TP) has been assessed using Hampshire County Council's (HCC's) evaluation criteria for the assessment of travel plans – "A guide to development related travel plans". Whilst the quality of this FTP is generally of good quality, it still requires some amendments before it can be approved.

Title Page – Control Sheet – Introduction:

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The document control sheet and introduction should contain the following additional information between them:

- Site postcode
- Type of Travel Plan (Framework/Full)
- Planning Reference
- Description of the site
- Site masterplan

Guidance – Section 2:

Section 2 should reference additional national and local policy documents relevant to the TP. These may include, but are not limited to (delete as applicable):

National

- Planning Practice Guidance ‘Travel Plans, Transport Assessments and Statements’ (2014)
- LTN 1/20 Cycle Infrastructure Design

Local

- LPA Clean Air Policy (where applicable)
- LPA Electric Vehicle SPD (where applicable)

Existing site conditions / site audit – Section 3:

Section 3 should include the following details:

- Site quantum
- Footways and cycleways, including:
 - Walking Isochrone Map
 - Cycling Isochrone Map
- Nearest (or relevant) train stations, including:
 - Provision; car parking, cycle parking (quantity and type), waiting areas, accessibility etc.
- Timetable

Site Audit – proposed layout – Section 4:

Section 4 should include the following details:

- Site quantum

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Measures – Section:

There are a few additional measures which should be considered for inclusion within this FTP. Some of these measures may be applicable only to residents or employees, or to both groups.

Walking

- Improvements to (and maintenance of) the walking network and signage
- Promotion of free health apps
- Co-ordinate with schools to organise walking to school events

Cycling

- Improvements to (and maintenance of) the cycle network and signage
- Formation of a Bicycle Users Group (BUG)
- Discounted cycle accessories event(s)
- Bike Drs – bike maintenance events (at least annually)

Public Transport

- This section does not need any amendments/additions

Marketing and Promotion

- Provision of information to all occupants, residents, visitors, and staff on how to access the site by means other than the car through a variety of methods, including
 - Notice boards
- Focus groups
- Use of internet to disseminate information and social media such as Twitter, Instagram, and Facebook
- Introduction of personalised journey planning scheme
- Run sustainable Travel Competition/Commuter challenge annually

Smart Working Measures

- Promote home delivery services
- Provide good quality broadband services

Management / TPC role – Section 7:

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Section 7 should include the following details will need to be supplied to HCC Travel Plan and Monitoring Team 3 months prior to 50% occupation @ TPtravelplans@hants.gov.uk:

- Name
- Job title
- Organisation
- Contact details, including:
 - Email address
 - Work address
 - Phone number
 - Website (where applicable)
- A concise breakdown of:
 - Start date (to be at least 3 months prior to 50% occupation to ensure uptake)

Travel Plan Survey Form – Appendix D:

The Travel Plan Survey Form should include a question to the residents about what measures would encourage them to change their mode of transport to a more sustainable method.

Conclusion/Summary:

A summary of the travel plan and key points from each section needs to be included at the end of the TP.

The FTP will require further amendments as set out above before it can be considered acceptable for submission in conjunction with the proposed site.

Recommendations

There is a substantial amount of further information required from the applicant before a formal recommendation can be made by the Highway Authority. If the Planning Authority wish to determine the application, then the Highway Authority should be requested to provide its reasons for refusal.

I trust the above is clear but please do not hesitate to contact Holly Drury on the above number/email should you require any further information.

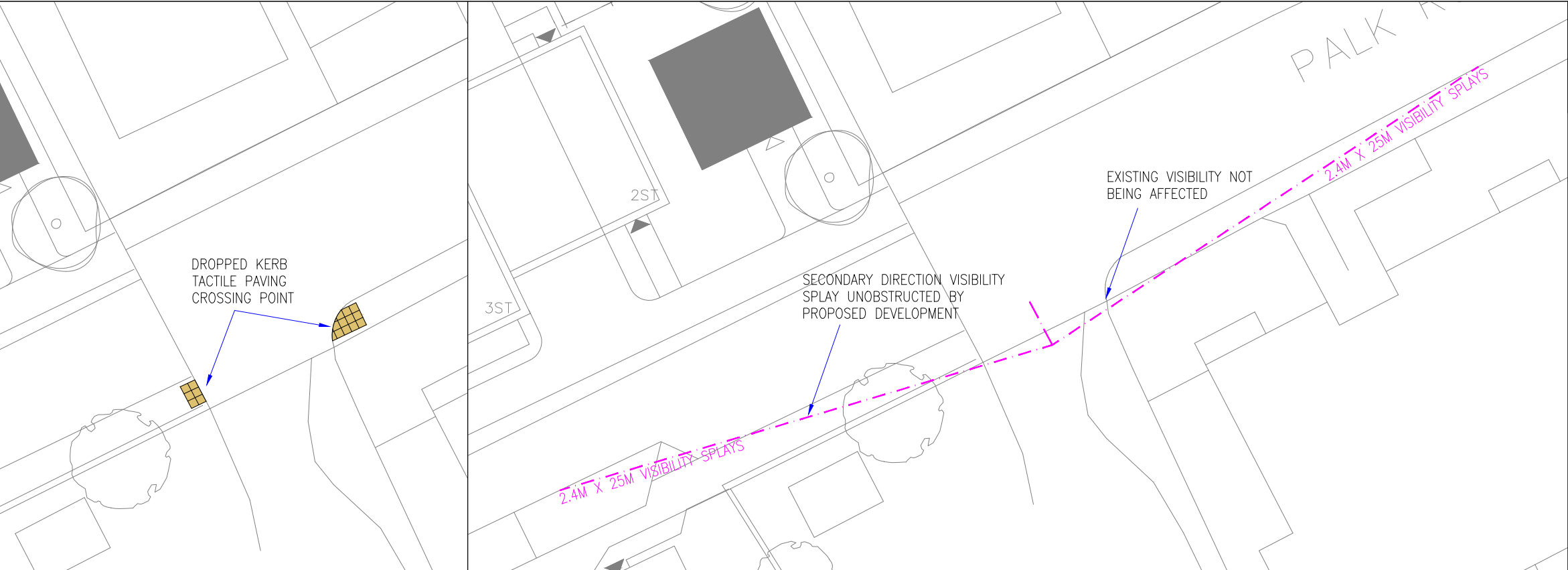
Director of Hampshire 2050
Gary Westbrook

Yours sincerely,

Gemma McCart
Team Leader – Highways Development Planning
Hampshire 2050

Director of Hampshire 2050
Gary Westbrook

Appendix B



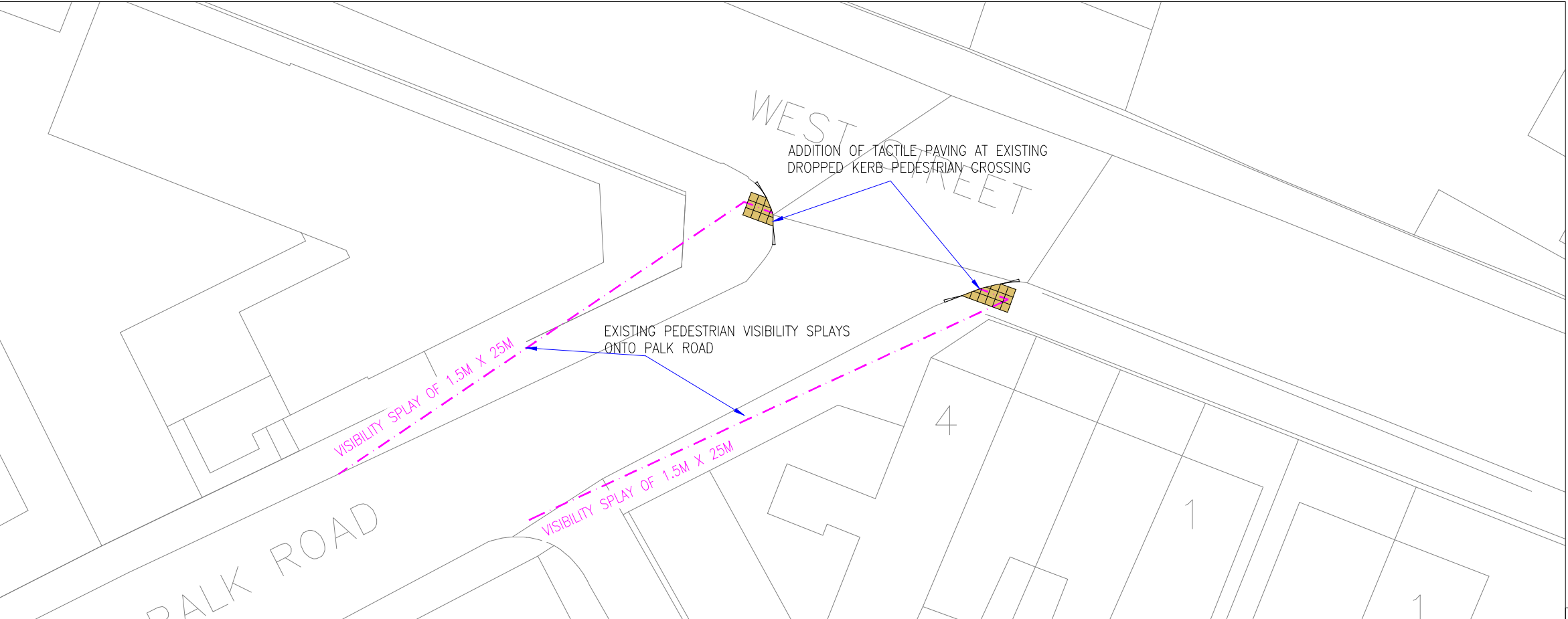
DROPPED KERB AND RETAINED ACCESS TO WEST OF PALK ROAD

VISIBILITY SPLAY FROM ADJACENT ACCESS, TO 20MPH

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ADDITION OF TACTLE PAVING AT EXISTING DROPPED KERB PEDESTRIAN CROSSING AND VISIBILITY SPLAYS AT PALK ROAD CROSSING TO 20MPH



