Technical Note 03

Project:	**Highways England Spatial Planning Arrangement 2016-2020**	Job No:	**60600479 DF006.002**
Subject:	**Aquind Interconnector-Review WSP TN HE01 & HE02**		
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Executive Summary

This Technical Note (TN03) summarises a review on behalf of Highways England of WSP's 'Technical Note HE01-Response to Highways England Note TN02' and 'Technical Note HE02-Response to Highways England Comments' in support of the proposed Aquind Interconnector on-shore works. The review considers the documents submitted by WSP in response to AECOM's TN02 dated 22nd January 2020 and AECOM's email to WSP dated 4th May 2020. Following the review of the documents submitted by WSP, AECOM make the following recommendations.

Recommendations regarded as critical to the agreement in principle of the planning application:

1. With regard to A3(M) Junctions 2 and 3, lane simulation should be used within ARCADY as a sensitivity test (paras 3.5 and 3.11) and these sensitivity tests should be undertaken before the results of the modelling are accepted (para 3.7 and 3.14).

2. Further work should be carried out at A3(M) Junction 2 and Junction 3 to quantify the impact of Aquind Interconnector for the following scenarios (para 3.19):

    - Without the committed development referred to at para 3.16 and without its mitigation scheme;
    - With the committed development and with its mitigation scheme.

Recommendations regarded as important but not critical to the agreement in principle of the planning application:

3. For both access and egress at the Farlington playing fields with regard to over sized vehicles, traffic management should be used (para 2.9).

4. Access by a 20t tipper/11.7m rigid vehicle at the Farlington playing fields should also take place under traffic management control (para 2.10).

5. Proposed restrictions on the movement of HGV's during peak periods will still need to be more robust and should be formalised as protective provisions in the DCO (para 2.16).

6. The promoter of the Aquind Interconnector should work collaboratively with Highways England to co-ordinate matters such as temporary traffic signage in the event that the construction phases of the M27 J4 – J11 Smart Motorway Project and Aquind Interconnector scheme overlap (para 2.22).

7. Once a construction contractor is appointed, the exact details of the construction phasing and duration of works should be provided (para 2.35).

8. With regard to A3(M) Junction 2, the flow diagrams or the models should be corrected to ensure that these are consistent, and that clarification is provided. Furthermore, there appears to be no flows from A3(M) south to Dell Piece East and confirmation should be provided that this is correct (para 3.2).

9. With regard to A3(M) Junction 2, the AM peak ARCADY analysis for this junction should be provided (para 3.3).

10. With regard to A3(M) Junction 3, there appears to be no flows from A3(M) south to Hulbert Road East, and confirmation should be provided that this is correct (para 3.9).

AECOM advise Highways England to continue to work with WSP, Hampshire County Council, Portsmouth City Council and other stakeholders to resolve the issues identified, with a view to reaching an agreed position in advance of the forthcoming DCO Hearing.

This should include further, more detailed, scrutiny of technical material identified in this TN which relates to specific areas of work which are likely to be of particular interest to Highways England.

1. Introduction

1.1. AECOM, on behalf of Highways England, have undertaken a review of WSP's 'Technical Note HE01-Response to Highways England Note TN02' and 'Technical Note HE02-Response to Highways England Comments' in support of the proposed Aquind Interconnector on-shore works. The review considers the documents submitted by WSP in response to AECOM's TN02 dated 22nd January 2020 and AECOM's email sent to WSP, 4th May 2020.

1.2. The Aquind Interconnector is a proposed cross-channel electricity cable, which will make landfall at Southsea (Portsmouth) and access the National Grid at a converter station at Lovedean, to the north of Denmead. The cable will cross the A27 Trunk Road to the east of its junction with the A2030 Eastern Road.

1.3. AECOM understand that the engineering aspects of providing a cable crossing at this point are to be dealt with by Highways England's maintaining agent and that AECOM's input into the process relates primarily to the traffic capacity and road safety implications of the wider project on the Strategic Road Network (SRN).

1.4. AECOM previously reviewed seven documents provided in advance of the DCO application (ref EN020022) being made. These were:

- Preliminary Environmental Information Report (PEIR), dated February 2019;
- The SRTM Data Analysis Report (SRTM DAR), dated September 2019: This provides a summary of the output from a run of the Solent Area Sub-Regional Transport Model (the SRTM) and provides details of the potential impact of the proposals at a number of locations on and close to the SRN within the South Hampshire area.
- The SRTM DAR contained a copy of the draft Transport Assessment Scoping Note (TASN), dated June 2019.
- Environmental Statement (ES) Chapter 22 Transport & Traffic Chapter (ES T&T Chapter) dated 14 November 2019;
- ES Appendix 22.1 - Transport Assessment (TA) dated 14 November 2019;
- ES Appendix 22.1A – Framework Traffic Management Strategy (FTMS) dated 14 November 2019; and
- ES Appendix 22.2 - Framework Construction Traffic Management Plan (FCTMP) dated 14 November 2019.