Project Name
LAND AT PALK ROAD, HAVANT
Project Phase
PRELIMINARY

Title
PALK ROAD CROSSING POINTS AND VISIBILITY SPLAY ASSESSMENTS



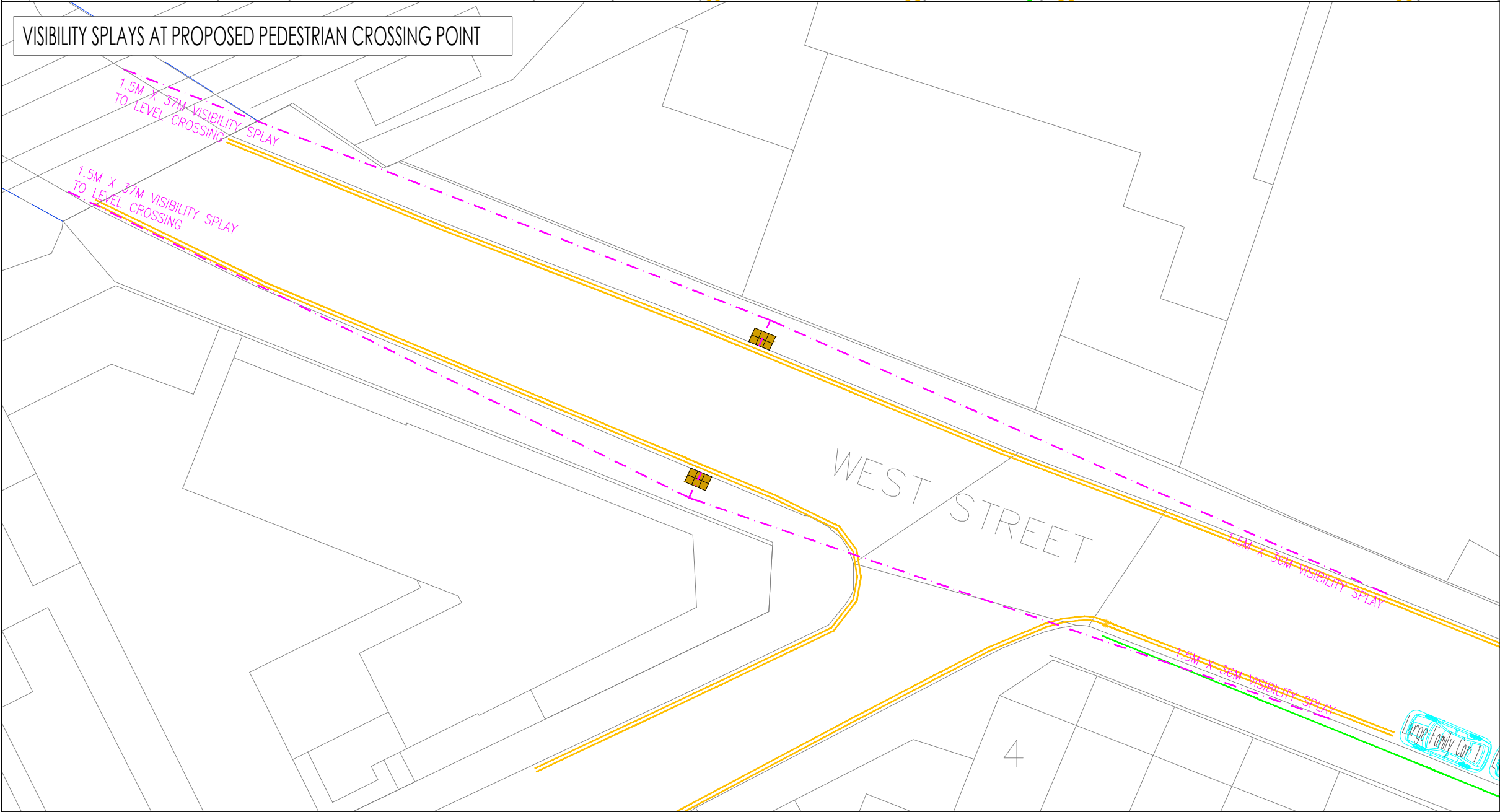
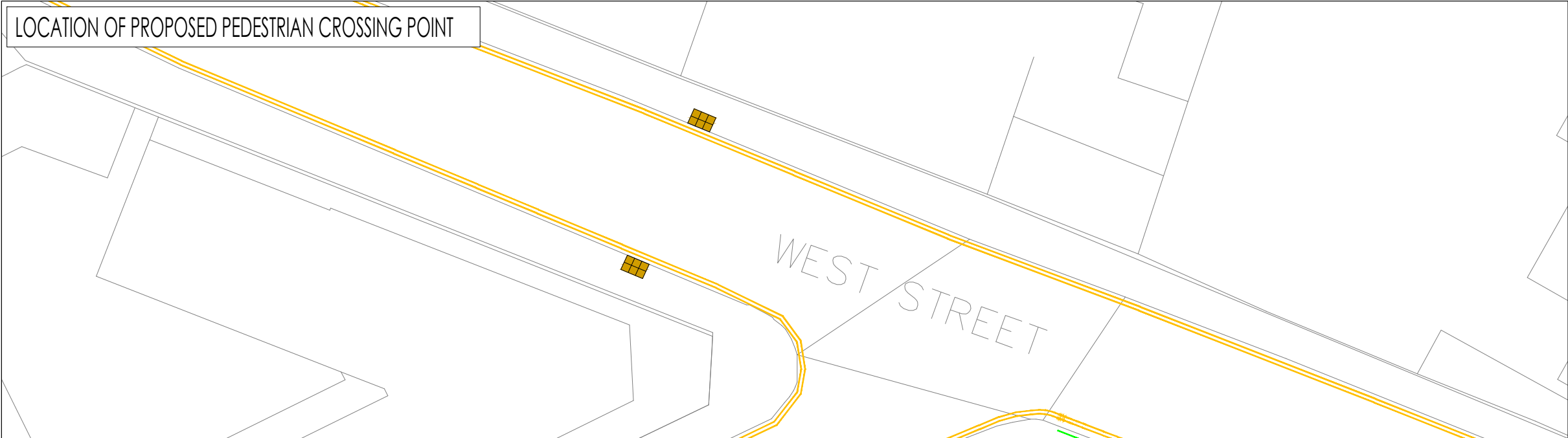
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Client



P01	FIRST ISSUE	25.07.23	JAM	MS
Rev	Description	Date	By	App'd
Date Created	Drawn By	Approved By	Suitability Code	
25.07.23	JAM	MS	-	
PBA Project Number		Scale	(AT A3)	
043.0035		1:250		
PBA Drawing No:			Revision	
043.0035-0008			P01	

Appendix C



GENERAL NOTES

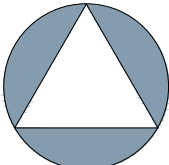
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VISIBILITY SPLAYS

VISIBILITY SPLAYS ARE BASED ON RECORDED 85TH PERCENTILE SPEEDS OF 27.1MPH EASTBOUND AND AND 26.5MPH WESTBOUND RESULTING IN SPLAY LENGTHS OF 36M TO THE EAST AND 37M TO THE WEST.

KEY

- EXISTING BARRIER
- INDICATIVE DOUBLE YELLOW LINES

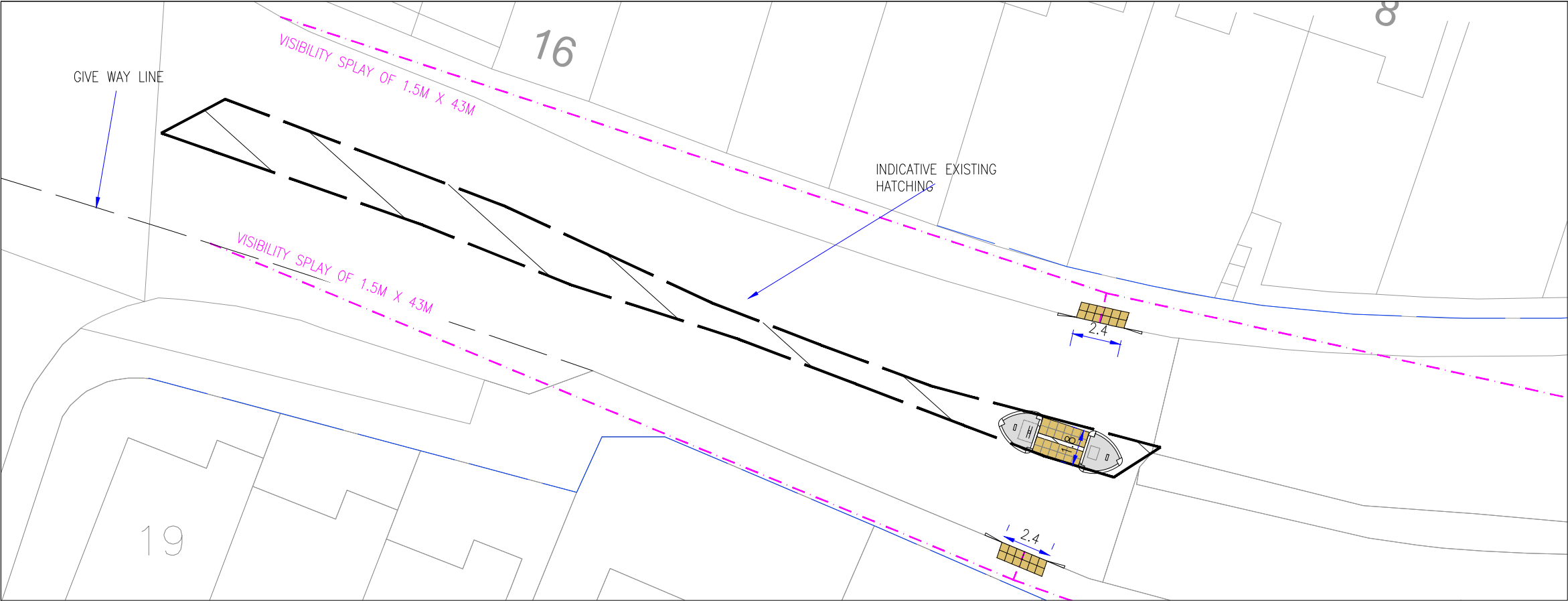


NORTH

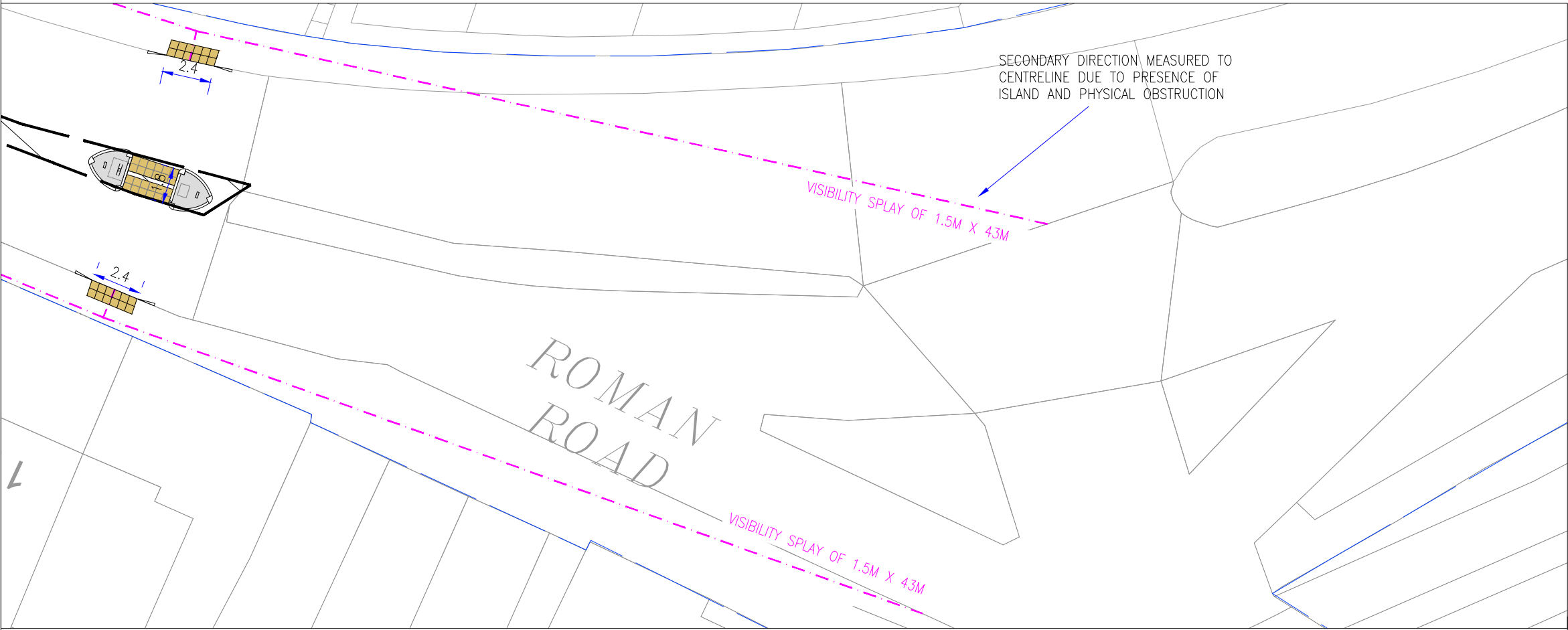
A	REVIEW OF HCC COMMENTS	15.09.23	JAM	TAF
Rev	Description	Date	By	Chkd

Project Name LAND AT PALK ROAD HAVANT	Title PEDESTRIAN VISIBILITY SPLAYS AND PEDESTRIAN CROSSING DESIGN WEST STREET	 Paul Basham Associates Ltd The Botby, Cams Hall Estate, Fareham, PO16 8UT 01329 711 000 info@paulbashamassociates.com www.paulbashamassociates.com	 Client	Checked By JM	Checked Date 26.10.22	Scale 1:250 (AT A3 SIZE)		
Project Phase PRELIMINARY				Drawn By CD	Drawn Date 26.10.22	Client Drawing No. -	PBA Drawing No. 043.0035.003	Revision A

Appendix D



VISIBILITY SPLAYS TO THE WEST



VISIBILITY SPLAYS TO THE EAST

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KEY

— INDICATIVE HIGHWAY BOUNDARY



Project Name	Title
LAND AT PALK ROAD, HAVANT	PEDESTRIAN CROSSING IN PROXIMITY OF BIDBURY SCHOOLS
Project Phase	
PRELIMINARY	

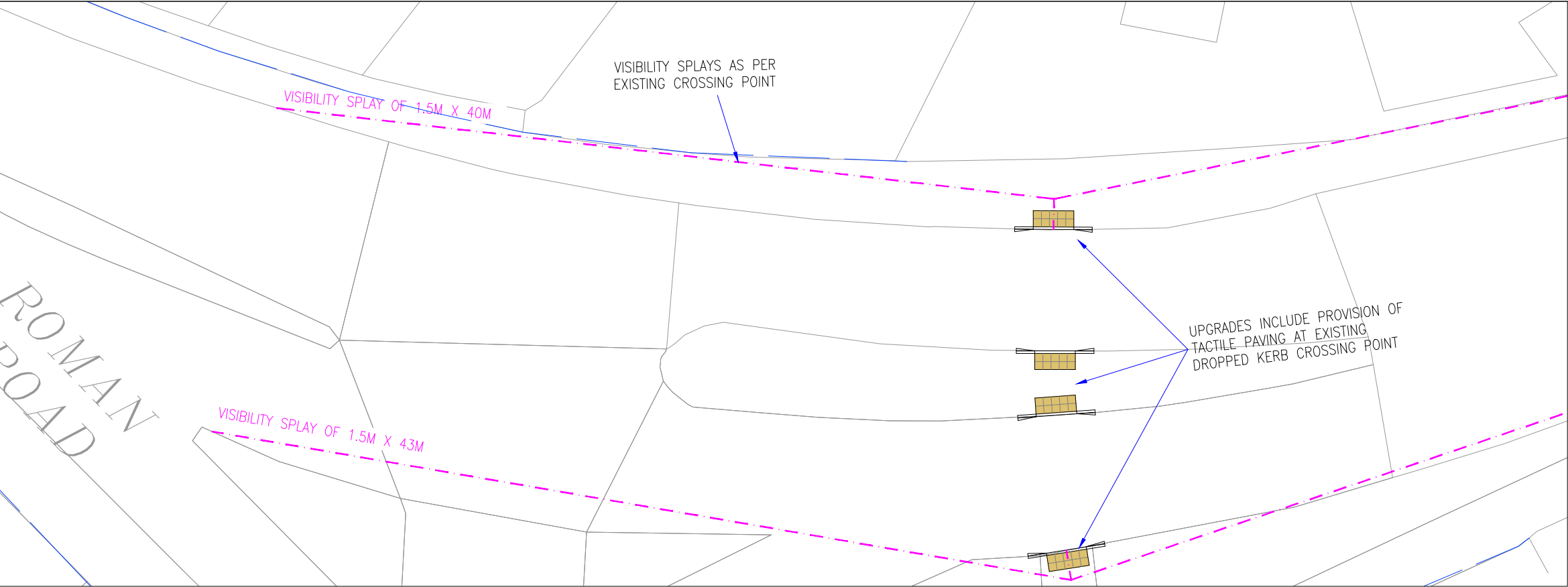
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Client
Bellway

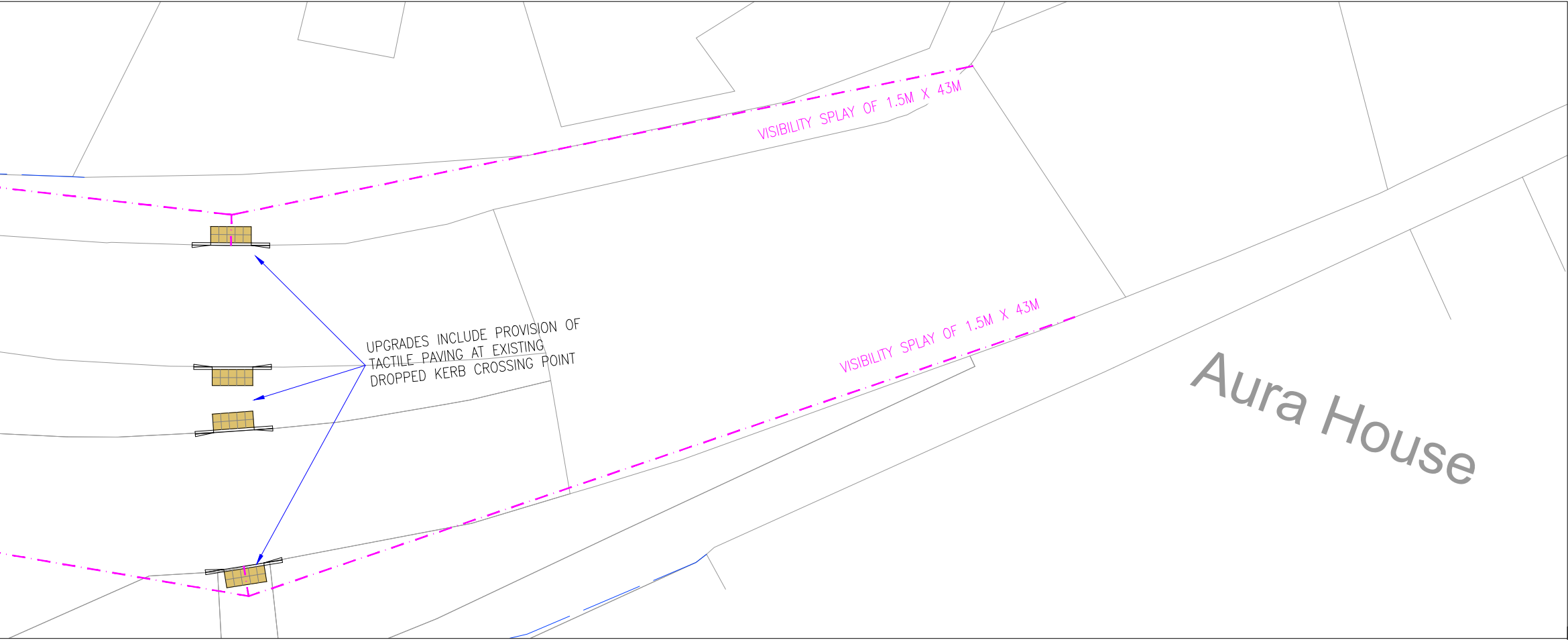
Rev	Description	Drawn By	Approved By	Suitability Code
Date Created	10.07.23	CID	JAM	-
PBA Project Number	043.0035	Scale	1:250	(AT A3)
PBA Drawing No:	043.0035-0011	Revision	P01	

P01	FIRST ISSUE	25.07.23	CID	JAM
Rev	Description	Date	By	App'd
Date Created	10.07.23	Drawn By	CID	Approved By
PBA Project Number	043.0035	Scale	1:250	(AT A3)
PBA Drawing No:	043.0035-0011	Revision	P01	

Appendix E



VISIBILITY SPLAYS TO THE WEST



VISIBILITY SPLAYS TO THE EAST

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KEY

— INDICATIVE HIGHWAY BOUNDARY



Project Name	Title
LAND AT PALK ROAD, HAVANT	PEDESTRIAN CROSSING IN PROXIMITY OF INGLEDENE CLOSE
Project Phase	
PRELIMINARY	

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Rev	Description	Date	By	App'd
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PBA Project Number		Scale	(AT A3)	
043.0035		1:200		
PBA Drawing No:			Revision	
043.0035-0012			P01	