1.5. AECOM's previous review is documented in TN02, dated 22nd January 2020, which made a number of recommendations. After an initial review of WSP's HE01, AECOM sought further detail and clarification on a number of issues via an email sent to WSP on the 4th May 2020. WSP have responded to the contents of this email in response HE02. The purpose of this TN is to consider whether HE01 and HE02 address AECOM's previous concerns appropriately and therefore determine whether the potential impact of the proposal on the strategic road network (SRN) has been reasonably assessed. This TN will consider whether the impact of the development on the SRN is thought to be material and, following the analysis of the impact, whether measures are required to mitigate the impact of the development on the SRN.

1.6. For ease of reference, AECOM's main comments and recommendations are presented in bold and underlined text throughout the note. Recommendations regarded as critical to the acceptability of this planning application are coloured **red.** Recommendations that are of concern but not critical to agreement of this planning application, which AECOM anticipate can be resolved at a subsequent stage of the project, are highlighted in **amber.** Recommendations that are considered to be resolved are coloured **green.**

2. Recommendations previously identified in AECOM's TN02

AECOM Recommendation 1.

The use of the access from the A27/ A2030 roundabout to the Farlington Marshes car park for construction traffic should be explicitly excluded.

WSP Response:

2.1. As further detailed in AECOM's TN02, para 22.1.2.25 of the ES T&T Chapter states that: 'Horizontal Directional Drilling ('HDD') will be used to cross under the A27'. Furthermore para 22.10 of the ES T&T Chapter illustrates in general terms the proposal is to gain access for the construction of the HDD section through the Farlington Playing Fields and para 1.3.5.39 confirms that the existing access road serving the playing fields will be used to gain access to the work site.

2.2. AECOM previously suggested that there was no reference to access being gained from the south side of the A27/ A2030 junction, through the Farlington Marshes car park access. For clarity, AECOM recommended that the use of this access should be explicitly excluded. WSP's HE01 confirms that that access to work site HDD3 will be taken from the A2030 Eastern Road/ Farlington Playing Fields site access junction and not from the Farlington Marshes Car Park. Furthermore, it is to be noted that work site HDD4 is also to be accessed in part through Farlington Playing Fields. **Recommendation 1 is therefore considered to be resolved.**

AECOM Recommendation 2.

Explicit reference should be made to Circular 02/2013 so that Highways England can be assured that its requirements will be met.

WSP Response:

2.3. As further detailed in AECOM's TN02, Section 22.2.3 of the ES T&T Chapter contained a list of National Policies that applied to the project. This included reference to the National Planning Policy Framework (NPPF), but it did not refer to DfT Circular 02/2013 as well as Highway's England's 'The Strategic Road Network: Planning for the Future (a guide to working with Highway's England on planning matters)'. AECOM recommend in AECOM's TN02 that reference should be made to DfT Circular 02/2013 and Highways England's 'Planning for the future' document in the document so that Highways England can be assured that its requirements will be met.

2.4. In WSP's HE01, reference has been made to DfT Circular 02/2013 as well as Highway's England's 'The Strategic Road Network: Planning for the Future (a guide to working with Highway's England on planning matters)'. AECOM consider that the documents outlined in HE01 are relevant policy documents for review therefore, **Recommendation 2 is considered to be resolved.**

AECOM Recommendation 3.

The consultation material referred to at ES T&T Chapter 22.3.2 appears not to be contained in Appendix 22.2. and its location should be clarified.

WSP Response:

2.5. Section 22.3.2.1 of the ES T&T Chapter refers to consultations that have taken place. Consultation with Highways England took place on:

- 22nd May 2018 – a meeting to discuss the project in general;
- 31st May 2019 – a meeting to provide a general project update and discuss the scope of the Transport Assessment.

2.6. Section 22.3.2.1 of the ES T&T Chapter states that Appendix 22.2 contains a summary of consultation undertaken and the outcome of discussions however AECOM were unable to find this material in Appendix 22.2 and recommended that its location should be clarified.

2.7. WSP's HE01 states that the consultation material referred to at ES T&T Chapter 22.3.2 is provided within Appendix 22.3 Consultation Responses (Environmental Statement Document APP451). Furthermore, a copy of APP-451 has been provided by WSP in Appendix 1 of HE01. **Recommendation 3 is therefore considered to be resolved.**

AECOM Recommendation 4.