Appendix F

Parking Beat Survey

Palk Road, Havant



Friday 16th June 2023

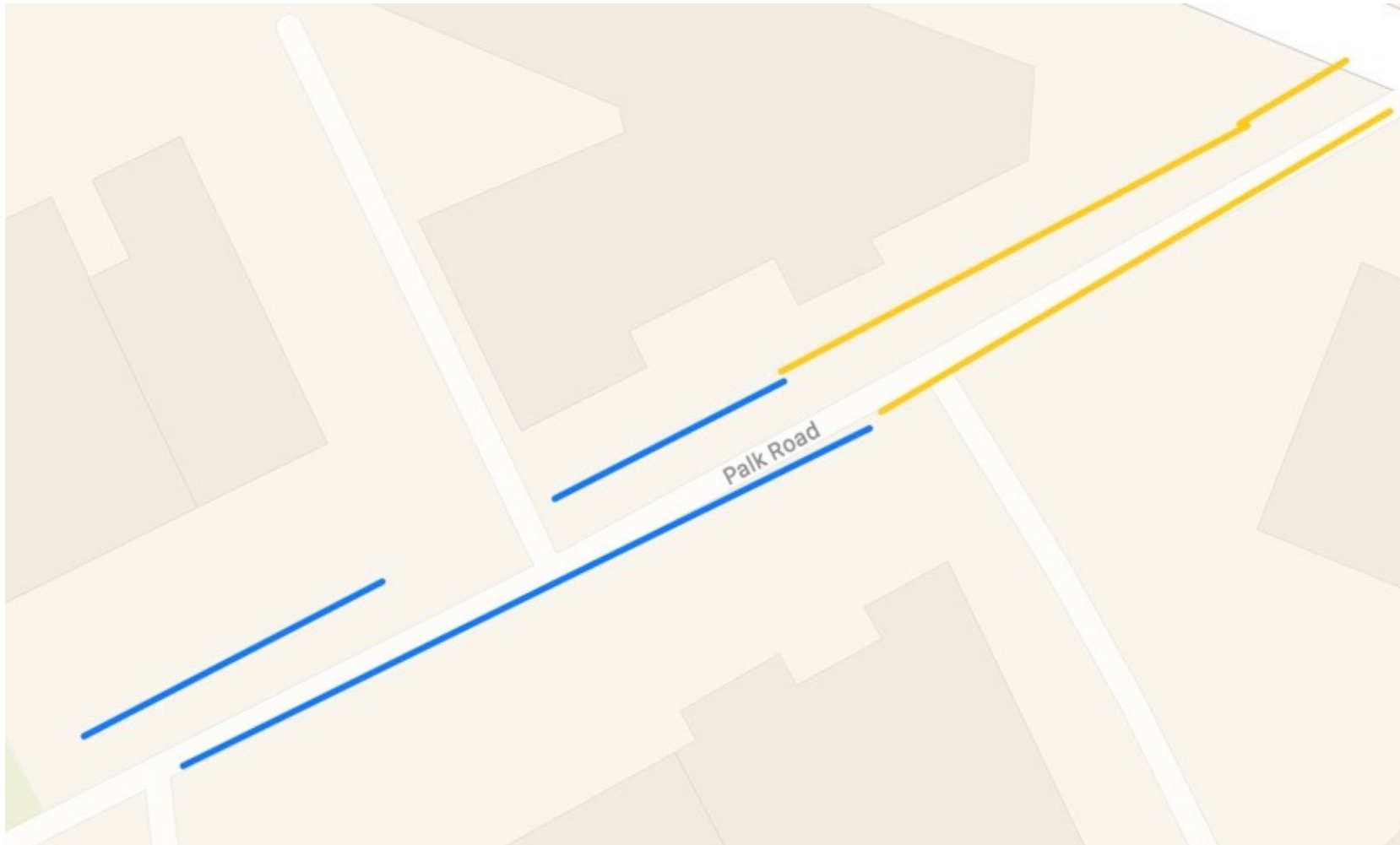
Saturday 17th June 2023



Created by Bert Ramos

SURVEY DETAILS

Survey Type	PARKING BEAT SURVEY	
Methodology	London Borough of Lambeth Palk Road, Havant 200 metre walking distance from site Friday 16th June 2023 Saturday 17th June 2023 00:00 - 24:00	
Guidance		
Site		
Survey Area		
Date/s		
Time/s		
Beat Frequency	30 minute beats	
Unit for 1 Unmarked Lengthwise Space (m)	5	
Unit for 1 Unmarked Crosswise Space (m)	2.5	
Areas Excluded From Survey	Private parking spaces, private roads and off road parking (unless requested in survey specification).	
Sections of road excluded from parking capacity calculation	First 7.5m from junction mouth (for reasons of highway safety). Crossovers, dropped kerbs, build-outs, traffic islands, 24/7 illegal parking. Sections of legal lengthwise parking between illegal parking (crossover, dropped kerbs, double yellow etc) that measure less than the unit specified for 1 space. Where the width of the road is such that parking on both sides would cause an obstruction. In this instance one side of the road has been excluded from the capacity calculation.	
Parking excluded from stress calculation	Skips or any other non-vehicle occupying a parking space (but noted separately if observed). Any illegal parking on double yellow lines, crossovers, keep clear lines etc (but noted separately if observed).	
Terminology	"Parking Stress" - Calculation to express the number of parked vehicles as a percentage of available parking for each parking type. Stress can be over 100% if cars are small and/or parked very closely together. "Parking Capacity Calculation" - Measurement of each length of road between illegal parking (e.g. crossovers, traffic islands, double yellow etc) converted into parking spaces by rounding down to the nearest unit assigned to one parking space and dividing this figure by the unit. "Lengthwise Parking" - Vehicles parked in a lengthwise orientation with wheels parallel to the kerbside. "Crosswise Parking" - Vehicles parked in a crosswise orientation (as seen in car parks or wide sections of road)	



Key

**Unrestricted
Parking**

 Unrestricted Kerb

No Parking

 Double Yellow Lines



North



Location		Restriction		1	Unrestricted																																																																
		Lengthwise Parking (m) Lengthwise Spaces		Marked/Crosswalk Bays		Total Spaces		Friday 16th June 2023												Friday 16th June 2023												Friday 16th June 2023												Friday 16th June 2023																									
								00:00		00:30		01:00		01:30		02:00		02:30		03:00		03:30		04:00		04:30		05:00		06:00		06:30		07:00		07:30		08:00		08:30		09:00		09:30		10:00		10:30		11:00		11:30		12:00															
Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces	Occupied	Spaces																						
Park Road	45	9	0	9	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	5	4	56%	7	2	78%	8	1	89%	8	1	89%	8	1	89%	7	2	78%	6	3	67%														
Total	45	9	0	9	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	8	1	89%	5	4	56%	7	2	78%	8	1	89%	8	1	89%	8	1	89%	7	2	78%	6	3	67%														

[illegible][illegible][illegible]

[illegible][illegible][illegible][illegible]

PARKING CAPACITY MEASUREMENTS

A working table showing kerbside measurements for each parking type.

Location	Side of Road & Measuring Orientation	Parking Type	Section Length (m)	Crosswise Spaces or Lengthwise Marked Bays	Number of Crosswise Space or Marked Bays	Unit Round Down (If Lengthwise & Unmarked)	Total Spaces
Palk Road	N E-W	Double Yellow Lines	24.6			20	4
Palk Road	N E-W	Unrestricted	10.3			10	2
Palk Road	N E-W	Crossover	9.8			5	1
Palk Road	N E-W	Unrestricted	12.6			10	2
Palk Road	N E-W	Crossover	2.9			0	0
Palk Road	S W-E	Crossover	8.1			5	1
Palk Road	S W-E	Unrestricted	28.3			25	5
Palk Road	S W-E	Double Yellow Lines	29.3			25	5

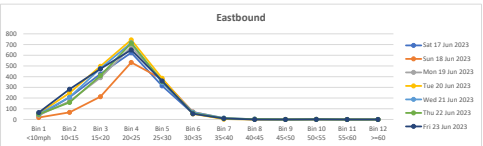
Appendix G

West St, Havant ATC

Direction: Eastbound

	Total Volume	85th Percentile	Mean Average	Standard Deviation	Bin 1 <10mph	Bin 2 10<15	Bin 3 15<20	Bin 4 20<25	Bin 5 25<30	Bin 6 30<35	Bin 7 35<40	Bin 8 40<45	Bin 9 45<50	Bin 10 50<55	Bin 11 55<60	Bin 12 >=60
Sat 17 Jun 2023	1676	26.9	21.1	5.6	37	208	426	624	314	56	9	4	0	0	0	0
Sun 18 Jun 2023	1289	28.4	23.1	5.2	18	67	213	533	377	70	11	0	0	0	0	0
Mon 19 Jun 2023	1717	27.1	21.5	5.4	41	170	391	678	370	62	4	0	1	0	0	0
Tue 20 Jun 2023	1986	26.5	20.9	5.5	56	248	497	744	385	52	4	0	0	0	0	0
Wed 21 Jun 2023	1880	26.9	21.1	5.6	50	208	477	716	345	69	14	1	0	0	0	0
Thu 22 Jun 2023	1760	27.3	21.5	5.6	49	159	409	713	356	59	10	3	0	2	0	0
Fri 23 Jun 2023	1894	26.6	20.6	5.8	65	283	473	650	360	53	8	0	0	1	0	0
5 Day Ave.	1847	26.9	21.1	5.6	52	214	469	700	363	59	8	1	0	1	0	0
7 Day Ave.	1743	27.1	21.4	5.5	45	192	412	665	358	60	9	1	0	0	0	0

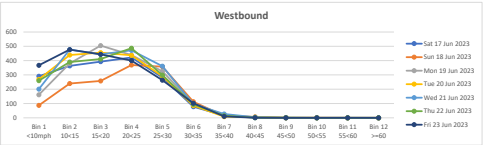
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Direction: Westbound

	Total Volume	85th Percentile	Mean Average	Standard Deviation	Bin 1 <10mph	Bin 2 10<15	Bin 3 15<20	Bin 4 20<25	Bin 5 25<30	Bin 6 30<35	Bin 7 35<40	Bin 8 40<45	Bin 9 45<50	Bin 10 50<55	Bin 11 55<60	Bin 12 >=60
Sat 17 Jun 2023	1847	25.0	18.5	7.3	291	363	393	422	282	78	16	2	0	0	0	0
Sun 18 Jun 2023	1446	28.7	21.3	7.1	87	240	258	369	358	113	13	7	0	1	0	0
Mon 19 Jun 2023	1937	26.9	19.6	7.0	161	380	505	439	325	101	19	5	1	0	1	0
Tue 20 Jun 2023	1952	25.8	18.5	7.1	269	439	456	437	291	86	8	5	1	0	0	0
Wed 21 Jun 2023	2083	26.7	19.3	7.2	201	477	444	472	361	96	27	4	1	0	0	0
Thu 22 Jun 2023	1959	26.3	18.9	7.2	260	390	411	487	299	95	15	1	1	0	0	0
Fri 23 Jun 2023	2064	25.3	17.7	7.3	367	477	444	400	263	102	10	1	0	0	0	0
5 Day Ave.	2007	26.2	18.8	7.1	252	433	452	447	308	96	16	3	1	0	0	0
7 Day Ave.	1904	26.5	19.1	7.2	234	395	416	432	311	96	15	4	1	0	0	0