In respect of the proposed use of the existing access from the A2030 to the Farlington Playing Fields, the following considerations should be addressed:

- The adequacy of the current layout of this junction or whether any modifications are required to accommodate the vehicles bringing the HDD drilling equipment and taking away spoil – this should be confirmed through the provision of HGV swept path plots;
- The capacity of the right turn into the site and confirmation using a PICADY model that there is minimal risk of a queue of traffic tailing back out on to the northbound carriageway of Eastern Road;
- The acceptability of the current in/out arrangements in which vehicles leaving Farlington Playing Fields must return to Eastern Road via either the Holiday Inn access or the Petrol Filling Station Forecourt;
- The impact of traffic generated by this site access on the A2030/ Walton Road traffic signals and the risk of a queue tailing back towards the A27; and
- The impact on the A27/ A2030 junction of U-turns generated by users of this site access wishing to return north towards Farlington.

WSP Response:

2.8. The construction work sites are all accessed off the Local Road Network and no direct accesses are proposed on the SRN, however as further detailed in AECOM's TN02, Highways England required assurance that the access to the Farlington Playing Fields work site is adequate to accommodate the types and numbers of vehicles anticipated to use it.

2.9. In HE01, WSP provided a swept path plot for an over-sized HGV accessing and egressing Farlington Playing Fields. It is to be noted that these vehicles will access and egress using the same access point and will only access the site once or twice during the works period. **AECOM recommend that for both access and egress of these vehicles, and as suggested in HE01, traffic management is used which would provide a safe and controlled means of access.**

2.10. After an initial review of the swept paths contained in HE01 AECOM requested, in their email dated 4th May 2020, HGV swept path plots for the standard-sized HGVs that will need to access Farlington Playing Fields on a regular basis. WSP's HE02 provides HGV swept path plots to show that standard-sized HGVs can access and egress the playing fields. The swept path plots provided in Appendix 2 of HE02 show a 20t tipper vehicle entering the Farlington Playing Fields via the A2030 access north of the PFS and exiting via the loop road which serves the Holiday Inn to re-join the A2030 south of the PFS. In addition, WSP have subsequently provided swept paths for a 11.7m rigid vehicle accessing and egressing the playing fields These swept paths appear to be reasonable. The design vehicle appears able to enter and leave the site without over-running kerbs or adjoining traffic lanes. However, the vehicle does take up the whole width of the access road serving the playing fields themselves, and **AECOM therefore recommend that access by this size of vehicle should also take place under traffic management control.**

2.11. WSP state in HE01 that due to the limited number of right turners into the Farlington Playing Fields (numbers in the peak hour are anticipated to be of the order of 1-2 heavy goods vehicles per hour, with workforce trips occurring outside of the peak hours), the capacity of the right turn into Farlington Playing Fields car park and the signal-controlled junction with the A2030 Eastern Road / Walton Road will not be affected. Likewise, HE01 states that given the low level of forecast vehicle movements, it is not expected that there will be any queuing back to the signal-controlled roundabout with the A27 Havant Bypass / A2030 Eastern Road. AECOM accept this response.

2.12. AECOM had previously queried the impact on the A27/ A2030 junction of U-turns generated by users of this site access wishing to return north towards Farlington. WSP in HE01 state that it is not anticipated that any construction traffic will need to perform U-turns at this junction, since it will all arrive and leave to/ from the south. **Recommendation 4 can be considered to be resolved.**

AECOM Recommendation 5.

Dependent upon the scale of the impact reported in the TA, the proposed restrictions on the movement of heavy goods vehicles (HGVs) during peak periods may need to be modified to be more robust. In any case, they should be formalised as protective provisions in the DCO.

WSP Response:

2.13. As further detailed in AECOM's TN02, para 1.8.3.3 and Table 47 of the TA sets out the proposed working hours of the construction sites and para 1.8.3.4 sets out hours of work restrictions on HGVs delivering to the sites.

2.14. In general, it was stated that HGVs carrying construction materials will either arrive at 07:00 or between 09:00 and 17:00 and will therefore be timed to avoid the conventional peak hours. However, the TA acknowledged that some equipment/ material may be transported away from the sites at 17:00. For the HDD sites (such as that immediately to the north of the A27/ A2030 junction) the proposal was to avoid moving HGVs between 08:00 – 09:00 and 17:00 – 1800 (TA para 1.8.3.4). In AECOM's TN02, AECOM suggested that dependent upon the scale of the impact reported in the TA, these restrictions may need to be modified to be more robust and, in any case, it was recommended that they should be formalised as protective provisions in the DCO.

2.15. WSP's HE02 states that, since submission of the TA, the assumption applied to the movement of construction worker trips has changed. HE02 states that at submission the assumption was that all construction workers associated with the Onshore Cable Corridor would arrive at the Converter Station Area compound between 06:00-07:00 and depart between 18:00-19:00 to reflect the 07:00 to 17:00 working day at each Cable Route construction location and taking account of travel time between the Converter Station and construction location. However, HE02 now states that that the 07:00 to 17:00 working day is inclusive of arrival and departure times at the Converter Station Area compound. HE02 details the construction worker trips that are likely to occur between 17:00 and 18:00 in proximity to the Converter Station and A3(M) Junction 2.

2.16. Due to the potential impact at A3(M) Junction 2 and A3(M) Junction 3 detailed later in this report, **AECOM recommend that the proposed restrictions on the movement of HGV's during peak periods will still need to be more robust and should be formalised as protective provisions in the DCO.**

AECOM Recommendation 6.

The significance of the impact of the proposals on the A27/A2030 junction and at other A3(M) and A27 junctions within the study area should be documented.

WSP Response:

2.17. As further detailed in AECOM's TN02, section 22.6.5 of the ES T&T Chapter summarises in general terms the anticipated impacts of the proposals on the highway network. The impacts at A3(M) Junction 2 and at the A27/ A3 Portsbridge Roundabout are rated 'Significant' whilst at A3(M) Junction 3 they are rated 'Negligible'. No impact rating was stated at the A27/ A2030 junction or at the other A3(M) and A27 junctions located within the study area. AECOM previously recommend that the significance of the impact of the proposals on the A27/A2030 junction and at other A3(M) and A27 junctions within the study area should be documented.

2.18. As detailed earlier in this report, a justification for not providing a junction capacity models of the A2030/ Farlington Playing Fields access junction, the A27/A2030 roundabout and the A2030/ Walton Road junction has been provided by WSP (due to the low level of forecast vehicle movements). With regard to the impact of the proposals at other A3(M) and A27 junctions, this is detailed later on this report.

2.19. It is to be noted that WSP have provided information with regard to junction capacity modelling undertaken at A3(M) Junctions 2 and 3 and this is again detailed later in this report. **This issue can therefore be considered resolved, subject to the accuracy of the analyses provided.**

AECOM Recommendation 7.

The potential cumulative impact of this project with the M27 J4 – J11 Smart Motorway Project should be considered and its omission from the document justified.

WSP Response:

2.20. As further detailed in AECOM's TN02, a number of committed developments and infrastructure schemes have been included in the SRTM model run. However, AECOM stated that there appeared to be no reference in either the ES T&T Chapter or the TA to the potential cumulative impact of the Aquind Interconnector with the M27 J4 – J11 Smart Motorway scheme, should their construction periods overlap. AECOM recommended that this omission should be justified.

2.21. WSP's HE01 states that the installation of the Onshore Cable Corridor is unlikely to affect the smart motorway works. HE01 states that it is proposed that the Onshore Cable Corridor would pass under the SRN (via Horizontal Directional Drilling) at the section of the A27 Havant Bypass next to Farlington Playing Fields and the grade separated roundabout interchange with the A2030 Eastern Road which is approximately 10km east of Junction 11 and not within the scheme extents of the smart motorway works on the M27. Consequently, WSP state that the works would not impact on the smart motorway scheme and the effect of any temporary traffic redistribution would be limited and has been substantiated by WSP by the numbers highlighted in Table 1 of HE01.

2.22. WSP state that the majority of construction traffic associated with the Onshore Cable Corridor would only travel between the cable gangs and the site compound using the A3(M) and A27 Havant Bypass as required and that the M27 would not be affected other than in relation to occasional material deliveries. AECOM consider this to be reasonable however **recommend that the promoter of the Aquind Interconnector work collaboratively with Highways England to co-ordinate matters such as temporary traffic signage in the event that the construction phases of the two schemes overlap.**

AECOM Recommendation 8.

A local junction capacity model should be provided of the A27/ A2030 junction.

WSP Response:

2.23. AECOM previously stated that there was no rationale given in the TA for the exclusion of the A27/A20030 junction from the junction capacity modelling study. As stated earlier in this report, a justification has now been provided (due to the low level of forecast of vehicle movements at this junction). Indeed, Appendix 4 of HE02 indicates a net reduction in the use of this junction during the construction works, presumably due to drivers re-assigning away from the A2030 corridor to avoid the works. Therefore **Recommendation 8 is now considered resolved.**

AECOM Recommendation 9.