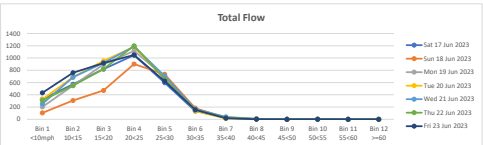
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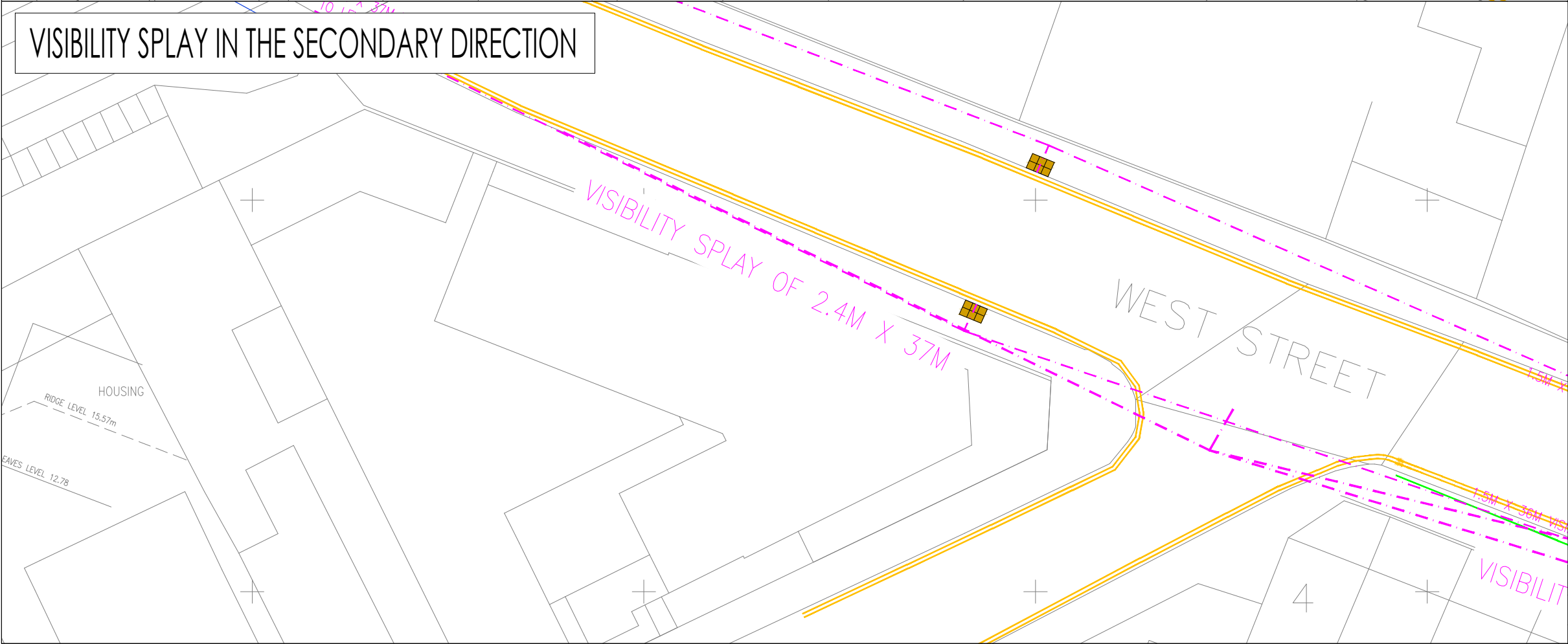
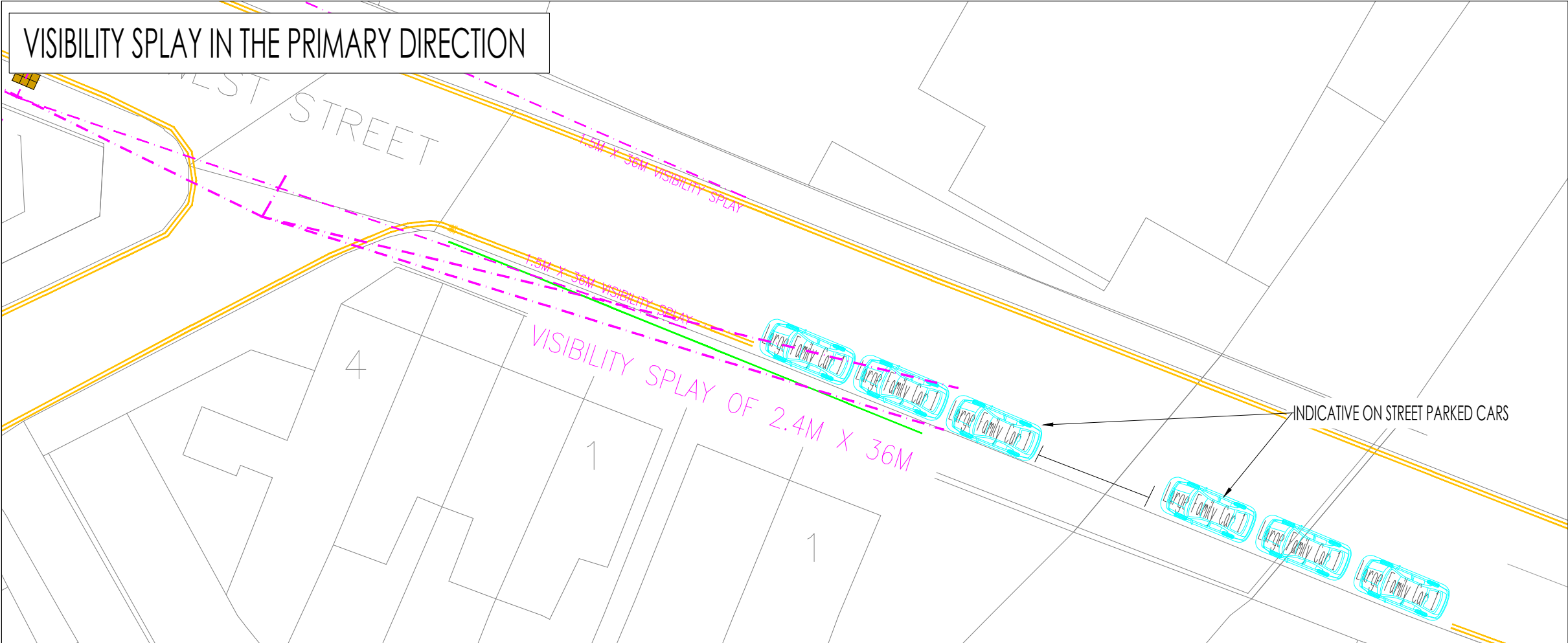
Direction: Total Flow

	Total Volume	85th Percentile	Mean Average	Standard Deviation	Bin 1 <10mph	Bin 2 10<15	Bin 3 15<20	Bin 4 20<25	Bin 5 25<30	Bin 6 30<35	Bin 7 35<40	Bin 8 40<45	Bin 9 45<50	Bin 10 50<55	Bin 11 55<60	Bin 12 >=60
Sat 17 Jun 2023	3525	26.6	19.7	6.7	328	571	819	1046	596	134	25	6	0	0	0	0
Sun 18 Jun 2023	2735	28.7	22.2	6.3	105	307	471	902	735	183	24	7	0	1	0	0
Mon 19 Jun 2023	3654	27.1	20.5	6.4	202	550	896	1117	695	163	23	5	2	0	1	0
Tue 20 Jun 2023	3978	26.3	19.7	6.4	325	687	953	1181	676	138	12	5	1	0	0	0
Wed 21 Jun 2023	3963	27.0	20.2	6.5	251	685	921	1188	706	165	41	5	1	0	0	0
Thu 22 Jun 2023	3719	27.0	20.2	6.6	309	549	820	1200	655	154	25	4	1	2	0	0
Fri 23 Jun 2023	3958	26.1	19.1	6.8	422	760	917	1050	613	155	19	1	0	1	0	0
5 Day Ave.	3854	26.7	19.9	6.5	304	646	901	1147	671	155	24	4	1	1	0	0
7 Day Ave.	3647	27.0	20.2	6.5	279	587	828	1098	669	156	24	5	1	1	0	0

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Appendix H



GENERAL NOTES

- 1. THIS DRAWING IS INTENDED TO BE VIEWED IN COMBINATION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS AND SPECIFICATION.
- 2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
- 3. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
- 4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
- 5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.

VISIBILITY SPLAYS

VISIBILITY SPLAYS ARE BASED ON RECORDED 85TH%ILE SPEEDS ALONG WEST STREET. THE RECORDED SPEEDS WERE 27.1MPH EASTBOUND AND 26.5MPH WESTBOUND. THE VISIBILITY SPLAY DISTANCES ARE IN ACCORDANCE WITH HCC TG3 CALCULATIONS.

KEY

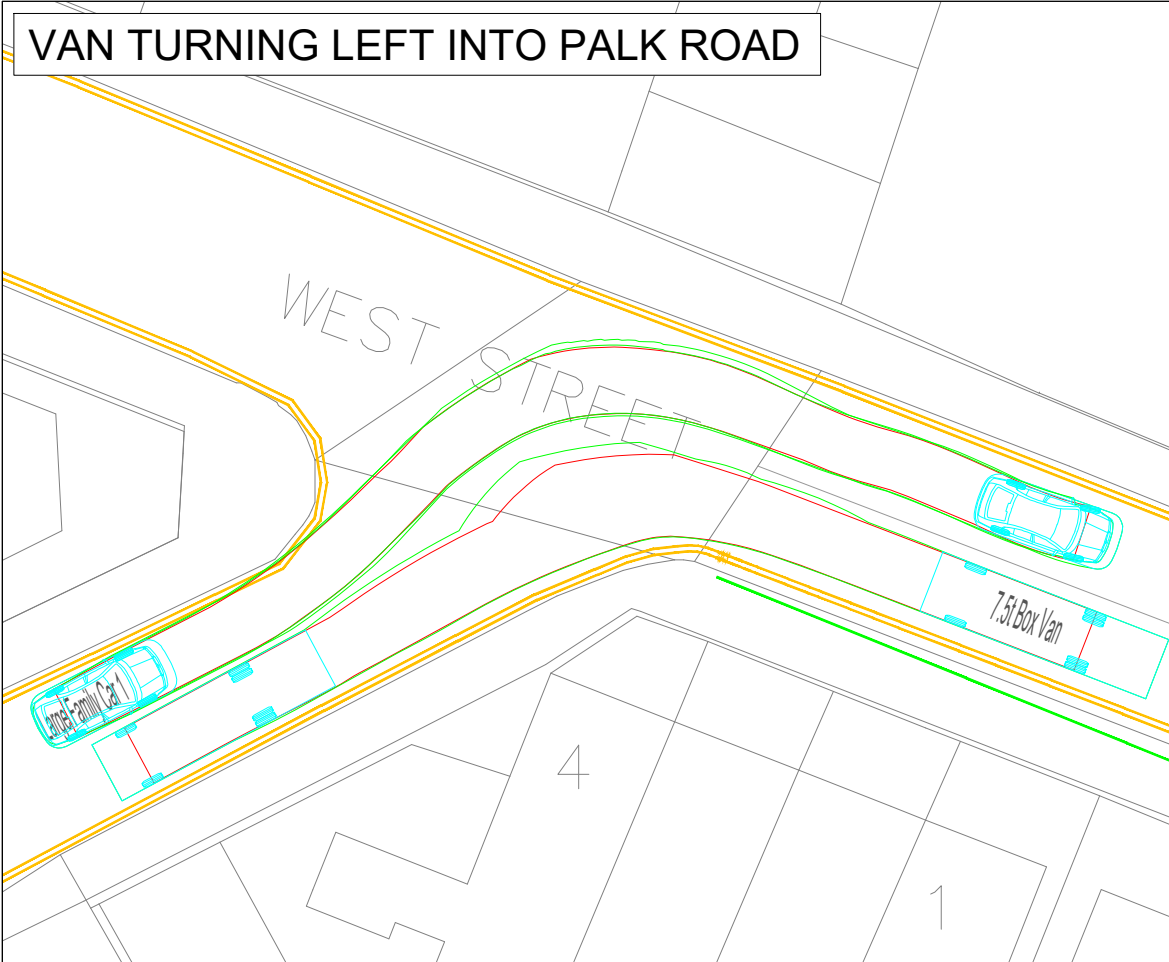
- EXISTING BARRIER
- INDICATIVE DOUBLE YELLOW LINES

B	UPDATED VISIBILITY SPLAYS	15.09.23	JAM	TAF
A	UPDATED VISIBILITY SPLAYS	11.07.23	CID	JAM
Rev	Description	Date	By	Chkd

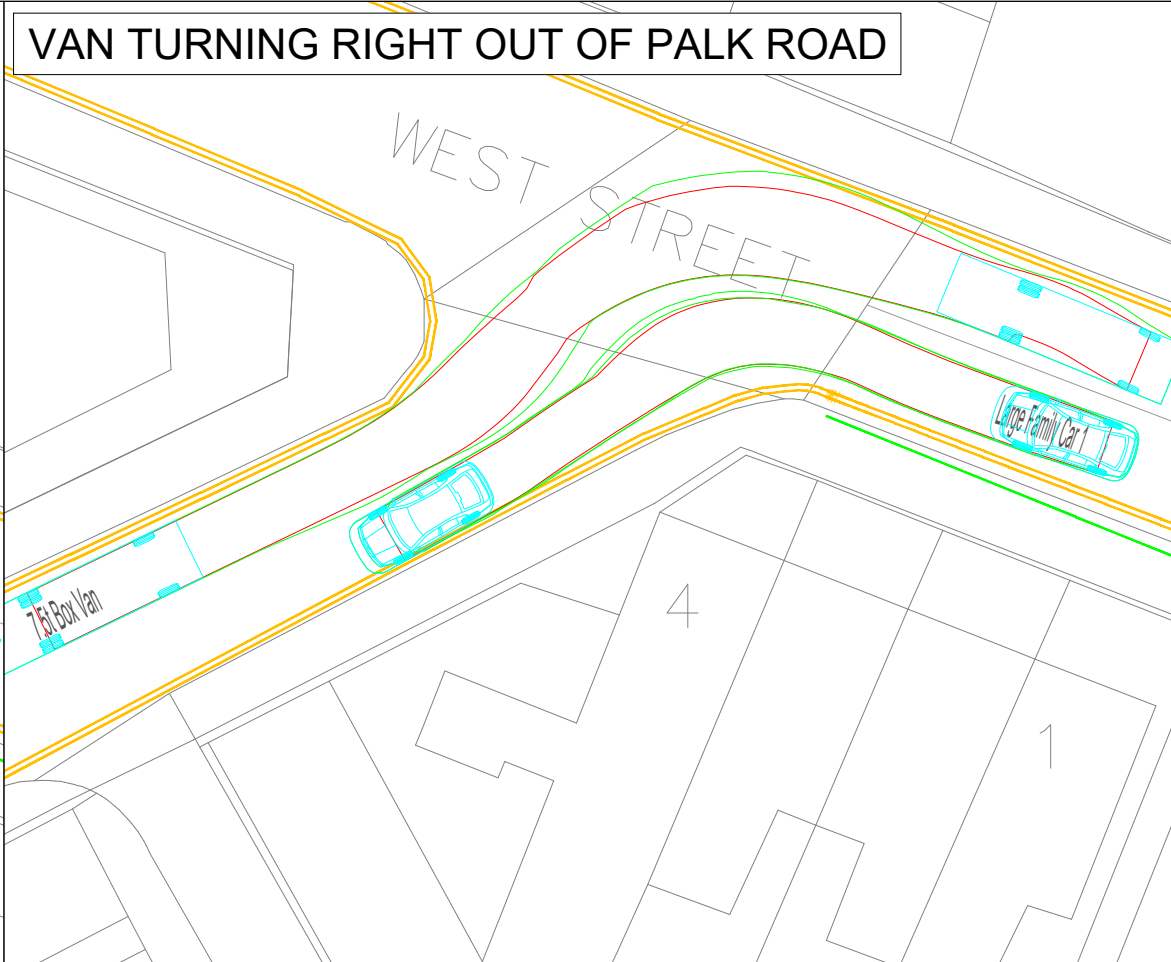
Project Name	Title	 Paul Basham Associates Ltd The Botly, Cams Hall Estate, Fareham, PO16 8UT 01329 711 000 info@paulbashamassociates.com www.paulbashamassociates.com	Client	Checked By	Checked Date	Scale	(AT A3 SIZE)		
LAND AT PALK ROAD HAVANT	VISIBILITY SPLAYS PALK ROAD/WEST STREET JUNCTION			JM	26.10.22	1:250	Client Drawing No.	PBA Drawing No.	Revision
Project Phase				Drawn By	Drawn Date		-	043.0035.002	B
PRELIMINARY				CD	26.10.22				

Appendix I

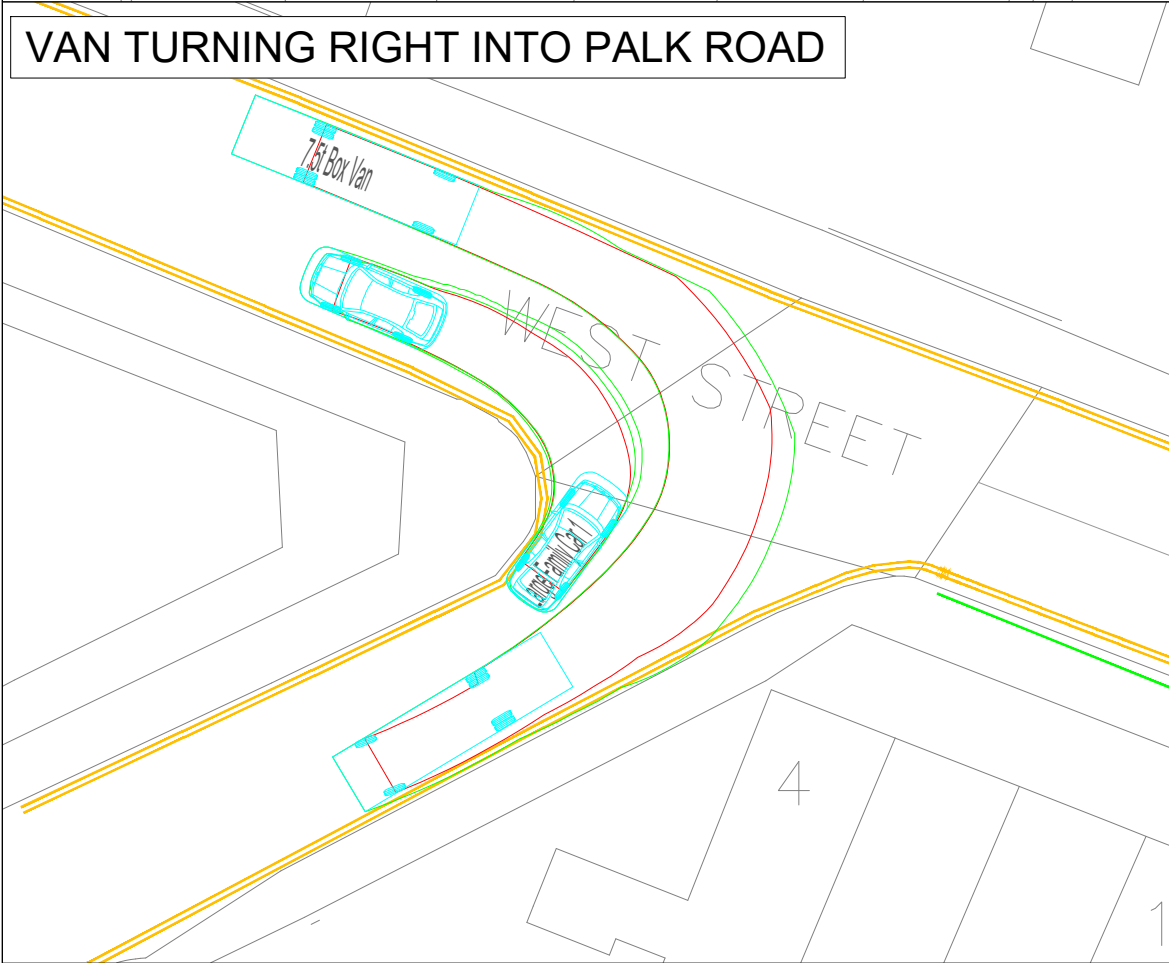
VAN TURNING LEFT INTO PALK ROAD



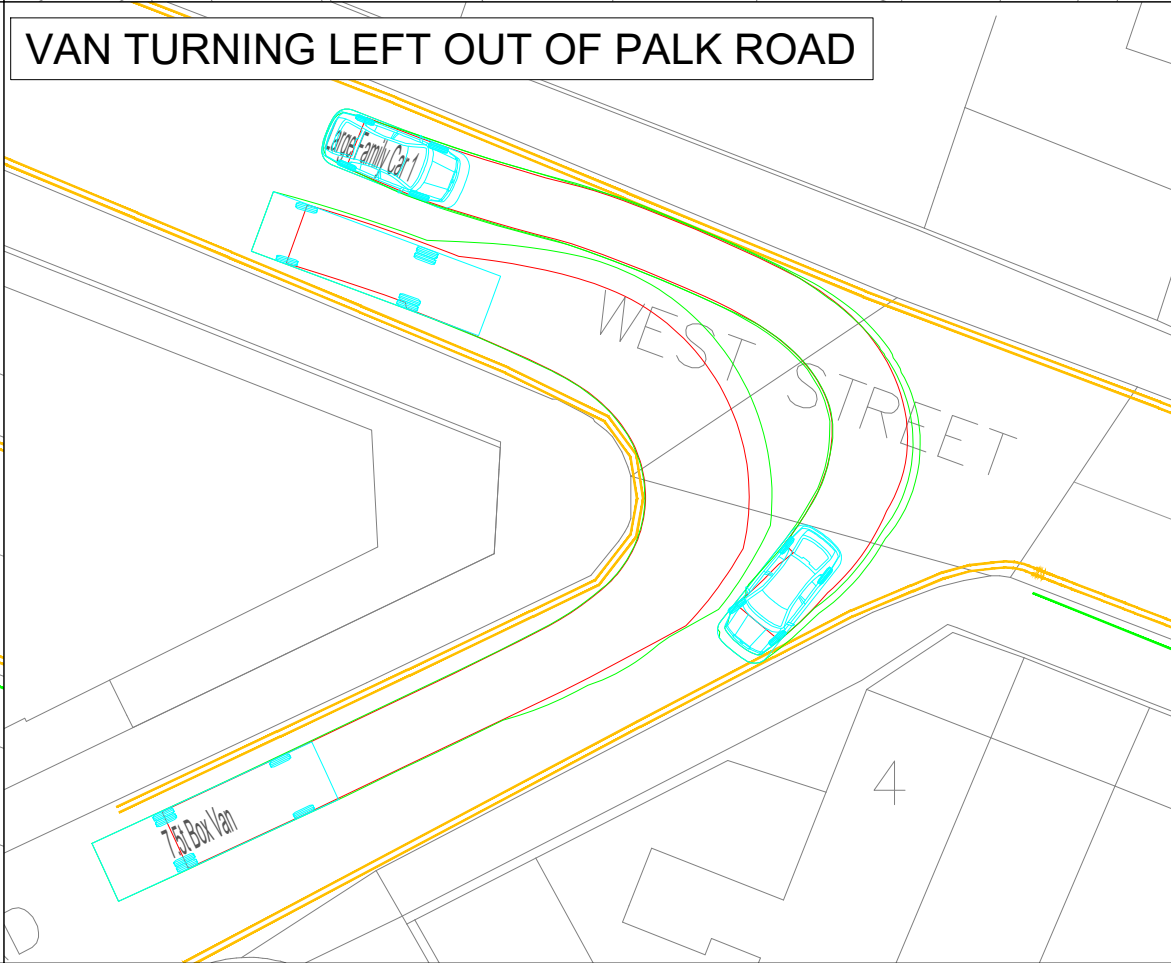
VAN TURNING RIGHT OUT OF PALK ROAD



VAN TURNING RIGHT INTO PALK ROAD



VAN TURNING LEFT OUT OF PALK ROAD

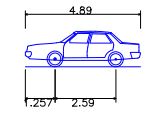


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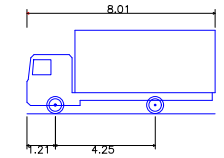
GENERAL NOTES