In respect of the following junctions, evidence should be provided as to why it was not necessary to include local junction capacity models of these junctions:

- M27 Junction 12 grade separated junction;
- M27 Junction 12 roundabout junction with A3 Southampton Road;
- A3(M) Junction 4;
- A3(M) Junction 5; and
- The dumb-bell junction linking A3(M) junction 5 with the A27 east.

WSP Response:

2.24. With regard to the junctions above, traffic flows were provided in Table 2 of HE01. Following a review of Table 2 AECOM sought further clarification on the units used in the traffic flows as they appeared to be too high to be peak hourly flows but too low to be AADTs (as suggested by Table 2). Furthermore, AECOM sought clarification with regard to the peak periods.

2.25. HE02 states that the traffic flows provided in Table 2 of HE01 refer to peak periods for the AM (07:00-10:00) and PM (16:00-19:00). The peak hourly traffic flows have been provided in the table presented in Appendix 4 of HE02, which presents a comparison of SRTM forecast traffic flows on the Strategic Road Network between the DM, DS1 and DS2 scenarios.

2.26. WSP state that the majority of slip roads and approaches connecting to the SRN, across the seven assessed junctions listed above are forecast to experience a reduction in traffic or an increase in traffic of less than 2%. HE02 state that such increases are not considered significant and therefore are not expected to impact on the operational capacities of these junctions.

2.27. Furthermore, WSP state as the works will be temporary in nature and that the assessed scenarios are an indication of a worst-case scenario (when the most disruptive traffic management is in place simultaneously) a robust assessment has been undertaken. WSP also state that the measures contained within the Framework Traffic Management Strategy (APP-450: 6.3.22.2 Environmental Statement - Volume 3 - Appendix 22.2), will ensure that such a situation should not arise, meaning that the cumulative impact of redistributing traffic will be less than what has been forecast. WSP state that the overall the effect of traffic redistribution from the outputs of the SRTM forecasts does not appear to be concentrated on the SRN and appears to be fairly dispersed across the network.

2.28. It is to be noted that Highways England do not use thresholds to determine the need for a junction capacity assessment but instead assess the requirement on a case by case basis. WSP consider that the proposals are predicted to have a limited impact on traffic flows using the junctions highlighted above, both in absolute and percentage terms. The largest increase predicted is 121 vehicles per hour at M27 Junction 12 in the PM peak (an increase of 1.5%) and the largest single increase on a Trunk Road or Motorway slip road is 89 vehicles per hour (7.7%) on the east-to-south slip road from M27 to M275 at M27 J12, again in the PM peak.

2.29. Whilst increases of this magnitude might normally trigger a need for a junction capacity model, given the limited timescale over which they will apply, and the inherent uncertainty over which alternative routes drivers will actually take in response to traffic management works on the Local Road Network, **AECOM accept that no further work is required to quantify the impact of these traffic flow changes at this group of junctions. This issue is therefore resolved**.

AECOM Recommendation 10.

Local junction capacity models of the following junctions should also be considered (or alternatively evidence provided as to why it was not necessary to include them):

- The A2030/ Walton Road traffic signal-controlled junction; and
- The junction between the A2030 and the access road serving the Farlington Playing Fields/ Holiday Inn.

WSP Response:

2.30. AECOM in TN02 recommend that local junction capacity models of the above-named junctions should also be considered (or alternatively evidence provided as to why it was not necessary to include them).

2.31. WSP state in HE01 that as part of the analysis undertaken for the Transport Assessment (APP-448: 6.3.22.1 Environmental Statement - Volume 3 - Appendix 22.1), none of the approaches at the junctions detailed above were forecast to experience an increase in traffic of 10% or more and neither of these junctions have a V/C of over 100% in one or both of the DS scenarios.

2.32. Furthermore, WSP state that the number of construction vehicles accessing Farlington Playing Fields is anticipated to be minimal (circa 1-2 per hour) and HGV construction traffic will occur outside of the peak periods. WSP also state that the flows along the A2030 Eastern Road to and from the roundabout with the A27 Havant Bypass are forecast to decrease in all scenarios.

2.33. AECOM are satisfied with this justification and therefore **Recommendation 10 is now considered resolved.**

AECOM Recommendation 11.

The intended duration of individual location-specific elements of the work (for example the work at HDD-3, where the cable run crosses under the A27) should be explicitly stated.

WSP Response:

2.34. As noted in AECOM's TN02, the intended duration of individual location-specific elements of the work (for example the work at HDD-3, where the cable run crosses under the A27) was not explicitly stated. WSP's HE01 states that the duration of the six HDD sites are detailed in Table 3.6 of the Description of the Proposed Development (APP-118: 6.1.3 Environmental Statement - Volume 1 Chapter 3) and a copy of this has been provided in Table 4 of HE01.