1. THIS DRAWING IS INTENDED TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SERVICES AND SPECIALIST DRAWINGS, DETAILS AND SPECIFICATIONS.
2. ANY VARIATIONS OR DISCREPANCIES BETWEEN THESE DRAWINGS IN TERMS OF DIMENSIONS OR DETAILS SHOULD BE DRAWN TO THE ATTENTION OF THE ARCHITECT AND/OR THE ENGINEER FOR CLARIFICATION.
3. ALL FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS. DO NOT SCALE THIS DRAWING.
4. PAUL BASHAM ASSOCIATES ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF BACKGROUND INFORMATION PRODUCED BY THIRD PARTIES – THIS MUST BE TREATED AS INDICATIVE ONLY.
5. THIS DRAWING SHOULD ONLY BE USED FOR CONSTRUCTION IF THE PROJECT PHASE IN THE TITLE FRAME BELOW IS SHOWN AS "CONSTRUCTION". PAUL BASHAM ASSOCIATES TAKE NO RESPONSIBILITY FOR CONSTRUCTION WORKS UNDERTAKEN TO DRAWINGS WHICH ARE NOT MARKED UNDER THIS PHASE.
6. VEHICLES ARE TRACKED AT 10MPH.

VEHICLE PROFILE



Large Family Car 1
Overall Length 4.890m
Overall Width 1.940m
Overall Body Height 1.512m
Min Body Ground Clearance 0.273m
Max Track Width 1.890m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 5.100m



7.5t Box Van
Overall Length 8.010m
Overall Width 2.100m
Overall Body Height 3.556m
Min Body Ground Clearance 0.351m
Track Width 2.064m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 7.400m

Project Name	Title
LAND AT PALK ROAD, HAVANT	SWEPT PATH ANALYSIS PALK ROAD/WEST STREET JUNCTION
Project Phase	
PRELIMINARY	

--



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Client



P01	FIRST ISSUE	11.07.23	CID	JAM
Rev	Description	Date	By	App'd
	Date Created	Drawn By	Approved By	Suitability Code
	10.07.23	CID	JAM	-
	PBA Project Number	Scale	(AT A3)	
	043.0035	1:250		
PBA Drawing No:				Revision
043.0035-0007				P01

Appendix J

Junctions 9							
PICADY 9 - Priority Intersection Module							
Version: 9.0.2.5947 © Copyright TRL Limited, 2017							
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 770558 software@trl.co.uk www.trlsoftware.co.uk							
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution							

Filename: 043.0035 Palk Road Access - Review HCC Comments.j9

Path: P:\Southern\040-049\043 Bellway Homes\043.0035 Palk Road, Havant\Modelling

Report generation date: 14/09/2023 12:31:18

- »Baseline 2022, AM
- »Baseline 2022, PM
- »Baseline 2027, AM
- »Baseline 2027, PM
- »Baseline 2027 + Comitted Development , AM
- »Baseline 2027 + Comitted Development , PM
- »Baseline 2027 + Comitted Development + Development, AM
- »Baseline 2027 + Comitted Development + Development, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
Baseline 2022								
Stream B-AC	0.0	7.60	0.01	A	0.0	0.00	0.00	A
Stream C-AB	0.0	6.17	0.01	A	0.0	6.38	0.00	A
Baseline 2027								
Stream B-AC	0.0	7.63	0.01	A	0.0	0.00	0.00	A
Stream C-AB	0.0	6.14	0.01	A	0.0	6.37	0.00	A
Baseline 2027 + Comitted Development								
Stream B-AC	0.0	7.73	0.01	A	0.0	0.00	0.00	A
Stream C-AB	0.0	6.14	0.01	A	0.0	6.29	0.00	A
Baseline 2027 + Comitted Development + Development								
Stream B-AC	0.1	8.57	0.05	A	0.0	8.77	0.03	A
Stream C-AB	0.0	6.16	0.01	A	0.0	6.36	0.02	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

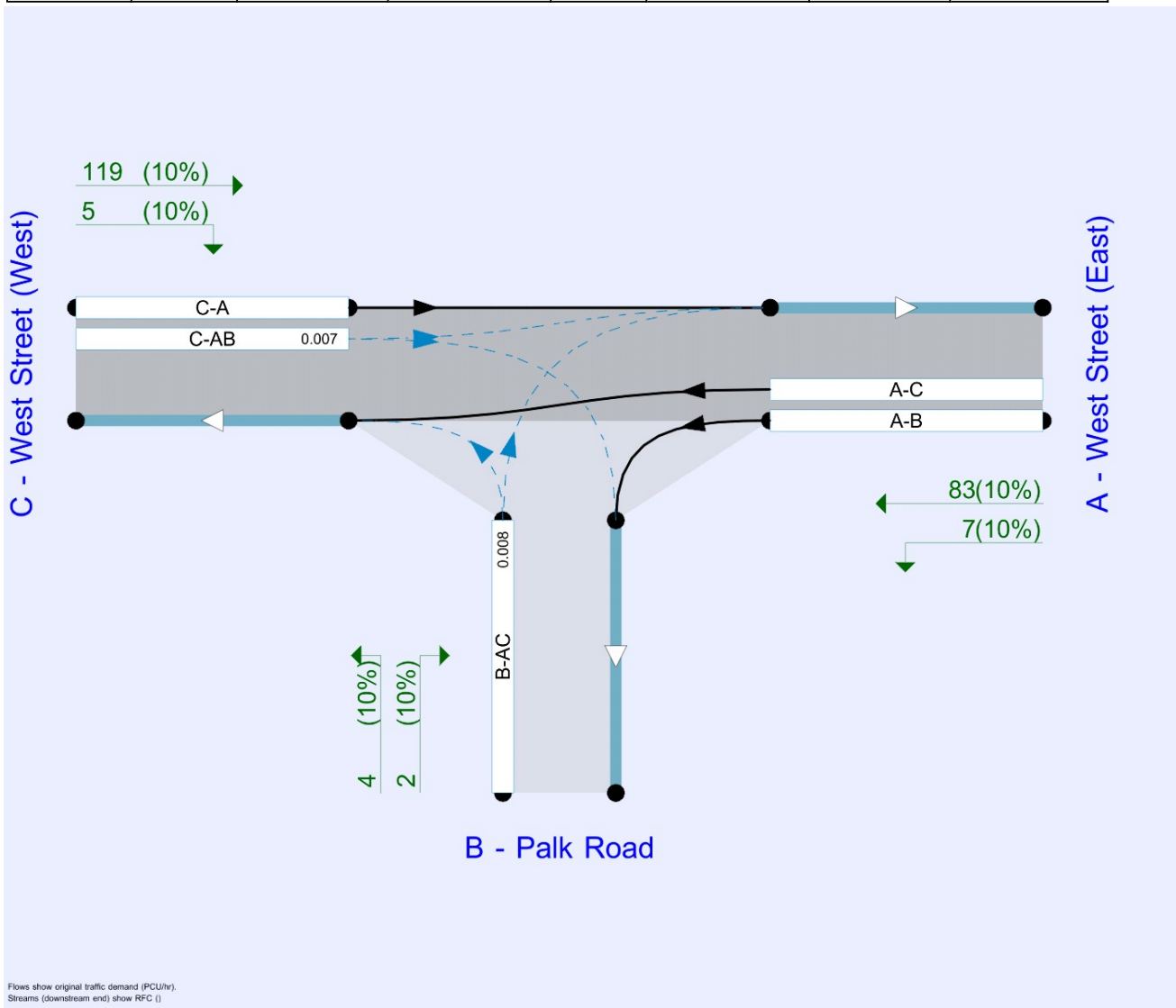
File summary

File Description

Title	Palk Road
Location	Havant
Site number	
Date	05/08/2022
Version	
Status	(new file)
Identifier	
Client	Bellway
Jobnumber	043.0035
Enumerator	AD\model.pc
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Baseline 2022	AM	ONE HOUR	07:45	09:15	15
D2	Baseline 2022	PM	ONE HOUR	16:45	18:15	15
D3	Baseline 2027	AM	ONE HOUR	07:45	09:15	15
D4	Baseline 2027	PM	ONE HOUR	16:45	18:15	15
D7	Baseline 2027 + Comitted Development	AM	ONE HOUR	07:45	09:15	15
D8	Baseline 2027 + Comitted Development	PM	ONE HOUR	16:45	18:15	15
D9	Baseline 2027 + Comitted Development + Development	AM	ONE HOUR	07:45	09:15	15
D10	Baseline 2027 + Comitted Development + Development	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

Baseline 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	West Street (East)		Major
B	Palk Road		Minor
C	West Street (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - West Street (West)	4.80			50.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Palk Road	One lane	2.60	25	25

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	478	0.092	0.232	0.146	0.331
1	B-C	614	0.099	0.250	-	-
1	C-B	603	0.246	0.246	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	Baseline 2022	AM	ONE HOUR	07:45	09:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	90	100.000
B - Palk Road		✓	6	100.000
C - West Street (West)		✓	124	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
	From			
	A - West Street (East)	0	7	83
	B - Palk Road	2	0	4
	C - West Street (West)	119	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
	From			
	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.01	7.60	0.0	A
C-AB	0.01	6.17	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	538	0.008	4	0.0	7.418	A
C-AB	4	647	0.007	4	0.0	6.164	A
C-A	89			89			
A-B	5			5			
A-C	62			62			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	534	0.010	5	0.0	7.492	A
C-AB	5	655	0.008	5	0.0	6.091	A
C-A	106			106			
A-B	6			6			
A-C	75			75			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	7	528	0.013	7	0.0	7.598	A
C-AB	7	667	0.010	7	0.0	5.993	A
C-A	130			130			
A-B	8			8			
A-C	91			91			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	7	528	0.013	7	0.0	7.598	A
C-AB	7	667	0.010	7	0.0	5.993	A
C-A	130			130			
A-B	8			8			
A-C	91			91			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	534	0.010	5	0.0	7.495	A
C-AB	5	655	0.008	5	0.0	6.094	A
C-A	106			106			
A-B	6			6			
A-C	75			75			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	538	0.008	5	0.0	7.418	A
C-AB	4	647	0.007	4	0.0	6.167	A
C-A	89			89			
A-B	5			5			
A-C	62			62			