2.35. After an initial review of the information in Table 4 of HE01 AECOM requested confirmation whether the 31 weeks duration of works at site HDD3 and the 26 weeks at site HDD4 listed in Table 4 of HE01 will be sequential (i.e. 56 weeks in total) or concurrent. HE02 states that works on sites HDD3 and HDD4 are likely to occur concurrently. WSP state that until a construction contractor is appointed, the exact details of construction phasing and duration of works will not be known. Therefore, the approximation provided by WSP is a best estimate of construction duration at this stage of the design. **AECOM recommend that once a construction contractor is appointed, the exact details of the construction phasing and duration of works is provided.**

3. Other Matters (Those not already covered in the review above and further detailed in AECOM's email to WSP dated 4 May 2020)

AECOM Item 3.

Please confirm whether the 1-2 vehicles per hour referred to at para 7.3.1.5 includes workforce-related trips or whether these are just HGV trips. If these are just HGV trips, please provide an estimate of workforce-related vehicle movements.

WSP Response:

3.1. HE02 states that Para 7.3.1.5 of HE01 refers to HGV construction vehicles which will carry a proportion of the required workforce to site and that the remaining workforce will travel to site by minibus and work vans generating two trips at the start and end of each shift. Furthermore HE02 states that daily working hours at the HDD-3 site will be based on 12-24 hour shifts, with worker changeovers occurring at 07:00 and 19:00 and where 12-hour shifts are used, there will be approximately 12 construction vehicle trips per day and where 24-hour shifts are used this will double to 24 construction vehicle trips per day. WSP have now provided an estimate of workforce-related vehicle movements and the numbers of vehicles involved are either minimal; or the shift-changes take place outside of the conventional peak hours. Therefore **Item 3 is now considered resolved.**

AECOM Item 4.

In respect of A3(M) Junctions 2 and 3, please provide copies of the ARCADY models referred to at para 9.1.1.2, in both PDF form and as Junctions9 files, together with the source of geometric and traffic flow data for these models, i.e. annotated layout drawings and traffic flow diagrams, so that we can undertake a technical review of the modelling and fully understand the results. In the TA these junctions are reported as generating significant queueing on the A3(M) slip roads and Highways England will want to be confident in your assertion that there is no risk of these queues extending back on to the main carriageways of the A3(M)

WSP Response:

A3(M) Junction 2

3.2. Based on the calculations undertaken by AECOM, there appear to be some minor discrepancies between the flows found in the flow diagrams and those included in the models. For example the left turn from arm 3 to arm 34 (link 1006 – 1004) is shown as 703 vehicles in the matrix of traffic flows but 727 in the ARCADY model. There are other examples of the same order of magnitude. **It is recommended that either the flow diagrams or the models are corrected to ensure that these are consistent, and that clarification is provided. Furthermore, there appear to be no traffic flows from A3(M) south to Dell Piece East, AECOM recommend confirmation that this is correct.**

3.3. **AECOM note that the AM peak ARCADY analysis for this junction has not been undertaken/ provided and recommend that this is provided.**

3.4. The modelling of the junction geometry is considered acceptable by AECOM

3.5. However, lane simulation has not been undertaken at this junction as a sensitivity test. AECOM note the relative imbalance of the left and right turn on arms 2 (A3 (M) South) and 4 (A3(M) North). There appears to be no evidence of road markings or traffic signs to encourage divers to use both lanes. **AECOM therefore recommend that lane simulation is used within ARCADY as a sensitivity test at this junction, following which confirmation should be provided that the predicted queues on the A3(M) slip roads can still be accommodated within the length of the slip roads.**

3.6. The results of the current set of model runs are summarised in Table 1 below.

Table 1: A3(M) Junction 2 model results

	AM			PM		
A3 (M) Junction 2	**RFC**	**Queue Length (PCU)**	**Delay (S)**	**RFC**	**Queue Length (PCU)**	**Delay (S)**
2026 DM						
Dell Piece East	N/A	N/A	N/A	0.40	8	4
A3 (M) South	N/A	N/A	N/A	0.89	8	24
B2149 Dell Piece West	N/A	N/A	N/A	0.61	2	4
A3 (M) north	N/A	N/A	N/A	0.93	12	28
2026 DS1						
Dell Piece East	N/A	N/A	N/A	0.44	1	5
A3 (M) South	N/A	N/A	N/A	0.98	21	57
B2149 Dell Piece West	N/A	N/A	N/A	0.58	2	4
A3 (M) north	N/A	N/A	N/A	0.93	12	30
2026 DS2						
Dell Piece East	N/A	N/A	N/A	0.44	1	5
A3 (M) South	N/A	N/A	N/A	0.98	21	56
B2149 Dell Piece West	N/A	N/A	N/A	0.58	2	4
A3 (M) north	N/A	N/A	N/A	0.93	13	31

3.7. The critical arms for Highways England are the two A3 (M) off slips. In the absence of the traffic associated with the Aquind construction phase, both of these approaches are predicted to operate beyond their design capacity. The additional traffic resulting from the Aquind works in both the DS1 and DS2 scenarios is predicted to result in both A3(M) approaches operating further over their design capacity and close to their theoretical capacity, in particular the A3(M) South approach in the PM peak, when queues are expected to increase by over 13 PCUs and in total equate to approximately 120m in both the DS1 and DS2 future scenario. The slip roads are approximately 315m long (northbound) and 230m long (southbound). Whilst this predicted queue length would therefore not stretch back to the mainline carriageway, it is based on a standard model run of ARCADY in which both lanes on the slip roads are available to all traffic. A sensitivity test using lane simulation is likely to reveal a higher concentration of traffic in the busier lane of each slip road, leading to a longer queue in that lane. The resulting queue could potentially result in a severe impact on the operation of the SRN. **This sensitivity test should be undertaken before the results of the modelling are accepted**.

3.8. WSP state that this situation is reflective of the worst-case traffic management scenario assessed within the SRTM and therefore the operation of the above assessed junctions is more likely to improve upon the results presented. To minimise impact and ensure the worst-case scenario does not materialise, WSP states that the FTMS outlines a construction programme that prevents works being undertaken in close proximity to one another, thereby reducing the cumulative impacts of the construction works to a level below that assessed. An approach which AECOM welcomes. However, it does not overcome the need for a sensitivity testing described above.

A3(M) Junction 3

3.9. Based on the calculations undertaken by AECOM, the traffic flows in the model appear to correctly apply the flows in the matrices. However, **there appear to be no flows from A3(M) south to Hulbert Road East, AECOM recommend confirmation is provided that this is correct.**

3.10. The modelling of the junction geometry is considered acceptable by AECOM.

3.11. Once again it is to be noted that lane simulation has not been undertaken at this junction as a sensitivity test. AECOM note the relative imbalance of the left and right turn on arms 2 (A3 (M) South) and 4 (A3(M) North). There appears to be no evidence of road markings or traffic signs to avoid using both lanes. **AECOM therefore recommend that lane simulation is used within ARCADY as a sensitivity test at this junction.**

3.12. The results of the current set of model runs are summarised in Table 1 below.

Table 1: A3(M) Junction 3 model results

	AM			PM		
A3 (M) Junction 3	**RFC**	**Queue Length (PCU)**	**Delay (S)**	**RFC**	**Queue Length (PCU)**	**Delay (S)**
2026 DM						
Hubert Road East	0.35	1	3	0.38	1	4
A3 (M) South	0.73	3	9	0.79	4	11
Hubert Road West	0.71	3	5	0.54	1	3
A3 (M) north	0.89	8	27	1.00	29	65
2026 DS1						
Hubert Road East	0.37	1	3	0.42	1	4
A3 (M) South	0.81	5	13	0.87	7	19
Hubert Road West	0.70	3	5	0.50	1	3
A3 (M) north	0.85	6	20	0.99	26	59
2026 DS2						
Hubert Road East	0.37	1	3	0.41	1	4
A3 (M) South	0.80	4	13	0.87	7	19
Hubert Road West	0.70	3	5	0.50	1	3
A3 (M) north	0.85	6	20	0.99	26	60

3.13. The critical arms for Highways England are the two A3 (M) off slips. Prior to the addition of the proposals traffic the A3 (M) north arm is predicted to operate over its design capacity in both the AM and PM peak and at its absolute theoretical capacity in the PM peak. The impact of the proposal in both the DS1 and DS2 scenario is predicted to result in a slight reduction in the RFC both the AM and PM peaks.

3.14. With regard to the A3 (M) north arm, whilst this predicted queue length in the PM peak (circa 150m) would not stretch back to the mainline carriageway (circa 200m), it is based on a standard model run of ARCADY in which both lanes on the slip roads are available to all traffic. A sensitivity test using lane simulation is likely to reveal a higher concentration of traffic in the busier lane of each slip road, leading to a longer queue in that lane. The resulting queue could potentially result in a severe impact on the operation of the SRN. **This sensitivity test should be undertaken before the results of the modelling are accepted**.

AECOM Item 5.