Baseline 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.03	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	Baseline 2022	PM	ONE HOUR	16:45	18:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	190	100.000
B - Palk Road		✓	4	100.000
C - West Street (West)		✓	105	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	2	188
	B - Palk Road	1	0	3
	C - West Street (West)	104	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	6.38	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	496	0.000	0	0.0	0.000	A
C-AB	0.86	621	0.001	0.86	0.0	6.381	A
C-A	78			78			
A-B	2			2			
A-C	142			142			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	487	0.000	0	0.0	0.000	A
C-AB	1	625	0.002	1	0.0	6.343	A
C-A	93			93			
A-B	2			2			
A-C	169			169			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	476	0.000	0	0.0	0.000	A
C-AB	1	631	0.002	1	0.0	6.289	A
C-A	114			114			
A-B	2			2			
A-C	207			207			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	476	0.000	0	0.0	0.000	A
C-AB	1	631	0.002	1	0.0	6.289	A
C-A	114			114			
A-B	2			2			
A-C	207			207			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	487	0.000	0	0.0	0.000	A
C-AB	1	625	0.002	1	0.0	6.345	A
C-A	93			93			
A-B	2			2			
A-C	169			169			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	496	0.000	0	0.0	0.000	A
C-AB	0.86	621	0.001	0.86	0.0	6.383	A
C-A	78			78			
A-B	2			2			
A-C	142			142			

Baseline 2027, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.36	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	Baseline 2027	AM	ONE HOUR	07:45	09:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	95	100.000
B - Palk Road		✓	6	100.000
C - West Street (West)		✓	131	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	7	88
	B - Palk Road	2	0	4
	C - West Street (West)	126	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.01	7.63	0.0	A
C-AB	0.01	6.14	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	537	0.008	4	0.0	7.436	A
C-AB	4	649	0.007	4	0.0	6.139	A
C-A	94			94			
A-B	5			5			
A-C	66			66			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	532	0.010	5	0.0	7.514	A
C-AB	5	659	0.008	5	0.0	6.062	A
C-A	112			112			
A-B	6			6			
A-C	79			79			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	7	526	0.013	7	0.0	7.626	A
C-AB	7	671	0.010	7	0.0	5.958	A
C-A	137			137			
A-B	8			8			
A-C	97			97			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	7	526	0.013	7	0.0	7.626	A
C-AB	7	671	0.010	7	0.0	5.961	A
C-A	137			137			
A-B	8			8			
A-C	97			97			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	532	0.010	5	0.0	7.517	A
C-AB	5	659	0.008	5	0.0	6.064	A
C-A	112			112			
A-B	6			6			
A-C	79			79			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	537	0.008	5	0.0	7.439	A
C-AB	4	649	0.007	4	0.0	6.141	A
C-A	94			94			
A-B	5			5			
A-C	66			66			

Baseline 2027, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	Baseline 2027	PM	ONE HOUR	16:45	18:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	201	100.000
B - Palk Road		✓	4	100.000
C - West Street (West)		✓	111	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	2	199
	B - Palk Road	1	0	3
	C - West Street (West)	110	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	6.37	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	493	0.000	0	0.0	0.000	A
C-AB	0.87	623	0.001	0.86	0.0	6.369	A
C-A	83			83			
A-B	2			2			
A-C	150			150			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	484	0.000	0	0.0	0.000	A
C-AB	1	627	0.002	1	0.0	6.328	A
C-A	99			99			
A-B	2			2			
A-C	179			179			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	472	0.000	0	0.0	0.000	A
C-AB	1	633	0.002	1	0.0	6.271	A
C-A	121			121			
A-B	2			2			
A-C	219			219			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	472	0.000	0	0.0	0.000	A
C-AB	1	633	0.002	1	0.0	6.271	A
C-A	121			121			
A-B	2			2			
A-C	219			219			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	484	0.000	0	0.0	0.000	A
C-AB	1	627	0.002	1	0.0	6.328	A
C-A	99			99			
A-B	2			2			
A-C	179			179			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	493	0.000	0	0.0	0.000	A
C-AB	0.87	623	0.001	0.87	0.0	6.369	A
C-A	83			83			
A-B	2			2			
A-C	150			150			

Baseline 2027 + Comitted Development , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.32	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	Baseline 2027 + Comitted Development	AM	ONE HOUR	07:45	09:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	119	100.000
B - Palk Road		✓	6	100.000
C - West Street (West)		✓	140	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	7	112
	B - Palk Road	2	0	4
	C - West Street (West)	135	5	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.01	7.73	0.0	A
C-AB	0.01	6.14	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	532	0.008	4	0.0	7.505	A
C-AB	4	650	0.007	4	0.0	6.136	A
C-A	101			101			
A-B	5			5			
A-C	84			84			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	526	0.010	5	0.0	7.599	A
C-AB	6	659	0.008	6	0.0	6.058	A
C-A	120			120			
A-B	6			6			
A-C	101			101			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	7	519	0.013	7	0.0	7.734	A
C-AB	7	672	0.011	7	0.0	5.952	A
C-A	147			147			
A-B	8			8			
A-C	123			123			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	7	519	0.013	7	0.0	7.734	A
C-AB	7	672	0.011	7	0.0	5.952	A
C-A	147			147			
A-B	8			8			
A-C	123			123			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	526	0.010	5	0.0	7.602	A
C-AB	6	659	0.008	6	0.0	6.060	A
C-A	120			120			
A-B	6			6			
A-C	101			101			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	5	532	0.008	5	0.0	7.505	A
C-AB	4	650	0.007	4	0.0	6.136	A
C-A	101			101			
A-B	5			5			
A-C	84			84			

Baseline 2027 + Comitted Development , PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	Baseline 2027 + Comitted Development	PM	ONE HOUR	16:45	18:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	213	100.000
B - Palk Road		✓	4	100.000
C - West Street (West)		✓	131	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	2	211
	B - Palk Road	1	0	3
	C - West Street (West)	130	1	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.00	0.00	0.0	A
C-AB	0.00	6.29	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	490	0.000	0	0.0	0.000	A
C-AB	0.89	631	0.001	0.88	0.0	6.286	A
C-A	98			98			
A-B	2			2			
A-C	159			159			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	480	0.000	0	0.0	0.000	A
C-AB	1	637	0.002	1	0.0	6.230	A
C-A	117			117			
A-B	2			2			
A-C	190			190			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	467	0.000	0	0.0	0.000	A
C-AB	1	645	0.002	1	0.0	6.151	A
C-A	143			143			
A-B	2			2			
A-C	232			232			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	467	0.000	0	0.0	0.000	A
C-AB	1	645	0.002	1	0.0	6.151	A
C-A	143			143			
A-B	2			2			
A-C	232			232			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	480	0.000	0	0.0	0.000	A
C-AB	1	637	0.002	1	0.0	6.230	A
C-A	117			117			
A-B	2			2			
A-C	190			190			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	0	489	0.000	0	0.0	0.000	A
C-AB	0.89	631	0.001	0.89	0.0	6.289	A
C-A	98			98			
A-B	2			2			
A-C	159			159			

Baseline 2027 + Comitted Development + Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.87	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	Baseline 2027 + Comitted Development + Development	AM	ONE HOUR	07:45	09:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	122	100.000
B - Palk Road		✓	23	100.000
C - West Street (West)		✓	142	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	10	112
	B - Palk Road	12	0	11
	C - West Street (West)	135	7	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.05	8.57	0.1	A
C-AB	0.01	6.16	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	503	0.034	17	0.0	8.156	A
C-AB	6	649	0.010	6	0.0	6.158	A
C-A	101			101			
A-B	8			8			
A-C	84			84			

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21	496	0.042	21	0.0	8.327	A
C-AB	8	658	0.012	8	0.0	6.084	A
C-A	120			120			
A-B	9			9			
A-C	101			101			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	25	487	0.052	25	0.1	8.566	A
C-AB	10	671	0.015	10	0.0	5.985	A
C-A	146			146			
A-B	11			11			
A-C	123			123			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	25	487	0.052	25	0.1	8.568	A
C-AB	10	671	0.015	10	0.0	5.985	A
C-A	146			146			
A-B	11			11			
A-C	123			123			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	21	496	0.042	21	0.0	8.328	A
C-AB	8	659	0.012	8	0.0	6.084	A
C-A	120			120			
A-B	9			9			
A-C	101			101			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	17	503	0.034	17	0.0	8.162	A
C-AB	6	649	0.010	6	0.0	6.158	A
C-A	101			101			
A-B	8			8			
A-C	84			84			

Baseline 2027 + Comitted Development + Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	C - West Street (West) - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	West Street/Palk Road	T-Junction	Two-way	0.43	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	Baseline 2027 + Comitted Development + Development	PM	ONE HOUR	16:45	18:15	15

Default vehicle mix	Vehicle mix source	PCU Factor for a HV (PCU)
✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - West Street (East)		✓	222	100.000
B - Palk Road		✓	12	100.000
C - West Street (West)		✓	137	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
From	A - West Street (East)	0	11	211
	B - Palk Road	6	0	6
	C - West Street (West)	130	7	0

Vehicle Mix

Heavy Vehicle Percentages

From	To			
		A - West Street (East)	B - Palk Road	C - West Street (West)
	A - West Street (East)	10	10	10
	B - Palk Road	10	10	10
	C - West Street (West)	10	10	10

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.03	8.77	0.0	A
C-AB	0.02	6.36	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9	488	0.019	9	0.0	8.268	A
C-AB	6	629	0.010	6	0.0	6.356	A
C-A	97			97			
A-B	8			8			
A-C	159			159			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	11	478	0.023	11	0.0	8.473	A
C-AB	8	635	0.012	8	0.0	6.314	A
C-A	115			115			
A-B	10			10			
A-C	190			190			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13	465	0.028	13	0.0	8.772	A
C-AB	10	643	0.015	10	0.0	6.256	A
C-A	141			141			
A-B	12			12			
A-C	232			232			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	13	465	0.028	13	0.0	8.772	A
C-AB	10	643	0.015	10	0.0	6.256	A
C-A	141			141			
A-B	12			12			
A-C	232			232			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	11	478	0.023	11	0.0	8.474	A
C-AB	8	635	0.012	8	0.0	6.317	A
C-A	115			115			
A-B	10			10			
A-C	190			190			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	LOS
B-AC	9	488	0.019	9	0.0	8.272	A
C-AB	6	629	0.010	6	0.0	6.356	A
C-A	97			97			
A-B	8			8			
A-C	159			159			