In respect of A3(M) Junctions 2 and 3, are you aware of any committed developments in the vicinity, and/or any proposed schemes to upgrade these junctions and, if so, how have you accounted for this in the modelling.

WSP Response:

3.15. HE02 states that a Technical Note 'SRTM Coding Note' (contained in Appendix B of ES Appendix 22.1, Examination Library Reference: APP-448) was prepared prior to submission which set out the scope and inputs for use within the SRTM modelling to support the Transport Assessment. WSP state that the final version took account of feedback from both Portsmouth City Council (PCC) and Hampshire County Council (HCC). Table 1 of HE02 illustrates the major committed development sites included.

3.16. In terms of committed transport schemes, HE02 states that the SRTM included the signalisation of the A3(M) northbound off-slip approach to the Junction 3 roundabout. HE02 states that improvements are also proposed for the A3(M) Junction 2 as part of a development at Land East of Horndean, Rowlands Castle Road, Horndean, which proposes 800 dwellings and other complimentary uses. Both the consented scheme (55562/001), approved in 2016, and a revised scheme awaiting decision following planning committee held on 11 June 2020 (55562/005), included proposals to signalise A3(M) Junction 2. WSP note that the SRTM assumptions did not include this mitigation scheme, however it did include the demand generated by the proposed development. WSP conclude that given that the junction has been modelled within the Aquind Transport Assessment in its existing form without this mitigation, and no capacity concerns have been reported under such assessment, it is considered that a robust approach has also been taken for the modelling of this junction.

3.17. As stated above, AECOM do not yet agree that the junctions concerned necessarily operate within capacity once the impact of unequal lane usage is taken into account. Since the traffic flows used include the traffic generated by these committed developments, but the junction capacity models do not include their mitigation schemes, it is not possible to establish with any certainty what the net impact of the proposed Aquind Interconnector construction phase will be in either of the following scenarios:

- Without the committed development and without its mitigation scheme;
- With the committed development and with its mitigation scheme.

3.18. It is possible that either of these scenarios would result in a more favourable outcome than that currently presented in the TA. However, as things stand, the analysis has not shown conclusively that there will not be a severe impact at either A3(M) Junction 2 or A3(M) Junction 3 during the construction phase of the Aquind interconnector.

3.19. **AECOM therefore recommend that further work should be carried out to quantify the impact of Aquind Interconnector in each of the scenarios listed above.**

AECOM Item 7.

Please advise to what extent has the modelling undertaken to date been agreed with the two Local Highway Authorities, Hampshire County Council and Portsmouth City Council.

WSP Response:

3.20. WSP state that the 'SRTM Coding Note' (contained in Appendix B of ES Appendix 22.1, Examination Library Reference: APP-448) was issued in draft for HCC and PCC review on 12 June 2019. WSP state that this document was discussed as part of preapplication scoping meetings with HCC and PCC on 20 June, 3 and 10 July 2019 and feedback received was incorporated into a revised version issued on 12 July 2019.

3.21. Upon issue of the final version, WSP state that further comments were invited within a reasonable timeframe and to ensure project progress could be maintained, WSP advised that should no further comments be received within this period, it would be assumed that a scoping agreement had been reached. As no further comments were received, WSP state that the SRTM modelling was subsequently undertaken in accordance with the assumptions set out in the 'SRTM Coding Note'. WSP conclude that since submission of the DCO, further discussions have been held with both HCC and PCC concerning transport matters and no request for further strategic traffic modelling has been received. AECOM are satisfied with the WSP response and **Item 7 is now considered resolved.**

4. Conclusion

4.1. AECOM, on behalf of Highways England, have undertaken a review of WSP's 'Technical Note HE01-Response to Highways England Note TN02' and 'Technical Note HE02-Response to Highways England Comments' in support of the proposed Aquind Interconnector on-shore works. The review considers the documents submitted by WSP in response to AECOM's TN02 dated 22nd January 2020 and AECOM's email sent to WSP, 4th May 2020.

4.2. For ease of reference, AECOM's main comments and recommendations are presented in bold and underlined text throughout the note. Recommendations regarded as critical to the acceptability of this planning application are coloured **red.** Recommendations that are of concern but not critical to agreement of this planning application, which AECOM anticipate can be resolved at a subsequent stage of the project, are highlighted in **amber.** Recommendations that are considered to be resolved are coloured **green.**

4.3. **AECOM advise Highways England to continue to work with WSP, Hampshire County Council, Portsmouth City Council and other stakeholders to resolve the issues identified, with a view to reaching an agreed position in advance of the forthcoming DCO Hearing.**

4.4. **This should include further, more detailed, scrutiny of technical material identified in this TN which relates to specific areas of work which are likely to be of particular interest to Highways England.**